

A Place Called Langley Field

National Significance in American Military and Civil Aviation

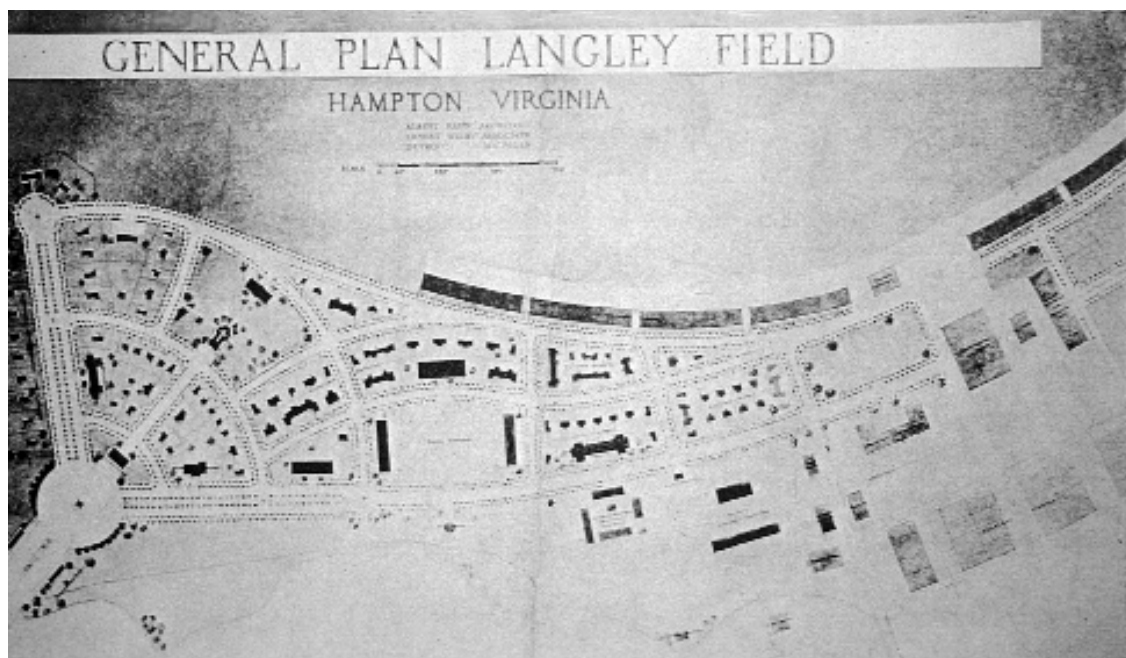
One of the most significant places in our nation's aviation history is found in southern Virginia at Hampton, just down the peninsula from Williamsburg, Yorktown, and Jamestown. The airfield known historically as Langley Field played a unique role in the development of American aviation. Now known as Langley Air Force Base (AFB), it is the Headquarters of Air Combat Command (ACC), the largest major command in the United States Air Force (USAF). Reorganization of USAF after the end of the Cold War integrated most of Strategic Air Command and all of Tactical Air Command into a single new major command. ACC controls all fighter aircraft based in the continental United States, all bombers, reconnaissance platforms, battle management resources, and intercontinental ballistic missiles.

Langley AFB requested assistance from the National Park Service Southeast Regional Office in Atlanta, Georgia, to survey its cultural

resources and nominate eligible properties to the National Register of Historic Places, in compliance with Section 110 of the National Historic Preservation Act. Work required for the project was quite different than planned in the original scope of work. After the survey was underway, it became clear that the historic context needed to evaluate Langley's cultural resources was national in scope, not just a local or state context. Also, two different federal agencies have occupied Langley since its establishment in 1917 and still have facilities there—the USAF as well as the National Aeronautics and Space Administration (NASA). Survey and nomination of NASA's cultural resources at Langley were not part of the original project.

Much has been written about Langley over the years, but USAF histories focused on Army aviation and USAF activities at Langley, and NASA histories have concentrated on the NACA (National Advisory Committee for Aeronautics, NASA's predecessor organization) and NASA.

Original Site Plan (1917) for Langley Field, Virginia. Courtesy 1st Civil Engineer Squadron, Langley AFB, Virginia.



The NPS study brought a new perspective to Langley's history because it considered all historic aviation-related resources and activities at Langley, and evaluated them in a relevant historic context. Two contexts were required, both national in scope—the history of American military aviation and the history of American aviation.

