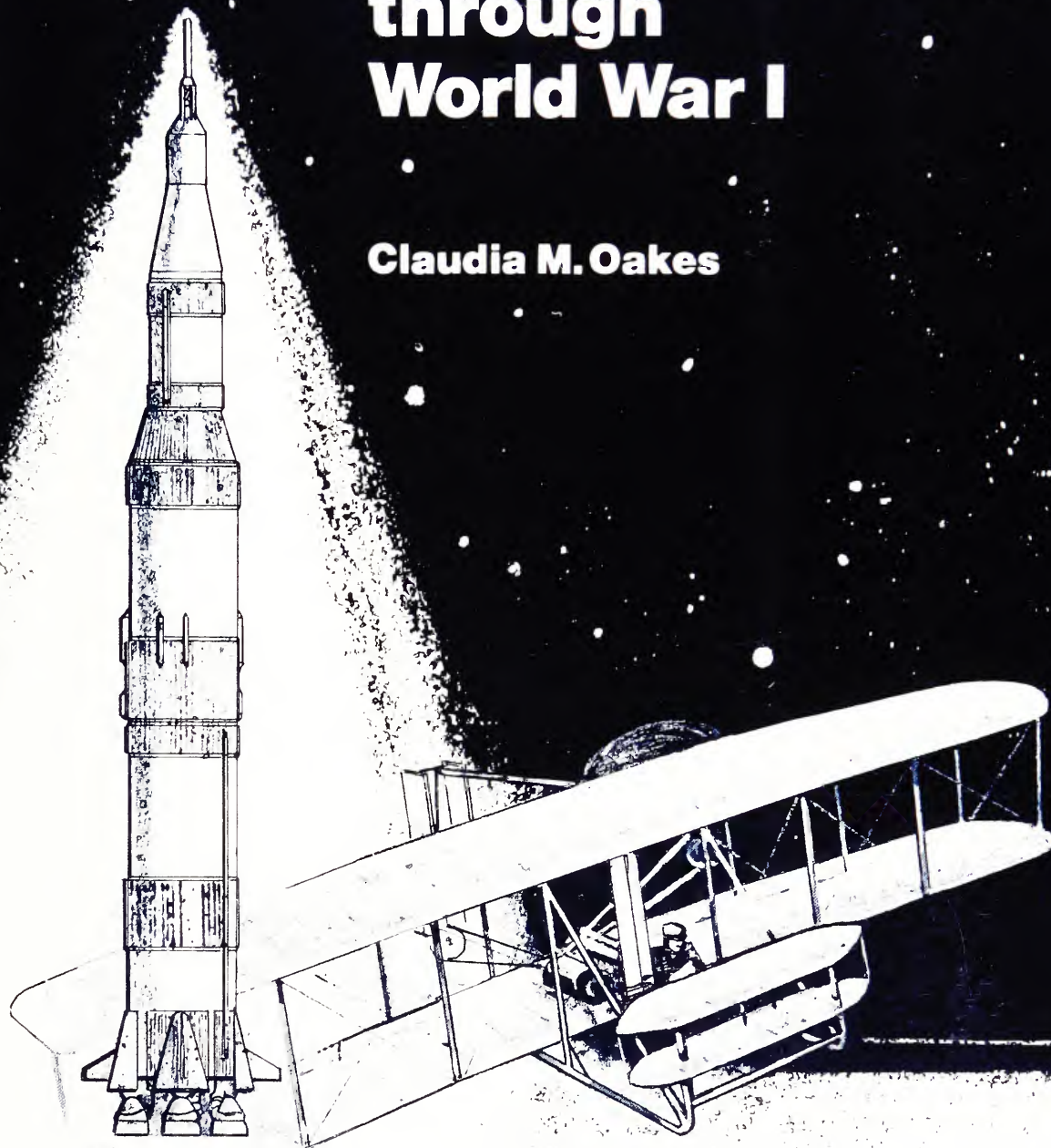


# **United States Women in Aviation through World War I**

**Claudia M. Oakes**



**SMITHSONIAN STUDIES IN AIR AND SPACE - NUMBER 2**

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# United States Women in Aviation through World War I

*Claudia M. Oakes*



SMITHSONIAN INSTITUTION PRESS

City of Washington

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## ABSTRACT

Oakes, Claudia M. United States Women in Aviation through World War I. *Smithsonian Studies in Air and Space*, number 2, 44 pages, 48 illustrations, 1978.—Women who participated in aviation in the United States from 1880 through World War I, as supporters, passengers, designers, and pilots, are presented in this publication. Rare photographs, documents, newspaper clippings, and other archival materials held by the library of the National Air and Space Museum, Smithsonian Institution, provide the nucleus of the study.

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# United States Women in Aviation through World War I

*Claudia M. Oakes*

## Introduction

“There is the world-old controversy that crops up again whenever women attempt to enter a new field. Is woman fitted for this or that work? It would seem that a woman’s success in any particular line would prove her fitness for that work, without regard to theories to the contrary” (Law, 1918:250).

This statement made by the famous aviatrix Ruth Law in 1918 remains pertinent to contemporary issues. More than half a century later, although acceptance of women in aviation in the United States is established, some barriers to full participation still remain. The military is now admitting women to pilot training, though principally for cargo aircraft and helicopters. The U.S. Navy has a female pilot who flies a combat-type aircraft, an LTV A-7 fighter, but she is assigned to a noncombat land-based utility squadron. The issue of women flying in combat is one facet of the litigation now being pressed in federal courts to open the military services to full participation by women. In the field of commercial aviation, progress is very noticeable. According to a survey by Frontier Airlines, as of February 1977 there were 18 women flying for regularly scheduled airlines in the United States. Five of these women were first officers (co-pilots), and by the summer of 1977 one had been promoted to captain.

These opportunities for women in aviation today did not come about overnight. They are based on several decades of struggle, determination, and achievement on the part of many courageous women. The earliest of these activities go back to the very beginning of aviation in the United States.

In those early days of the twentieth century, women in this country who wanted to be pilots were abundantly familiar with the general fight of women for acceptance in stereotypically all-male pursuits. Aviation, however, on a worldwide basis was not traditionally all-male. In Europe as early as 1834 there were 22 women who had piloted balloons.

As the field of aviation developed into heavier-than-air craft, it might have been expected that women, having been so active in the lighter-than-air era, would be just as active in the airplane age. Claude Grahame-White, a famous early British aviator, was among the many people for whom this conclusion did not logically follow. He confessed that he regretted having taught women to fly because he felt he had pushed them toward an early death. He did not doubt their courage, he said, but feared that a woman’s “innate” lack of self-confidence would cause her to panic in an emergency situation and lose control.<sup>1</sup> This premise was refuted time and time again, however, as

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<sup>1</sup> 1911 newspaper clipping, Matilde Moisant biographical file, Library, National Air and Space Museum.

women pilots coolly recovered from perilous situations in the air and landed safely.

Sometimes in those early days theories and articles supporting the idea of women as pilots did almost more harm than good. In 1911 Prof. Rudolph Hensingmüller of Vienna published a list of reasons why he believed women were better pilots than men were. Some of his reasons, which were regarded as so ludicrous that they were immediately held up to ridicule, were:

because she has retained the primitive faculty of seeing with full retina; enforced modesty and flirting have caused this; because she has scattered attention instead of concentration; this is invaluable to an aviator who must notice many things at once;

because she has the faculty of intuition—that quality of the mind which can take in a number of causes simultaneously and induce a conclusion—an essential in aviation;

because her specific gravity is less than man's;

because she needs less oxygen and therefore can better meet the suffocating rush of air; altitude effects her less than it does man;

because her sneezes, in man an actual spasm, have been controlled by ages of polite repression,

because she feels more quickly warning atmospheric changes;

because she loves to speed.<sup>2</sup>

There were other writers, however, who put forward more convincing articles on the subject of women as pilots. Such prestigious aviation journals as the *Revue Aérienne* and *Flying* were printing articles supporting women in their flying endeavors.

Part of the furor over women flying stemmed from the unusual manner in which they had to dress. Obviously, the long flowing skirts and large hats then in fashion were impossible for women pilots to wear. Shocking as the idea might be, trousers were the most practical mode of dress. Some of the women compromised with convention by making the trousers with rows of buttons on the inside seams so they could convert them to skirts when not in the air. The general flying outfit for a woman consisted of a two-piece suit of blouse and wide-legged knickers, with high-top boots and either an automobile cap or soft fabric helmet with goggles. In contrast to most of the outfits which were made of conservative, dark fabric, Harriet Quimby flew in a suit of plum-colored satin. Hélène Dutrieu of France caused quite a stir when she admitted to flying corsetless. She said it gave her greater freedom of movement and

<sup>2</sup> Ibid.

also lessened the chance of injury in case of an accident.

In spite of all the publicity the women received, the many accomplishments they achieved, and the records they set proving their worth as pilots, no amount of evidence and persuasion could convince the War Department to allow any of them into the Air Service during World War I. Most of the women lobbied strongly to be allowed to fly for the war effort. Their goal was combat flying, but they pleaded with the Air Service to allow them to enlist and to put to use their flying abilities in whatever ways might be of service.

Rep. Murray Hulbert supported their efforts and sponsored a bill in Congress to that end. There was active support for the measure and its passage appeared possible until Secretary of War Baker flatly stated, "We don't want to let down the bars to women in the army" (Hulbert, 1918:250). As a result, U.S. women were not allowed to take part officially in World War I as pilots.<sup>3</sup> But the women flyers did serve. They flew exhibition flights and fund-raising flights for the Red Cross and Liberty Loan drives, lent their famous names to the recruiting effort, and even trained future military pilots at private airfields.

This study focuses attention on the women who contributed significantly in those early years to shaping the future of aviation. There were women test pilots in those pioneer years, women who set altitude and distance records, and women who flew for the sheer joy of it. All of them are examples of what can be accomplished when the desire and the determination to succeed are strong.

A majority of the source material used for this publication came from the National Air and Space Museum Library. This facility contains an extensive collection of newspaper clippings, magazines, books, photographs, and other material related to the history of aviation. Other sources, which I gratefully acknowledge, are: Bettmann Archive, 136 E. 57th St., New York, New York 10022; the Detroit Public Library; Rare Birds,

<sup>3</sup> In Russia, however, at least one woman was allowed to fly in World War I. The first Russian woman to serve as a military pilot, and possibly the world's first, was Princess Eugenie Mikhailovna Shakhovskaya. She made a personal request to the Tsar to be allowed to fly in the war and was assigned to the 1st Field Air Squadron as a reconnaissance pilot. An unusual job which she later held was chief executioner for the Cheka (secret police) in Kiev.



Inc., 791 Nisqually Dr., Sunnyvale, California 94087; *The St. Petersburg Times*; and Neta Snook Southern.

Although the term “aviatrix” is no longer popular among women pilots, I have used it throughout this book to retain a flavor of the era and an aura of the personalities about which I write. During my research I came to feel close to these women, to sense their frustrations in trying to find aviation schools which would accept them, people who would trust them with their aircraft, and then, as acceptance of them as pilots was getting stronger and stronger, to have all they had worked toward stymied by not being allowed to fly in World War I.

### Passengers and Promoters

Not all women who were active in aviation in those early days were pilots. It was considered radical for a woman to involve herself in any way with aviation, whether flying as a passenger in an airplane, ascending in a balloon, offering support to aviator sons, husbands or brothers, or even raising funds for aeronautics. A woman’s statement of intention to do any of these things was often met with exclamations of “You can’t be serious!” from her friends, both male and female.

Occasionally, if a woman was socially prominent, she might even make an attempt to conceal her identity before making a flight. Such was the case at Philadelphia in October 1909 when a leading socialite, Miss Violet Ridgeway, satisfied her long-cherished ambition to take a balloon flight. She arrived at the launch site very early in the morning, heavily veiled. When someone asked her name, she replied, “Miss Anna Brown.” Apparently she feared that her parents or some well-meaning friends, anxious about her safety or her reputation, might try to interfere at the last minute. Not all of her family disapproved, however, for Violet’s sister had sought permission to go along, but there was no more room in the basket.

By contrast, a year earlier in Canton, Ohio, several women had not only made ascensions with the famous balloonist A. Leo Stevens, but had even written articles for contemporary magazines about their experiences. In *Aeronautics* for July 1908 Mrs. Cora Thompson described her flight in glowing terms: “. . . fear is wholly excluded. There can be nothing but pleasure connected with it . . .

Despite all the obstacles, women in steady numbers did become pilots. What the aviation world would do about them, whether it would use their skills or try to ignore them, remained to be seen. The women who flew after World War I had their problems and barriers, too, but they could look back on their predecessors’ struggles and take heart that acceptance of their flying abilities was possible. These second-generation U.S. women pilots started from the base built by those before them. People had become a bit more reconciled to the idea of women flying airplanes. But for those very early women, there was literally nowhere to go but up!

I enjoyed every moment of the trip and when the time finally came for us to land I felt greatly disappointed—the two hours spent in the balloon had sped like minutes and I am anxiously awaiting



FIGURE 1.—Mrs. Hart O. Berg, the first American woman to fly as a passenger in an airplane, shown here beside Wilbur Wright shortly before their takeoff at Auvers, France. Note her “hobbled” skirt and the securing of her hat. (SI photo A43064B)

another opportunity when I can ascend in a larger balloon and with a brisker wind." Mrs. Thompson also stated that she planned to try to convert her friends in the Wilkesburg Automobile Club to ballooning (Thompson, 1908:24).

Mrs. Edmund Rosenberg of Indianapolis added to her fame of being the first woman in that city to drive an automobile by becoming Indianapolis' first woman to make a balloon ascension. She and her husband flew with an exhibition balloonist, G. L. Bumbaugh, in December 1908. Mrs. Rosenberg was so eager to make the ascension that she told Mr. Bumbaugh she would be willing even to hang onto the car as ballast. Her reaction was extremely enthusiastic: "It's not near so dangerous as driving an automobile. There are no policemen up there, no street cars, no horses, no little children, or deaf or blind to make you nervous . . . I want a balloon" (author unknown, 1908:11).

Since the phenomenon of women flying in aircraft even as passengers was such a rarity, "firsts" were noted for women passengers as well as for

women pilots. Mrs. Hart O. Berg, wife of the Wright brothers' European representative, was the first American woman to fly as a passenger in an airplane. She made a two-minute, three-second flight with Wilbur Wright at Auvers, France, in 1908. Mrs. Berg is also credited with having inspired the famous lady's fashion of the day, the "hobble skirt." Apparently, a French couturiere was quite taken with the manner in which Mrs. Berg walked away from the aircraft with her long skirt still tied around her ankles. She had fastened it in this manner to keep it from blowing in the wind during her flight (Figure 1).

The first woman to fly as an airplane passenger in America was Mrs. Ralph Van Deman of Washington, D.C., a good friend of the Wright brothers' sister Katherine. Mrs. Van Deman developed an interest in aviation, and when Wilbur and Orville were giving flight instruction to U.S. Army officers at College Park, Maryland, in the fall of 1909, Mrs. Van Deman often went with her husband, a U.S. Army captain, to watch the flights. One day in October they arrived some time before the flights were to begin, and Wilbur Wright took Mrs. Van Deman for a short ride. At the end of the flight, Capt. Van Deman expressed his gratitude: "I want to thank you, Mr. Wright. Now it will be possible for me to keep peace in our family."<sup>4</sup>

The *Detroit Free Press* in June 1911 carried lengthy accounts of an air meet which was being held at the Detroit Country Club. Frank Coffyn, a Wright aviator, was performing in his Wright biplane, making exhibition flights and carrying passengers. A great deal of coverage was devoted to the many women who flew as passengers. Mrs. Russell A. Alger, wife of the President of the Michigan Aero Club, was the first woman to make an airplane flight in Michigan. Her fourteen-year-old daughter Josephine, who went up shortly after her mother, was the youngest person in the United States to fly in an airplane up to that time.

