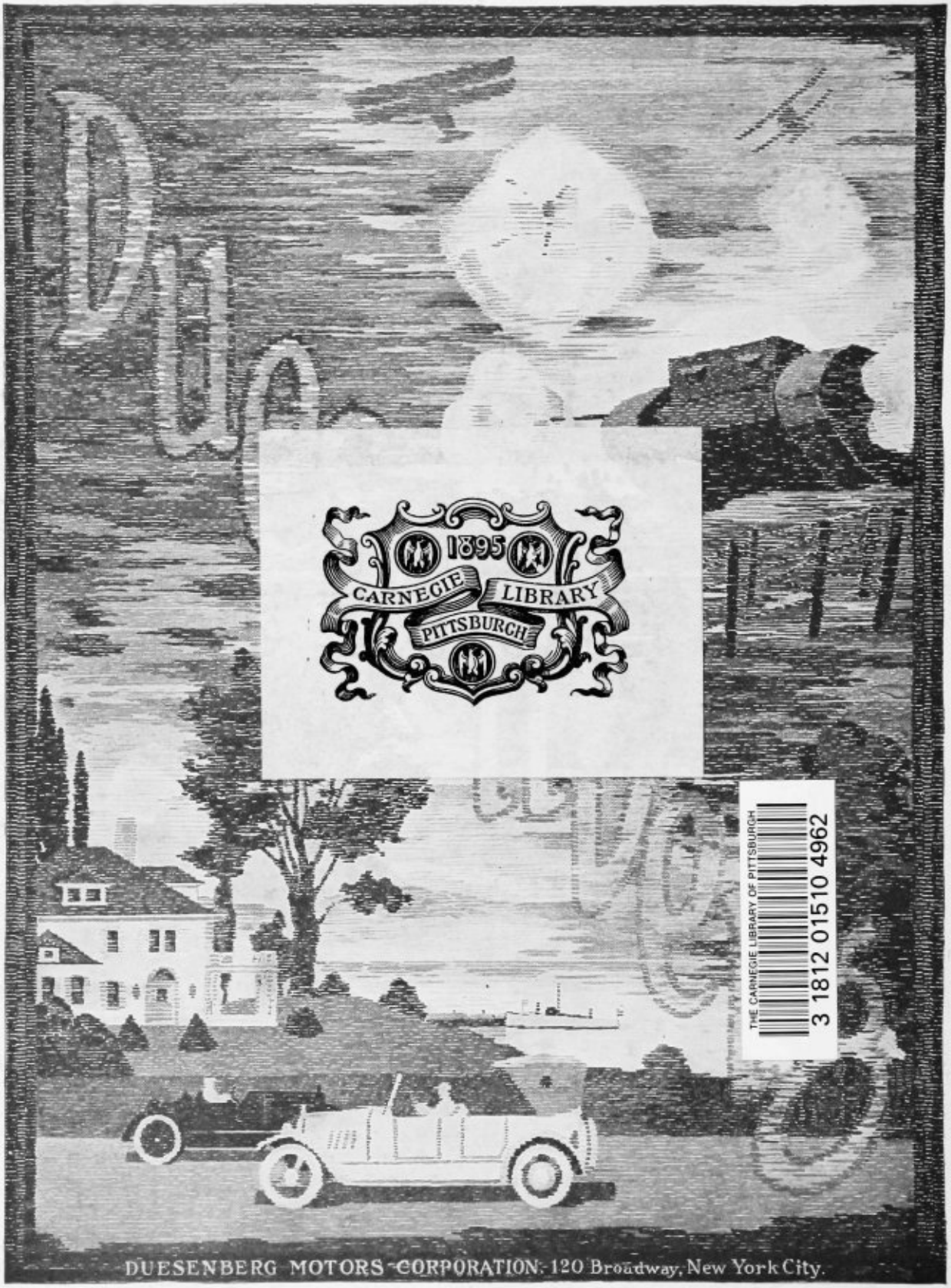
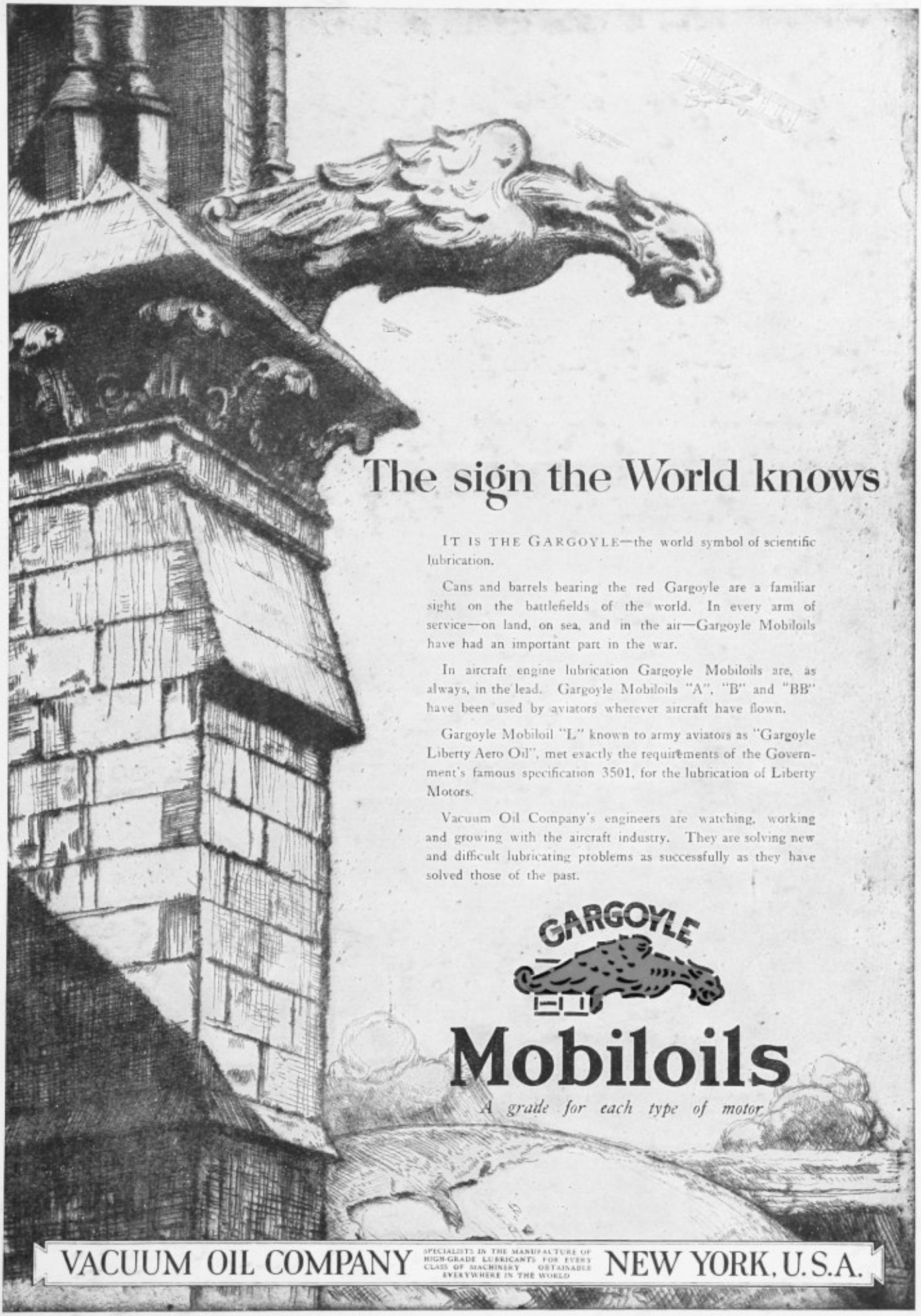
# OFFICIAL AERO BLUE BOOK AND DIRECTORY

1919

# THROUGH THE TAPESTRY OF TIME
# THE NAME IS WOVEN





# The sign the World knows

IT IS THE GARGOYLE—the world symbol of scientific lubrication.

Cans and barrels bearing the red Gargoyle are a familiar sight on the battlefields of the world. In every arm of service—on land, on sea, and in the air—Gargoyle Mobiloils have had an important part in the war.

In aircraft engine lubrication Gargoyle Mobiloils are, as always, in the lead. Gargoyle Mobiloils "A", "B" and "BB" have been used by aviators wherever aircraft have flown.

Gargoyle Mobiloil "L" known to army aviators as "Gargoyle Liberty Aero Oil", met exactly the requirements of the Government's famous specification 3501, for the lubrication of Liberty Motors.

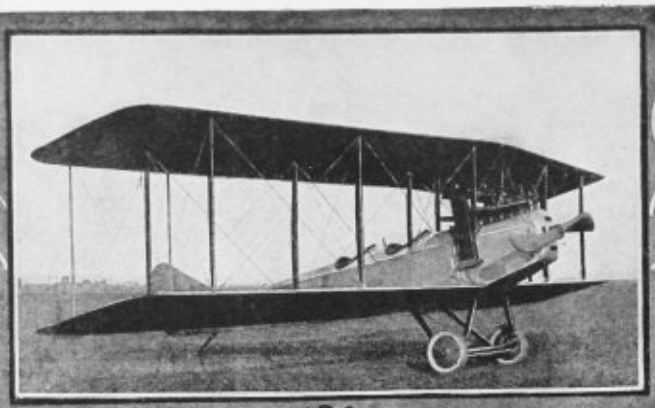
Vacuum Oil Company's engineers are watching, working and growing with the aircraft industry. They are solving new and difficult lubricating problems as successfully as they have solved those of the past.

GARGOYLE

# Mobiloils

*A grade for each type of motor*

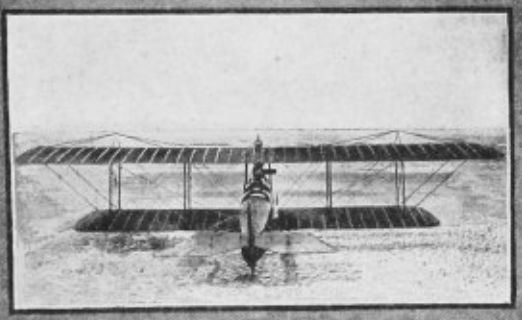
VACUUM OIL COMPANY — SPECIALISTS IN THE MANUFACTURE OF HIGH-GRADE LUBRICANTS FOR EVERY CLASS OF MACHINERY OBTAINABLE EVERYWHERE IN THE WORLD — NEW YORK, U.S.A.



Model H.3
Military Tractor

# STANDARD

"A REAL FIGHT- ING INDUSTRY"

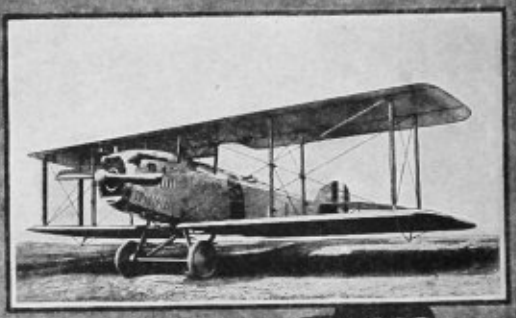


Model J.1.
Primary Training Plane

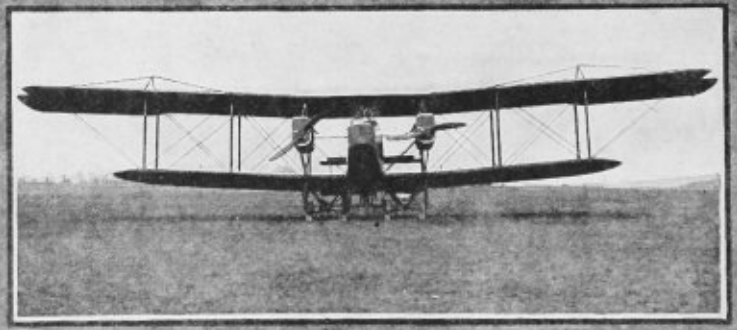
Model E.2
Target Machine

Model J.H.
Training Hydro-airplane

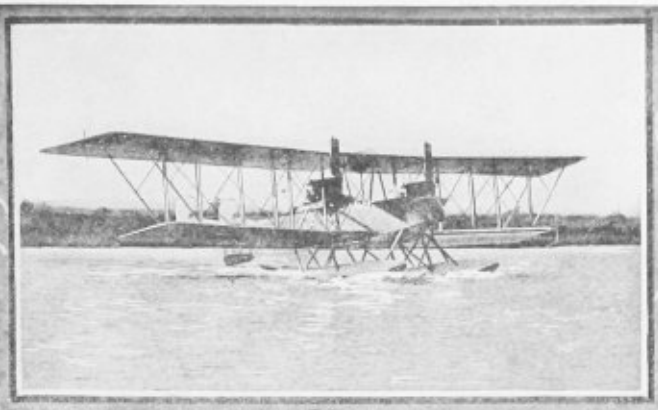
Model H.4.H
Advanced Training
Hydro-airplane



Model J.R.1.B
Mail-plane



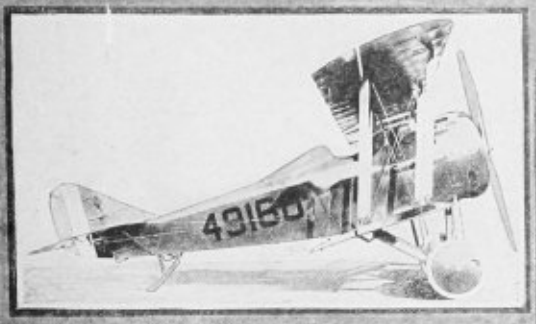
Handley Page
Night Bomber



Model D
Twin Motored Hydro-airplane

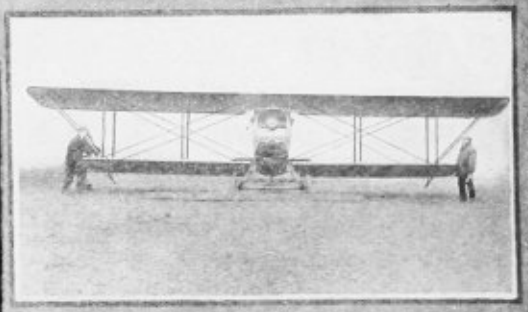
# STANDARD

ELIZABETH NEW JERSEY

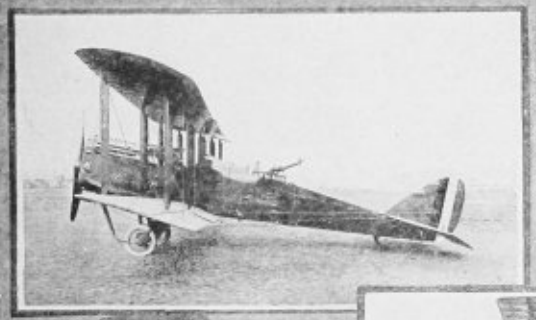


Model E.1.
Single Seat Pursuit Training Plane

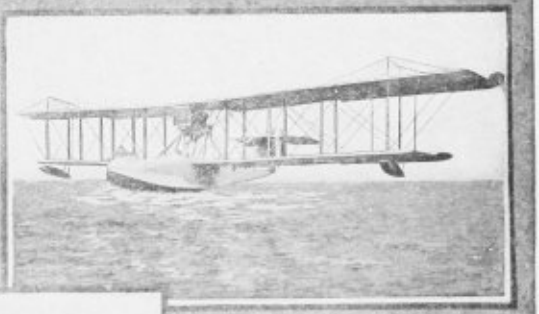
All of these planes were developed and produced by **STANDARD** "a real fighting industry" between April 4th, 1917 and November 11th, 1918 A record unequaled in our aeronautical annals



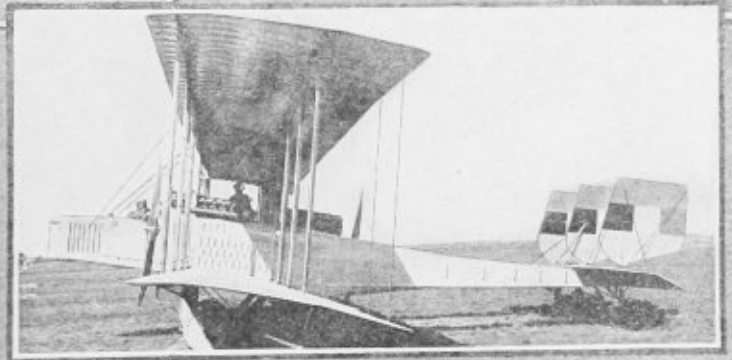
Model E.4.
Observation Plane



Model D.H.4.
De Haviland Bomber

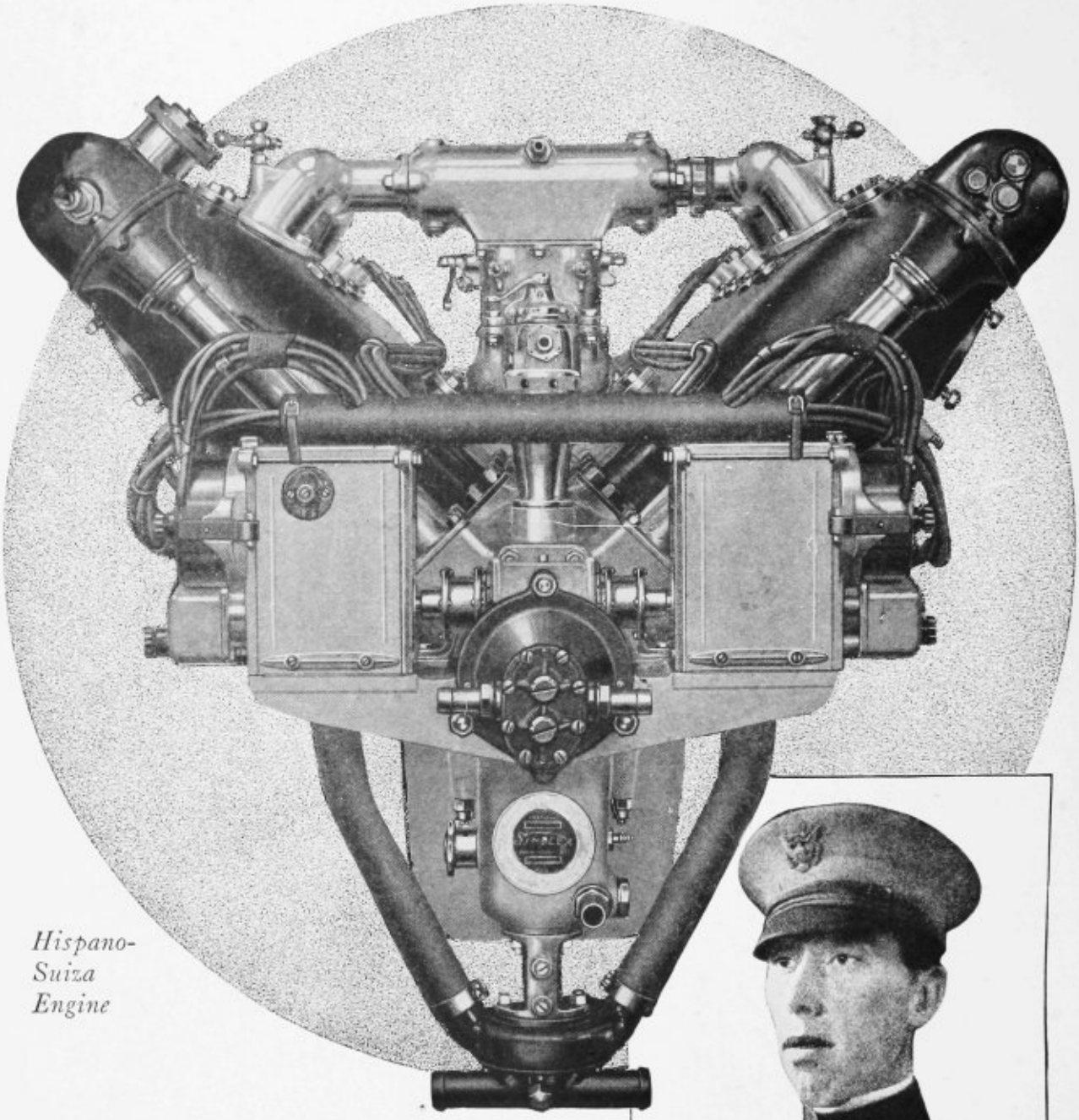


Model H.S.2.L.
Flying Boat



CAPRONI
Night Bomber

# HISPANO



*Hispano-Suiza Engine*

CAPT. R. W. SCHROEDER, U. S. A.
Holder of World's Altitude Record, September, 1918

# WRIGHT-MARTIN

# S U I Z A

## Three World's Records

THE Hispano-Suiza Motor has been the means of three recent World's Records in aviation.

The first was an altitude record. Capt. R. W. Schroeder, U. S. A., on September 18, 1918, attained an altitude of 28,900 feet, only 102 feet short of the highest mountain peak in the world, at Wilbur Wright Field.

The Second World's Record recently made by Hispano-Suiza was made by the D.17, an American dirigible with twin Hispano-Suiza Motors, the first of its type to be flown, which on October 22nd flew approximately 315 miles from Akron, Ohio, to Rockaway, New York.

The third record recently made by Hispano-Suiza is the world's altitude and speed record for two men (unofficial). In this test a Loening two-seater monoplane with a 300 hp. Hispano-Suiza engine, developed 145 miles per hour with full military load including four guns, which is in excess of any record made by a European single-seater combat machine. The Loening plane in these tests also climbed 25,000 feet in remarkable time, carrying two passengers, which was another record.

Founded on the basically correct principles of a great motor, Hispano-Suiza under the leading minds of the industry and the tremendous test of service has become the greatest aeroplane motor in the world. Experience which its manufacturers have undergone has prepared them for after-the-war activities of hitherto unprecedented magnitude.

Wright-Martin
Aircraft Corporation

New Brunswick, N. J., U. S. A

# AIRCRAFT CORP'N.

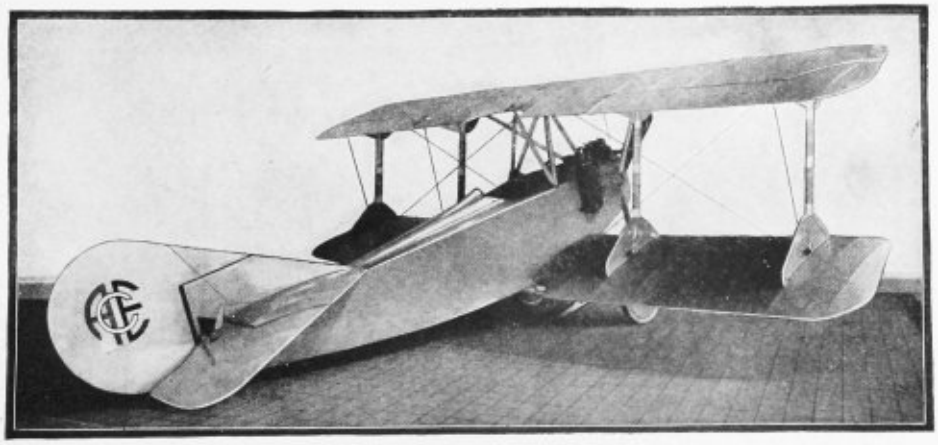
# IT IS AN

# A C E

*and ready for immediate delivery*

# $2500

Low in the cost of up-keep



High in the factor of safety

## A PRACTICAL AIRPLANE

Built by an organization skilled in aircraft production; for the man who loves the air regardless of the business that calls him. Ideal for the ranch owner, the pilot of the aero mail, the sportsman and the explorer. Sturdy in construction, capable of long and continued service.

"The plane that knows the country road as an airdrome."

## AIRCRAFT ENGINEERING CORPORATION

C. M. SWIFT, General Manager - - 2 East End Avenue
N. W. DALTON, Chief Engineer - 535-537 East 79th Street
HORACE KEANE, Sales Manager - 220 West 42nd Street

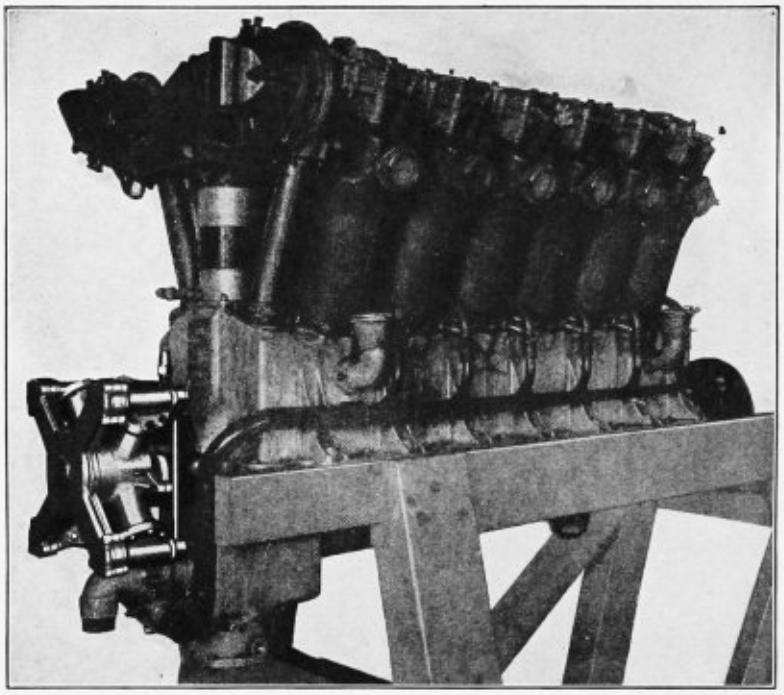
**NEW YORK**

*Contractors to the United States Government*

# Liberty Starter

## Approved and Now Being Made For U. S. Naval Hydroplanes

Weight, 49 pounds complete.
Cranks motors up to 500 horsepower.
The device itself weighs but 30 pounds.
It is entirely self-contained without brackets or other gearing, bolting direct to crankcase of engine, and cranking direct to end of crankshaft.



A small air cylinder, 1¼" x ¾" with piston running continuously for air pressure on gasoline feed tank is combined with the device and entirely independent in action. This starter furnished with or without it at option.

*Official Tests All Satisfactory*

CURTISS AIRPLANE CORPORATION
April 20-22, 1916

HALL-SCOTT MOTOR COMPANY
Dec. 6-7, 1916

WASHINGTON NAVY YARD
Aeroengine Testing Lab.
Oct. 23-24, 1917

LANGLEY FIELD
May 15, 1918

Information regarding these trials given on request.

THE simplicity and reliability of the Liberty Starter for Airplanes are due to the fact that compressed air, the most reliable and easily controlled motive force known, is the actuating energy.

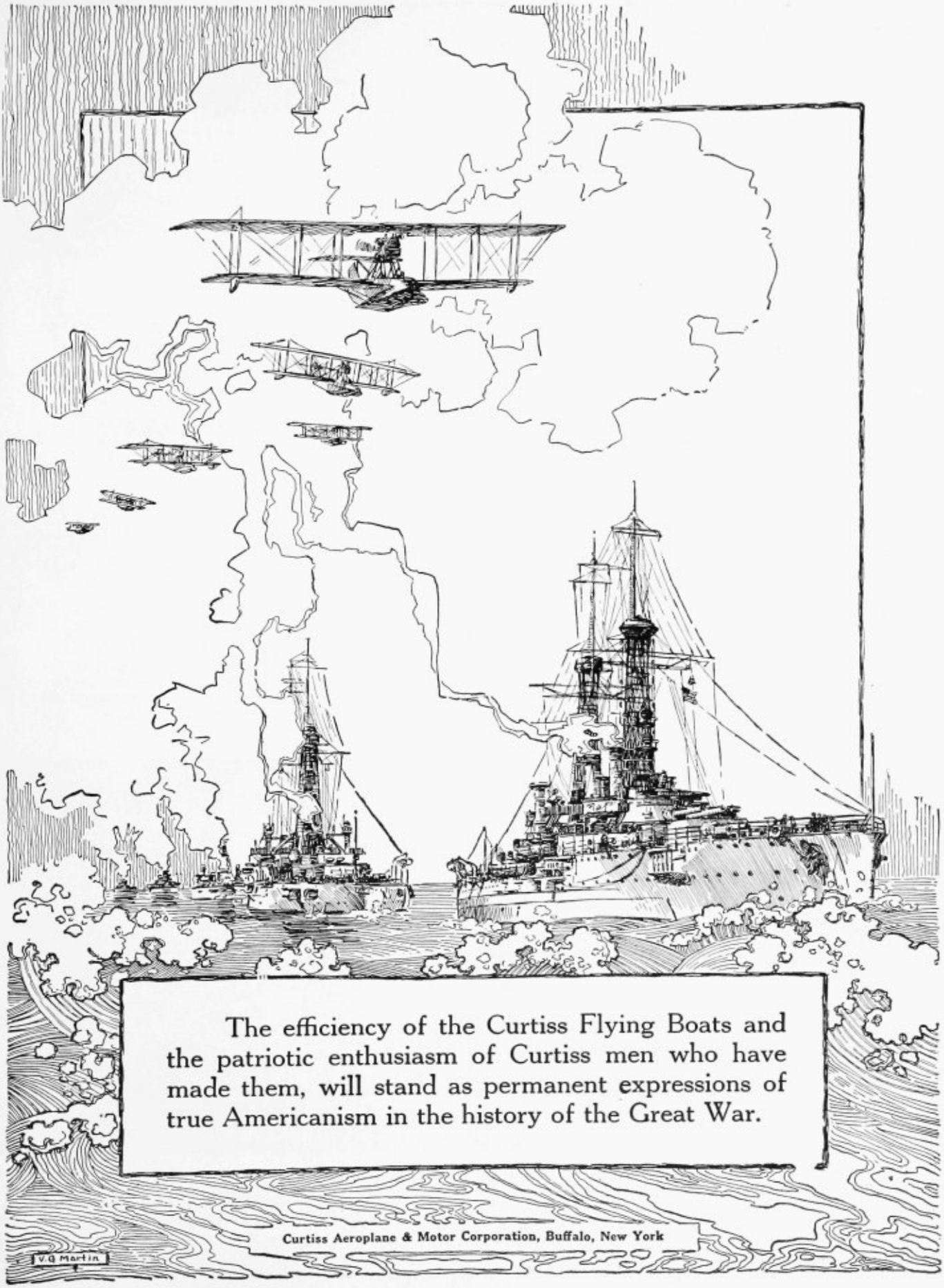
Where chances of starter trouble cannot be taken, as, for instance, on naval seaplanes, this type of starter is equipped. Liberty Starters have been thoroughly tested by the U. S. Navy, and are used on U. S. Naval Planes. (See list of tests made.)

