

EYES ON THE SKY:

America Enters the Airmail Age

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Shown here are two Curtiss JN-4H biplanes. Affectionately known as the “Jenny,” the Curtiss JN-4H was the first standard plane used by the Post Office Department during the exciting, early years of its daring US Airmail Service flights.



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SPREAD OUT ACROSS THE UNITED STATES are dozens of concrete arrows, each of which is seventy feet long and several feet wide. Modern travelers who stumble upon them are likely to be puzzled. What are they? Where did they come from? What do they mean? A few of these relics are accompanied by a fifty-one-foot metal tower and, perhaps, a small shack, but it is the fact that the arrows can be spotted from the air that is the greatest clue to their former purpose. These concrete arrows were once important directional markers used by early airmail pilots as they made their way across the United States by night. These daring pilots braved cold, darkness, and all sorts of foul weather to get the mail through to its final destination.

Eyes on the Sky

Many modern Americans might take for granted the speed and dependability of the US Postal Service, but postal service in the United States was not always speedy or dependable. In the nineteenth century, for example, mail by Pony Express from St. Joseph, Missouri, took ten

days to reach California. Mail traveling from New York to San Francisco took about thirty days to arrive by steamship, and mail sent across the continent by train took up to two weeks to reach its destination. By the late nineteenth century, the reliability of mail delivery in America had improved, but not the speed. Then, just eight years after the Wright brothers’ historic heavier-than-air flight at Kitty Hawk, North Carolina, in 1903, the status quo seemed poised for dramatic change.

With the advent of heavier-than-air flight, Americans’ eyes turned to the skies for a faster method of delivering mail. On September 23, 1911, the Post Office Department put on its first exhibition demonstrating the potential for using airplanes to deliver the mail. The demonstration took place at an air show being held on Long Island around Garden City, New York. The pilot chosen to make the pioneering flight was Earle L. Ovington.

On that day, Ovington made a short trip to the Long Island town of Mineola. While flying over the Mineola airfield, he tossed a mailbag out of the cockpit of his Queen monoplane. It was collected by the local postmaster and

became the first mail in US history to be delivered by air.

This route between Garden City and Mineola continued for a time and succeeded in transporting more than 32,000 postcards, nearly 4,000 letters, and more than 1,000 circulars. Other experimental flights carrying US mail took place in 1911 as well, and the following year, the success of these tests led the Post Office Department to petition Congress for \$50,000 (about \$1.26 million in today’s dollars) with which to establish a more regular, experimental airmail service project. Congress denied the request for funds; nonetheless, the Post Office Department approved thirty-one airmail flights in sixteen states in 1912.

It was not until 1916 that Congress appropriated \$50,000 with which to fund a commercial airmail service in the United States. A request for bids was issued, but there were no takers. The routes to be established were to have been in Massachusetts and Alaska, and the fact was that no suitable planes existed for such a venture. World War I, however, helped change this, bringing with it new technological developments in aviation. During the war, the airplane proved its worth on the battlefield, and in early 1918, the Post Office Department began experimenting more ambitiously with the idea of setting up airmail routes in the United States.

An Inauspicious Start

On May 15, 1918, the Post Office Department established what was to be the first scheduled airmail service in the United States. The idea was to demonstrate the efficacy of airmail delivery by flying mail between Long Island, New York, and Washington, DC. Using four US Army Air Service pilots and planes from the US Army Signal Corps, the Post Office Department flew one northbound and one southbound airmail route between the capital and Long Island. The northbound route had as its starting point the Polo Grounds in Washington, DC, while the southbound route began at Belmont Park race course on Long Island. Each route involved a stopover in Philadelphia, Pennsylvania, where the pilots and planes could be changed. The northbound portion of the initial test of the service, however, did not get off to a good start.

When US Army Air Service Lt. George Boyle attempted to take off from the Polo Grounds in Washington, his Curtiss JN-4 “Jenny” airplane refused to start. Mechanics soon discovered that the gas tank was empty, and with

Airmail pilot Earle Ovington, pictured here receiving a bag of mail from Postmaster General Frank H. Hitchcock, made the Post Office Department’s first airmail flight on September 23, 1911.



