Airplane Wars

Finger Lakes Aviation Pioneer Glenn Curtiss Battled the Wright Brothers for Supremacy of the Skies

By Peter Joffre Nye

Independence Day, Saturday July 4, 1908. More than 1,000 spectators, a fulsome delegation of big-city newspaper reporters, photographers, even a motion-picture crew, the editor of the influential New York magazine Scientific American, and representatives of the Aero Club of New York, predecessor of the National Aeronautic Association, gathered near Hammondsport in upstate New York for a glimpse of the first aeroplane any of them ever saw.

The pilot, Glenn Curtiss, sat in front of the aeroplane, June Bug, his back to a boisterous eight-cylinder 40-horsepower engine of his own make. He gripped the steering wheel of the prototype bi-wing he had built with hand tools in his local shop and steered the newfangled contraption, rolling on a triangle of bicycle wheels, along a horse track—his runway to the sky.

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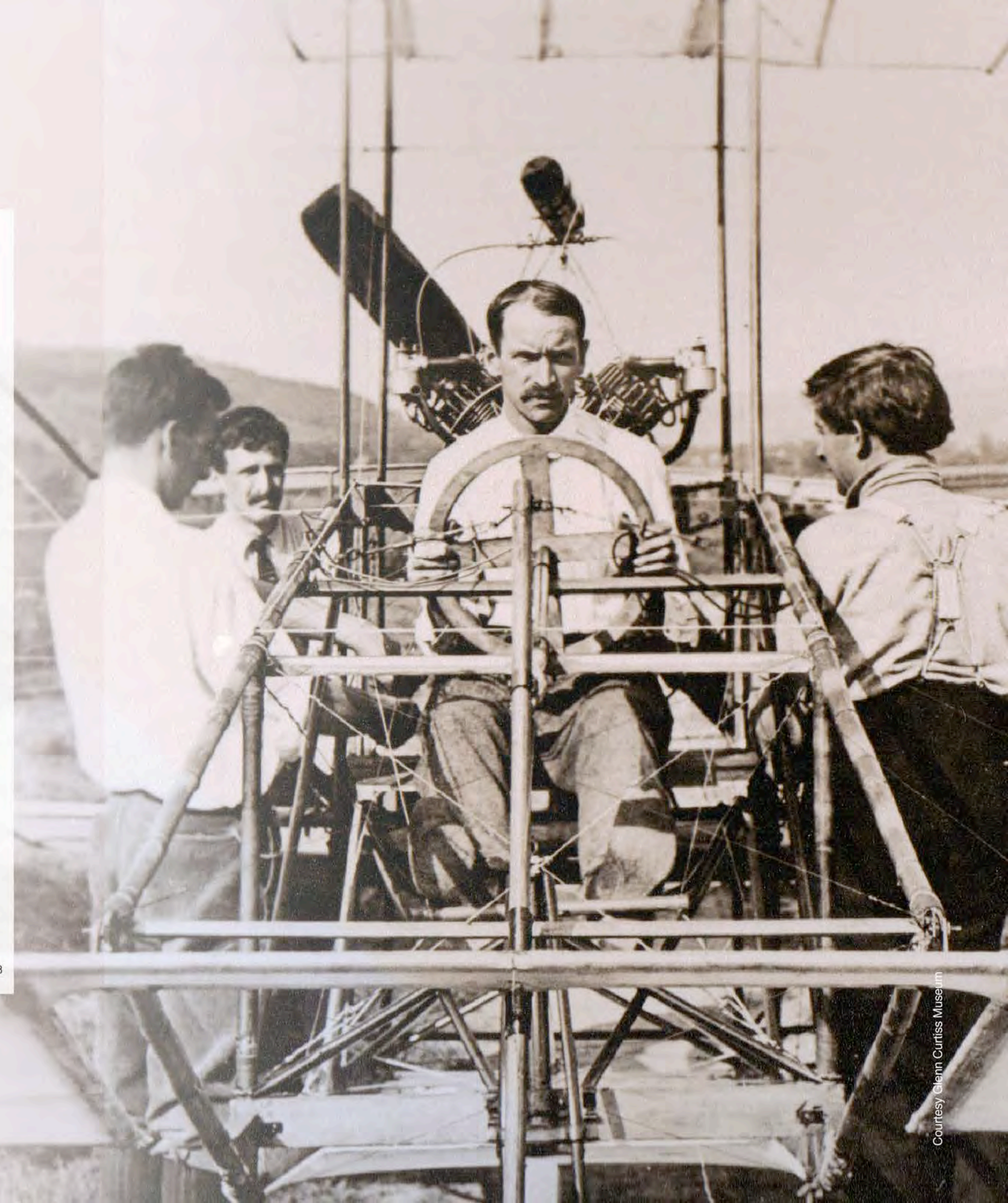