The Liberty Starter is an air motor for starting, and a compressor to store air for its own energy in starting. It is entirely self-contained; couple direct to end of crankshaft of motor; needs no alteration in motor or gear reduction, and has ample power for magneto starting. It is the *one* efficient, *dependable* type of starter for airplanes to-day.

*We welcome comparative tests, and will gladly arrange for any kind of trial for the Liberty Starter.*

*Specifications on Request*

MOTOR COMPRESSOR COMPANY
52-60 Dickerson Stree' Newark, N. J.



The efficiency of the Curtiss Flying Boats and the patriotic enthusiasm of Curtiss men who have made them, will stand as permanent expressions of true Americanism in the history of the Great War.

Curtiss Aeroplane & Motor Corporation, Buffalo, New York

V.Q. Martin

MANUFACTURERS AIRCRAFT ASSOCIATION INC.

Cu

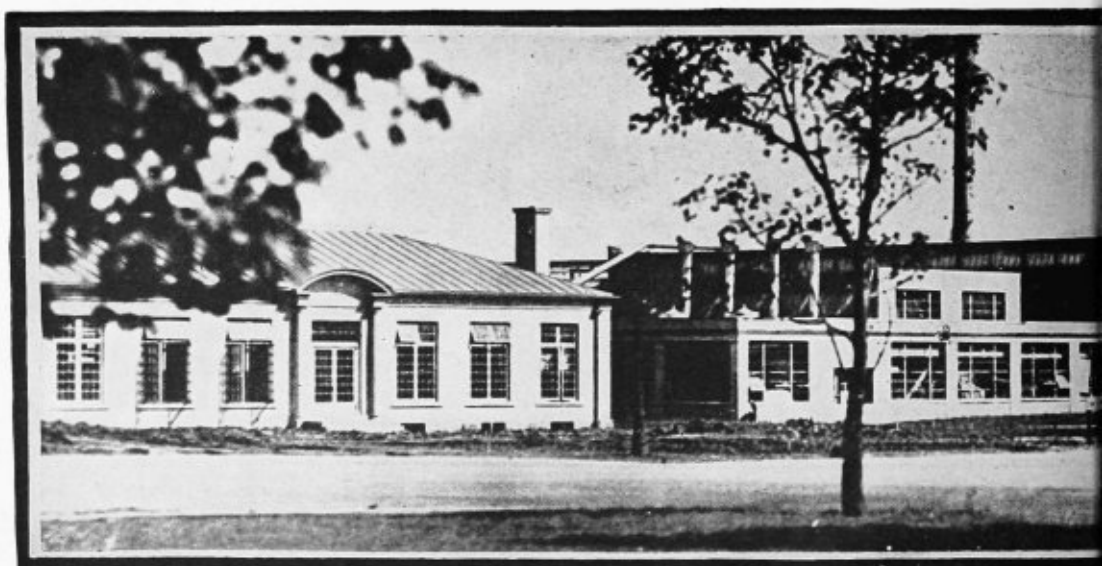
# "THE OPE

## Curtiss Achievements"

1—The design and construction of the fastest fighting airplane ever flown. Official Government records credit this triplane, which was built for the U. S. Navy, known as model 18-T, with 160 miles per hour, carrying full military load, pilot and passenger. This is 15 miles per hour faster than any speed ever claimed for an airplane, a truly epoch-making achievement, made possible by the development of our new model K motor.

2—The design and construction for the Navy of the largest flying boats in the world, colossal crafts capable of carrying five tons useful load. It was one of these boats that recently carried fifty passengers.

3—The design and construction for the U. S. Navy of the fastest and most efficient Seaplane in service anywhere. This craft which is known as the Curtiss model H-A, with Liberty motor, made an official speed of 126 miles per hour with full military load, armament, ammunition, pilot and passenger.



The Curtiss Engineering Corporation is today the center of aeronautical develo
Glenn H. Curtiss and his engineers have been busy in drafting rooms, research lab
of suitable commercial types. Aircraft especially designed for sportsman's use, mail
workmanship and performance as Curtiss military planes have proved themselves to b

**CURTISS ENGINEERING CO**

Member of Manufactu

rtiss

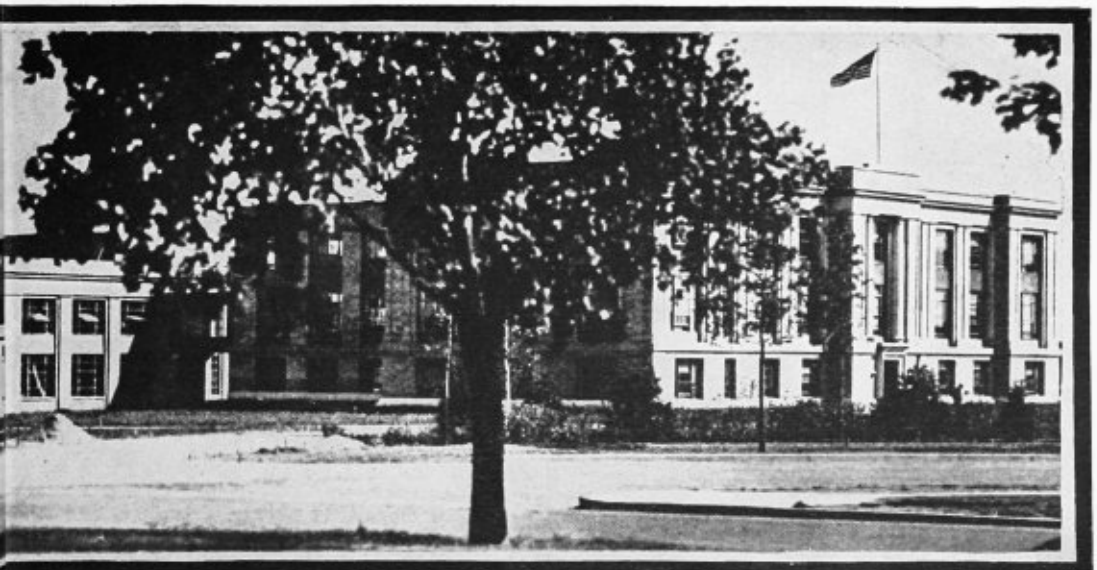
# N BOOK"

## The Great War

4—The development and construction of a 12 cylinder, 400 H.P. motor of an entirely new and much lighter type, known as the Curtiss model K-12. These motors have undergone exhaustive tests and are already in production.

5—The development and construction of the Curtiss model K-6, a new and much lighter 6 cylinder motor. These engines develop 160 H.P. and possess greatest endurance and reliability.

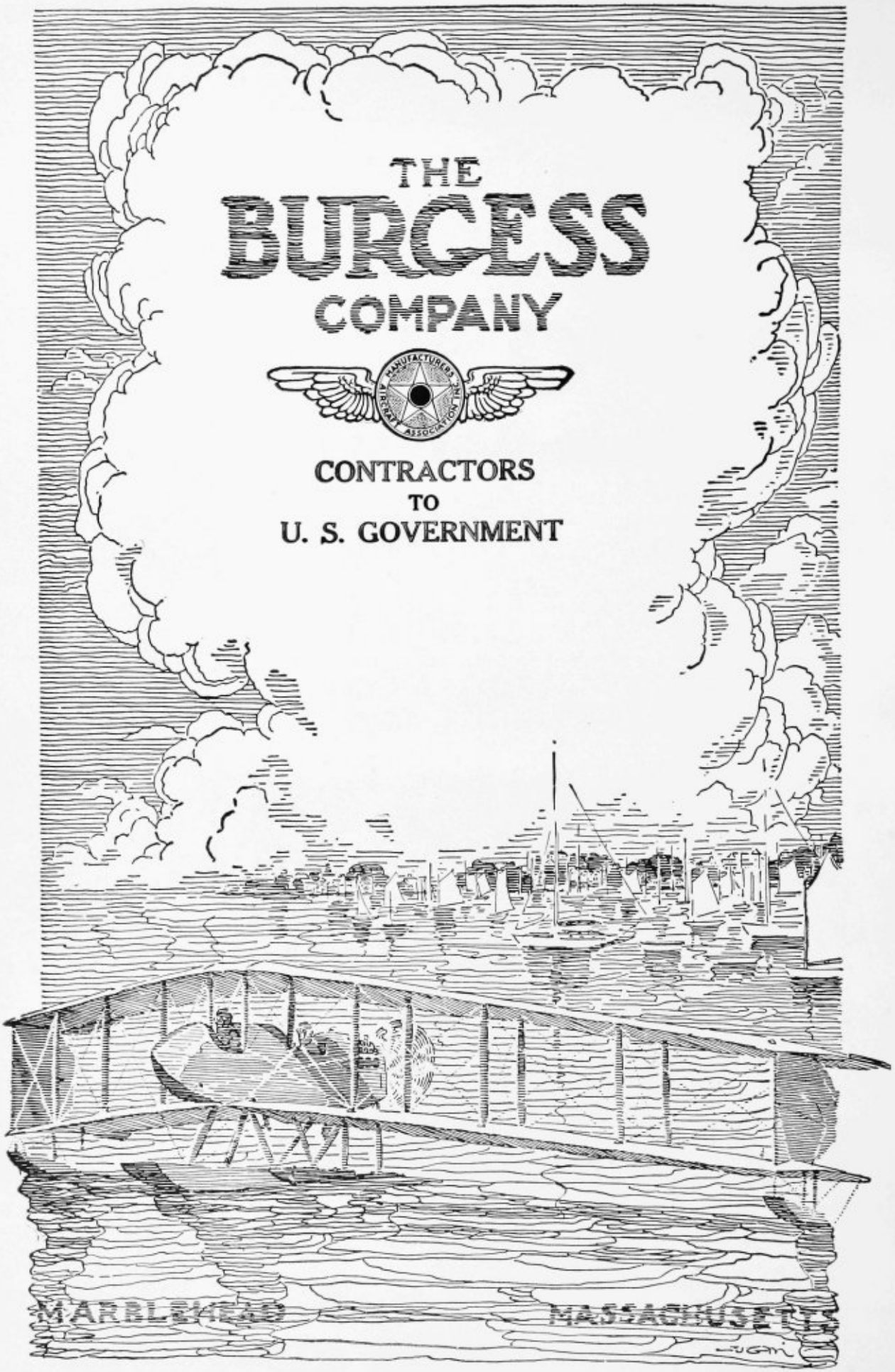
6—The development and construction on a large scale of the Curtiss OXX motors, and the J-N-4. training planes, which were used almost exclusively by the United States and Canada and largely in England for the training of American and British aviators. The training of over seven-tenths of the original land and marine flying pilots, most of whom entered the service and formed the nucleus of the United States Training Forces.



ent. Its activities instead of being decreased will be increased by the coming of peace. ories, wind tunnels and shops in perfecting designs and carrying forward the production rying and other peace-time purposes are already available and are as superior in design,

**PORATION, Garden City, L. I.**

Aircraft Association.


THE
BURGESS
COMPANY
AIRCRAFT MANUFACTURERS ASSOCIATION INC.
CONTRACTORS
TO
U. S. GOVERNMENT
MARBLEHEAD
MASSACHUSETTS

# *Leading New York Hotels*

## THE BILTMORE

*New York's Social Center*

## HOTEL MANHATTAN

*Convenient to all Theatres and Shopping District*

## THE COMMODORE

(NOW UNDER CONSTRUCTION)

*A Room and Bath for Two and a Half*

## HOTEL BELMONT

*Opposite Grand Central Terminal*

## MURRAY HILL HOTEL

*Quiet, Select and Homelike*

## THE ANSONIA

*In the Center of New York's Finest Residential District*

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*JOHN McE. BOWMAN*

*PRESIDENT*

# PROGRESS


*Manufacturers for the United States Government*

## *The* Dayton Wright Airplane Co.

**DAYTON, OHIO**

*"The Birthplace of the Airplane"*

# Hotels Statler

***BUFFALO***
**450 Rooms** **450 Baths**

***CLEVELAND***
**1000 Rooms** **1000 Baths**

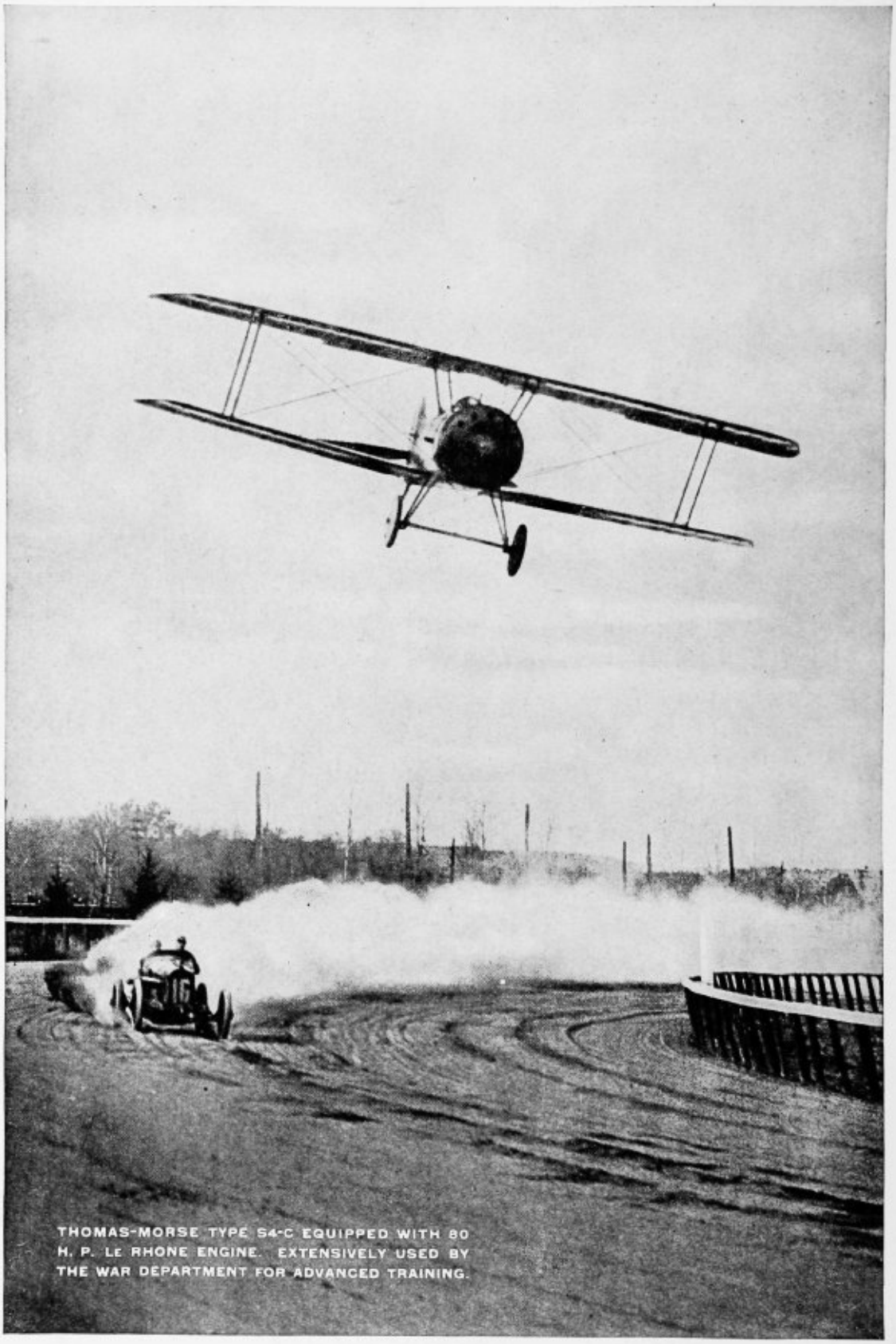
***DETROIT***
**1000 Rooms** **1000 Baths**

***ST. LOUIS***
**650 Rooms** **650 Baths**

Every room has private bath, circulating ice-water and other unusual conveniences. Morning paper delivered free to every bedroom. Club breakfasts.

# Hotel Pennsylvania

**New York — Statler-operated**
**The Largest Hotel in the World**
**2200 Rooms** **2200 Baths**
**Seventh Ave., 32nd to 33rd Sts., opp. Pennsylvania Terminal**
**Roy Carruthers, Resident Manager**



THOMAS-MORSE TYPE S4-C EQUIPPED WITH 80 H. P. LE RHONE ENGINE. EXTENSIVELY USED BY THE WAR DEPARTMENT FOR ADVANCED TRAINING.

Courtesy New York Times

THOMAS-MORSE AIRCRAFT CORPORATION

CONTRACTORS TO THE U.S. GOVERNMENT

ITHACA, N.Y. U.S.A.

# Twice Across America in a Hudson Super-Six

New records may be set by America's intrepid aviators but Hudson will still point with pride to the achievement of a Hudson Super-Six that has stood unbeaten now for over two years.

At that time a Hudson Super-Six started from San Francisco across the continent in an attempt to set a new record for time and motor car endurance. The trip of 3,476 miles was made in just 5 days, 3 hours and 31 minutes. Not content with this new record the car turned around the same day and started back. The remarkable time of 10 days and 21 hours was made for the round trip of 7,952 miles. Never before or since has such time been made by any other make of automobile.

Such a feat as this we point to with pride, for it proves as no other way could, the quality and stamina that is built in the Hudson.

**HUDSON MOTOR CAR COMPANY**
**DETROIT, MICHIGAN**

*(Look for the White Triangle—the most distinctive mark in motordom)*

# Maximum Service
## - *in* -
# Minimum Time

Manufacturers of special machinery, jigs, fixtures and dies for aircraft.

Our engineering force is capable of tooling any production job.

*Accuracy in details our specialty*

## Eastern Production Company

137 LEIB STREET
DETROIT, MICH.

# Matching Quality With Quantity

That is the story of National Twist Drills, Cutters, Reamers and Special Tools re-echoed in the constant capacity increases created by its success among manufacturers.

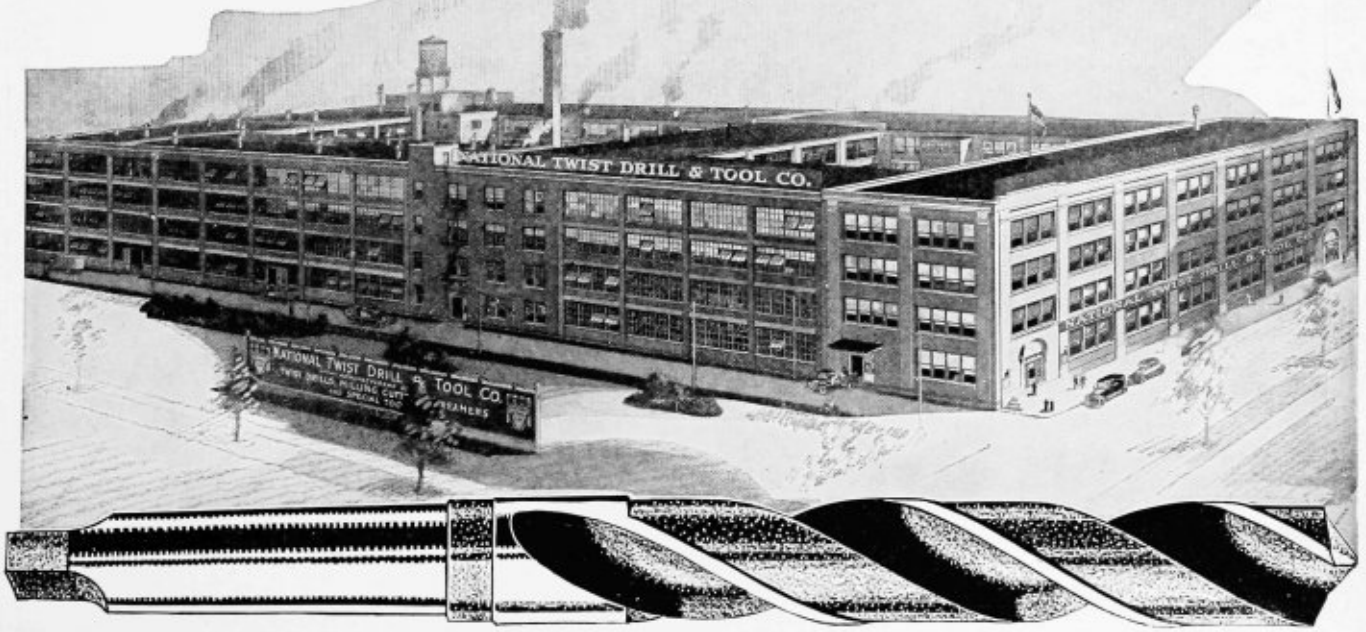
It is a story doubly emphasized in the *service* of every National product.

## National Twist Drill & Tool Co.

DETROIT, U. S. A.

New York Office
30 Church St.

Chicago Office:
104 S. Jefferson



# STANDARD PARTS

## For the Aircraft Industry

*BY PIONEER MANUFACTURERS*
*UP TO THE HOUR IN DEVELOPMENT*

**Rims** **Steel Tubing** **Tubular Parts**
**Bearings** **Forgings** **Springs**
**Rod Assemblies**

***A dependable source of supply for all the Automotive Industries***

**THE**

# STANDARD PARTS

**COMPANY**

GENERAL OFFICES, STANDARD PARTS BLDG., CLEVELAND, O.

BRANCH SALES OFFICES

New York, U. S. Express Bldg. Chicago, Peoples Gas Bldg. Washington, Woodward Bldg. Detroit, 879 Woodward Ave.

FACTORIES

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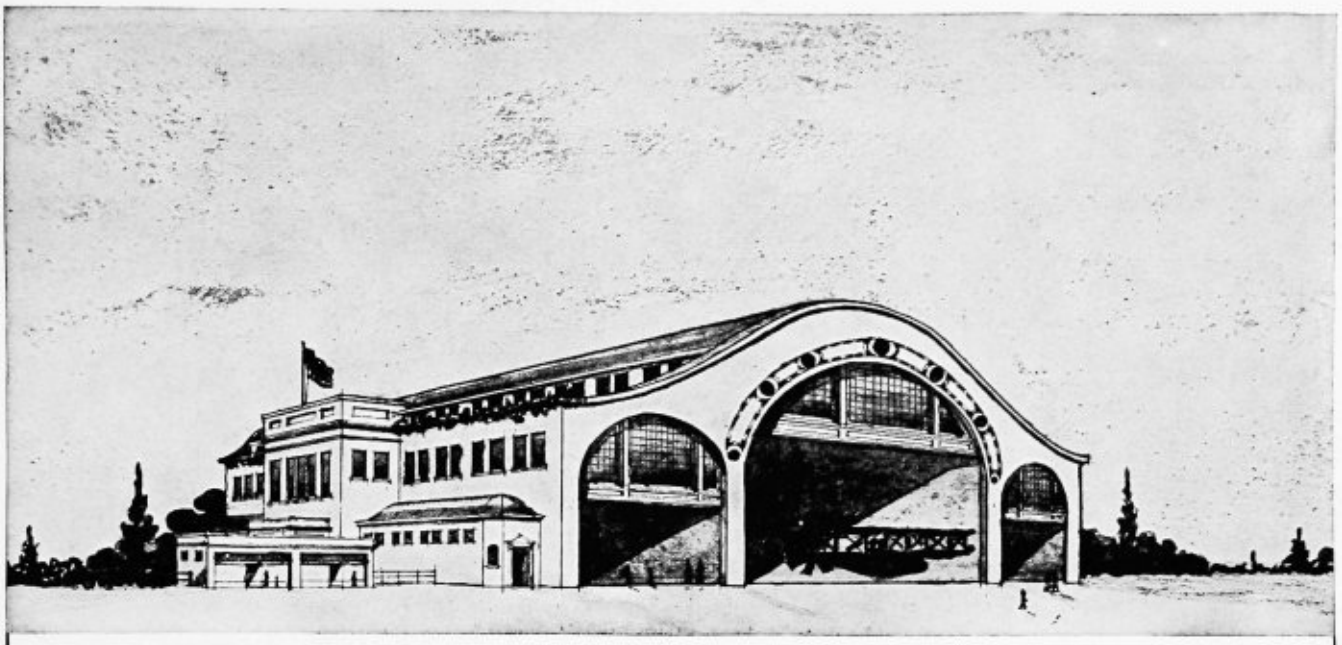
SPRING SERVICE STATIONS

2008 E. 65th St. Cleveland, O. 614 West 56th St., New York

# AERO TRANSPORT COMPANY

**Founded 1914**

***The Pioneers of Aerial Transportation***



**NEW YORK** **ATLANTIC CITY** **PHILADELPHIA**

**Regular Express and Local Passenger Service between the above points and all Jersey Coast Resorts**

## SERVICE

Experts in Aerial Transportation.
Instruction to owners and aerial chauffeurs.
Regular short sight-seeing trips.
Overhauling and Repairing.
Special Convention Flights.
Moonlight Flying Parties.
Altitude and Exhibition Flights.
Advertising Flights.
Tournament Managers.

Charter for long distance trips, including Hunting Trips, etc.

***Sales Agents for airplanes and airplane accessories***

You are invited to inspect the company's Hangar, Showrooms, Repair and Accessories Shop, Restaurant, Hotel Accommodations for Student Pilots, etc.

## Open April 1st, 1919

**The Inlet, Boardwalk, Atlantic City**

Easily and quickly reached by Motor, Trolley or Wheel Chair

***Flight Manager***

**E. K. JAQUITH**

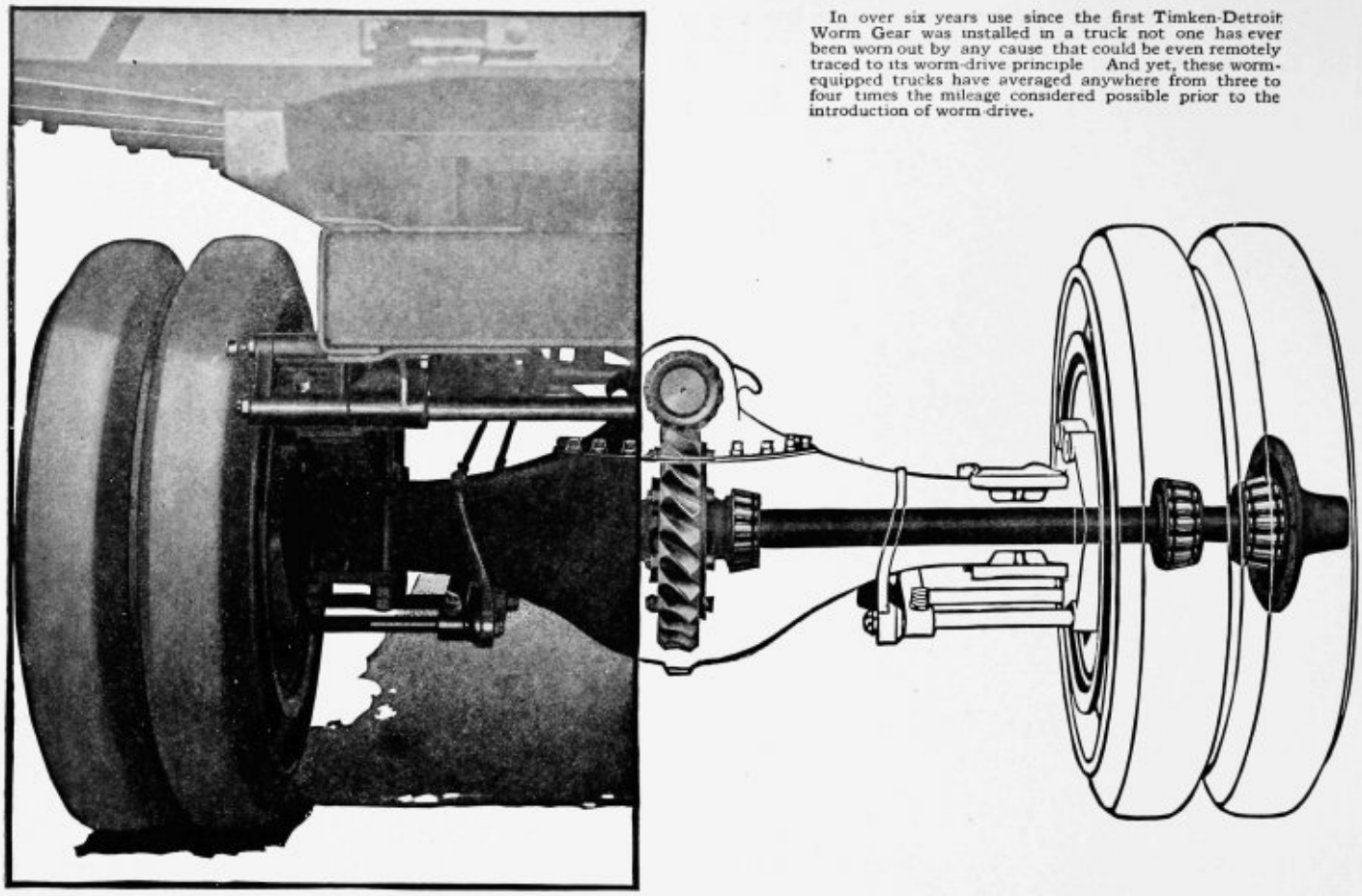
*(Mr. Jaquith has a record of having flown 200,000 miles without accident of any sort)*

*General Manager*
CHAS. H. OPPENHEIMER,
GUARANTEE TRUST BUILDING,
ATLANTIC CITY, N. J.

*Sales Manager*
HUGH L. HILLER,
501 FIFTH AVE., NEW YORK CITY.
PHONE VANDERBILT 2626

*Philadelphia Manager*
JOHN P. WILSON, Jr.,
405 BELLEVUE, COURT BLDG.,
PHILADELPHIA, PA.

In over six years use since the first Timken-Detroit Worm Gear was installed in a truck not one has ever been worn out by any cause that could be even remotely traced to its worm-drive principle And yet, these worm-equipped trucks have averaged anywhere from three to four times the mileage considered possible prior to the introduction of worm-drive.



# Things You Can See

The less you can see of a motor truck axle the better; because durability, economy and successfull operation depend on having vital working parts inclosed in a dust-proof, mud-proof, oil-tight housing.

But you *can* see—and you should look for—the one-piece unit construction that means strength—the tubular housing that gives greatest load-carrying capacity for the least weight of metal.

You can also see the big powerful brakes, and the single opening through which complete lubrication of *all* the working parts is effected in the easiest and most efficient way.

Thus the main factors in *carrying the load, stopping the load and reducing care and attention are evident at a glance.*

# Things You Can't See

Inside that sturdy housing, out of sight, is the vital *load-driving* mechanism on which to a great extent profitable operation of the truck depends.

In this Timken-Detroit Axle, rear drive is reduced to the simplest form—two strong, practically indestructible units and a single reduction.

Worm and worm wheel run in a continuous bath of oil flowing over every working part as the truck moves.