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On May 15, 1918, US Army Air Service pilot Lt. George Boyle (right) shown here with US Army Air Service pilot Maj. Reuben Fleet, became disoriented while flying from Washington, DC, to Philadelphia during one of the opening legs of the Post Office Department’s first scheduled airmail services.

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President Woodrow Wilson and other dignitaries looking on, the plane was hastily fueled. Twenty minutes later, Lieutenant Boyle was airborne and quickly became lost because of a broken compass. He attempted a landing in Maryland, where he intended to ask directions, but damaged his aircraft's propeller; that was the end of the first northbound airmail route test.

The southbound attempt was more successful. After lifting off without incident from Belmont Park, US Army Air Service Lt. Torrey Webb successfully flew his cargo of mail south to Philadelphia, where he handed it off to US Army Air Service Lt. James Edgerton, who completed the Philadelphia-to-Washington, DC, leg of the 218-mile southbound route. Following this partial success, one round-trip airmail service between New York and Washington, DC, was offered six days a week.

During this early service, the US Army Air Service provided the Post Office Department with planes, pilots, and mechanics and placed US Army Captain Benjamin B. Lipsner in charge of airplane maintenance. Lipsner was instrumental in standardizing the planes used by the Post Office Department's airmail service and relocated the service's base from Washington, DC, to College Park, Maryland. In July 1918, Second Assistant Postmaster General Otto Praeger offered Lipsner the position of superintendent of the US Airmail Service. Lipsner accepted the position and resigned his commission in the US Army. The following month, the Post Office Department assumed full responsibility for all aspects of its airmail service. Lipsner, however, soon clashed with Praeger and resigned his post with the US Airmail Service in December 1918.

During these early flights, the New York-to-Washington airmail route established a 90 percent success rate, but getting the mail to its destination wasn't the problem. The difficulty was inducing the public to use the service, which was very expensive. In 1918, first-class postage for a letter cost 3¢ (about 47¢ in today's currency); by comparison, airmail postage in 1918 was an incredible 24¢ (almost \$4 in today's dollars), or eight times the cost of sending a letter by first-class

mail. The simple fact was that flying mail over short distances saved little time compared to delivery by rail, and postal officials quickly realized that to save any significant amount of time, thereby making the service more attractive, delivery by air would need to involve much longer distances—ultimately across the entire continent. But first, a stable route had to be created.

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During the first scheduled airmail service in US history, US Army Air Service pilot Lt. Torrey Webb, pictured here receiving a cargo of mail from New York City Postmaster Thomas Patten, successfully flew his cargo of mail from New York to Philadelphia.



US Army Captain Benjamin B. Lipsner (second from right) is shown here with US Airmail Service pilot Max Miller and three unidentified people. In 1918, Lipsner was in charge of airplane maintenance for the Post Office Department, and in the middle of that year, he resigned his commission to become the Post Office Department's superintendent of the US Airmail Service.

The Curtiss JN-4 "Jenny"

ALTHOUGH EARLE L. OVINGTON, THE US Airmail Service pilot who carried the first mail to be delivered by air in the United States, flew a Queen monoplane, the first plane used officially by the Post Office Department was the Curtiss JN-4 biplane. Developed during World War I as a training plane for pilots and manufactured from 1917 to 1925, the JN-4 was known to aviators as the "Jenny."

The Curtiss JN-4D was the basic airframe used by the Post Office Department for airmail service from 1918 to 1921. The JN-4D was normally equipped with a 90-horsepower engine, but the US Army Air Service, which supplied the planes, pilots, and mechanics used in the department's early airmail experiments, acquired six JN-4Ds and had them fitted with 150-horsepower Hispano-Suiza engines and a mail compartment located forward of the cockpit. In this configuration the plane was known as the JN-4H. It could carry a payload consisting of 180 pounds of mail, had a range of about 280 miles, and could reach speeds of up to ninety-four miles per hour.

