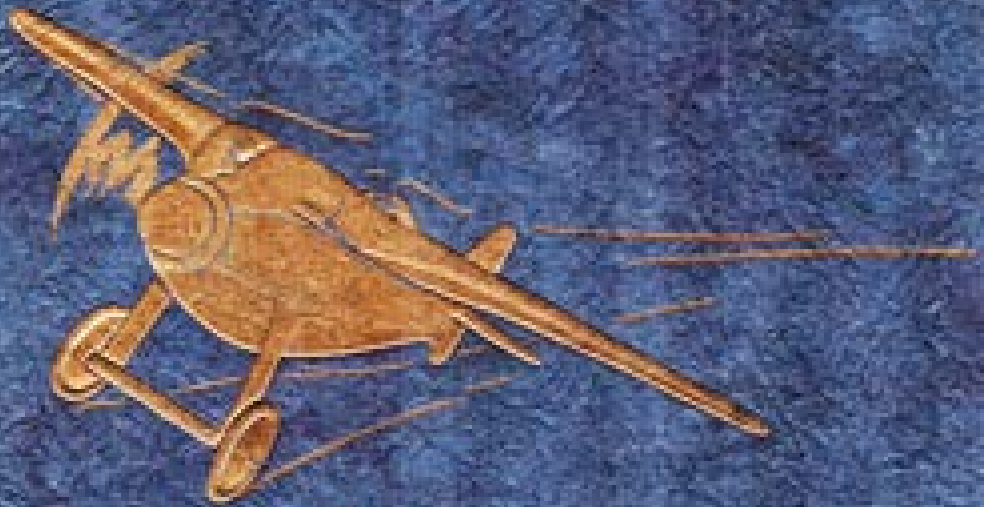


INTERNATIONAL AIR RACES

DAYTON · OHIO

October 2-3-4-1924

A Brochure on Aviation

and the

City of Dayton

and

Official Souvenir Program

International Air Races

Foreword

The City of Dayton, the Chamber of Commerce, the National Aeronautic Association, under whose auspices the International Air Races of 1924 are held, and the Officials and Committees of the Races bid the Visitors to the city cordial Welcome.

In presenting this Official Souvenir Program of the Races the aim has been to furnish a brief story of the "Air City" and some of the important facts relating to the invention and development of the airplane.

Fullest appreciation of the value of the Art and Science of Aeronautics on the part of every patriotic citizen and the enlisting of his active support are essential to a continued development necessary to place

America First in the Air

Dedicatory

To the inventors of the airplane, the Wright Brothers—Wilbur and Orville—of Dayton, whose genius, untiring energy, indomitable will and unfailing devotion to the cause were rewarded at a time when almost everyone completely lacked faith in any possibility of their success, this booklet is most solemnly and respectfully dedicated.

President Coolidge said upon the occasion of Dayton's recent celebration of the 20th Anniversary of the invention of the airplane: "All the world knows that the invention of the airplane was one of America's greatest contributions to the sum of human progress, and that to its inventors, the Wright Brothers, is due an obligation greater than the community will ever be able to meet."

The City of Dayton

Aviation celebrates its twenty-first birthday this year.

It is particularly fitting, therefore, that the 1924 International Air Races should be held in Dayton—the birth-place of the flying machine, home of the Wright Brothers, and the Air City of America.

Since its inception, aeronautics has had an important part in the affairs of Dayton. Five flying fields in and near Dayton, including Wilbur Wright and McCook Army Air Service Fields, attest the extent of aviation activities here.

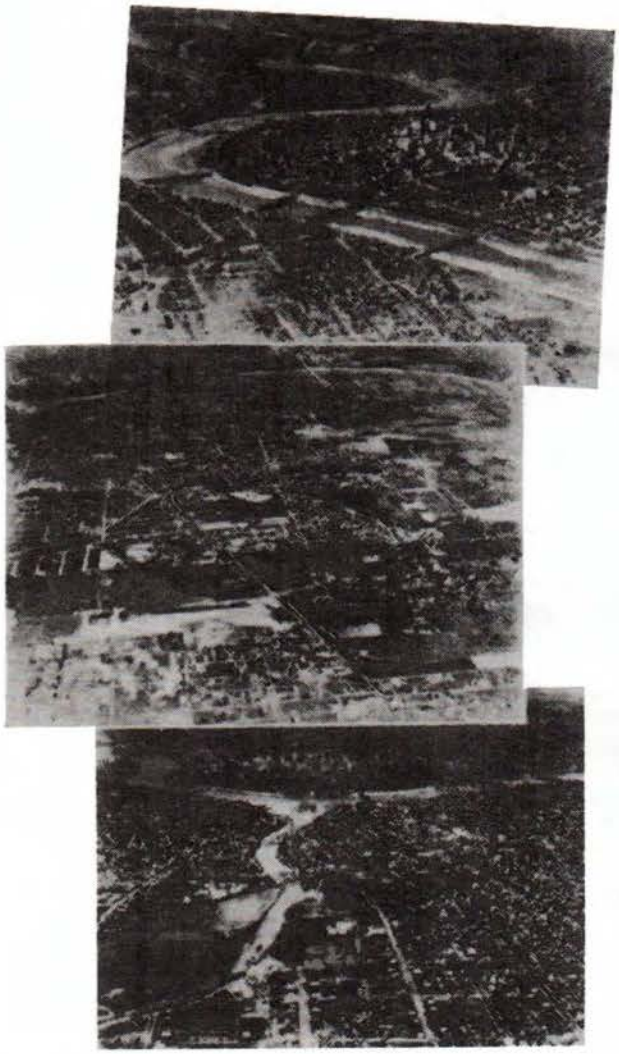
Airscape of Dayton's Business Section

The corps of engineers, pilots and mechanics skilled in the science of design, construction and flying of aircraft who make up the staff of expert workers at McCook Field, home of the Engineering Division, U. S. Army Air Service, without question take rank over any other similar organization.

In no other city in the world is greater interest shown nor more active cooperation given aviation by business men and citizens generally.

An evidence of this is the raising by popular subscription, almost over-night, of a fund approximating a half-million dollars to purchase land necessary to expand Wilbur Wright Field to a total area of 5,000 acres, as a permanent, ideal home for the Engineering Division of the Air Service. This gift of land to the United States Government has been accepted by the War Department.

The Heart of the Miami Valley



Views of Dayton From the Air

Located in the center of the Miami Valley, a most fertile agricultural section, Dayton has enjoyed steady growth and development since its founding in 1795-96.

The pioneer spirit prevailing at the time the land for Dayton, at the junction of the Miami, Stillwater and Mad rivers, was secured by treaty from the Indians, has been constant down the years of the city's history and has been responsible for the initiative and leadership characteristic of its citizens.

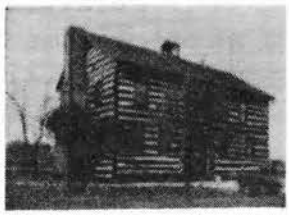
The rolling terrain of the Miami Valley affords all natural advantages for beautiful countryside and attractive home sites and of these Daytonians have taken full measure in prosperity and happiness.

Intimately associated with the founding and early history of Dayton are the names of General Jonathan Dayton, General Anthony Wayne, General Arthur St. Clair, Colonel Israel Ludlow and General James Wilkinson, all written into the proceedings of the First Continental Congress, the Federal courts, the movements of the Revolutionary Army and the opening up of the Northwest Territory.

Upon the lands purchased and surveyed by the first settlers, Daytonians have builded a city beautiful, a community prosperous, a neighborhood of business leadership and home ownership—a delightful place in which to live.

Section of Dayton View

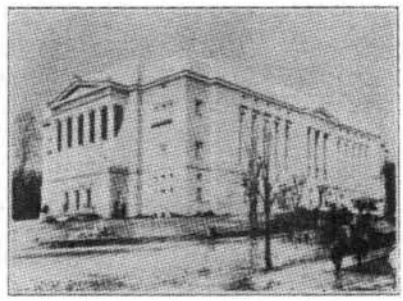
Air City Is Shopping Center



First House in Dayton
Newcom Tavern

With the 210,000 residents of the Air City and suburbs, the total number of people living within the retail area of Dayton exceeds a half-million.

The value of retail business is 35 million dollars yearly.



Proposed Masonic Temple—For Which One and one-half Million Dollars Has Just Been Subscribed

The business district of the city is filled with many fine buildings, housing the larger mercantile establishments, some in their own homes, some occupying material portions of the modern office buildings.

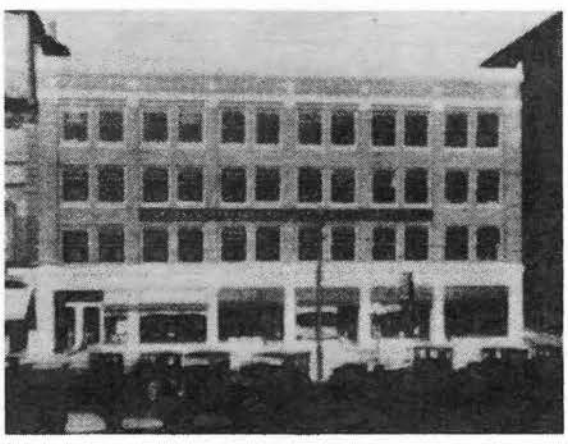
The value of wholesale business in the wholesale area is estimated to be 45 million dollars annually.

Fifteen banks have deposits exceeding 50 million dollars.

Eighteen building and loan associations have resources of more than seventy million dollars, and mortgage loans of sixty-five millions.

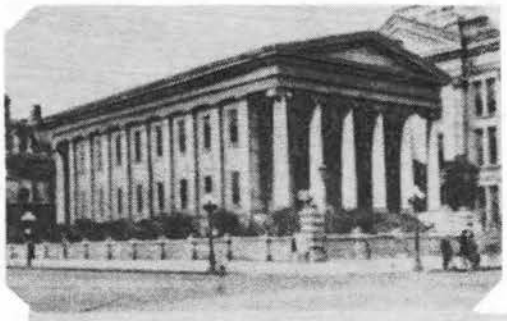
The transportation system includes six steam railroads, six electric interurban railways and eleven street railways.

U. B. Office Building—Largest Concrete Building in the World



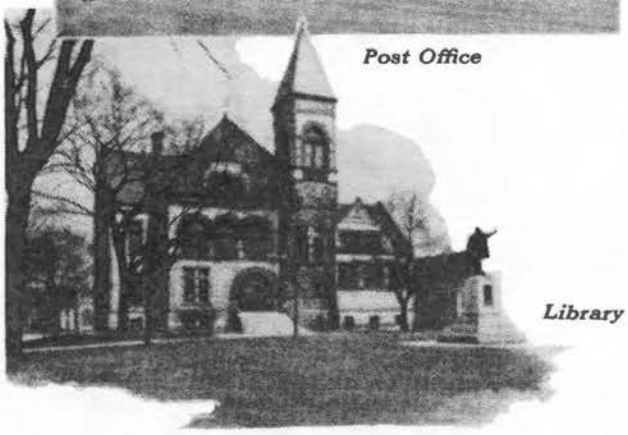
Home of the Chamber of Commerce and International Air Races

Dayton's Public Buildings



Court House

Post Office



Library

The city presents an attractive appearance at all times, enhanced in beauty by the many fine public buildings, possessing characteristic individuality in architectural design.

During the past ten years more than a score of large office, mercantile and bank buildings have been erected, replacing many of the older business blocks which were reminiscent of "Early Dayton."

One of the most unique and attractive structures in America is the "Old" Court House, of Doric architecture copied from the Temple Theseum, built in Athens as a mausoleum for the Greek King Theseus, about 460 B. C.

Miami Conservancy Building

Some of the more modern public buildings are in keeping with the latest architectural designs.

With the development of the 10-year building program for the city many new buildings will be added during the coming decade which will place Dayton in the front ranks of American municipalities, for its homes for public institutions.

Union Station

Flood Control Project of World Renown

Dayton Flood Scenes

In March, 1913, flood waters swept the Miami Valley, overflowing the banks of all rivers and tributaries. The waters raced through the streets of Dayton and adjacent towns to a depth of 12 feet, causing property damage of $100,000,000 and the loss of over 400 lives.

Following the immediate relief and rehabilitation work, twenty-three thousand individuals in Dayton subscribed $2,000,000 for flood prevention. Eminent engineers were employed to develop the flood prevention plan.

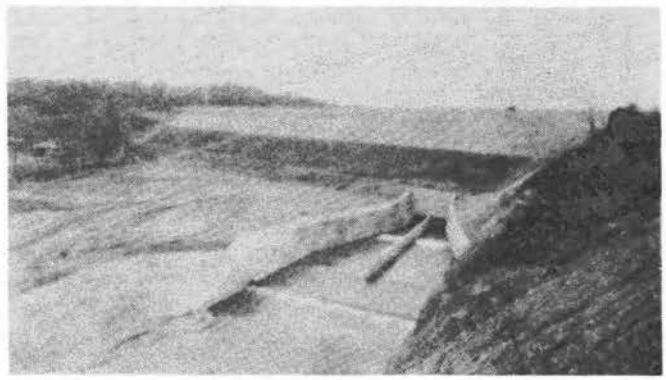
The economical plan proved to be a combination of channel improvement and retarding basin control, not for Dayton alone, but for the whole Valley as a unit. The result was the formation of the Miami Conservancy District, a political subdivision, following the passage of the Conservancy Act of Ohio.

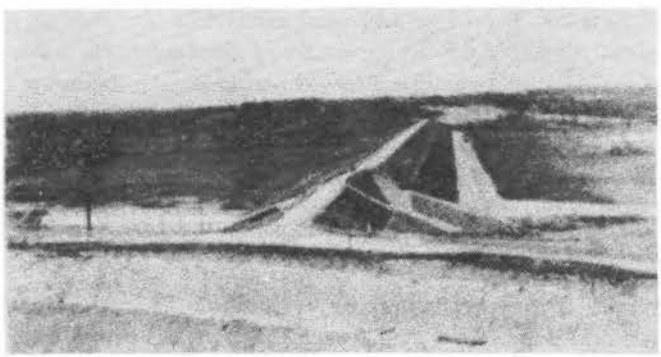
Five dams with retarding-basins or dry reservoirs are provided: Germantown on Twin Creek, Englewood on Stillwater River, Taylorsville on Miami River, Huffman on Mad River, and Lockington on Loramie Creek. Channel improvements are confined to the cities and towns.

Storage is provided for 847,000 acre feet of water. The project will control a flood 40 percent larger than that of 1913, which eliminates flood danger for all time to come.

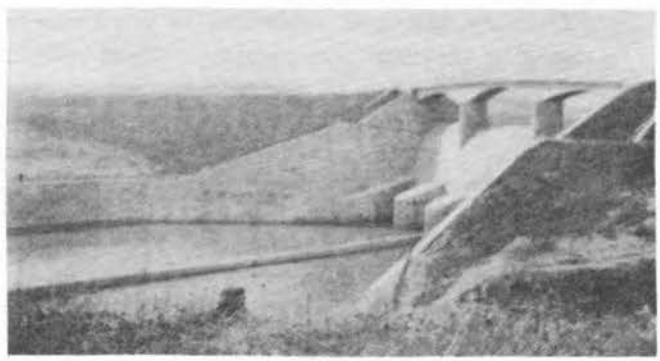
Cost of conservancy work has been approximately 30 million dollars, or less than 50 percent of the 77 million dollars total benefits to 60,000 parcels of property assessed for the work, and is paid for entirely by the people of the district without city, county, state or Federal aid. The work is finished and already has handled two large floods with complete success.

The project represents one of the greatest engineering feats ever attempted in the United States.



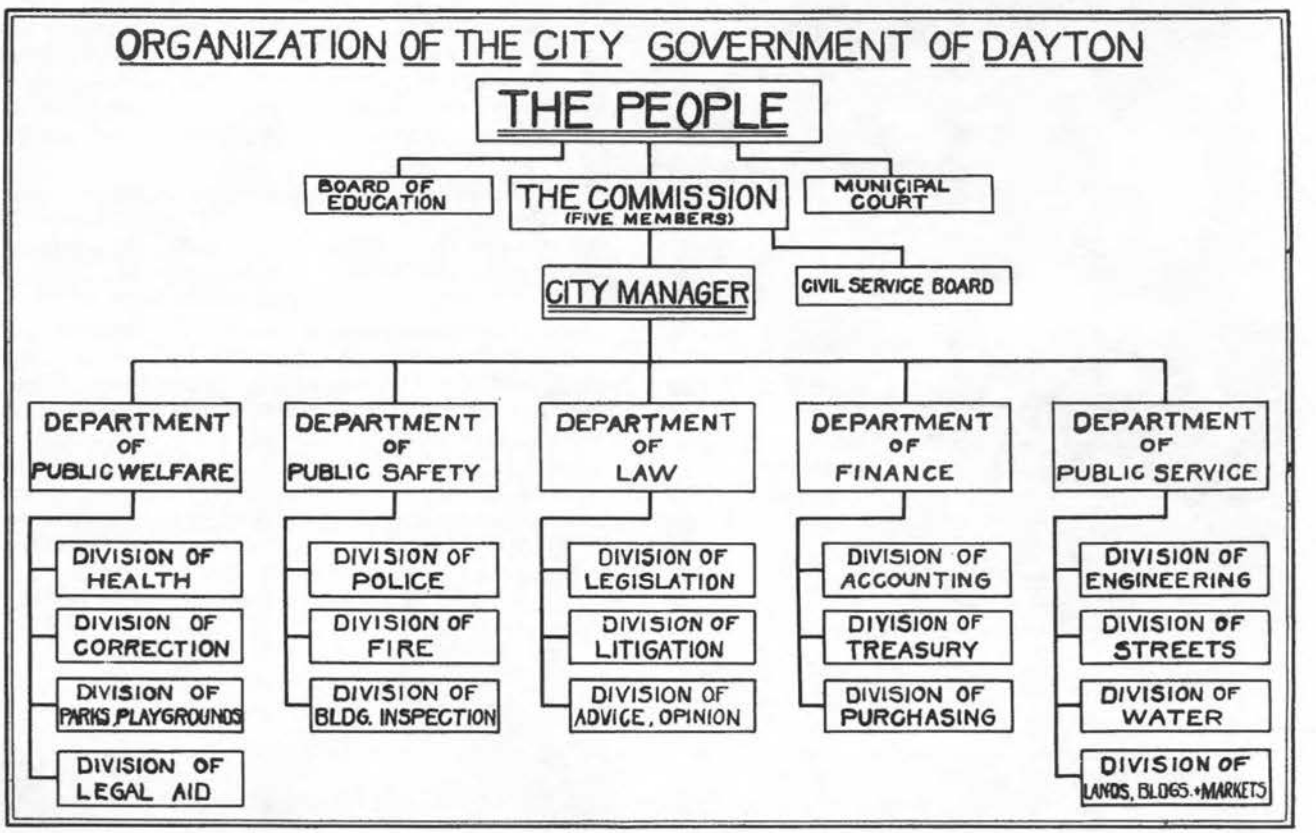


Huffman Dam



Above—Germantown Dam Below—Taylorsville Dam

Commission-Manager Plan of Government



The operation of the municipal government of Dayton under the Commission-Manager Plan, has resulted in the adoption of this form by many other cities and towns.

Commission-Manager government is analogous to corporate organization in private business.

Policies are determined by a commission of five members, elected at large, on a non-partisan basis, which serves as the legislative branch of the government.

The City Manager, appointed by the Commission without regard to political affiliation or place of residence, is the chief administrative officer. His principal duties are: Supervision of departmental administration, execution of laws and ordinances, recommendation of legislative measures, appointment and removal of department directors and division heads, and preparation of annual budget.

The administrative branch of the government is divided into the five departments of law, service, safety, welfare and finance. Employes in the classified service are selected under civil service provisions of the charter.

The Dayton plan of Commission-Manager government, in operation here since January 1, 1914, has proven to be democratic as well as efficient. Notwithstanding stringent state laws Dayton has operated each year within its income, and has continuously given greater service than was given under political administrations.

Industrial Leadership

Dayton has long been recognized as one of the industrial centers of the country.

The "City of a Thousand Factories," as it was known before the advent of the airplane turned it into the "Nation's Air Center," turns out as great a diversity of products as any city of its size.

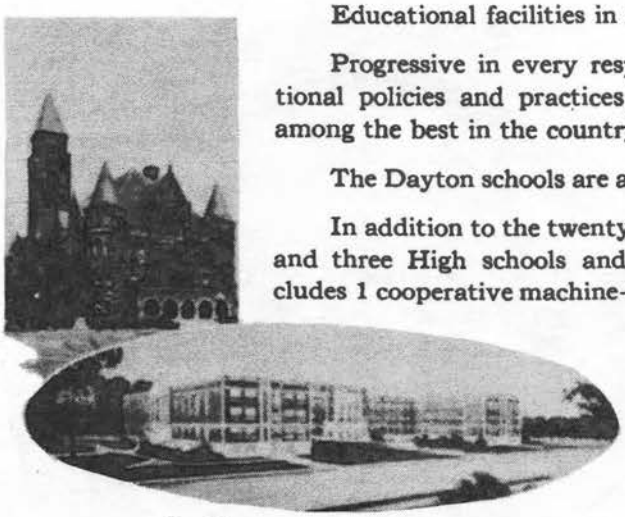
A hundred of these products are world leaders, and include cash registers, computing scales, farm lighting plants, automobile starting, lighting and ignition systems, mechanical refrigeration units, fare recording and indicating registers, autographic registers, clay working machinery, gasoline gauges—instrument board type, machinery for paper mills, United States Stamped Envelopes and Stamped Envelope Paper, water systems for residences, hoisting jacks, shoe lasts, golf clubs and many others.

Because of the fine measurements and minute calculations required in the manufacture and applied in the use of many of its products Dayton is often referred to as the Precision Center of America.

Industrial Dayton is noted not only for its world-leading products and precision instruments, but for its many model industrial institutions, some of which were first in modern factory and distribution practice and pioneers in industrial welfare work.

National Cash Register Company from the Air

Educational Advantages



Upper—Steele High School
Lower—Roosevelt High School

Educational facilities in Dayton are excellent.

Progressive in every respect, keeping apace with modern methods in educational policies and practices, Dayton schools are generally recognized as being among the best in the country.

The Dayton schools are accredited to the colleges of North-Central Association.

In addition to the twenty-five Elementary or Grammer schools, one Junior High and three High schools and a 2-year Normal school the public school system includes 1 cooperative machine-trade school, cooperating with Dayton factories, retail selling school, cooperating with local stores, make-time school, continuation and trade extension school, two pre-vocational schools, two schools for mentally defectives, school for crippled, school for the deaf, and night schools for children and adults. Student enrollment exceeds 30,000. The faculty numbers almost 800 teachers.

Vocational education is emphasized in the school system, which includes cooperative, trade and commercial high schools, continuation, pre-vocational, vocational and make-time schools.

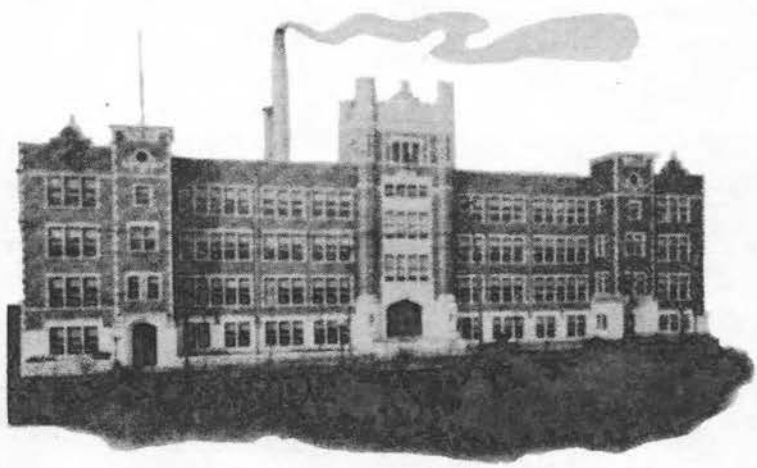
The "project method" has been successfully employed, and visual instruction by stereopticon stereograph is a common phase of class room procedure.

