

The Flight that Tamed The Skies

by Seth Shulman

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Next year marks the centennial of flight—100 years since the fateful December day in Kitty Hawk, North Carolina when the Wright brothers etched themselves so deeply into our collective consciousness. No doubt a good deal of hoopla will be whipped up about those two bicycle builders and their “flight that changed America.” But what the history books mostly leave out is that the highly secretive Wright brothers refused to publicly demonstrate their airplane for *four and a half years* after that now-legendary first 12-second, 40-yard hop. By that time, a number of other inventors already had airplanes flying.

One of them was the oft-overlooked Glenn Hammond Curtiss, who in the spring of 1910 completed a death-defying 152-mile public flight along the Hudson river from Albany to Manhattan. Curtiss’s feat—the first true cross-country flight in America—was a technological tour de force. It was daring and intrepid, just like Curtiss himself. And it was epoch making. Hundreds of thousands of people showed up to watch the flight and the *New York Times* devoted no less than six full pages of text and photos to the feat—the most space the newspaper had ever devoted to a single news event.

Despite his relative anonymity, Curtiss surely belongs in the pantheon of America’s greatest entrepreneurial inventors. While his formal education never extended beyond the eighth grade, Curtiss’ mechanical genius resulted in some 500 groundbreaking aviation innovations, including many features still incorporated in airplanes today—from wing flaps to retractable landing gear. By contrast, none of the Wrights’ aeronautical designs have stood the test of time. Most were obsolete by as early as 1912.

If anything, Curtiss’ exceptional creativity was exceeded by his extraordinary energy and drive. His competitive spirit was evident from the start of his career. A national bicycle champion in his early twenties, he went on to win world renown as “the fastest man alive” by riding a motorcycle of his design at a record-breaking 136 miles per hour in 1905. Later, Curtiss—not the Wrights—made first public flight in the United States in an airplane of his own design, sold the first airplane in America, and was issued the first U.S. pilot license. In 1909, Curtiss’s airplane, the *Rheims Racer*, beat all the others—including those designed by the Wright brothers—at the world’s first International Air Meet in Rheims, France. And, in 1919, Curtiss was even the first to design a seaplane that could successfully cross the Atlantic in three hops *eight years* before Charles Lindbergh’s solo crossing .

Curtiss' talent and daring proved a formidable combination that played a vital role in making the airplane a practical reality. Toward that end, though, perhaps none of his astounding accomplishments did more than his flight from Albany to Manhattan.



Near dawn on May 29th, 1910, in a field on low-lying Van Rennselaer Island, the outskirts of Albany, Curtiss donned his flying outfit in a makeshift tent. When he stepped out, he was in pair of fisherman's rubberized waders that came up to his armpits, a cork life jacket, a snug-fitting cap, and a pair of goggles. The waders, Curtiss later explained, were not intended so much for the prospect of a water landing as for the warmth they would provide. After all, despite the clear spring day, Curtiss would be flying in the open, hundreds of feet in the air at a speed of roughly fifty miles per hour.

Even at the early hour, nearly a hundred groggy spectators had already assembled on the edge of the field. With virtually no fanfare, Curtiss took the pilot's seat in the airplane—one of only a handful of airplanes that he had yet designed and built. A fabric-covered pusher biplane, its large wooden propeller sat behind a dual set of wings. Among the aircraft's revolutionary features were its means of flotation. Because Curtiss would make the entire flight over the Hudson River, he had fitted an airtight metal pontoon beneath each wing and, from cloth used for hot air balloons, he had sewn and inflated five small air bags and roped them onto the undercarriage of the airplane's frame. As such, the *Albany Flier* was the world's first "amphibian plane." It could not take off from water (Curtiss would brilliantly solve that problem the following year) but, as he and his friend and assistant Henry Kleckler proved in tests on Lake Keuka in upstate New York, it could handily accomplish a water landing.

Windy weather had postponed Curtiss's planned departure for three long days and, as he recalls, the extended delays had "gotten somewhat on my nerves." But this Sunday morning dawned calm and bright. To make sure, Curtiss phoned the police station in Poughkeepsie before the sunrise and received just the news he sought: there wasn't even enough breeze to flap the flag at the local court house. As he wrote later, he knew, "it was now or never."

