

"I am intending to start in a few days for a trip to the coast of North Carolina . . . for the purpose of making some experiments with a flying machine. It is my belief that flight is possible . . ."

Wilbur Wright
1900

1900

September 13-October 23

Here on the dunes of Kitty Hawk, where autumn winds sometimes blow steadily and where long stretches of sand might cushion a hard landing, Wilbur and Orville Wright began an adventure in 1900 that was to culminate 3 years later in man's first powered flight.

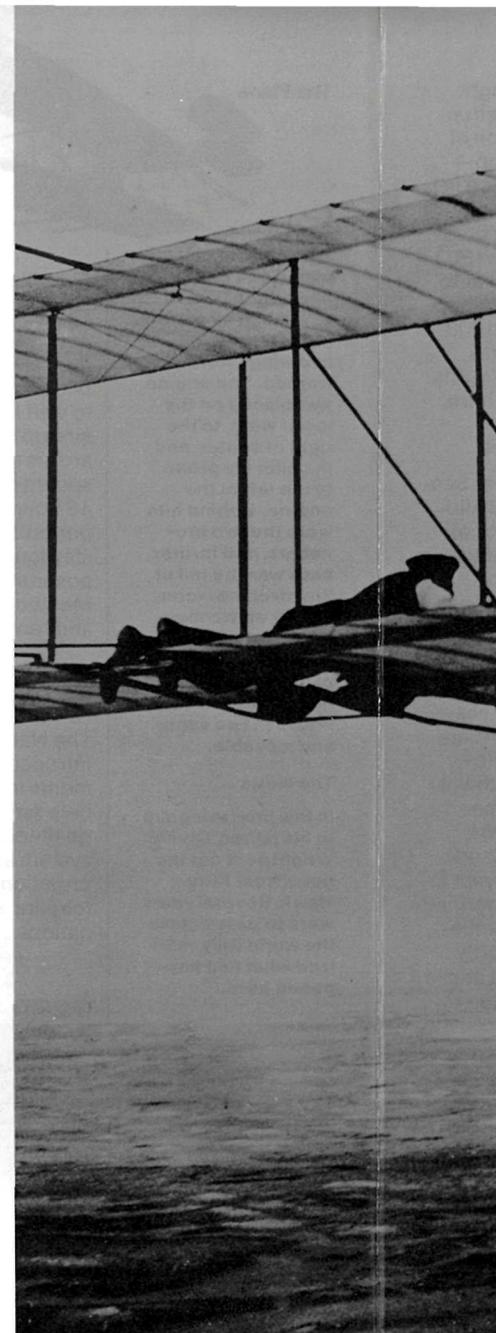
During the 1890s, the Wrights' interest in flying had been stimulated by stories of manned glider flights. The brothers were developing their own theories about flight and had even begun experimenting with gliders themselves. They soon realized, however, that they must fly their glider if anything was to be proved and that they must teach themselves how to control and fly an aircraft. Weather conditions around their hometown of Dayton, Ohio, weren't always suitable, so they studied national Weather Bureau records and chose Kitty Hawk.

Much to the wonder of the local residents there, these two young men spent the windy fall days of 1900 flying their glider as a kite, learning of its ways, and finally, gliding aboard the craft—lying prone on the lower wing!

1901

July 10-August 20

Anxious to begin tests with a larger glider, the Wrights again left Dayton for the Outer Banks. They set up camp near the largest of the Kill Devil Hills and began the several hundred glides they were to make that season from the slopes of Kill Devil Hill and West Hill.



But their 1901 glider didn't perform nearly as well as expected. The Wrights had based their theories on incorrect aeronautical data compiled by other people. To satisfy their doubts, they conducted extensive experiments that winter in Dayton, collecting statistics of their own. Armed with these, they confidently planned for a still larger glider the next fall.