Music is an important part of school work, each school having an orchestra and chorus from which are selected the general School Orchestra of 150 pieces and School Chorus of 500 voices, giving three excellent programs at the close of each school year.

Athletics are fostered, with field days each year. Many high school state and sectional championships in foot-ball, basketball and baseball, have been won by Dayton High School teams.

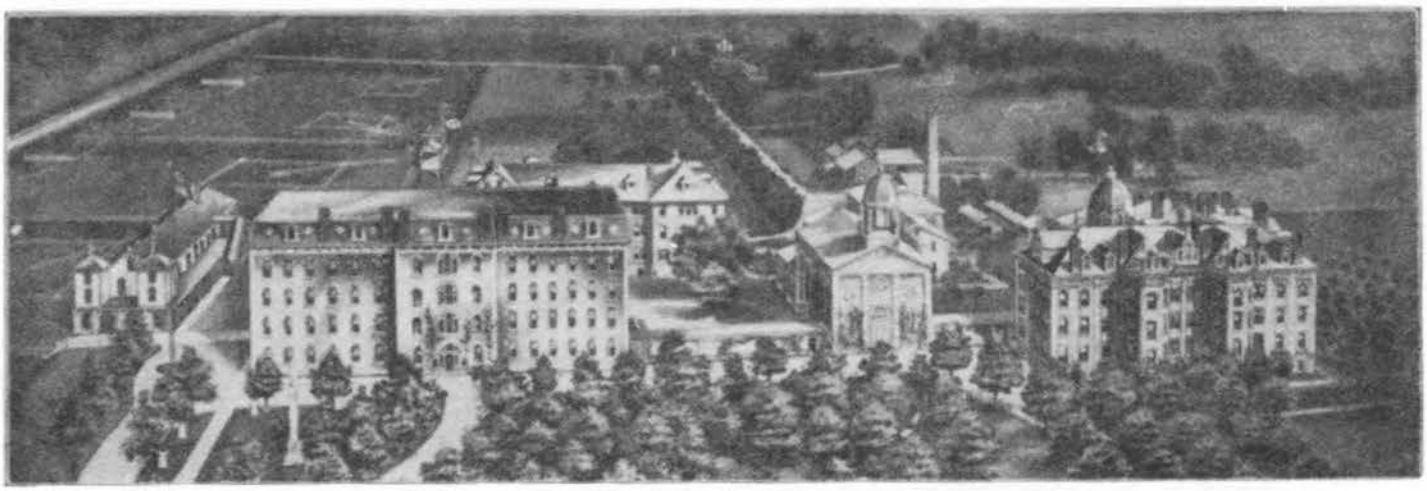
In the 19 Parochial schools, 236 teachers give instruction to more than 6,000 pupils.

Moraine Park School, a private institution, is noted for its specialized training given pupils according to their natural ability or vocational preferences.



Stivers High School

Institutions of Higher Education

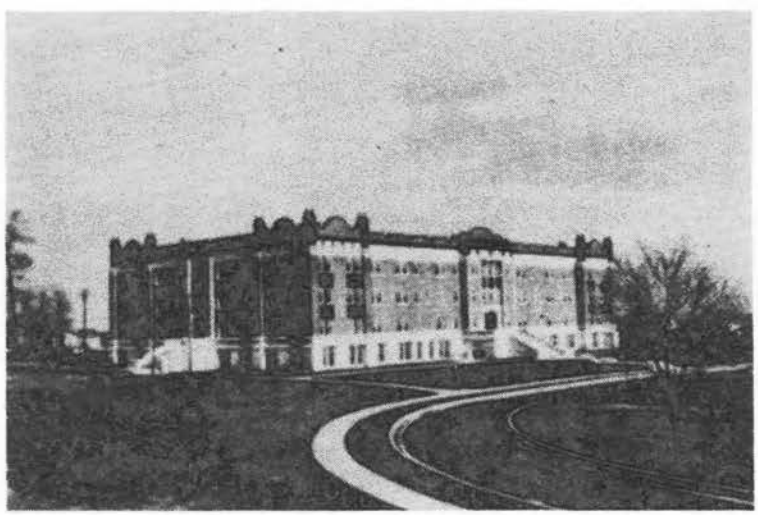


The University of Dayton

The University of Dayton, founded in 1850 as St. Mary's College or Institute, by Priests and Brothers of the Society of Mary, affords every facility for higher education, and stands for the highest ideals in educational work.

The University of Dayton embraces the Colleges of Liberal Arts and Letters, General Science, Education, Commerce and Finance, Law and Engineering. A two-year Pre-Medical course in Chemistry, Bacteriology, Biology and Anatomy is also given students preparing for entrance into medical schools.

There is also a School of Sociology, and University Extension Courses and a College Preparatory Department. Alumni and friends of the University have recently subscribed a half-million dollars to a building fund.



Dormitory of Bonebrake Theological Seminary

The Sisters of Notre Dame this year celebrated the Diamond Jubilee of the founding of Notre Dame Academy, an advanced school for girls, by raising through alumni and friends a third of a million dollars with which to build a new modern school, to be known as Notre Dame DeVilla Julienne.

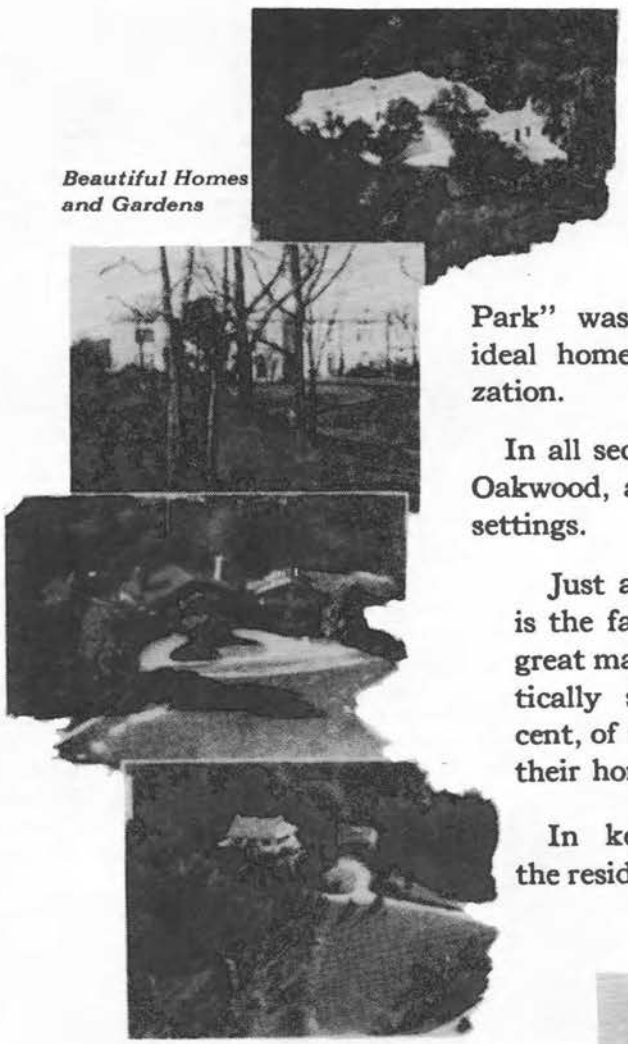
Two theological seminaries are located in Dayton. Bonebrake Seminary of the United Brethren Church, founded in 1871, has just moved into its beautiful new home in Upper Dayton View.

Central Theological Seminary is operated by the Reformed Church.

Dayton also has two business colleges, many of whose graduates are filling important positions.

Villa Julienne (Proposed New Building)

City of Beautiful Homes



Beautiful Homes and Gardens

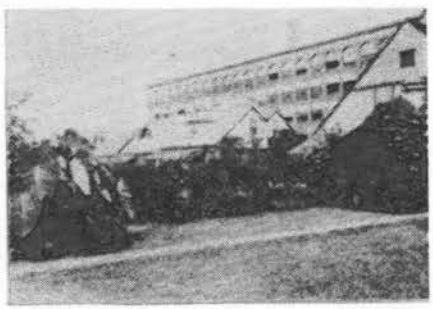
Dayton is truly a city of Beautiful Homes.

Appreciation of the value of attractive landscaping, fostered by city-wide contests for most attractive lawns and gardens, has even transformed dumping grounds into attractive home-sites.

The conversion of "Slidertown" to "South Park" was brought about through the sponsoring of ideal home surroundings by a leading industrial organization.

In all sections of the city and the adjoining Village of Oakwood, are found delightful residences in picturesque settings.

Just as important is the fact that the great majority, practically seventy per cent, of families own their homes.



In keeping with the residential development, many industrial institutions are attractively set amid surroundings of lawn, shrubbery and flowers.

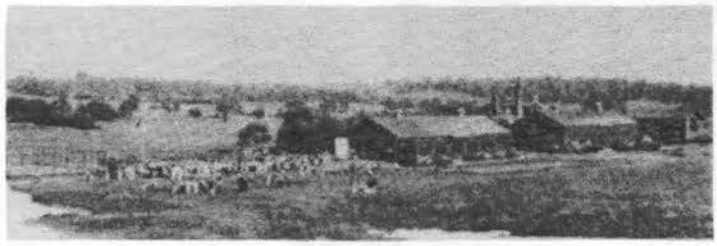
Landscape architecture added to the wide streets, tree lined boulevards and winding channels of four rivers give Dayton just claim to the distinction of being a City Beautiful.

School and Lawn Garden Views

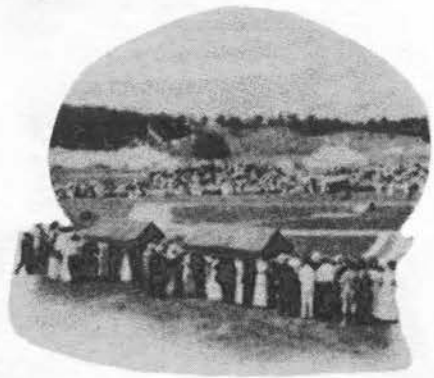
On the Playgrounds

Public Welfare has been a dominant factor in governmental activities.

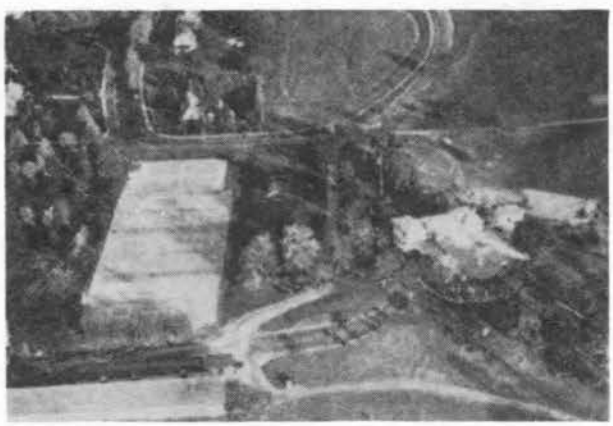
Municipal Recreation is recognized as an important part of community life.



Through the gift of the late John H. Patterson, Daytonians enjoy the finest and one of the largest municipal park and playgrounds in America—Hills and Dales Community Country Club. The Club grounds comprise nearly three hundred acres. Two fine 18-hole golf courses—the Hills Course and the Dales Course—three baseball diamonds, soccer and football fields, tennis courts, children's playgrounds, men's and women's clubhouses, restaurant facilities and numerous picnic camps are all included in this ideal city park.



Scenes at Community Country Club

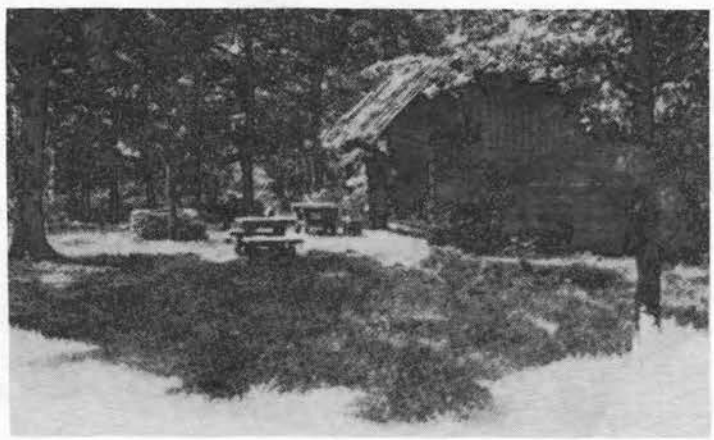


Dayton Country Club

Nineteen other playgrounds, with forty tennis courts, twelve baseball diamonds, bathing beaches, swimming and wading pools, all supervised, make up the city's recreational facilities.

During June, July and August, the total playgrounds attendance exceeded one-half million.

There are also three private country clubs devoted to golf—the Dayton, the Miami Valley, and the MacGregor.



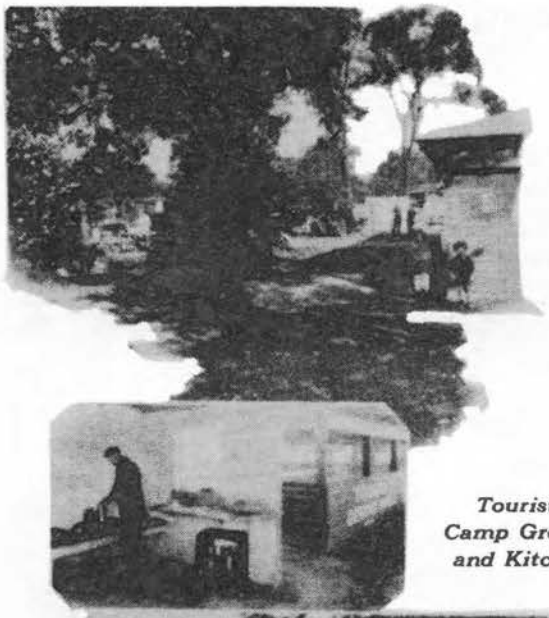
Picnic Camp at Hills and Dales

Parks for Residents and Tourists

Parks for tourists, as well as residents, are provided by the city.

The Island Park Tourist Camp is one of the most attractive and recognized as the best equipped and finest municipal tourist camp in the country.

Rustic Bridge in City Park



Tourists' Camp Ground and Kitchen

Every facility for the comfort and convenience of touring autoists, including kitchens, dining rooms, children's playgrounds, electric lighting, auto wash rack, is afforded at the camp, which is located adjacent to one of the city's playgrounds and bathing beaches.

Although most of the city park area totalling more than six hundred acres, is devoted to supervised play activities, there are a number of parks which serve as recreational retreats.

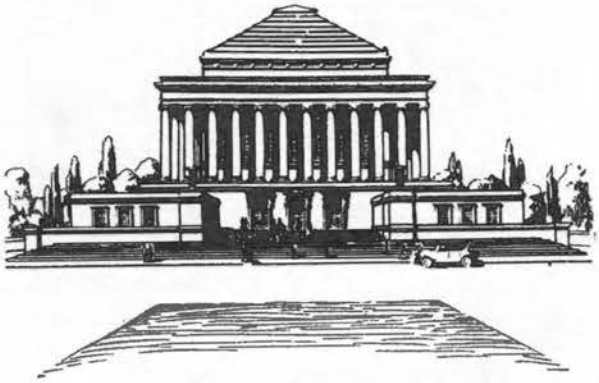
Island Park

In many instances these park plats have been donated to the municipality by philanthropic citizens.

Natural beauty abounds in all of these park tracts, some of which are to be found in every section of the city.

Parkway Scene in Residential Section

Ten Year Prosperity Program

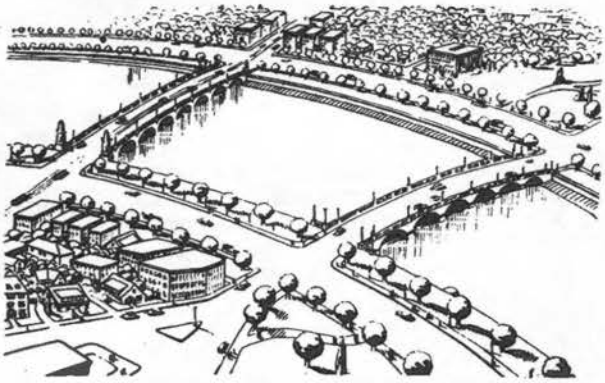


War Veterans Memorial

Wright Memorial

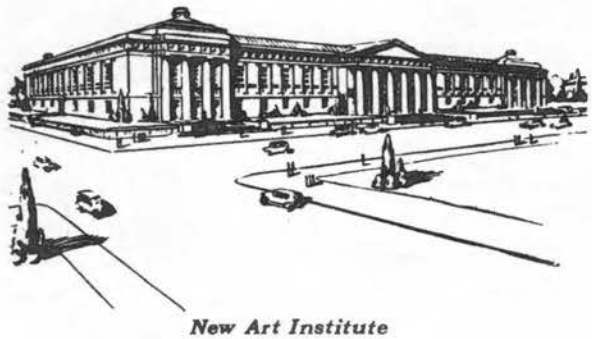
Inauguration in 1925 of a Ten-Year Prosperity Program is planned and announced by the Dayton Chamber of Commerce, cooperating with various other civic organizations.

Although termed "Prosperity Program," it is, in fact, just as much an "Economy Program." The proposal calls for definite policy and schedule of development extending over the next decade, with bonds to be authorized and sold and improvements made at most advantageous periods and under most favorable conditions.

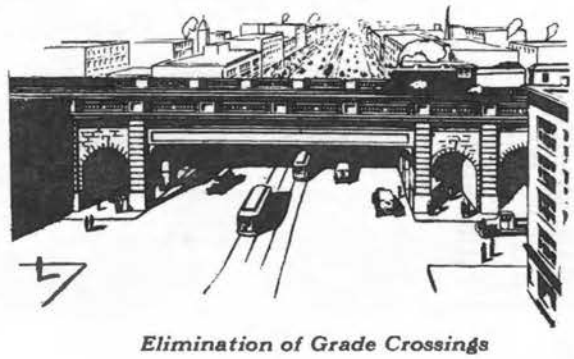


Boulevards Along River Banks

The plan includes: Preparation of City Plan (now under way); elimination of grade crossings; abandonment of canal and utilization of same for civic purposes; new City Hall; new Court House; new school buildings; new Public Library; Civic Building (housing all civic organizations) and fostering educational and recreational programs; John H. Patterson Memorial; Wright Brothers Memorial; World War Veterans Memorial; Art Institute; new Municipal Market; new County Children's Home; Municipal Water Softening Plant; Complete Sewage Disposal Plant and System; Additional Parks and Playgrounds; Completion of Southern Boulevard; Miami River Dam (for boating and water sports); Widening Main Arteries; Bridges, Street Paving and Resurfacing; Storm and Sanitary Sewers; Extension of City Limits; Additional Fire Buildings and Equipment; and Increased Pay to City Employes by virtue of increased tax duplicate resulting from 1924 property reappraisal.



New Art Institute



Elimination of Grade Crossings

The Story of Aviation

Wilbur Wright

When success crowned the investigations and experiments of the Wright Brothers on December 17, 1903, the date of the first flight of man in a motor-driven flying machine, there began a new era for civilization.

Man had finally conquered the air.

The achievement brought forth a new means of transportation.

Readjustments of military tactics and strategy, both offensive and defensive, had to be made to meet the new conditions.

There opened up a new art and science of aerial navigation.

By the new device speed heretofore undreamed of was to be attained.

Time was to be practically annihilated.

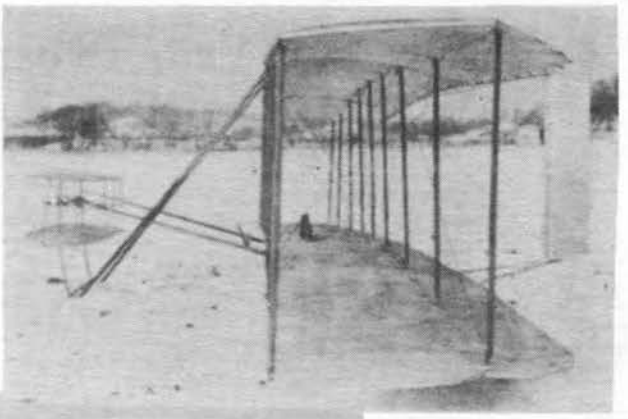
Distances previously regarded as great were to be reduced to a matter of a few minutes or a few hours of flying.

The first flight lasted twelve seconds. Aviators now remain in the air in continuous flight more than a day and a half.

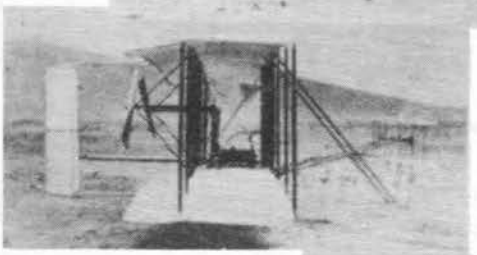
The initial trip covered a few feet in distance. Pilots now cross the American continent without stop, and are this year recording round-the-world flights.

A height of a few feet was the limit of the first successful flight.

The "ceiling" has been increased to an altitude of seven miles above the earth.

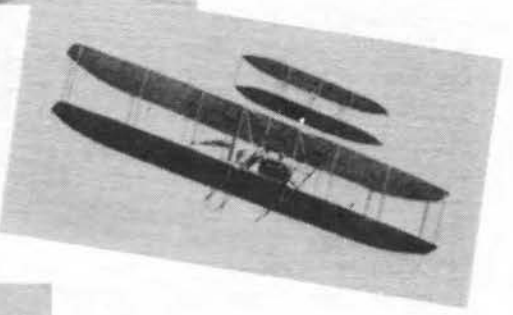


Wright Glider

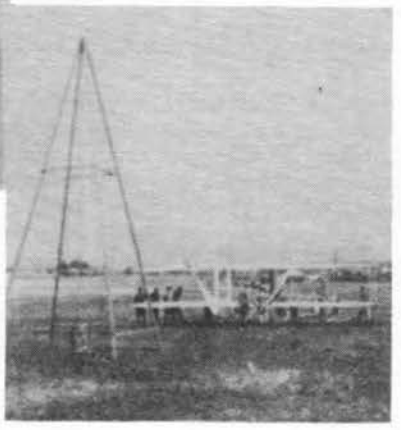


Side View of Wright Biplane

Wright Airplane in Flight



First Wright Biplane "Taking Off"



Weights used to Start Flight of Original Wright Machines

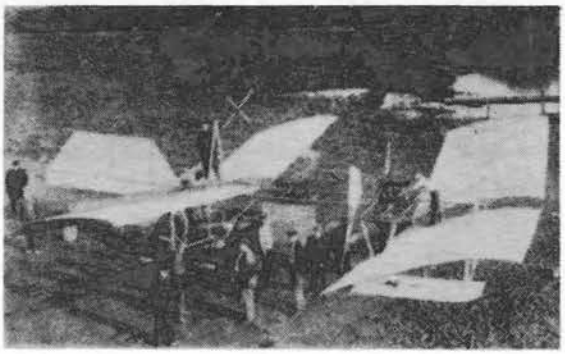
Art Smith's Pusher Biplane

Twenty miles per hour was the speed of the first flight. Man now travels at the rate of two hundred and sixty-six miles per hour.