Worm-drive includes the *three vital essentials* to long life—fewest possible parts; direct, positive, continuously flowing lubrication; and absolute protection from foreign substances to cause wear.

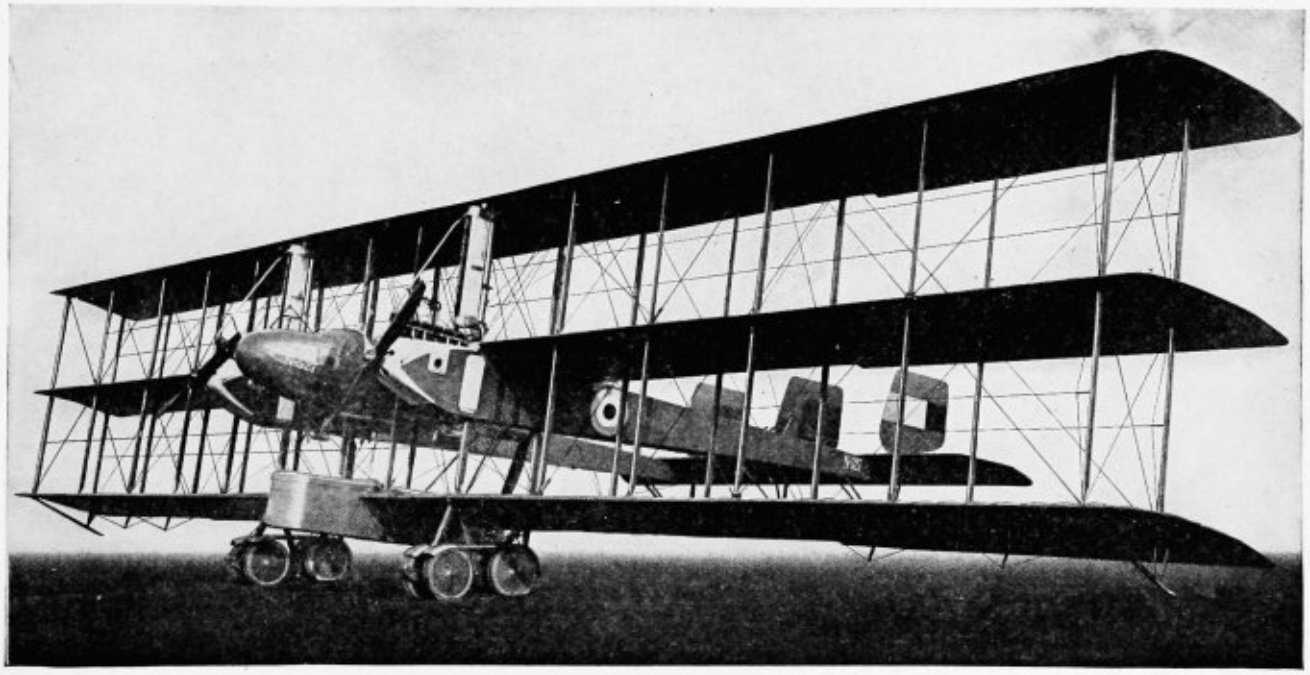
THE TIMKEN-DETROIT AXLE CO.
Detroit, Mich.

*Oldest and largest builders of front and rear axles for both motor cars and trucks.*

# TIMKEN-DETROIT
## FRONT and WORM-DRIVE REAR
# AXLES
## For Efficient COMMERCIAL Haulage

AERIAL TRANSPORTATION REQUIRES AEROPLANES EQUIPPED WITH ENOUGH MOTORS TO CARRY THE MACHINE TO THE REGULAR LANDING FIELDS IN CASE ONE OR EVEN TWO STALL.

The Caproni biplane, equipped with three 400 H. P. motors, has climbed to 14,000 feet with a ton useful load and with one motor completely shut off. This type of aeroplane insures safety to passengers and aviators.



This Caproni triplane has a wing spread of 130 feet and carries a useful load of several tons

**CAPRONI MANUFACTURING COMPANY**

**MILAN** **ITALY**

**Represented in U. S. A. by Lt. L. Belloni**

# Service at Every Terminal

EVERY commercial unit—farm, factory, railroad, warehouse, and store—feels the need of a mobile fleet of sturdy motor trucks at every terminal, reaching every station, dock and loading platform.

Motor trucks are needed to gather and distribute *locally* the produce and merchandise of the nation. Modern commerce urgently demands speedy, low-cost hauling such as is now being supplied in thousands of cases by

**International**
**MOTOR TRUCKS**

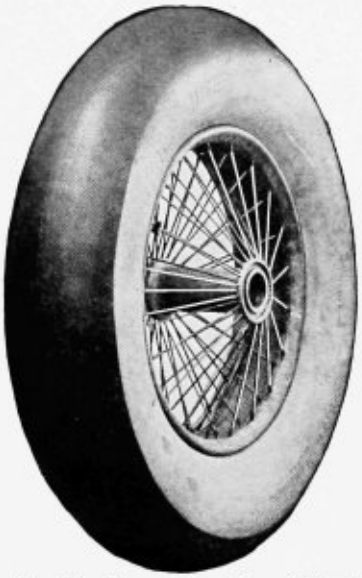
This demand will one day bring every business house face to face with the question, "Which truck shall we buy?" The logical answer will be found in the records for *low-cost hauling* established by the various trucks, and, of even more importance, in the reputation for *service to owners* enjoyed by the organization behind the truck. The International invites the fullest investigation on both points.

Our trucks are made in four sizes—¼, 1, 1½, and 2-ton. Our sales and service organization, consisting of ninety Company branches and thousands of local distributors, assures prompt service to every International owner. Send for our catalogue illustrating International Motor Trucks adapted to over one hundred and seventy-five different lines of business.

**International Harvester Company**
OF AMERICA (Inc.)
**Chicago -:- U S A**

# WIRE WHEELS

## For The Finest Planes That Fly



**Handley Page Aeroplane Wheel**
For Handley Page Bombing Plane
Tire Size 900 x 200 mm.

The material out of which wire wheels are made is but one unit of quality. How that material is treated and put together is what gives it the ability to make good.

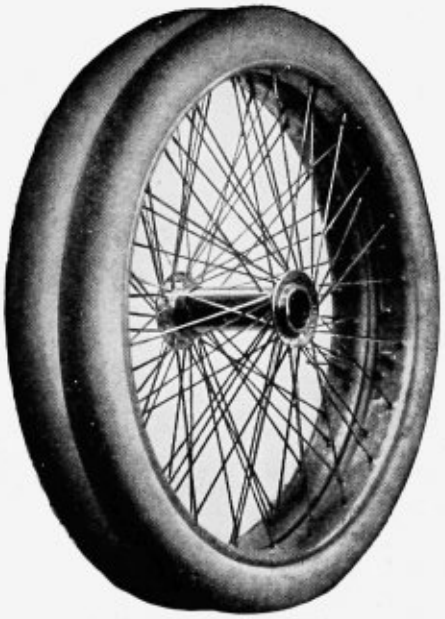
We will gladly help you solve any engineering problems pertaining to the design and construction of wire wheels for aeroplanes.

*Makers of the famous Houk and House "Quick Change" Wire Wheels for automobiles.*

**WIRE WHEEL CORPORATION OF AMERICA**
**1700 ELMWOOD AVENUE : BUFFALO, N. Y.**

*FACTORIES*

BUFFALO, N. Y. SPRINGFIELD, MASS



**Caproni Aeroplane Wheel**
For Caproni Bombing Plane
Tire Size 910 x 90 mm. and 36 x 3½

**D H 4 Aeroplane Wheel**
For De Haviland Plane
Tire Size 800 x 150 mm. or 750 x 125 mm.

**J N 4 Aeroplane Wheel**
For Curtiss Training Plane
Tire Size 26" x 4" Plain Clincher

# Depollier THERMO WRIST WATCH

## WATERPROOF AND DUSTPROOF

*Prestige* Waltham Movement *Accuracy*

### The Most Scientifically Constructed Watch-Case in the World

**Constructed with**

- **Double Case**
- **Double Glass**
- **Double Clinched Non-Inflammable, Un-Breakable Glass**
- **Radium Dial**
- **Compressed Insulation**
- **Waterproof**
- **Dustproof**
- **Gas Proof**
- **Proof against Heat and Cold**

Silver or Solid Gold

## The Importance to the Aviator of the Depollier Thermo Waterproof and Dustproof Wrist Watch which is Proof Against Body Heat and Extreme Climatic Heat or Cold

An Aviator wearing a wrist watch may be in a temperature of 90 degrees on the ground and twenty minutes later shoot up 20,000 feet where it may be 40 degrees below zero. The sudden change in temperature is bound to make any watch vary in retaining its adjusted time.

The same applies when a wrist watch is worn in a warm room where the normal temperature is 70 degrees while the heat of the arm is 98 degrees, and again when the wearer steps out-of-doors where the temperature may be below freezing.

### The Watch That Will Stand All Changes of Climate or Weather and Keep Accurate Time

The Watch Case being insulated from Heat and Cold lengthens the Life and Timing Qualities of the Watch. The THERMO WATERPROOF AND DUSTPROOF WRIST WATCH has practically a case within a case. It positively prevents the access of water or dust to the works of the watch.

Between the outer and inner backs of the case is provided a still air-space, which also exists between the inner crystal and the outer Unbreakable glass. In addition to this protection a heat-insulating material is applied to the outer back of the case, preventing the conduction of body heat to the works. Thus the created air-space insulates the watch-movement from any sudden exposure to hot or cold weather, such as the wearer emerging from a warm room to the cool outer summer air or freezing temperature of the winter months or high altitudes. The applied non-conductor of heat protects the movement from the body heat of the arm, and the Unbreakable outer off-color glass obstructs the free passage of excessive sun-heat to the dial, both protecting the works and preventing the drying up of the necessary oil for the delicate bearings of the movement.

The Double-Clinch Bezel and Waterproof Crown and Winding Stem finally form an absolutely Water and Dust Proof outer casing, preventing the rusting and clogging of the works through the entrance of any foreign elements, assuring the owner of a "THERMO WRIST WATCH" at all times a well-protected and smoothly running accurate timepiece.

Patented and patents applied for. September 11, 1917; June 11, 1918

United States and Foreign Countries

Write for Booklet

## JACQUES DEPOLLIER & SON

*Manufacturers of High Class Specialties for Waltham Watches*

**15 MAIDEN LANE** **NEW YORK CITY**

DUBOIS WATCH CASE CO. EST. 1877

# ASTORIA VENEER MILLS AND DOCK COMPANY

347 Madison Avenue

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VENEER AND LUMBER MILLS

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*Mahogany and Cedar Lumber and Veneers in all thicknesses for aeroplane construction*

# THE AERO BLUE BOOK

## AND

# DIRECTORY OF

# AERONAUTIC ORGANIZATIONS

TEXTBOOK OF AERIAL TRANSPORTATION, AERIAL SPORTS, AERIAL MAIL SERVICE, AMERICAN AIRWAYS, AERONAUTICAL MAPS, INTERNATIONAL AND NATIONAL AERONAUTIC TROPHIES AND PRIZES, AVIATION RECORDS, ETC., AND DIRECTORY OF AERONAUTIC ASSOCIATIONS.


HENRY WOODHOUSE

EDITOR

MEMBER BOARD OF GOVERNORS AERO CLUB OF AMERICA, VICE-PRESIDENT AERIAL LEAGUE OF AMERICA, AUTHOR OF THE "TEXTBOOK OF MILITARY AERONAUTICS," THE "TEXTBOOK OF NAVAL AERONAUTICS," MANAGING EDITOR OF "FLYING." EDITOR OF "AERIAL AGE WEEKLY," ETC., ETC.


## Advisory Editorial Board




NEW YORK

THE CENTURY CO.

1919

# THE AERO BLUE BOOK
AND
# DIRECTORY OF
# AERONAUTIC ORGANIZATIONS

# PREFACE

## THE DAWN OF THE AGE OF AERIAL TRANSPORTATION

An aeroplane has carried fifty passengers, the famous British General Salmond has flown from Africa to India, the United States Aerial Mail has been operated for months on schedule time, rain or shine; the Andes, the Great Atlas, the Alps and other high mountains have been flown over, and hundreds of what must be termed extraordinary flights have been made and are being made weekly.

The British aviators alone compassed three continents, as is shown by the following message from King George to Lord Weir:

"To the Right Hon. Lord Weir, Secretary of State and President of the Air Council:

"In this supreme hour of victory I send greetings and heartfelt congratulations to all ranks of the Royal Air Force. Our aircraft have been ever in the forefront of the battle; pilots and observers have consistently maintained the offensive throughout the ever-changing fortunes of the day, and in the war zones our gallant dead have lain always beyond the enemies' lines or far out to sea.

"Our far-flung squadrons have flown over home waters and foreign seas, the Western and Italian battle lines, Rhineland, the mountains of Macedonia, Gallipoli, Palestine, the plains of Mesopotamia, the forests and swamps of East Africa, the North-West frontier of India, and the deserts of Arabia, Sinai and Darfur.

"The birth of the Royal Air Force, with its wonderful expansion and development, will ever remain one of the most remarkable achievements of the Great War.

"Everywhere, by God's help, officers, men and women of the Royal Air Force have splendidly maintained our just cause, and the value of their assistance to the Navy, the Army, and to Home Defence has been incalculable. For all their magnificent work, self-sacrifice, and devotion to duty, I ask you on behalf of the Empire to thank them.

"GEORGE R.I."

November 11, 1918.

The French and Italian—and a number of American—aviators also had a leading part in the conquest of European, African and Asiatic skies.

### AERIAL TRANSPORTATION LINES PLANNED THE WORLD OVER

Aerial transportation lines were planned while the war was still on and the plans began to be put into effect soon after the signing of the armistice.

Thousands of aerial transportation lines are being planned, a few of which are quoted herewith:

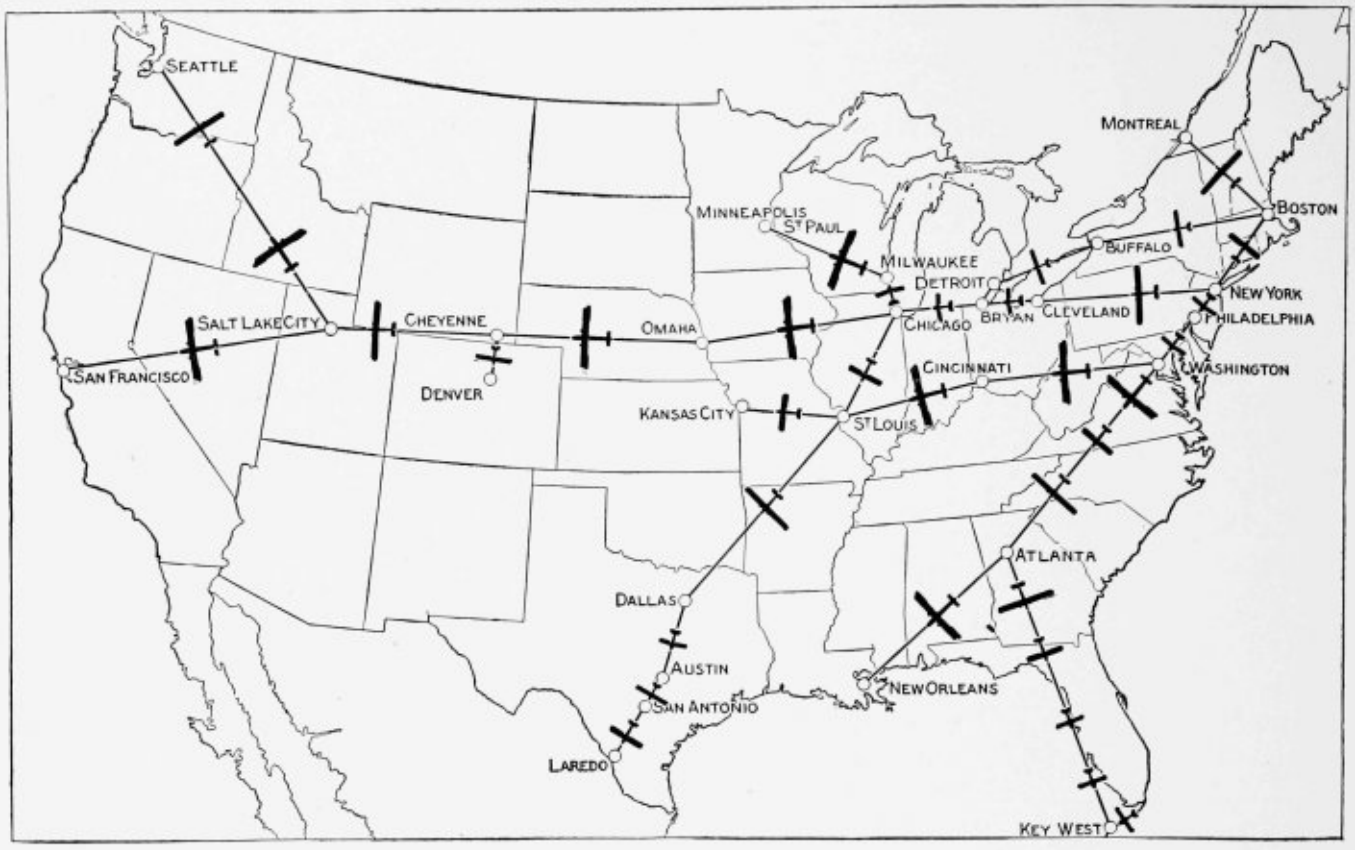
(1) From London to Salonica, by way of Nice, Rome, Brindisi and Vallona.

(2) From England to United States, proposed by Lord Morris, who has championed the project in Parliament.

(3) From Spain to the United States, proposed by Captain Herrera, chief of the Spanish Air Force, which has been discussed by the Spanish Cabinet and is understood to have the approval of King Alfonso of Spain.

(4) From the United States to England, proposed for next June by Captain Benjamin B. Lipsner and a group of other very public-spirited men who are planning to establish a number of aerial transportation lines in the United States.

(5) Between Australia and London, proposed at a meeting of business men at Sydney




Official map of the aerial mail lines to be established in the near future by the Post Office Department.

on October 2d. The aerial service would take only 150 hours for the trip.

(6) From London to everywhere, proposed and being carried out by Holt Thomas, the managing director of the British Aircraft Manufacturing Company, who explains his plans as follows:

"We are opening air routes all over the world in conjunction with local companies. In France we will operate in connection with a French company, and already arrangements for such a service are practically completed in Norway, Denmark, Italy, India and Africa. Later we will extend the service to Japan, China and the West Indies."


Official map of the aerial mail lines to be established in Cuba to Central America in the near future.

(7) From India to other parts of the British Empire, proposed by the Government of India as a postal service.

(8) From India, via Alexandria, and the Red Sea to Australia, via Cape Town, to New Zealand.

(9) Across Canada, with air lines connecting with the great American airways and air lines.

(10) From London to Brindisi, by way of Paris, Lyon, Marseilles, Turin, Florence, Rome.

(11) Across the Sahara Desert, from Algier to Biskra, Ouargla, Bourassa, Timbuctoo, Koulikoro and Dakar.

(12) The British Civil Aerial Committee, like the United States Post Office and the Aero Club of America and the Aerial League of America, has planned air lines to every direction of the compass, by aeroplane and dirigible. A report made public on December 13 says, in part:

"Airships now exist, the report says, with a range of more than 4,000 miles, and they can travel at a speed of seventy-eight miles an hour. By running their engines more slowly a maximum range of 8,000 miles can readily be obtained.

"On first speed Cape Town, South Africa, is to-day aerially only a little more than three days from Southampton, while this ship could fly across the Atlantic and return without stopping.

"The committee points out that the future airship will soon develop a speed of 100 miles an hour, that it will be fitted with ample saloons, staterooms, with an elevator to a roof garden, and will be able to remain in the air for over a week."

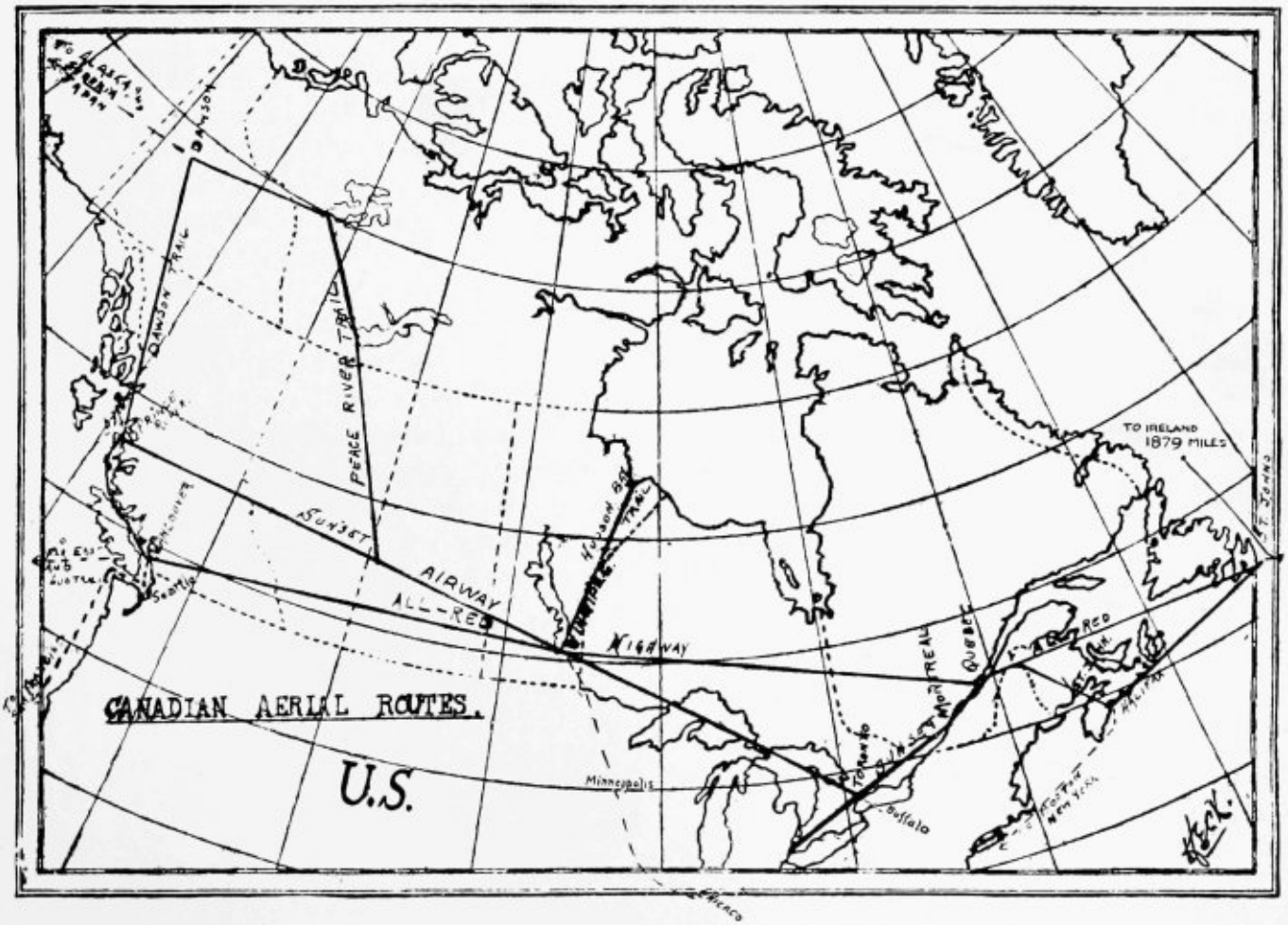
Mr. Edward M. Thierry, the Berlin staff correspondent of the N. E. A., has reported that Germany is building super-Zeppelins for trans-Atlantic flight. His report follows:

"I have visited the immense works outside Berlin at Staaken.

"I have been told by Ferdinand Rasch, director of the Zeppelin works at Friedrichshaven, a secret hitherto unrevealed—that on a record long distance flight in November, 1917, a Zeppelin flew from Jamboli in Bulgaria to Khartoum in Egypt and return, a distance of 1,030 miles in 96 hours.

"On this flight the Zeppelin carried a crew of 22 men and 25 tons of munitions and medicine intended for the relief of General Lettow-Vorbeck, in German East Africa.

"The Zeppelin received a wireless from Berlin when it was above Khartoum, ordering its return because of a rumor that Lettow-Vorbeck




Map showing the principal Canadian airways.

had been captured. It turned back without landing.

"This machine had a gas space of 67,000 cubic meters (87,634 cubic yards).

"The new super-Zeppelin which is now building has a gas capacity of 100,000 cubic meters.

"It will have nine engines and eight propellers.

"It will be more than 800 feet in length.

"This super-Zeppelin will cost nearly $1,000,000.

"It will have a carrying capacity of 100 passengers and 45 tons of mail and baggage and 30 tons of petrol, oil and water and provisions.

"The first machine for the trans-Atlantic service is to be completed in July. For maintenance of the service planned, eight active machines and four in reserve will be required.

"As soon as the international situation is clarified, it is proposed to establish the service with a hangar in New York."

### AERIAL MAIL SERVICE A SUCCESS IN AMERICA AND EUROPE

The aerial mail service has been a great success in the United States and in Europe. It has been operated for months on schedule time, rain or shine, without interruption—even under weather conditions which prevented ships from making port.

### UNITED STATES AERIAL MAIL EXTENSION

A stupendous plan for the extension of the United States Aerial Mail Service has been adopted by Postmaster General Burleson.

This program directs, first, the establishment of an aerial mail service connecting the principal commercial centers of the country by a system of trunk lines and feeders, and, secondly, connecting this country with the West Indies and Central and South America. The trunk lines and feeders decided on under this program are:

1. New York to San Francisco, with feeders from—
   - *a* Chicago to St. Louis and Kansas City,
   - *b* Chicago to St. Paul and Minneapolis,
   - *c* Cleveland to Pittsburgh.
2. Boston to Key West, with feeders from—
   - *a* Philadelphia to Pittsburgh,
   - *b* Washington to Cincinnati,
   - *c* Atlanta to New Orleans.
3. Key West, via Habana, to Panama.
4. Key West, via the West Indies, to South America.

On this program Postmaster Burleson reports progress as follows:

(1) Boston to Key West—Of this route the Washington-New York division has been operated since May 15th and is functioning perfectly.

The Boston-New York division has been tentatively laid out and will be established whenever, in the opinion of the War Department, its operation will not conflict with the war needs of the country.

The Washington-Atlanta and Atlanta-Key West routes are now being worked out with a view to their immediate establishment at the close of the war.

(2) New York to San Francisco—Of this route the division from New York to Chicago has been carefully worked out. The War Department, under act of Congress of July 2, 1918, has released to the Post Office Department, for the use of this division, aeroplanes of 650 pounds mail carrying capacity which are no longer suitable for war needs. The hangars have been ordered, landing fields obtained, and the route has been ordered established before the close of the present year. In a series of aeroplane flights by the Post Office Department, early in September, the route was carefully charted for emergency and regular landing fields. In this work one aeroplane made a record flight from Chicago to New York in less than fourteen hours, including all stops en route. The flights were made through storm and heavy rains over parts of the route. The reconnaissance developed that it will be feasible to maintain a daily nine-hour schedule between New York and Chicago, as compared with the twenty-one-hour schedule of the Twentieth Century Limited. The New York-Chicago schedule for the present will call for departing from New York at 6 a.m. and arriving at Chicago about 3 p.m., thus connecting

with all city deliveries. The principal mail stop will be Cleveland. The time between Chicago and Cleveland will be cut to 3 hours 45 minutes, and between New York and Cleveland to 5 hours 15 minutes. Mail from the Atlantic Seaboard will be advanced from 12 to 24 hours to the West and Southwest by this new service. The feeder routes from Chicago to St. Louis, Kansas City, St. Paul, Minneapolis, and the remainder of the trunk line from Chicago to San Francisco will be worked out during the ensuing year with a view to their immediate inauguration at the close of the war.

(3) Key West to Panama, and

(4) Key West to the West Indies and South America—Negotiations looking to the conclusion of special aerial mail conventions between the United States and the foreign countries involved for the establishment of these routes to the West Indies and Central and South America are now in progress. It is realized that these oversea routes will require the most powerful aeroplanes with wireless installation and special construction to make them safe over the seas, but the enormous commercial advantage that will result by materially reducing the time between this country and Central and South America will justify the expenditure that such a service will entail.

It is a stupendous plan which opens the great airways of South and Central America and Canada—the maps and details of which have been worked out and are to be published in future editions of THE BLUE BOOK.

This is the dawn of the Aerial Age when those of us who have assisted the development of aeronautics for—well, a lifetime—will see things happen such as we never dared to hope.

Most of the credit for these stupendous developments is due to the progressive aero clubs of different countries. In the United States we are indebted for this progress mainly to the Aero Club of America, headed by Mr. Alan R. Hawley, the energetic veteran sportsman-aviator, and the Aerial League of America, headed by the famous Rear Admiral Peary, the discoverer of the North Pole. They were pioneers in preparing the country aerially for peace, just as they were pioneers in preparing the country for war.

The editor is greatly indebted to the illustrious members of the Advisory Editorial Board for their valuable coöperation.

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# CONTENTS

Aeroplanes approaching New York.

## THE IMMEDIATE IMPORTANCE OF ESTABLISHING THE EIGHT GREAT AMERICAN AIRWAYS

By Rear Admiral Robert E. Peary,

*President Aerial League of America, Chairman Committee on Aeronautic Landing Places, Aero Club of America, Chairman National Aerial Coast Patrol Commission*

In the United States, we are just realizing the vital importance of aeronautics. The world's strategists have agreed that the war is to be decided in the air, in favor of the side which has the largest number and the most efficient aircraft and aviators, and it has been said that America's greatest mission is to supply the tens of thousands of aeroplanes and aviators needed to strike Germany through the air.

The Government is putting through a program which totals an expenditure of $2,000,000,000 which will probably be three times the present size within two years—taking for granted that the war lasts that long.

The Government can only utilize part of the present manufacturing facilities at its disposal and can only undertake to train part of the men who are anxious to join the Air Services. It is going to need and to use all the manufacturing facilities and men later, and anything that tends to develop greater facilities and train

The cabin of one of the large—but not the largest—passenger carrying aeroplanes.

the men, will make the work easier for the Government later on.

But whatever is done in this line must be done independently of the Government, employing unutilized facilities and man power. There is plenty of both which should be utilized.

Among the things being done to so assist the Government is the plan of the Aero Club of America to establish eight great American airways and a number of air routes, which plan is being developed by the Committee on Aeronautic Maps and Landing Places of the Aero Club of America, with the coöperation of the thirty affiliated Aero Clubs, the Aerial League of America, and as many coöperating organizations. The term airways is used for transcontinental airways; air routes for interconnecting routes.