Since women were involved, the newspaper was unable to resist a short fashion commentary: "Miss [Elizabeth] Loomis was the fourth passenger. There was not a trace of fear in her walk to the machine, only an eagerness to take her turn at flying. She was dressed in white, with a small red hat pinned firmly on her head, and the right ear,



FIGURE 2.—Mrs. Ralph Van Deman, a good friend of the Wright brothers' sister Katherine and the first woman to fly as an airplane passenger in America. (SI photo 77-717)

<sup>4</sup> Newspaper clipping, Mrs. Ralph Van Deman biographical file, Library, National Air and Space Museum.

LIVE OF BLOOD OVERBOARD... In Next Sunday's Fun Week

# The Detroit Free Press

The Weather Today FAIR AND WARMER.

VOL. 76, NO. 266

DETROIT, MICHIGAN, TUESDAY, JUNE 20, 1911.—FOURTEEN PAGES

PRICE TWO CENTS

## WHITE HOUSE FILLED BY BRILLIANT COMPANY

THOUSANDS IN LINE AT RECEPTION  
Left's Silver Wedding Greatest of All the Many Functions That Have Entertained Washington.

### FLOOD OF RARE AND COSTLY GIFTS

Many Gorgeous Gowns Worn by the Women Who Are Leaders in Official Society.

Washington, June 19.—The White House today was the scene of a brilliant reception for the bride and groom at their silver wedding. The reception was held in the East Wing of the White House, and was attended by thousands of guests. The bride, Mrs. Woodrow Wilson, was dressed in a gown of white silk and lace, and wore a crown of pearls. The groom, Mr. Woodrow Wilson, was dressed in a suit of dark blue cloth. The reception was a great success, and the bride and groom were the center of attraction. The White House was filled with rare and costly gifts, and many of the women who were present wore gorgeous gowns. The reception was a fitting celebration of the silver wedding of the President and Mrs. Woodrow Wilson.

## DO DANCE OF DEATH

Lives Wives Miss and Sister at 80 S. Pine, Endangering Lives of Travers and Failing Other Property in Peril

### OFFICIAL PLACES LOSS AT \$25,000

Tragedy Struck Damaged Three Cars Fully Consumed and Miscellaneous Worth About \$5,000 Destroyed by Carcinoma  
A fatal case of carcinoma, a cancerous growth, was found in the body of a woman who had been suffering from the disease for some time. The woman's condition was so serious that she was unable to work, and her property was in jeopardy. The loss of her property was estimated at \$25,000. The woman's death was a tragedy, and her family is now suffering from the loss of her property. The disease is highly contagious, and it is important to take precautions to prevent its spread.

## MICHIGAN AERO CLUB IS HOLDING FIRST AVIATION MEET ON COUNTRY CLUB'S GROSSE POINTE GOLF LINKS



### HOPE TO CORNER THE DEMOCRATS

Michigan Republicans Intend to Drag Panama Bill Before the House.

### REP SMITH WILL FIGHT CUT IN THE WOOL TAX

Will Oppose Delegation Will Oppose No Aid to the Underwood Messing.

### INCREASE IN TEN YEARS IS LARGE

Value of Live Stock in Michigan Farms in 1910 Was Over \$181,000,000

### SAME BRAND OF HEAT FOR TODAY

Knox Reports 88 Degrees Only One Man Overcome by Heat

## THREE DETROIT WOMEN VENTURE IN BIPLANE



### SEA OF MUD IN LONDON

King George V Scatters Honors Many New Knights and Bares Air Prohibited, Notable Quesada

### AVIATOR MAKES FANCY FLIGHTS

Six Other Members Make Ascensions While a Dozen Others Walk Barely (an Up Today

### UPPER RIGHT SHOWS WIFE BATH

Upper left shows Mrs. Russell A. and Mrs. Fred M. Alger and Miss Bath Loomis are enthusiastic about Sport

### SENATOR BY GIVING BLOOD SAVES LIFE OF YOUNG WIFE

Color Comes Back to Sick Woman's Face Her Devoted Husband Falls to the Floor.

### NEW SHIP SPEEDS ACROSS ATLANTIC

White Star liner Olympic Makes Fast Time as Her Maiden Voyage

### COMMISSION PLAN LOSSES AT LANSING

Auto 'Win Out' in Charter by Means Election by Big Majority

### INSPECTS BLACK HANDERS

Doors Are Made to Close. Said Morgan, Snubbing Gates

### LEADER OF THE FINANCIAL WORLD SHOWED SMALL CONSIDERATION TO STEEL MAN WHEN HE BOASTED THAT ALL HIS ACTS HAD BEEN IN OPEN

Leader of the Financial World Showed Small Consideration to Steel Man When He Boasted That All His Acts Had Been in Open

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### PHILADELPHIA QUARTERBACK

Philadelphia Quarterback... (Text about football player)

### WALK FOR BERRY HAPPY

Walk for Berry Happy... (Text about a walk for charity)

### ORIS BELL IS LOWERED

Oris Bell is Lowered... (Text about a person named Oris Bell)

### 35-PASSENGER PACKARD AUTO

35-Passenger Packard Auto... (Text about a Packard automobile)

### SENATOR LINE UP

Senator Line Up... (Text about senators)

### COMMISSION PLAN LOSSES AT LANSING

Commission Plan Losses at Lansing... (Text about a commission plan)

### INSPECTS BLACK HANDERS

Inspects Black Handers... (Text about inspecting black handers)

### DOORS ARE MADE TO CLOSE

Doors are Made to Close... (Text about doors being closed)

### LEADER OF THE FINANCIAL WORLD SHOWED SMALL CONSIDERATION TO STEEL MAN WHEN HE BOASTED THAT ALL HIS ACTS HAD BEEN IN OPEN

Leader of the Financial World Showed Small Consideration to Steel Man When He Boasted That All His Acts Had Been in Open

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**An Educational Opportunity For Boys and Girls**

The DETROIT FREE PRESS will furnish free tickets for the local Aviation Meet to all Detroit School Children.

See Page 8

FIGURE 3.—Headline coverage of women flying at the Detroit Air Meet on the front page of The Detroit Free Press, 20 June 1911. (Courtesy of Detroit Public Library)

which during the flight is within a few inches of the roaring motor, stuffed with cotton." Miss Loomis was extremely enthusiastic about her flight: "It's the greatest fun I ever had. I'm simply mad about it. It's just glorious up there in the air . . . I wish I could go right up again" (author unknown, 1911:1).

The Detroit women who flew during those few days, however, did not think of airplanes merely as vehicles for entertainment. They could visualize a future where flying in an airplane would be commonplace. Mrs. William H. Burtenshaw, one of Coffyn's passengers, was quoted as saying, "I want to go now, while it's still wonderful and exciting. It's only a question of a few years isn't it, when we'll be talking in the morning about flying over to Paris for the evening's opera and then even this will have ceased being thrilling and awe-inspiring" (author unknown, 1911:1).

Coffyn apparently realized after several days of taking women up as passengers that he need not

fly sedately around the golf course to keep from frightening them. When Mary Manning Wadsworth, an actress of the day, flew with Coffyn, he engaged in a race with a passing motorist, much to Mrs. Wadsworth's delight.

By the time the meet ended, the newspaper was calling the women who flew "superwomen" for their courage in making airplane flights. A reporter also predicted, correctly, that "Ought women to aivate?" would become a social issue of the day.

The woman having the distinction of being the first female passenger on a regularly scheduled airline was Mrs. L. A. Whitney, wife of the Secretary of Commerce of St. Petersburg, Florida. The St. Petersburg-Tampa Airboat Line, the world's first scheduled airline, went into operation on 1 January 1914, with a Benoist flying boat piloted by Tony Jannus. Mrs. Whitney flew from St. Petersburg to Tampa on 8 January. Her flight was not without incident—Jannus was forced to land the aircraft on Tampa Bay some distance from land because of

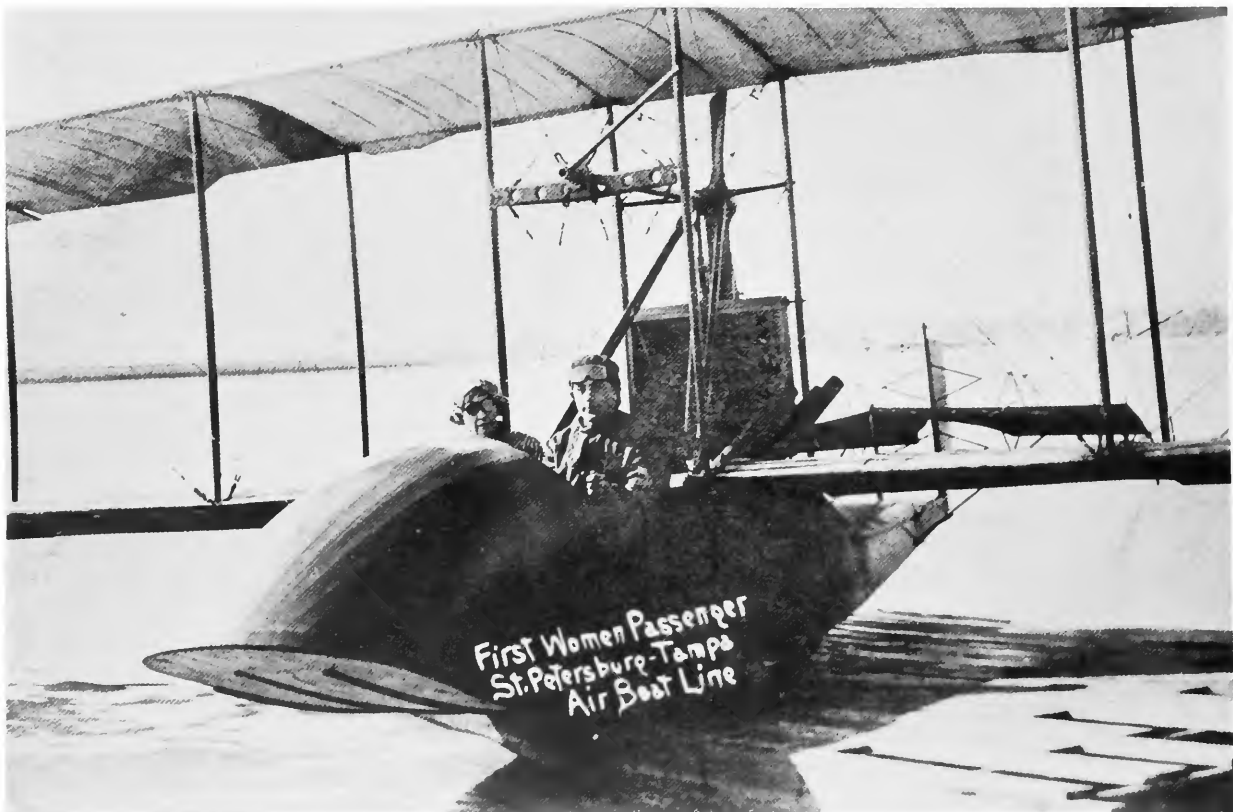


FIGURE 4.—Mrs. L. A. Whitney, who, in 1914, was the first woman to fly on a scheduled airline. (Courtesy of *The St. Petersburg Times*)

engine trouble, but he soon repaired it and successfully completed the flight.

Women of those early days also backed the future of aviation with financial support and genuine enthusiastic encouragement. Katherine Wright, sister of Wilbur and Orville Wright, took an active part in helping her brothers. When money for their experiments was running low, Wilbur and Orville could count on Katherine to contribute a large part of her schoolteacher's salary to their needs. She also worked many nights sewing silk, cotton, and canvas wing coverings for the model gliders they were testing. Katherine went to Europe with her brothers and often flew as a passenger when they were demonstrating their aircraft in England, France, and Italy.

A women's auxiliary of the Aeronautical Society was organized in 1911. Several very enthusiastic women attended the first meeting on 11 November, and letters of support were read from Harriet Quimby and Matilde Moisant, two of the most prominent women flyers of the day. The group was founded to bring more attention to the achievements of women in aviation.

The "Women of 1915" held a ball at New York's Biltmore Hotel in January 1915. The object was to raise money to buy an airplane for the coastal defense of New York. Emphasis was placed on the importance of airplanes in warfare. Among the ball's patrons were the governor of New York, the mayor of New York City, Gen. Leonard Wood, Rear Adm. Robert E. Peary, and Florence Guggenheim.

Women had become so prominent in aviation that during World War I Mrs. Charles A. Van Renssaelear was named chairman of the Committee on Training Camps for Kite Balloon Operators. This would have been quite an achievement at any time, but since the United States was involved in a war, the position was even more important. Mrs. Van Renssaelear wrote a forceful letter to President Wilson urging him to adopt universal training in balloon operation for military personnel as a method of getting the number of balloon operators necessary for national defense. She was supported in her views by Sen. George E. Chamberlain, chairman of the Senate Committee on Military Affairs.

By 1916 flying had become almost commonplace for some women, especially for Mrs. Harry Christ-



FIGURE 5.—Katherine Wright, who was a staunch supporter of her brothers' work, posing for reporters with her brother Wilbur before embarking on one of their European trips to demonstrate Wright aircraft. (SI photo A42804G)

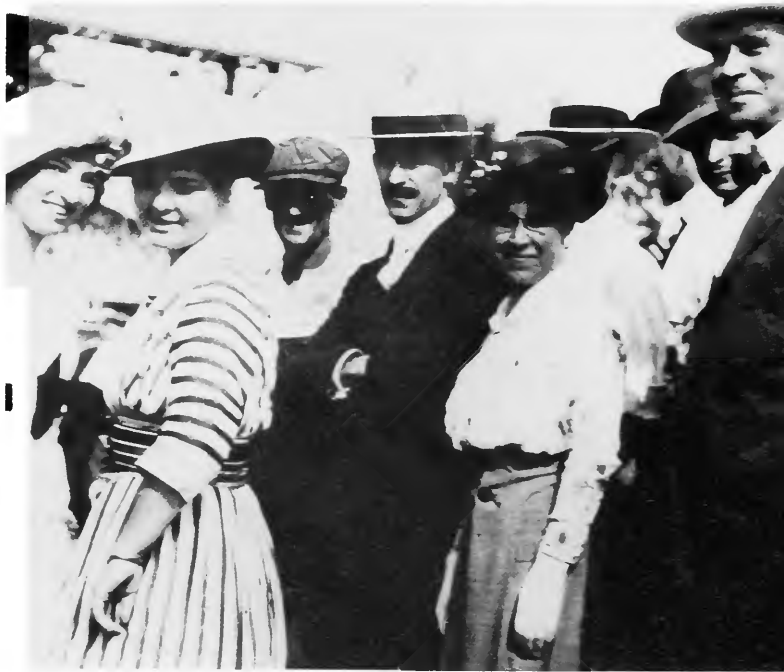


FIGURE 6.—Some of the spectators who came to see the famous aerobatic flyer Lincoln Beachey at Dayton, Ohio, 1 August 1914; in the foreground (from left), Marjorie Stinson, Mrs. K. Whiting, Orville Wright, Katherine Wright, and Griffith Brewer. (SI photo 77-704)



FIGURE 7.—Katherine Wright watching intently as one of her brothers' machines is set on the launch rail. (SI photo 77-720)

offerson, whose husband was an aircraft designer and manufacturer. On one occasion Mrs. Christofferson was some distance from home when she remembered she had invited several women for dinner, and it was almost time for them to arrive. Her husband was making demonstration flights nearby, so she prevailed on him to fly her, their sixteen-month-old baby, and one of her guests to her home. She succeeded in arriving well before the rest of her guests. In New York City an enterprising aviator, Al Welsh, began an operation of flying women to afternoon teas in his airplane.