1902

August 28-October 28

The Wright brothers went back to Kill Devil Hills in late August. But it was not until September 19, after many frustrating delays and exasperating problems, that their new glider was finally assembled. It was in this new craft that the Wrights made nearly 1,000 flights and achieved the most successful glider testing in history. They had learned how to build and how to control an aircraft.

Already they were making plans for next year when they would add a small gasoline engine and propellers to power a new craft.

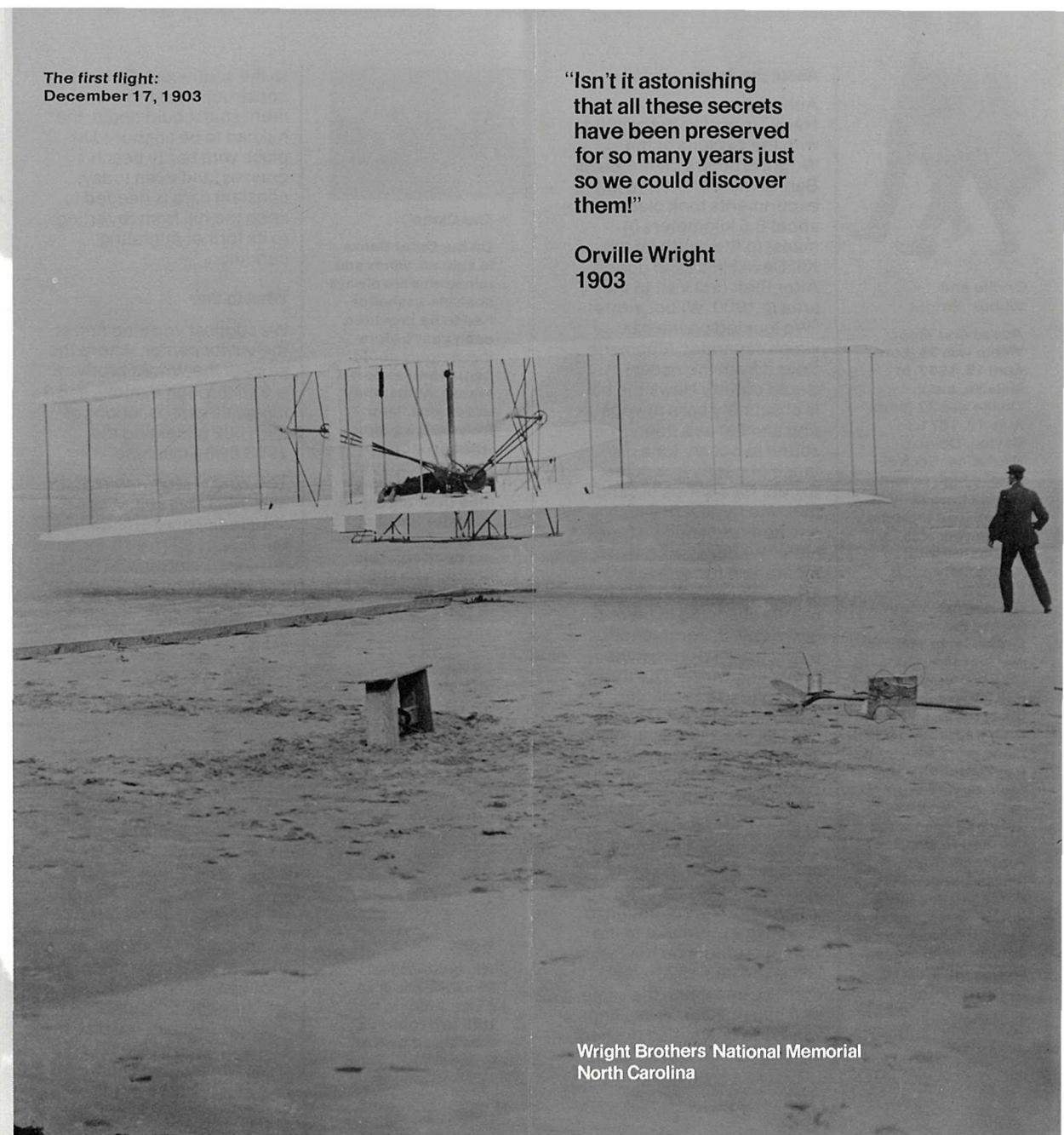
1903

September 25-December 19

At last they were ready. Shortly after 10:00 o'clock on the morning of December 17, 1903, *The Flyer* was moved to a spot on level ground. Orville took the pilot's position; engine and propellers were started.