From his perch on the makeshift runway, Curtiss noted the direction of the smoke from factory stacks to judge wind direction as he readied for takeoff. In Curtiss's own detailed, minute-by-minute account of his adventure, published in 1912, he describes rising smoothly from the Albany field to an altitude of 700 feet and flying straight above the middle of the river. With the Hudson spread out below him like a wide, glimmering road, he noticed with fascination that from above he could see through the clear water to deep beneath the river's surface. Finally airborne on such a beautiful, cloudless day, "I felt an immense sense of relief," Curtiss writes. "The motor sounded like music."



There had, of course, been many flights by 1910. Steady development in Europe, especially in France, had led to an explosion of interest since the turn of the century and, with a number of semi-successful efforts along the way, the airplane burst fully onto the scene by 1908. In the United States, meanwhile, on

July 4th, 1908 Curtiss, who worked closely with a team including Alexander Graham Bell called the Aerial Experiment Association, unveiled his *June Bug* airplane and won *Scientific American's* coveted prize for the first airplane in the United States to fly a measured kilometer before judges. Later that summer, with all the activity at home and abroad, the Wrights were finally goaded into demonstrating their airplane: Wilbur showed it off to great acclaim in Europe and Orville demonstrated it to the U.S. military at Fort Myer in Virginia where it crashed with an Army Lieutenant on board in the world's first aviation fatality.

1909 saw Louis Bleriot's astonishing 24.7-mile flight across the English Channel as well as the world's first international air meet, where nearly a dozen airplane designs were on display and the grand prize was offered for a 20-kilometer flight—twice around a huge, specially designed course marked by pylons several stories tall.

But early in 1910, despite all this activity and a growing number of exhibitions before paying spectators, the airplane, like many emerging technologies, had yet to find its place as much more than an exciting novelty. Outside of exhibitions, no one had yet figured out how to make money from it, for instance. A telling top-ten list published early in the century by eminent aviation pioneer Octave Chanute shows the situation clearly. Describing the potential uses of the airplane, Chanute lists “big game hunting,” “sport,” and “military reconnaissance,” while failing completely to suggest the airplane as a practical means of transportation. It is against this backdrop, that Curtiss set his sights on one of the most tantalizing aviation contests of the day. Joseph Pulitzer, the wealthy publisher of the *New York World*, had offered a \$10,000 prize to the first aviator to fly from Albany to Manhattan.

According to the rules set by Pulitzer, the airplane was allowed up to two stops along the route from Albany to Manhattan, provided the journey was made within a 24-hour period. There was no thought of a nonstop flight because no airplane of the period could carry the weight of enough fuel to cover such a great distance.

Pulitzer's contest had drawn much public attention. The only problem was, most everyone deemed the feat impossible. A flight from Albany to Manhattan meant flying some 150 miles over unknown territory—an enormous distance at the time. Compared with even a lengthy flight at an exhibition, the trip meant a risky endurance contest for the aircraft engines of the period coupled with the virtually unknown risks presented by potentially unruly wind and weather conditions. In nearly a year since Pulitzer's announcement, not one airplane pilot had stepped forward to meet the challenge.

Making things considerably more dramatic for Curtiss were his personal circumstances. In early 1910, Curtiss faced an extraordinary situation. He had won almost unanimous admiration from practitioners in aviation around the world. His airplanes had broken distance, speed, and altitude records. But, in January 1910, a U.S. federal court, in a startlingly broad interpretation of a Wright brothers' patent, had issued a preliminary injunction against Curtiss. As a result, even though the case had yet to be heard, Curtiss was legally prohibited from manufacturing or even exhibiting his aircraft in the United States without a license from the Wright brothers. And the brothers, who had received backing from a consortium including Cornelius Vanderbilt that came to be known as the

Wall Street Air Trust, were in no mood to discuss licensing arrangements—especially with Curtiss.