Although these women never piloted an aircraft themselves, they still played a vital role in the advancement of aviation. They showed that women did not have to learn to fly to enjoy the adventure of ascending into the air. But more importantly, their flights made a contribution toward proving the pragmatic aspect of flight—the effectiveness of using an aircraft to get from point A to point B. Notwithstanding all the stunts, demonstration flights, and other thrilling aspects of aviation, it was the practicality of flight that caused aviation to grow into the enormous industry it has become.

## Participants

The woman credited with being the first in the United States to pilot her own aircraft was Mary H. Myers of Mohawk, New York. Billed as “Carlotta, the Lady Aeronaut,” she made her first solo balloon flight on 4 July 1880, at Little Falls, New York.

Her husband, Carl E. Myers, influenced by the work being done in Europe, had for several years been experimenting with air navigation, especially ballooning. He worked on making a portable, efficient hydrogen generator and on designing a balloon basket that would be lighter than the wicker ones then in use. His greatest contribution, however, was in the development of a new balloon fabric. By dipping cotton fabric into a specially prepared linseed oil mixture, he arrived at a durable, nonporous product that was so flexible it would not crack when folded and that would last as long as ten years, surviving many rough landings.

Mary Myers assisted her husband in his research and then became so interested in the work that she began piloting balloons herself. No one knows the origin of her professional name “Carlotta,” but it was certainly more attention-getting than “Mary” and also identified her with her husband Carl.

Carlotta’s fame soon spread throughout the northeast and she was frequently hired during the season at Saratoga Springs to make ascensions there. Her proficiency rapidly increased, until she could tell her carriage driver exactly where she would land so that he could be waiting for her. Her ability to do this was aided by the hammock-netting car her husband had developed which was much more maneuverable than the wicker type. The flat bottom of cross-laid veneered wood acted as a steering mechanism; it descended in the line of its lowest edge when Carlotta stepped to the side she wished to approach.

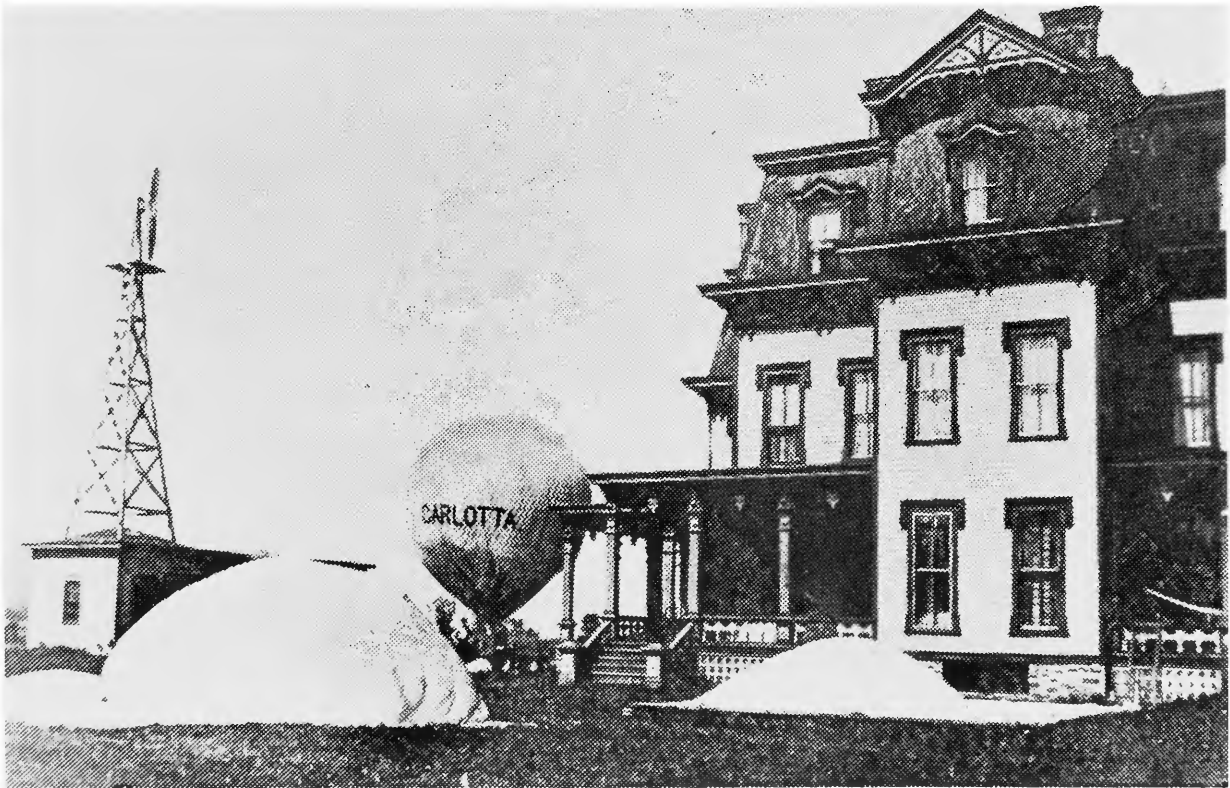


FIGURE 8.—Mary Myers’ balloon “Carlotta” shown being inflated outside the Victorian mansion in Frankfort, New York, where the Myers opened their “Balloon Farm.” (SI photo 77-2698)



FIGURE 9.—The balloonist Mary H. Myers (billed as “Carlotta, the Lady Aeronaut”), the first woman in the United States to pilot her own aircraft. (SI photo 77-2699)

Carlotta cool-headedly came out safely from many dangerous situations and near accidents. But the most frightening occurred at Syracuse when she was accompanied by her seven-year-old daughter Bessie. Lacking ballast because of the presence of the little girl, the balloon descended too quickly into a steep-sided lake, and overhanging trees prevented Carlotta from bringing it down close to shore. Bessie saved the day by crawling out onto a half-submerged log and pulling the balloon to shore with the rope. Bessie never again made a balloon ascension. At the 1903 St. Louis Exposition, however, she gave an indoor demonstration of a foot-pedalled dirigible designed by her father.

In 1886 at Franklin, Pennsylvania, Carlotta established a new world altitude record of four miles, in a balloon filled with natural gas instead of hydrogen. As notable as the record itself, however, is the fact that she ascended to this height without benefit of oxygen equipment.

Carl’s aviation interests had vastly increased, and in 1889 he bought a large Victorian mansion in Frankfort, New York. Here he set up his “Balloon Farm” where he stored, built, and cataloged his balloons.

Carlotta supervised the running of the house and the business, continuing to make ascensions but only on special occasions. One of these flights was from the Washington Park baseball field in Brooklyn, over Brooklyn City Hall, to the Battery, turning upriver to the Brooklyn Bridge, then over New York City Hall, and on to Jersey City. She did this during New York’s rush hour, and many people cheered at the sight of her precision flying.

Because of her increasing responsibilities at the “Balloon Farm,” Carlotta retired from public exhibition work in 1891. She did continue to test fly balloons at the “Farm” which continued operation until about 1910.

Probably the first woman to invent her own aircraft was Miss E. Lillian Todd of New York City. In December 1906 she brought to the exhibition of the Aero Club of America an airship and an airplane that she had designed and built herself.

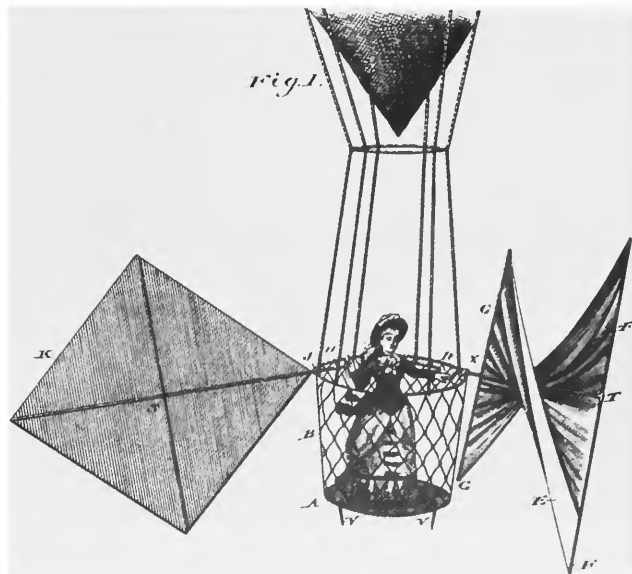


FIGURE 10.—Patent for a steering device for balloons invented by Carl and “Carlotta” Myers. (SI photo 77-719)



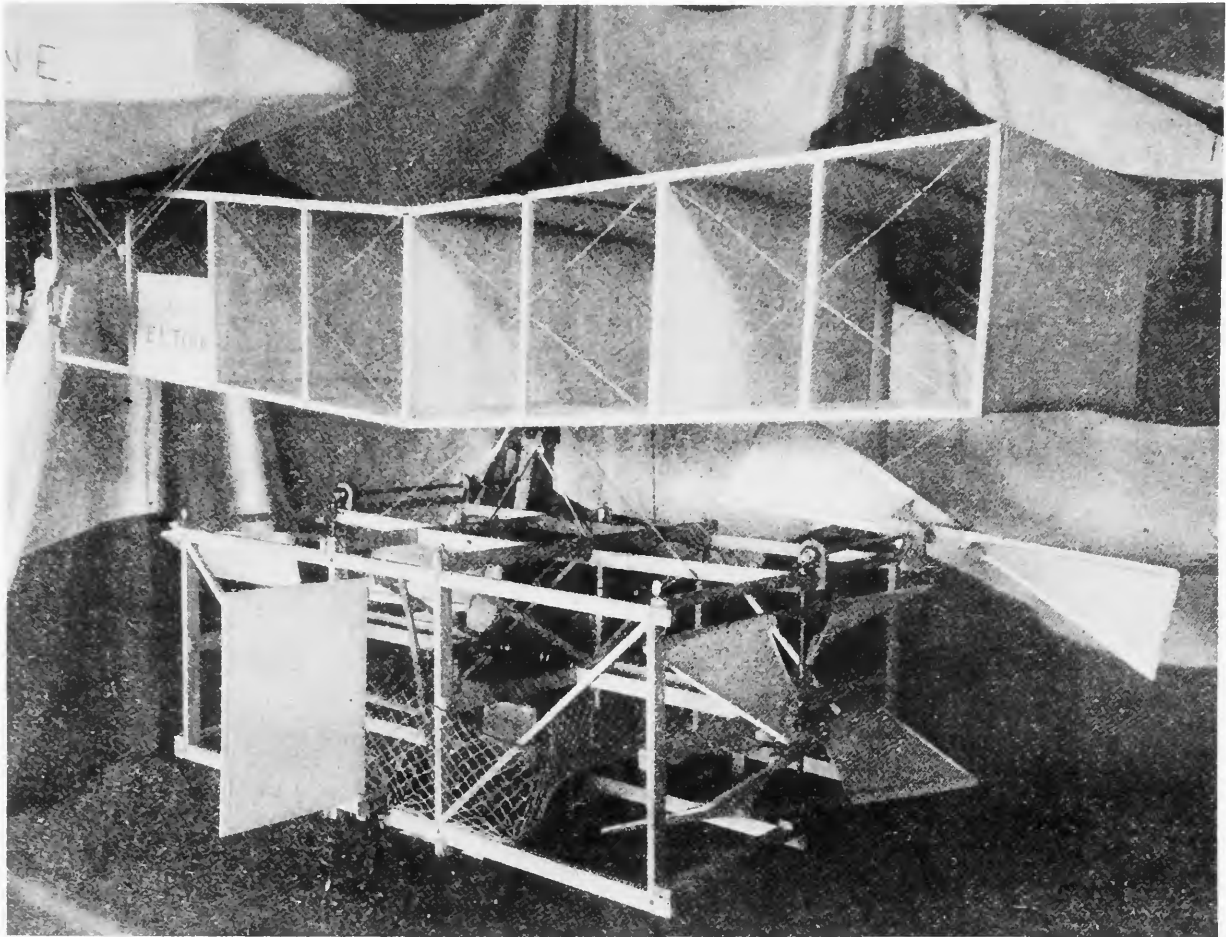


FIGURE 11.—Miss E. Lillian Todd's flying machine, displayed at the exhibition of the Aero Club of America in December 1906, the first heavier-than-air craft designed by a U.S. woman. (SI photo 77-7660)

The airplane was unique in construction, being really more of a glider, since it had no engine. The pilot would take a running start along an inclined plane, causing the fans to revolve and catch the air. This would activate the two propellers, and the aircraft would, theoretically, lift off. To land, the pilot opened a valve which reduced the amount of air to the fans, causing the propellers to slow their revolutions, and the aircraft would gradually settle to earth, pneumatic wheels cushioning the impact.

Miss Todd had begun designing and building mechanical objects as a child. With no training at all in the use of tools, she taught herself by trial and error. Her decision to build an airship came early in her life. She had bought a wind-up toy which was supposed to soar through the air. It

performed so poorly that she considered it an insult to her intelligence, feeling she herself could build a better one. She did design and build a model dirigible, which flew successfully. For a few years she put aside her work on aircraft, but Alberto Santos-Dumont's successes with airships inspired her to resume.

Several leading figures of the time, including Andrew Carnegie, expressed interest in Miss Todd's inventions. But although several contemporary newspapers carried accounts of the machines being exhibited, no mention has been found as to whether they were ever test flown.