The Curtiss JN-4H was almost the perfect plane for the Post Office Department's early attempts to establish an airmail service. At a cost of about \$8,000 apiece (about \$126,000 in today's dollars), it was relatively cheap and was generally regarded as highly versatile and easy to fly. The Jenny, however, had its drawbacks, one of which was the fact that it could be difficult to land because of its large wings. The Jenny's carburetor also put out strong vibrations, leading early US Airmail Service pilot Ernest M. Allison to quip: "I always considered it a very safe airplane, because the carburetor would vibrate the airplane so badly that it would shake the ice off the wings." Although the Jenny performed with distinction during the Post Office Department's coast-to-coast day-and-night airmail experiment in early 1921, technology had moved on and in July 1921, the Curtiss JN-4H Jenny was officially replaced as the Post Office Department's standard airmail plane by the more robust DeHavilland DH-4.

—JS

Omaha, Nebraska, with a stopover in Iowa City, Iowa. The transcontinental route was completed when the fourth and final leg opened in September 1920. This section, which was designed to carry mail from Omaha to San Francisco, California, made stops in North Platte, Nebraska; Cheyenne, Rawlins, and Rock Springs, Wyoming; Salt Lake City, Utah; and Elko and Reno, Nevada.

This transcontinental route succeeded in shaving an amazing twenty-two hours off the time it took to deliver mail over a similar route by train (the entire journey by train took no less than four and one-half days). But there was a catch. At this point, the mail was not being flown day and night. It was being flown during the day only. During the dangerous nighttime portions of the journey, the mail was being transported by trains, which could run both day and night. Despite the decrease in delivery time achieved by the air-by-day, rail-by-night method, it was obvious that to truly challenge delivery by rail, airmail planes needed to fly day and night. This was an unheard-of and dangerous proposition for pilots in the early twentieth century, but the Post Office Department was not deterred, nor were its courageous air service pilots.

Beginning on February 22, 1921, the Post Office Department staged an experiment to demonstrate that mail could, indeed, be transported across the country by air both by day and by night. Accordingly, four batches of mail were sent across the country, two sets going east from San Francisco and two going west from Long Island. In the end, both batches of westbound mail failed to reach the West Coast solely by air when they were grounded by a snowstorm that developed in Chicago. One of the two eastbound loads of mail made it to Chicago but was also stopped by the snow. Only one load of mail, one of those sent east from San Francisco, succeeded in making the entire 2,629-mile journey across the United States by air, and the trip was fraught with loss and great danger.