The five Transcontinental Airways and the three Coastal Airways will be as follows:

(1) *The Woodrow Wilson Airway,* which is an almost straight line from New York to San Francisco, touching Cleveland, Toledo, Chicago and other important cities on the way to San Francisco. The straight line has been generally approved because it presents the best principle of air travel, which can be done in a straight line, as the aviators can make their own route, flying over all obstructions.

(2) *The Wright Brothers Airway.*—Starting from Washington, Fort Meyer, where the Wrights made their first public flights, and through North Carolina, the State where the Wrights made the historic first flight, through Georgia, Alabama, Mississippi, Louisiana, Texas—with a station at San Antonio, where an aeroplane—a Wright machine—was used for the first time in history under conditions approximating warfare, then through New Mexico, Arizona, ending at San Diego, California.

(3) *The Langley Airway.*—(Named after Professor Samuel Pierrepont Langley, the pioneer experimenter in aeronautics.) The Langley Airway will start from Philadelphia, pass through Pittsburg, Columbus, Dayton, Indianapolis, Rantoul, St. Louis, Kansas City—and then on to Santa Barbara, California.

(4) *The Chanute and Bell Airway.*—(Named after the American experimenters in aviation, Octave Chanute, who encouraged and assisted the Wright brothers, and Alexander

Graham Bell and Mrs. Bell, who paid for the early experiments of Glenn H. Curtiss.) This Airway extends from Boston, Massachusetts, to Seattle and Portland, Oregon, touching Albany, New York, Syracuse, Rochester, Erie, Buffalo, Detroit, Grand Rapids, Michigan; Minneapolis, Minnesota; Bismarck, North Dakota; Great Falls, Montana, and other cities along the route.

(5) *The Rodgers Airway.*—(Named in honor of Calbraith Perry Rodgers, the American aviator who was the first to make a transcontinental flight, in 1911.) The Rodgers Airway will extend from Newport News and Norfolk, Virginia, to Los Angeles, California, touching the important cities and towns on the way.

(6) *The Atlantic Airway* will extend from Bangor, Maine, to Key West, Florida, and will touch every city on the Atlantic seaboard.

(7) *The Gulf Airway* will extend from Key West to the mouth of the Rio Grande, following the coast and touching every city on the Gulf seaboard.

(8) *The Pacific Airway* will extend from San Diego to Puget Sound, following the coast line, touching every city on the Pacific seaboard.

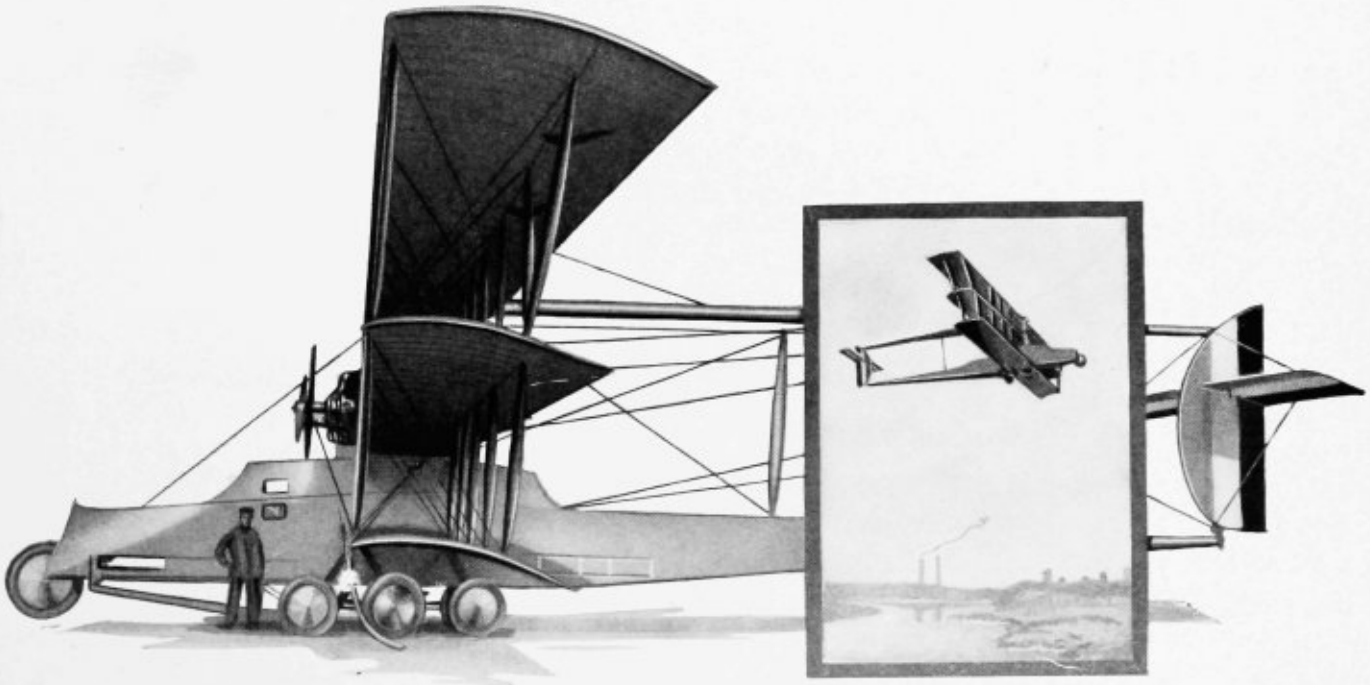
The immediate importance of the eight great American airways proposed by the Aero Club of America is four-fold:

(1) As a measure of national preparedness, so that in the event it becomes necessary, it would be possible to quickly mobilize strong aerial forces at any point on our coasts or inland, and to establish the foundation for a national aerial patrol.

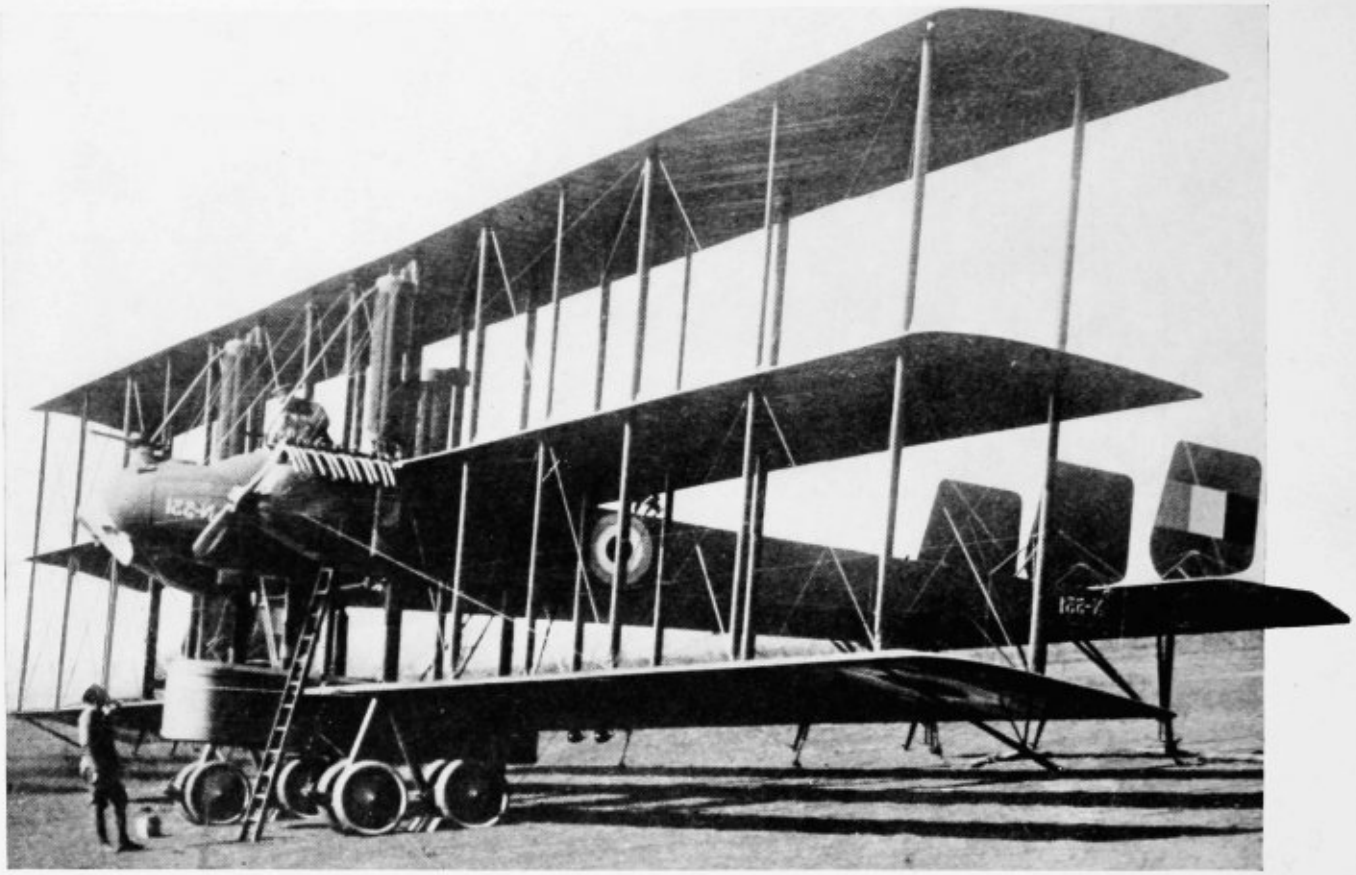
(2) To make available a chain of landing places in different parts of the country, which military and naval aviators can use to get cross country flying and night flying experience; which they cannot get at present owing to lack of landing places.

Cross country and night flying experience is absolutely necessary to the military aviator, whether he is to be employed in dropping bombs, scouting, taking photographs, patrolling or other duties. In such duties the aviator is flying continuously over strange ground, directing himself by chart and compass. His success depends on his experience.

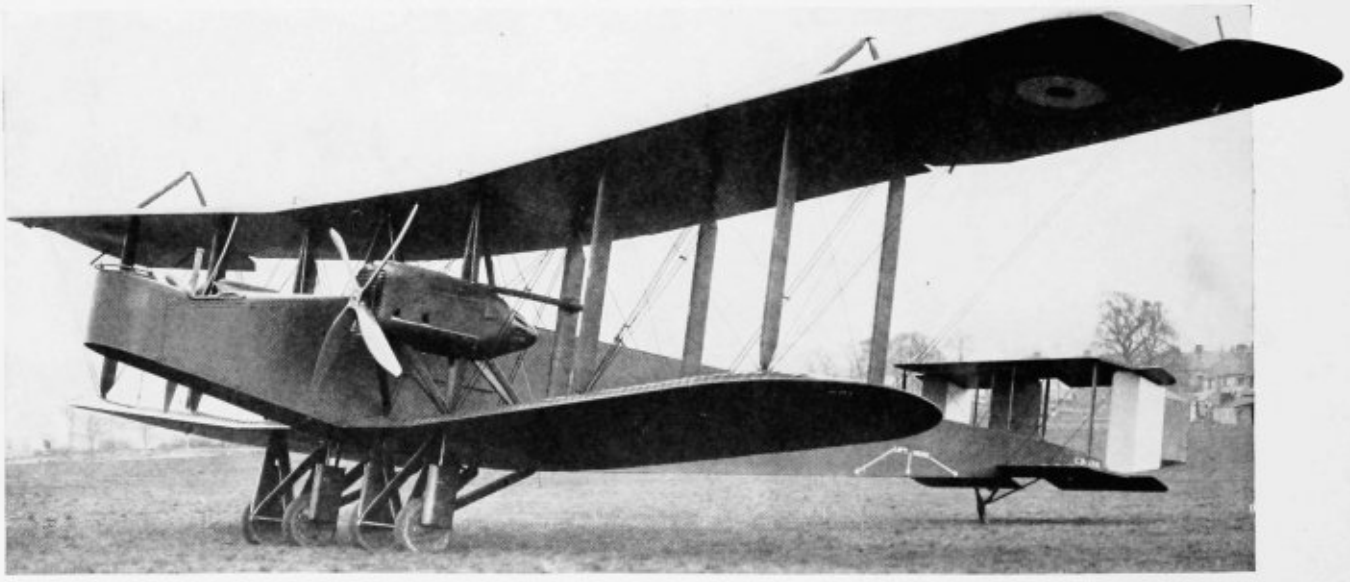
Owing to lack of landing places established close enough to each other to permit the aviator to land, in case the motor stops, American military aviation students cannot at present be taught cross country and night flying and cruising.



The Voisin Triplane on the ground and in flight. (French official photo)



One of the large Caproni triplanes which have done such powerful work in the fight against the Austrians. Machines larger than this are proposed for the transatlantic flight. (Italian official photo)



One of the large, but not the largest, Handley-Page air-cruisers, equipped with two Rolls Royce motors. (British official photo)

(3) To combine the opportunity afforded by the Post Office's need of aerial mail lines to solve problems of mail transportation and train reserve aviators at the same time.

These landing places can be used by the Post Office as landing stations for the mail carriers.

As already stated, the duties of an aerial mail carrier being cross-country flying day and night and dropping mail bags, they are similar to the duties of a military aviator engaged in bombing, and the Post Office can, while solving some of the problems of transporting mail faster, form a large reserve of trained aviators and mechanics, who can be taken over by the Army and Navy as fast as they are needed.

The Postal Air Service would then become a practical training field for bombing aviators.

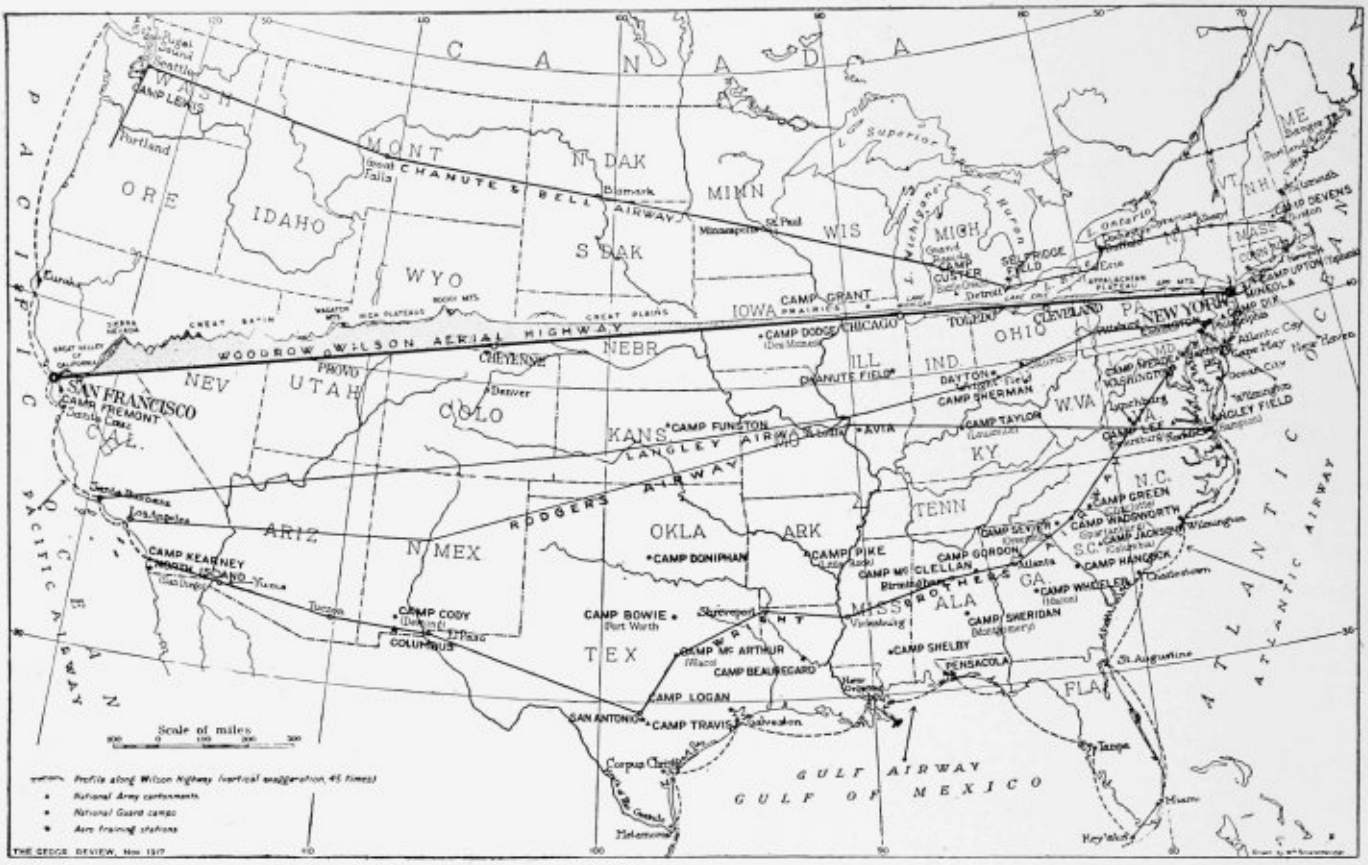
Had this been started in the past, this country would have had hundreds of trained aviators to send to France immediately after the United States' entry in the war.

Using aeroplanes for mail carrying would also give work to the manufacturers who are idle, owing to the lack of orders from the Government, and will develop greater sources of supply of aeroplanes and aeronautic equipment, which will be needed as soon as Congress allows the additional appropriations which are absolutely needed to give our forces in France the aeroplanes and aviators necessary to maintain the Allies' supremacy in the air.

The applications for admission into the Army and Navy Air Service are still far more numerous than can be taken care of. The surplus of applicants, especially young men of from 18 to 21, who are of the age preferred for flying duty, but who cannot be drafted until they are 21, will get an opportunity to train in the Postal Air Service, from which those who qualify will graduate into the Military and Naval Air Service.

(4) To promote the use of aircraft for general transportation, in preparation for the post bellum use for peaceful purposes of the tens of thousands of aircraft now used for military purposes—thereby affording to aircraft manufacturers reasonable assurance that their business will be permanent. This will encourage them and their tens of thousands of workers in their present work and induce them to conduct experiments and research to develop better aircraft, and to employ labor and time saving machinery.

Memoranda:




(C) *Aeronautic Maps Association, 299 Madison Ave., N. Y. City.*

Map of Part of United States Showing Woodrow Wilson Airway.

## THE WOODROW WILSON AIRWAY

*The Woodrow Wilson Airway* was named after President Wilson in 1917 by the Board of Governors of the Aero Club of America, in appreciation of the President's support of the campaign for building our aerial forces, which resulted in Congress appropriating $640,000,000 for Army aeronautics. The Aero Club of America adopted a resolution to establish the Woodrow Wilson Airway, and communicated the resolution to Congressman Hulbert, who was prominent in conducting the campaign for the building of our aerial defenses, requesting that he present the matter to President Wilson. The President's answer was as follows:

"My dear Mr. Hulbert:
Thank you warmly for having let me see the enclosed telegram. It heartens me mightily. It is very delightful to have such a feeling exist and to receive such evidences of support and approval. Cordially and Sincerely Yours,
WOODROW WILSON."

The Woodrow Wilson Airway represents a zone eighty miles in width, extending from New York to San Francisco. A line through this zone touches the most important cities, through the States of New York, New Jersey, Pennsylvania, Ohio, Michigan, Indiana, Illinois, Iowa, Nebraska, Wyoming, Colorado, Utah, Nevada and California.

The Airway zone extends forty miles on each side of the line, so the air traveler can reach the extreme part of either side of the zone in half hour flying. Any city or community located within this eighty miles belt will be designated as being on the Woodrow Wilson Airway. Landing places for aircraft and identification marks will be placed first in the important places in direct line of the Airway, then at the approach of every community.

### Location of Aerodromes, Emergency Fields and Aerial Mail Stations to be Added

As fast as aerodromes, aerial mail stations, and emergency landing places are established, they will be marked on the maps in red as follows:

Aerodrome, where hangars, repair shops, etc., exist, red square.

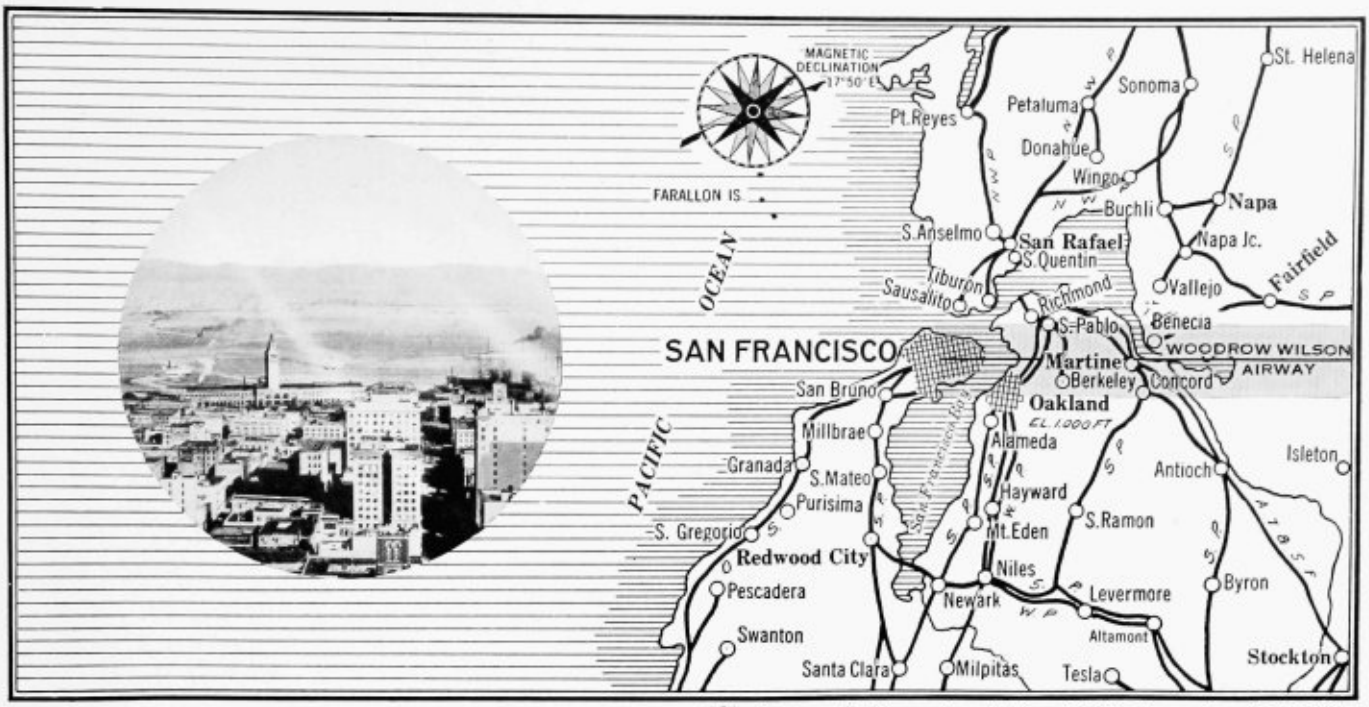
Aerial Mail Station, red triangle.

Emergency landing places where gasoline can be obtained, red circle.

(See pages 26-27 for plans for aerodromes.)

For geodetic reasons all maps extend from West to East. In preparing a map it is, of course, necessary first to choose a fixed point. Geographers always use the North Pole and orientate with this direction. It is an invariable rule, therefore, that in looking at any map one faces the North, the West lies on the left hand, and East on the right hand. In mapping the Woodrow Wilson Airway across the continent this imaginary line is drawn from the extreme left to the extreme right of the map of the United States, exactly as in the case of a railroad, an automobile route, or any highway. The Woodrow Wilson Airway nevertheless starts from New York. The annual International Transcontinental Air Derby, which will follow this route, will be flown from east to west, from New York to San Francisco.

The map of the airway of course unfolds in the reverse order from west to east. The air pilot who flies over this air route unfolds his aero map backward in traveling westward, exactly as an ordinary traveler starting west from New York turns first to the last page of any railroad map and traces his course westward.




(C) *Aeronautic Maps Association, 299 Madison Ave., N. Y. City*

## RAILROADS AND NATIONAL HIGHWAYS CROSSING AND PARALLELING THE WOODROW WILSON AIRWAY

Southern Pacific.

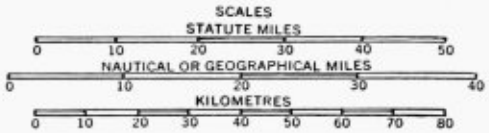
North-Western Pacific.

Atchison, Topeka and Santa Fé.

Western Pacific.

Ocean Shore.

Lincoln Highway

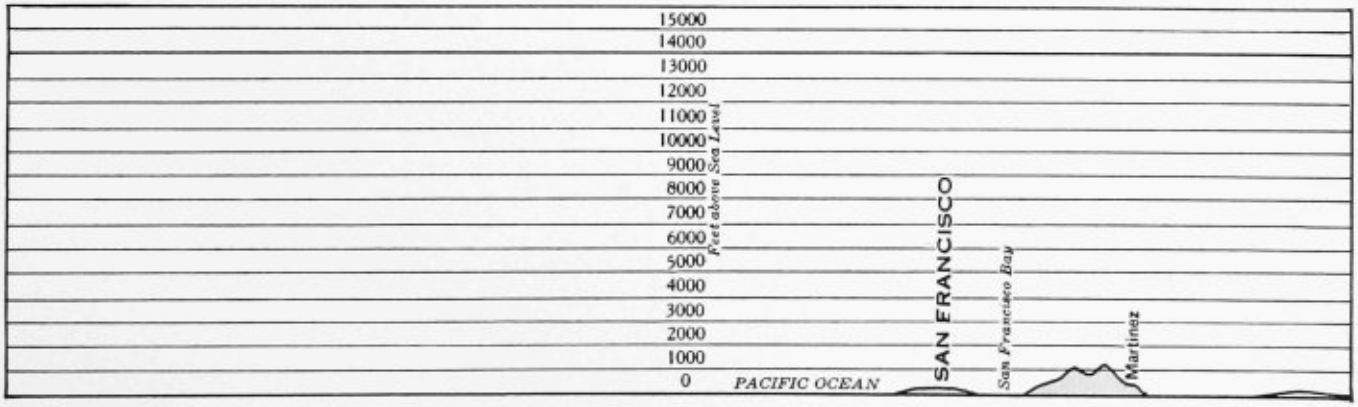


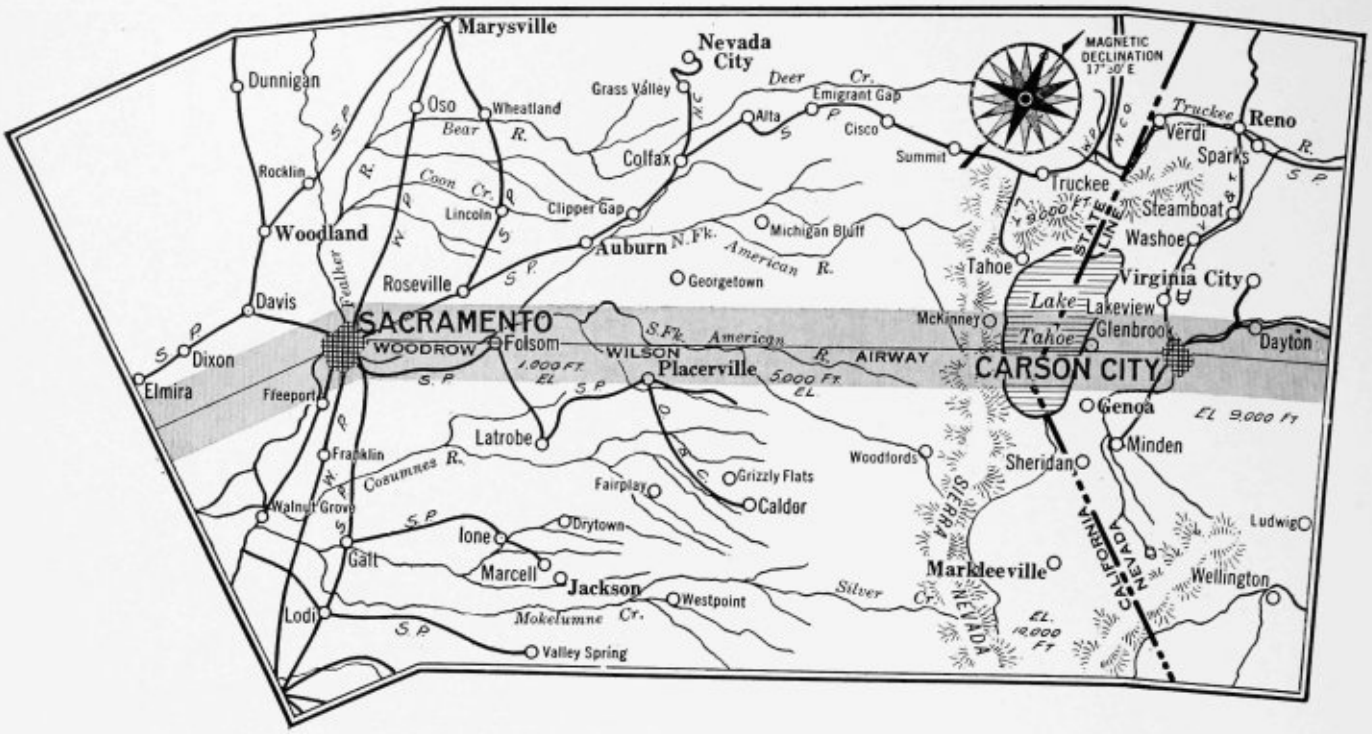

**The shaded line indicates the Woodrow Wilson Airway which comprises a belt eighty miles in width. All cities and communities on this map are designated as being on the Woodrow Wilson Airway, including railroads, mountain ranges and other natural features. At bottom of page elevations along airway.**

## SECTION OF THE CALIFORNIA DIVISION OF THE WOODROW WILSON AIRWAY

CALIFORNIA DIVISION

There are ninety-eight cities and towns in the California Division of the Woodrow Wilson Airway, as follows: San Mateo, Granada, Redwood City, Purisima, San Gregorio, Pescadero, Freeport, Franklin, Walnut Grove, Galt, Rio Vista, Isleton, Lodi, Antioch, Stockton,






## RAILROADS AND NATIONAL HIGHWAYS CROSSING AND PARALLELING THE WOODROW WILSON AIRWAY

Virginia and Truckee.
Southern Pacific.
Western Pacific.
Nevada County.
Nevada, California and Oregon.
Lincoln Highway

*Weather Bureau Stations.*

Northern Slope.