Courtesy Glenn Curtiss Museum

Courtesy United States Marine Corps

Aviators in Hammondsport, New York, 1911. (Left to right) Lieutenant John McClaskey, USMC (Ret), Glenn Curtiss, Paul W. Beck, USA, Lieutenant John H. Towers, USN, and Lieutenant Theodore Ellyson, USN. They are testing a Curtiss A-1 airplane.

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Scientific American had publicized the previous year in its pages that it was offering a handsome trophy to the first machine heavier than air that could fly a kilometer, about two-thirds of a mile, in front of judges. Four and a half years earlier, Orville and Wilbur Wright of Dayton, Ohio, had claimed they took turns on December 17, 1903, flying an aeroplane on the isolated North Carolina outer banks of Kitty Hawk. The brothers had yet to make a public demonstration. Their secrecy fueled doubts. The Wrights spurned the magazine's invitation to try for the trophy.

Curtiss and cohorts, including Alexander Graham Bell, inventor of the telephone, had realized opportunity with the aeroplane Bell christened *June Bug*, for the winged beetles swarming the village. Curtiss sported a white shirt, starched collar, and tie as he bumped over the muddy turf. He accelerated and aimed *June Bug* toward a red flag tied to the top of a fence post a kilometer away. His aircraft rose neatly twenty feet off the ground and kept going. Less than two minutes later he flew over the red flag and landed in a tangle of grape vines.

A throng of onlookers, judges, and news hounds ran yelling and cheering to engulf him as he stood smiling and casually inspecting his aircraft. Judges dutifully made measurements. Finally, an official bellowed into a giant megaphone he was holding that Curtiss flew *June Bug* 5,090 feet, nearly a mile, and 1,810 feet farther than a kilometer.

For his feat, Curtiss's name was engraved on the silver plate at the base of the sculpted *Scientific American* Trophy. More significantly, for flying in front of the public, judges, and the Fourth Estate, leadership of the Aero Club ignored the Wright brothers' previous claims of self-powered flight and issued Curtiss America's first-ever pilot license.

Coast-to-coast publicity in Sunday newspapers catapulted thirty-year-old Curtiss into a hero. He drew the ire, however, of the Wright brothers, who would launch one of America's most bitter patent infringement disputes. It took a world war in Europe to bring the suit to a halt.

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The first decade of the twentieth century saw new technologies—telephones, typewriters, movies, bicycles, automobiles, and electricity—transform the way people lived, socialized, and did business. Bicycles and electric trolleys were replacing horses on city streets, ending millennia of four-legged transportation.

Curtiss and the Wright brothers had much in common. Journalists noted they could have passed for brothers: medium height, slim as marathon runners, early hair loss, sharp features, blue eyes, and reserved dispositions. They came from unassuming families. Only Orville graduated from high school. Curtiss was young when his father, Frank, a harness maker, died; the Wrights also were growing up when they lost their mother, Susan. Photos show the men only tolerated cameras, often looking away, never smiling. Self-motivated and mechanically inclined, they opened bike shops and crafted their own bicycles for sale.

Yet their outlooks were poles apart. The Wrights named the bicycles they produced after a great-great grandmother, Van Cleve, while Curtiss picked the valiant Greek god Hercules. Curtiss was far more passionate, even obsessive, about speed. He raced bicycles as a teenager in the late 1890s and learned about wind resistance. Competing in a pack of ambitious hopefuls bumping elbows for position taught him to draft in the protected sweet spot behind leaders. When the finish came in sight, he could whip around the side to surge ahead like he was flung from a slingshot to victory. He accelerated on banked board cycling tracks by swooping down from the upper rim to boost speed. Such strategies would pay off later.

Unlike the introverted bachelor Wrights, Curtiss was outgoing, and at age nineteen in 1898 he married Lena Neff, eighteen.

