

The Biography of Glenn Curtiss

by ROBERT H. RANKIN

Glenn H. Curtiss is the outstanding American pioneer in aviation. He not only originated many types of airplanes still in service but he left a lasting imprint on aviation in general through the manufacturing plants bearing his name.

THE name and genius of Glenn H. Curtiss is known to everyone who has ever had contact with aeronautics. He founded one of the greatest airplane and motor manufacturing companies in the world and his contributions to the science of aerial navigation are legion. He is second only to the Wright brothers.

Curtiss was born at Hammondsport, N. Y., May 21, 1878. As a youth he evidenced great interest in mechanical vehicles and after completing his high school education, he engaged in a series of experiments with motorcycles. In 1907, riding a motorcycle of his own design and construction, he attracted wide attention by establishing a speed record of 137 miles an hour. As a result of his experiments, Curtiss developed a motorcycle engine which became famous for its reliability and efficiency.

The Curtiss motor was then found to be fitted for aeronautical service and in 1904, Curtiss made his first contact with aviation when Major Thomas S. Baldwin came to him with an order for a motor for his airship—the *California Arrow*. This airship was an outstanding success at the St. Louis World's Fair in 1904 and Baldwin gave credit for the success to the motor.

As a result, it was not long until all dirigible balloons in this country were using Curtiss motors, and the first contract ever awarded for a navigable balloon by the United States Government was given to Baldwin. This balloon, the Signal Corps Dirigible No. 1, was



An old "Jenny," technically known as the Curtiss JN-4, one of the best known of all Curtiss airplanes.

built at Hammondsport and was powered with a water-cooled Curtiss engine. During the summer of 1905, the dirigible made a successful two-hour flight at Fort Myer, Virginia, with Baldwin acting as pilot and Curtiss as engineer.

During this time, Dr. Alexander Graham Bell, inventor of the telephone, had taken an active interest in flight and in 1905 he requested Curtiss to build a motor for a tetrahedral kite with which he was experimenting. It was not until the summer of 1907, however, that Curtiss was able to visit Dr. Bell at Baddeck, Nova Scotia, his summer home.

While there, he met F. W. Baldwin, J. A. D. McCurdy, and Lieut. Tom Selfridge, all interested in practical aviation and when Mrs. Bell agreed to finance the work, the group formed the

Aerial Experiment Association, with Curtiss as director of experiments. During the fall of 1907, the work of the association was moved to Hammondsport, and after some weeks spent on glider experiments, it was decided to build power machines.

The third machine constructed, the *June Bug*, on July 4, 1908, won the *Scientific American Trophy*. This trophy, the first offered in this country for airplane flights, was awarded for the first public officially-observed, previously announced flight over a distance of at least one kilometer.

Early in 1909, the Aerial Experiment Association was dissolved and Curtiss turned his attention to over-water flight. The *June Bug* was equipped with pontoons and attempts were made to fly it from the water. These attempts were unsuccessful and it was decided, in November of the same year, to give up the experiments for the time being.

As a result of the winning of the *Scientific American Trophy*, the Aeronautical Society of New York City placed an order in 1909 with Curtiss. The plane was completed in June and demonstrated at New York City. On July 17th, Curtiss flew the machine around a closed circuit, a distance of 24.7 miles, winning the *Scientific American Trophy* for the second time, and in addition, winning the Cortland Field Bishop prize.

Following this, Curtiss was chosen to represent the Aero Club of America at the first International Aviation Meet. This meet was held at Rheims, France, August 22-29, 1909, and was attended by Bleriot, Latham, and others equally as famous. Flying a new machine, powered with a Vee-type water-cooled engine, Curtiss won the first international speed trophy, the Gordon Bennett cup, winning from Bleriot by a margin of six seconds.

After this, Curtiss built numerous machines and engines as well as in-



Lieut. Russell H. Maughan and his Curtiss pursuit ship with which he made the famous "Dawn-to-Dusk" flight across the American continent.

structing Army, Navy, and foreign officers in the art of flying. He formed the Curtiss Exhibition Company, the country's first flying service. On May 31, 1910, he made a flight from Albany to New York, a distance of 150 miles, in 2 hours, 21 minutes. This flight won for Curtiss the \$10,000 prize offered by the *New York World*, and the *Scientific American Trophy* for the third time.