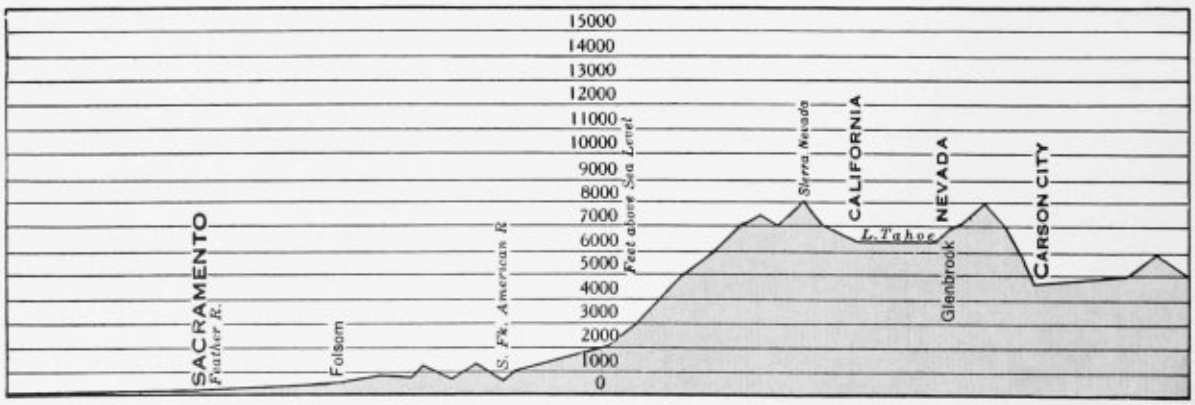
| | |
|---|---|
| Billings. | Miles City. |
| Havre. | Cheyenne. |
| Helena. | Lander. |
| Kalispell. | Yellowstone Park. |

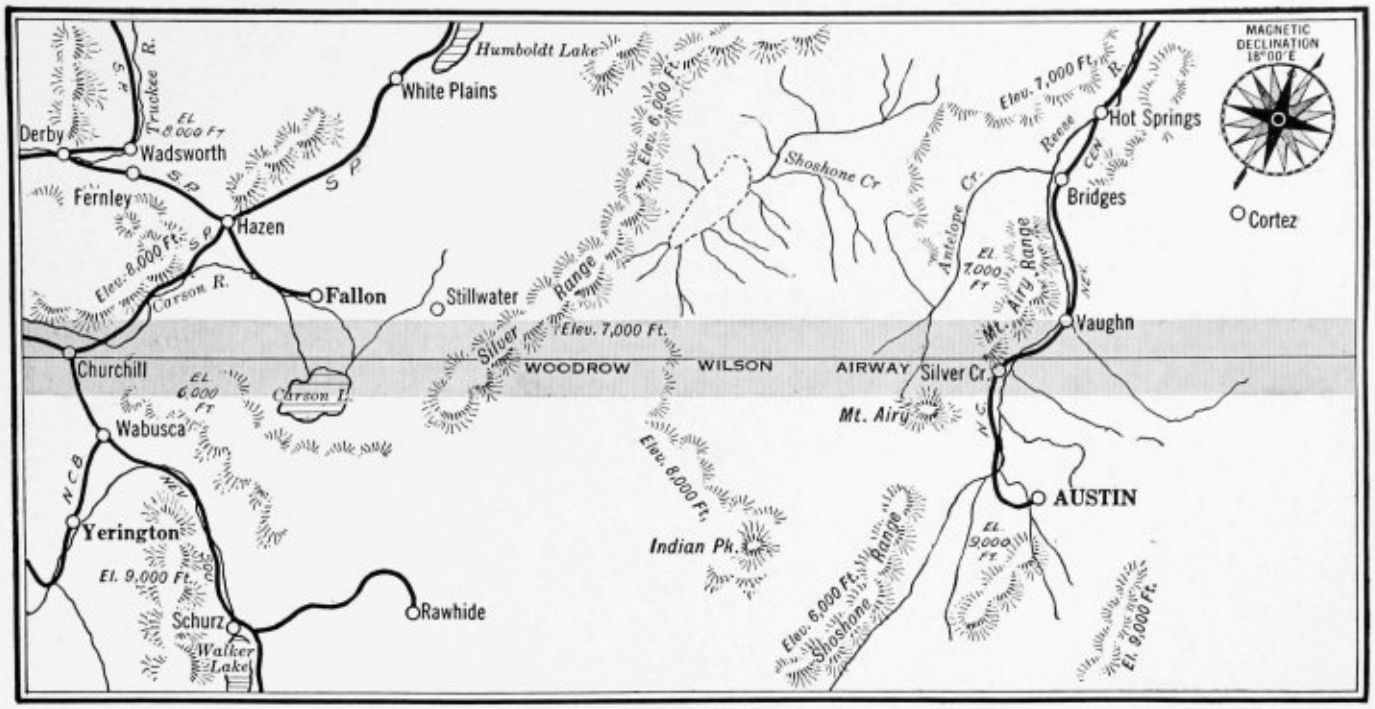
Rapid City. Sheridan. North Platte.

**A complete list of the Weather Bureau Stations throughout this region will be found on page 100.**

## SECTION OF THE CALIFORNIA AND NEVADA DIVISION OF THE WOODROW WILSON AIRWAY

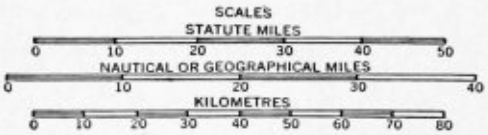
Byron, Oakland, Boulder Creek, Altamont, Tracy, South Ramon, Alameda, Livermore, Mt. Eden, Testa, Niles, Heyward, Newark, Milpitas, Santa Clara, San José, Swanton, Davenport, Dunnigan, Madison, Rocklin, Woodland, Davis, Winters, St. Helena, Sacramento, Dixon, Vacaville, Sonoma, Elmira, Petaluma, Wingo, Napa, Fairfield, Donahue, Buchli, Napa Junction, Vallejo, Benicia, Pt. Reyes, San Ratac, Concord, San Anselmo, Martinez, Berkeley, Tiburou, Richmond, Sausalito, San Francisco, San Bruno, Milbrae, Moores, Cisco,






(C) *Aeronautic Maps Association, 299 Madison Ave., N. Y. City*

## RAILROADS AND NATIONAL HIGHWAYS CROSSING AND PARALLELING THE WOODROW WILSON AIRWAY




Nevada Central.

Nevada Southern.

Southern Pacific.

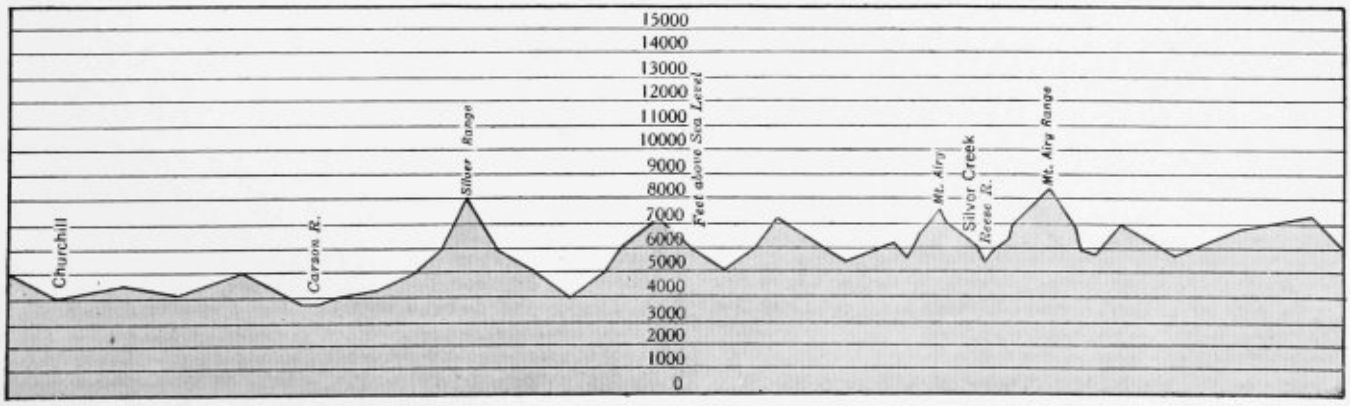
Nevada Copper Belt.

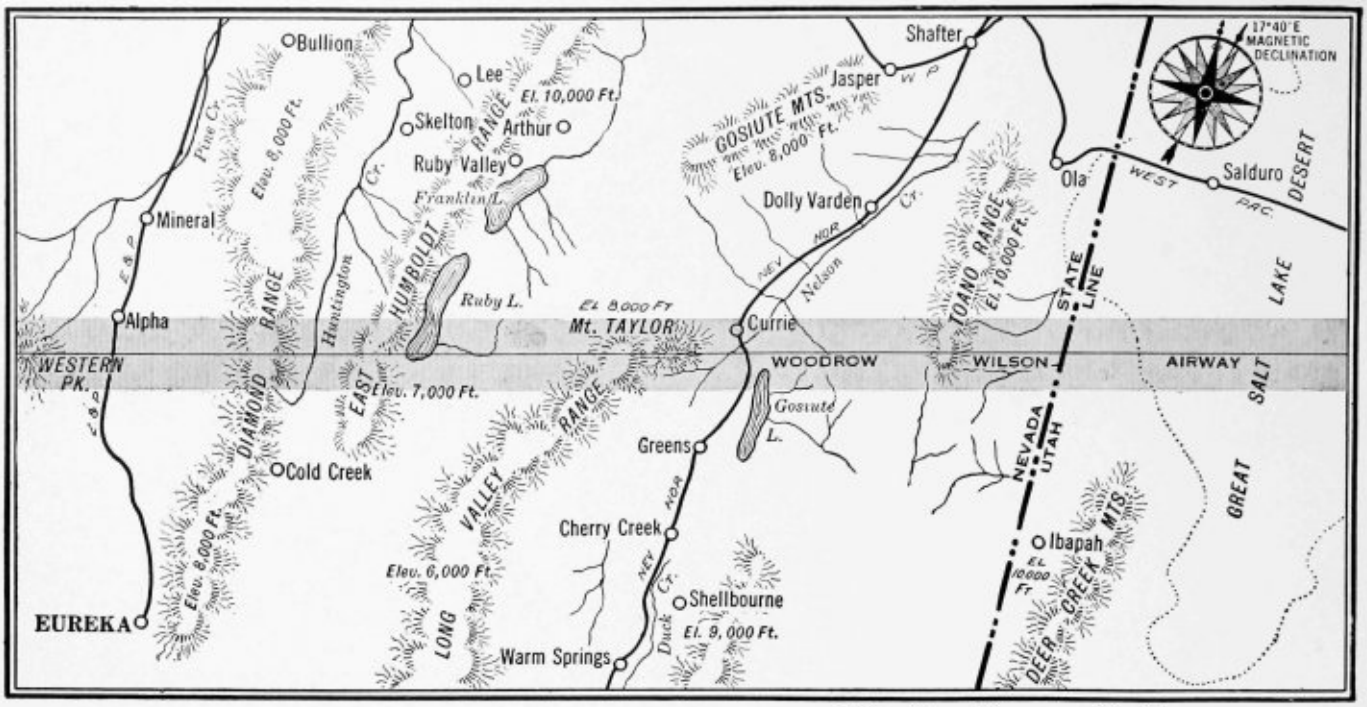
Lincoln Highway

**The shaded line indicates the Woodrow Wilson Airway which comprises a belt eighty miles in width. All cities and communities on this map are designated as being on the Woodrow Wilson Airway, including railroads, mountain ranges and other natural features. At bottom of page elevations along airway.**

## SECTION OF THE NEVADA DIVISION OF THE WOODROW WILSON AIRWAY

Summit, Truckee, Colfax, Nevada City, Alta, Grass Valley, Marysville, Tahoe, Roseville, Wheatland, McKinney, Michigan Bluff, Oso, Clippergap, Lincoln, Georgetown, Auburn, Woodfords, Placerville, Markleeville, Grizzly Flats, Caldor, Fairplay, Ione, Jackson, Latrobe, Drytown, Westpoint, Martell, Valley Springs.






## RAILROADS AND NATIONAL HIGHWAYS CROSSING AND PARALLELING THE WOODROW WILSON AIRWAY

Nevada Northern.
Eureka and Palisade.
Western Pacific.
Lincoln Highway

*Weather Bureau Stations.*

Middle Slope.

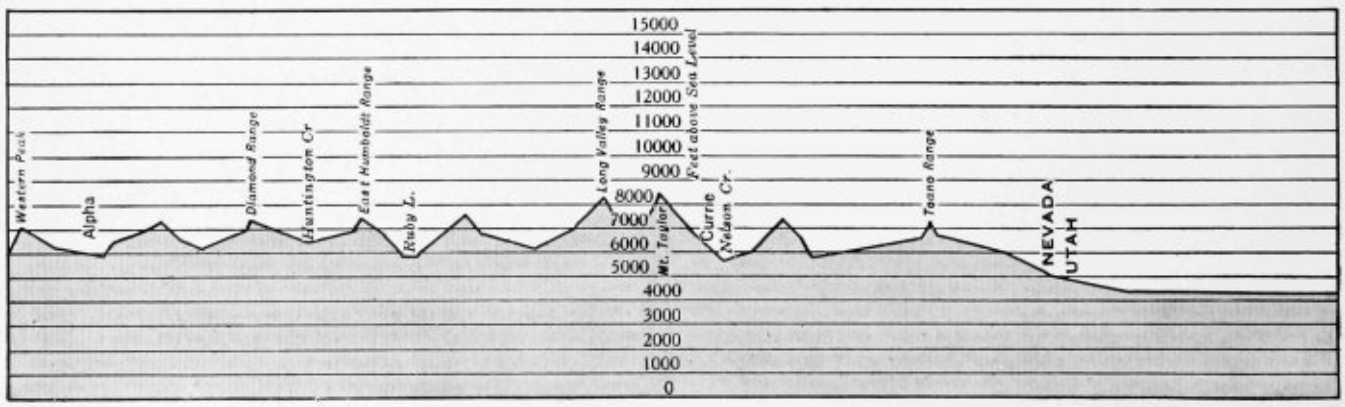
Denver. Pueblo. Wichita. Altus.
Concordia. Muskogee.
Dodge City. Oklahoma.

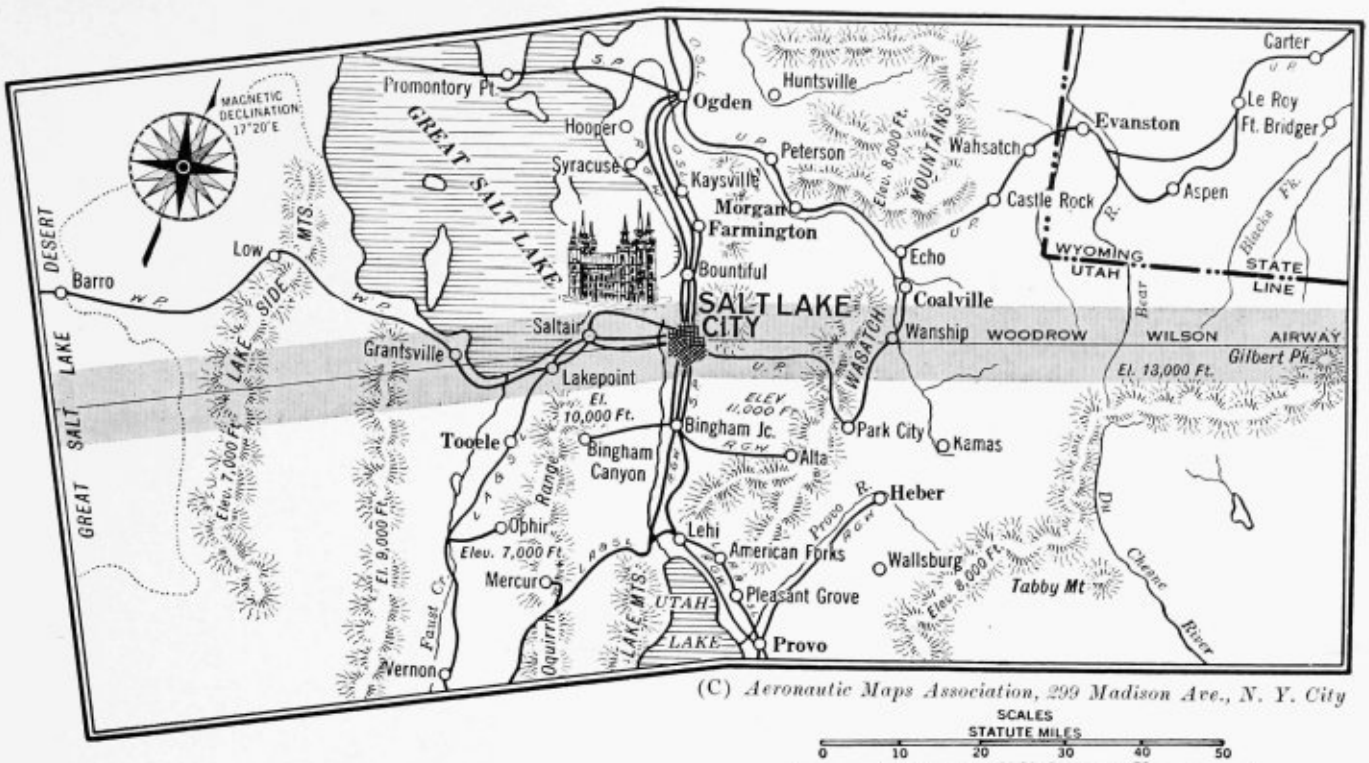
**A complete list of the Weather Bureau Stations throughout this region will be found on page 100.**

## SECTION OF THE NEVADA AND UTAH DIVISION OF THE WOODROW WILSON AIRWAY

### NEVADA DIVISION

There are fifty-three cities and towns in the Nevada Division of the Woodrow Wilson Airway, as follows: White Plains, Reno, Derby, Wadsworth, Fernley, Sparks, Verdi, Hazen, Stillwater, Fallon, Steamboat, Washoe, Virginia City, Dayton, Churchill, Lakeview, Carson City, Glenbrook, Wabuska, Genoa, Yerington, Minden, Rawhide, Ludwig, Sheridan, Pinegrove, Wellington, Schurz, Hot Springs, Mineral, Cortez, Bridges, Alpha, Coldcreek, Vaughn, Silver Creek, Cherrycreek, Eureka, Dolly Varden, Austin, Bullion, Shafter, Jasper, Blaine, Ola, Lee, Arthur, Skelton, Ruby Valley, Currie, Greens, Shellbourne, Warm Springs.






(C) *Aeronautic Maps Association, 299 Madison Ave., N. Y. City*

SCALES
STATUTE MILES 0 10 20 30 40 50
NAUTICAL OR GEOGRAPHICAL MILES 0 10 20 30 40
KILOMETRES 0 10 20 30 40 50 60 70 80

## RAILROADS AND NATIONAL HIGHWAYS CROSSING AND PARALLELING THE WOODROW WILSON AIRWAY

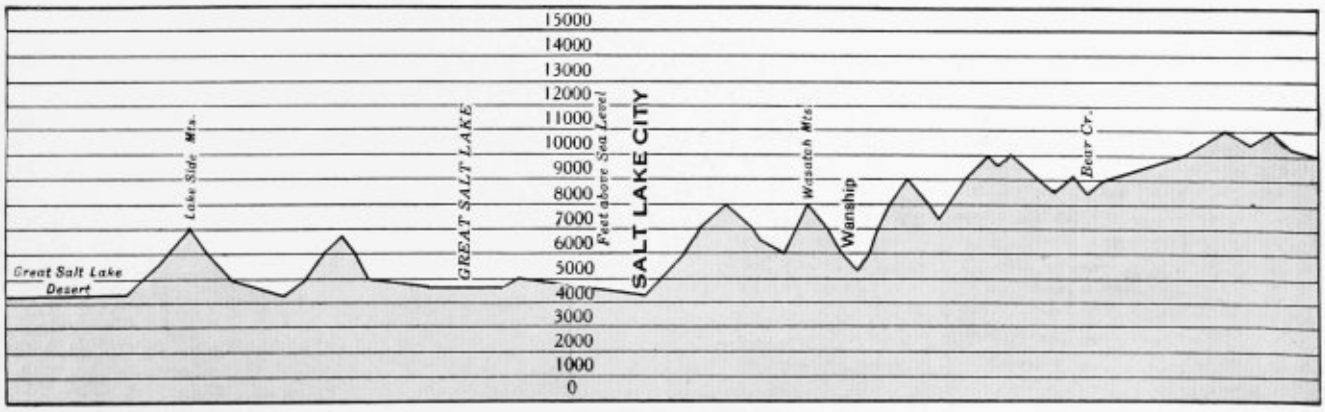
Western Pacific.
Los Angeles and Salt Lake.
Rio Grande Western.
Oregon Short Line.
Union Pacific.
Lincoln Highway

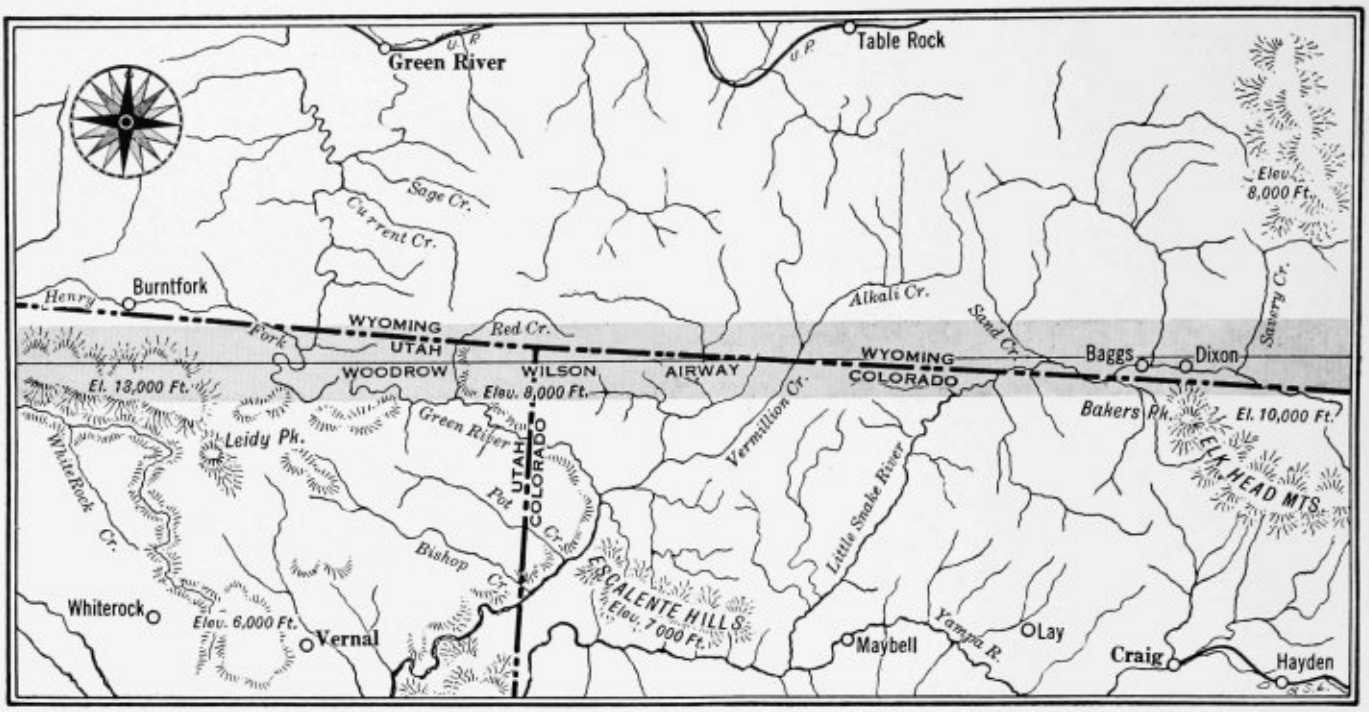
**The shaded line indicates the Woodrow Wilson Airway which comprises a belt eighty miles in width. All cities and communities on this map are designated as being on the Woodrow Wilson Airway, including railroads, mountain ranges and other natural features. At bottom of page elevations along airway.**

## SECTION OF THE UTAH AND WYOMING DIVISION OF THE WOODROW WILSON AIRWAY

### UTAH DIVISION

There are forty-two cities and towns in the Utah Division of the Woodrow Wilson Airway, as follows: Farmington, Coalville, Wanship, Park City, Sandy, Kamas, Alta, Heber, Wallsburg, Whiterock, American Fork, Pleasant Grove, Provo, Vernal, Salduro, Ibapah, Barro,






## RAILROADS AND NATIONAL HIGHWAYS CROSSING AND PARALLELING THE WOODROW WILSON AIRWAY

Union Pacific.
Lincoln Highway

*Weather Bureau Stations.*

Southern Plateau.

| | | |
|---|---|---|
| El Paso. | Flagstaff. | Yuma. |
| Santa Fe. | Phoenix. | Needles. |

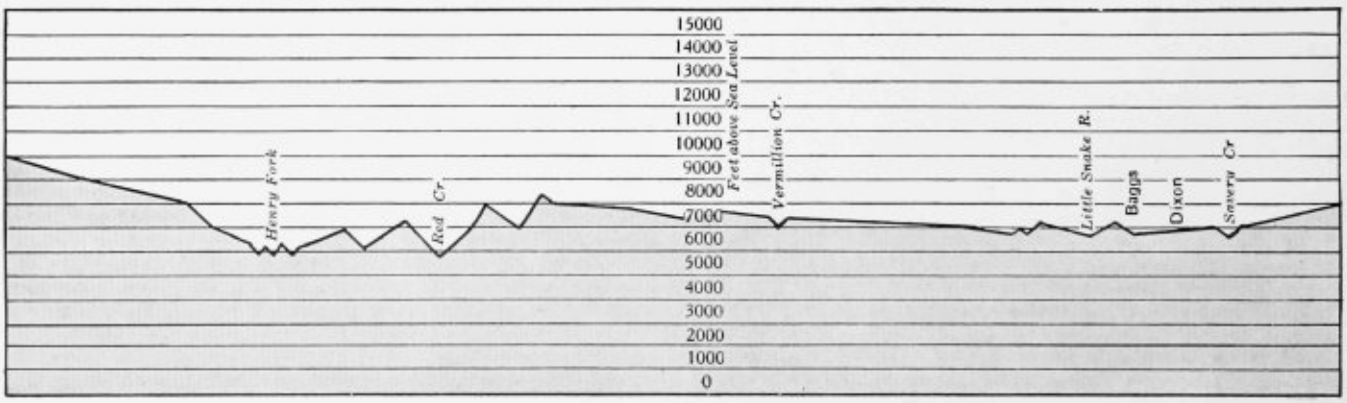
Independence.

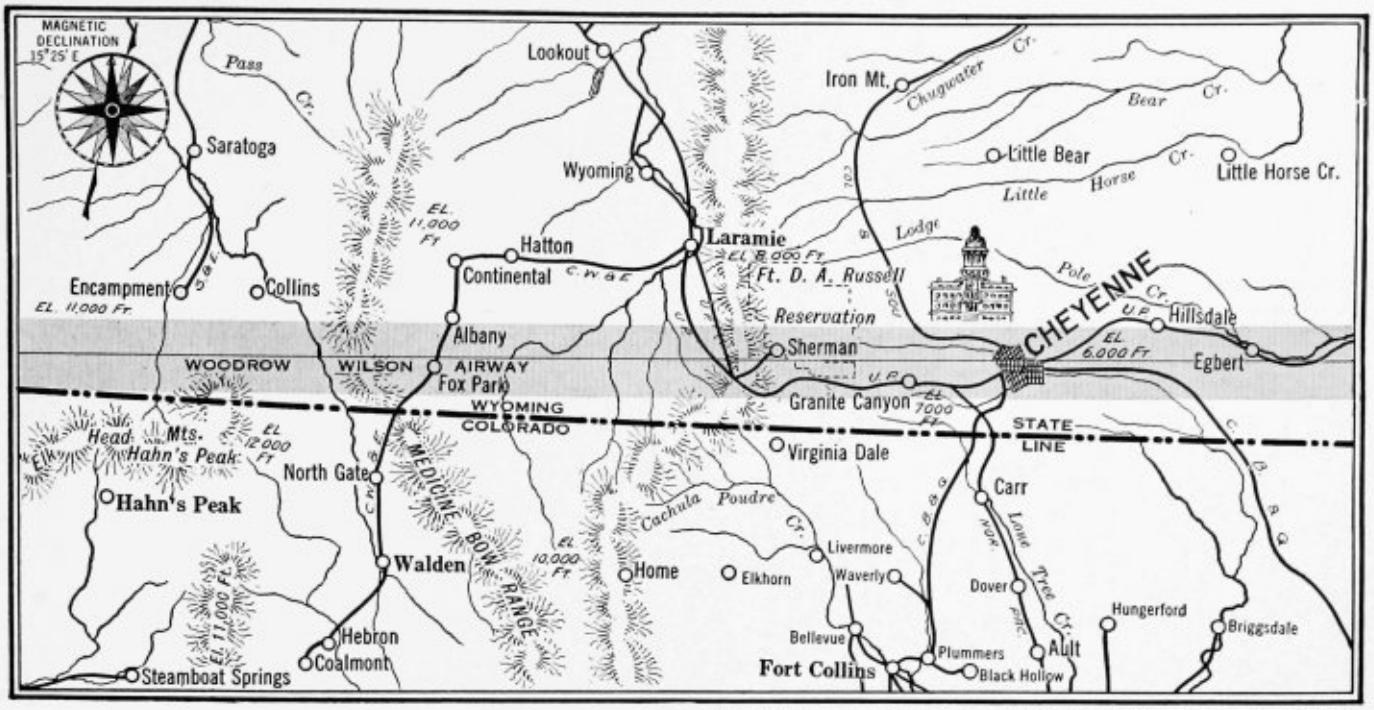
## SECTION OF THE WYOMING, UTAH AND COLORADO DIVISION OF THE WOODROW WILSON AIRWAY

Low, Promontory Point, Saltair, Lakepoint, Grantsville, Plain City, Hooper, Syracuse, Kaysville, Bountiful, Midvale, Bingham Canyon, Tooele, Lehi, Ophir, Mercur, Vernon, Salt Lake City, Ogden, Huntsville, Peterson, Wahsatch, Castle Rock, Morgan, Echo.

### COLORADO DIVISION

There are thirty cities and towns in the Colorado Division of the Woodrow Wilson Airway, as follows: Hahns Peak, Maybell, Lay, Craig, Hayden, Steamboat Springs, Virginia Dale, Carr, Northgate, Walden, Livermore, Home, Elkhorn, Waverly, Haxton, Dover, Bellevue, Hebron, Coalmont, Plummers, Fort Collins, Ault, Black Hollow, Hungerford, Crook, Iliff, Briggsdale, Sterling, Julesburg, Henderson.