Origins

In December 1916, the land that became Langley Field was the first property ever purchased by the United States for aviation purposes. The War Department bought the site for the Army's young air "arm" to build an Aeronautical Experimental Station and Proving Ground, an airfield for aeronautical research, experiments, and flight tests. An air base for national defense purposes was not yet conceived in the early years of aviation.

After construction was underway at the new experimental station, the Army set aside a section of Langley Field for the National Advisory Committee for Aeronautics, an independent agency established in 1915 to advance American aeronautics. The NACA began construction of its first aeronautical laboratory at Langley Field in 1917. It was the federal government's first and only civilian aeronautical laboratory in the 1920s and 1930s, the "Golden Age" of aviation between the world wars.

In April 1917, the United States entered the first world war, and wartime mobilization altered Army plans for Langley Field. The Army transferred most of its aeronautical work from Langley to an early Army airfield in Dayton, Ohio (McCook Field, a predecessor of Wright-Patterson AFB). Langley's new Army mission was military, rather than aeronautical research, and it became an air station with coastal defense responsibilities. The NACA, however, retained its aero-

autical laboratory at Langley. This change in the Army's mission broadened the influence of Langley Field, making it a key airfield in the history of American aviation, military and civil. Aeronautical research at the NACA's Langley Laboratory was crucial to the development of American aviation. Army aviation activities at Langley Field were critical to the development of American air power and also led to independence for the Army air arm, which eventually became the U. S. Air Force.

Organization of Army Aviation

In 1907, the Army established military aviation in the Signal Corps because observation and reconnaissance were the only functions for the airplane known to the military. During the first world war, Gen. John J. Pershing, commander of American forces in Europe, removed Army aviation from Signal Corps control. He established an Air Service of the American Expeditionary Force, which clearly proved its effectiveness in supporting ground troops. But the war ended before military aviation could demonstrate it was a powerful, independent striking force—real air power.

The organization (and, therefore, the control) of Army aviation was a controversial problem that dominated the postwar period. Old-line conservative military leaders, especially the War Department General Staff, favored organization of Army aviation merely to support ground troops. Younger airmen, including pioneer thinkers like Brig. Gen. William "Billy" Mitchell, saw the potential of an air force with its own strategic mission. They wanted to conduct independent operations, and they also wanted a new organization separate but equal to the Army and the Navy. Top military brass at the War and Navy Departments were united in opposing any kind

of independence for Army aviation, and fought every effort "to increase the power or prestige of the air arm."¹ This power struggle greatly affected Army aviation and development of American air power, and took all of the interwar years to resolve. Against this backdrop, Army aviation's development at Langley after the Armistice was especially remarkable. Langley Field became the hub of the Army Air Service and the Army Air Corps, with no rivals for its position as the air arm's principal airfield.

Secretary of War Weeks (in civilian clothes) and Generals Pershing and Mitchell (second and third from right) at Langley Field. The airplane, a Martin bomber, was the type that sank the warships. U.S. Army Air Service photo in Aircraft Year Book, 1922.





Headquarters Building (1919), Langley Field, Virginia. Courtesy Curt Teich Postcard Archives/Lake County (IL) Museum.

Organization at Langley Field

Langley's pivotal role began in 1919 when the Army located key components of its postwar aviation organization at the airfield. The War Department authorized two wings for the Army Air Service, and stationed the headquarters and key units of the Second Wing at Langley Field. By the spring of 1923, President Harding's strict economic policy eliminated the First Wing and left the Second Wing as the only one in the Air Service. The Second Wing's premier unit was the Second Bombardment Group, based at Langley from 1922 until 1942. This basic combat unit of the Air Service and the Air Corps was Army aviation's only bombardment group in the early years. It is generally credited with development of heavy bombardment, also known as strategic bombardment and air power.

Langley Field became the center of Army aviation tactical training² after the Second Bombardment Group arrived. In 1922, a National Guard aviation unit began summer camp field training at Langley, and the Guardsmen usually flew old Curtiss JN-4 trainers (Jennies) from the first world war. A report by Maryland's 104th Observation Squadron clearly illustrated the airfield's status at that time. The squadron did not take its Jennies to Langley, where the pilots flew real service planes, because that would have been "like taking a ham sandwich to a banquet."³

Battleship Bombing

Brig. Gen. William "Billy" Mitchell was a well-known, controversial Air Service leader after WWI. He saw the potential of air power in Europe during the war, and proposed a test of airplanes against warships shortly after his appointment to the Director of Air Service's staff.

Mitchell was sure he could demonstrate that airplanes with bombs had made battleships obsolete—at that time there was little information about aerial attacks on war vessels. Eventually the Army agreed to participate in tests controlled by the Navy, the "naval ordnance tests." They became more popularly known as the battleship bombing tests, a landmark in American military history that the Air Service conducted out of Langley Field in the summer of 1921.