Curtiss was among the few men who, in the earlier days of aviation, visualized the importance of airplanes in warfare. In 1910 he demonstrated the possibilities of bombing and sharp-shooting from the air, and the reception of wireless messages from an airplane in flight. In the same year he started his first flying school at Hammondsport, and later he opened schools at San Diego, Cal., and Miami, Florida.

Having retained his interest in building an airplane which would fly from the water, Curtiss resumed his experiments along this line, and on January 26, 1911, he made a successful flight, using a plane mounted on a single pontoon. By attaching wheels to the pontoon, Curtiss converted his machine into the world's first amphibian, and on February 23rd of the same year he made a successful flight with it.

In the early hydro-airplane, thus developed, the motor and pilot were above in the usual position in the wings, while the pontoon or hydroplane was a considerable distance below the wings.

Thus, there was a good deal of head resistance. Curtiss set about reducing this head resistance by incorporating the pilot's seat with the pontoon, and the outcome was the flying-boat. Work on the flying-boat was completed rapidly and in July, 1912, it was successfully demonstrated at Lake Keuka, Hammondsport, N. Y.

For his work in perfecting the hydro-



Glenn H. Curtiss as he appeared when flying one of the old Curtiss pushers.



The NC-1, a Curtiss naval flying-boat, a sister of the NC-4, the first airplane to cross the Atlantic Ocean. The NC-1 also flew on this trip but did not quite complete it.

airplane and the flying-boat, Curtiss was awarded, through the Aero Club of America, the Collier Trophy for 1911 and 1912. This trophy is awarded annually for "the greatest achievement in aviation in America, the value of which has been thoroughly demonstrated during the preceding year." In 1913 he was awarded a medal by the Smithsonian Institute.

During 1913, the "JN," forerunner of the famous "Jennies," was designed and built. This plane was pronounced by army officers to be the most perfect produced up to that time, and in little more than a year the "Jenny" was one of the most useful planes in the American training service.

Early in 1914, Curtiss designed and built the "America" for Rodman Wanamaker. The "America" was the first multi-motored flying-boat ever built, and it was the first heavier-than-air craft ever designed for trans-Atlantic flight. The plane was powered with two 90 h.p. motors, and weighed 2,600 pounds when fully loaded. The outbreak of the European War put an end to the enterprise of flying the Atlantic, the machine was sold to the British Government and was put into commission with a coast defense squadron.

Later, in the same year, the Curtiss company redesigned and reconstructed Langley's flying machine and Curtiss made a successful flight with it. Langley had approached the subject of aeronautics from a strictly scientific viewpoint, establishing testing apparatus and building successful self-propelled models.

His research in mechanical flight began in 1887 and continued up to 1903 when his successful flying model was reproduced to full scale. This machine was manned for its trial flight by a human pilot, but it was wrecked in launching and did not fly. Had the machine performed as successfully for Langley as it did for Curtiss, Langley would have antedated the Wright brothers by a narrow margin of about two months.

From 1914 to 1918, many types of planes were designed and built. Among these were the S-3, a triplane scout; the R-4, a reconnaissance biplane; the

model K triplane scout; the F-5-L seaplane; the model F flying-boat; and a twin-motor military biplane.

During 1918, the Curtiss Company came under the control of the Willys-Overland Company with Curtiss remaining with the new company as a director. The newly designed Oriole landplanes and Seagull flying-boats were now produced by the company. Curtiss had visualized airplanes carrying mail, being used for travel, exploration, and transportation and when the war ended, he directed his energies along these channels.

The Curtiss Exhibition Company was reorganized as the Curtiss Flying Service to handle all phases of commercial activity, with the exception of the manufacture of planes and motors. While the commercial aviation field did not bear out the promise of the post-war period, the Curtiss Aeroplane & Motor Company continued to produce new models and to pioneer in various engineering developments.