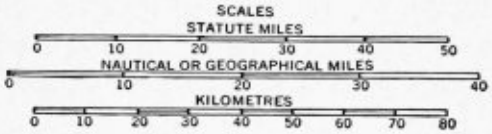







## RAILROADS AND NATIONAL HIGHWAYS CROSSING AND PARALLELING THE WOODROW WILSON AIRWAY

Union Pacific.
Chicago, Burlington and Quincy.
Colorado and Southern.
Colorado, Wyoming and Eastern.
Northern Pacific.
Saratoga and Encampment.
Lincoln Highway

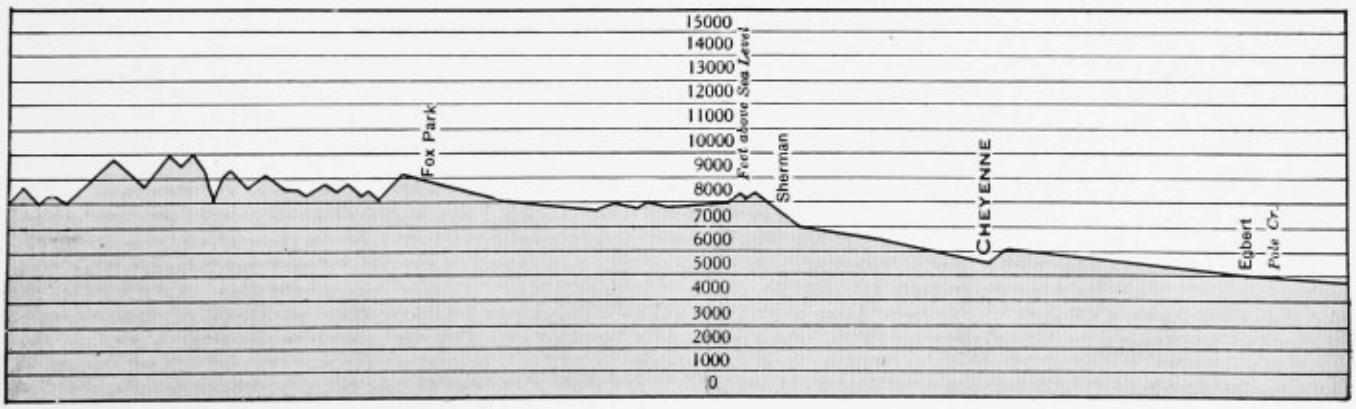


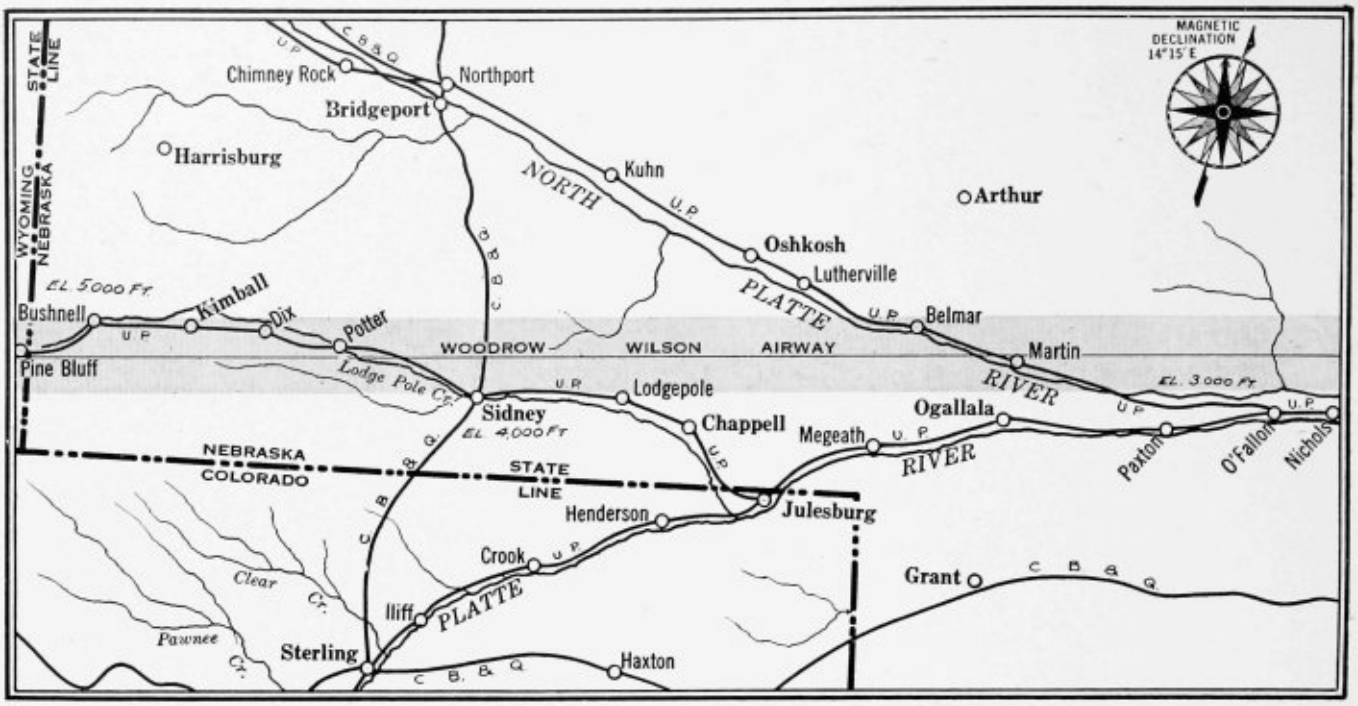

**The shaded line indicates the Woodrow Wilson Airway which comprises a belt eighty miles in width. All cities and communities on this map are designated as being on the Woodrow Wilson Airway, including railroads, mountain ranges and other natural features. At bottom of page elevations along airway.**

## SECTION OF THE WYOMING AND COLORADO DIVISION OF THE WOODROW WILSON AIRWAY

### WYOMING DIVISION

There are twenty-nine cities and towns in the Wyoming Division of the Woodrow Wilson Airway, as follows: Carter, Green River, Le Roy, Evanston, Fort Bridger, Aspen, Burntfork, Table Rock, Baggs, Dixon, Saratoga, Encampment, Collins, Albany, Foxpark, Lookout,






## RAILROADS AND NATIONAL HIGHWAYS CROSSING AND PARALLELING THE WOODROW WILSON AIRWAY

Union Pacific.
Chicago, Burlington and Quincy.
Lincoln Highway

*Weather Bureau Stations.*

Middle and Northern Plateau.

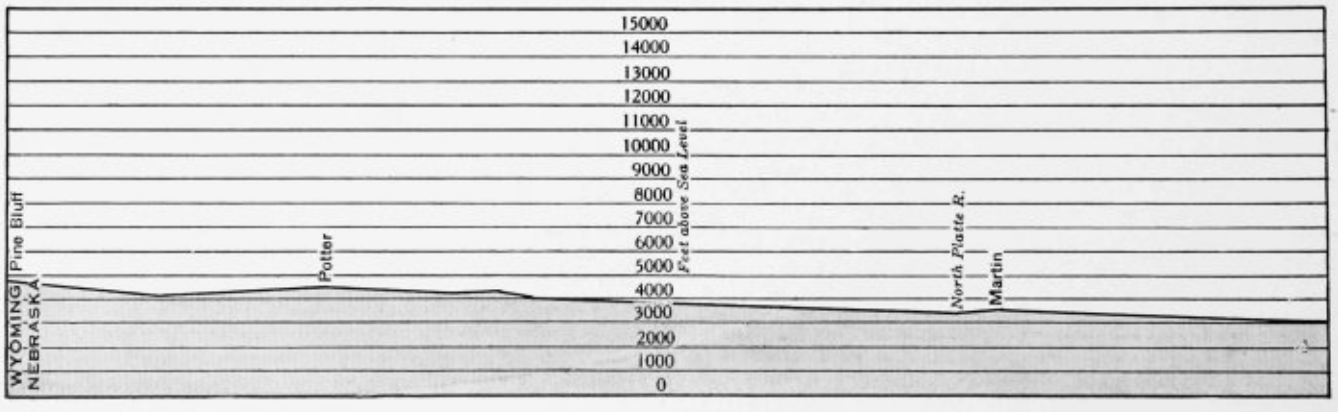
| | | |
|---|---|---|
| Reno. | Winnemucca. | Salt Lake City. |
| Tonopah. | Modena. | Grand Junction. |
| Baker. | Lewiston. | Spokane. |
| Boise. | Pocatello. | Walla Walla. |

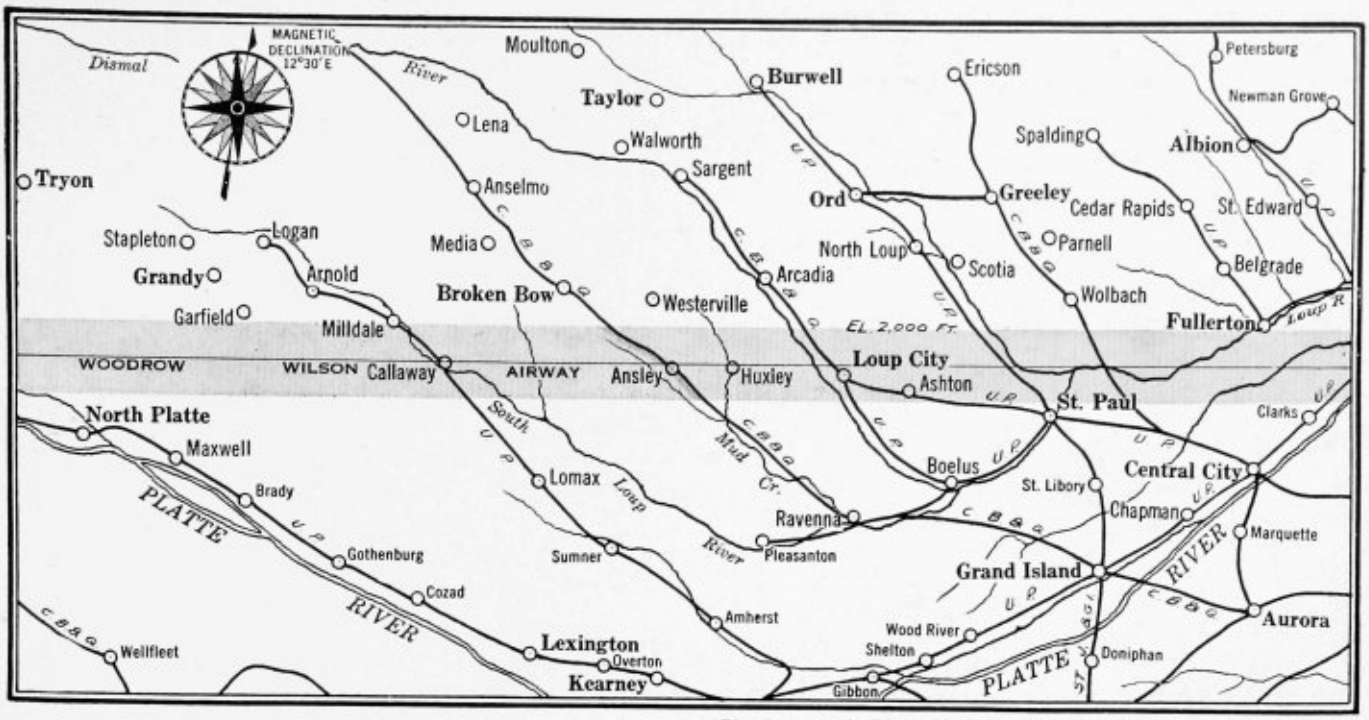
## SECTION OF THE WYOMING, COLORADO AND NEBRASKA DIVISION OF THE WOODROW WILSON AIRWAY

Iron Mountain, Little Bear, Granite Canyon, Cheyenne, Little Horsecreek, Wyoming, Hatton, Laramie, Hillsdale, Egbert, Sherman, Pine Bluff, Centennial.

### NEBRASKA DIVISION

There are 151 cities and towns in the Nebraska Division of the Woodrow Wilson Airway, as follows: Chimney Rock, Northport, Bridgeport, Kuhn, Harrisburg, Oshkosh, Lutherville, Belmar, Bushnell, Kimball, Potter, Dix, Sidney, Lodgepole, Chappell, Megeath, Lena, Tryon, Anselmo, Stapleton, Merna, Logan, Arthur, Gandy, Arnold, Martin, Garfield, Callaway, Milldale, Broken Bow, O'Fallons, North Platte, Nichols, Maxwell, Ogallala, Paxton, Brady, Gothenberg, Cozad, Wellfleet, Grant, Moulton, Burwell, Bartlett, Closter,






(C) *Aeronautic Maps Association, 299 Madison Ave., N. Y. City*

SCALES

STATUTE MILES 0 10 20 30 40 50

NAUTICAL OR GEOGRAPHICAL MILES 0 10 20 30 40

KILOMETRES 0 10 20 30 40 50 60 70 80

## RAILROADS AND NATIONAL HIGHWAYS CROSSING AND PARALLELING THE WOODROW WILSON AIRWAY

Union Pacific.

Chicago, Burlington and Quincy.

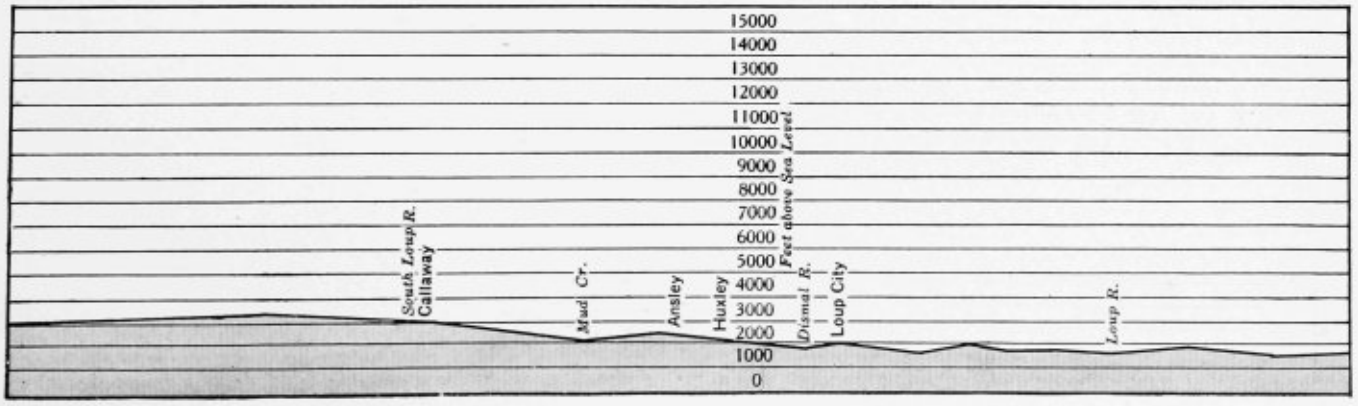
St. Joseph and Grand Island.

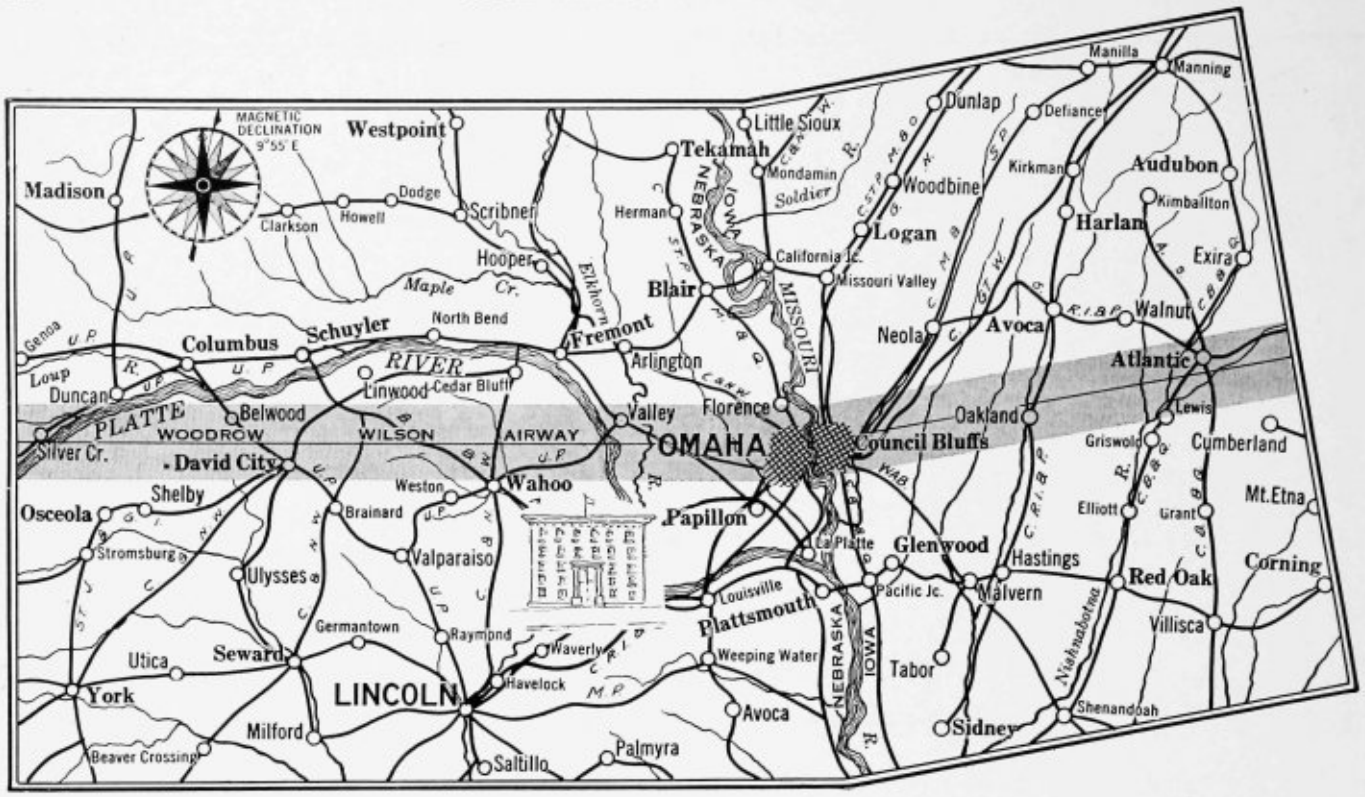
Lincoln Highway

The shaded line indicates the Woodrow Wilson Airway which comprises a belt eighty miles in width. All cities and communities on this map are designated as being on the Woodrow Wilson Airway, including railroads, mountain ranges and other natural features. At bottom of page elevations along airway.

## SECTION OF THE NEBRASKA DIVISION OF THE WOODROW WILSON AIRWAY

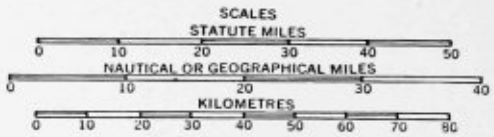
Taylor, Walworth, Spalding, Albion, Humphrey, Sargent, Ord, Petersburg, Greeley, Newman Grove, Cedar Rapids, St. Edward, North Loup, Parnell, Belgrade, Westerville, Arcadia, Scotia, Gehoa, Wolbach, Fullerton, Ansley, Loup City, Huxley, St. Paul, Ashton, Elm Creek, Gibbon, Doniphan, Shelton, Aurora, Enoa, Westpoint, Oakland, Madison, Howell, Clarks, Central City, Lomax, Ravenna, Boelus, St. Libory, Chapman, Marquette, Sumner, Tekamah, Leigh, Clarkson, Dodge, Scribner, Herman, Hooper, California Junction, Columbus, Pleasanton, Amherst, Grand Island, Lexington, Wood River, Overton, Kearney, Schuyler, Blair, Fremont, North Bend, Arlington, Duncan, Ellwood, Cedar Bluffs, Bellwood, Florence, Valley, Silver Creek, David City, Omaha, Osceola, Weston,






## RAILROADS AND NATIONAL HIGHWAYS CROSSING AND PARALLELING THE WOODROW WILSON AIRWAY

Chicago, Milwaukee and St. Paul.
Chicago and Northwestern.
Chicago, Rock Island and Pacific.
Iowa Central.
Wabash.
Chicago, Burlington and Quincy.
Chicago Great Western.
Lincoln Highway.



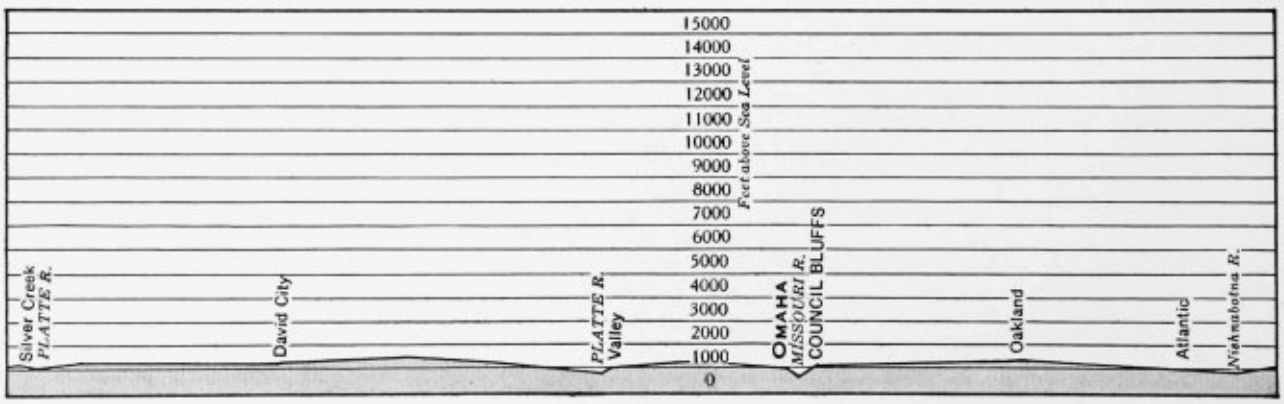

The shaded line indicates the Woodrow Wilson Airway which comprises a belt eighty miles in width. All cities and communities on this map are designated as being on the Woodrow Wilson Airway, including railroads, mountain ranges and other natural features. At bottom of page elevations along airway.

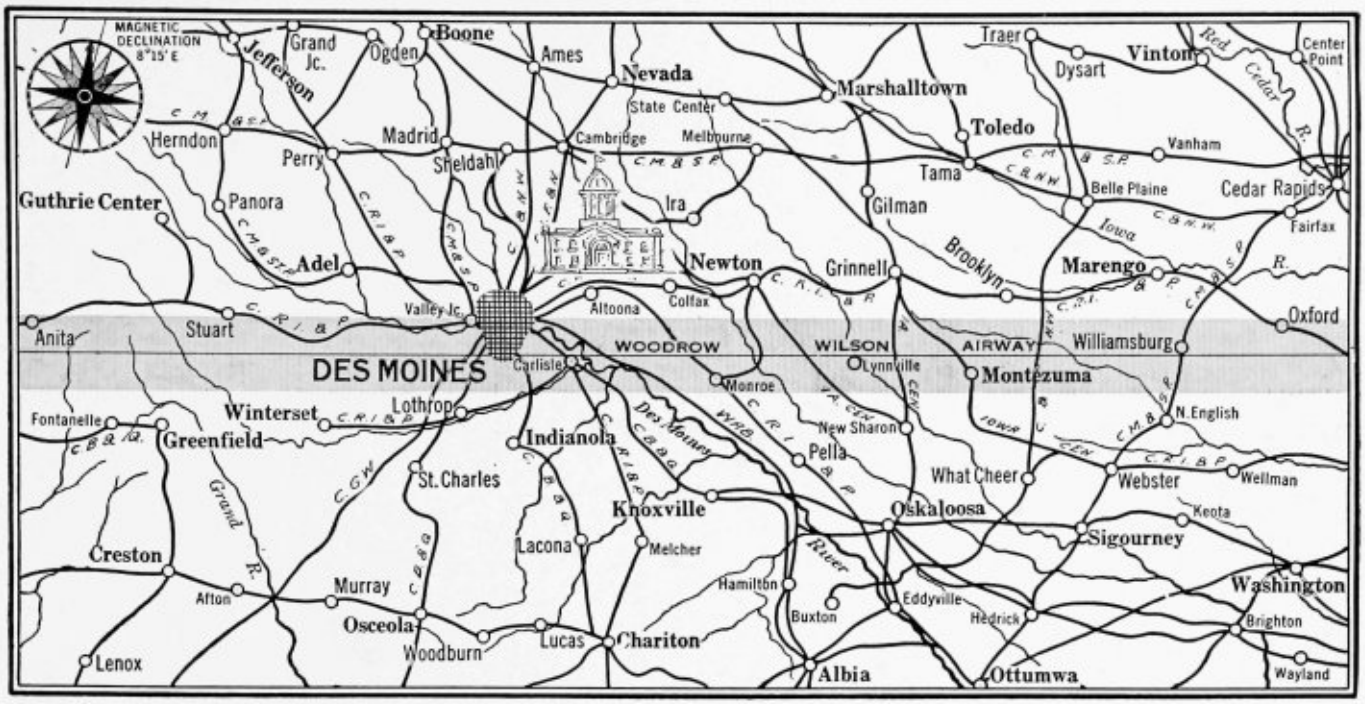
## SECTION OF NEBRASKA AND IOWA DIVISION OF WOODROW WILSON AIRWAY

Wahoo, Shelby, Brainard, Stromsburg, Ulysses, Valparaiso, Papillion, La Platte, Ashland, Louisville, Germantown, Raymond, York, Waverly, Utica, Avoca, Plattsmouth, Havelock, Weeping Water, Seward, Lincoln, Milford, Nebraska City, Beaver Crossing, Saltillo, Palmyra, Dunbar, Syracuse, Bennett.

### IOWA DIVISION

There are 152 cities and towns in the Iowa Division of the Woodrow Wilson Airway, as





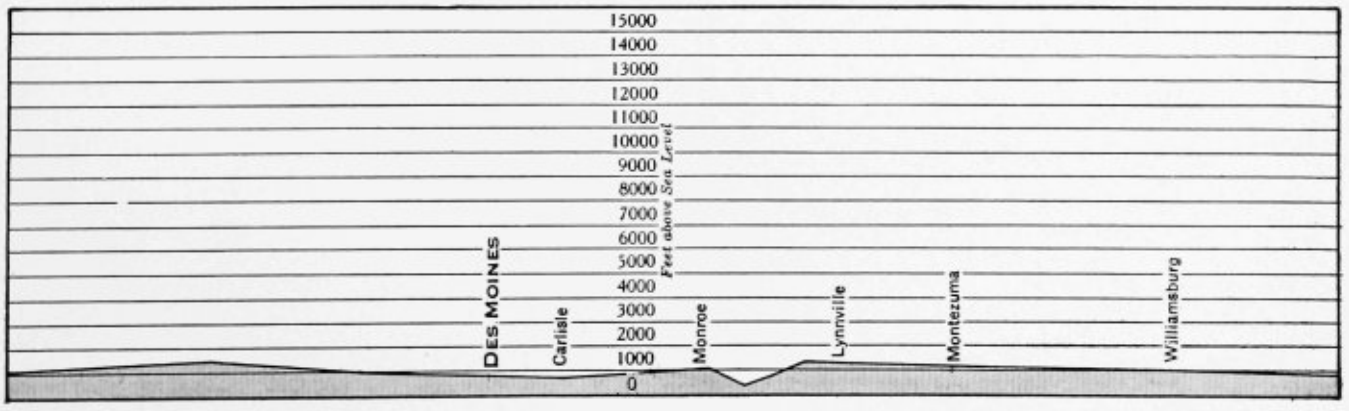

(C) *Aeronautic Maps Association, 299 Madison Ave., N. Y. City*

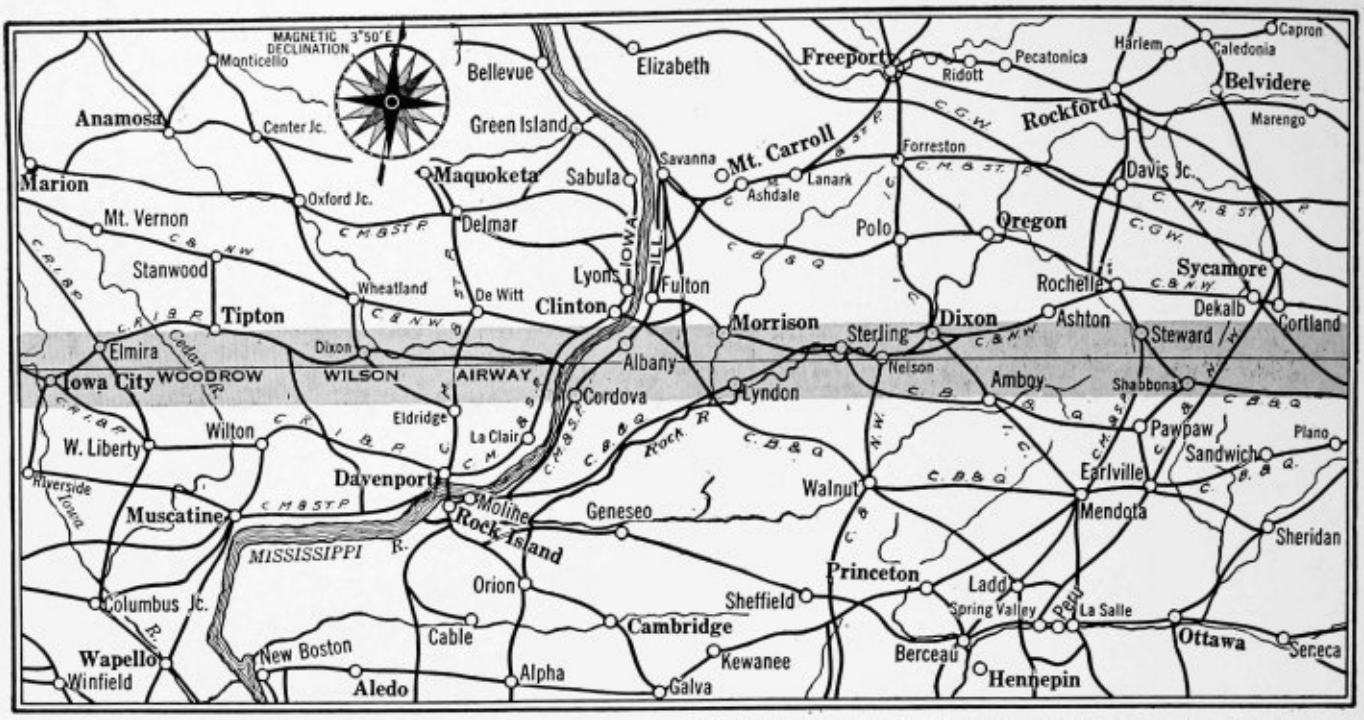
## RAILROADS AND NATIONAL HIGHWAYS CROSSING AND PARALLELING THE WOODROW WILSON AIRWAY

Union Pacific.
Chicago and Northwestern.
Chicago, Rock Island and Pacific.
Chicago, St. Paul, Minneapolis and Omaha.
Chicago, Milwaukee and St. Paul.
St. Joseph and Grand Island.
Burlington and Missouri River.
Chicago Great Western.
Chicago, Burlington and Quincy.
Wabash.
Missouri Pacific.
Lincoln Highway.