The advent of gas-combustion engines fascinated Curtiss. In his Hammondsport shop, smelling of grease and oil, he built one-cylinder engines. He mounted them on bicycles before fashioning a swayback frame for Hercules motorcycles. Their sales soon overtook bicycles. He hired staff to fill more orders. Curtiss raced motorcycles to test them as he lugged home a collection of trophies and gold medals.

Ever restless to go faster, he designed longer down-sweeping handlebars. They lowered his center of gravity as he leaned his chest flat along the top tube. Then he created a two-cylinder engine. On Labor Day around the Empire City Race Track, a dirt horse oval in Yonkers, New York, he won the inaugural National Cycling Association U.S. Championship.

His wife Lena suggested he change the name of his motorcycles to Curtiss. He recoiled at such boasting. But she and close friends agreed the national champion needed a national name. After reflection he yielded, writing Curtiss in stylish schoolroom script—his logo.

Motorsport emerged years before anyone considered something like the Indianapolis Motor Speedway. City speed limits were ten miles per hour, in deference to horses, and country roads were dirt, ravaged by ruts and holes, and could rip fast-moving cars to pieces. Word spread about the long stretch of packed sand on Florida's coast between Daytona and Ormond—a straight surface smooth as a pool table. Curtiss built a monster eight-cylinder, 40-hp engine for a Curtiss motorcycle. In January 1904 he hauled it on a train to Ormond for the Florida Speed Carnival, in its glory days as America's premier motor-racing venue.

There among the latest automobiles and motorcycles from America, France, and Germany careening up and down the beach, wealthy and savvy motor-mad aficianados, and news scribes, Curtiss established a reputation for fearlessness and mechanical genius. Motorcyclists tearing around on gaudy two-wheelers with ear-splitting-loud engines were lionized as hell-riders. He draped himself over his throbbing machine and streaked along a lane of sand bordered by the Atlantic surf and a three-mile stretch of chichi dressed to the nines. He rocketed through the measured mile: 137 mph. Newspapers bestowed him with the title, "The fastest man on earth."

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Curtiss's engines intrigued Alexander Graham Bell. In his sixties with a bushy snow-white beard, Bell focused on building a flying machine. Through the auspices of the Smithsonian Institution in Washington, D.C., he recruited a handful of aeronautic engineers, including Thomas Selfridge, a West Point grad and Army Lieutenant piloting dirigibles. Bell saw that Curtiss's small, lightweight engines exceeded anything available. The right engine was a game-changer to lifting an aerodynamic machine off the ground and thrusting it through the air.

The inventor invited Curtiss to join him, Selfridge, and cohorts in founding the Aerial Experiment Association (AEA) as a one-year private research and development group. Members were to pool patents and expertise, each to build his own aircraft, and offer one another constructive criticism. Curtiss was conscious of his grammar school education and grease under his fingernails. Meeting Bell, Selfridge, and others impressed him with the sophisticated topics they discussed. He was proud of his self-taught mechanical capabilities. He could as easily fix a broken doorbell as devise a carburetor from an empty tomato can. Traditional ways were rendered obsolete. Knowledge opened opportunities.

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Bell and his wife Mabel funded AEA, incorporated October 1907. Curtiss was appointed director of experiments with a salary of $5,000—today worth $130,000. Months later Curtiss built *June Bug*. AEA had arranged for him to fly it in the *Scientific American* Trophy contest.

June's Bug's flight coincided with the Wright brothers practicing flights in a field outside Dayton, their first public demonstrations. Soon Wilbur shipped out to France. He impressed tens of thousands over six months in Le Mans, southwest of Paris, by flying his Wright Flyer in figure eights and soaring higher than 100 feet, followed by more exhibitions south in Pau. He secured a French government contract to supply a few Wright Flyers and train pilots.

Orville took a plane to Fort Meyer, an Army base in Arlington, Virginia, across the Potomac River from Washington, D.C. He impressed Army brass looking to buy planes and have him train pilots. Orville set seven new world records—including staying aloft for more than an hour, circling the base's parade ground an impressive fifty-seven times.