The Wrights made little secret of the fact that they sought a monopoly on the airplane comparable to the one Alexander Graham Bell had won over the telephone. But the case looks particularly odd in hindsight. The Wrights patented their so-called “wing warping” method of bending their airplane’s delicate wings to achieve lateral stability. From the start, Curtiss never used the Wrights’ method. Instead, he and his team developed ailerons—flaps appended to stronger, rigid wings. As Curtiss argued throughout, the ailerons represented a separate and distinct system for achieving lateral stability, not to mention one that would quickly become the industry standard.

But, thanks to the exceedingly liberal interpretation of their patent by the first judge to hear the case, the Wrights came close to achieving monopoly control through broad patents and aggressive business tactics. While Bell’s phone lines were conducive to a centralized monopoly, however, the chaotic creative drive to conquer the sky in the first decade of the 1900s would prove impossible for the Wrights to contain. And the biggest obstacle they faced was the irrepressible Glenn Curtiss.

Early in 1910, with the help of Curtiss’s friend and advisor Judge Monroe Wheeler, Curtiss managed to get the court to allow him to post a \$10,000 bond and resume aviation work while he appealed the U.S. court’s injunction. The money, in essence, served as an advance on royalties due to the Wrights in the event that Curtiss lost his case. Curtiss found the money to post the bond, but he was forced several times to pay his employees out of his own dwindling pocket. Even worse, given his precarious legal situation, he didn’t know where he could turn for a loan, and his company, based in his hometown of Hammondsport, New York, had been officially forced into bankruptcy in April, 1910.

It was at this dire point in his career that Curtiss seized upon the Albany-Manhattan flight—impossible or not—as one of the very few promising options he saw. Even more than the allure of the prize money, he came to see the flight as a kind of redemptive project—a way to somehow persevere against all odds, just the kind of persistence Curtiss demonstrated repeatedly throughout his life.

But no sooner had Curtiss set his sights on winning Pulitzer’s contest than he realized the intricate planning it entailed. Curtiss armed himself with maps, weather data, and sketches. He made several trips along the Hudson by train and boat to study the route. Over the next few weeks, Curtiss learned as much as he could about the wind patterns along his proposed flight path. By contacting the U.S. Weather Bureau, he determined that the prevailing winds in the Hudson River valley are from the northwest. Based on this information, he decided to make the flight southward from Albany. It felt like the right choice: he knew from experience that engine trouble is most likely to occur soon after takeoff and the Albany end of the trip afforded far more open space if he needed to make an emergency landing.

Curtiss’s closest advisors, including his former plant manager Harry Genung, and his longtime friend and assistant Henry Kleckler as well as his wife Lena (who had always supported his dangerous forays into aviation before) were all united in judging the flight to be too risky for Curtiss to attempt. But, in

signature fashion, Curtiss, undeterred, was a juggernaut of action even as those closest to him remained skeptical.



In May, word of Curtiss's intended flight news sparked headlines and much excitement. The *New York World* launched an immediate publicity campaign for the flight. Not to be outdone, the rival *New York Times* announced a coup: it would charter a special train on the New York Central's Hudson River Line to pace the flight, carrying Mrs. Curtiss and other members of the Curtiss team. Much to the dismay of the staff at the *World*, the train would also carry *New York Times* reporters and cameramen, affording them an exclusive opportunity to keep abreast of the plane every step of the way.

As a result, Curtiss needed to reconnoiter suitable landing sites along the route. Among the places he visited was the large, open grounds of the State Hospital for the Insane perched on a hill above Poughkeepsie. There, the superintendent, a Dr. Taylor, showed him around the grounds. As Curtiss later remembers, the doctor chuckled "when I told him that I intended stopping there on my way down the river in a flying machine."

"Sure you can land here," Curtiss remembers Dr. Taylor saying. "Most of you flying machine inventors end up here anyway."



On the first leg of the flight, high above the Hudson River, Curtiss veered to fly alongside the tracking train chartered by the *New York Times*. He could see his wife Lena waving her handkerchief and later a large American flag out the train window. Henry Kleckler, too, popped in and out of the train window, nervously flapping his cap. With both train and airplane traveling at roughly fifty miles an hour, they wove together and apart along the voyage. As Curtiss remembers: "It was like a real race and I enjoyed the contest more than anything else during the flight."