## SECTION OF THE IOWA DIVISION OF THE WOODROW WILSON AIRWAY

follows: Boone, Grand Junction, Jefferson, Ogden, Manning, Dunlap, Manilla, Coon Rapids, Madrid, Little Sioux, Defiance, Herndon, Perry, Mondamin, Woodbine, Kirkman, Kimballton, Ames, Audubon, Panora, Logan, Oakland, Harlan, Guthrie Center, Adel, Anita, Missouri Valley, Avoca, Stuart, Exira, Vinton, Neola, Traer, Walnut, Dysart, Atlantic, Center Point, State Center, Marshalltown, Nevada, Toledo, Tama, Vanhorn, Cambridge, Melbourne, Belle Plaine, Fairfax, Sheldahl, Gilman, Marengo, Ira, Colfax, Newton, Grinnell, Oxford, Brooklyn, Valley Junction, Altoona, Des Moines, Fontanelle, Cumberland, Greenfield, Williamsburg, Cascade, Bellevue, Monticello, Anamosa, Green Island, Marion, Center Junction, Maquoketa, Sabula, St. Charles, Elliott, Mt. Etna, Cedar Rapids, Oxford Junction, Delmar, Mt. Vernon, Stanwood, Dewitt, Clinton, Lyons, La Platte, Grant, Creston, Murray, Elmira, Tipton, Wheatland, Dixon, Lothrop, Winterset, Council Bluffs, Lewis, Griswold, Osceola, Glenwood, Hastings, Malvern, Pacific Junction, Tabor, Sidney, Shenandoah, Payne, Red Oak, Villisca, Afton, Woodburn, Corning, Lenox, Tingley, Indianola,






## RAILROADS AND NATIONAL HIGHWAYS CROSSING AND PARALLELING THE WOODROW WILSON AIRWAY

Chicago Great Western.
Illinois Central.
Chicago, Milwaukee and St. Paul.
Chicago, Burlington and Quincy.
Chicago and Northwestern.
Lincoln Highway.

**A complete list of the Weather Bureau Stations throughout this region will be found on page 91.**

## SECTION OF IOWA AND ILLINOIS DIVISION OF WOODROW WILSON AIRWAY

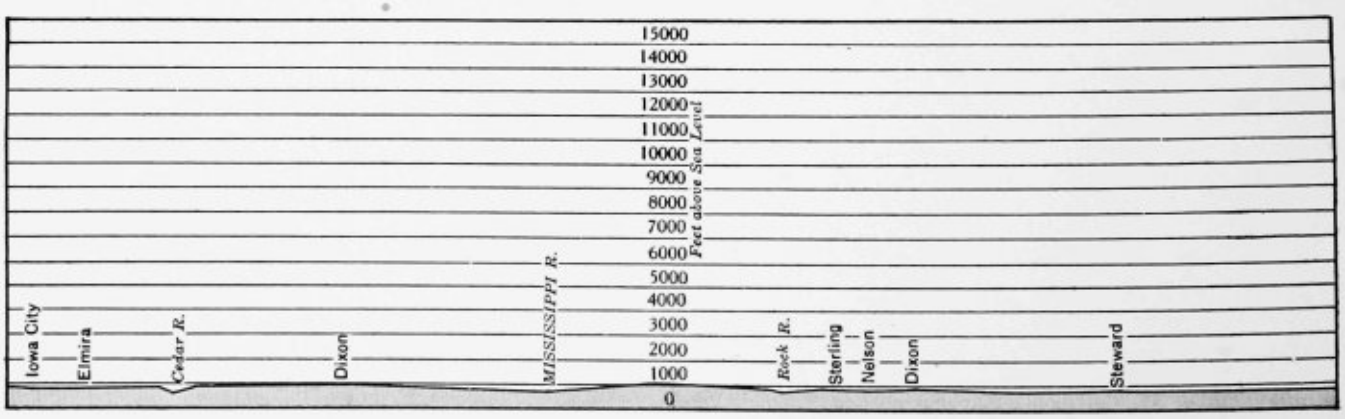
Knoxville, Melcher, Hamilton, Chariton, Lacona, Lucas, Carlisle, Monroe, Pella, Albia, Lynnville, Buxton, New Sharon, Oskaloosa, Eddyville, Montezuma, Ottumwa, Wayland, What Cheer, Hedrick, Iowa City, Webster, Riverside, Sigourney, Winfield, North English, Keota, Columbus Junction, Wellman, Brighton, Washington, West Liberty, Wapello, Wilton, Muscatine, Eldridge, Le Claire, Davenport.

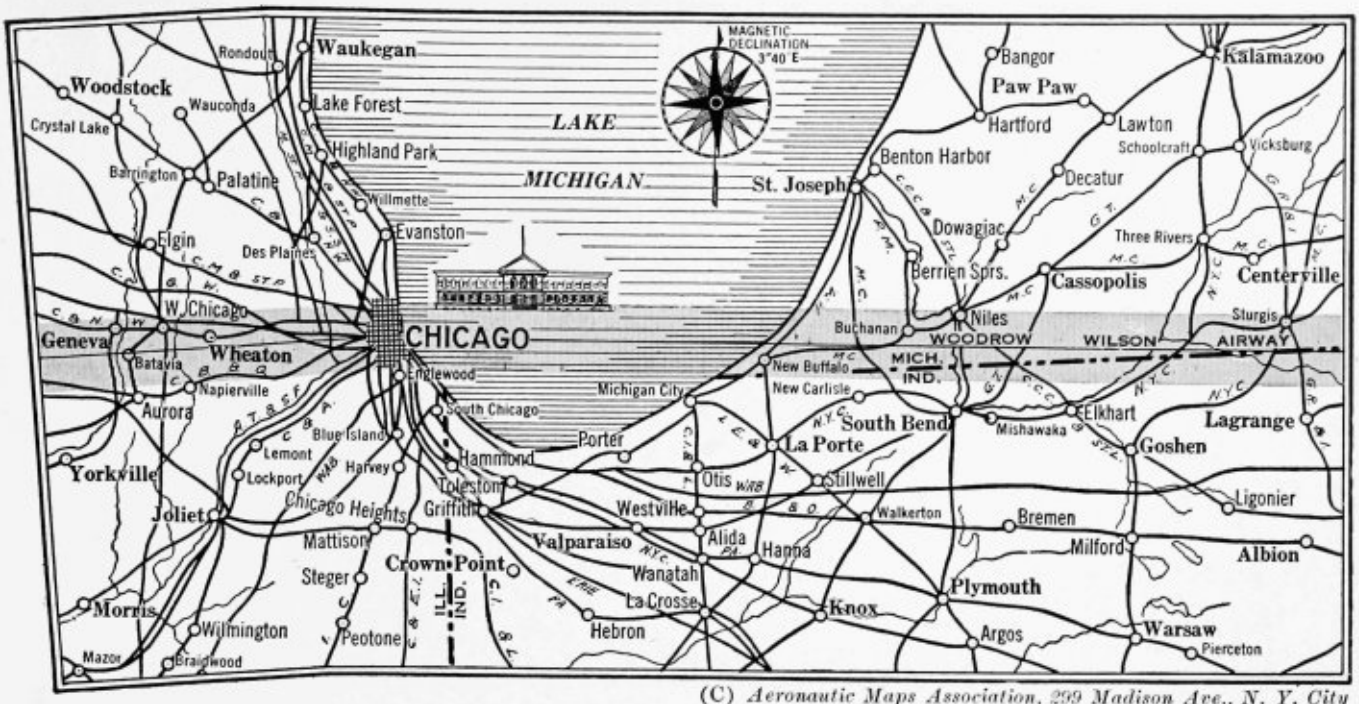
### ILLINOIS DIVISION

There are ninety-eight cities and towns in the Illinois Division of the Woodrow Wilson Airway, as follows: Pecatonica, Freeport, Bidott, Elizabeth, Savanna, Mt. Carroll, Forreston, Lanark, Ashdale, Crystal Lake, Barrington, Highland Park, Willmette, Davis Junction, Palatine, Evanston, Sycamore, Elgin, Des Plaines, Oregon, Polo, Ashton, Fulton, Morrison, Albany, Sterling, Dixon, Harlem, Capron, Caledonia, Woodstock, Waukegan, Rockford, Belvidere, Marengo, Wauconda, Rondout, Lake Forest, Rochelle, Cortland, West Chicago, Dekalb, Steward, Geneva, Batavia, Chicago, Amboy, Lyndon, Shabbona, Wheaton, Moline, Rock Island, Cable, New Boston, Aledo, Cordova, Walnut, Geneseo, Ladd, Princeton, Orion, Peru, Sheffield, Spring Valley, Plano, Naperville, Cambridge, Alpha, Kewanee, Galva, Bureau, Hennepin, Pawpaw, Aurora, Englewood, South Chicago, Sandwich, Blue Island, Lemont, Earlville, Mendota, Yorkville, Harvey, Lockport, Sheridan, Joliet, Matteson, Steger, Lasalle, Seneca, Chicago Heights, Ottawa, Mazon, Morris, Wilmington, Braidwood, Peotone.

### INDIANA DIVISION

There are thirty-nine cities and towns in the Indiana Division of the Woodrow Wilson Airway, as follows: Hammond, New Carlisle, Mishawaka, Fremont, Michigan

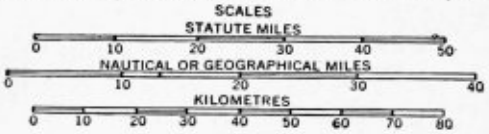





(C) *Aeronautic Maps Association, 299 Madison Ave., N. Y. City*

## RAILROADS AND NATIONAL HIGHWAYS CROSSING AND PARALLELING THE WOODROW WILSON AIRWAY

Chicago and Northwestern.
Chicago, Milwaukee and St. Paul.
Chicago Great Western.
Chicago, Burlington and Quincy.
Atchison, Topeka and Santa Fé.
Chicago and Alton.
Elgin, Joliet and Eastern.
Wabash.
Illinois Central.
Chicago and Eastern Illinois.
Chicago, Indiana and Louisville.
Pennsylvania.
Erie. Lincoln Highway.
New York Central.
Baltimore and Ohio.
Lake Erie and Western.
Michigan Central.
Père Marquette.
Cleveland, Cincinnati, Chicago and St. Louis.
Grand Rapids and Indiana.
Chesapeake and Ohio.



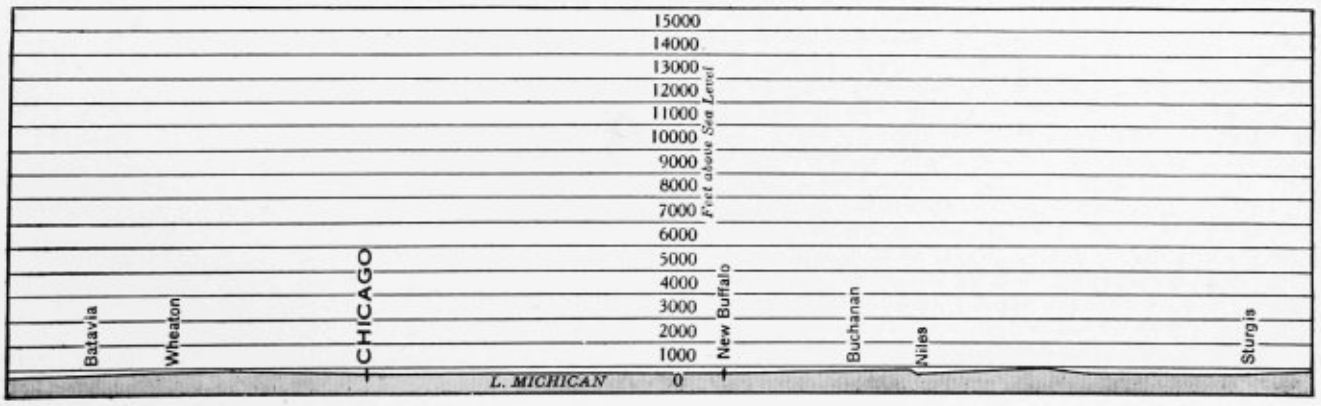

The shaded line indicates the Woodrow Wilson Airway which comprises a belt eighty miles in width. All cities and communities on this map are designated as being on the Woodrow Wilson Airway, including railroads, mountain ranges and other natural features. At bottom of page elevations along airway.

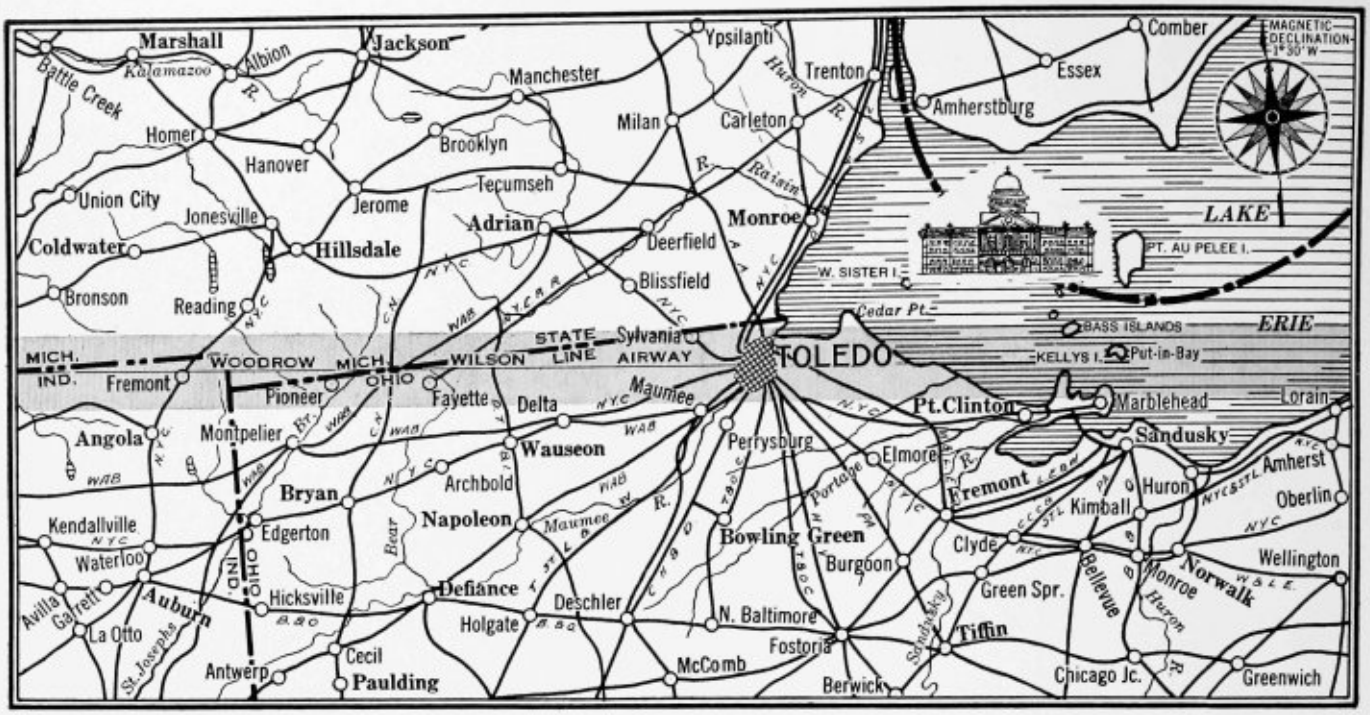
## SECTION OF THE ILLINOIS, MICHIGAN AND INDIANA DIVISION OF THE WOODROW WILSON AIRWAY

City, Porter, Laporte, South Bend, Elkhart, Goshen, Lagrange, Angola, Tolleston, Otis, Stillwell, Griffith, Valparaiso, Alida, Walkerton, Bremen, Ligonier, Kendallville, Waterloo, Crown Point, Hanna, Milford, Albion, Auburn, Lowell, Hebron, LaCrosse, Knox, Plymouth, Avilla, Garrett, LaOtto, Argos, Warsaw, Pierceton.

### MICHIGAN DIVISION

There are forty-eight cities and towns in the Michigan Division of the Woodrow Wilson Airway, as follows: New Buffalo, Buchanan, Niles, Sturgis, South Haven, Grand Junction, Battle Creek, Marshall, Kalamazoo, Bangor, Paw Paw, Hartford, Benton Harbor, Vicksburg, Schoolcraft, Decatur, Union City, St. Joseph, Dowagiac, Three Rivers, Berrien Springs, Coldwater, Bronson, Cassopolis, Centerville, Jonesville, Jackson, Albion, Homer, Hanover, Jerome, Hillsdale, Reading, Chelsea, Wayne, Ann Arbor, Ypsilanti, Wyandotte, Manchester, Trenton, Brooklyn, Milan, Carleton, Tecumseh, Adrian, Deerfield, Blissfield, Monroe.






## RAILROADS AND NATIONAL HIGHWAYS CROSSING AND PARALLELING THE WOODROW WILSON AIRWAY

New York Central.
Toledo Short Line.
Pennsylvania.
Wabash.
Baltimore and Ohio.
Cincinnati Northern.
Toledo, St. Louis and Western.
Toledo and Ohio Central.
Cincinnati, Hamilton and Dayton.
Hocking Valley.
Lake Erie and Western.
Cleveland, Cincinnati, Chicago and St. Louis.
Wheeling and Lake Erie.
New York, Chicago and St. Louis.
Père Marquette.
Michigan Central.
Lincoln Highway.

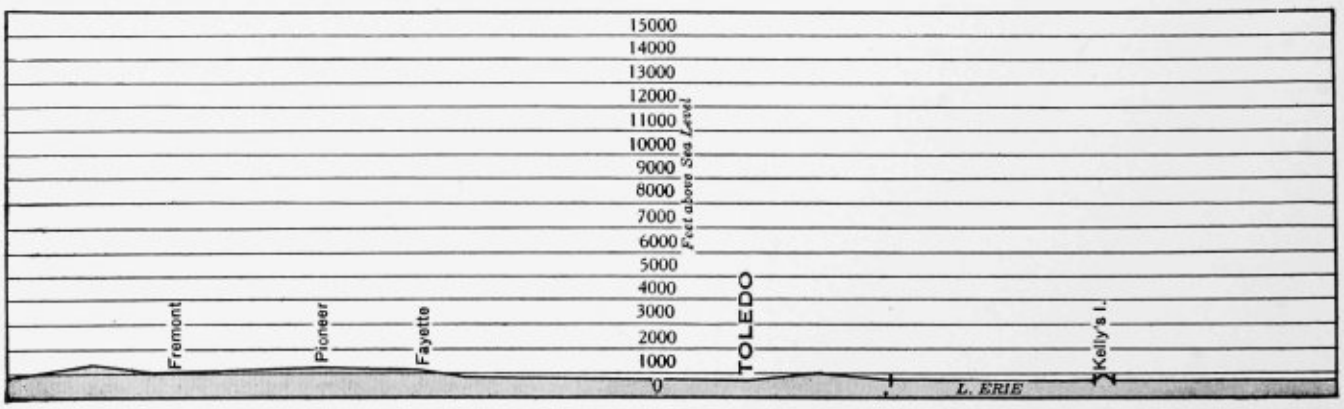
## SECTION OF THE MICHIGAN, INDIANA, OHIO AND CANADA DIVISION OF THE WOODROW WILSON AIRWAY

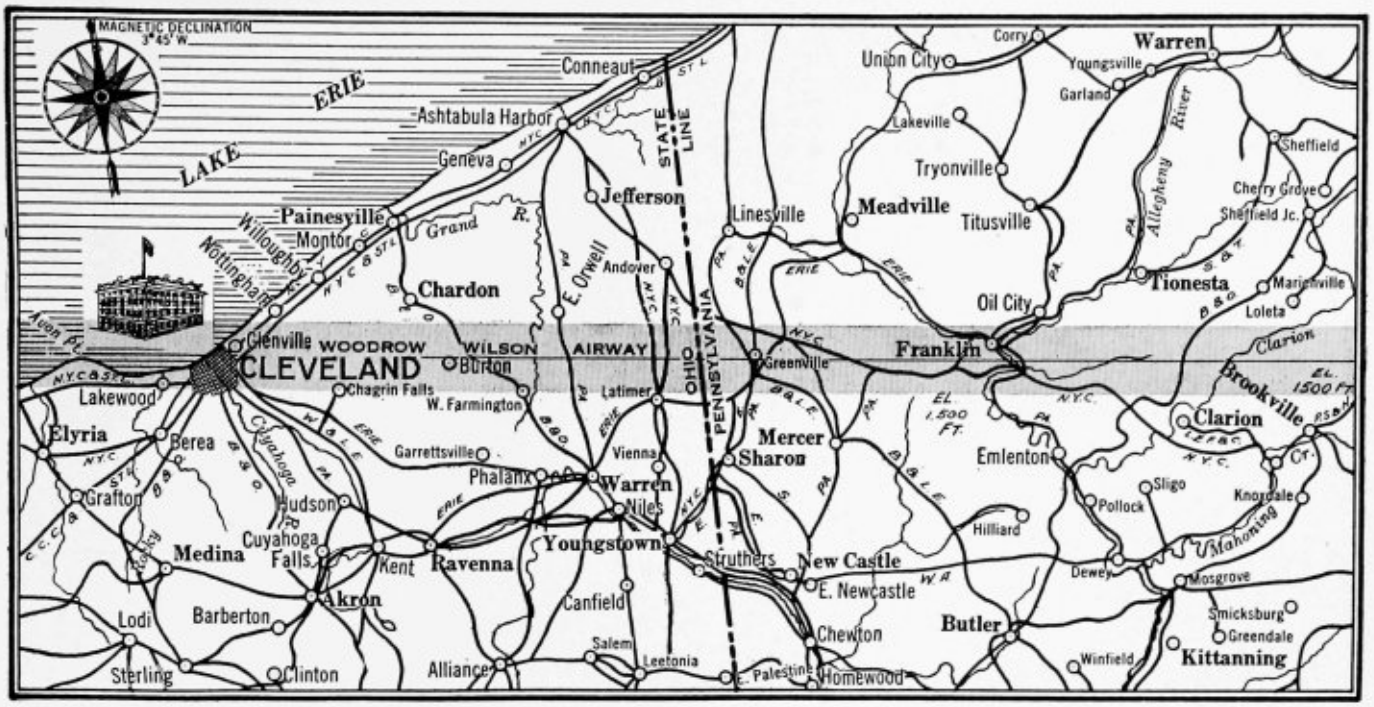
### OHIO DIVISION

There are eighty-two cities and towns in the Ohio Division of the Woodrow Wilson Airway, as follows: Pioneer, Fayette, Sylvania, Toledo, Montpelier, Archbold, Holgate, Deshler, Burgoon, Clyde, Kimball, Antwerp, Cecil, North Baltimore, Fostoria, Green Springs, Paulding, McComb, Wauseon, Delta, Maumee, Perrysburg, Port Clinton, Bryan, Edgerton, Napoleon, Elmore, Bowling Green, Fremont, Defiance, Hicksville, Tiffin, Chicago Junction, Sandusky, Lorain, Elyria, Huron, Amherst, Oberlin, Norwalk, Monroe Valley, Bellevue, Greenwich, Wellington, Lakewood, Berea, Grafton, Lodi, Medina, Cuyahoga Falls, Akron, Barberton, Glenville, Cleveland, Sterling, Nottingham, Burton, Chagrin Falls, Garrettsville, Hudson, Phalanx, Kent, Ravenna, West Farmington, Latimer, Warren, Vienna, Niles, Youngstown, Canfield, Struthers, Salem, Conneaut, Ashtabula, Geneva, Jefferson, Painesville, Mentor, Willoughby, Chardon, Andover, East Orwell.

### CANADA DIVISION

There are four cities and towns in the Canada Division of the Woodrow Wilson Airway, as follows: Windsor, Comber, Essex, Amherstburg.

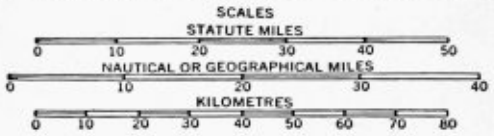





(C) *Aeronautic Maps Association, 299 Madison Ave., N. Y. City*

## RAILROADS AND NATIONAL HIGHWAYS CROSSING AND PARALLELING THE WOODROW WILSON AIRWAY

Baltimore and Ohio.
Cleveland, Cincinnati, Chicago and St. Louis.
New York, Chicago and St. Louis.
Pennsylvania.
Wheeling and Lake Erie.
Erie.
Buffalo and Lake Erie.
Pittsburgh, Shawmut and Northern.
Lake Erie, Franklin and Clarion.
Western Allegheny.
Sheffield and Tionesta.
Lincoln Highway.

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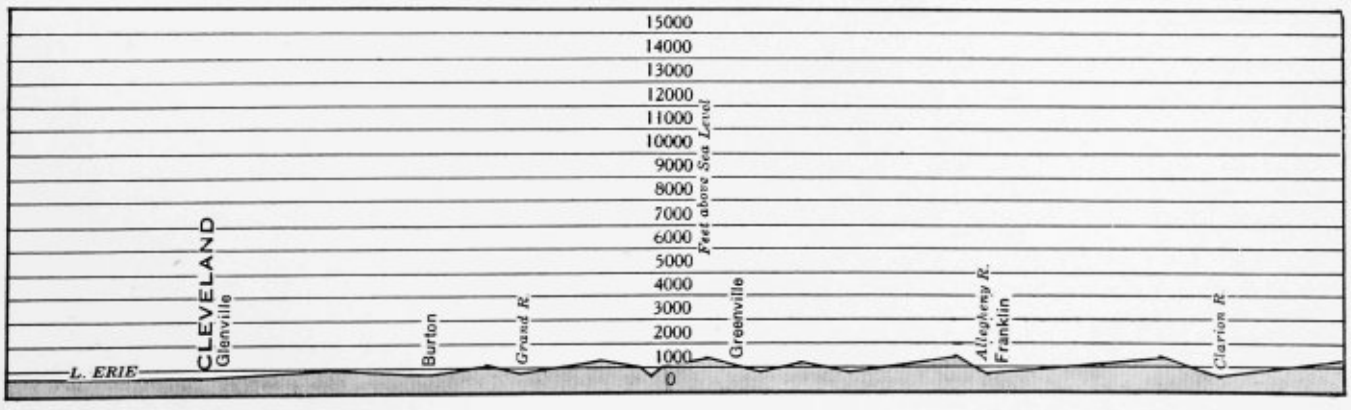
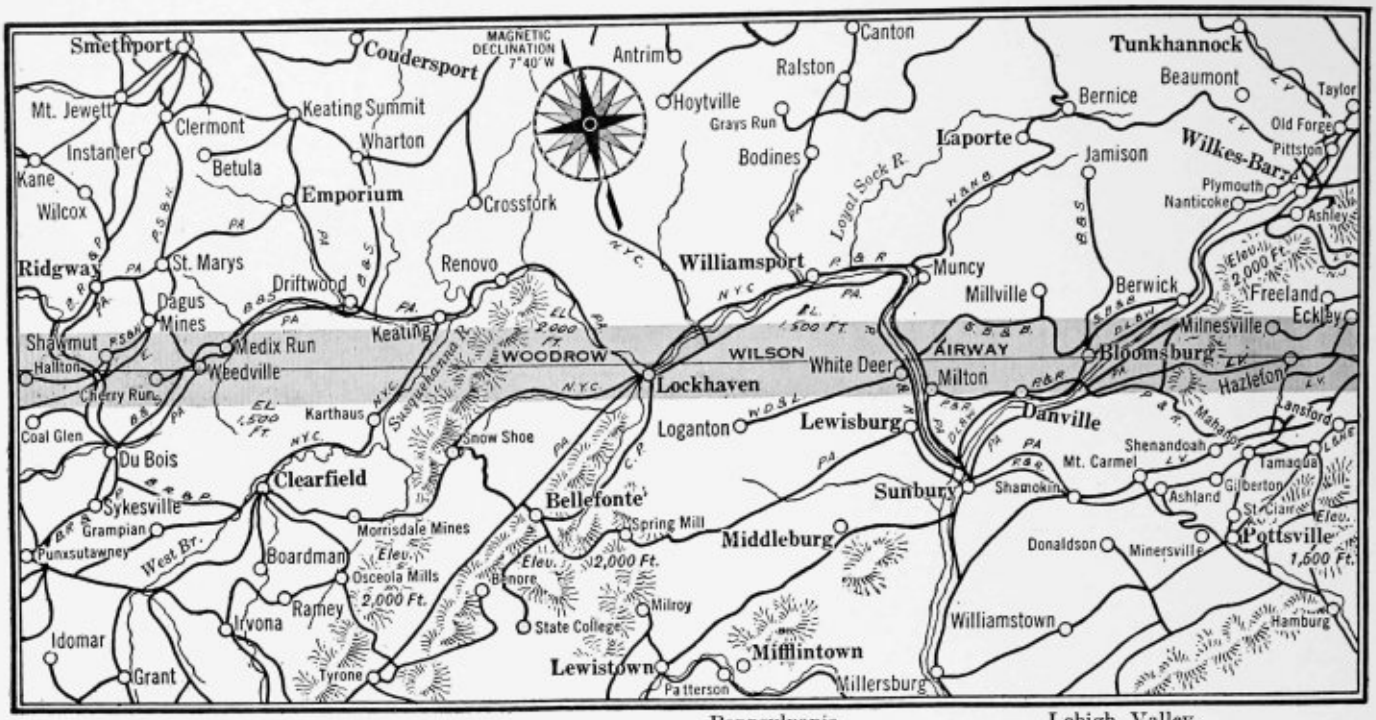
## SECTION OF THE OHIO AND PENNSYLVANIA DIVISION OF THE WOODROW WILSON AIRWAY

PENNSYLVANIA DIVISION

There are 170 cities and towns in the Pennsylvania Division of the Woodrow Wilson Airway, as follows: North Girard, Bustleton (Postal Aerial Mail Station for Philadelphia, Washington U. S. Postal Aerial Mail Line), Sugargrove, Union City, Corry, Youngsville, Warren, Garland, Lakeville, Linesville, Tyronville, Meadville, Titusville, Oil City, Tionesta, Ridgway, Greenville, Smethport, Mt. Jewett, Sheffield, Clermont, Keating Summit, Kane, Instanter, Cherry Grove, Wilcox, Betula, Sheffield Junction, James City, Marienville, Loleta, St. Marys, Dagus, Franklin, Shawmut, Mines, Medix Run, Coudersport, Sweden Valley, Wellsboro, Galeton, Wharton, Emporium, Crossfork, Driftwood, Renovo, Keating, Blossburg, Fallbrook, Antrim, Canton, Barclay, Ralston, Hoytville, Grays Run, Bodines, Williamsport, Tunkhannock, Bernice, Laporte, Beaumont, Jamison, Muncy, Millville, Bloomsburg, Milnesville, Archbald, Dickson City,






## RAILROADS AND NATIONAL HIGHWAYS CROSSING AND PARALLELING THE WOODROW WILSON AIRWAY

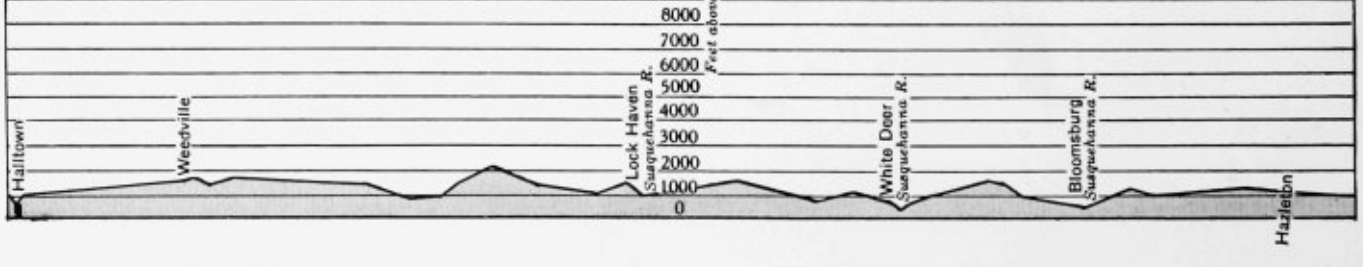
Buffalo, Rochester and Pittsburgh.
Pittsburgh, Shawmut and Northern.
Pennsylvania.
Buffalo and Susquehanna.
Erie.
New York Central.
Philadelphia and Reading.
Central Railroad of Pennsylvania.
Delaware, Lackawanna and Western.
Lehigh Valley.
Lehigh and New England.
Susquehanna, Bloomsburg and Burwick.
Central Railroad of New Jersey.
Williamsport and North Branch.
Lincoln Highway.