Other women during the early part of the twentieth century were involved with flying lighter-than-air craft. Geneve Shaffer of San Francisco

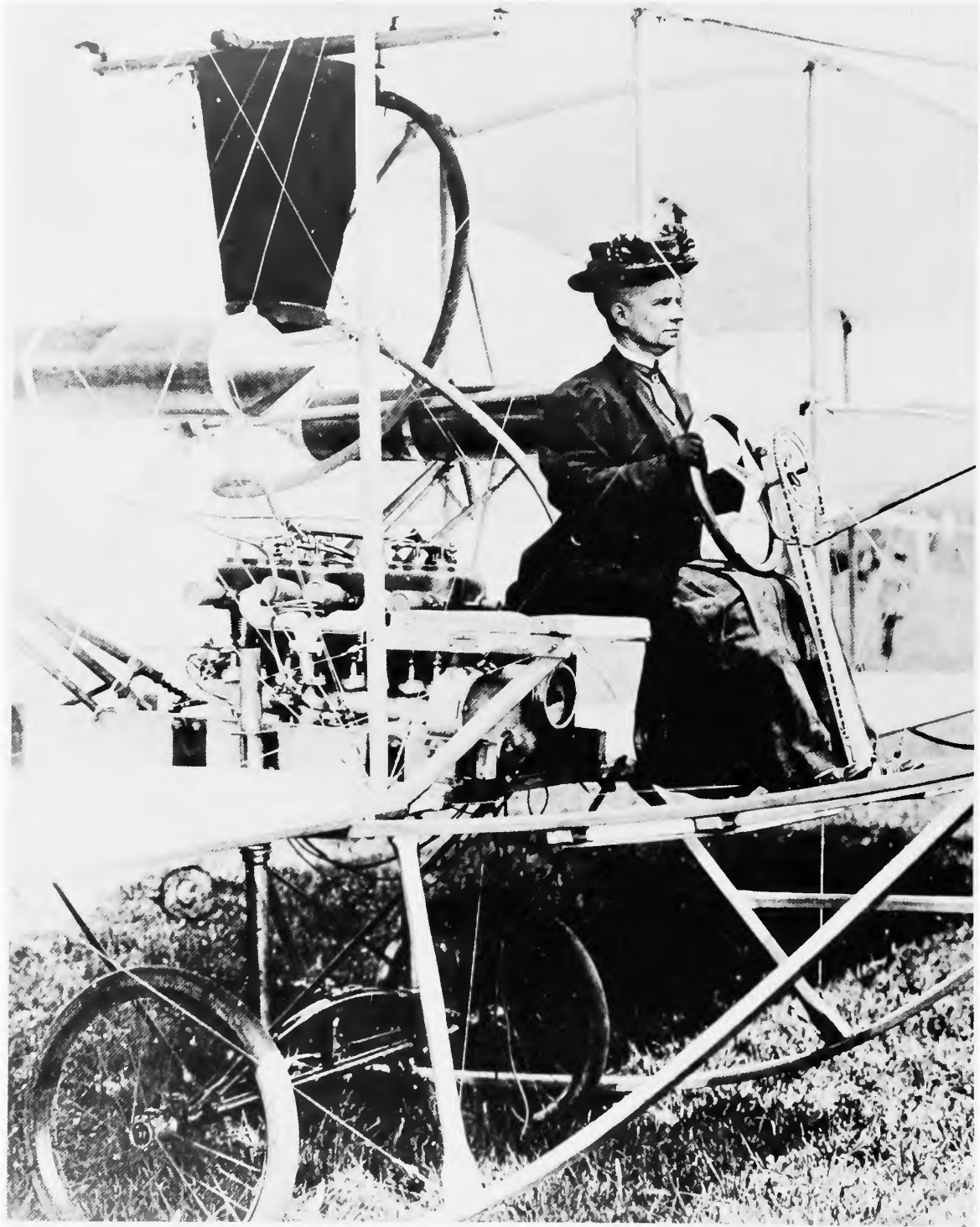


FIGURE 12.—Miss E. Lillian Todd (who designed an airplane but never learned to fly), posing in an early aircraft. (Courtesy of Betman Archives)

was piloting free balloons in 1909 and 1910. During one of her ascensions she made the first aerial photographs of Oakland and San Francisco.

In the fall of 1909 Geneve was co-pilot in the balloon "The Pride of San Francisco" flown by the famous balloonist Ivy Baldwin. During that year's Portola Festival, their balloon engaged in a race across San Francisco Bay with another balloon, "The Pride of Oakland," piloted by Capt. Van Tassel. During the first race the wind failed and both balloons were forced down on mud flats on what is now the Alameda Naval Air Station. To satisfy the people who had wagered on the race, the balloons ascended again. They reached the mainland almost simultaneously but with "The Pride of San Francisco" ahead by enough to win.

Geneve is also credited with being the first woman glider pilot in the United States. She made her first solo flight on 1 August 1909, in a glider built by her brother Cleve. She also worked with Cleve in his Shaffer Aero Manufacturing Co., serving as secretary and chief rigger. Geneve's glider flights were such sensations that to keep from being constantly annoyed by the press, Cleve had two signs made with letters four inches tall, one of which he would hang in front of their house each day to proclaim either: SHE WILL FLY TODAY or SHE WILL NOT FLY TODAY.

Perhaps the most unusual flight by a woman in those early days of aviation occurred at St. Louis in November 1910. Helene Mallard became the first woman in the world to ascend by means of a kite. Ms. Mallard sat in a swinglike contraption attached to twelve large "aeroplane kites" designed by Samuel F. Perkins of Dorchester, Massachusetts. The kites raised Ms. Mallard to a height of forty feet.

Another route to fame for women in the field of aviation was parachuting. Georgia "Tiny" Broadwick was the first woman in the world to make a parachute jump from an airplane. She performed this historic feat on 21 June 1913, to demonstrate the effectiveness of a new parachute designed by Glenn L. Martin. Martin himself was pilot of the aircraft that, traveling at about 30 miles per hour ground speed, carried Tiny to a height of approximately 1000 feet above Griffith Park aviation field in Los Angeles. Tiny was seated on a small platform attached to the right wing of the aircraft. When she was ready to drop, she released a lever that collapsed the seat and allowed her to fall

straight down. Her parachute opened perfectly, and she even landed on her feet.

Tiny by that time was a veteran of many parachute jumps from balloons. She had become interested in aviation in 1908 when she saw Charles Broadwick's exhibition of ballooning and decided



FIGURE 13.—Georgia "Tiny" Broadwick, the first woman in the world to parachute from an airplane. (SI photo 77-713)

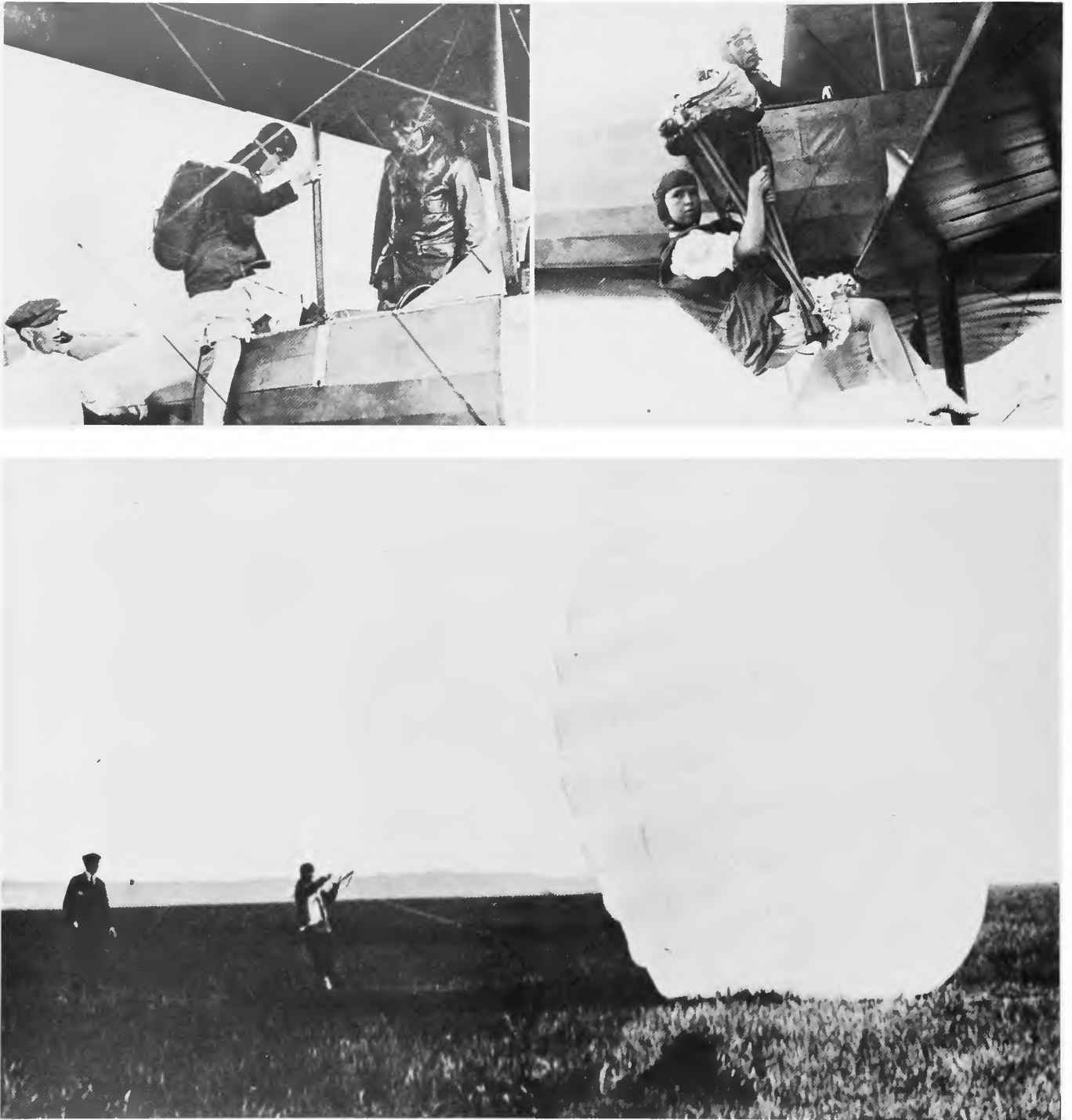


FIGURE 14.—Sequence recording Tiny Broadwick's historic parachute jump from an airplane (the first by a U.S. woman) 21 June 1913: *top left*, boarding the aircraft; *top right*, dangling from her perch beside the pilot, Glenn Martin, just prior to her jump; *bottom*, landing on her feet. (SI photos 77-715, 77-716, 77-714)

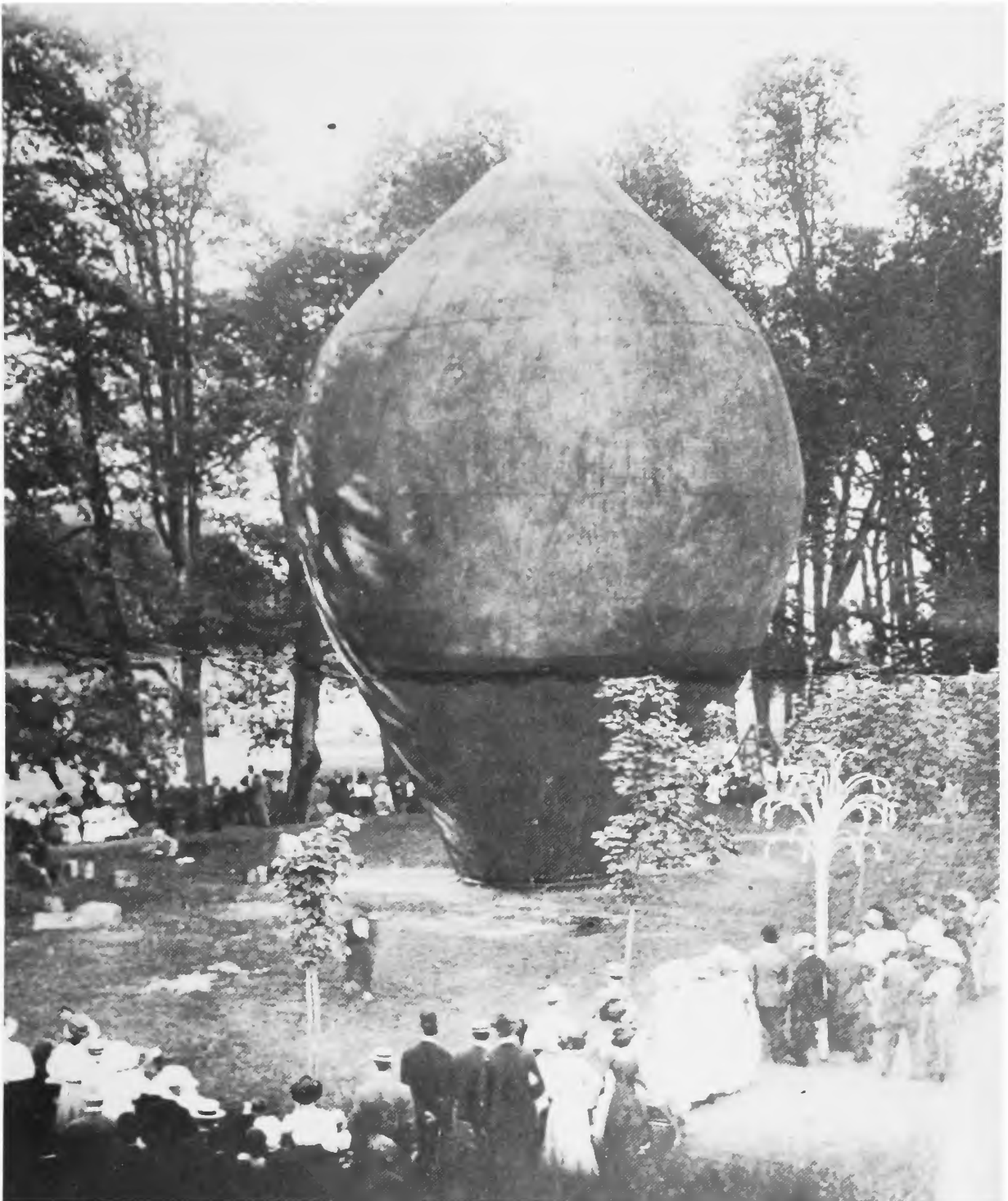


FIGURE 15.—A balloon from which Tiny Broadwick jumped in the initial stage of her career as a parachutist. (SI photo 77-712)

this was something that she, too, wanted to do. Her mother gave her permission, and Tiny joined Broadwick's group, taking his surname as did the other members of the group.

Broadwick, himself a parachutist, constructed his own balloons and parachutes. He first taught Tiny to parachute from balloons (she was later to say that jumping from airplanes was far easier than jumping from balloons). Her agreement with Broadwick called for her to make six jumps a week for \$250, with \$25 added for each additional jump. She would sometimes jump with more than one chute, cutting them loose in succession as she descended. These multiple chutes were usually red, white, and blue, a beautiful spectacle in the air. She also jumped at night with flares extended about two feet from either side of her body.

Tiny was also the first person to demonstrate a parachute for U.S. Government officials. This occurred at North Island, San Diego, in the summer of 1915. Using a parachute that was one of Charles Broadwick's own designs, Tiny jumped at a height of 1500 feet from a Curtiss aircraft moving at about 75 miles per hour and piloted by Wright instructor Oscar Brindley. She dived head downward, the parachute opened readily, and Gen. George P. Scriven, chief of the U.S. Army's aviation bureau, was greatly impressed.

Tiny never got her pilot's license, although Glenn Martin allowed her to fly certain of his aircraft in a limited area. She married a sea captain in late 1915 and after that made only occasional jumps. After having made more than 900 jumps, she retired completely in 1922 because she felt the novelty had worn off for the public.

Hilder Smith, another parachutist, also worked with Glenn Martin. Hilder and her husband, Floyd, met in 1906 when he was a circus trapeze artist. In 1911, as the excitement of the new field of aviation was becoming contagious, Floyd decided to build and fly his own airplane, although neither he nor Hilder had had any aeronautical experience. They began construction in January 1912 with Hilder shaping the wing ribs and applying the fabric. In June the plane was finished, and Floyd installed dual controls so that Hilder could learn to fly with him. The Smiths' first barnstorming tour, however, turned out to be their last: they were grounded by creditors.