At 10:35 a.m., the machine moved slowly forward under its own power and lifted into the air. The flight covered only 36.5 meters (120 feet) and lasted only 12 seconds. But Wilbur and Orville Wright had solved at last a mystery that had baffled mankind down through the ages.

The first flight:
December 17, 1903



"Isn't it astonishing that all these secrets have been preserved for so many years just so we could discover them!"

Orville Wright
1903

Wright Brothers National Memorial
North Carolina



Orville and Wilbur Wright

Age at first flight: Wilbur was 36 (born April 16, 1867, in Millville, Ind.); Orville was 32 (born Aug. 19, 1871, in Dayton, Ohio). Education: Each attended high school the full time required for a diploma, but neither was graduated and neither attended college. Occupation: They formed the Wright Cycle Co. in 1892 to sell bicycles, then they repaired them, and later manufactured them; all of their experiments in flying were financed from proceeds of their bicycle business. After 1903, their energies were devoted to aviation. Family life: Neither married, both continuing to live at the family home, Wilbur until he died at age 45 of typhoid fever; Orville until his death in 1948.

About the Area

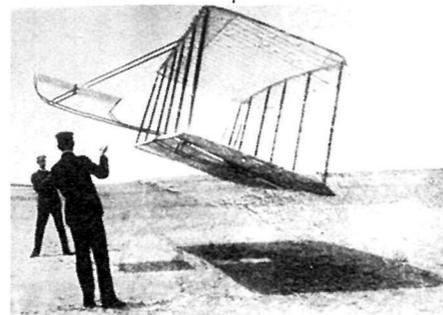
Although the name "Kitty Hawk" is always associated with the exploits of the Wright brothers on the Outer Banks, most of their flying experiments took place about 6.5 kilometers (4 miles) to the south on the Kill Devil Hills sand dunes. After their first visit to the area in 1900, Wilbur wrote: "We located on the bar which separates Albemarle Sound from the ocean. South of Kitty Hawk the bar is absolutely bare of vegetation and flat as a floor, from sound to ocean, for a distance of nearly five miles, except for a series of sand-hills, the largest of which is one hundred and five feet high." Wilbur also commented on the dunes in 1903: "These hills are constantly changing in height and slope, according to direction and force of the prevailing winds. The three which we use for gliding experiments are known as Big Hill, the Little Hill, and West Hill, and have heights of 100 feet, 30 feet, and 60 feet, respectively."

The Kitty Hawk area remained isolated and little changed during the early years after the first flight. When efforts were begun to establish a memorial to the Wright brothers on Kill Devil Hill in the late 1920s, the dune looked much the same as it had in 1903. Prevailing winds, however, had pushed it some 46 meters (50 yards)



The Camp

On the Outer Banks in autumn, winds and rainstorms are always possible so shelter had to be provided each year before the Wrights could begin their experiments. At first they used tents, later they built a simple wooden storage shed where they stored and assembled their craft, and still later they constructed wooden living quarters. This photograph shows their camp buildings in 1903.



Kiting

The brothers first flew their glider as a kite, holding it with two ropes as they stood on the ground.

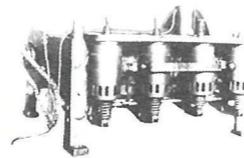
to the southwest. Before construction of the monument shaft could begin, the hill had to be anchored in place with hardy beach grasses, and even today, constant care is needed to keep the hill from reverting to its former migrating condition.

What to See

We suggest you stop first at the visitor center, where the story of the Wright brothers is told through exhibits and full-scale reproductions of the 1902 glider and the 1903 flying machine.