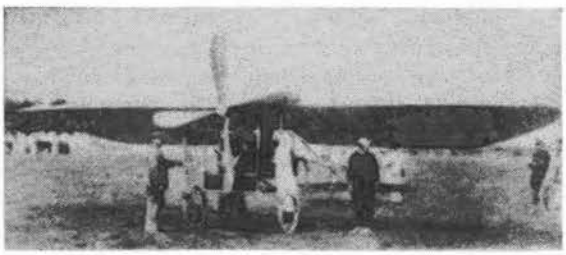
And the limits have not been reached!

Orville Wright

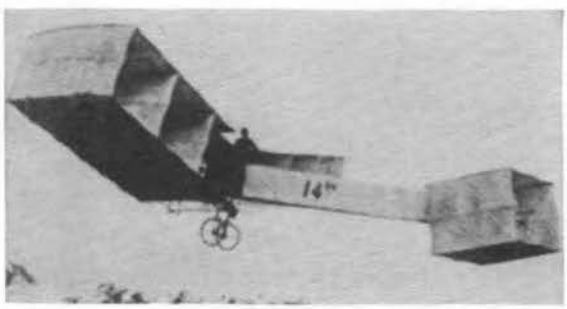
Some Early Types



Langley's "Aerodrome"



Bleriot's First Monoplane



Santos-Dumont "Box Kite Airplane" of 1906

Attempts to fly and serious study and experiments with various types of "flying machines" had been made for more than two hundred years.

A tight rope dancer attempted flight with artificial "wings" in the seventeenth century.

In 1678 Besnier, a Frenchman, built a pair of oscillating wings with which, report says, he could leap safely from elevated positions.

Boreilli, about the same period, constructed a type of artificial wings which were used as a basis for experiments for years.

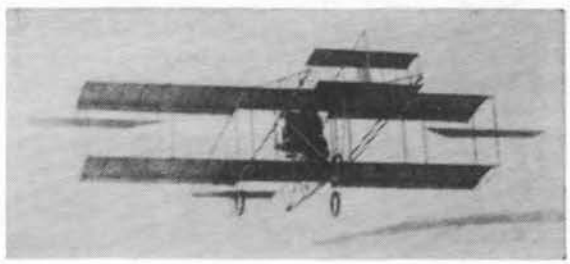
Sir George Cayley, of England, in 1809, experimented with gliders.

A steam engine driving two aerial screws, mounted on a machine supported by a single supporting surface was used in investigations by Henson, of England, in 1842.

Twenty-five years later another Englishman, Wenham, built a model "multiplane," using several superposed surfaces for support, to which his associate, Stringfellow, added aerial screws.

Prof. S. P. Langley, American, Sir Hiram Maxim, England, Ader of France, Otto Lilienthal, of Germany, and Chanute, of America, followed with much scientific research and many experiments.

Success of the Wright Brothers, who studied results of all previous investigations and experiments, hinged largely on their "warping" of the wing tips, after the manner of the eagle's wings, which permitted transverse control.



Curtiss Biplane of 1909. Winner First Gordon Bennett Cup Race at 47 m.p.h.

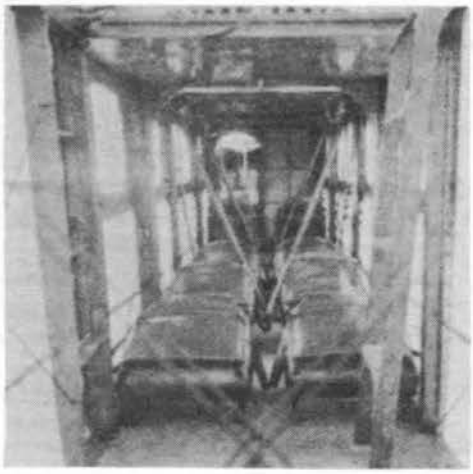
Lincoln Beachey in Early Model of Curtiss Biplane

With the Wright "glider" a success, as demonstrated in their experiments at Kitty Hawk, North Carolina, the brothers, in 1903, added two propellers or "pushers" in the rear of the main planes and a 16 h. p. 4-cylinder gasoline engine.

In the presence of but five persons, although every resident of the surrounding section had been invited, the first successful flight was made at Kitty Hawk. Four flights were made that day, the fourth lasting 59 seconds and travelling 852 feet. Thereafter Dayton was the scene of the Wright Brothers' flights.

Other experimenters, notably Glenn H. Curtiss, of America, and Santos-Dumont and Henri Farman of France, soon became famous for successful biplanes, and Louis Bleriot brought out the monoplane.

Advance in Flying



Cabin of Modern Air Liner
Martin 12-Passenger Transport

The first flying machine (Wright) weighed 200 pounds, had a wing spread of 40 feet, tip-to-tip, using two main supporting surfaces, superposed—biplane—with movable or elevating planes in front and vertical rudders in rear.

This first airplane was capable of carrying pilot and one passenger. Quite naturally its limitations as to speed, duration, altitude, lifting power, and maneuverability were marked.

From this machine, however, has come the modern airplane. Scientific research, laboratory tests and experiments in flight have brought forth constant improvements.

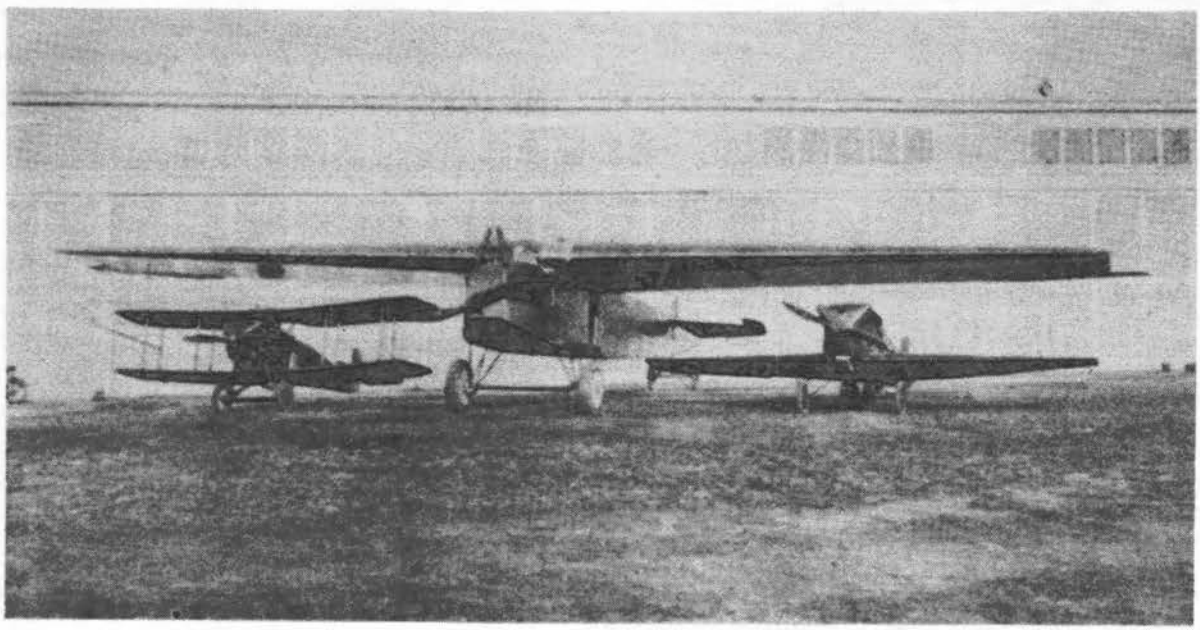
Tiny planes attaining terrific speed, graceful monoplanes of all sizes and suited to various purposes, giant fliers of the monoplane, biplane, and triplane types for transports, bombers, pursuit, and hospital ships, and planes for long distance and high altitude work have been developed and come into general use.

Ever-increasing efficiency has been the result of these years of development. Design and construction improvement is constantly going on.

Flying has been made "safe."

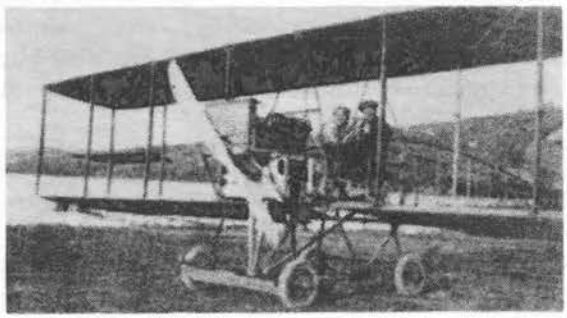
Commercial aviation is an established fact in most foreign countries, and in America needs but intelligent active moral support and cooperation by every patriotic American to place America First in The Air, practically, as well as theoretically.

The Flying Age is at hand.



Three Modern Army Airplanes—Boeing MB3A Pursuit Biplane (right); Famous "T-2" Army Transport (upper Monoplane) in center, and Verville-Sperry (lower Monoplane) at right

Progress Before the War



Curtiss Tractor Biplane of 1912

Rapid progress was made during the several pre-war years.

Distance travelled in continuous flight was increased by the Wrights, to six miles in 1905. The first flight of more than an hour's duration was made on September 18, 1908, by Orville Wright, who, during a demonstration at Fort Meyer, Va., remained in the air one hour, fourteen minutes, twenty seconds, and attained a speed of forty miles per hour, and the following year the Wright machine was delivered to and accepted by the United States Government.

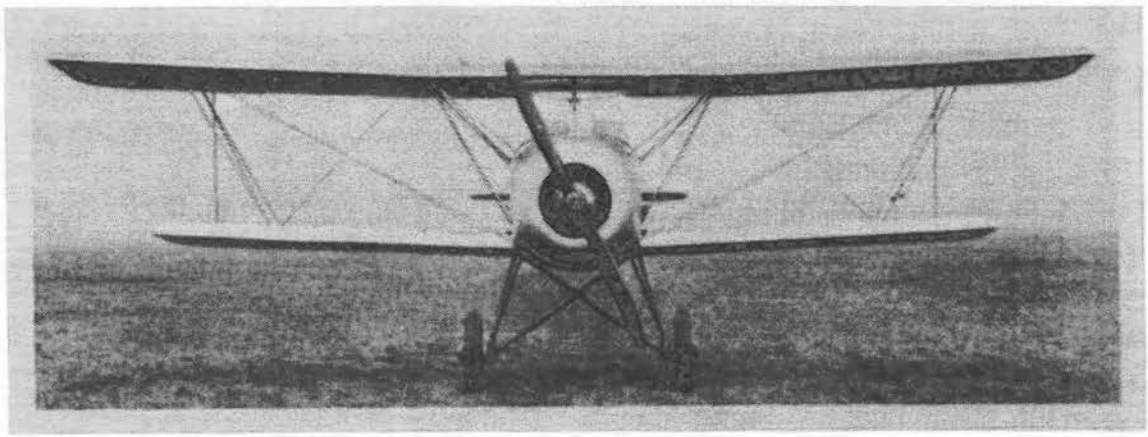
French rights to the Wright Patents were sold for $100,000 in 1908, following demonstrations of the machine at Pau, Le Mans and other flying fields in France. The same year Wilbur Wright won the Michelin Trophy and prize of £800 and closed the year with a flight over Pau, France, on December 31, lasting two hours and nineteen minutes.

In America, Glenn Curtiss won for the first time the Scientific American Trophy, with a flight over a mile course.

The first flying school was opened in 1909 by Wilbur Wright at Pau, France, several of his pupils later establishing international reputations for their flying ability.

Santos-Dumont, a French Balloonist, turned to the heavier-than-air machine in 1906, winning the Aero Club of France Prize of 1500 francs with a flight of 215 meters (715 feet). In 1909 Dumont brought forth a small monoplane which weighed but 242 pounds and had but 115 square feet wing surface.

The same year Curtiss, equipping his biplane with a single high speed propeller, and movable ailerons or wing tips at the ends of the supporting planes, won the Gordon Bennett prize at the international competition at Rheims, France, flying 12.42 miles in 15 minutes 56½ seconds.



An Army Training Ship—the Dayton-Wright TA-3

Aerial "Trail-Blazing"

U. S. Navy Modern Scout Seaplane. First Hydroplane Flight was Made by Fabre on the Seine in 1910

Cross-country flying started in a serious way in 1910, when Glenn Curtiss flew from Albany, New York, to Governor's Island, a distance of 142 miles, stopping but three times to replenish fuel and oil, and averaging 49 miles per hour.

The same year Hamilton, in a Curtiss biplane, flew from Governor's Island to Philadelphia and return, total air distance 82 miles, in 1 hour, 45 minutes.

Farman, with a flight of 190 kilometers (118 miles) in three hours won the $10,000 Prize. Paulhan flew from London to Manchester winning the London Daily Mail Prize of $10,000. Moisant crossed the English channel flying from London to Paris.

During the same year Chevez reached an altitude of 1794 meters, after which he flew across the Swiss Alps. Legagneaux followed with a record altitude flight of 3100 meters.

Sopwith flew 100 miles, winning the British Michelin Cup, only to lose it to Cody, who flew 185 miles in 4 hours, 47 minutes, while Tabeteau won the International Cup flying 582 kilometers (361 miles) in 7 hours 48 minutes, followed by the flight of Captain Bellenger, of France, a distance of 690 kilometers (428 miles) in 5 hours, 10 minutes.

Fourny established a new duration record of 11 hours, covering 720 kilometers (447 miles).

The first practical hydro-airplane flight was made March 2, 1910, by Fabre on the Seine, at Martignes, France, three floats being attached to his monoplane. Curtiss experimented at San Diego, California, the same year with floats attached to his biplane and in 1911 received the Aero Club of America trophy for development of the hydro-airplane, and in 1912 the trophy of the same club for the Curtiss flying boat.

An outstanding early cross-country flight was that in 1913 of Brindejonc in a Morane-Saulnier monoplane equipped with an Gnome 80 h. p. motor, from Paris to St. Petersburg and return, a total distance of 3002 miles which was covered in 8 flying days.

Thomas-Morse MB-3 Pursuit, Equipped with Wright 3A Engine

Early Duration Flights

Junker JL-6 (lower) Monoplane in which Stinson made a Continuous Flight of 26 hours on December 30, 31, 1921. World's Duration Record at That Time

Aviation suffered an irreparable loss in 1912 when Wilbur Wright died from the results of typhoid fever.

The triplane was introduced in 1909, by A. V. Roe, of England. The first successful flight of an airplane which was stable both vertically and horizontally was made in 1913, with a flight lasting 35 minutes without using hand or foot controls.

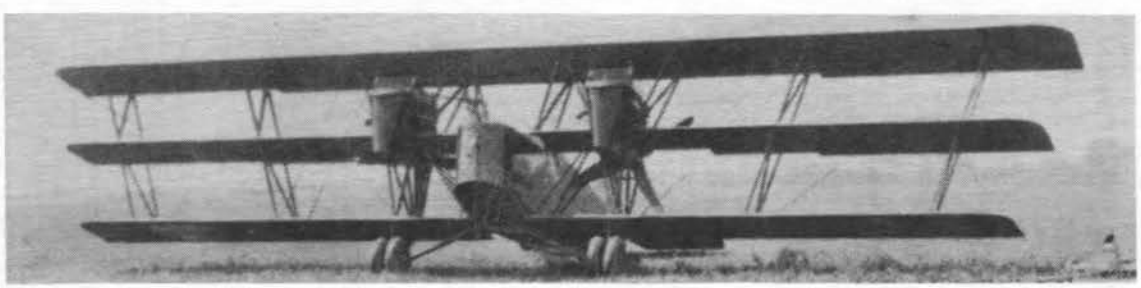
During 1912 many new records were established. The Grand Prix of the Paris Aero Club was won by Garros, who flew 685 miles at the rate of 45 miles per hour. The first British Aerial Derby, 81-mile race around London was won by Sopwith. The Gordon Bennett Cup Race, in America, was won by Vedrinnes, with a speed of 105 miles per hour.

Hawker and Cody won the two Michelin Cup Races, the first with a duration of 8 hours, 23 minutes and the second with a flight of 186 miles in 3 hours, 23 minutes. Daucourt flew 550 miles in one day averaging 61 miles per hour to win the Pommery Cup in France; Hearth, at the Leipsig meet reached an altitude of 4100 meters.

World's records were established by Garros, in Africa, reaching a height of 5610 meters; by Fourny, who flew a distance of 1010 kilometers (627 miles) and by Vedrinnes who attained a speed of 174 kilometers (107 miles) per hour.

In 1913, Sequin, in France, increased the distance record to 1021 kilometers; Legagneaux reached an altitude of 6120 meters; Prevost attained a speed of 203 kilometers (129 miles) per hour, and won the Schneider Cup for seaplanes flying 150 nautical miles in 3 hours, 48 minutes, and the Gordon Bennett Cup, at the Rheims meeting, with an average speed of 124 miles per hour.

Although 1914 was marked by active preparations for the World War, several notable records were established. Sykosky, in Russia, flew an airplane carrying 15 passengers; Farnborough attained a speed of 130 miles per hour, with a machine having a climbing speed of 1400 feet per minute; Oelrich established a new altitude record of 7860 meters and Lanelman made a sustained flight of 21 hours, 48 seconds. The Schneider Cup for Seaplanes was won by Pixton, of England, covering 150 nautical miles in 2 hours.



Army Engineering Division Ground Attack Triplane. The First Triplane Flight was Made in 1909

The War Period

Curtiss "JN" Army Training Plane. Using Curtiss 90 h.p. Engine

DeHaviland 4 with 400 h.p. Liberty Engine

Glenn L. Martin Bomber with Two 400 h.p. Liberty Engines

At the outbreak of the European War the airplane was at first regarded merely as a mute observer, and with no means of continuously reporting observations. However, all aviation activities were directed to developing fighting airplanes, for both defense and attack.

With the development of effective anti-aircraft guns and an airplane-mounted gun with firing time synchronized with propeller, the demand changed from slow-moving observation airplanes to calls for greater speed, higher climbing rate, more effective altitude work, larger ships for heavy carrying ability, aerial bombers and better seaplanes.

The little "Scout" planes were made into single-seater fighters; engines of higher speed and greater horse power up to and exceeding 400 h. p. were provided; and during the latter stages of the war every major operation was presaged and accompanied by "Battles in the Air."

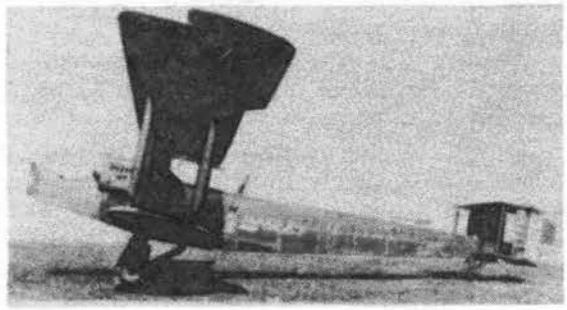
Airplanes patrolled in larger and larger formations and ever-increasing area. Bombing attacks became a continuous affair, both day and night. Speed increased to 130 miles per hour, and air squadrons flew and fought at the heights of 20,000 feet and more. Airplanes were the eyes of the armies, and of the navies in guarding against the submarine.

The airplane was sufficiently established by 1908-09 so that all nations began to alter their military policies to include aircraft in their plans for national defense.

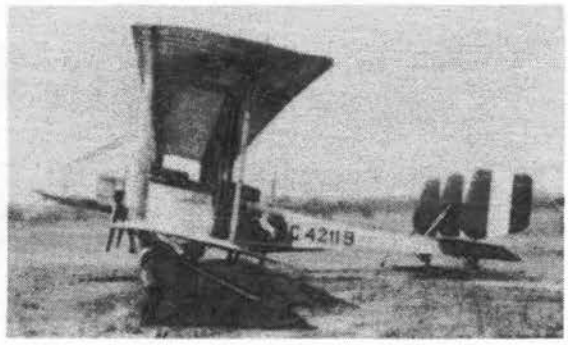
Speed records, first crossing of the English channel by Bleriot in his monoplane, July, 1909, crossing of the Alps, aerobatics, including volplaning, figure 8's, inverted flying, loops, the firing of guns mounted on airplanes, all served to demonstrate the use of the airplane as an engine of warfare.

Except Germany, which early developed large airplanes equipped with heavy engines of the type used on dirigibles, all nations demanded light service type aircraft.

"Nieuport 28" French War Plane with 9 cyl. 140 h.p. Gnome Engine

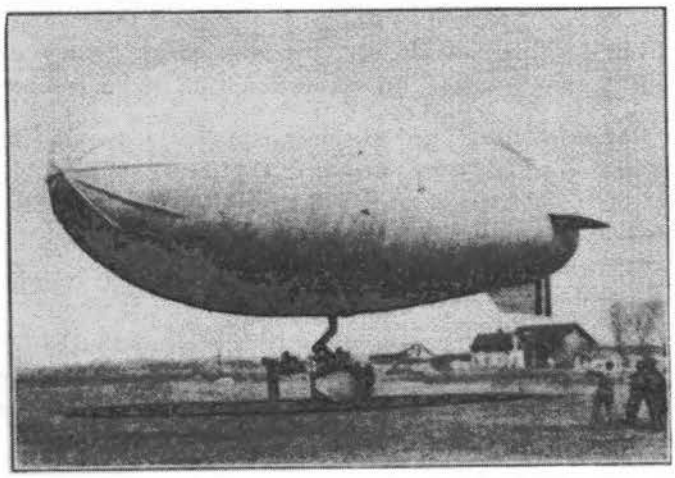


Handley-Page, British Bomber with 2 Rolls-Royce 250 h.p. Engines



Caproni Three Engined Italian Bomber

Lighter-Than-Air Craft



Non-Rigid Airship OA1 "The Gypsy Moth"

"Ballooning" has been established since 1772, when the Montgolfiers Brothers, of France, raised a balloon 35 feet in diameter to a height of 6000 feet by using heated air to fill their spherical shaped aerostat.

The first aerial voyage was made by Pilatre de Rozier and Marquis d'Arlandes in a hydrogen filled "Montgolfier" in 1783, these pioneer aeronauts remaining in the air 25 minutes, during which they sailed over the Seine and the city of Paris.

The English Channel was crossed by Blanchard of England, accompanied by Dr. Jeffries, an American, in 1785.

The first parachute leap was made from a balloon in 1797.

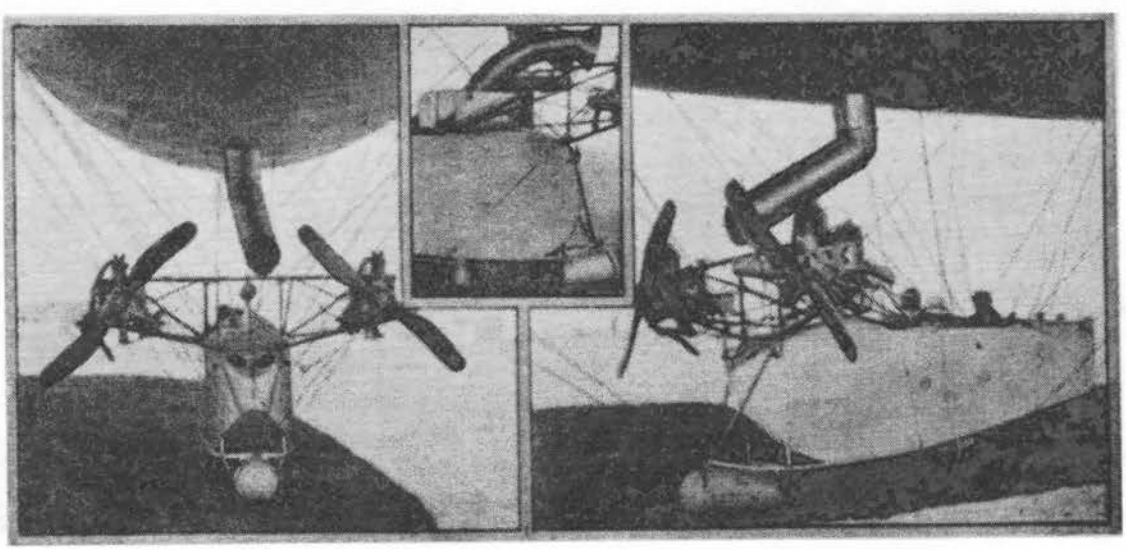
Coal gas was first used to fill balloons in 1821 by George Green, who with Mason and Holland, sailed from London to Weilburg, Germany, in 1836, a distance of 500 miles travelled in 18 hours.