Floyd went to work for Glenn Martin as a mechanic and then as Martin's chief test pilot. It



FIGURE 16.—Hilder Smith and her husband, Floyd, with whom she worked in building an aircraft and in parachuting experiments. (SI photo 77-718)

was while he was making a test flight for Martin that he began his work on developing the manually operated free parachute which was used worldwide for many years by civilian and military pilots alike.

Martin had scheduled a combination exhibition flight and parachute jump in 1914 as part of the ceremonies opening Los Angeles' inner harbor. Hilder Smith, who had worked with her husband in his parachute experiments, agreed to perform in the parachute portion in exchange for flight instruction and use of Martin aircraft.

Hilder made her jump from about 600 feet, but as she left the aircraft she twisted and fouled her chute, which streamed along behind her. She had a free fall of about 400 feet, working frantically all the while (with the aid of her trapeze training) to untangle the lines. The chute opened about 200 feet above the water, and by swinging her feet to control her course she avoided the masts of the boats below her and reached land safely.

That was Hilder's last jump, but she continued flying aircraft at Glenn Martin's school where Floyd was instructing pilots for World War I. She also flew as her husband's observer when he was testing new types of aircraft.

When Gen. Scriven congratulated Tiny Broadwick on her fine demonstration of parachuting, he

told her she was a "plucky girl." She replied, "I don't call it pluck. I call it joy" (author unknown, 1915:403). It was for the joy of being free and soaring through the air that these women made their balloon flights and parachute jumps. Women were soon to find joy and freedom in piloting their own airplanes, too.

## Pilots

There were women who *knew* they could pilot an aircraft as well as men could. Like all aviators of the time these women received very little formal training; they had to depend on their own enthusiasm, desire, and determination to achieve. Some never had the opportunity or inclination to take the test for a license, but in those early days a license was not a necessary prerequisite for being a pilot.

It is interesting to note that few of these women continued their flying much beyond the end of World War I. Despite their vigorous efforts to persuade the government to allow them to fly in combat zones, American women were not allowed to do so; this may have dampened their enthusiasm for pursuing flying careers. Also during World War I, aviation matured sufficiently that its novelty was beginning to wear off. Flying was

becoming more commonplace as the 1920s began. Aircraft were less dangerous to fly and so perhaps less interesting to those who had flown the stick-and-wire open airplanes of the prewar days.

Opinion is divided as to who, Blanche Stuart Scott or Bessica Faith Raiche, was America's first aviatrix. Blanche Scott had her first contact with aviation in 1910 when she contracted with the Willys Overland Company to drive an Overland car from New York to San Francisco as a publicity stunt, the first transcontinental automobile trip ever made by a woman. As she passed through Dayton, Ohio, she saw the activities at the Wright School, and while she was in California, she had her first airplane ride. The pilot was Charles F. Willard, Glenn Curtiss' first pupil.

Ms. Scott's cross-country trip had gained her national attention, and she was approached by

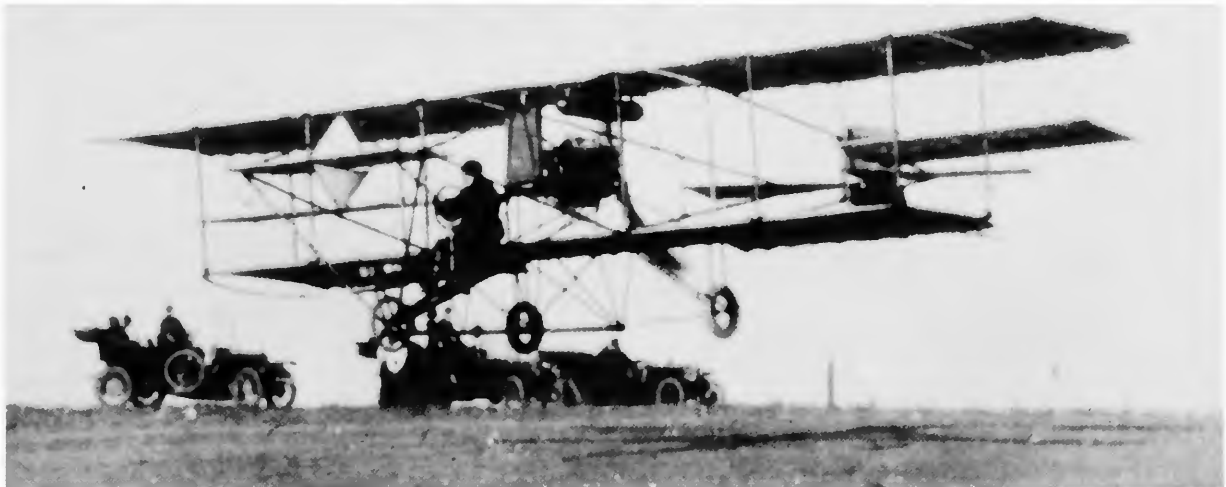


FIGURE 17.—Blanche Scott's first solo flight, which attained an altitude of about 40 feet despite the throttle block Glenn Curtiss had put on her aircraft. (SI photo 75-5316)

Jerome Fanciulli, head of the Curtiss Exhibition Company, who asked if she would consider learning to fly and performing with the Curtiss team at air shows and exhibitions. She agreed and went to the Curtiss Company's Keuka Lake Field at Hammondsport, New York, for instruction.

Glenn Curtiss was not at all enthusiastic about women learning to fly, but since Fanciulli had sent her, Curtiss himself agreed to give her lessons. She was the first and only woman ever taught by Curtiss personally. On 2 September 1910, Ms. Scott made the first solo flight by an American woman. Whether this flight was intentional or accidental is still open to speculation. Blanche Scott may have become impatient with Curtiss' distrust of women as pilots and decided to show him what she could do. He had indeed blocked the throttle on her 35 hp pusher aircraft, but on that day "something happened" to the throttle block, and Ms. Scott rose about forty feet into the air. Curtiss was not



FIGURE 18.—Blanche Scott, the first woman in the United States to make a solo airplane flight. (SI photo 72-4803A)

happy, but he did recognize Ms. Scott's ability, and she soon became a member of the Curtiss Exhibition Team, making her public debut at a Chicago air meet 1-9 October 1910.

That fall she married the man who had done advance publicity for her auto trip and temporarily retired from flying. But she could not stay away from aviation long, and in July 1911 she was back in the cockpit, flying with the famous balloon and airplane pilot, Thomas Scott Baldwin, at Mineola, New York. Flying in meets all over the country, billed as "The Tomboy of the Air," she became more and more daring. She flew inverted twenty feet off the ground, sailed under bridges, and performed her famous "Death Dive" in which she would plummet straight down from 4000 feet,

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FIGURE 19.—Handbill from one of the airshows where, for almost five years, Blanche Scott thrilled spectators throughout the country with her aerial maneuvers. (SI photo A46916)



sometimes not leveling out until she was only 200 feet from the ground.

Blanche joined the Ward Exhibition Team of Chicago and flew a Baldwin Red Devil airplane. On 31 May 1913, as she was doing low-altitude stunts at a meet in Madison, Wisconsin, a wing cable snapped, the aircraft crashed, and Blanche suffered an injured shoulder. If the plane had not fallen into a swamp, her injuries might have been worse.

This injury kept her grounded almost a year, but in 1914 she went back to stunt flying and also made test flights for Curtiss and Glenn Martin. By 1916 she began to be bothered by the public's morbid interest in crashes and their seeming disappointment at air meets where no one was killed or injured. She was also frustrated that there seemed to be no place in aviation for women engineers or mechanics, so at age 27 Blanche Scott retired.

Although Bessica Raiche's solo flight did not occur until 16 September 1910, two weeks after Blanche Scott's, Mrs. Raiche's flight was considered definitely "intentional," and on 13 October the Aeronautical Society honored her with a dinner at which the Society's president Hudson Maxim presented to her a gold medal inscribed "First Woman Aviator of America, Bessica Raiche."

Bessica Raiche was considered in her time one of the "new" women: she drove an auto, wore bloomers while playing sports, and took active part in such "masculine" activities as shooting and swimming. She was also an accomplished musician, painter, and linguist. But what really set her hometown of Beloit, Wisconsin, talking was her return from school in France with two new interests—aviation and a French husband.

François Raiche shared his wife's interest in aviation, and they settled in Mineola, New York, where they could gain from the knowledge and experience of the many pioneer aviators living in that area. The Raiches built their first airplane, a Wright type, in their living room, and it was in this frail craft of bamboo and silk, without benefit of prior instruction, that Mrs. Raiche made her first solo flight.

Her first accident occurred in this same aircraft, on her fifth flight. It was a minor one, but it set her thinking about how her long skirts encumbered her. So she appeared for her next flight wearing riding breeches.

Inspired by the success of their first aircraft, the



FIGURE 20.—Bessica Raiche, who pursued two careers that were unusual for a woman in her day: being a pilot and (after her retirement from flying) a practicing physician. (SI photo A951A)

Raiches built two more, which they sold. Soon they formed the French-American Aeroplane Company and formally went into business. They imported China silk for wing coverings and were the first to substitute piano wire for iron stove wire to save weight. They believed that lightness was the key to improved aircraft flight. Mrs. Raiche designed and helped build her own personal plane, a Curtiss-type biplane, with a 40 hp four-cylinder rebuilt marine engine, having a speed of 35 miles per hour.

Unfortunately, Mrs. Raiche's health deteriorated, and she was forced to stop her aviation activities and move west. The Raiches settled in California, and after her recovery, her interest in aviation apparently faded. Still not content with usual "woman's work," however, Mrs. Raiche returned to school, received her degree in medicine, and became a practicing physician.

The first American aviatrix to be killed in an airplane crash was Julia Clark. Ms. Clark was a native of London but had come to the United States, married, and settled in Denver. It was while she was living there that she decided to learn to fly. She enrolled as a student in the Curtiss Flying School at North Island, San Diego, California, the first woman to be taught there.

On 19 May 1912, she received her pilot's license, having flown in a fifteen-mile-per-hour wind at an altitude of about 800 feet. She purchased a Curtiss airplane and planned to do exhibition flying.

The group she joined was scheduled to fly at the Illinois State Fair in Springfield on 21 and 22 June. Ms. Clark decided to make a test flight on 17 June just at dusk. The visibility was poor, and one wing of her biplane struck a tree limb. The aircraft crashed to the ground, pinning Ms. Clark beneath it. She died on the way to the hospital.

The Moisant Aviation School at Hempstead, New York, unlike some of the other aviation schools in the country at that time, welcomed women as pupils. The members of the Moisant family who operated the school had studied the work of the French with monoplanes, so in contrast to the use of biplanes by most other aviation schools, the Moisant instructors taught their pupils in Bleriot-type monoplanes.

One of the many women trained there was Bernetta Miller. She received her license on 25 September 1912, and joined the Moisant International Aviators. Because they flew monoplanes,



FIGURE 21.—Julia Clark, the first U.S. woman killed in an airplane crash. (SI photo A41360A)



FIGURE 22.—The Moisant School of Aviation at Hempstead, New York, which, unlike some other early aviation schools, welcomed women as students. (SI photo 73-2247)

the group was invited to the U.S. Army's aviation field at College Park, Maryland, to demonstrate that type of aircraft. In October 1912, Ms. Miller flew the first monoplane demonstration flight before U.S. Government officials; perhaps her selection for this first flight was based on the idea that if a woman could fly this tricky aircraft, anyone could!

On 20 January 1913, after her return to New York, Ms. Miller attempted to establish a new women's altitude record. During this flight the oil flow indicator broke, and she was covered with oil. Although partially blinded, she successfully made a dangerous emergency landing.

Ms. Miller took an active part in World War I even though she was not allowed to fly at the front as she would have liked. She joined the Women's Overseas Service League and was attached to the 82nd Infantry Division in France. She served first as an accountant and then went to the front as a canteen worker. She was awarded the Croix de Guerre and many American citations for her work.

Mrs. Richberg Hornsby of Chicago was the eighth U.S. woman to receive a pilot's license. She soloed on 12 June 1914. Not much is known about her except that she was a graduate of the Wright School in Dayton, Ohio.

It was not until late 1912 that the west coast had its own aviatrix. Before that, people interested in the novelty of women flying aircraft had to be content with waiting until eastern exhibition groups made tours. Late in the summer of 1912, Alys McKey, a Californian, answered a classified advertisement: "Wanted—young lady to learn to fly for exhibition purposes." She was interviewed by Fred A. Bennett and one of his aviators, John Bryant, of the Bennett Aero Company of The Palms, California, which had placed the ad. They accepted her for instruction thus fulfilling her long-time dream of learning to fly. (When she was only 12 years old, she had written a school composition about an imaginary flight from New Jersey to California.)

Alys began her instruction in one of Bennett's two Curtiss biplanes, the same one used by Glenn Curtiss in his 1909 flight down the Hudson. She soloed in November 1912 and made her first exhibition flight at North Yakima, Washington, 3 May 1913. She was the first woman ever to fly in Washington, Oregon, or Idaho.

While the Bennett Flyers were performing in Boise on 29 May 1913, Alys and Johnny Bryant



FIGURE 23.—Bernetta Miller, a graduate of the Moisant School and the first pilot to demonstrate a monoplane before U.S. government officials (damaged photo). (SI photo 77-700)



FIGURE 24.—The first aviatrix of the west coast, Alys McKey Bryant, who soloed at The Palms, California, in 1912. (SI photo 77-710)

were secretly married. Marriage to Bryant seemed to make Alys even more determined to prove herself as an aviator; she was not content to bask in the reflected light of her husband's achievements. At Seattle on 17 July, she set a new women's altitude record of 2900 feet. Subsequently she went with the group to Vancouver, Canada, where she not only became the first woman to fly in Canada but did so before the Prince of Wales and the Duke of York.

In the midst of this meet that brought her personal triumph, tragedy occurred. On August 6, Johnny Bryant was making his second flight of the day over Vancouver when the plane's steering column broke. Alys watched helplessly as her husband groped vainly for the control wires and crashed to his death.

Alys gave up flying for several months, but in November she made several flights for movies in Seattle, and during 1914 she continued to do exhibition flying on the west coast. In 1915 she went east to St. Louis to put her mechanical abilities to use with the Benoist Airplane Manufacturing Company. She moved with the company to Sandusky, Ohio, where she served as an instructor and did some test flying. In October 1916 she went to work as an instructor for the Scientific Aeroplane Company in Stratford, Connecticut.

Like many of her contemporary aviatrixes, she made repeated applications for flying in combat during World War I, but to no avail. Her preferred method of assisting the war effort through aviation being frustrated, she worked for the Goodyear Tire and Rubber Company in Akron helping build military dirigibles.