With little instrumentation, Curtiss had no way to determine his speed other than the strength of the wind against his face. With no altimeter, he could similarly only guess at his altitude. And the deafening drone of the engine behind his head shut out all other sound.

Nonetheless, he felt in complete control of the airplane and intensely alert to the tiniest details around him on the crystalline day. Below him, Curtiss saw groups of people staring from the riverbanks and boaters waving; the captain of a river tugboat tooted its horn; although Curtiss couldn't hear it, he saw the blast of white steam rise eerily silent into the air below him.

It was clear sailing until his first stop in an open field just past Poughkeepsie, 87 miles into his journey where he greeted assembled spectators and, despite his careful planning, wound up having to borrow gas and oil from generous motorists to get airborne again. Curtiss was soon back above the Hudson. But trouble lay ahead.

Twenty miles south of Poughkeepsie, the river carves a steep fifteen-mile-long gorge in the so-called Hudson Highlands near Storm King Mountain and Breakneck Ridge. The spot funnels treacherous wind currents above the river. Aware of the danger from his research and reconnaissance, Curtiss tried to climb above it, rising to an altitude of roughly 2,000 feet. But it was not high enough. Just past Storm King Mountain, as Lena watched increasingly frantic and helpless from the train, a cross current tilted the Albany Flier sideways, and the airplane dropped more than a hundred feet within seconds. Momentarily losing control, Curtiss was nearly thrown from the airplane. "It was the worst plunge I ever got in an aeroplane," Curtiss said later. "My heart was in my mouth. I thought it was all over."

As the wind steadied, Curtiss was shaken but he managed to regain control of his airplane. Ahead, he could just make out the northern tip of Manhattan and the outline of the 50-story-high Metropolitan Tower—the world's tallest building—above the line of the horizon.

But, just as Curtiss began to feel elated that he was so near the end of the trip, he noticed that his oil gauge read perilously near empty. Like all of Curtiss's airplanes to date, the Albany Flier required the pilot to lubricate the engine through a manual control. While in flight, Curtiss had to pull the lever on a hand-operated oil pump roughly every ten minutes to assure the smooth running of the engine. With his recent ordeal at Breakneck Ridge, Curtiss's first thought was that he must have inadvertently "been too enthusiastic" with the oil lever. In fact, although he wouldn't discover it until later, the airplane was seriously leaking oil for some time. With the prospect that his engine could freeze up at any time, Curtiss knew he must quickly land to replenish his oil.

Nervously winging east at the northernmost tip of Manhattan where the Harlem River curves around at the Harlem Gorge to meet the Hudson, Curtiss looked for a little meadow at Inwood—one of many such spots he had chosen as possible landing sites. There was no time to lose. Spotting nothing more suitable, he made an emergency landing on a sloping lawn that rose a hundred feet above the Hudson. Safely on the ground, he breathed a sigh of relief and realized that he was inside the city limits. In just over two and a half hours of flying time, he had covered 137 miles, averaging nearly 55 mph.

Curtiss soon learned that he had landed on the grounds of the estate of the late financier and leather merchant William B. Isham. The inhabitants, Isham's daughter and her husband, M. P. Collins, jumped up from reading the Sunday newspaper and ran outside to the airplane when they heard the roar of the approaching motor. They had just been reading about the proposed flight and were stunned to see Curtiss's airplane bouncing up their sloping front lawn.

At the Isham estate, Curtiss telephoned the New York World with the news that he had landed within the city limits. He would, he said, continue on to his planned landing site at Governors Island as soon as he could refill his oil pan.

Having technically fulfilled the contest's requirements, another aviator might have pronounced the flight complete. But not Curtiss. He said later that he thought of all the spectators in the city counting on his arrival. Doubtless, he thought also about the thrill of being the subject of their adulation. Regardless of his motive, as one magazine writer noted, his decision to fly on over Manhattan

was “a magnificent sportsmanlike thing that won him the unbounded admiration of all New York.”

After a dangerous and tricky takeoff down the sloping cliff over the river, Curtiss once again rose over the open Hudson, this time with the shimmering Manhattan skyline beckoning him onward through the clear midday sky. As he approached the city, he was overwhelmed by the reception he saw below him. Crowds were everywhere: on rooftops, in trees, and packed many deep along the riverbanks. Passengers on ferry boats and ocean liners craned to railings and waved wildly in the air to him. And people on scores of crafts large and small dotting the Hudson cheered him on as well.