In 1862, two English aeronauts, Coxwell and Glaisher, reached an estimated altitude of 37,000 feet, or 7 miles.

The first motor driven airship was that of Gifford, who in 1850 installed a 3 h. p. steam engine driving one 11 foot propeller screw, in his semi-rigid airship, having rigid keel, but getting its shape from inflation of the elongated envelope.

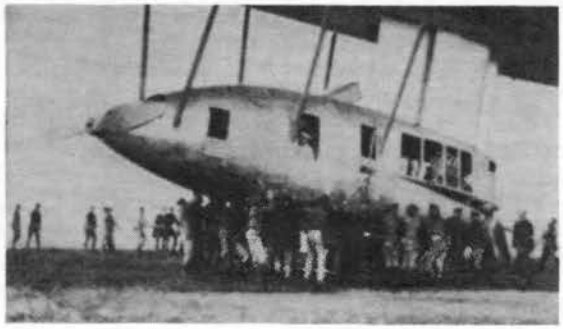
Count Zeppelin brought out the rigid type airship in 1900, his first model consisting of 17 balloons in a cylindrical shell 416 feet long and 39 feet in diameter, with pointed ends, having a capacity of 399,000 cubic feet.

In America, Thomas Baldwin built the first dirigible for the U. S. A. Signal Corps in 1908, after unsuccessful attempts in 1906 and 1907 by Walter Wellman to reach the North Pole from a base in Spitzbergen. In 1910, Wellman, in a cigar-shaped dirigible (the America) designed by Vaniman planned to cross the Atlantic in 6 days. Within five hours after the start, October 15, engine and other troubles developed—crew and ship drifting 1008 miles in 71½ hours, both records for time and distance. Vaniman then constructed the Akron in 1912, but designer and crew perished when the ship was wrecked on the initial voyage.



Car of Non-Rigid Airship OA1, Showing Insecticide Hopper Used in Spraying and Dusting

Notable Airship Records



One of the Control Cars of the ZR1 (Shenandoah) U. S. Navy Giant Dirigible

Dominant advantages of airships include their ability to fly for long periods, carrying large weights; they are silent, safe by night, do not descend for engine trouble.

Germany used her airships extensively during the World War, one very notable voyage being that in 1917 of the L-57 from Jambouli, Bulgaria to Khartum, East Africa and return, carrying 10 tons of machine guns, ammunition and medical supplies, 3000 miles being covered in 97 hours.

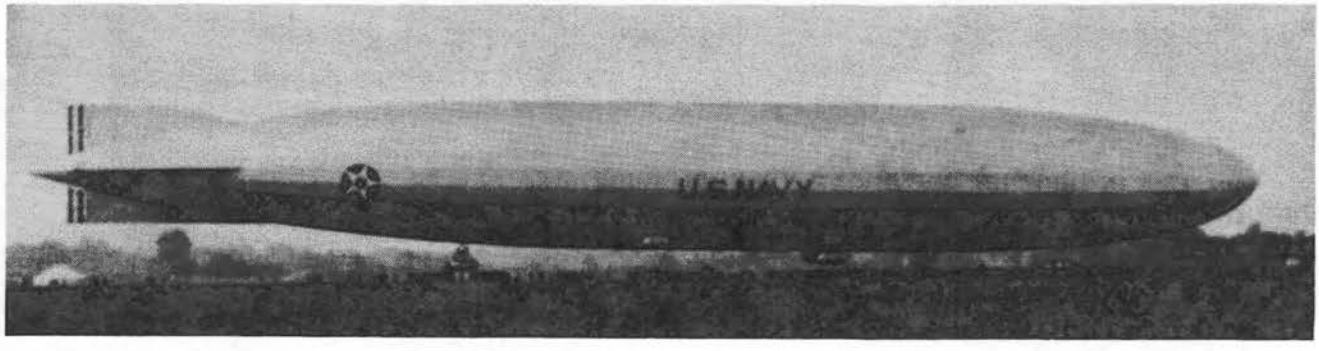
In July, 1919, the Atlantic was crossed and recrossed by the British Airship R-34, which made the voyage from Edinburgh to New York in 108 hours, and from New York to Paulham, in Norfolk, in 75 hours.

The giant dirigible "U. S. S. Shenandoah," designed and constructed by the Navy, was completed in 1923 and successfully launched September 24. The ship is 680 feet long, 78.7 feet in diameter and is 93.1 feet high, from bottom of cabin to top of ship. Twenty gas cells have a total capacity of 2,115,000 cubic feet of helium. Six specially designed 350 h. p. Packard motors furnish the driving power for the Shenandoah which has a cruising range of 5,000 miles and maximum speed of 60 miles per hour.

Germany has just completed the ZR-3, a replacement ship awarded to the United States, and will soon make delivery.

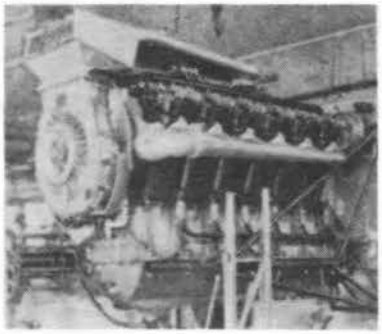
The ZR-3 is similar in appearance to the Shenandoah, but is designed strictly as a commercial ship, which will carry 20 passengers and cargo. Hydrogen gas will be used in the ZR-3.

Recent acquisition by the Goodyear company of the American rights to the Zeppelin patents, gives promise that the United States will soon take its proper place in airship transportation.



The U. S. Navy Shenandoah

Development of Aircraft Engines



Supercharger Installed on Liberty 400 h.p. Engine

The great advance in aeronautics has been due in a large measure to the wonderful development of aircraft engines.

In the beginning of aviation the most serious problem was to secure a power plant of relative light weight per horse power developed.

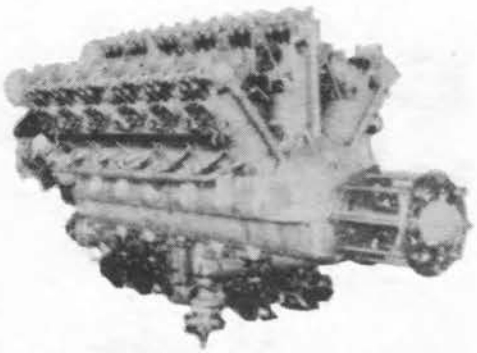
Commercial engines weighed as much as 100 pounds per horse power. For airplanes it was necessary to produce a power plant weighing but one-twentieth as much as the commercial type engine.

The first engine used by the Wright Brothers, their own design, weighed 4 pounds per h. p. This has been reduced more than 50 percent.

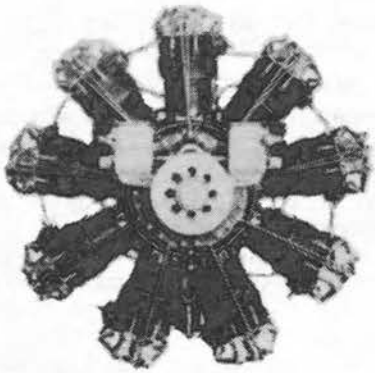
There are now in successful use both water-cooled and air-cooled engines and of various designs, straight block, V Type, and Radial.

For high altitude work superchargers, both nose and side mounted types are now available.

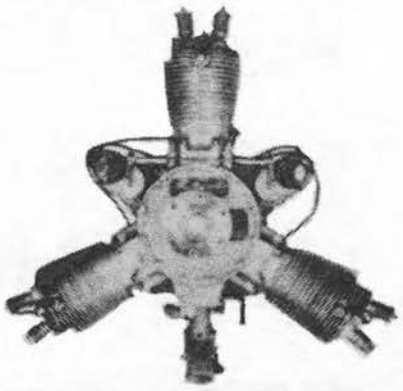
That American engineering skill has been successful in designing and constructing some of the most efficient aircraft engines in use today is evidenced by the fact that foreign nations have come to America for power plants for their aircraft.



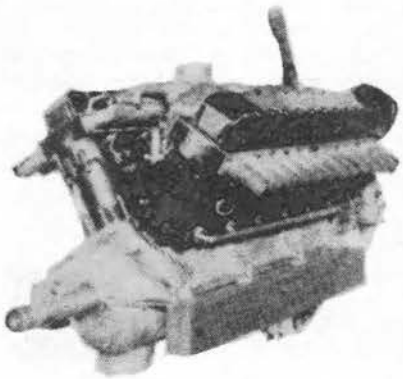
Army Eng. Div., W1-A, 18 cyl., 750 h.p.



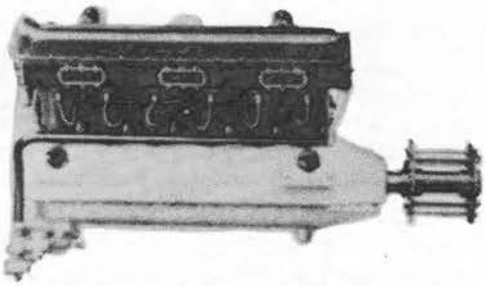
Wright Radial, Air Cooled, 9 cyl., 350 h.p.



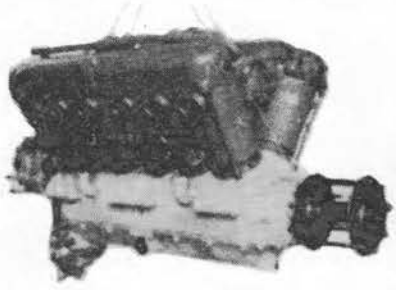
Wright (Lawrence L-4) Air Cooled, 3 cyl., 60 h.p.



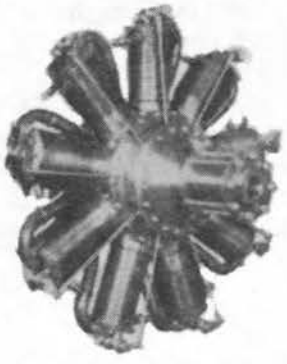
Curtiss D-12, 12 cyl., 375 h.p.



Packard, 12 cyl., 800 h.p.

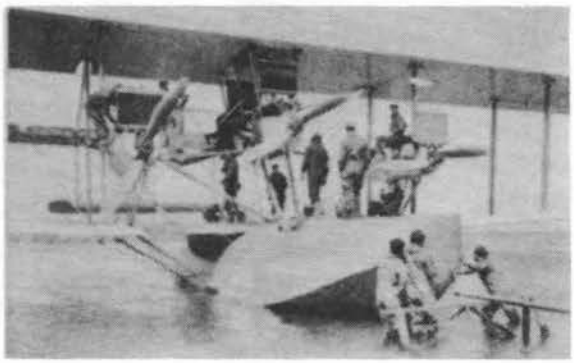


Wright T-3, 675 h.p.



Le Rhone Rotary, Air Cooled, 180 h.p.

Crossing the Atlantic



The Curtiss Navy Flying Boat NC-4. First Aircraft to Cross the Atlantic

With the signing of the armistice and return to peace, aviation activities centered upon proposed Trans-Atlantic flights.

The first trip across the Atlantic was made by Lt. Commander A. C. Read and crew of the U. S. Navy in the Curtiss flying boat NC-4, the trip from New York to Plymouth, England, via Newfoundland, the Azores and Spain, starting May 8, 1919, and being successfully concluded May 31. Two other NC planes which started at the same time failed to complete the trip.

Immediately thereafter the first non-stop Trans-Atlantic flight was made by Capt. John Alcock, pilot, and Lt. A. Whitten Brown, navigator, on June 14-15. The 1936 miles across the ocean, from St. Johns, Newfoundland to Clifden, on the Irish Coast, in 15 hours, 57 minutes, being made in a Vickers Vimy equipped with two 400 h. p. Rolls-Royce engines. Brown and Alcock divided the $50,000 prize given by the London Daily Mail for the event.

The following month the British Airship R-34, made the first Trans-Atlantic flight by Lighter-than-air craft and the first round trip by air craft, from East Fortune, Scotland, to Roosevelt Field, New York, and return

The longest flight, 11,500 miles, from England to Australia, was made by Capt. Ross Smith, flying a Vickers-Vimy-Rolls in 28 days—November 12 to December 12, 1919.

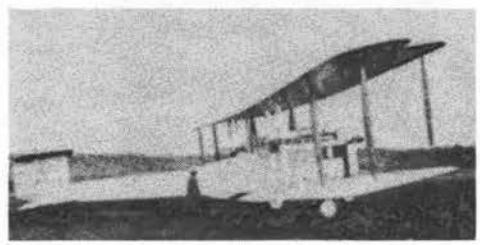
The same year racing planes had increased the speed record to 180 miles per hour. Rohlfs created a new altitude record of 32,450 feet, and the War Department's Transcontinental Contest was held, in which the 64 pilots and planes entered

Cox-Klemin Submarine Deck Seaplane

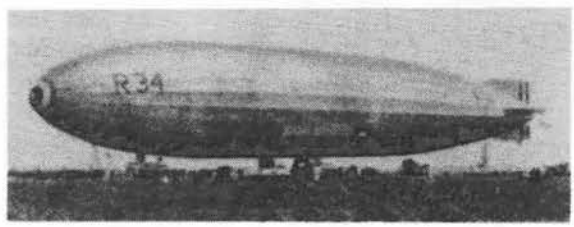
were required to cross the continent, New York to San Francisco and return, 5,402 miles. The contest for elapsed time was won by Lt. B. W. Maynard, 9 days, 4 hours, 26 minutes. The contest for actual flying time was won by Lt. Alex. Pearson, 48 hours, 14 minutes, 8 seconds.

The following year Major R. W. Schroeder, at Dayton, increased the altitude record to 33,000 feet, using a La Pere biplane with supercharged engine, a military scout plane had climbed 20,000 feet in 15 minutes, a large commercial plane had climbed 15,000 feet carrying a load equivalent to 26 passengers, while French and American pilots were constantly making new speed records.

The Alaskan Flying Expedition, 9,000 miles from New York, to Nome, Alaska, and return, was successfully carried out by the Army Air Service in four Gallaudet reconstructed DeHaviland biplanes, with Liberty motors, in July and August, 1920.



Trans Atlantic Vickers-Vimy with Rolls-Royce Engines, Used by Alcock and Brown



British Airship R-34 Which Made First Round Trip Crossing of Atlantic

The Scene of the Races

Wilbur Wright Field

The scene of the 1924 International Air Races has greater historical interest in connection with aviation than any other one place in the world.

Wilbur Wright Field, where the Races are held this year, is the same field used by the Wright Brothers in their early experiments.

A part of the present field, known in 1903 to 1908 as "Huffman Prairie," became world famous with the invention of the airplane and the early record flights of the Wrights.

Part of the original field is included in the 5,000 acre tract of land donated to the Government by Dayton citizens for the future home of the Army Air Service Engineering Division.

Wilbur Wright Field is the Supply Depot of the Army Air Service and one of the stations of the "Air Ways" which has been established for the past two years by Army Air Service Pilots.

The "Air Ways" maintain a regular airplane schedule for aerial transportation of government officials and express. Mapping and establishment of emergency landing fields are part of the "Air Ways" service.

First Model of Wright Glider

Lt. E. H. Barksdale

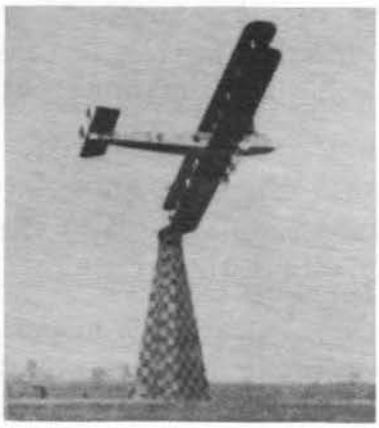
Capt. Bert Skeel

Lt. W. H. Brookley

Lt. J. H. Doolittle

The above Army Air Service Pilots will participate in feature events of the Air Carnival

Purpose of the Races



Aerial Racer Rounding Pylon

Underneath the circus-like atmosphere of the great International Air Races there is a decidedly serious purpose.

In reviewing the records of speed, distance, duration and altitude, as established from year to year, it must be remembered that each has a very definite scientific value.

While speed and other competitions are in one sense a sporting event, the real purpose of each is to further advance aeronautics. As an example, the development of the pursuit plane is based on the achievement of the high speed racing planes.

Likewise, each flight of a government plane, each hop-off from the experimental, testing or training field is for the purpose of working out some new problem.

In this light should the International Air Races and all other authorized competitions be regarded.

One of the outstanding features of the 1923 Races at St. Louis, is the record of 375 airplanes flying to, from and during the Races a total distance of 374,107 miles at speeds from 40 to 240 miles per hour, without serious accidents.

The St. Louis Races were the most successful held to date. The fastest time ever recorded at that time was made by Lieut. Al. J. Williams, of the Navy, who won the Pulitzer Race with his Curtiss Navy Racer by flying the 200 kilometers (124.27 miles) in 30 min. 36.01 sec., at a speed of 243.68 miles per hour. Williams' Curtiss Racer was equipped with Curtiss D-12A engine of 460 h. p. The wing span was 22 feet, length 19 feet 8½ inches, height 6 feet 9½ inches, wing area 144½ square feet and weight 2112 pounds. His team mate Lt. H. J. Brow, in same type airplane finished second.

C. S. Jones, with one passenger, flew 900 miles from Garden City, Long Island, to St. Louis in his Curtiss Oriole equipped with 98½ h. p. Curtiss OX-5 engine, winning the "On To St. Louis" Race and the St. Louis Chamber of Commerce Trophy. The Junior Chamber of Commerce Trophy in the same event was won by H. F. Cole, who flew, without passenger, his Thomas-Morse 54-C with LeRhone 80 h. p. engine, 800 miles from Minneapolis. The event was for civilian fliers. Other St. Louis 1923 Race results were:

Flying Club of St. Louis Trophy, for Civilians using 2-seater low horse power planes, won by W. E. Lees, of Johnson Airplane and Supply Co., Dayton, in Hartzell FC-1 biplane with Curtiss OX-5 engine. Distance 150 kilometers (92.2 miles), speed 89.31 m. p. h.

Liberty Engine Builders Trophy for Military observation type 2-seater airplanes, won by Lt. C. McMullen, Army Air Service, in Fokker CO-4 with Liberty 400 h. p. engine. Distance 300 kilometers (186.42 miles), time, 1 hour, 20 min. 26 sec., speed, 139.43 m. p. h.

Aviation Town and Country Club of Detroit Trophy, a handicap Civilian race for light commercial planes, results judged for both speed and efficiency. Won by L. H. Atkinson in Bellanca CF-12 sedan monoplane, 90 h. p. Anzani engine, and carrying weight equivalent to four passengers. Distance 250 kilometers (154.34 miles). Time, 1 hour, 38 min., 51½ sec., speed, 94.26 m. p. h.

Merchants Exchange of St. Louis Trophy for large capacity planes, Military and Civilian fliers. Won by Lt. H. L. George, Army Air Service in Martin Bomber (G. M. B.), two Liberty 400 h. p. engines. Distance 300 kilometers (186.42 miles). Time, 1 hour, 37 min., 52.21 sec., speed, 114.28 m. p. h. This Martin Bomber was built in 1919, had record of 129,000 miles in Air Mail Service and total of approximately 300,000 miles in air before the race.

Mulvihill Trophy for airplane models driven by rubber strand motors, won by Edward G. Lang, age 16, of Chicago, whose model remained in air 4 min. 22 sec.

Detroit News Air Mail Trophy for Air Mail planes and pilots. Won by J. F. "Dinty" Moore in De Haviland biplane with Liberty 400 h. p. engine driving Westinghouse All-Metal propeller. Distance 300 kilometers (186.42 miles). Time, 1 hour, 29 min., 29.63 sec., speed, 124.98 m. p. h.

John L. Mitchell Trophy, offered by Brigadier General William Mitchell, Assistant Chief of Army Air Service, in memory of his aviator brother killed in the World War. Event open to Army Air Service pilots and planes of the First Pursuit Group. Won by Captain B. E. Skeel, in Thomas-Morse M. B. 3A biplane with Wright H-3 engine of 300 h. p. Distance 200 kilometers (124.27 miles). Time 50 min., 50.49 sec., speed, 146.92 m. p. h.

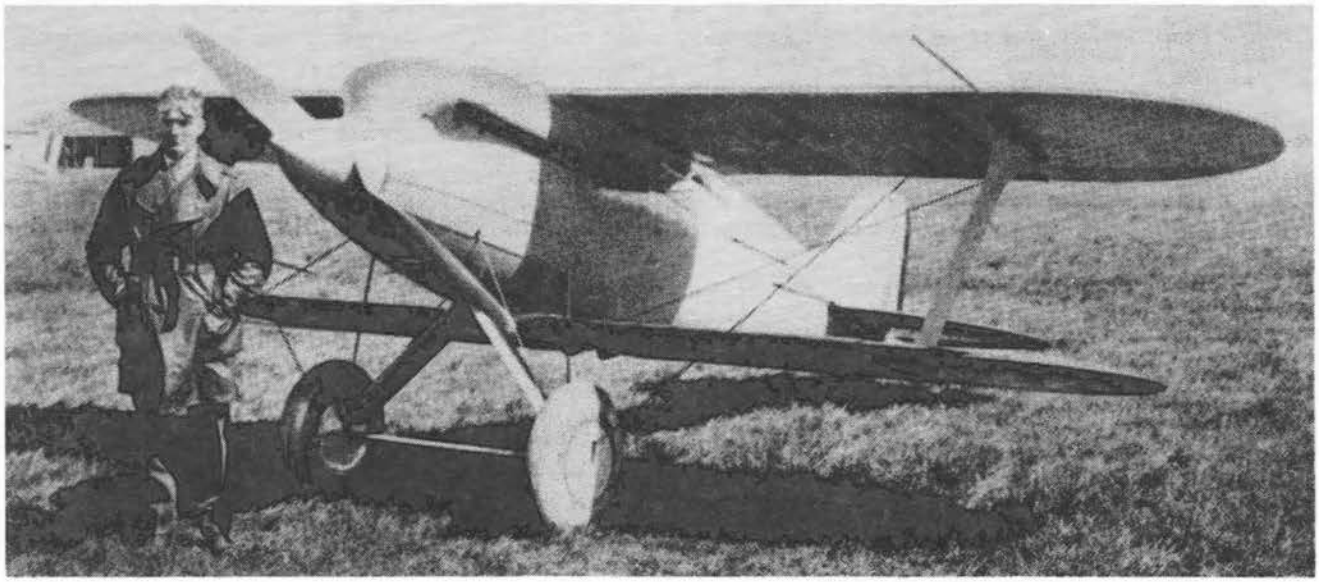
Former Winners of Pulitzer Races

1920

Lt. C. C. Moseley, Army Air Service, in Verville-Packard Racer, Mitchell Field, L. I., Nov. 25. Speed, 156½ m. p. h.