Helen Hodge was the first woman west of Chicago to receive a pilot's license. (Alys McKey Bryant never took the test.) Ms. Hodge became interested in learning to fly in 1916 and tried to enter the Christofferson Flying School in San Francisco. Even with all the fame that women were gaining in the field of aviation, the school turned her down because of her sex. Her persistence and constant presence at the school finally resulted in her acceptance, conditional on her taking all the same courses as the men. So Ms. Hodge's training began with the study of engines, airplane construction, and the theory of flight. Finally, her actual flying lessons began in a Curtiss-type biplane with Frank Bryant, Johnny Bryant's brother, as her instructor. She received her license 12 November 1916, and

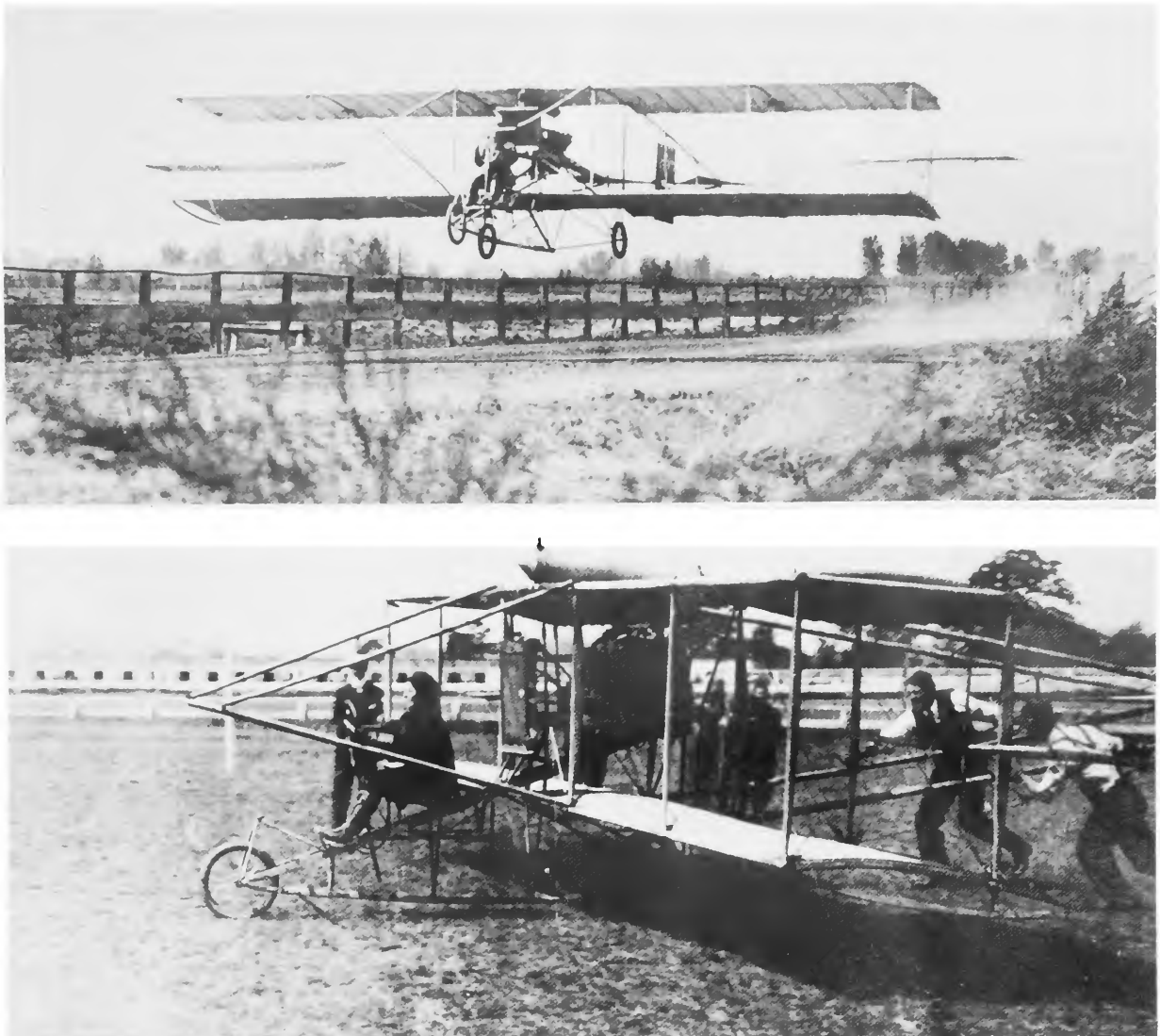


FIGURE 25.—*Top*, making the first of her many exhibition flights at North Yakima, Washington, in May 1913, was Alys McKey Bryant; also shown, *bottom*, Alys about to perform at a meet in Victoria, British Columbia, 5 August 1913. (SI photos A34408D, A34408)

began flying mainly for her own pleasure.

During World War I she taught U.S. aviation cadets and also made some exhibition flights. During one of these flights the engine mount broke and her engine fell out of the plane. She managed to land by taking the controls in her hands and climbing out on the front wheel to nose it down.

Aviation was becoming more and more popular with women on the west coast. Another pupil at the Christofferson School was Jean Doty Caldwell.

She, too, studied under Frank Bryant. Although by November 1916 she had 15 or 20 solo hours and was ready to try for her license, she gave up flying because of her family's bitter opposition.

Another aviatrix who had a short-lived flying career was Mary Highsmith Sims Heinrich. She abandoned her flying when she married her instructor in December 1914. After the death of her first husband, Mr. Sims (the occasion for her inheritance of a small fortune), Mrs. Heinrich had



FIGURE 26.—Alys McKey Bryant, equipped for deep-sea diving, one of her interests that was perhaps even more unusual for a woman than flying. (SI photo 77-701)

decided to use part of her inheritance to enter into the spirit of the day and learn to fly. She had first enrolled at the Moisant School in Hempstead, New York, and then transferred to Albert S. Heinrich's school at nearby Baldwin. She had made several flights on Long Island but had not flown in competition nor received her license when Mr. Heinrich proposed. She agreed to give up flying after their marriage.

Dorothy Rice Peirce was also one of the century's new women with many interests outside conventional "woman's work." She learned to fly in Mineola, New York, and obtained Fédération Aéronautique Internationale (Aero Club of Amer-

ica) certificate number 561 on 17 August 1916, the tenth woman in the United States to be licensed. In addition, she was a painter, a sculptor, a writer, a championship bridge player, and a world traveler.

The woman who is now known best as the person who taught Amelia Earhart to fly had problems in finding flight instruction for herself. Neta Snook grew up in Iowa and developed the desire to learn

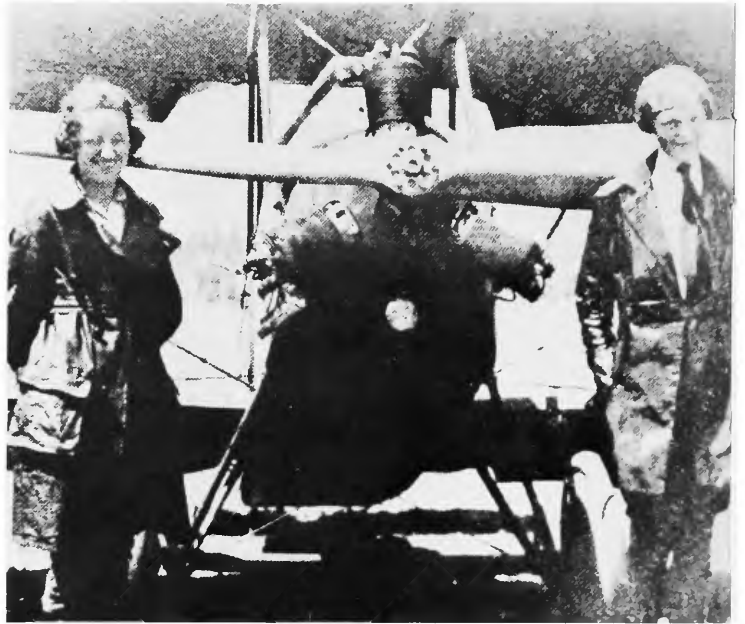


FIGURE 27.—Neta Snook (at left in both photos) posing with her famous pupil, Amelia Earhart, before two of their flying lesson flights. (Courtesy of Neta Snook Southern)

to fly from watching balloon ascensions at county fairs. Her hero was Thomas Scott Baldwin. She wanted to attend Glenn Curtiss' aviation school at the Atlantic Coast Aeronautical Station in Newport News, Virginia. But even in 1916 Curtiss still was not in favor of women learning to fly, so the school turned her down.

Ms. Snook entered college in Iowa that fall but did not abandon her dream of learning to fly. In the summer of 1917 she was accepted at the Davenport School of Aviation. The school had just opened and had no airplane, so the task that faced Neta and the other members of the first class there was to build one. Her first flight was in that airplane on 21 July 1917, with the school's instructor, Louis Boudor. She made several more flights with Boudor during that summer and was allowed to take the controls more and more often. However, before Neta could solo, the school was closed on 9 September following a bad accident in which the school's new president was killed and Boudor badly injured.

Neta's fortune took a turn for the better, however, when shortly thereafter she was finally accepted by the Curtiss school at Newport News. She didn't have enough money to cover both her transportation and the flying lessons, so she tried to hop freight trains. Although she was discovered and ejected, she was helped along her way by railroad workers after they heard her story. Apparently the novelty of a woman wanting to learn to fly appealed to them.

She arrived in Newport News on 5 October and

began her lessons immediately. Eddie Stinson, who was then at the school and who later formed the Stinson Aircraft Company, took her on several flights to teach her aerobatics. Thomas Scott Baldwin visited the school, and Neta had the opportunity to meet the man she had long admired. Her work in the school machine shop helping overhaul OX-5 engines was so good that the instructors rewarded her with extra flying time. But again, before she had a chance to solo, her school was closed, this time for security reasons, since the United States had entered World War I.

Neta and several other students at Newport News went south to another Curtiss school in Miami in January 1918. There they met Glenn Curtiss himself, who *still* didn't like the idea of women flying! Very shortly after instruction got underway in Miami, the U.S. Government ordered all civilian flying to cease for the duration of the war. Neta went back to Davenport, without having soloed, and so with no license.

Apparently, however, she was not unknown, because she was hired by the British Air Ministry in July 1918. She was their representative in Canada and the United States for speeding up deliveries of planes, parts, and engines which couldn't be manufactured in England because of the war. Neta took a firm stand with the various companies, insisting that the British equipment should have priority because they were actually holding off the enemy while the United States was still in the process of building an Air Corps.

## Premier Performers

Of all the U.S. women who took part in aviation in those early years, five gained significant fame. The names Harriet Quimby, Matilde Moisant, Katherine and Marjorie Stinson, and Ruth Law are legendary in aviation history. These women, perhaps more than any others, made a place for women in aviation. They showed that women were serious about flying as a career and were not in it just for the novelty or the fun of it.

### Harriet Quimby

Although there may be some question about America's first aviatrix, there is no question what-

soever about the first to receive her pilot's license. She was Harriet Quimby, the darling of her day. In her plum satin flying costume, she captured the admiration of all who saw her fly or read of her exploits.

There is some mystery regarding Ms. Quimby's origins, however. She let it generally be believed that she had been born into a wealthy family on an orange plantation in Arroyo Grande, California, in 1884, and educated in private schools in America and Europe. However, there is evidence that shows she was born in 1875, in Coldwater, Michigan, the daughter of a farmer. She was educated in public schools there, thanks to the sacrifice of her hard-working mother.



FIGURE 28.—Harriet Quimby, the first licensed woman pilot in the United States and the second in the world. (SI photo A43510B)

Her family did move to California, and there in 1902 Harriet took a job as a writer for the *Dramatic Review* in San Francisco, also doing some features for the *Call* and the *Chronicle*. In 1903 she began writing for *Leslie's Weekly*, a popular magazine of the time, and moved to New York as the publication's drama critic.

In New York her circle of friends included many of the day's most interesting people, among them those of the small but well-known aviation community such as the Moisant brothers, John and Albert, and their sister Matilde. Harriet's interest in aviation was transformed into enthusiasm when she attended the 1910 Belmont Park Aviation Meet, 22–31 October. She was so inspired, especially by John Moisant's performance, that when she happened to see him that evening having dinner at the Hotel Astor, she asked him to teach her to fly. He agreed, perhaps really not taking her seriously. But Harriet refused to abandon the idea,

even after John Moisant was killed while performing in New Orleans on 31 December 1910.

The Moisant School of Aviation was opened at Hempstead, Long Island, in April 1911, and Harriet began taking lessons there from André Houpert, in a Bleriot-type 30 hp monoplane. After four months and 33 lessons Harriet decided to try for her license. Her review board consisted of two judges from the Aero Club of America, which (under the authority of the Fédération Aéronautique Internationale) was the licensing agency for the United States. To obtain a license she had to land her aircraft within 100 feet of where she left the ground. On 31 July 1911, on her first test, she landed too far from the spot, but the next day she landed seven feet nine inches from the mark. Thus on 1 August 1911, Harriet Quimby became the first licensed woman aviator in the United States, receiving Fédération Aéronautique Internationale (Aero Club of America) certificate num-





FIGURE 29.—*Top*, Harriet Quimby's Bleriot monoplane held down by spectators while she enters the cockpit for her attempt at crossing the English Channel, early morning, 16 April 1912, and *bottom*, a confidently smiling Harriet Quimby receiving last minute advice and good wishes just prior to her Channel flight. (SI photos 77-711, A31991F)

ber 37. She was the second woman in the world to receive a license, the Baroness Raymonde de la Roche of France having received hers in 1910.

Almost immediately Harriet was asked to join the Moisant International Aviators, an exhibition team, and on 2 September 1911, she participated in a meet before 20,000 spectators on Staten Island. Later that month she entered a meet at the Nassau Boulevard airfield, during which she beat the celebrated French aviatrix, Hélène Dutrieu, in a cross-country race, winning \$600.

The next month she went with the Moisant group to Mexico City to perform in the inauguration ceremonies for President Francisco Madero. While there, Harriet became the first woman to fly over Mexico City.

She still contributed to *Leslie's Weekly* and wrote an account of her Mexico trip for that magazine. She also sent a very complete report of her next and perhaps most famous exploit—the first flight across the English Channel by a woman pilot. *Leslie's Weekly* and the *London Daily Mirror* were her sponsors. Her manager and advisor was A. Leo Stevens, friend of the Wright brothers and famous balloon pilot.

She sailed for Europe on 7 March 1912. In France she acquired a new Bleriot 50 hp monoplane, which she had shipped to Dover. Harriet was not to be the first woman to cross the English Channel by air, however for on 2 April 1912, an Englishwoman, Miss Eleanor Trehawke Davies, crossed, but only as a passenger with the British flyer Gustav Hamel. Harriet continued, undaunted either by Miss Davies' flight or by the weather. The latter was so bad that she could not even test fly her new aircraft.

Sunday, 14 April, was a lovely day, perfect for a Channel flight. But Harriet had made a personal rule never to fly on a Sunday. The weather closed in again on Monday, but on Tuesday 16 April 1912, at 5:30 A.M., Harriet took off from the heights of Dover.

Gustav Hamel, who had been advising her, had been able to make a short flight in the aircraft prior to takeoff to make sure it ran smoothly. From the beginning Hamel had been skeptical about a woman's ability to pilot an aircraft across the Channel. He even went so far as to suggest that he himself dress up in Harriet's satin flying costume, pilot her plane across the Channel, and land at a deserted spot where Harriet would be waiting to

take the credit. Harriet, of course, refused his offer so Hamel helped her as much as he could, even instructing her on the use of a compass in flight, a technique which was new for Harriet. He also tied a hot water bottle around her waist as protection from the wind's chill.

Almost immediately after takeoff Harriet found herself in thick clouds. She dropped from an altitude of 2000 feet to about 1000 feet, and though dazzled by the rising sun, could see the shores of France. Being unfamiliar with the French coast, Harriet could not find her goal, Calais. She descended onto a flat, sandy fishing beach and was immediately surrounded by villagers who had heard of her flight. She was at Hardelot, 25 miles south of Calais.