Mitchell wanted well-prepared airmen and began training at Langley Field way before the tests received official approval. The Navy trained for the tests just across the James River at Norfolk, and the Hampton Roads area was the site of the "greatest aerial activity in the country"⁴ since the Great War. The 1st Provisional Air Brigade organized at Langley with 250 planes and 1,000 men, many transferred from other stations and posts. They practiced with dummy and live bombs in the Chesapeake Bay and in nearby marshlands on an outline of a 600-foot battleship. The Army did not even have a bomb big enough to sink a battleship, so Mitchell's ordnance specialist designed 2,000- and 4,000-pound bombs. At that time, they were the largest bombs ever made.⁵

Remnants of the German imperial fleet, acquired by the Navy under the terms of the Versailles peace treaty, provided targets for the tests. They were anchored on the 50-fathom line off the coast of Virginia, requiring the airplanes to cross 75 miles of open water with heavy bomb loads. Navy admirals were confident that airplanes could not sink battleships. They planned for Mitchell's failure to have a large audience and "show as many Congressmen as possible how little could be done by the air force."⁶ A day before the tests, a naval transport sailed from the Washington Navy Yard with the Secretaries of War and Navy, high Army and Navy officers, members of Congress, foreign diplomats, and about 50 newspaper correspondents and photographers.

The first target was a German submarine that sank 16 minutes after Navy seaplanes bombed it. Mitchell's brigade got their first shot at *Frankfurt*, a light cruiser that sank 35 minutes after they dropped the first 600-pound bomb. The last and most formidable target was a huge dreadnought, *Ostfriesland*, a floating fortress with heavy steel walls. Army, Marine, and Navy planes began operations on July 20, but they were

restricted to small bombs. The next day, Mitchell's Martin bombers dropped their first 2,000-pound bomb, and *Ostfriesland* sank in 21-1/2 minutes. That night General Mitchell threw a big party at the Langley Officers Club.

The tests did not demonstrate conclusively to War and Navy leaders that battleships were obsolete, but these and other bombing tests conducted from Langley in the 1920s proved military aviation was a powerful striking force on its own, and fueled the air arm's drive for independence from the Army. The Navy also reconsidered the importance of military aviation, and formed the Navy Bureau of Aeronautics immediately after the bombing tests. Mitchell's outspoken promotion of air power led eventually to his conviction by court-martial (ironically on December 17, 1925). He resigned from the Air Service in 1926, but by World War II Billy Mitchell was widely recognized as a visionary and prophet of air power.

Air Doctrine

The first school in the world to teach the tactics of military aviation opened at Langley Field in November 1920. It was also the first Army school for professional education of air officers, whose educational opportunities were not comparable to those for officers of other arms of the service. The school was first called the Air Service Field Officers School, but it became the Air Service Tactical School in 1922 due to a shortage of field officers (major and above).

The Tactical School played a critical role in development of Army air doctrine. In 1921, Maj. William C. Sherman wrote the school's first major text, *Air Tactics*, "a classic Air Service text on air doctrine,"⁷ followed by a 1922 school manual titled *Fundamental Doctrine of the Air Service*.⁸ Initially the school's doctrinal texts followed concepts officially imposed by the military establishment—success in war depended strictly on the infantry and all air operations were auxiliary to the ground battle. But by the mid-1920s, Tactical School instructors began to write the air doctrine that Army airmen really believed, and it was "a far different concept of the nature of war and the role of airpower."⁹ Air doctrine attained its final, detailed form after the school relocated to Maxwell Field in Montgomery, Alabama in 1931, but Langley Field was the breeding ground for these visionary and revolutionary ideas.

Aeronautical Research

Aeronautical research was indispensable in the development of American aviation. The NACA's first aeronautical lab opened at Langley Field in 1918 and, according to the Smithsonian's National Air and Space Museum, "in the years 1928–1938, no other institution in the world contributed more to the definition of the modern airplane than the Langley Laboratory of the U.S. National Advisory Committee for Aeronautics." It is known today as the mother lab of all NASA's research centers. The aviation *CRM* in 2003 will include an article about this laboratory's exceptional significance.