On September 17, Orville was asked to take Lt. Thomas Selfridge on a flight, sitting next to him. Orville and Selfridge soared aloft 100 feet over some 3,000 spectators and reporters. The day's quiet was shattered when a piece of propeller snapped off with a loud crack. The plane shuddered briefly before plunging like a rock.

Orville suffered a broken leg, fractured hip, and four cracked ribs. He was hospitalized for five weeks and spent months leaning on a cane.

Selfridge died of a fractured skull—the first fatality in aviation history.

His death came as a blow to Curtiss and other AEA members. The group's high spirits turned somber. When their one-year contract expired, no one suggested renewing.

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The Aeronautical Society in New York contracted Curtiss in the spring of 1909 to build an aeroplane. He modified the design of *June Bug*, shortening the wings and inserting ailerons (small wing flaps that are instrumental for turning the aircraft) midwing rather than at the tips. The struts and other woodwork were brushed with yellow varnish to look better in photos. Curtiss called it the *Gold Bug*. It was the first plane of his design. He sold it for $5,000 (worth $134,000 today)—America's first commercial aeroplane sale.

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Selling the *Gold Bug* angered the Wright brothers. They believed the U.S. Patent they had received in 1906 granted them a monopoly on all aircraft.

France led the world with ten manufacturers then producing dozens of aircraft, compared to about ten aircraft in the United States. The Aéro-Club de France secured French as the language for international aviation, including the distress call, *M'Aidez*, (French for "help me," pronounced Mayday).

The Aéro-Club de France and premier champagne houses announced the first international flying extravaganza in late August 1909—a week of races near Rheims, east of Paris, deep in champagne country. A rococo wooden grandstand was constructed to seat 50,000 and another 200,000 could watch from the open airfield. Up for grabs was a purse of $35,000—almost $1 million today. New York expat newspaper mogul James Gordon Bennett in Paris donated a sculpted silver trophy and $5,000 cash—a combined value topping $200,000—for the main event, to the fastest pilot flying around the airfield.

Twenty-one of the greatest pilots from France and England entered. The Wright brothers declined their invitation. The president of the Aero Club of New York cabled Curtiss urging him to go and agreeing to pay his expenses as America's entry. First, however, Curtiss had to design and build not only a new engine and aeroplane but also one he could take apart to pack for the 3,000-mile journey, all on short notice.

Assisted by two mechanics in his Hammondsport shop, he created a bi-wing plane modeled *on Gold Bug* but lighter, a propeller seven feet long instead of six, and a 50-hp Curtiss OX engine. He machined a second propeller as a spare, the only extra part he had time to fashion. He invented detachable wings, which came apart in sections. As soon as he finished the engine and plane, he packed them in wooden crates to take as personal luggage. He departed barely in time to climb aboard a train to New York, then stride up the gangway for a week-long steamship crossing. The crates of his aircraft fit into a train compartment and a ship's cabin.

Curtiss had every reason to feel out of his league in Rheims. Frenchman Louis Blériot recently had gained fame for flying twenty-two miles across the Channel, from Calais, France, to Dover, England, in the mono-wing plane he invented. Blériot arrived in Rheims with six planes. Blériot's mono-wing plane reduced drag and inspired Curtiss. He looked forward to competing against the flamboyant celebrity and other entrants including Wilbur Wright's three French protégés piloting Wright Flyers.

"In France, Curtiss saw good ideas on the newest planes, and he talked with foreign pilots about their flying experiences," noted David Isby, a Washington, D.C.-based military consultant and author of twenty-six books.

On opening day Curtiss was putting his plane, *Rheims Flyer*, together when news flashed around the airfield that the Wright brothers had sued the Aeronautic Society for buying Curtiss's *Gold Bug*. The Wrights demanded financial damages and that the *Gold Bug* be destroyed.

French and English aviators rallied to support Curtiss. They knew that legal action would follow in their countries. Flyers were confident that the suit would fail because ailerons, French for little wings, were standard in the French and English aircraft industry, distinct from the Wrights' system of bending wings tied to the rear rudder,

Friends in high places: Members of the Aerial Experiment Association pose with Curtiss (center with hat) and his mentor (right of Curtiss), Alexander Graham Bell.

regarded as obsolete.

On August 28—the main event, the race for the Gordon Bennett Trophy and grand prize—flyers were to make a timed flight at their choosing between 10 a.m. and 5:30 p.m. The rules called for flying twice around a 10-kilometer (6.2 miles) rectangle over the airfield, and staying outside the corners designated by tall red and white wooden pylons.