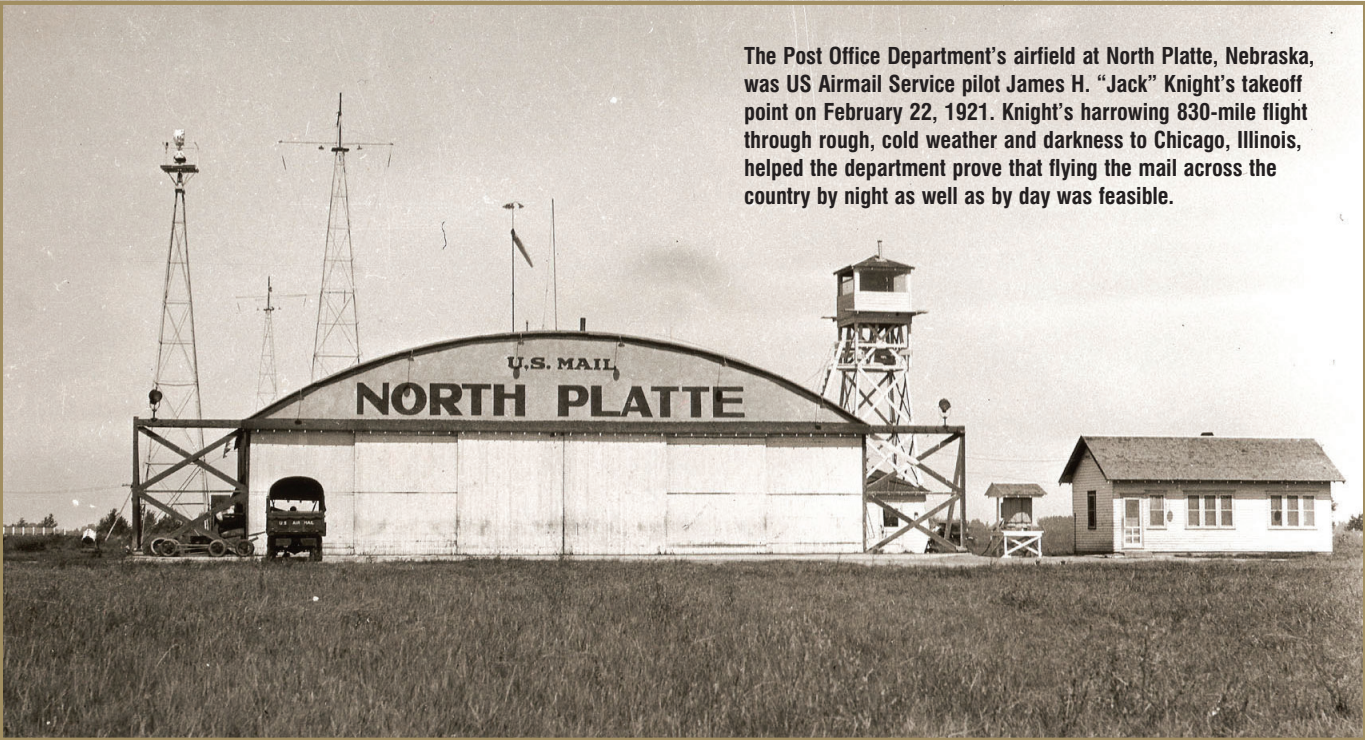
From Sea to Shining Sea

A US Airmail Service pilot named W. F. Lewis had the honor of flying the first leg of one of the eastbound transcontinental overnight test flights. Lewis took off from Marina Field in San Francisco at 4:00 a.m. on February 22, 1921, but met with disaster in Nevada, where he crashed his plane and was killed during takeoff following a scheduled stopover in Elko. Another pilot took charge of Lewis' cargo of mail and flew it on to Salt Lake City, Utah. Shortly after dark, another pilot took off with the cargo and headed for North Platte, Nebraska, where airmail pilot James H. "Jack" Knight was waiting to take it on through the night to Omaha, Nebraska. Knight's leg of the journey was particularly harrowing.

Leaving North Platte at 10:44 p.m., Knight flew to Omaha through rough, cold weather and darkness. Postal workers in key towns along his flight path lit torches, oil drums, and flares to help him find his way. He touched down in Omaha at exactly 1:10 a.m. Once on the ground, he learned that his relief pilot had been stranded in Chicago as a result of the snowstorm there. He also discovered that

Flying around the Clock

The Post Office Department's drive to establish an airmail route from New York to San Francisco began in September 1919 with the development of the first two legs of a new transcontinental airmail route. The first leg consisted of a path that took pilots from an airfield on Long Island to Cleveland, Ohio, with a stopover in Bellefonte, Pennsylvania. The second leg pressed west from Cleveland to Chicago, with a stopover in Bryan, Ohio. The third leg, which was established in 1920, went from Chicago to



The Post Office Department's airfield at North Platte, Nebraska, was US Airmail Service pilot James H. "Jack" Knight's takeoff point on February 22, 1921. Knight's harrowing 830-mile flight through rough, cold weather and darkness to Chicago, Illinois, helped the department prove that flying the mail across the country by night as well as by day was feasible.



US Airmail Service pilot James "Jack" Knight (right) is shown here next to a plane while talking on the radio, as an unidentified man looks on.

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he was the only pilot left to take the mail on to Chicago. Either he took it, or it stopped there in Nebraska.

Despite the fact that Knight had never done any flying through the country that lay east of Omaha, less than an hour after landing, he was airborne again, charging eastward. Bypassing a scheduled stop in Des Moines, Iowa, because of the danger of deep snow on the airstrip, he flew on to Iowa City, Iowa, with more bonfires helping to light his way. At Iowa City, he narrowly escaped catastrophe while trying to land in heavy winds with nothing but a flare to mark the darkened airstrip; nonetheless, he made it safely down and remained on the ground just long enough to rest a little. By 6:30 a.m., he was ready to begin the final two-hundred-mile run to Chicago.

With nothing in the cockpit to help guide him except a compass and a fragment of a road map and with few landmarks on the ground to help him find his way except bonfires left burning by Iowa and Illinois postal workers, Knight reached Chicago's Checkerboard Field at 8:30 a.m. Half an hour later, the cargo of mail was aloft again and heading east in the hands of another pilot, who flew it on to Cleveland, where yet another pilot took charge of it and flew it to Long Island.