In 1919, the Curtiss Eagle Airliner was developed and the famous NC boats were completed. These boats were the first tri-motor seaplanes ever constructed in this country, and one of them, the NC-4, was the first aircraft to ever cross the Atlantic. In this same year, Roland Rolf's flew a Curtiss pursuit ship to a world's altitude record of 32,450 feet.

During 1920 and 1921 Curtiss built the first of a series of racing planes for the Pulitzer and Schneider Cup races. These planes brought to the United States the world's records for both land and seaplanes.

From 1921 to 1930 the following planes were brought out:

1922 to 1923 The NBS-1 bomber, the TS-1 seaplane, and a Curtiss-Army pursuit plane powered with a 400 h. p. D-12 Curtiss engine.

1924 Development of the Hawk, a fighter powered with a D-12 engine, showing a top speed of 187 miles an hour. Development of the Falcon observation plane, the twin-engine Condor bomber, and the Carrier Pigeon mail plane.

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Airline Methods

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"time table" advertisements, in which schedules and rates are given. Such advertising is frequently inserted and also includes a snap line regarding the excellence of service or the record of operation behind the line.

The second type is found mostly in magazines in the form of feature articles and educational advertisements. Facts concerning equipment, lighting of airways and operation over them, radio safety and navigational devices and, once more, educational photographs are broadcasted. All of them tend to get the public to gradually accept air transportation as a safe and common mode of travel.

Feature articles by well known writers talk about extended trips by air, covering all the experiences of an air traveler, they are invaluable. They are gobbled up by the readers. Educational once more. Window displays. The public must be reached in every possible way in order to erase from their minds the many harmful myths concerning air transportation which are so prevalent. The days of aviation from 1918 to 1926 or 1927, when antiquated planes, unsure pilots and haphazard methods resulted in screaming headlines of horrible death, left a deep and indelible impression on people's minds. The progress since then is not generally known, or, if known, not generally accepted.

The job of wiping out a blood-spattered past is a terrific one, but the airlines are valiantly attacking it and are slowly but surely winning the battle. The airlines probably spend a greater proportion of their income for advertising and general educational work than any other industry, and it is gradually bringing them profit.

In the past few years, the conventional methods of advertising have been supplemented by motion pictures showing a trip by air from the passenger's viewpoint. These pictures are shown by the Traffic Department's men wherever and whenever possible. The investment has been a profitable one. Such, in brief outline, is part of the great work of keeping an airline in the air.

And the desks of newspaper and magazine editors are showered continuously with interesting items concerned with air-travel, in the hope that their publication will react favorably upon the advertiser. This is the best of publicity.

An airline is very much like a living being. It has its various organs and parts, the health and sturdiness of each, working in coordination with the others, determining the general health and efficiency of the whole body. The Traffic and Publicity Departments, working in close liaison with each other, form the very beating heart of an airline, constantly pumping a life-giving supply of money into the other organs.

END

Glenn Curtiss

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1925 Development of the *Lark*, a four-place passenger and cargo plane.

1926 to 1927 Development of the 650 and 675 h.p. *Conqueror* engines.

1928 The *Fledgling* training plane developed for the Army and Navy. Production of the *Robin*, a three-place cabin high-wing monoplane powered with a Curtiss OX-5 motor.

1929 Production and marketing of the 20-passenger *Condor* transport and the 8-passenger *Kingbird* commercial plane.

In addition to these planes, Curtiss

continued to build racing planes for the Pulitzer and Schneider races and in 1924 Lieut. Maughan, flying a Curtiss pursuit ship, made the first "Dawn to Dusk" flight across the United States.

It is said that Curtiss originated and built at least one example of every present-day type of plane. And this is nearly true.

Glenn H. Curtiss was a successful designer and manufacturer. Realizing how dangerous failure can be, he built slowly. Using the experience which he gained from day to day, and having patience and perseverance, he made his ideas work for him. When he died, on July 23, 1930, aviation lost one of its greatest personages.

END

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