Curtiss went up first. The mass of 250,000 spectators and journalists watched him circle higher and higher till he reached 500 feet. Then he dove down to build max speed and thundered over the start line where judges jammed thumbs on their hand-held stopwatches. The throng was dazzled by the way he banked his *Rheims Flyer* around the pylons—a maneuver nobody before had witnessed. He shaved the turns like he was driving his motorcycle, pushing his plane hard until he blew over the finish line and judges clicked their stopwatches.

As he jumped out of the cockpit, exultant Americans ran to mob him. An official gripping a megaphone announced a new world 20-kilometer (12.4 miles) record—inside sixteen minutes, an average of 46.5 mph. Curtiss had to wait the rest of the day to see if his time would last. After five o'clock, the final pilot, Blériot, took off. His larger aircraft had a bigger engine. The Frenchman, wearing goggles, completed a perfect flight but took the turns like squares. After landing, he strode to the judge's booth where Curtiss and the others stood to hear the results.

A hush fell over the airfield. Then came a yell from the judges' stand: Curtiss had won by six seconds. Before he could catch his breath, the band struck up the *Star Spangled Banner* and the Stars & Stripes were hoisted up a pole. He beamed a rare broad smile at a French film crew. Blériot rushed up, threw his arms around Curtiss, and kissed him on both cheeks.

Newspapers in two languages proclaimed Curtiss the fastest human on the ground and in the air. What mattered more to him was that the three Wright Flyers had finished last.

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In January 1910, a U.S. Circuit Judge granted the Wright brothers a temporary injunction blocking Curtiss from selling or exhibiting his planes. The Wrights demanded a 20 percent royalty on the retail price of all planes he sold and prize money earned from exhibitions.

Moreover, attorneys in New York for the Wrights enjoined French pilot Louis Paulhan as he stepped onto a New York harbor pier. He had arrived with four French and English planes to compete in the Los Angeles international air meet organized by the Aero Club of California.

The Wrights ignited a firestorm of protests on both sides of the Atlantic. Lawmakers on Capitol Hill harrumphed about threatening legislation to end the "air trust."

Curtiss, deprived of earning money from aviation, was forced to file for bankruptcy. His attorney prevailed on the Circuit Court to allow Curtiss to post $10,000 bond—$257,000 today—which allowed him to resume work while he appealed the injunction. The bond posted in April 1910 served as an advance against future royalties if he were to lose the case.

Now desperate to raise money, Curtiss considered the daunting Hudson-Fulton Prize offered by the *New York World*, the city's largest of fifteen dailies—$10,000 to the first pilot to fly a plane from Albany over the Hudson River to Manhattan, some 150 miles. The rules allowed two stops for refueling and stipulated the flight had to be completed within twenty-four hours. Nobody had flown from one American city to another.

Curtiss saw it as his best chance. When he mentioned the idea to wife Lena, she expressed fear about the dangers of flying over water. To quell her anxieties, he assured her he would build a new plane with floatation gear—an inspiration that would change his career.

He spent weeks studying maps, U.S. Weather Bureau data, and took train and boat trips to check out the Hudson River valley. He designed a plane, the *Albany Flyer*, fitted with a waterproof metal pontoon below each wing and installed small inflated airbags from tough air-balloon cloth onto the fuselage undercarriage for an emergency water landing.

His *Albany Flier* was powered by the strongest engine he ever produced. To test the plane, he hauled it by train to perform exhibitions. In Memphis he took Lena up with him, her first flight, over the fairgrounds to show her the sights and win her confidence.

Once he informed the *New York World* on Thursday morning, May 26, that he would attempt a flight on Sunday morning, the editor engaged the New York Aero Club as official observer. New York dailies ran banner headlines hawking Curtiss's flight. *The New York Times* squeezed into the action by hiring a special train to carry Mrs. Curtiss, his staff, and friends—and a journalist and photographer from the paper to chronicle their reactions.

Early Sunday morning Curtiss stuffed his arms through a cork life jacket, pulled on rubber fishing waders up to his armpits to ward off chilly air, and donned a pair of goggles like Blériot. He took off from a field outside south Albany and flew over the Hudson River.