1921

Bert Acosta, Civilian Pilot, in Navy Curtiss Racer at Omaha, Nov. 8. Speed, 176 m. p. h.



Lt. "Al." J. Williams, U. S. Navy, and Former National League Ball Player, Holds World Speed Record with His Navy Curtiss Racer, Making the Fastest Time Ever Travelled By Man.

1922

Lt. Russell L. Maughan, Army Air Service, in Army Curtiss Racer, Selfridge Field, Mich., September 14. Speed, 205 m.p.h.

1924

1923

Lt. A. J. Williams, U. S. Navy, in Navy Curtiss Racer, at St. Louis, Oct. 6. Speed, 243.67 m. p. h.

How to Judge the Races

Walter Lees, Civilian Pilot of Dayton, Winner of Commercial Craft Event at St. Louis Races

Race Supervision

All aeronautical events, in order to be officially recognized, are controlled and conducted under the rules and regulations of the Fédération Aéronautique Internationale, which is the international sporting body of the aeronautic world and which is represented in the United States by the National Aeronautic Association, headquarters, 1623 H Street, N. W., Washington, D. C. This Association supervises all races, provides for proper timing and authenticates all records.

The International Air Races at Dayton have been sanctioned by the National Aeronautic Association and are conducted under the rules and regulations of the F. A. I. The Official Timers, Mr. Odis A. Porter and Mr. Chester H. Ricker, use a certified electric timing apparatus of which there is only one of its kind in the world. This device, which is controlled by a ship chronometer, is extremely accurate. It records the time that each plane crosses the starting and finishing line and prints the time thus taken on a strip of paper, in hours, minutes, seconds and hundredths of a second.

All turning pylons are coupled to the Timer's Stand with a continuous telephone circuit. The judges stationed at each of these turns is in constant communication with the telephone operator on the Timer's Stand and reports immediately each time a plane turns a pylon; also if there are any accidents on the course.

Score Boards

Planes will start as indicated on the Score Board, the lowest numbers starting first in each race. The starting line, which also serves as a finishing line, is marked in white on the field and extends out in front of the Timer's Stand. The finishing time is taken when each plane flies across this line. At the end of each lap, the time of the plane is taken as it flies across the line and the speed in miles per hour for the distance he has covered, i. e., one lap, two laps, etc., will be posted immediately on the Score Boards in the proper spaces.

In this manner all spectators may know:

1. How many planes have started, how many laps each has flown, the rate of speed they have been able to maintain for the distance indicated.

2. If any contestants are still to start, or if the entries have been withdrawn due to mechanical or other trouble.

3. Which contestants have made the fastest time of any or all laps, and therefore which contestant up to that time is the winner of the Trophy, provided his performance is not excelled by some contestant who has been forced to delay his start.

Spectators will find an insert score card inserted in this program upon which they may write down the plane numbers as they start and copy the speeds posted on the score boards. Spectators may therefore follow the race accurately and keep the results for reference.

Medical Arrangements

Every possible precaution for the safety of fliers, and spectators, has been taken. Ambulances are stationed adjacent to pylons; between these are motorcycle side-cars; all units are equipped with first aid supplies, including fire-fighting apparatus. Each first-aid unit carries a zone map with directions to reach any point in its zone; telephonic connection is established between these medical units, the pylons, and the field headquarters. On the field a first-aid unit will care for spectators in event of minor injuries in the crowd. Wilbur Wright Field Hospital and Miami Valley Hospital will be utilized for surgical work if such is necessary.

Signals Used for the Races

Timer's Stand Signals

The Timer's Stand, which is the small building in front on the front line fence, contains the F. A. I. representative from the National Aeronautic Association, the Timer and his assistants, the Judges, Assistant Starter, Scorers, Telephone Operators, Score Board Operators, and Announcer.

Exactly fifteen minutes before the starting time for each race, the Assistant Starter on the Timer's Stand, raises a red signal flag. This signal is picked up by the Chief Starter standing in front of the planes which are lined up for the race. He in turn raises his red signal flag indicating to the pilots that the starting signal will be given in fifteen minutes. The display of the red flag on the Timer's Stand indicates that everything is in readiness for the start. This means that all officials are at the turning points on the course and that the electric timing apparatus is operating. This signifies that the Chief Starter may then proceed to start the planes in their proper order. Should anything occur in the Timer's Stand or on the course which might delay the race, a blue flag will be displayed on the Timer's Stand as an indication to the Chief Starter to hold the planes until the red flag above referred to is raised.

In case a plane is delayed in starting and the pilot wishes to start when another plane is approaching on the course, a yellow flag will be displayed on the Timer's Stand, warning the starter to delay the pilot until the approaching plane has passed out of the danger zone.

Starting Signals

The Chief Starter has three large starting flags, viz., red, white, and blue. These are visible to the Timer's Stand. When the Referee has all planes lined up for the start of the race, he instructs the Chief Starter to raise the red signal flag in answer to a similar signal displayed on the Timer's Stand fifteen minutes before the official starting time. This is a signal indicating that all engines shall be started immediately. As soon as these are running, which shall not be more than fifteen minutes later, the Referee instructs the Starter to raise the white warning flag in addition to the red signal flag, indicating that the starting signal will be given in ten seconds, allowing the mechanics time to draw the blocks from under the wheels. Each second will be counted by lowering the red flag, the get-away signal being the lowering of both red and white flags together.

In case of group standing starts, where all planes take off simultaneously, the starting time for each group will be the instant the red and white flags are dropped, otherwise known as "gun time."

In case of individual or flying starts, the first plane will be started as indicated above and the Chief Starter will move to the next machine raising both red and white starting flags, indicating that the get-away signal for that plane will be given in ten seconds. The same procedure is followed for each airplane in line for start.

The start of each race will be indicated by sending off an aerial bomb salute.

Types of Starts

Standing Start: In which the time is taken the instant the red and white flags are lowered.

Flying Start: In which the planes take off, generally individually, circle and fly across the starting line, at which instant their starting time is taken.

Standing Starts are used in the following Events: Nos. 2, 3, 4, 5, 6, 8, 9, 10, unless otherwise ordered for reasons of safety.

Flying Starts are used in the following Events: Nos. 7, 11, and 12.

Finishing time for all races will be taken when the planes cross the finish line in full flight between the markers defining this line.

Where "Standing Starts" are used the first across the finish line is winner.

Where "Flying Starts" are used, plane flying the required distance in shortest elapsed time is winner.

Program of Race Events

Event No. 1.

On to Dayton Race

(Civilian)

DAYTON CHAPTER NATIONAL AERONAUTIC ASSOCIATION TROPHY

Trophy Permanent. Prizes $3500 In Liberty Bonds.

This first event on race program is to stimulate interest among civilian fliers and encourage them to fly to races.

Contest open to all makes and types of aircraft. Trophy and Nine Liberty Bond Prizes awarded on accomplishment of planes with regard to distance travelled, speed, number of passengers carried and horsepower of engine.

National Cash Register Company Trophy

Competitors must fly from points 200 miles or more distant from Wilbur Wright Field, Dayton. Almost every state in the Union represented in list of entrants, some coming alone, others with one to five passengers. Start made after September 20. Finish on or before October 1.

Thursday, October 2

Event No. 2.

The National Cash Register Company Trophy Race

(Civilian)

Trophy Permanent. Prizes $3500 in Liberty Bonds.

Starting Time 10:00 A. M.

Open to civilian pilots having 2-place planes of low horsepower, 510 cubic inches or less piston displacement (90 to 100 h. p.), carrying pilot and one passenger.

Contest tends to bring out ingenuity of civilian designers in obtaining maximum performance from relative low h. p. engines, of the so-called "Jenny" type airplane, used as a training plane during the war.

First six pilots divide Liberty Bond Prizes.

Distance 90 miles, or six laps over 15 mile course.

Explanation—"Permanent" Trophy remains the permanent possession of winner of the event.

"Perpetual" Trophy must be competed for annually and remains in possession of the club or chapter of the N. A. A. represented by the winner of the event until one month prior to the next succeeding annual contest for such trophy.

Aerial Carnival

Thursday, October 2

Starting Time, 1:10 P. M.

Prelude—Five-Plane Battle Formation.

Demonstrating Bombing and Battle Maneuvers.

1—SKY WRITING—The smoke is made by injecting a liquid compound into the exhaust manifold under pressure through a valve controlled by the pilot. In order that these letters may be read from the ground, the pilot writes them upside down and backward. Each letter is approximately one-half mile high.

2—FREE BALLOON FLIGHT—This balloon, which is of the free training type, will be inflated on the field. After release it will be carried away by the wind, the pilot taking advantage of the different currents to arrive at his destination.

3—BARLING BOMBER FLIGHT—The largest and most powerful airplane in the world. It weighs 43,000 pounds, with full military load, and is driven by six Liberty engines developing a total of 2400 horsepower. First flown by Lieut. Harold R. Harris and Lieut. M. S. Fairchild, with Mr. Culver as chief engineer and Mr. Walter H. Barling (designer) as passenger, on August 22, 1923.

4—PURSUIT FORMATION—Attack formation of pursuit planes by pilots of the First Pursuit Squadron, Selfridge Field, Mt. Clemens, Mich. These are the type of fighting planes, which protect our bombers and shoot down enemy planes in actual warfare.

5—AERIAL COMBAT—Pursuit planes demonstrating aerial combat and their agility in acrobatics.

6—FOOLISH FLYER'S FREAK AND FANCY FLIGHT—"Stand on your head and try it."

7—PARACHUTE DEMONSTRATIONS — This actually includes three live jumps. The airplane parachute is a safety device, which must be worn by all Air Service aviators, while flying. Made of silk to give lightness and strength, it measures 24 feet in diameter and is opened by the jumper pulling a ring attached to the parachute harness, after he has cleared the plane. The rate of descent is 16 feet per second, or about the speed attained by a person jumping from a four-foot table.

Dayton Chapter National Aeronautic Association Trophy

8—FREAK FLYING—(a) *Apron String Event.* The planes will take off and fly around the field, tied together with a 60-foot string. This demonstrates the pilot's ability to keep the planes under perfect control.

(b) *Stunt Formation.* All maneuvers and stunts will be made in clear formation.

(c) *Balloon Sniping Contest.* Demonstrating the methods of attacking a moving aerial target.

9—MINATURE PULITZER RACE—"Got horse racing beat a mile."

10—SMOKE SCREEN—Liquid smoke is forced from the plane under pressure. As the liquid strikes the air, it turns into a gray fog. The purpose of this smoke is to blind military movements from the enemy.

A HOWLING FINISH (Curtiss Pursuit)—Demonstrating the Army's latest pursuit plane and its speed and maneuvering qualities.

Program of Race Events

Thursday, October 2

Event No. 3.

Central Labor Union of Dayton Trophy Race

(Civilian)

Trophy Permanent.

Prizes $3500 in Liberty Bonds.

Starting Time 11:30 A. M.

Central Labor Union of Dayton Trophy

Free-for-all race for light airplanes of two, three or four passenger capacity and engines of 800 cubic inch piston displacement (about 200 h. p.) or less. Contesting planes must carry pilot and one passenger (a contest load of 340 pounds).

This is the first time in the history of aviation that a labor organization has donated a trophy for an airplane race, and is indicative of the ever-increasing appreciation by members of trade unions of the commercial value of aircraft.

The nine Liberty Bond prizes are offered as an inducement to civilian pilots and airplane builders in developing new combinations of wings and engines in order to obtain planes giving the best possible performance.

Liberty Bond prizes awarded to first six pilots finishing.

Distance 120 miles or 8 laps over 15-mile course.

Program of Race Events

Thursday, October 2

Event No. 4

Liberty Engine Builders Trophy Race

(Civilian and Military)

Trophy Perpetual. Prizes, $3,000 in Liberty Bonds.

Starting Time 2:30 P. M.

This event, which is of more or less historical interest, is for Observation type (two seater) airplanes, having a total wing area of more than 360 square feet and an air speed exceeding 90 miles per hour.

Most of the entries in the event this year are Army Air Service officers.

Pilots are allowed certain leeway in streamlining their planes and in otherwise changing the original design in such manner as to improve the performance of existing observation types.

The trophy was awarded by the manufacturers of the Liberty engine during the war, the list of donors including Col. Jesse G. Vincent, Vice-president, Packard Motor Car Co.; Col. Sidney D. Waldon, who was associated with the Aircraft Production Board; Howard E. Coffin, chairman of that body; Nordyke-Marmon Co.; Ford Motor Car Co.; Harold H. Emmons, of the Detroit Board of Commerce; F. F. Beal, E. A. Deeds, Dayton; C. F. Kettering, Dayton; Henry B. Joy, Walter Chrysler and J. J. Heaslit, of Detroit; Lincoln Motor Car Co.; Buick Motor Car Co.; Packard Motor Car Co., and Cadillac Motor Car Co.

Liberty Engine Builders Trophy

In addition to the Trophy to the winner and the Liberty Bond prizes for first five places; pilots finishing in first, second and third places will be given gold, silver and bronze decorations, respectively.

Distance, 180 miles, or 12 laps over a 15 mile course.

Program of Race Events

Friday, October 3

Event No. 5.

Mulvihill Model Trophy Race

(Duration Race for Airplane Models)

Trophy Perpetual. Prizes $500 in Cash.

Starting Time 9:30 A. M.

This event is to stimulate interest of the younger generation in designing and constructing models of airplanes and increasing their knowledge of aviation.

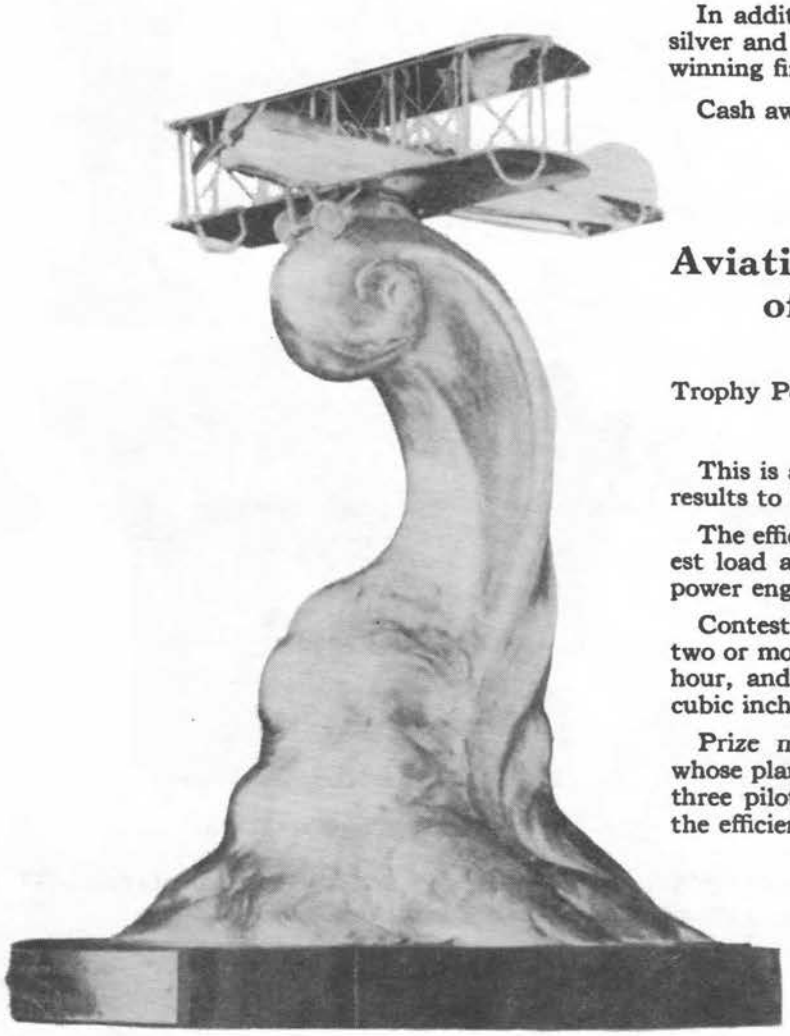
The event is a duration contest for airplane models having a wing span not to exceed 40 inches and employing rubber strands for motive power.

Contestants in this event, which is sponsored by B. H. Mulvihill, former vice-president of the N. A. A., must be members of the Junior Flying League of the N. A. A.

Each contestant may enter three models and is permitted three official flights with each model.

In addition to the trophy Mr. Mulvihill will give silver and bronze plaques to the owners of models winning first and second places.

Cash awards will go to the eight best performances.



Aviation Town and Country Club of Detroit Trophy

Event No. 6.

Aviation Town and Country Club of Detroit Trophy Race

(Civilian)

Trophy Perpetual. Prizes $4,000 in Liberty Bonds.

Starting Time 10:45 A. M.

This is an event for light commercial airplanes the results to be based on both speed and efficiency.

The efficiency rating is based on carrying the greatest load at the highest speed with the lowest horse power engine.

Contesting planes must have a seating capacity of two or more passengers, speed exceeding 80 miles per hour, and a piston displacement not exceeding 800 cubic inches (about 200 h. p.).

Prize money is divided among the three pilots whose planes make the best speed in the race and the three pilots whose planes make the highest score in the efficiency test.

The Trophy goes to the pilot getting the best mark on the combination speed and efficiency scoring. In addition, gold, silver, and bronze medals go to first, second and third places.

Distance is 120 miles or 8 laps over a 15 mile course.

Aerial Carnival

Friday, October 3

Starting Time 3:00 P. M.

Prelude—Five-Plane Battle Formation.

Demonstrating Bombing and Battle Maneuvers.

1—SKY WRITING.

For details see same event on Page 33.

2—FREE BALLOON FLIGHT.

For details see same event on Page 33.

3—BARLING BOMBER FLIGHT.

For details see same event on Page 33.

4—PURSUIT FORMATION.

For details see same event on Page 33.

5—AERIAL COMBAT.

Pursuit planes demonstrating aerial combat and their agility in acrobatics.

6—FOOLISH FLYERS' FREAK AND FANCY FLIGHT.

"Stand on your head and try it."

7—PARACHUTE DEMONSTRATION.

For details see same event on Page 33.

8—FREAK FLYING.

(a)—*Apron String Event*—The planes will take off and fly around the field tied together with a 60-foot string. This demonstrates the pilots' ability to keep the planes under perfect control.

(b)—*Stunt Formation*—All maneuvers and stunts will be made in close formation.

(c)—*Balloon Sniping Contest*—Demonstrating the methods of attacking a moving aerial target.

Mulvihill Trophy

9—DEMONSTRATION OF ECCENTRIC FLYING.

A hand flown eagle imitating the bird's every movement.

10—METHOD OF REFUELLING WITHOUT LANDING.

The fuel is passed from the upper to the lower plane by means of a hose.

FINALE—Smoke screen and a howling finish.

Program of Race Events

Friday, October 3

Event No. 7

Dayton Chamber of Commerce Trophy Race

(Civilian)

Trophy Permanent. Prizes $4,000 in Liberty Bonds.

Starting Time 12:40 P. M.

Dayton Chamber of Commerce Trophy

This event is for large capacity planes, capable of carrying a pay load of 2,000 pounds or more and attaining air speed exceeding 85 miles per hour. Total wing spread must exceed 600 square feet. Contest load of 340 pounds in addition to crew must be carried, and results determined on basis of cubic nch displacement of engines used.

The planes entered in this event, which is of great interest and importance, can easily carry a ton or more of mail, express matter or passengers, and carry and discharge with extreme accuracy the largest bombs and torpedoes or a ton of deadly gas.

Distance is 150 miles or 10 laps over a 15 mile course.

Program of Race Events

Friday, October 3

Event No. 8.

Dayton Daily News Trophy Race

(Civilian)

Trophy Perpetual.

Prizes $3,250 in Liberty Bonds.

Starting Time 2:30 P. M.

Sponsored by the Dayton Daily News, of Dayton, Ohio, this event is arranged to stimulate interest in light commercial airplanes among civilian and commercial fliers.

One of the most interesting recent developments in aviation is the development of the light airplane. Although no technical standard has been fixed for planes of this class, it is generally understood they are one or two passenger craft built as small and light as possible with engine of the lowest horsepower which can be successfully used.

Engines for planes of this type are generally about the size of motor cycle engines, developing from 5 to 20 horse power.

Contesting planes must carry pay load of 150 pounds, with engine displacement not to exceed 80 cubic inches (20 h. p.).

Climbing ability of planes will be tested as contestants will fly a triangular 5-mile course, rounding the first pylon at an altitude of 60 feet, climbing to 500 feet to round the anchored balloon at the end of the 2-mile stretch and descending to 60 feet for the next pylon. Contestants unable to make the straight climb may circle to gain altitude before rounding the balloon.

Gold, silver and bronze plaques will be awarded first, second and third places.

Distance is 25 miles or 5 laps over a 5 mile course.

Dayton Daily News Trophy

Program of Race Events

Saturday, October 4

Event No. 9

Aerial Gymkhana

"Air Ways" Plane of Army Air Service

(A) 10:00 A. M.—11:00 A. M.

Opening the events of the third day of the races military pilots from various fields will compete in spectacular feats. Individual pilots will select certain feats in which they are most proficient. An explanation of these exploits will be given spectators through loud speaking equipment.

(B) 12:00 M.—1:00 P. M.

Various types of civilian aircraft, piloted by fliers well known in the aeronautical world, will taxi before the grandstand and circle the field in the air, each plane and pilot being introduced to the crowds by loud speaker. These planes will include winners of races on the two preceding days.

Following the exhibition of civilian aircraft, a special exhibition of military flying will be given.

A Typical Race Scene. Speed Planes Lined up on Landing Field

Program of Race Events

Saturday, October 4

Event No. 10.

Race for Dayton Bicycle Club and Engineers' Club of Dayton Trophies

(Civilian)

Each Trophy Permanent. **Prizes $5,000 in Liberty Bonds.**

Starting Time 11:00 A. M.

This is a dual event of speed and efficiency for light airplanes (of the same type as entered in Event 7) with engines of 80 cubic inch (20 h. p.) or less piston displacement, and contesting planes carrying load of 150 pounds.

The Engineers' Club of Dayton and the Dayton Bicycle Club have joined in awarding trophies; the Engineers' Club trophy to the winner of the efficiency test, and the Bicycle Club trophy to the winner of the speed test.

Efficiency will be determined by dividing the miles per hour speed by the amount of gasoline consumed.

Four pilots whose planes make the highest efficiency marks will divide $1800.

A bonus at the rate of $10 for each cubic inch engine displacement less than 80 will be paid the pilots finishing first, second, third and fourth in the speed contest.

Distance is 50 miles or 10 laps over a 5 mile course.

Dayton Bicycle Club Trophy

Aerial Carnival

Saturday, October 4

Starting Time, 3:10 P. M.

Events

Engineers' Club of Dayton Trophy

1—SKY WRITING.

For details see same event on Page 33.

2—BARLING BOMBER FLIGHT.

For details see same event on Page 33.

3—PURSUIT ATTACK ON BATTLE FORMATION.

Demonstrating the method of attacking enemy formation. Upon attack the observers will jump to safety in their parachutes.

4—PURSUIT ATTACK ON OBSERVATION BALLOON.

Demonstrating method of attacking and shooting down an observation balloon. This is the type of balloon used during the World War and the method of destroying it.

5—BOMBING ATTACK ON NEW YORK CITY.

Attack on New York City by bombing squadron, protected by pursuit squadrons.

6—SMOKE SCREEN PROTECTION.

Liquid smoke is forced from the plane under pressure. As the liquid strikes the air it turns into a gray fog. The purpose of this smoke is to blind military movements from the enemy.

7—DESTRUCTION OF NEW YORK CITY.

Demonstrating accuracy of bomb dropping and the power of the bomb.