She was feted in Paris and London and returned in triumph to the United States in May. She brought with her a new all-white Bleriot 70 hp two-seat monoplane with all the latest improvements. During that summer she performed at various aviation meets, occasionally carrying passengers.

In late June she shipped her aircraft to Boston, where from 29 June to 7 July she planned to take part in the Harvard-Boston Aviation Meet held at Squantum Airfield near Dorchester. The manager of the event was William A. P. Willard, father of Charles F. Willard, the noted Curtiss exhibition pilot. Many famous aviators were participating, among them Glenn L. Martin, Lincoln Beachey, Earle Ovington, and Blanche Scott.

Late in the day on 1 July, Harriet and William Willard climbed into her Bleriot for a short flight over Dorchester Bay and around Boston Light. Willard was a large man, and her manager, Leo Stevens, cautioned him to remain very still out of fear that almost any movement on his part could upset the balance of the aircraft.

The flight went well at first. Harriet rounded Boston Light and came back over the field at about 3000 feet, then circled while slowly descending to 1000 feet over the Bay. Suddenly the plane dove sharply, and Willard was thrown from his seat. Without his weight the Bleriot momentarily righted itself, but then flipped over, tossing Harriet out also. The two landed in about five feet of water, and both were killed. Ironically, the plane came out of its dive and glided to a landing with relatively little damage.

Blanche Scott was in the air at the time, com-



FIGURE 30.—In her characteristic satin flying suit, Harriet Quimby poses prior to the Boston Aviation Meet, 1912; *inset*, part of the wreckage of her aircraft being examined after her fatal accident. (SI photo A5532B)

peting for the women's duration prize. She abandoned her attempt after the accident and landed her aircraft.

There was a great deal of speculation by leading aviation authorities as to the cause of the tragedy: Leo Stevens blamed Willard, thinking he probably ignored the advice given him and leaned forward to congratulate Harriet on a successful flight; Earle Ovington thought that one of the two left-hand control wires had become entangled in the warping lever; Lincoln Beachey speculated that Harriet might have fainted or that she had attempted to descend at too steep an angle; Glenn Martin pointed out that had Harriet and Willard been using seat belts, the accident might not have occurred. Whatever the reason for the crash, Americans mourned their beloved Harriet Quimby.

FIGURE 31.—Matilde Moisant (left) and Harriet Quimby, close friends and fellow students at the Moisant School of Aviation. (SI photo A43515)



## Matilde Moisant

The second woman in the United States to receive a pilot's license was Matilde Moisant, Harriet Quimby's best friend and fellow student at the Moisant Aviation School. On 13 August 1911, she qualified for F.A.I. (Aero Club of America) certificate number 44. Her brother John was a famous exhibition pilot and her brother Albert operated the Aviation School.

With Harriet, she joined the Moisant International Aviators and made her flying debut at the Nassau Boulevard Aviation Meet, held 24-30 September. There she soared to the then-astounding height of 1200 feet, beating both Harriet Quimby and Hélène Dutrieu for the Rodman-Wanamaker altitude trophy.

Though of small stature and rather frail appearance, Matilde possessed a great deal of courage. For example, on 8 October 1911, she foiled the attempts of the Nassau County Sheriff to arrest her for flying on a Sunday by the simple expedient of flying from one airfield to another and then driving away in a car before the Sheriff could catch her. He failed to obtain a warrant for her arrest because the judge to whom he applied said he couldn't see why it should be wrong to fly an airplane on Sunday if it wasn't wrong to drive a car on Sunday.

During the fall of 1911 and the spring of 1912, Matilde flew in various meets around the country. There was always, however, pressure from her family to give up flying because of the danger, which had been tragically manifested by the death of her brother John. She finally yielded, and her flight on 14 April 1912, at Wichita Falls, Texas, was billed as being her last. It almost literally was. As she landed, her plane burst into flames from a leak in the fuel tank. Spectators ran to the aircraft and pulled Matilde out, her clothes afire. Her heavy tweed flying costume was credited with saving her life. After that incident she did retire from flying, but during World War I she was active in raising money for the Red Cross, her name still being well known.

One of France's leading aviatrices, Hélène Dutrieu, was flying in several U.S. air meets during this time, competing with Harriet Quimby and Matilde Moisant, and impressing all who saw her with her altitude and distance flights. She had begun as a trick bicycle rider, turning somersaults



FIGURE 32.—Above, Matilde Moisant in her heavy tweed flying suit that was credited with saving her life when her airplane caught fire on landing; right top, her pilot's license, issued 17 August 1911, the second one granted to a woman in the United States; right bottom, the fiery crash that concluded her last flight. (SI photos 73-3564, 77-703, 77-699)

FEDERATION AERONAUTIQUE  
INTERNATIONALE

AERO CLUB OF AMERICA

No. 44

The above-named Club, recognized by  
the Federation Aeronautique Internationale,  
as the governing authority for the United  
States of America, certifies that

*Matilde E. Moisant*

born 13<sup>th</sup> day of September 1887,  
having fulfilled all the conditions required by  
the Federation Aeronautique Internationale,  
is hereby licensed as Aviator.

Dated August 17<sup>th</sup>, 1911

*James A. Blair*  
President.

*G. Campbell Wood*  
Secretary.



[SEAL]

*Matilde E. Moisant*

Signature of Licensee :

*Aug 13, 1911*





FIGURE 33.—Hélène Dutrieu, *left and above*, France's leading aviatrix, who flew in several major U.S. air meets in the early 1900s and received the Legion of Honor from the French government for her achievements in aviation. (SI photos 77-702, 73-4023)

in the air as her cycle was in motion. Her first solo airplane flight occurred in 1909, and her American debut took place at the Nassau Boulevard Aviation Meet in 1911.

Back in Europe she won France's Coupe Femina for the women's world nonstop flight record on 31 December 1911, covering 158 miles in 178 minutes. In Florence, Italy, she was the only woman in a field of 15 and beat all 14 of her male competitors to win the King's Cup. In 1913 the French Government awarded her the Legion of Honor for her achievements and for the glory she brought to France.

She made her second visit to the United States in 1915, during which she tried to stimulate American interest in the Allied war effort. During World War I she became an ambulance driver and later the director of a military hospital.

## Katherine Stinson

Katherine Stinson, the fourth woman in the United States to obtain a pilot's license, was the oldest in a family of four prominent aviators. Her brother Jack was an early flyer, her brother Eddie founded Stinson Aircraft Company, and her sister Marjorie became an accomplished aviatrix in her own right. Katherine's first reason for wanting to learn to fly was to help finance another career. She dreamed of becoming an accomplished pianist but did not have enough money to continue her education in music. After reading that aviators were earning substantial prize money for exhibition flights, she decided to try this method. By the time she learned to fly, however, she had come to love it so much that she abandoned her thought of a career in music and devoted herself instead to aviation.

Finding an aviation school wasn't easy. Several that she tried went out of business before her instruction could begin. Finally she went to Chicago, where she joined Max Lillie's spring class at Cicero Field. She received her license on 24 July 1912, after qualifying in a Wright B. She decided to wait a year before beginning exhibition flying because she was so young, only 16, but she continued practice flying. In July 1913 she began her exhibition career in Cincinnati, Ohio, and from that time on flew in meets all over the country.

Katherine became the first woman authorized to carry airmail. She established this record 23–27 September 1913, while she was appearing at the Helena, Montana, Fairgrounds. The Helena postmaster had telegraphed the Post Office Department in Washington, D.C., requesting sanctioning of an airmail route from the Fairgrounds to the Federal Building in downtown Helena. Permission was granted, and the route was officially numbered 663,002. Katherine was sworn in as pilot, and in the four days she flew the route, she carried 1333 postcards and letters.

Throughout 1913 and 1914 Katherine appeared all over the United States. In August 1914 she and her sister Marjorie, who had just graduated from the Wright School of Aviation, flew together for the first time at a meet in Kansas City, Missouri.

The Stinson family had moved to San Antonio, Texas, by then and during that following winter Katherine and Marjorie began giving flying instruction there, promoting aviation in local schools,



FIGURE 34.—Katherine Stinson, the oldest of the four Stinsons, who were all famous in aviation. (SI photo A43512F)

organizing model airplane clubs, and giving plane rides to school children. They also gave flying lessons to their brothers Jack and Eddie.

Katherine was asked to participate in the 1913 Rose Parade in Pasadena, California. With her aircraft decorated with roses, she flew along over the parade route.

In March 1915 the famous aerobatic flyer Lincoln Beachey was killed, and Katherine purchased the



FIGURE 35.—The Stinson sisters, Katherine and Marjorie, just after a flight in Katherine's airplane in 1913. (SI photo A5532A)

80 hp Gnome rotary engine from Beachey's aircraft. She had this engine installed in a tractor biplane which was being built especially for her by the Partridge and Keller Aeroplane Company. She also hired Beachey's mechanic.

On 18 July 1915, at Cicero Field in Chicago, Katherine became the first woman in the world to loop-the-loop. She expanded on this feat by developing her "dippy twist" loop, a vertical bank in which the aircraft rolled wing-over-wing when the top of the loop was reached. She performed this maneuver for the first time on 21 November 1915, and followed it in her next flight by making eight consecutive loops, flying upside down for thirty seconds, and executing a series of spiral spins.

About 25 people in Los Angeles on December 17, 1915, were privileged to witness what was perhaps Katherine's most spectacular flight. Always determined to go the male flyers one maneuver better, Katherine started planning this flight after she heard that Art Smith had looped-the-loop at night, leaving behind him a trail of fire.

Katherine attached magnesium flares to her aircraft and traced the letters "CAL" in the night sky. Then she looped, flew upside down, and dropped in a spiral to within one hundred feet of the ground, trailing lovely showers of sparks.

By this time the Stinsons had formally established an aviation school in San Antonio on their own private flying field. They had 14 students in January 1916. Katherine was now able to afford another aircraft for her exhibition work: she rented a tractor biplane from E. M. (Matty) Laird. Taking this plane with her, she sailed from San Francisco in December 1916 for a tour of Japan and China. She stayed in the Orient six months and was the first woman to fly there.

At the outbreak of World War I Katherine wanted to enlist as a military aviator, but she was rejected because of her sex. Undaunted, she sought to put her flying to good use for her country by working for the Red Cross and Liberty Loan drives. She was checked out in a Curtiss JN military trainer and began a fund-raising flight in

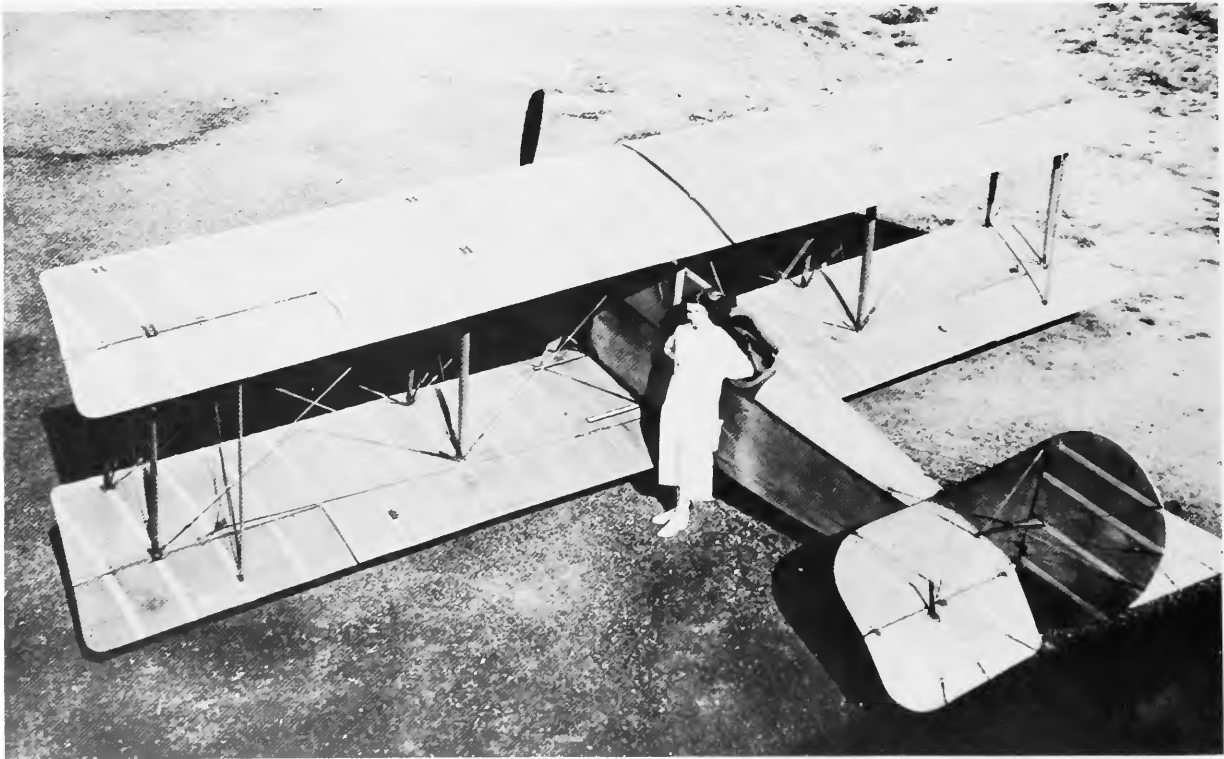


FIGURE 36.—The Curtiss JN-4 used by Katherine Stinson for her fund-raising tour for the Red Cross during World War I. (SI photo A48410)





FIGURE 37.—Roland Rolphs, chief pilot for the Curtiss Company, greeting Katherine Stinson in California. (Courtesy of Rare Birds, Inc.)

this aircraft on 24 June 1917, from Buffalo, New York. She flew to Albany, where she spent the night, and then flew on to New York City and Philadelphia before reaching her destination, Washington, D.C., at 7:35 P.M. She landed at the Polo Grounds guided only by the Washington Monument and a large white canvas cross spread on the ground. The total distance she had covered was 670 miles, her longest flight to date. She was presented with a \$50,000 check, which she immediately turned over to the Treasury Department for the Red Cross Fund. Along her route from Buffalo to Washington, Katherine had dropped cards encouraging people to make contributions.

Whenever possible during this time, Katherine assisted her sister Marjorie at the Stinson Aviation School, training U.S. and Canadian military pilots.



FIGURE 38.—On her Red Cross tour, Katherine Stinson gave aerial exhibitions at several military bases. (Courtesy of Rare Birds, Inc.)

She also continued building her own career. On 11 December 1917 Katherine established a new endurance record in her nine hour ten minute flight from San Diego to San Francisco. Only a few months later, on 23 May 1918, she set another distance and endurance record with the 601.763 mile flight from Chicago to Binghamton, New York, in ten hours ten minutes. In the summer of 1918 Katherine went to Canada for a series of exhibition flights. While there she established a Canadian distance and endurance record and also carried the first airmail in Canada.

Katherine still wanted a more active role in the war effort. She was finally granted permission to go to England and France as an ambulance driver and was able to do some flying there for the Red Cross. While abroad she contracted influenza and had to return to the United States. Her health worsened and she was forced to retire from aviation in 1920.