Soon he spotted the train below carrying Lena. She leaned out a window waving a white handkerchief. He flew overhead and alongside, plane and train cruising about fifty miles per hour. Halfway through his route, he landed as planned at 8:30 a.m. on a bumpy open grassland near Poughkeepsie to refuel the gas. Less than an hour later he took off again. He closed in on Manhattan around noon. He spotted crowds below waving at him from rooftops and along the riverbank. When he saw the Statue of Liberty, signaling the end of his trip, he circled her before steering to nearby Governors Island for a perfect landing on the parade ground.

Curtiss carried with him a letter from the Mayor of Albany to deliver to the Mayor of New York—the first airmail letter. The

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Fourth Estate treated him as a national hero, including six pages of copy and photos in *The New York Times*.

Weeks later a federal appeals court overturned the injunction against Curtiss. He founded two companies—the Curtiss Aeroplane Company and the Curtiss Motor Company. He also received a patent for his design for ailerons.

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As Curtiss had flown over the Hudson River, he realized the boats below were defenseless targets against planes. He also thought about building a plane that would take off from water and land in water. He wrote to the Secretary of the Navy offering to teach officers to fly at no cost. Navy leadership, oriented around battleships, wasn't interested. Curtiss produced a seaplane and tested it on Keuka Lake near Hammondsport, taking off then landing.

"Curtiss was a showman, which was important to get attention," said David Isby. "He landed a seaplane next to an anchored Navy war ship, which hoisted the seaplane aboard for inspection, then lowered it back down to the sea and he took off."

One of Curtiss's disciples was Eugene Ely, a civilian from Williamsburg, Iowa, who enjoyed flying stunts. On November 13, 1910 he flew a Curtiss plane from the deck of the Navy cruiser Birmingham off the Virginia coastline. Ely's flight persuaded Navy officials to order two lieutenants to report to Curtiss and learn to fly. The threesome bonded as Curtiss gave lessons.

Navy higher-ups remained indifferent to aviation. Curtiss created history on January 18, 1911, when Ely flew onto the deck of another Navy cruiser, *Pennsylvania*, in San Francisco Bay, then flew back to shore. That marked the birth of U.S. Naval aviation.

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For eight years the case of *Wright v. Curtiss* roiled in the courts, turning into a trust fund for lawyers. Henry Ford put his crackerjack legal team at Curtiss's disposal. Then politics intervened. In April 1917 President Wilson declared war on Germany "to save democracy" and ordered one million U.S. troops to reinforce French and English soldiers.

According to historian John B. Rae, the United States had about seventy-five airplanes, none combat ready. The fledgling Army Air Corps borrowed French Nieuports and English Sopwith Camels to fly missions, explains Bill (Willie) Driscoll, a Navy Ace and TOPGUN instructor.

Curtis Wright III, a descendant of the Wright brothers, describes a family story handed down about the "shotgun marriage" that ended the litigation. "The War Department [predecessor to the Defense Department] summoned Glenn Curtiss and Orville Wright to Washington D.C. and sat them down at opposite ends of a conference table. The gist was that the United States had a war to fight, Wright had the patent, and Curtiss had materials and manufacturing know-how."

William F. Trimble in *Hero of the Air: Glenn Curtiss and the Birth of Naval Aviation*, cites a brokered settlement, which "took over the Wright and Curtiss patents and administered a cross-licensing agreement that applied to all members of the association." The Wright and Curtiss interests each received $2 million in royalties, today worth $37 million.

By then Curtiss had more than 500 U.S. Patents, most for aircraft design, and a much bigger business. His name has first billing in the global Curtis-Wright Corporation,

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The Glenn H. Curtiss Museum (www.glennhcurtissmuseum.org; [607] 569-2160) on State Road 54 in Hammondsport recently reopened after $1.2 million in renovations to remember its native son and his critical roles in motorcycles and aviation. Author Seth Shulman in *Unlocking the Sky: Glenn Hammond Curtiss and the Race to Invent the Airplane*, praised the museum as a gem.

Peter Joffre Nye is author of eight nonfiction books, most recently The Fast Times of Albert Champion: From Record-Setting Racer to Dashing Tycoon, An Untold Story of Speed, Success, and Betrayal. *He is updating his 1988* Hearts of Lions *for release in 2017.*