Program of Race Events

Saturday, October 4

Event No. 11.

John L. Mitchell Trophy Race

(Military)

Trophy Perpetual.

John L. Mitchell Trophy

Starting Time 1:00 P. M.

This trophy is donated by Brigadier General William Mitchell, assistant chief of the U. S. Air Service, in memory of his brother John L. Mitchell, who was killed in action in France during the World War.

This is a strictly military event for pilots of the First Pursuit Group, Army Air Service, which had such a remarkable performance during the war.

All contestants use standard pursuit planes, three cups going to winners of first, second and third places.

Flying starts are used in this event, which is flown in a manner similar to the Pulitzer Race.

The plane completing the course in the shortest elapsed time is the winner of the Trophy.

Distance is 200 kilometers (124.27 miles) or 4 laps over a 50 kilometer (31.07 mile) course.

Program of Race Events

Saturday, October 4

Event No. 12.

Pulitzer High Speed Trophy Race

(Civilian and Military)

Trophy Perpetual. Prizes $10,000 in Liberty Bonds.

Starting Time 2:15 P. M.

The Pulitzer Trophy

The Pulitzer Trophy Race is the Speed Classic of the International Air Races.

This, the premier event of the meet, brings to a close in a most fitting manner the race program.

The Pulitzer Trophy was donated by Ralph, Joseph and Herbert Pulitzer, of the New York World and St. Louis Post Dispatch, and is competed for annually in the International Air Races, and awarded to the pilot maintaining the highest speed.

The trophy, which is one of the most beautiful of its kind in existence, was first competed for in 1920 in races held on Long Island and won by Lieut. C. C. Moseley, U. S. Air Service, in a Verville-Packard, at a speed of 156.537 miles per hour.

In 1921, Bert Acosta, flying a Navy Curtiss Racer won the trophy at Omaha with a speed of 176 miles per hour.

Lieut. Russell L. Maughan, U. S. Air Service, in an Army Curtiss, won the 1922 Pulitzer race at Detroit at a speed of 205.8 miles per hour, and last year at St. Louis, Lieut. Al. J. Williams, of the Navy flew his Curtiss Navy Racer at a speed of 243.68 miles per hour to win the event.

Single seater planes capable of at least 175 miles per hour and a landing speed not to exceed 75 miles per hour are eligible.

Gold, silver and bronze medals will be awarded to pilots winning first, second and third places.

The prize money is shared by the first four winners, with $5,000 going to first place.

The distance is 200 kilometers (124.27 miles) over a 50 kilometer (31.07 mile) course.

The National Aeronautic Association

The future prosperity of our country largely depends upon our development of aerial navigation.

To arouse the American people to a realization of this fact is one of the primary objects of the National Aeronautic Association, a nation-wide organization pledged to foster, encourage and advance the science of aeronautics.

In the mechanical perfection of aircraft and in the achievements of our fliers, America leads the world. Nearly all aerial records are held by American pilots, a large percentage of them having been established at McCook Field. To the experimental work carried on at this station is due much of the credit for American aeronautical accomplishment.

Yet in actual aerial strength and in the application of aviation to commercial uses, America is far behind. European nations are constantly adding to the many airways which extend between all of their principal cities, their governments assisting the work by subsidies. They realize that the same aircraft that carry merchandise and passengers in time of peace can carry bombs and machine guns in the event of war.

The National Aeronautic Association supports and assists commercial aviation, the Air Mail, the Army and Navy Air Forces, and all forms of worthy aeronautical enterprise. Among its principal activities are:

1. Conducting aeronautical sporting events. These contests and air meets effectively focus the attention of the public upon air navigation and lead directly to important improvements in aircraft.

2. Advocating adequate federal legislation to control commercial flying. Regulation through federal agency is necessary to provide safeguards to patrons of air lines as well as to aircraft operators.

3. Disseminating useful information through communications to members, the press, aeronautical publications, and through its monthly organ, the National Aeronautic Association Review.

4. Supervising technical features of record competition. The Association is the representative in this country of the Federation Aeronautique Internationale, and has sole power to homologate or confirm American air records.

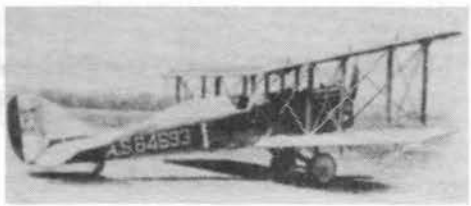
5. Enlisting the interest of the youth of the land through aircraft model competition and through the formation of Junior Flying Leagues.

6. Arousing public sentiment through a nation-wide educational membership campaign. During the present year Rear Admiral W. F. Fullam has carried the message of the Association to more than 40 cities. A four-reel motion picture film depicting the development of air power has also been made and widely exhibited throughout the country. It has created a tremendous amount of enthusiasm and has brought home to many people the necessity in this nation of a definite policy for the development of air power, both military and commercial.

The National Aeronautic Association offers to every far-seeing public-spirited man and woman of the nation an opportunity to aid in promoting America's prosperity in peace and security in war. With many thousands of such citizens united in this worthy movement the speedy development of American aeronautics will be assured.

Frederick B. Patterson
President N. A. A.

World Records Show American Supremacy



De Haviland 4-L Biplane

Although backward in development of commercial aviation America has conclusively demonstrated her leadership in skill of pilots and design and construction of planes and motors by the holding at this time of 47 out of 70 world records.

Lt. "Al." J. Williams, U. S. N., holds records for 100 kilometers (62.137 miles) with speed of 243.81 m. p. h., and 200 kilometers (124.2 miles) with speed of 243.67 m. p. h., both made in Pulitzer Race, St. Louis, with Navy Curtiss Racer; and in the same plane, at Mitchell Field, L. I., the 3 kilometers (1.864 miles) at speed of 266.59 m. p. h. on Nov. 4, 1923, the fastest time ever made.

Lt. Harold R. Harris, Army Air Service

Sadi Lecointe, flying a Nieuport, holds 500 k. m. (310.6 miles) record with speed of 190.139 m. p. h. made June 22, 1924, at Istres, France.

Lt. Harold R. Harris, U. S. Army, pilot and Ralph Lockwood, assistant pilot, flying De Haviland 4-L with 400 h. p. Liberty engine, March 31, 1923, at Dayton, hold the 1,000 k. m. (621.3 miles) record with speed of 127.42 m. p. h.

Lt. Harris on April 17, '23, flying the same ship at Dayton, established speed record of 114.35 m. p. h. for 1500 k. m. (923.05 miles) and 114.22 m. p. h. for 2000 k. m. (1242.74 miles).

The 2500 kilometer record (without re-fueling), is held by Lts. J. A. Macready and O. G. Kelly, U. S. A., made at Dayton, April 16-17, 1923, in the famous Army Transport T-2, with speed of 71.83 m. p. h. At the same time they established world records for 3,000 k. m. (1864.11 miles) without re-fueling, speed 71.625 m. p. h., and for 3,500 k. m. (2174.8 miles), speed 71.34 m. p. h., and for 4,000 k. m. (2485.48 miles), speed 70.79 m. p. h. They at the same time established a new duration record without re-fueling, 36 hrs., 4 min., 34 sec., and new distance record, 2516.5 miles.

Coupet and Drouhin, at Chartres, France, July 16-17, 1924, in a Farman Goliath with 400 h. p. Farman engine, established the world duration record of 37 hrs. 59 min. 10 sec.

World Speed Records made while ship was refuelled in flight are held by Lts. L. H. Smith and J. P. Richter, U. S. A., made at Rockwell Field, San Diego, Cal., August 27-28, 1923, in a DeHaviland 4-B with Liberty 400 h. p. engine, as follows: 2500 k. m., speed 88.72 m. p. h.; 3000 k. m., speed 88.15 m. p. h.; 3500 k. m., speed 88.34 m. p. h.; 4000 k. m., speed 88.23 m. p. h.; 4500 k. m., (2796.16 miles), speed 88.45 m. p. h.; and 5000 k. m., (3106.8 miles) speed 88.55 m. p. h. They also hold the duration record with re-fueling, 37 hrs. 15 min. 14.8 sec.; and the distance record with re-fueling, 3293.26 miles.

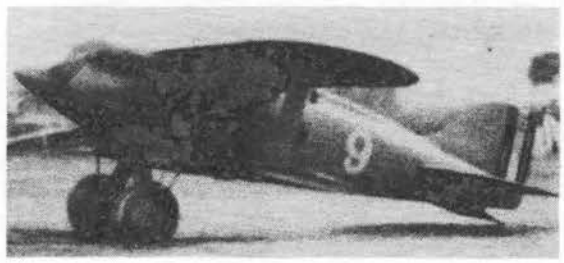
Lt. Russell L. Maughan, Army Air Service, established the 1 kilometer straightaway record, driving his Army Curtiss Racer at Wilbur Wright Field, March 29, 1923, at a speed of 236.58 m. p. h. This was the last day the rules recognized a speed record over a 1 kilometer course.

Seaplane Records

The World Speed Record for Seaplanes is held by Alex Passaleva, who flew his Marchetti-Savoia, with 300 h. p. Hispano-Suiza engine, at Milan, Italy, December 28, 1922, at the rate of 174.08 m. p. h. over 3 kilometer course, although Lt. David Rittenhouse, U. S. Navy, flew his Curtiss CR-3 Seaplane at the rate of 177.38 m. p. h. part of the distance in winning the Schneider Cup Race at Cowes, England, September 28, 1923. Rittenhouse's speed for the 200 k. m. averaged 169.89 m. p. h., the world record for that distance.

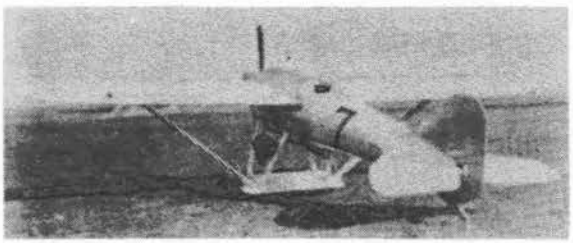
Capt. Baird, Naples, Italy, August 12, 1922, established 100 k. m. record in his Supermarine, with 450 h. p. Napier-Lion engine, at speed of 129.75 m. p. h.

Lts. F. W. Wead and J. D. Price, U. S. Navy, flying Navy Curtiss S-2 with 585 h. p. Wright engine, June 22 and 23, 1924, established world records for 500 k. m., 73.41 m. p. h.; 1,000 k. m., 74.28 m. p. h.; and 1,500 k. m., 74.17 m. p. h., and on July 11 and 12, with same seaplane established world endurance record, 14 hrs. 53 min. 44.2 sec., and world distance record, 994.19 miles.



Curtiss Navy Racer, 1923 Pulitzer Winner

America Leads in Other World Records



Sadi Leconite and His Nieuport-Delage hold World Altitude Record

For several years past Lt. Jno. A. Macready, Army Air Service, stationed at McCook Field, and Sadi Leconite, famous French Ace, have been battling for the world altitude record. Lt. Macready, flying a LePere biplane with supercharged Liberty engine, over Dayton, May 21, this year, established a new "ceiling" of 35,239 feet, which is still the American altitude record.

Sadi Leconite holds the world record at 36,564.8 feet, made over Issy-le-Molineaux, France, October 30, 1923, in a Nieuport-Delage biplane with boosted Hispano-Suiza 400 h. p. engine.

The following are records for useful load carried:

Duration and Distance: 250 kilograms (1 k. g.=2.204 lbs.) and 500 k. g., Lt. Harold R. Harris, Army Air Service, Dayton, June 28, 1923, using Douglas Transport, Liberty Engine, duration 9 hrs. 11 min. 53 sec.; distance 590.3 miles.

Ralph Lockwood, Army Air Service, at Dayton, June 28, 1924, in Army CO-5 with Liberty engine, established world records for 100 k. m. and 200 k. m., carrying 250 k. g., and for 100 k. m. and 200 k. m., carrying 500 k. g., with speed of 124.34 m. p. h.

Louis Meister, Army Air Service, at Dayton, in Martin Bomber, established world records for 500 k. m. carrying 250 k. g. and 500 k. g. with speed of 74.86 m. p. h.

Louis Bossoutrout, of France, on May 8, 1924, in Farman Goliath, established world duration records carrying 1,000 k. g., 1,500 k. g. and 2,000 k. g., time 1 hr. 47 min. 8 2-5 sec.

Lt. Harris, Army Air Service, Dayton, October 25, 1923, in Eng. Div. N. B. L.-1 (The Barling Bomber) equipped with six 400 h. p. Liberty engines—established 3000 k. g. record, duration 1 hr. 19 min. 11.8 sec.

Altitude records for planes carrying useful load are:

240 kilograms—Lt. Harold R. Harris, Army Air Service, Dayton, March 27, 1924, in Eng. Div. TP-1 with supercharged Liberty Motor—29,462 ft. 500 kilograms—Lt. Harris, in same plane, Dayton, May 21, 1924, 28,143 ft. 1,000 kilograms—Coupet, of France, May 6, 1924, in Farman biplane with Farman 600 h. p. 18 cyl. engine, 18,868 feet. 1,500 and 2,000 kilograms—Louis Bossoutrout, France, May 8, 1924, 14,682 feet. 3,000 kilograms—Louis Bossoutrout, France, May 19, 1924—6,371 feet, using Farman biplane with 600 h. p. Farman engine.

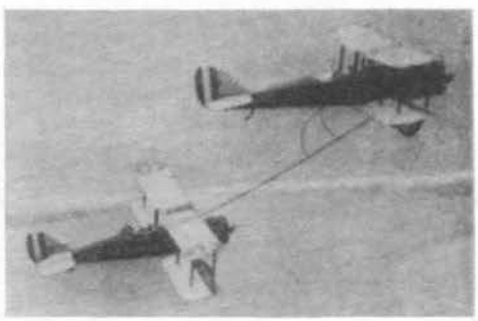
World Glider records are:

Duration—A. Maneyrol, at Vauville, France, January 29, 1923, in Peyret monoplane glider, 8 hrs. 4 min. 50 2-5 sec. Distance—Lt. Thoret, at Vauville, France, August 26, 1923, in Bardin glider, 5.033 miles.

Altitude—Adj. Deschamps, of France, at Buska, Algeria, Feb. 7, 1923, in Dewoitaine glider, 1,788 feet

Pescara, of France, using 180 h. p. Hispano-Suiza motor in his Pescara helicopter, April 8, 1924, established helicopter record with flight of 2414.8 feet.

The world record parachute jump was made by Capt. A. W. Stevens, Army Air Service, June 12, 1922, from an altitude of 23,894 feet. Capt. Stevens, stepped off the plane over Springfield, Ohio, was 30 minutes descending, and alighted in Jamestown, Ohio, 25 miles distant from Springfield.



Lts. Lowell H. Smith and J.P. Richter, Army Air Service, Attained World Duration Record with Re-Fueling in Flight

Martin Bomber with two Supercharged Liberty Engines Holds World Records for Two Engined Planes

The World Cruise of Army Air Service

Major Martin and Sergeant Harvey as they Looked after Tramping Alaskan Snows for Days

The most notable achievement in the history of Aeronautics is the 1924 Round-the-World Flight of the United States Army Air Service.

With the crossing of the American continent, from Coast to Coast by Non-Stop Flight, "Across The Border" Trips from Canada to Mexico, Trans-Atlantic Voyages by Airship and Seaplane and Europe-to-Africa Flights matters of history, the World Cruise is but the logical next step.

Army Officers on World Cruise. Left to Right: Major Frederick L. Martin, Commanding; Lt. Lowell H. Smith, Lt. Leslie Arnold, Lt. Leigh Wade, Lt. Eric Nelson, Sgt. Henry H. Ogden, Lt. Jno. Harding and Sgt. Alva Harvey

Eight intrepid fliers of the Army Air Service started on the Round-the-World Flight from Seattle, Washington (the official starting point), April 10, in four Douglas World-Cruiser Biplanes.

The Douglas "World Cruiser" is built around the famous Liberty 12 cylinder, 400 horse power engine. The plane has a wing span of 50 feet, gas capacity of 592 gallons and 50 gallon oil capacity. Fully loaded the ship weighs about 7200 pounds. The cruising speed averages 100 miles per hour.

Preliminary investigations as to possible routes and other preparatory details were made by officers attached to the Army Air Service, Engineering Division, at McCook Field.

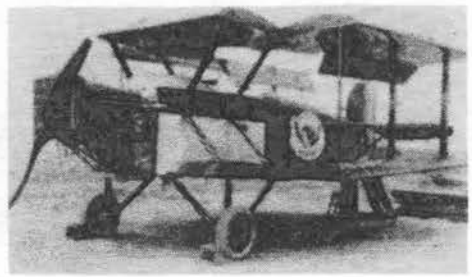
Of the eight officers who started on the World Flight, two, Major Frederick L. Martin, Commander of the expedition and his mechanic, Sergeant Alva Harvey, were forced out April 30, when their plane crashed in Alaska. After anxious days of waiting for news of the rescue of the two brave fliers, dispatches announced their arrival in Port Moeller, near Dutch Harbor, on May 10. They arrived "under their own power," travel-worn, weather-beaten and almost starved, after 11 days groping through snowcovered mountains.

World Outline Chart Shows Route Followed by World Cruise

Lieut. Lowell H. Smith was given command, and with the other six fliers continued the Round-the-World Flight, going by way of Japan, China, Siam, India, arriving at the half-way point of the 26,000 mile trip at Calcutta, and on to Persia, Turkey, Roumania, Austria, Germany, France, England, Iceland, Greenland and back to the United States.

World Commerce by Aircraft

At every landing point the American Round-the-World Fliers were enthusiastically greeted by multitudes, whose sincere expressions of "Good Luck, Yankees" will always be remembered by the now internationally famous aviators.



Douglas World Cruiser Showing Engine and Folded Wings

France was celebrating its National holiday, Bastile Day, when the "Yankee" Birdmen landed at Paris, July 14, and a wonderful holiday crowd was at the field to bid them *bienvenu*. The Americans had covered two-thirds of the trip, 18,035 miles in 118 days, with 239 hours flying time.

England's reception at the Croydon Air Station, near London, was especially enthusiastic, the English being particularly interested because of the World Flight of their own aviator, A. Stuart MacLaren, who was following a West to East Course, while the Americans were travelling from East to West. Mrs. MacLaren personally greeted the Americans in London, her husband at the time having reached Japan.

Maj.-Gen. Mason M. Patrick, Chief, Army Air Service

After England came the Orkney Islands, then across the Atlantic to Iceland, Greenland and America.

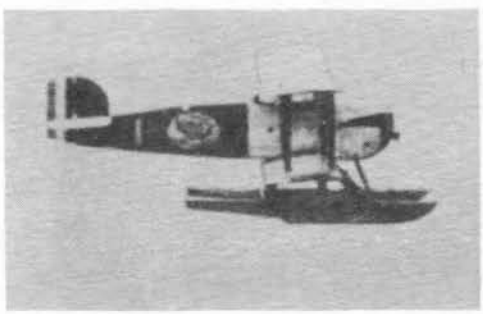
Wade's plane was destroyed at sea, near Iceland, after having been forced down by engine trouble.

Major Zanni, of the Argentine Republic, and Locatelli, Italian aviator, are also undertaking Round-the-World Flights this year. MacLaren was forced to give up just before reaching Alaska, and Locatelli near Iceland.

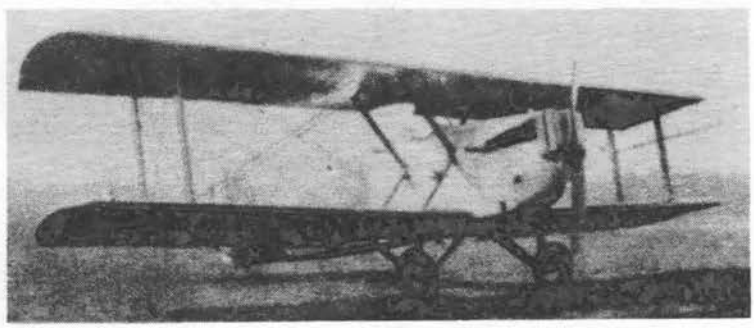
The results of the Round-the-World Flights will be far-reaching. The most important result will be the ultimate opening of World or International Commerce by Aircraft.

Based on the experiences of the fliers and proven performances of the planes there can be no question as to the inauguration, eventually, of trans-oceanic commerce in the air.

The value of aircraft in national defense once again is demonstrated by the World Cruise.

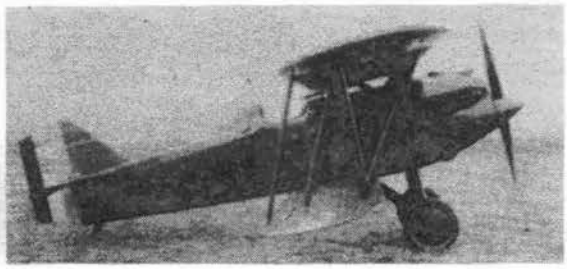


As They Fly Across the Seas, Pontoons Replace the Landing Gear



The Douglas World Flight Airplane. Three of These Are Making the Round the World Trip. The Fourth, Major Martin's, Crashed in Alaska

Coast to Coast from Dawn to Dusk



Lt. Russell L. Maughan and Curtiss Army Pursuit with Curtiss Engine That Crossed the Continent From Dawn to Dusk.

The flight of Lieut. Russell L. Maughan, Army Air Service, from New York to San Francisco, between daylight and dark on June 23, is probably the most outstanding individual achievement of the present year. As a demonstration of the great advance in aeronautics the trip holds a place second only to the World Flights.

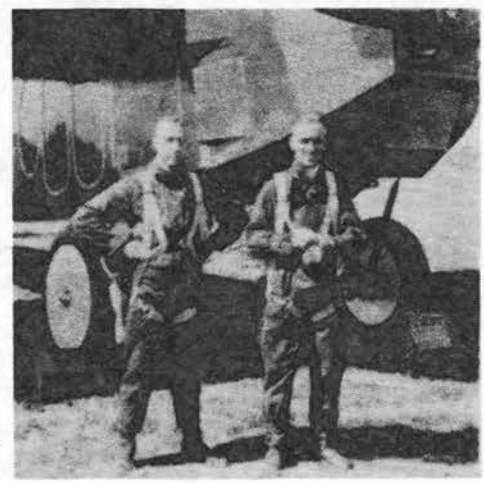
Lieut. Maughan, in a Curtiss Pursuit Ship, with Curtiss engine, left Mitchell Field, Long Island, at 2:58 A. M. Eastern Standard Time, and landed at Crissy Field, San Francisco, at 9:48 P. M., Pacific Standard Time, the 2760 miles being covered in 18 hours, 38 minutes actual flying time. With five stops, at Dayton, St. Joseph, Mo., Cheyenne and North Platte, Wyoming, and Salduro, Utah, the total elapsed time was 21 hours, 50 minutes. Speed for the entire trip averaged 148 miles per hour.

The famous Non-Stop Coast-to-Coast flight of Lieuts. J. A. Macready and Oakley G. Kelly, Army Air Service pilots, in the Army Transport "T-2," equipped with 400 h. p. Liberty engine, was the outstanding achievement of 1923.