The Wright Monument Shaft, atop Kill Devil Hill, is constructed of gray granite from Mt. Airy, N.C. The 18-meter (60-foot) pylon stands on the site of many glider experiments—a 27.5-meter (90-foot) dune of once-shifting sand.

A large granite boulder at the first flight area marks the spot where the first plane left the ground. Numbered markers indicate the distance of each of the four flights made that day.



The Engine

Unable to purchase a gasoline motor manufactured to their specifications, the Wrights once more relied on their own resourcefulness. They not only designed but built the little 4-cylinder motor that powered the first flight. This is a reconstruction of that engine.



The Propellers

Still another unsolved problem! Again these talented young men, with no advanced education in engineering, wrestled with available data, found it insufficient for their needs, and developed their own calculations. They then designed and built propellers for The Flyer that were to prove successful on the first flight—the first time they were ever tested.

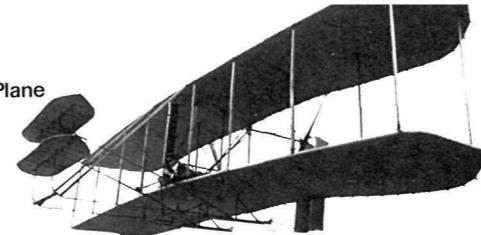
Adjacent to the first flight area are two wooden structures—a reconstruction of the Wrights' 1903 camp—built by the Park Service in 1963. One building duplicates that used by the brothers as a hangar for the 1903 Flyer; the other is similar to the one used as a workshop and living quarters in 1903. It is furnished with items much like those the Wrights used when they were here.

Nearby Points of Interest

Cape Hatteras National Seashore begins about 16 kilometers (10 miles) south of the memorial. Stretching southward for 112 kilometers (70 miles) these narrow, sandy islands provide a wide variety of recreational opportunities.

Fort Raleigh National Historic Site, located on Roanoke Island about 28 kilometers (17 miles) southwest of the memorial, may be reached via U.S. 64-264. This is the site of England's unsuccessful first attempt to colonize the North American continent. Raleigh's settlement disappeared shortly after its establishment and is known as the Lost Colony.

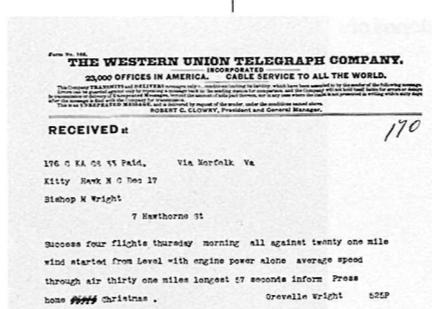
The Plane



What did the first airplane look like? It had a wingspan of more than 12 meters (40 feet) and the two wings were warped. The engine was placed on the lower wing, to the right of center, and the pilot lay prone to the left of the engine. Behind him were the two propellers, and farther back was the tail of the machine—consisting of two movable, vertical vanes. Projecting in front of the pilot was the horizontal elevator—also in two vanes and movable.

The News

In this brief telegram to his father, Orville Wright sent out the news from Kitty Hawk. Several years were to pass before the world fully realized what had happened here.