Although only one out of four loads of mail made it all the way across the country by its intended air route, the day-and-night airmail delivery exercise proved that an all-air airmail route involving night flying was feasible and could reduce the time it took mail to go from coast to coast by train by nearly 70 percent (33 hours, 20 minutes as

opposed to 108 hours). The successful outcome of the test and the sensation created by accounts of James Knight's harrowing 830-mile nighttime flight were enough to induce Congress to supply the Post Office Department with \$1.25 million in funding (about \$16.5 million in today's dollars) to develop airmail service throughout the country.

From Bonfires to Beacons

Lack of adequate navigational aids, however, was still a major obstacle to be overcome when flying by night. In the early days, airmail pilots navigated primarily by a method called "contact flying." This technique involved the pilot watching for familiar landmarks on the ground—railroad tracks, rivers, lakes, towns, racetracks, and large buildings—in an effort to remain on course. But this system was of limited use at night and even less dependable during bad weather or in fog. Something better had to be devised to make nighttime flight safer and more reliable.

The bonfires, flares, and burning oil drums that had helped guide James Knight and his fellow pilots across the country in 1921 were a start, but fires could be misleading. How could pilots know which fire on the ground was meant for them? What if the flames were just the remains of a farmer burning off a field or a naturally occurring wildfire? Pilots needed more purposeful lights to guide them. Coming up with a solution to this problem was a daunting challenge, but this was America, and the never-say-die American attitude would not allow invention to cease until the problem was solved. Enter then Second Assistant Postmaster General of the United States Col. Paul Henderson.

In July and August of 1923, Colonel Henderson had an opportunity to see an experimental seventy-two-mile-long lighted airway that the US Army had constructed between Dayton, Ohio, and the state capital, Columbus. This lighted corridor resulted in 86 percent of the test flights successfully finding their way to their destinations in the dark. Thinking big, Colonel Henderson postulated the seemingly crazy idea that the same concept might work for night flights across the entire United States.

But the lights didn't have to go all the way across the country. Airmail flights leaving San Francisco and heading for the East Coast could make it as far as Cheyenne, Wyoming, before darkness fell; those flights leaving New York for the West Coast could make it all the way to Chicago before dark. Thus, a well-marked route for nighttime flying was only imperative over the roughly nine hundred miles that lay between Chicago and Cheyenne.

Working with the US Army and the Department of Commerce, the Post Office Department devised a system of light beacons, lights, giant arrows, and emergency landing fields to help airmail pilots make it safely from coast to coast. Major landing sites were marked by powerful, rotating beacons powered by acetylene. More rotating beacons perched atop fifty-one-foot towers straddling giant yellow concrete arrows illuminated at each end to show pilots the correct direction were positioned between these points no more than ten miles apart. As an additional safety measure, lighted auxiliary landing strips were cleared every



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The idea of creating a lighting system to guide pilots flying the mail at night was the brainchild of Second Assistant Postmaster General Col. Paul Henderson, who in mid-1923 saw a similar system used by the US Army. Colonel Henderson is pictured here with his sons in 1922.

fifty miles, so pilots could set their planes down before reaching a waypoint if they needed to do so.

By mid-1923, the transcontinental airmail route consisted of a total of 289 rotating beacons and 391 auxiliary landing fields. In early July 1924, the Post Office Department inaugurated its first regularly scheduled airmail service, and later that year, the time to fly across the continent with a load of mail had been reduced from the eighty-six hours it took using the air-by-day, rail-by-night method to twenty-nine hours, flying both day and night. When the lighting of the route was completed in 1925, other routes around the country were illuminated in the same fashion.

At its peak, the lighted system of air routes created by the Post Office Department totaled some 14,500 miles in length. What had been just a fantasy only a handful of years before was a reality; however, as technology advanced, airplanes became faster and more reliable, weather forecasting techniques improved, and navigational developments made leaps and bounds, this vast network of lights, arrows, and beacons became obsolete. Most of the beacon towers are gone and the beacons no longer flash in the dark, but those towers, arrows, and generator shacks that remain bear silent witness to a bygone era of excitement and danger, an era in American aviation that gave birth to airmail service in the United States and helped airmail become the speedy, reliable service it is today. ■