### Marjorie Stinson

Katherine's younger sister, Marjorie, encouraged by her sister's success, decided to learn to fly her-

self. She went to the Wright School in Dayton to begin instruction in June 1914, but because she was only 18, Orville Wright would not accept her as a pupil until her mother had wired permission for her to take lessons. She first soloed on 4 August in a Wright model B and received her license on 12 August.

In May 1915 Marjorie tried to start an air mail route between San Antonio and Seguin, Texas. Arrangements had been made with the postmasters of these two cities, which were 35 miles apart, and authorization had been obtained from the assistant postmaster general. Marjorie was sworn in by George Armistead, postmaster of San Antonio, and was scheduled to make several flights between 19 May and 31 May. However, the venture was not successful.

Toward the end of 1915 the Stinsons established their flying school. The school was unique because it was operated by three women: Marjorie and Katherine were instructors, and their mother Emma was business manager. Their brother Edward was chief mechanic. Walter L. Brock, a famous British aircraft builder who had joined the Stinsons supervised the building of a Caudron-type tractor biplane with a 50 hp Gnome engine to



FIGURE 39.—The flying class of the Wright School, Dayton, Ohio, 1 August 1914 (left to right): H. Daniels; Howard Rinehart, instructor; Lt. K. Whiting, USN; Marjorie Stinson; Griffith Brewer, England; C. Ando, Japan. (SI photo 77-705)



FIGURE 40.—George Armistead, postmaster of San Antonio, swearing in Marjorie Stinson to carry mail between San Antonio and Seguin, Texas, May 1915; Emma Stinson, Marjorie's mother, second from left. (SI photo A32619J)

supplement the Stinsons' three Wright aircraft.

Marjorie's first pupil was Joseph Gorman, a young Canadian. He had never made an airplane flight before, but he graduated in two weeks, and immediately left for England where he became a flight lieutenant in the Royal Flying Corps. Also in 1915, Marjorie was inducted into the U.S. Aviation Reserve Corps. Not only was she the only woman in the Corps, but she was the youngest licensed pilot in the United States.

Marjorie and Edward took time out from the school to join Katherine in Chicago in July 1916, making several exhibition flights. Marjorie and Katherine were the guests of honor at the Chicago Advertising Association's Aviation Day banquet.

That fall Marjorie returned to San Antonio to devote herself full time to the flying school. As World War I escalated, the Royal Canadian Flying Corps began sending their cadets to Marjorie for training. She quickly won the respect of her pupils, and there was never any question as to who was in charge in the air. Marjorie became known as "The Flying Schoolmarm" and her students as "The Texas Escadrille." Marjorie also made exhibition flights and carried passengers to entertain troops stationed at Ft. Sam Houston.



FIGURE 41.—Marjorie Stinson, who trained many men as pilots that later flew for the United States and Canada in World War I. (SI photo A309590)

At the end of 1918 the school closed, and Marjorie became a draftsman with the Aeronautical Division of the U.S. Navy in Washington, D.C. She also did some exhibition flying for the Liberty Loan drive.

# Großes Fest

Unter den Auspizien des  
„Seguin Feuer-Department“

## Mittwoch, den 19. Mai

### Frei auf den Straßen von Seguin Frei

Musik von der Feuerwehr-Musik, den ganzen Tag von 9 Uhr Vorm. an.  
Um 9 Uhr 30 großer Wasser-„Display“ und darauf

**Frl. Marjorie Stinson in ihrem „Bright“ Aeroplan**  
Schlauch-Wettrennen der Feuerwehren.

Ansprache: Herr Howard Short auf dem Courthouse-Platz um 1 Uhr Nachm.

**Moderne Luftkriegs-Methoden, Bombenwerfen etc.**  
: : **Fräulein Stinson** : : :

Wettläufe für „Gr-Ghiejs“, „Ghiejs“ und „Assistent-Ghiejs“

Wettläufe für Männer, für Knaben, für Alle.

Alle Gewinner erhalten Geldpreise.

Scherz-Monteste in Schlauchlegen und Feuerlöschen.

**Weitere Aeroplan-Flüge und andere Amüsements:**  
„Baseball“, „Veneß“, des Seguin Feuer-Departments, „Base-Ball“

**Abends Feuerwehr-Ball in der 'Country Club' Halle**

## Kommt und amüsiert Euch!

FIGURE 42.—Handbill advertising a performance of Marjorie Stinson at the German-speaking community of Seguin, Texas. (SI photo 77-709)

## Ruth Law

Ruth Law, who enjoyed one of the longest and most colorful flying careers of her day, probably became interested in flying because of her brother, Rodman Law, the "Human Fly." He once climbed a tall building in New York and then was shot out of a cannon wearing a parachute.

Ms. Law enrolled in the Burgess Flying School in Boston in late June 1912. On her first plane ride, on 1 July, she saw Harriet Quimby fall to her death. Undaunted, however, she made her first solo flight on 1 August. She also received hydroaeroplane instruction and flew in her first exhibition in September.

After she received her license on 12 November, she contracted to fly for the Clarendon Hotel at Sea Breeze, Florida, for the winter. There she made daily exhibition flights and carried passengers. During the summer of 1913 she did the same at a Newport, Rhode Island, resort. By this time she had bought her own Wright airplane. On 6 November 1913, on Staten Island, Ms. Law made a twenty-minute moonlit flight, becoming the first woman to fly at night. Throughout 1914 and 1915 Ms. Law made exhibition flights at resorts and meets throughout the East. She sold her Wright aircraft in 1915 and bought a "loop model" Curtiss pusher, which had the Curtiss wheel controls. She had it fitted with Wright lever controls because she was more familiar with them. On 17 January 1915, she gave her first public exhibition of looping and aerobatic flying at Daytona Beach.

On 19-20 November 1916 Ms. Law made the greatest flight of her career, setting three new records: the American nonstop cross-country record, the world nonstop cross-country record for women, and the second best world nonstop cross-country record. She left Chicago at 8:25 A.M. and flew nonstop to Hornell, New York, where she landed at 2:10 P.M. This distance of 590 miles broke the American nonstop cross-country record of 452 miles set by Victor Carlstrom on 2 November.

Ms. Law left Hornell an hour later, after the spark plugs in her plane had been changed by a young Army lieutenant, "Hap" Arnold, and flew on to Binghamton, where she spent the night. The next morning she flew on to New York City, where she landed at Governor's Island and was greeted by officials of the U.S. Army and the Aero Club of America. The end of the flight was perhaps the



FIGURE 43.—Ruth Law with her brother, Rodman, a trick parachutist and daredevil performer. (SI photo A5251)

most eventful part. Ms. Law had not refueled at Binghamton, and by the time she was over Manhattan, her engine began to cut out. To reach Governor's Island, she had to bank the airplane several times to get the fuel from the tank to the carburetors.

Ms. Law used her open Curtiss pusher for the flight with a small crude shield around her feet to protect them from the cold. She had designed a supplementary fuel system for the flight, increasing her aircraft's capacity from eight to fifty-three gallons by use of auxiliary tanks. She also had improvised a device that enabled her to read maps without relinquishing the controls. She designed a special map case in which she inserted a scroll of appropriate strips from Geodetic Survey maps; she could keep her left hand on the vertical control while holding the right control with her knee long enough to turn the map case knobs with her right hand.

Ms. Law was the guest of honor at two large dinners in New York several weeks after her historic cross-country flight. On 2 December, President and Mrs. Wilson, several cabinet mem-

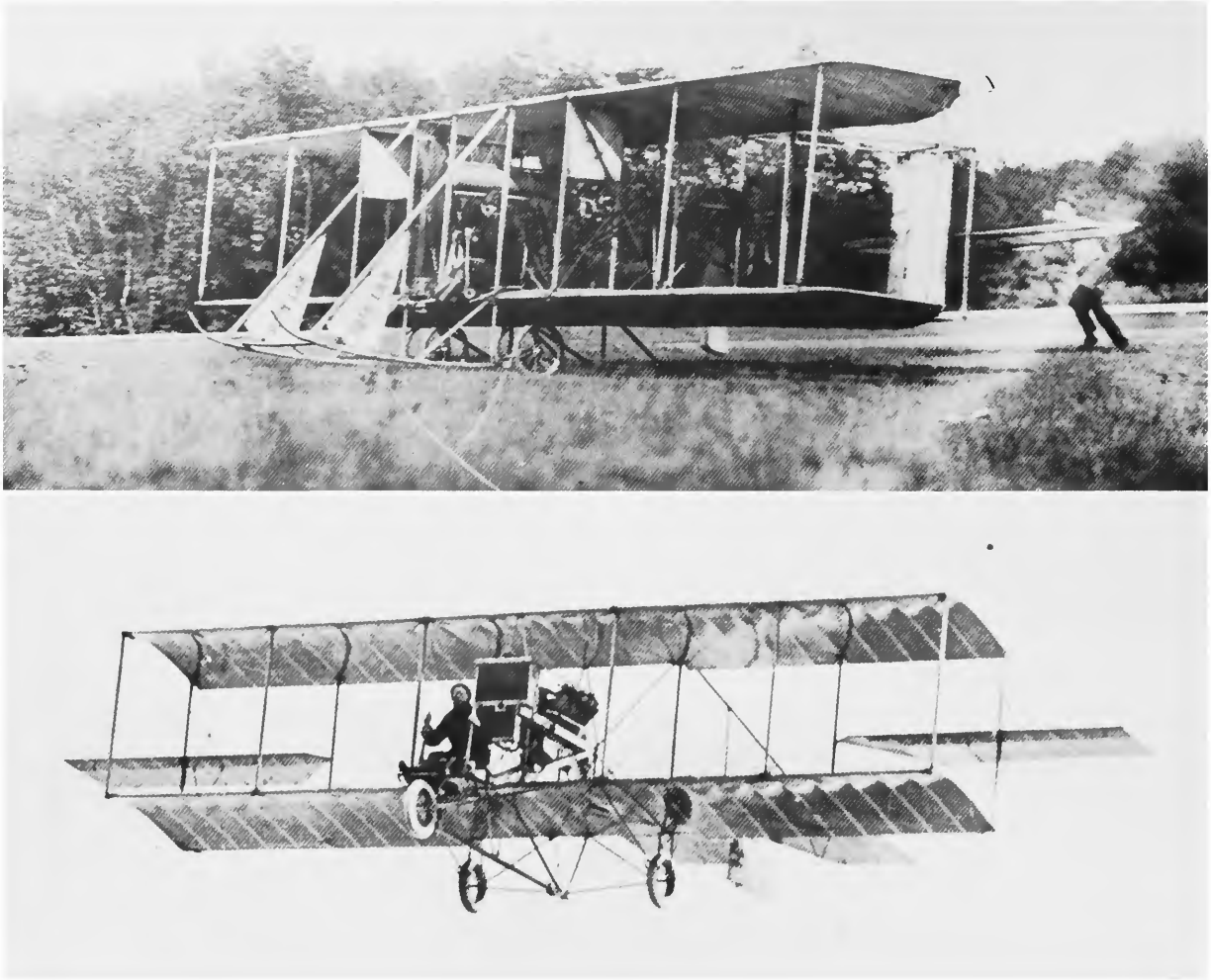


FIGURE 44.—Airplanes owned by Ruth Law: *top*, the Wright plane in which she performed at resorts and air meets throughout the country; *bottom*, the Curtiss pusher modified with Wright-type controls that she used for her exhibition flights. (SI photo A44433; courtesy of Rare Birds, Inc.)

bers, and many aviation dignitaries attended a dinner for her at the Hotel Waldorf. During that same week the Statute of Liberty was spotlighted at night for the first time, and Ms. Law gave a spectacular performance around it with the illuminated word "Liberty" on the bottom of her aircraft. She also gave an aerial salute to the president in his yacht, spinning down toward it and then pulling up about two hundred feet above it.

On 18 December the Aero Club of America and the New York Civic Forum feted her at the Hotel

Astor. The toastmaster was Adm. Robert E. Peary. Also attending was the famous explorer Roald Amundsen. Ms. Law was presented with a \$2500 check, and Miss Eleanor Gates, one of the speakers, summed up the evening: "It is easy to get a dinner if you are a man. You get one if you are a such-and-such degree Mason, or a naughty Elk, or just because it's time to have another dinner. But for a woman to sit in glory at the Hotel Astor she must do something superhuman" (author unknown, 1917:497).



FIGURE 45.—One of Ruth Law's spectacular night-time performances when she looped with flares attached to her aircraft; *inset*, the aviatrix, Ruth Law. (SI photo 77-706)

In January 1917 Ms. Law sailed for Europe to observe aviation advances there. Since her Chicago to New York flight, she had been able to earn as much as \$9000 a week for her exhibition flights.

Although she, like the other U.S. female pilots, was refused permission to fly in combat in World War I, she was, however, the first woman allowed to wear a noncommissioned Army officer's uniform, and she participated in recruiting tours for the Army and Navy. She also gave exhibition flights to help raise money for the Red Cross and Liberty Loan drives. During one of these flights, on 28 September 1917, she set a new women's altitude record of 14,700 feet.

After the war she made a tour of Japan, China, and the Philippines, and in April 1919 carried the first airmail to Manila.



FIGURE 46.—A pose of Ruth Law, the first woman in the United States authorized to wear a noncommissioned officer's uniform, photographed at the Hotel McAlpin in New York, 30 June 1917, during a recruiting drive for the Army and the Navy. (SI photo 77-708)



FIGURE 47.—The uniform and Curtiss plane, trademarks of Ruth Law's contributions to recruiting and to Red Cross and Liberty Loan drives. (SI photo A5532)



## Conclusion

By the time the United States entered World War I women had firmly established themselves as permanent participants in the field of aviation. The 1917 *Aviation Club of America Bulletin* listed ten women who were holders of pilot's licenses.

<i>Certificate number</i>	
37	Harriet Quimby
44	Matilde E. Moisant
133	Julia Clark
148	Katherine Stinson
173	Bernetta A. Miller
188	Ruth Bancroft Law
301	Mrs. Richberg Hornsby
303	Marjorie Stinson
561	Dorothy Rice Peirce
633	Helen Hodge

Many more women in the United States were competent pilots who had never bothered to take the license test.

Even though these women were not allowed to fly for the Air Service in World War I, their achievements made the government realize that they would be real assets to recruiting and the Red Cross and Liberty Loan drives. Their fame did not spring entirely from the novelty of women as pilots but from the genuine respect they had earned by their exploits.

Their determination and ambition to establish a place for women in all phases of aviation has served as an inspiration through the years. In the 1930's women began competing in—and often winning—the major speed and distance air races. During World War II the Women's Airforce Service Pilots (WASPs) was established to do ferrying, cargo carrying, and various other types of noncombat flying, realizing an ambition held by the early women flyers during World War I. Since World War II women have continued to set aviation speed



FIGURE 48.—YMCA representative pinning the Association's triangle on Katherine Stinson's arm on her arrival at Camp Kearny from the North Island Aviation Station, San Diego. (SI photo 77-707)

and distance records, constantly proving their abilities as capable, professional pilots. Subsequent publications in this series will deal with these later women and their achievements in detail.

Since the field of heavier-than-air aviation is a new one, begun in this century, pioneer aviators seem closer and more real to the present generation

than pioneers in many other, older fields of endeavor. Several of these early women pilots are still alive and must continue to take pride as they watch the progress U.S. women are making in aviation, progress which would not have been possible had their predecessors not dared to defy convention, try their wings, and *fly!*

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