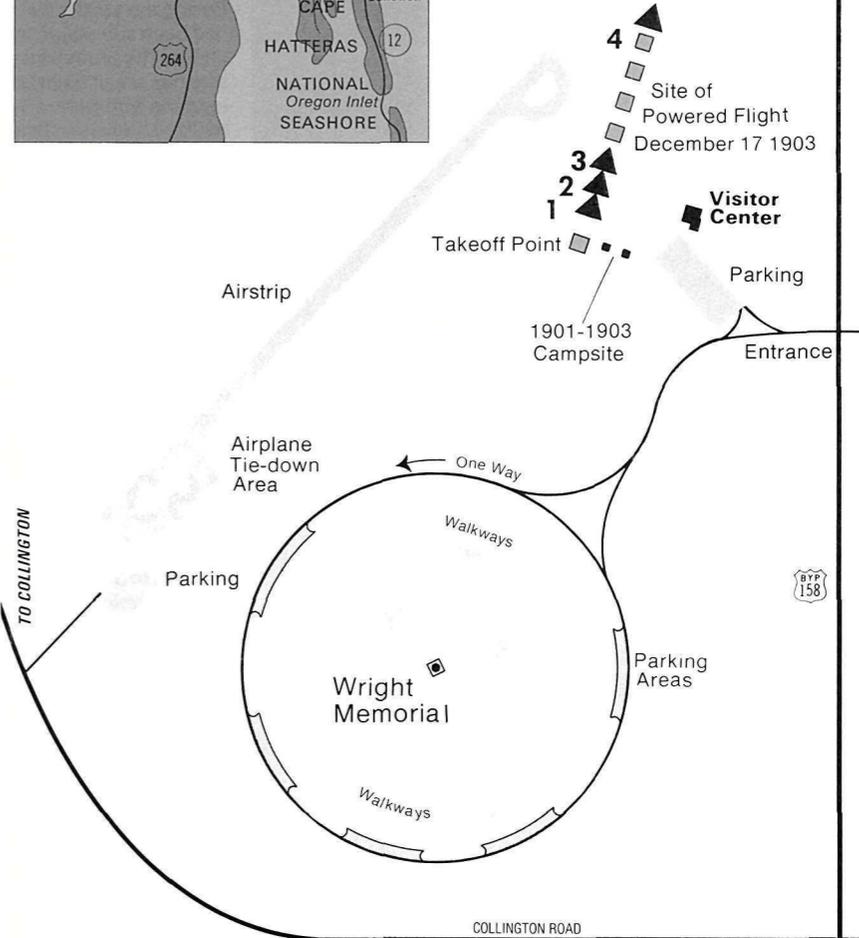
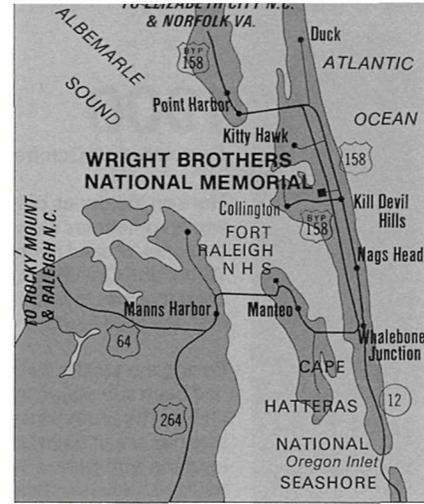


First Flight Airstrip

This 915-meter (3,000-foot) paved airstrip was added to the park in 1963 to enable pilots and their passengers to visit here. Parking at the airstrip's limited tie-down area is restricted to 24 consecutive hours or a total of 48 hours during any 30-day period. Pilots who wish to stay longer for other purposes may tie down at the Manteo Airport, where gas and rental cars are available.

We're Joining the Metric World

The National Park Service is introducing metric measurements in its publications to help Americans become acquainted with the metric system and to make interpretation more meaningful for park visitors from other nations.



- 4th Landing 260m/852ft
3rd Landing 61m/200ft
2nd Landing 53m/175ft
1st Landing 37m/120ft

Please Be Careful

For a pleasant park visit, exercise common sense and caution. Please help protect the Kill Devil Hills by staying on the path; there are sand spurs and prickly pear off the path that you will want to avoid. Bicycles are permitted only on the established roads, not on paths, and skateboards are prohibited.

Administration

Wright Brothers National Memorial is located on the Outer Banks of North Carolina about midway between Kitty Hawk and Nags Head on Byp. U.S. 158. It is administered by the National Park Service, U.S. Department of the Interior; the superintendent's address is Route 1, Box 675, Manteo, NC 27954.

National Park Service
U.S. Department of the Interior