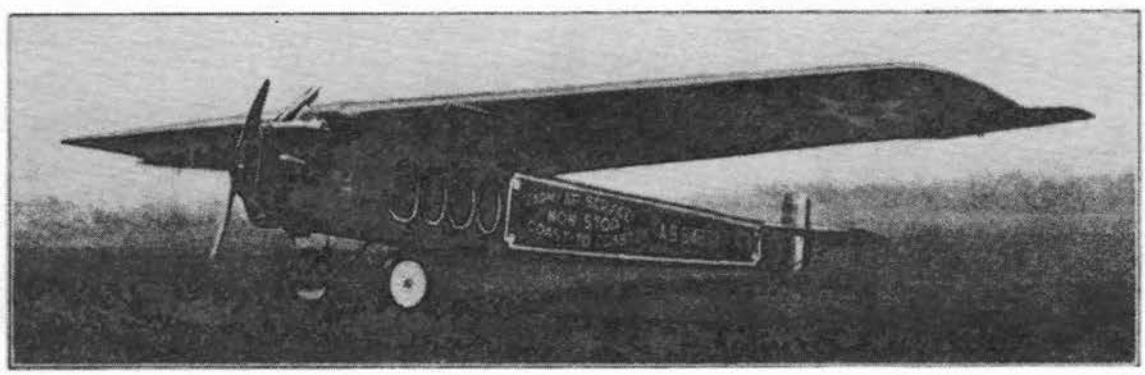
Brig. Gen. William Mitchell, Asst. Chief Army Air Service

The Non-Stop flight started at Roosevelt Field, Long Island, New York, at 12:36 P.M., May 2, 1923, and ended at 3:26 P. M., the following day at Rockwell field, San Diego, California, the computed distance of 2560 miles being covered in 26 hours, 50 minutes, 38 2-5 seconds, the average speed being 95 miles per hour.

In 1922, September 4-5, Lt. Jas. Doolittle, in a De Haviland biplane with Liberty engine, made a One-Stop Transcontinental flight from Pablo Beach, Florida to San Diego, California, landing at Kelly Field, San Antonio, Texas, to re-fuel. His flying time was 21 hours, 20 minutes, and elapsed time, 22 hours, 35 minutes.

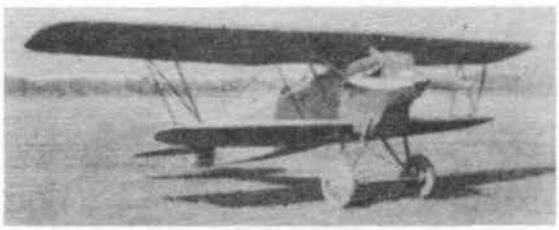


Lts. J. A. Macready and Oakley G. Kelly



Famous T-2 Army Monoplane Transport Used by Lts. Macready and Kelly in Non-Stop Coast to Coast Flight and in Establishing World Endurance Record Without Re-fueling. The T-2 is now in Smithsonian Institution

The Army Air Service



Boeing Pursuit PW-9 with Curtiss D-12 375 h.p. Engine

Eng. Div. Corps Observation-5 with Liberty 400 h.p. Engine

Le Pere with Supercharged Liberty Engine

Increased support and extension of the Army Air Service is as important today as in the days of the World War.

There are less than 500 airplanes in service of which more than 300 are of the observation type, about a hundred pursuit planes and the balance observation planes.

The Army flying strength at present is 9 pursuit squadrons, 11 bombing and attack squadrons, and 14 observation squadrons. The personnel includes 950 officers and 8500 enlisted men, of whom about 900 are aviators.

Upon adequate support of military aviation depends the necessary development of the new art and industry.

Upon the development of civil and commercial aviation depends the establishment of a reserve flying strength essential as part of the modern plan for national defense.

Since the beginning of the World War the United States Army Air Service has made prodigious strides in the development of aeronautics.

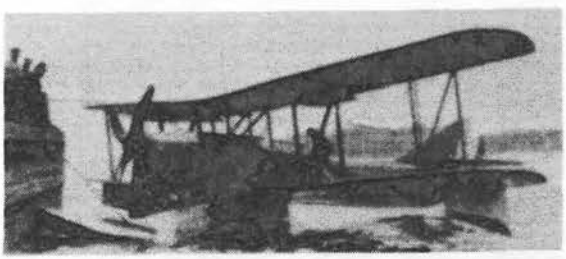
By no means comparable in numbers of planes and men with the leading air ministries of Foreign nations, the Army Air Service has an exceptionally highly trained and efficient personnel.

The vast majority of world records for airplanes are held by Army Air Service fliers and planes, an achievement all the more gratifying because of the relative limitations in government appropriations.

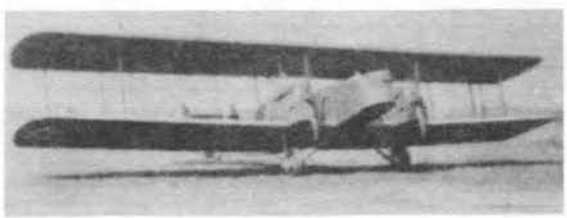
Upon entering the World War the Army Air Service had a personnel of only 45 officers and 458 enlisted men, and but 73 airplanes, all of which were used in messenger and mail-carrying service.

No one in America had facilities for the production of fighting and bombing planes.

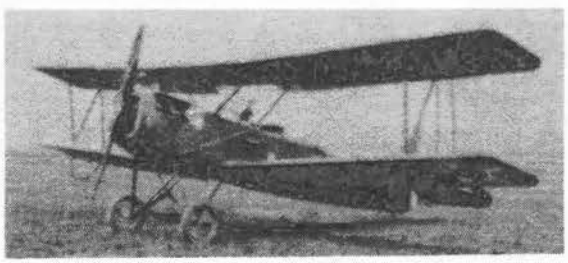
The need for scientific development of aviation in America was the most costly lesson brought to America by the conflict.



Loening "Amphibian," New, Distinctive Type of Combined Airplane and Seaplane



Elias Bomber NBS-3



Army Training Plane with Wright E-3 Engine

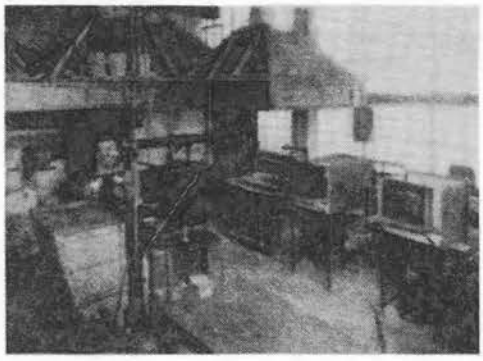
McCook Field—Home of Engineering Division

To the Engineering Division of the Army Air Service is assigned the task of developing the most advanced types of airplanes, airships, engines, armament, navigation instruments and other equipment relating to the art and science of aeronautics.

The home of the Engineering Division is McCook Field, Dayton. Upon the experimental work done here largely depends America's aeronautical progress, both military and commercial.

At McCook Field new types of aircraft are designed and experimental models constructed and tested.

McCook Government Experimental Field



Heat Treating Laboratory

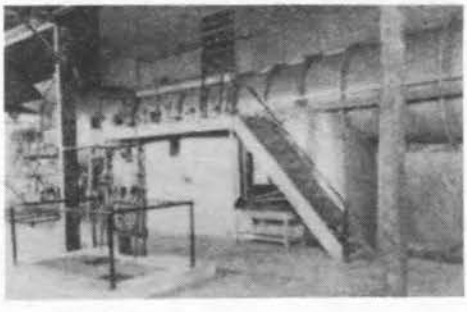
The test of models costing but one percent as much as the full-sized plane, are made by Wind Tunnel experiments. The most powerful wind tunnel in the world is the large wind tunnel at McCook Field, having a diameter of five feet at the throat and two twelve-foot fans which draw a blast up to 275 miles per hour. A second and smaller wind tunnel at McCook Field with a diameter of 14 inches, is the highest speed tunnel in the world, having a wind capacity up to 500 miles per hour.

The best propeller testing apparatus in the world, including 600 h. p. dynamometers, arranged in tandem, is located at McCook Field.

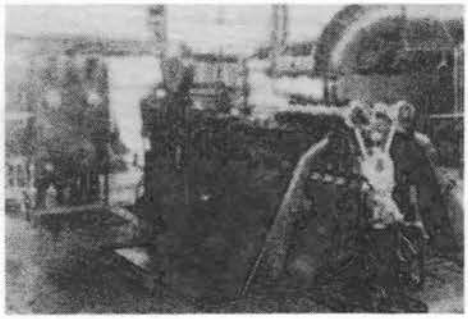
New fuel systems, carburetors, ignition systems, engines, cooling systems and superchargers are designed and tested by the Engineering Division.

The Armament developments deal with cannons, guns, bombs, ammunition and pyrotechnics for night signalling.

The Equipment Section is engaged in developing and perfecting devices for aerial navigation, power plant instruments, aerial photography, radio equipment, night landing and signal lights, and all safety devices, including parachutes and fire prevention apparatus.



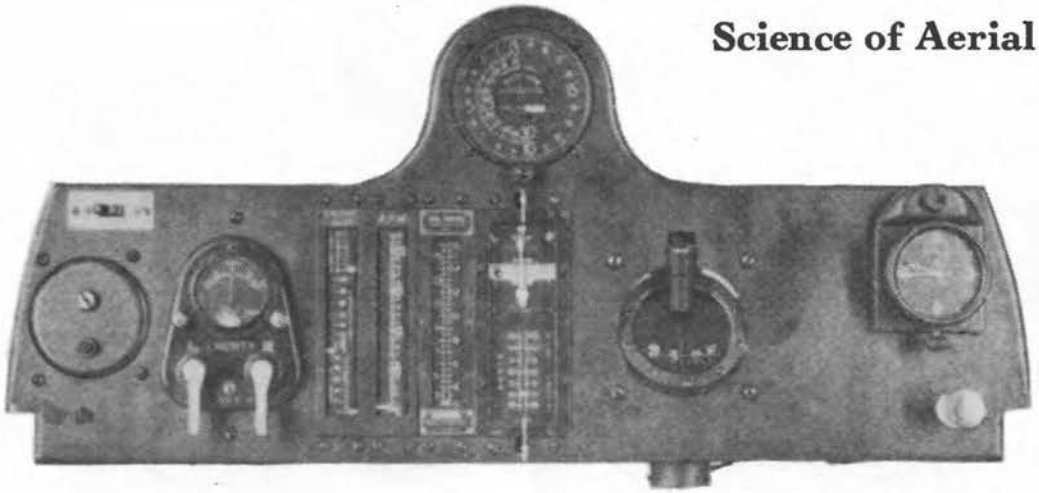
Section of Wind Tunnel, Showing One Control Board and Fan



Engine Dynamometer

Plan for New Engineering Division Field, Donated by Dayton Citizens, and Accepted by War Department

Science of Aerial Navigation



New Style Instrument Board with Vertical Dials, Mounted Flush with Panel

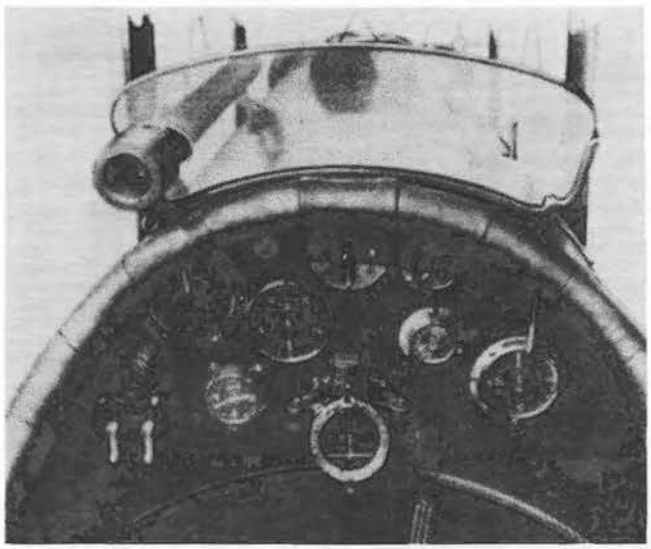
Pioneer fliers relied almost entirely upon their "flying sense." To such an extent, in fact, that reduction of the problems of aerial navigation to a mathematical basis was scorned by many of the earlier pilots.

The World War fostered the technics of quantity production but disseminated the science of aeronautics. Utilizing the experience of Marine navigators, the compass was available to aerial navigation uses. No means were available at first, however, for determining drift, air speed, banking angles, actual position of 'planes.

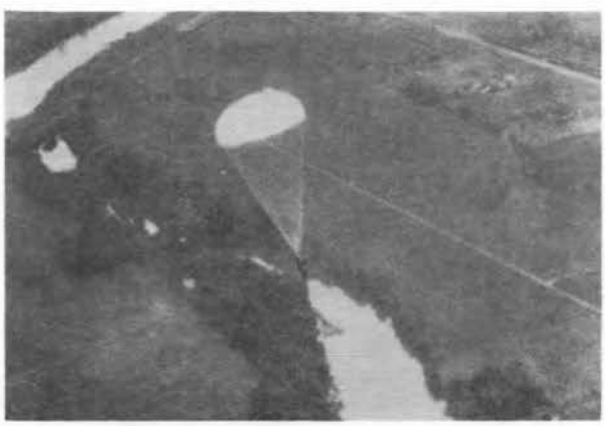
Experimenters and pilots gradually turned to the engineer, the chemist, the designer. Strength factors were introduced, down pressures foreseen, fine lines provided, wing shapes and controls improved, landing gear developed and stabilizers perfected.

Many of the scientific aids to aerial navigation have come from the Engineering Division of the U. S. Army Air Service at McCook Field, particularly during the more recent years.

The earth induction compass, drift meter, rate of climb, turn and bank indicators, air speed and altitude indicators are now an important part of the equipment of the modern airplane.

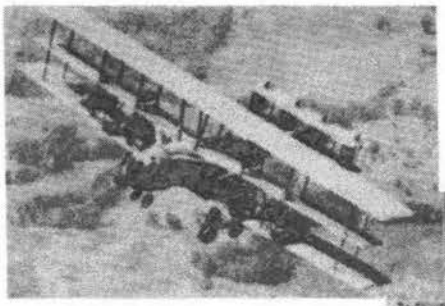


Old Style Board in Pilot's Cockpit, Showing Round Dials



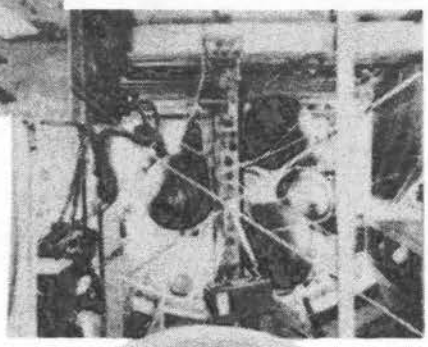
Parachute Pack and Jump and Clothing for High Altitude Flights

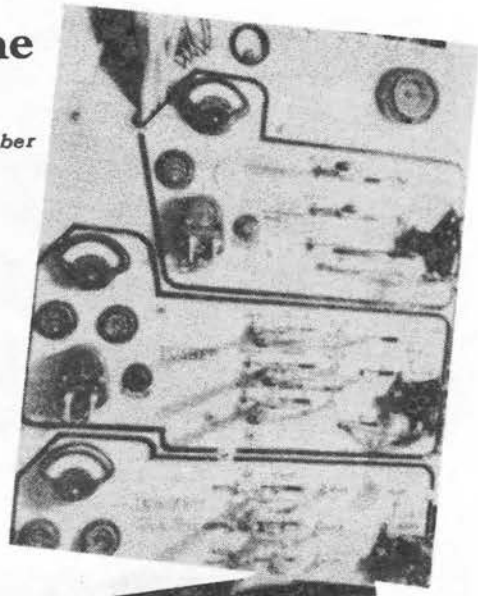
The World's Largest Airplane

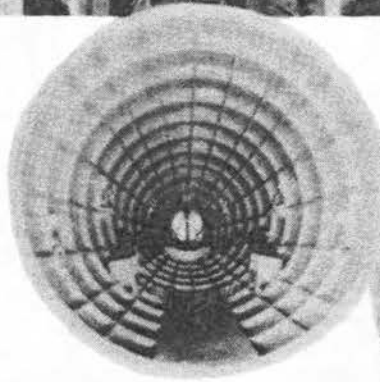


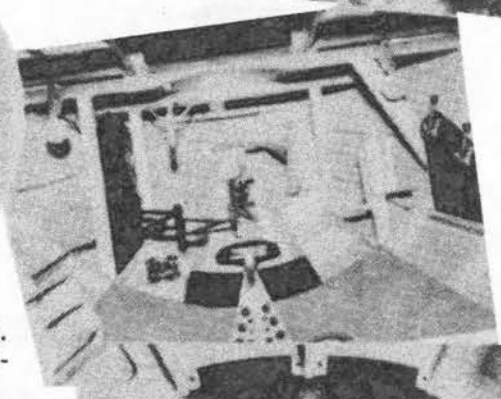
The Giant Flies. World's Largest Airplane in the Air

Interior Views of the Barling Bomber









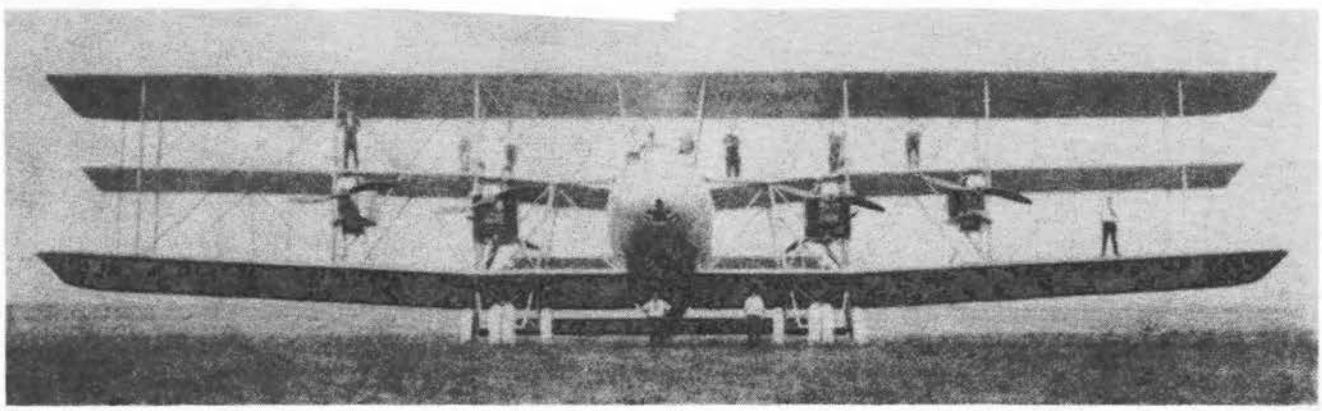
The Barling Bomber is the largest airplane in the world.

When fully equipped the Barling Bomber will carry 8 men and 12,000 pounds of explosives, and will weigh 43,000 pounds. The airplane itself weighs 20,000 pounds.

The Barling is a triplane with a wing spread of 120 feet and a length, from nose of the fuselage to tail, of 65 feet. It is 28 feet high. Six Liberty 400 h.p. motors furnish the power.

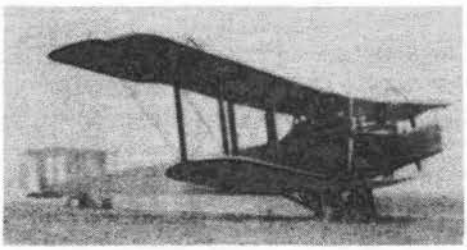
The ship was assembled at Wilbur Wright Field and flown for the first time August 22, 1923, by Lieut. Harold R. Harris, and M. S. Fairchild as pilots. Walter Barling, the designer and Engineer Douglas Culver were passengers.

An interesting incident in connection with the maiden flight of the Barling Bomber is the fact that the wind-tunnel experiments of the Barling Model at McCook Field were so perfect that the pilots were able to fly the giant airplane with hands entirely off the controls.



The Ten Men Standing on Wings give Some Idea of the Size of the Barling Bomber

What Other Nations Are Doing



Handley-Page English Bomber

Albatross German Pursuit

Morane Saulnier French Training Plane

France, Great Britain, Italy and Germany are the four leading military flying nations of the world with Russia and Japan closely following.

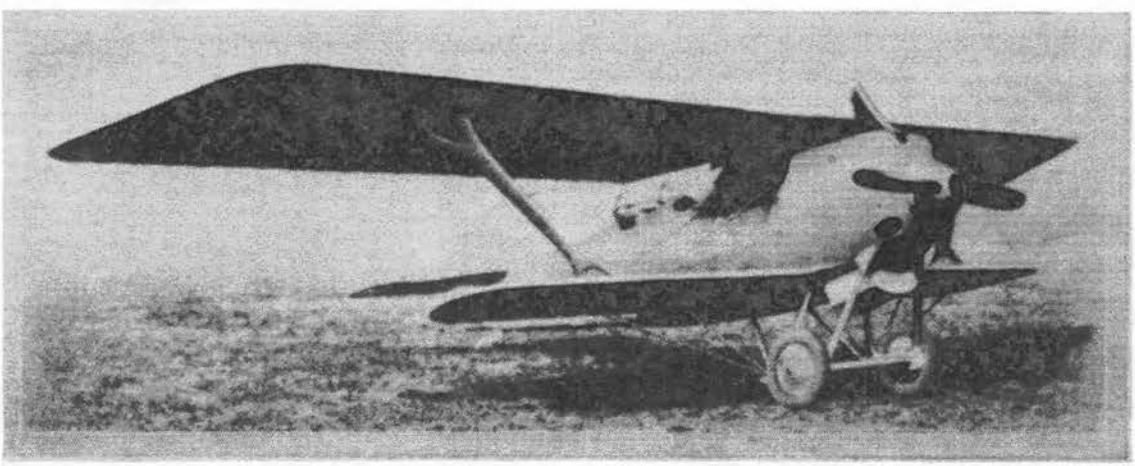
France has 54 Pursuit Squadrons, 48 Bombing and Attack Squadrons, and 72 Observation Squadrons, including 4 Naval Squadrons. The Army Flying Force Personnel includes 1386 Officers and 31,676 enlisted men, including 986 pilots. French aeronautical appropriation for the fiscal year 1923-4 totalled $28,957,500.

Great Britain's Air Ministry has 15 Pursuit Squadrons, 10 Observation Squadrons, 4 Bombing and Attack Squadrons, 5 miscellaneous squadrons and 17 Naval Squadrons, and plan 34 additional squadrons for home defense, a total of 85 squadrons. The flying personnel includes 3,000 officers and 30,000 enlisted men, of whom 2600 are pilots. The appropriations for the current fiscal year aggregate $90,541,233.

Italy's Military Flying Force consists of 14 Pursuit Squadrons, including 4 Naval, 3 Bombing and Attack Squadrons, and 20 Observation Squadrons, including 8 Naval Squadrons and is planning for a total of 66 squadrons. A total of 5,000 men make up the personnel. Italy's aeronautical appropriations for the current year total $54,054,400.

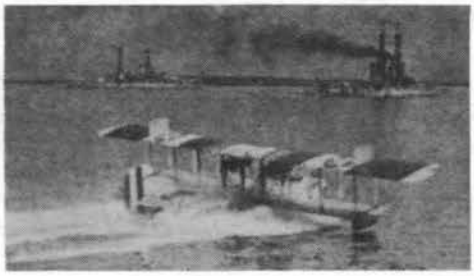
Japan has set aside $200,000,000 for the promotion of aeronautics over the next seven years.

The United States appropriated for the current fiscal year $29,571,450.



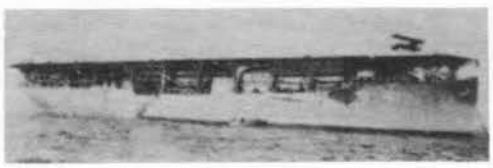
French Breguet—Used by Lt. Peletier D'Oisy in 1924 Paris to Hongkong Flight

The Navy in the Air



Navy Scout Seaplane Operating With Fleet

UO-1 and VE-7 Vought Shipboard Planes. Aircraft Catapaults Shoot Them into Air with Such Velocity They do not Touch Water When Launched From Battleship's Deck



U.S.S. Langley, Navy Experimental Aircraft Carrier

Rear Admiral W. A. Moffett, Chief Navy Bureau of Aeronautics

In adapting the airplane to operations on water several problems needed solution.