Historic Buildings

A cultural resources survey brought the National Park Service to Langley AFB in the first place. The survey report listed more than 35 buildings constructed between 1917 and 1920, and they are the oldest and largest group of permanent buildings historically associated with the Army air arm (which became the USAF in 1947 after 40 years in the Army). Langley has the oldest housing (duplexes for officers' families, quarters for bachelor officers and visiting officers), the oldest administrative headquarters (which also housed the Tactical School in the 1920s), and the oldest buildings for support of military aviation operations, including the oldest hangar.¹⁰ These buildings have architectural significance as well as historical significance. They are substantial, well-built, and most are examples of the Renaissance Revival or Tudor Revival styles of architecture. Many feature intricate brickwork patterns embellished with colored tiles. Detroit's Albert Kahn, a preeminent early-20th-century architect known primarily for his innovative work for the automobile industry, designed many of the buildings and the airfield layout.

During most of the 1920s, Langley's buildings were in great contrast to other Army air stations with deteriorating temporary buildings from the first world war. Five permanent buildings at historic Rockwell Field on North Island, San Diego, California, were the only exception. It was the Army's first permanent flying school (Signal Corps Aviation School). Langley may have become the hub of Army aviation in the 1920s, and the birthplace of American air power, because it was the only Army airfield at a crucial time with a sizable group of permanent buildings, specifically constructed for aviation purposes.



Building that housed the Atmospheric Wind Tunnel, the NACA's first wind tunnel (1920). Courtesy NASA Langley Research Center Photographic Archives.

Comprehensive evaluation of Langley's historic aviation properties raised several problematic issues. Most controversial were the evaluation of Langley Field's history and cultural resources within a relevant historic context (i.e., the history of American aviation) and the use of primary sources to document Langley Field's early years. Inclusion of NASA history and cultural resources in a "USAF project" has also been criticized.

History in the USAF generally focuses on leaders, missions, and units, and Air Force base histories are generally chronological and descriptive with little analysis or historic context information. Some at Langley AFB disagreed with the NPS evaluation of Langley's cultural resources from a new perspective, one that judged properties within their historic context, and concluded that Langley Field's historical significance was extraordinary.

A National Register nomination followed the survey work, and it documented Langley's origins and early years with primary sources and early histories of the airfield. It also examined Langley Field as a historic place, a center of aviation activities, not as the separate government installations that exist today. The NPS project was the first since World War II to encompass operations and contributions by both federal agencies at Langley, the Army, and the NACA (now the USAF and NASA). The last "joint" study was compiled by the Army Air Forces in 1944, and relied on an interview to document Langley Field's origins, then more than 25 years earlier in 1915–1916. The man interviewed, the NACA's first employee, was not always a reliable source according to NACA/NASA scholars. Even so, the National Register nomination's account of the airfield's origins received a mixed reaction at Langley because it differed from folklore that originated during WWII.

NPS documented a large historic district at Langley (more than 300 buildings) that is eligible for the National Register. In addition to its oldest buildings, Langley has a large number of buildings from Army and Air Corps construction programs in the late 1920s and the early 1930s—most old buildings at other historic USAF bases were constructed during that period. The proposed Langley Field Historic District also includes NASA's oldest wind tunnels, constructed by the NACA, as well as other unique and important historic aeronautical research facilities.

The project was completed in June 1995. National Register recognition of the Langley Field Historic District should help to make Langley's great historic significance more widely known, but so far the nomination has not been forwarded for listing. Not only is the Langley Field Historic District eligible for the National Register of Historic Places, its national significance in the history of American aviation merits designation as a national historic landmark.

Notes

- 1 Thomas H. Greer, *The Development of Air Doctrine in the Army Air Arm, 1917–1941* (Washington, DC: Office of Air Force History, 1985), 22.
- 2 There were no strategic units at that time. All units supported ground troops, i.e., they were tactical units. Langley was essentially the center of aviation combat training.
- 3 Mauer Mauer, *Aviation in the U.S. Army, 1919–1939* (Washington, DC: Office of Air Force History, 1987), 96.
- 4 *Aircraft Year Book, 1922* (New York City: Aeronautical Chamber of Commerce of America, Inc., 1922), 48.
- 5 David Nevin, *Architects of Air Power* (Alexandria, Virginia: Time-Life Books, 1981), 60.
- 6 William Mitchell, *Winged Defense: The Development and Possibilities of Modern Air Power—Economic and Military* (New York: G.P. Putnam's Sons, 1925), 43–44.
- 7 Mauer, 594.
- 8 Greer, 16.
- 9 *Ibid.*, 41.
- 10 Langley's hangar (1918) may have a rival at Brooks AFB in San Antonio, Texas. The Brooks hangar, a national historic landmark, also dates from 1918. Langley's hangar clearly has the edge in architectural significance and it has a twin (completed in 1919).

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