“New York can turn out a million people probably quicker than any other place on earth, and it certainly looked as though half the population had flocked to Riverside Drive or out onto the rooftops of the thousands of apartment houses that stretch for miles along the river,” Curtiss recalls. As he said later, he had never experienced anything as dramatic and inspiring.

In no time, the Statue of Liberty—Curtiss’s sought-after landmark of the finish line—stood close before him. Turning westward, he remembers, he triumphantly “circled the Lady with the torch” and headed as planned for the parade grounds at nearby Governors Island.

It was just past noon when, after a perfect landing, Curtiss emerged from his airplane to cheers from scores of enthusiastic U.S. Army personnel at the small base there. Of course, much acclaim followed Curtiss’s heroic flight, including awards, dinners, and press conferences. The New York press crowned Curtiss “King of the Air.” At a black-tie dinner at the Astor Hotel in his honor, Curtiss formally presented to New York Mayor William Gaynor a letter given to him by James B. McEwan, the mayor of Albany. It was the first airmail letter delivered in the United States.

Although he was unable to attend, U.S. President William H. Taft sent a telegram to the gala event. “It seems that the wonders of aviation will never cease,” Taft wrote, adding that Curtiss’s flight “will live long in our memories as having been the greatest.”

Taft didn’t know the half of it. Curtiss’s flight from Albany to New York City broke a formidable psychological barrier for aviation in America. That Sunday, and not just for the hundreds of thousands of witnesses but for many others as well who read or heard of his accomplishment, the airplane suddenly and all at once presented itself as a useful and practical technology.



More than any other, this event launched America into the age of modern flight, much as Louis Paulhan’s similar 1910 flight from London to Manchester did in Europe. These two dramatic journeys on either side of the Atlantic forged the path for the development of airmail, modern air travel, as well as the terrible prospect of air power in war.

Glenn Curtiss, largely forgotten today, teaches us an important lesson with implications far beyond the airplane about how technology evolves and how its

development is remembered. Maybe because we are so obsessed with the notion of one person or team single-handedly inventing something new out of whole cloth, we often miss the most important subtle developments that forge the path for a breakthrough.

The prevailing mythology about the airplane portrays the Wright brothers as earnest young bicycle builders—which they were early in their careers. But once competition, like Curtiss came into the picture, the Wrights look more like greedy spoilers. And the astounding leap into the air they took at Kitty Hawk begins to seem less like an isolated breakthrough and more like an important step in a very long progression of brilliant accomplishments in aviation.

The period of the airplane's earliest development—the first decades of the 1900s, was one of dynamism—a time much like today, dominated by fast-paced and unsettling technological change and the clamor to control it. Having accomplished a tremendous breakthrough in aviation, Wilbur and Orville Wright tried to control the development of the airplane in its first decade through patents and aggressive business tactics. Curtiss's legal battle with the Wrights would continue for nine long years—years that were absolutely crucial to the airplane's development. Ultimately, the Wrights would fail in their effort to secure a monopoly, thanks to Curtiss's persistence and, with the advent of World War I, a decision by the U.S. government forced the Wright Co. to cross license its technology to produce more airplanes for the war.

In essence, their lawsuit pitted the virtues of open, shared access to innovation against the driving economic force of monopoly ownership. As such, it is certainly a debate that resonates throughout the ages. For his part, Glenn Curtiss did receive many patents over his lifetime. But he always he permitted anyone to use the principles underlying his inventions—a strategy that enormously benefited the emerging industry. Unlike the Wrights, Curtiss believed his inventions and products should succeed or fail in the marketplace on their own merit. In the midst of his lengthy lawsuit with the Wrights, Curtiss told his colleague Lyman Seely that he was convinced the best approach was “to forget about patents and look for the business.” The goal, he said, ought to be simply to keep building better airplanes than anyone else. This, ultimately, is the way he would have wanted his career to be judged, and it is how it should be judged: by the lasting, unrivaled success of the aeronautical inventions he created.