Means of alighting on and leaving the surface had to be devised. Larger or more powerful engines were necessary.

The plane had to be light enough to rise, yet large and strong enough to withstand the heavy seas.

First came the hydro-airplane of 1910 and 1911 with floats substituted for wheels or landing gear. The "Amphibion" equipped with both wheels and floats appeared in 1912. Then followed the flying boat, with flat center hull, then the V-type hull, and the pontoons of the modern seaplane.

In 1911 Pilot Ely flew from the deck of the cruiser Birmingham. A few months later the first successful landing was made on the deck of the cruiser Pennsylvania. The first extended flight by a Naval plane was made the same year, from the Annapolis Naval Academy to Old Point Comfort.

The catapault launching device came into use in 1912. The catapault launches the plane with an initial velocity of 60 miles per hour.

One hundred planes had been purchased by the Navy up to 1917 when America entered the World War.

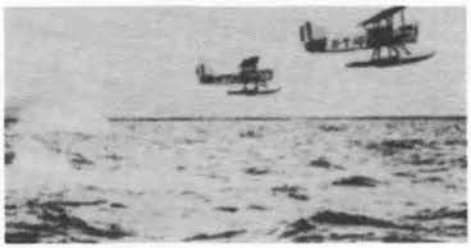
During and since the war period the Navy has developed Naval bombing, submarine hunting and scouting planes, including the long distance flying boats of the NC-4 type which made the first Trans-Atlantic flight in 1919, and the three purpose seaplane for scouting, bombing and torpedo launching and long distance flights. These planes have a cruising range of 2,000 miles and are capable of 20 hours continuous flight.

The Navy has also developed Naval fighting planes. Aviation is now an integral part of the Navy with aircraft as adjunct to battle ships.

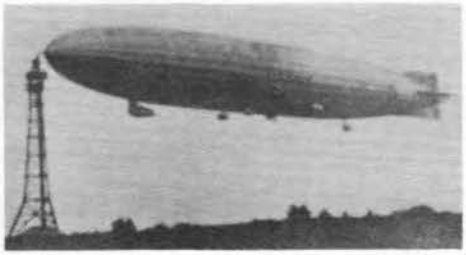
In the development of Lighter-than-Air craft the Navy's aviation activities are best known by its construction and successful launching in 1923 of the Shenandoah.

All aviation activities of the Navy are under the Navy Bureau of Aeronautics. The present fighting strength of the Navy and Marine air forces consists of 587 officers and 3,444 enlisted men and 456 aviators.

The Navy has four Pursuit Squadrons, two Bombing and Attack Squadrons, and 8 Naval and Marine Observation Squadrons. The Navy now has 80 fighting, 201 observation, 83 torpedo and 252 patrol and scouting planes—a total of 616 planes.

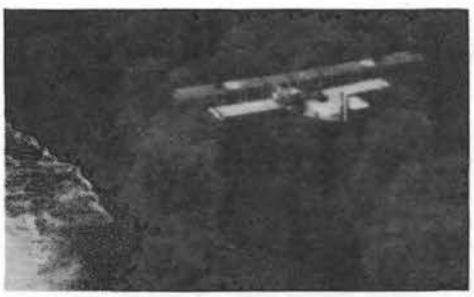


Navy Torpedo Planes Dropping Torpedoes

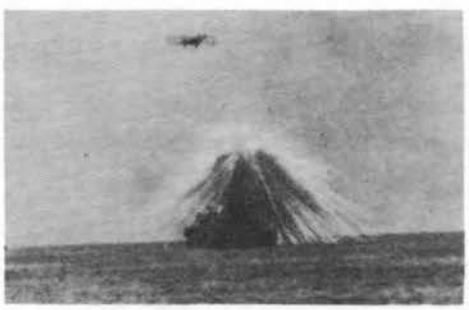


The Shenandoah, Navy Airship, Anchored to Mooring Post

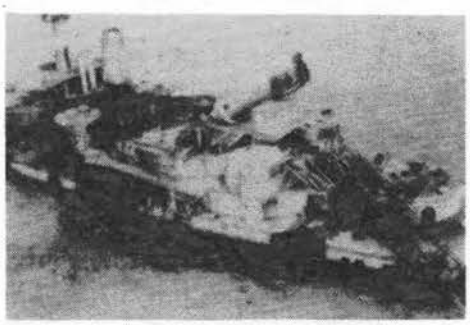
War Record of the Navy



Navy F5-L Seaplane Flying Above Smoke Screen Laid by Destroyers



A Direct Hit



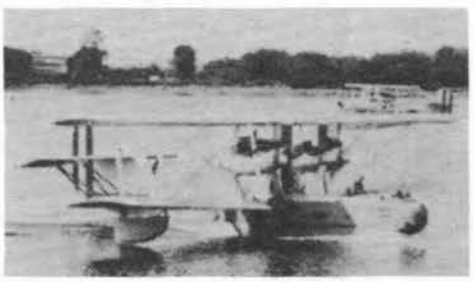
"After the Storm"—Battleship Wrecked by Aerial Bombing

The first American armed force to land in France in 1917 was the First Aeronautic Detachment of the Navy.

This detachment was the forerunner of a gigantic spiderweb of Naval Aviation Stations spread from Italy to Ireland, and facing on the Atlantic Ocean, the North Sea and the Bay of Biscay.

The Northern Bombing Group saw very active service against German submarine bases along the Belgian coast and against enemy submarines operating off the French and Italian Coasts and in the North Sea.

Naval aircraft operated as convoy escorts to transports and supply ships, giving effective protection against submarine attack.



PN-7 Navy Patrol Plane, Speed 100 m.p.h., Equipped with two 525 h.p. Wright Engines

At the time of the signing of the Armistice a total of 27 Naval Air Stations were in active service abroad.

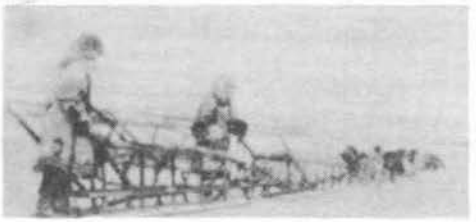
A Navy Flying Boat About to Take the Air

During the period of the War U. S. Naval Aircraft made 39 attacks against enemy submarines, a large percentage of which were successful and one hundred tons of explosives were dropped on enemy bases with decisive results. A total of 22,000 flights were made, covering more than 800,000 nautical miles, in patrolling submarine infested areas.

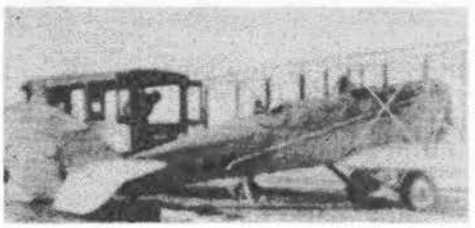
Naval aircraft operated with the British forces during the great drive of 1918 and finally operated with the Belgian forces during the last days of the war in Belgium when the Germans were precipitously retreating toward their own frontier.

Curtis 3-Purpose Seaplane, Long Distance, Bombing, and Torpedo Launching—Capable of 2,000 Mile Non-Stop Flight

The Air Mail Service



Days are Reduced to Hours by the Air Mail Service. The Eskimo Dog Team and the Modern Mail Plane Tell a Real Story in Economics



The Old and the New

Pilot Ben Eielson of the Alaskan Air Mail

The record of the Air Mail Service of the U. S. Post Office Department finds no parallel. No other nation approaches its accomplishments.

The Air Mail is the longest regularly operated airway in the world.

Its great success over more than five years has demonstrated that aviation is useful and economical. It has established an appreciation of the commercial utilization of aircraft, and has proven that it is feasible to operate cargo-carrying craft on regular schedule over long distances, day and night, winter and summer.

The Air Mail was inaugurated May 31, 1918, with the establishment of the first experimental route between Washington and New York.

During the first year 4,720,420 letters were transported over the route 218 miles long with flights of two hours duration.

In the fifth year, 65,295,920 letters were carried, 2680 from Coast to Coast twice each day, in elapsed time during the night flying trials of 26 hours.

In the fiscal year July 1, 1922 to June 30, 1923, Air Mail Pilots spent 18,907 hours in the air. During the five years these pilots carried 225,768,520 letters or nearly 3,000 tons of mail.

Paul Henderson, 2nd Asst. Postmaster General, in Charge of Air Mail Service

The 1,545,280 miles flown with mail during the fifth year brings the total for the five year period up to 6,168,395 miles.

In Alaska the Air Mail has replaced the dog team. Heretofore dog teams would leave Fairbanks for Iditarod, 421 miles, with a maximum load of 800 pounds and would return in 35 days "if everything went well." Now Air Mail Pilot "Benny" Eielson makes the trip from Fairbanks to McGrath, 371 miles and return, carrying three times as much weight, in 6 to 7 hours, and the Air Mail Service costs less than the dog sledge service.

"Night Hawks" of the Air Mail

The advent of regular night flying by Air Mail pilots has been of great import.

Development of illuminating apparatus, survey and illumination of the airway and the design and construction of night flying equipment was necessary. In this the Air Service Engineering Division and Navy Bureau of Aeronautics rendered valuable service.

Experimental tests were begun in February, 1923, and the final successful trial flights were made the following August.

The 885 mile section between Chicago, Ill., and Cheyenne, Wyoming, which was determined upon for the night flying, is almost a straight line. Regular established fields in addition to Chicago and Cheyenne, are Iowa City, Ia., Omaha and North Platte, Neb.

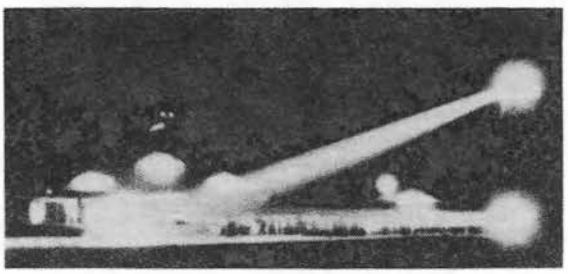
At each of the main fields 36-inch electric arc Sperry beacons on 50-foot towers, revolving completely around the horizon every 20 seconds, cast a 450,000,000 candle power beam 150 miles into the darkness.

Another Sperry light flooded the runways of the landing field.

At 34 emergency fields 18-inch incandescent General Electric Beacons, mounted on 50-foot towers, cast a 5,000,000 candle power beam completely around the horizon every ten seconds. All emergency fields were equipped with American Gas Accumulator company's boundary limitation lights of 5,000 candle power.

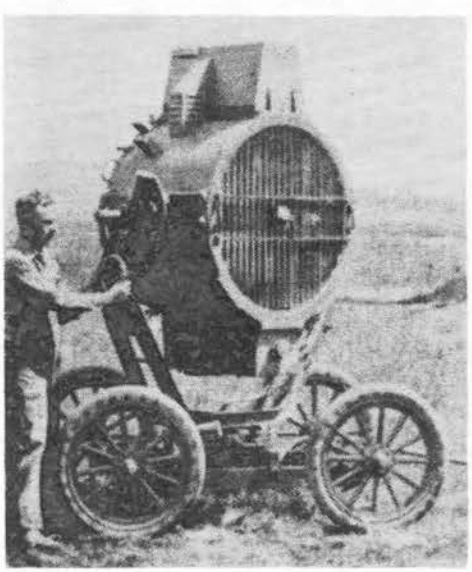
Since establishment of the Night Flying, the Air Mail now operates on a 26-hour schedule from Coast to Coast. The best time by rail is 91 hours and the average train time is 100 to 120 hours.

Much credit for this success is due the pilots—the "Night Hawks" of the Air Mail. Some of them have covered more than 200,000 miles and have records of more than 2,000 hours of flying.



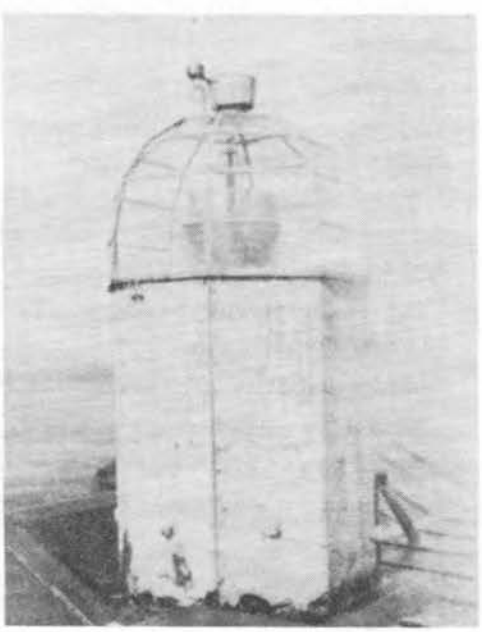
Night Scene, Air Mail Field, Omaha

In the Path of Night Landing Lights



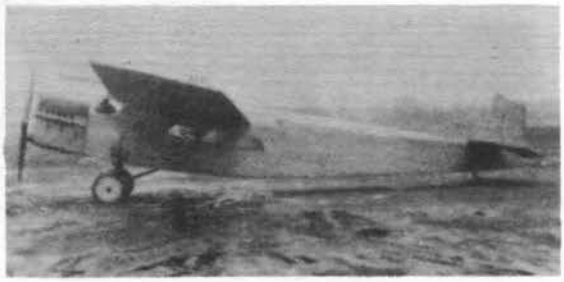
36-in. Arc Flood Light

Gas Accumulator—"Airway Lighthouse"

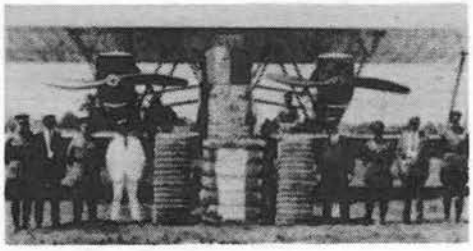


Automatic Flashing Gas Beacon

Commercial Aviation



Stout 8-Passenger Air Pullman



From Georgia Fields to Massachusetts Mills in Martin Bomber

Sixteen Foreign nations are pursuing a definite policy of establishing air transport.

Commercial air lines are extending across Europe and into Africa and Asia. South American countries are establishing aerial commerce.

Subsidized French Lines operate in all French North African Possessions. Australia, cooperating with the British Air Ministry is supporting commercial aviation.

Even Germany, restricted in military aeronautics, maintains a strong position in civil aviation.

In Italy, Premier Mussolini, after witnessing a demonstration flight of 300 airplanes over Rome, declared: "Italy must have enough airplanes by next year to hide the sun." Italian banks are assisting.

The development of commercial aviation in the United States is of vital importance to our National prosperity and national defense.

America has already demonstrated its theoretical superiority in the air. Public appreciation and support by business interests are needed to bring about practical leadership.

Aircraft is being put to work.

Aerial transports are being used to carry passengers, mails and express matter.

The airplane is employed in connection with agriculture, forestry, mine rescue work and life saving at sea and on the Great Lakes.

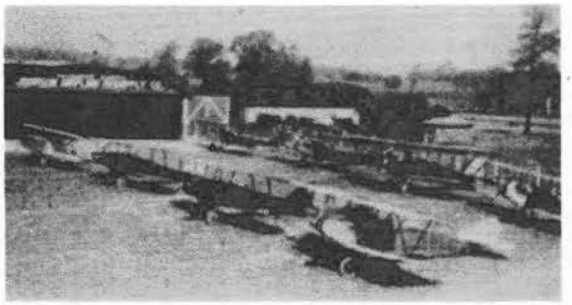
Aerial photography is adopted for engineering surveys of many kinds.

Aerial publicity and advertising are established.

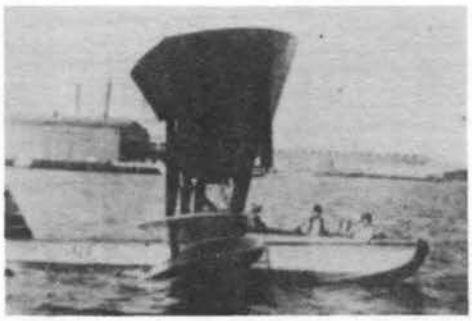
Police are using aircraft in waging war against smuggling of liquors and aliens.

Commercial aviation in America has made its start.

"Economy demands that we keep abreast of the world in aeronautical research."—ORVILLE WRIGHT



A First Class Commercial Flying Field—Johnson Airplane Co., Dayton



All Metal Hull Aeromarine Flying Boat in Porto Rican Service

The Aerial Forest Patrol

The airplane provides the most effective means possible for the discovery of forest fires.

The aerial observer is better able to discover fires in the open country in their incipiency than can the ground observer and can detect small fires in obscure places before they reach menacing proportions.

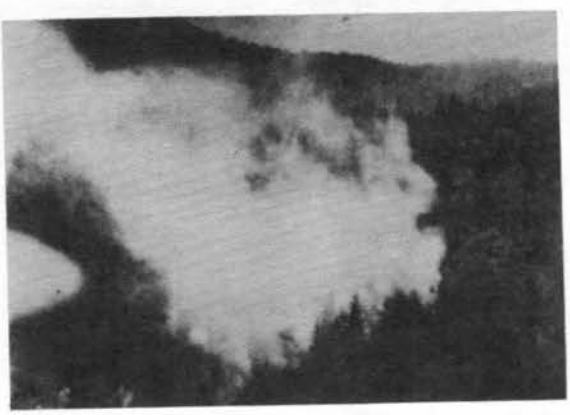
The forests of the United States cover approximately 550,000,000 acres of which about 27 percent is under Government ownership and comprises the National Forests and National Parks.

The total value of the timber in forested areas is estimated at $6,000,000,000.

Many millions of dollars worth of timber, crops, live stock and buildings are lost annually in the 28,000 forest fires in the United States, which leads all other nations in number of forest fires.

During the past four years the Forest Air Patrol has discovered more than 4,000 forest fires in California and Oregon, and has saved millions of dollars loss which otherwise would have resulted.

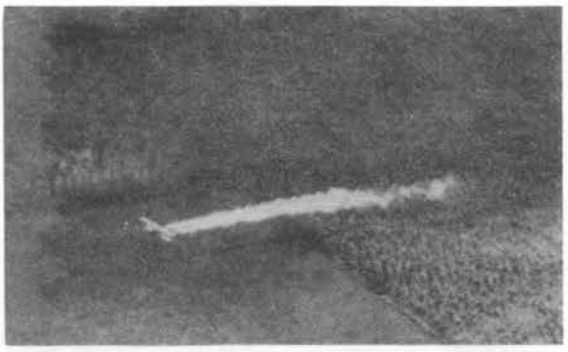
Lack of adequate appropriations for the Forest Service of the Department of Agriculture to continue the Aerial Forest Patrol caused the War Department to carry on part of the work in the state of California while the great losses in Oregon caused the State Government to summon aircraft for forest patrol duty.



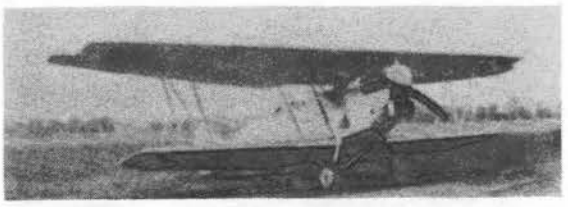
With a full realization of the value of the Aerial Forest Patrol in reducing the great losses resulting annually from forest fires, aircraft is destined to prove a most important factor in national conservation.

Airplanes Are Now Used to Guard Against Destruction of Our National Forests by Fire

Protecting Our Crops by Aircraft



Dusting Field by Airplane



Huff-Daland Dusting Plane

Experiments by the U. S. Department of Agriculture extending over the past several years have demonstrated the efficiency of aircraft in fighting the pests which destroy crops in various sections of the country.

During the past six years the spread of the boll weevil through the South has caused a loss to Southern cotton growers of about $600,000,000 annually.

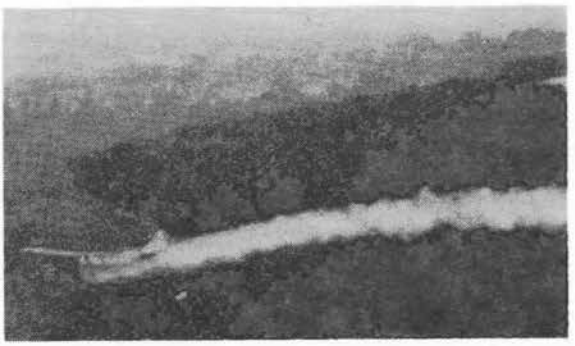
Ground machines for dusting the cotton fields with calcium arsenate have been used in the fight against the boll weevil and its companion, the leaf worm. The ground machine has been effective for the relative small area covered, but the process has been expensive.

As a result of Department of Agriculture tests and practical experiments, "dusting" by aircraft has proved more effective and economical.

The spread of the Gypsy Moth from New England to the Middle and Western states has caused hundreds of millions of dollars loss. The fight on the Gypsy Moth is now being waged by aircraft which sprays insecticide over the infected area.

In the Philippines the war on locusts is being waged effectively by airplanes used in dusting the infected areas with insecticide.

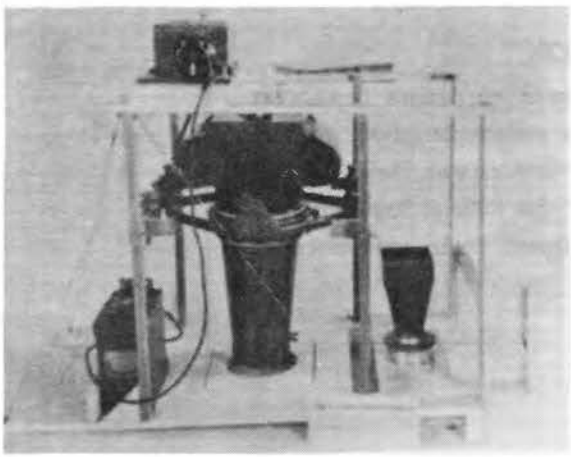
Agriculturists are also beginning to use the aircraft in crop reporting.



Tree Spraying to Kill Harmful Insects

A Grove of Trees After Spraying

Aerial Photography and Advertising



Fairchild Aerial Camera

Aerial photography is being employed extensively in connection with engineering surveys. The Department of Interior U. S. Geological Survey is being aided by the Army Air Service in photographing large areas for topographic maps for the use of science, commerce and industry.

Two Giants—S. S. Leviathan and Woolworth Building. Lower Manhattan as Viewed Through Fairchild Five Mile Aerial Camera.

Many state and county topographic surveys are being made by means of aircraft and the aerial camera.

Aerial photography is coming into use in connection with advertising and publicity projects.

"Skywriting" is carrying slogans of national advertisers in letters a mile high to a constituency extending across the continent.

Aerial photography is being used in City Planning surveys. A number of extensive operations along this line have been carried out, including the mapping by aerial photography of the entire area of Greater New York, covering 620 square miles.

The aerial camera is used at altitudes of five and six miles.

Public service corporations determine extension projects and rights of way by means of the aerial photograph.

All of these services point to a general utilization of aircraft in commerce and industry.

View of Dayton from Elevation of Six Miles. Photo Covers area of 19 Square Miles

APPRECIATION

The International Air Race Committee desires to express sincere appreciation of the generous assistance given by the Industrial, Commercial and Financial interests of Dayton, who have made possible the publication of this Official Souvenir Program, and in so doing have manifested their confidence in American Aeronautical development.

Written and Arranged
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