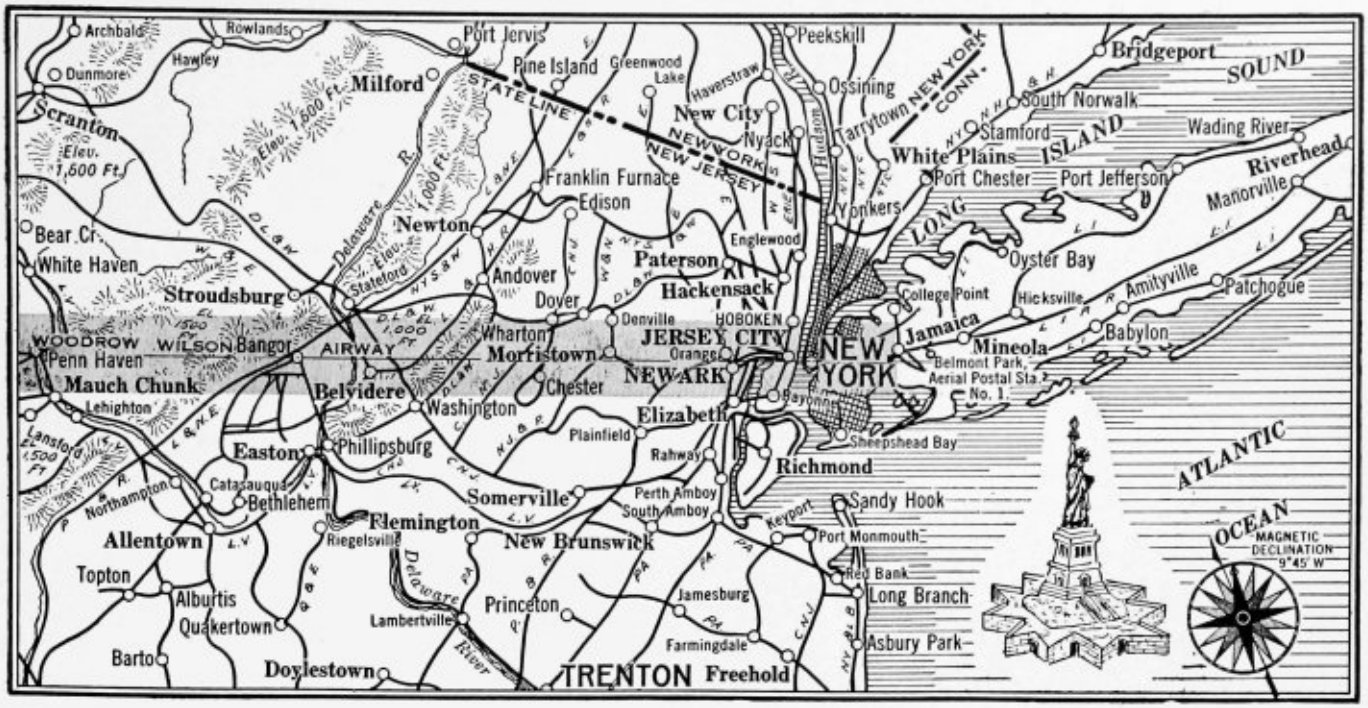
## SECTION OF THE PENNSYLVANIA DIVISION OF THE WOODROW WILSON AIRWAY

Dunmore, Lackawaxen, Hawley, Rowlands, Taylor, Old Forge, Pittston, Plymouth, Nanticoke, Berwick, Freeland, Scranton, Wilkes-Barre, Ashley, Bearcreek, White Haven, Eckley, Stroudsburg, Milford, Clearfield, Karthaus, Snow Shoe, Morrisdale Mines, Osceola Mills, Benore, State College, Milroy, Lock Haven, Loganton, White Deer, Lewisburg, Bellefonte, Spring Mill, Middleburg, Mifflintown, Patterson, Milton, Sunbury, Danville, Shenandoah, Mt. Carmel, Shamokin, Ashland, Hazleton, Lansford, Tamaqua, Millersburg, Donaldson, Minersville, Williamstown, Mercer, Hallton, Sharon, Clarion, Coal Glen, Weedville, Emlenton, Brookville, Hilliard, Sligo, DuBois, Pollock, New Castle, Dewey, Knoxdale, Sykesville, Grampum, East Newcastle, Chewton, Mos-Grove, Punxsutawney, Butler, Kittanning, Greendale, Smicksburg, Idomar, Ramey, Irvona, Boardman, Grant, Winfield, Cherry Run, Mahanoy, Gilberton, St. Clair, Pottsville, Hamburg, Penn Haven, Mauch Chunk, Bangor, Lehighton, Northampton, Easton, Catasauqua, Bethlehem, Allentown, Riegelsville, Alburtis, Topton, Barto, Quakertown, Doylestown, Summerville, Lewistown.

### NEW JERSEY DIVISION

There are forty-one cities and towns in the New Jersey Division of the Woodrow Wilson Airway, as follows: Franklin Furnace, Edison, Newton, Hackensack, Slateford, Andover, Paterson, Englewood, Dover, Denville, Hoboken, Wharton, Jersey City, Orange, Belvidere, Morristown, Chester, Newark, Washington, Phillipsburg,






(C) *Aeronautic Maps Association, 299 Madison Ave., N. Y. City*

SCALES

STATUTE MILES 0 10 20 30 40 50

NAUTICAL OR GEOGRAPHICAL MILES 0 10 20 30 40

KILOMETRES 0 10 20 30 40 50 60 70 80

## RAILROADS AND NATIONAL HIGHWAYS CROSSING AND PARALLELING THE WOODROW WILSON AIRWAY

Delaware, Lackawanna and Western.
Wilkesbarre and Eastern.
Lehigh Valley.
Philadelphia and Reading.
Lehigh and New England.
Lehigh and Hudson River.
Erie.
Pennsylvania.
Central Railroad of New Jersey.
West Shore.
New York, Susquehanna and Western.
New York, New Haven and Hartford.
New York and Long Branch.
Quakertown and Eastern.
Baltimore and Ohio.
Long Island.
Lincoln Highway.

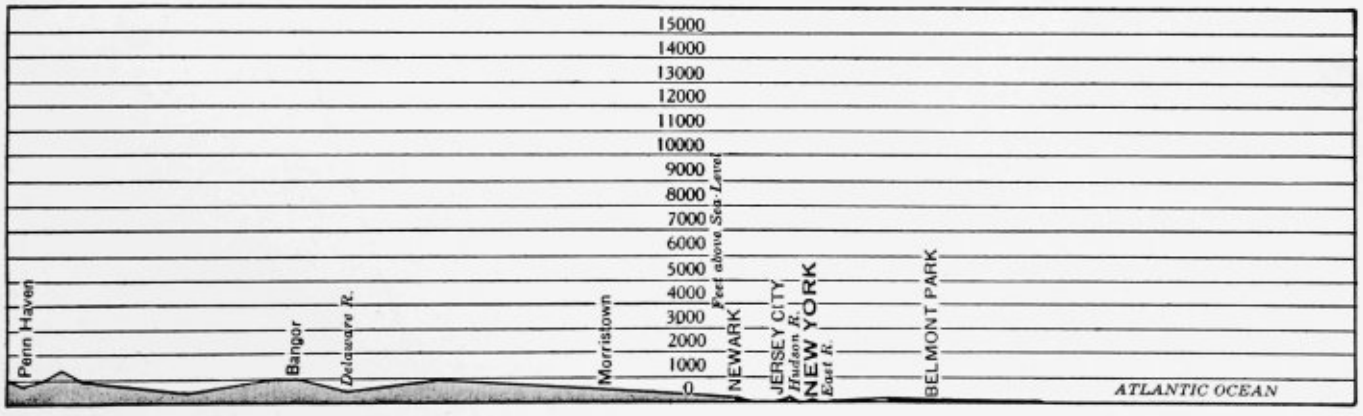
## SECTION OF THE PENNSYLVANIA, NEW JERSEY AND NEW YORK DIVISION OF THE WOODROW WILSON AIRWAY

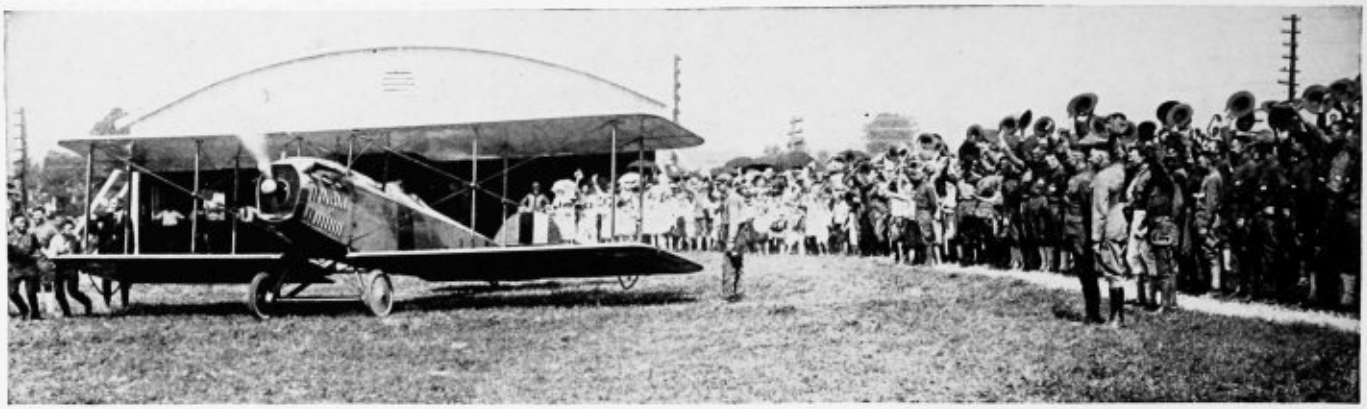
Union, Elizabeth, Bayonne, Plainfield, Rahway, Somerville, Flemington, Perth Amboy, South Amboy, New Brunswick, Lambertville, Princeton, Sandy Hook, Keyport, Red Bank, Port Monmouth, Long Branch, Jamesburg, Freehold, Asbury Park, Trenton.

### Cities and Towns in the Woodrow Wilson Airway

*New York State Division:* There are thirty cities and towns in the New York State Division of the Woodrow Wilson Airway, as follows: New York, Brooklyn, Goshen, Port Jervis, Greenwood Lake, New City, Haverstraw, Nyack, Peekskill, Ossining, Tarrytown, White Plains, Port Chester, and Yonkers.

*Long Island, New York:* Rockaway, Belmont Park (Postal Aerial Mail Station, terminal of Washington, U. S., Postal Aerial Mail Line), Mineola, Jamaica, Babylon, Greenport, Sag Harbor, Wading River, Port Jefferson, Riverhead, Long Island City, College Point, Hicksville, Amityville, Patchogue, Manorville, Locust Valley.

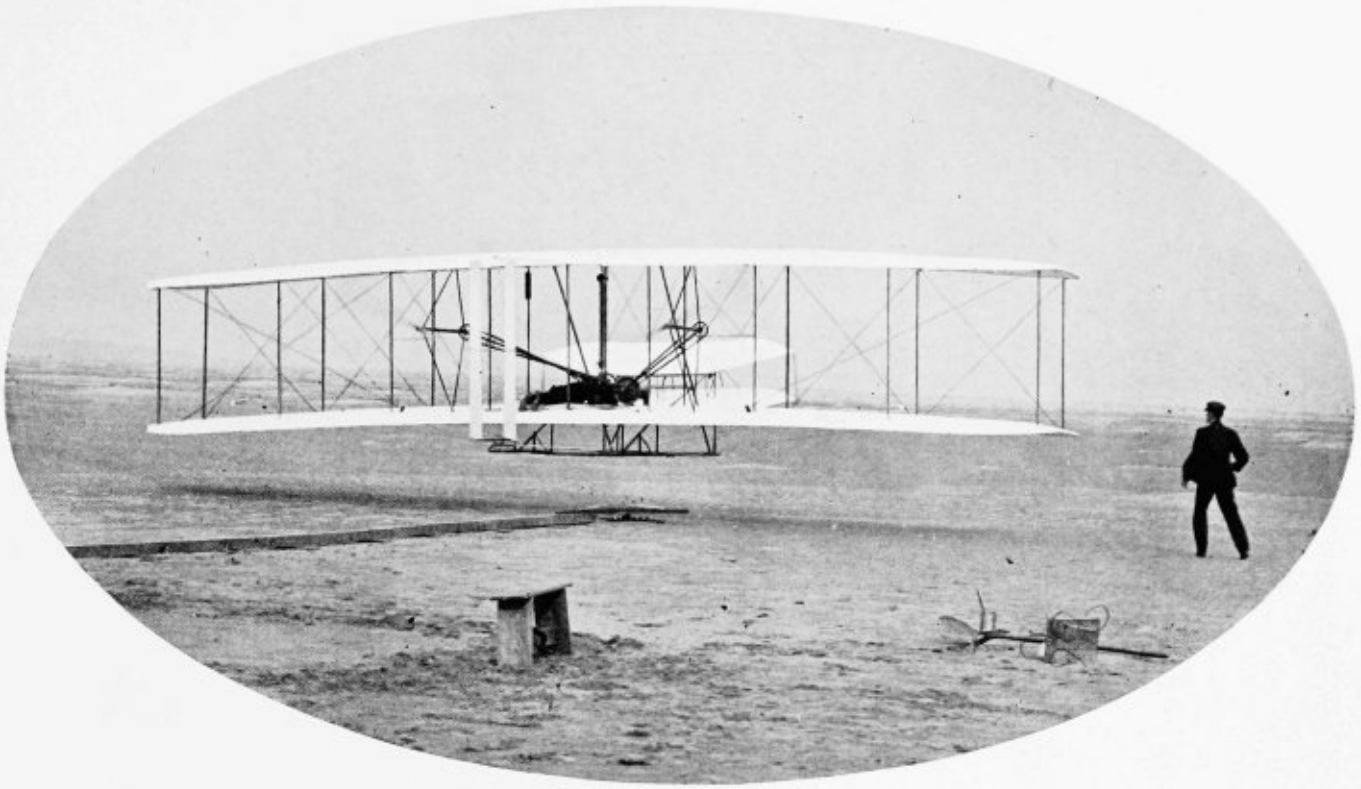




The inauguration of the first permanent aerial mail line from Washington to New York, via Philadelphia. The photo shows the start of the first plane from College Park, Md., which is the Washington terminal.

The first delivery of express matter by air between New York and Washington took place on May 25th, 1916, when Alan R. Hawley and Victor Carlstron carried 1,000 copies of a New York newspaper to the Capitol.

Harry N. Atwood landing on the White House lawn after the first Boston-Washington Flight, July 15, 1911.



The First Aeroplane Flight in History made by Orville Wright Dec. 17, 1903.

## THE WRIGHT BROTHERS AIRWAY

**The Wright Brothers Airway,** named after the famous inventors, represents a zone eighty miles in width, extending from Washington, D. C., with terminal at the U. S. Aerial Mail Station, College Park, Md., to San Diego, California. The center of this airway passes through the states of Virginia, North Carolina, South Carolina, Georgia, Alabama, Mississippi, Louisiana, Texas, New Mexico, Arizona and California. It also passes through the northern part of Mexico. The map of this airway is under preparation.

### D.C. Division of the Wright Brothers Airway

The cities and smaller communities on the D. C. Division of the Wright Brothers Airway are:

Washington.

### Maryland Division of the Wright Brothers Airway

The cities and smaller communities on the Maryland Division of the Wright Brothers Airway are:

La Plata, Port Tobacco, Popes Cr., Mechanicsville, Pt. of Rocks.

### Virginia Division of the Wright Brothers Airway

The cities and smaller communities on the Virginia Division of the Wright Brothers Airway are:

Waterford, Leesburg, Bluemont, Herndon, Front Royal, Clarendon, Falls Church, Fairfax, Arlington, Alexandria, Broad Run, Warrenton, Washington, Manassas, Mt. Vernon, Occoquan, Luray, Boston, Calverton, Quantico, Harrisonburg, Culpeper, Stafford, Elkton, Mitchell, Brooke, Bridgewater, Mathias Pt., Madison, Fredericksburg, King George, Mt. Sidney, Stanardsville, Orange, Parker, Staunton, Barbours V., Spotsylvania, Port Royal, Lindsay, Gordonsville, Waynesboro, Charlottesville, Louisa, Bowling Green, Crozet, Covesville, Penola, Tyler, Palmyra, Haden, Pamplin, Otter River, Charlotte, Altavista, Brookneal, Elba, Elamsville, Chatham, Martinsville, Stuart, Danville, Spencer, Stokesdale, Scotts V., Bremo Bluff, Columbia, Goochland, Warren, Lee, Oakridge, Powhatan, Lovingston, Buckingham, Bolling, Fincastle, Lynchburg, Vinton, Craigsville, Goshen, Rockbridge Alum Sprs., Griffith, Lexington, Lowesville, Buena Vista, Bessemer, Balcony Falls, Norwood, Amherst, Buchanan, Newcastle, Roanoke, Newport, Blacksburg, Wytheville, Salem, Bedford, Shawsville, Radford, Cambria, Naffs, Christiansburg, Union Hall, Dublin, Newbern, Pulaski, Simpson, Rocky Mount, Floyd, Betty Baker, Ivanhoe, Dugspur, Cripple Creek, Hillsville, Fairwood, Fries, Independence, Lambsburg, Ararat, Danube, Mouth of Wilson, Galoa, Walkerford, Cumberland, Farmville, Appomattox, Prospect, Rustburg.

Orville Wright (at left), Wilbur Wright and Miss Wright at the Belmont Park meet, 1910.
(Photo courtesy of Mrs. Henry A. Wise Wood.)

## North Carolina Division of the Wright Brothers Airway

The cities and smaller communities on the North Carolina Division of the Wright Brothers Airway are:

Mt. Airy, Leaksville, Pelham, Wentworth, Ruffin, Danbury, Tryon, Reidsville, Madison, Dobson, Germanton, Elkin, Forest City, Columbus, Gastonia, Cherryville, Dallas, Shelby, Caroleen, Elkland, Jonesville, Yadkinville, Winston-Salem, Wilkesboro, Kernersville, Granite Falls, Taylorsville, Mocksville, Yadkin College, Hickory, Henrietta, Kings Mt., Tuckerdale, Sparta, Jefferson, Mountain City, Ore Knob, Wilbar, Boone, Elk Park, Statesville, Morganton, Newton, Barber, Bridgewater, Denver, Mooresville, Lincolnton, Rutherfordton, Hendersonville, Patterson, Erwin, Bakersville, Edgemont, Boomer, Grandin, Lenoir, Ramsaytown, Kona, Collettsville, Burnsville, Boonford, Sprucepine, Eskota, Marshall, Old Fort, Marion, Leicester, Black Mountain, Asheville, Canton, Waynesville, Webster, Sunburst, Franklin, Prentiss, Brevard, L. Toxaway Highlands.

## South Carolina Division of the Wright Brothers Airway

The cities and smaller communities on the South Carolina Division of the Wright Brothers Airway are:

Pendleton, Anderson, Honea Path, Ninetimes, Wahalla, Campobello, Blacksburg, Gaffney, Cleveland, Cowpens, Wellford, Marietta, Spartanburg, Grove, Greer, Gleen Springs, Pickens, Belton, Easley, Iva, Greenville, Liberty, Woodruff, Westminster, Seneca, Central, Williamston, Fountain Inn.

## Georgia Division of the Wright Brothers Airway

The cities and smaller communities on the Georgia Division of the Wright Brothers Airway are:

Dillard, Hiwassee, Clayton, Mathis, Tallulah Falls, Nacootchee, Cleveland, Tate, Bellton, Canton, Buford, Clarkesvile, Dahlonega, Toccoa, Jasper, Cornelia, Dawsonville, Gainesville, Rockmart, Cumming, Cartersville, Alpharetta, Acworth, Whitesburg, Suwanee, Roswell, Marietta, Norcross, Chamblee, Austell, Decatur, East Point, Buchanan, Dallas, Atlanta, Tallapoosa, Bremen, Carrollton, Bowdon, Franklin, Griffin, Grantville, Hogansville, Zebulon, La Grange, Greenville, Milner, Woodbury, West Point, Chipley, Hamilton, Fortson, Lavonia, Carnesville, Homer, Hartwell, Royston, Commerce, Danielsville, Bowman, Jefferson, Mulberry, Colbert, Winder, Lawrenceville, Athens, Bethlehem, Crawford, Lexington, Watkinsville, Loganville, Stone Mt., Monroe, Lithonia, Apalachee, Social Circle, Conyers, Rutledge, Madison, Fairburn, Covington, Palmetto, Jonesboro, Fayetteville, Hampton, McDonough, Jackson Newnan, Raymond, Senoia.

## Alabama Division of the Wright Brothers Airway

The cities and smaller communities on the Alabama Division of the Wright Brothers Airway are:

Edwardsville, Hopewell, Delta, Opelika, Auburn, Tallassee, Phenix City, Girard, Chehaw, Marvyn, Lamar, Wedowee, Pyriton, Ashland, Lineville, Tokio, Roanoke, Goodwater, Marble Valley, Alexander, Millstead, Montgomery, Tuskegee, Mathews, Hurtsboro, Pine Level, Union Springs, Lafayette, Linwood, Centerville, Clanton, Rockford, Dadeville, Mountain Creek, Elmore, Wetumpka, Buffalo, Lanett, Riverview, Jemison, Eutaw, Akron, Gainesville, Mapleville, Forkland, Greensboro, Livingston, Newbern, Marion, Plantersville, Demopolis, Booth, York, Lilita, Uniontown, Selma, Mulberry, Prattville, Cuba, Dayton, Ada, Beloit, Autaugaville, Linden, Martin, Yantley, Whitfield, Myrtlewood, Berlin, Benton, Edna, Tyson, Hayneville, Nadawah, Butler, Greenville, Sweetwater, Isney, Choctaw, Kimbrough, Camden, Pine Hill, Thomasville, Allenton, Ft. Deposit, Barrytown, Silas, Coffeeville.

## Mississippi Division of the Wright Brothers Airway

The cities and smaller communities on the Mississippi Division of the Wright Brothers Airway are:

Pickens, Carthage, Philadelphia, Scooba, DeKalb, Canton, Union, Lauderdale, Madison Sta., Decatur, Jackson, Morton, Lake, Hickory, Meridian, Newton, Rolling Fork, Mayersville, Yazoo, Tallula, Holly Bluff, Kelso, Bentonia, Flora, Pocahontas, Vicksburg, Clinton, Edwards, Warrenton, Raymond, Yokena, Utica, Crystal Springs, Terry, Hopewell, St. Elmo, Port Gibson, Hazlehurst, Red Lick, Fayette, Wesson, Brandon, Polkville, Montrose, Enterprise, Raleigh, Paulding, Bay Springs, Quitman, Harris Valley, Mendenhall, Heidelberg, Magee, Saratoga, Mt. Olive, Shubuta, Sandersville, Forest, West Point.

## Louisiana Division of the Wright Brothers Airway

The cities and smaller communities on the Louisiana Division of the Wright Brothers Airway are:

Rodessa, Shongaloo, Haynesville, Randolph, Litroe, Floyd, Minden, Athens, Vienna, Downsville, Calvit, Vivian, Laark, Homer, Arizonia, Farmerville, Shreveport, Sibley, Alto, Gibsland, Arcadia, Ruston, Eros, Bastrop, Lake Providence, Benton, Ouachita, Collinston, Tremont, Monroe, Rayville, Delhi, Tallulah, Delta, Greenwood, Gloster, Mansfield, Lake End, Ringgold, Wilson, Campti, Coushatta, Ashland, Sparta, Bienville, Vernon, Hodge, Jonesboro, Gansville, Sykes, Pyburn, Dodson, Winnfield, Bosco, Winnsboro, Columbia, Newlight, Oakley, Rosefield, St. Joseph, Waterproof, Harrisonburg, Hunter, Keatchie, Logansport.

## Texas Division of the Wright Brothers Airway

The cities and smaller communities on the Texas Division of the Wright Brothers Airway are:

Ore City, Jefferson, Miguel, Gilmer, Harleton, Woodlawn, Big Sandy, Gladewater, Lindale, Canton, Longview, Marshall, Valley Mills, Crawford, Oglesby, McGregor, Gatesville, Lorena, Moody, Killeen, Lampasas, Belton, Jarrell, Florence, Hallsville, Flanagan, Tyler, Overton, Chandler, Athens, Malakoff, Troup, Henderson, Kemp, Rice, Burnet, Libertyhill, Fairland, Georgetown, Marble Falls, Beecaves, Round Mt., Johnson City, Henly, Comfort, Boerne, Italy, Kerens, Itasca, Blooming Grove, Hillsboro, Corsicana, Whitney, Mertens, Purdon, Dawson, Abbott, West, Leon Springs, San Antonio, Rocksprings, Centrepoint, Medina, Bandera, Barksdale, Leakey, Montell, Tularosa, New Fountain, Elm Mott, Ross, Waco, Streetman, Wortham, Hubbard, Axtell, Del Rio, Feely, Comstock, Viaduct, Langtry, Lozier, Juno, Dryden, Sanderson, Emerson, Longfellow, Maxon, Haymond, Marathon, Lenox, Alpine, Hovey, Ft. Davis, Toyahvale, Brogado, San Martine Plateau, Kent, Fay, El Paso, Van Horn, Allamore, Sierra Blanco, Ysleta, Socorro, Ft. Hancock, San Elizario, Torbet, Chispa, Valentine, Ryan, Marfa, Rosenfeld, D'Hanis, Hondo, Sabinal, Brackettville, Castroville, Spofford, Uvalde, Kirk, Pulliam, Darling, Batesville, Frio Town, La Pryor, Pearsall, Von Ormy, Macdona, Lytle, Coraleta, Devine, Moore, Rossville, N. Pleasanton, Prairie Lea, Jourdanton, Kingsbury, New Braunfels, Christine, Stockdale, Lavernia, Leesville, Converse, Seguin, Luling, Hunter, Lockhart, San Marcos, Kyle, Redrock, Creedmoor, Bastrop, Manchca, Austin, Elgin, Manor, McDade, McNeil, Roundrock, Taylor, Granger, Rockdale, Bartlett, Milano, Cameron, Holland, Rogers, Calvert, Echo, Temple, Rosebud, Lott, Bremond, Kosse, Marlin, Perry, Thornton, Mart, New Baden, Marquez, Jewett, Farrar, Groesbeck, Teague, Mexia, Fairfield, Centerville, Palestine, Butler, Oakwood, Elkhart, Grapeland, Elysian Fields, Carthage, Boren, Gallatin, Minden, Gary, Jacksonville, Mt. Enterprise, Timpson, Teneha, Caro, Garrison, Rusk, Alto, Douglass, Mahl, Center, Nacogdoches, Emmons, Wells, Floresville.

## New Mexico Division of the Wright Brothers Airway

The cities and smaller communities on the New Mexico Division of the Wright Brothers Airway are:

Strauss, Lanark, Afton, Aden, Cambray, Mesilla, Hatch, Tonuco, Nutt, Dona Ana, Organ, Florida, Zuni, Tyrone, Las Cruces, Desert, Pinos Altos, Deming, Hueco, Anthony, Arena, Columbus, Wilna, Faywood, Lisbon, Silver City, Steins, Fierro, Gage, Separ, Hachita, Burrow Mt. Junc., Hermanos, Pyramid, Lordsburg, Whitewater, Lake Valley.

Hotel Del Coronado,—City of San Diego in background.

## Mexico Division of the Wright Brothers Airway

The cities and smaller communities on the Mexico Division of the Wright Brothers Airway are:

*Coahuila.*—Las Vacas.

*Chihuahua.*—Pilares, S. Ignacio, Presidio Viejo, Guadalupe, Los Medanos, Samalayuca, Barreal, Sapello, Seneca, Ciudad Juarez, Palomas.

## Arizona Division of the Wright Brothers Airway

The cities and smaller communities on the Arizona Division of the Wright Brothers Airway are:

Oracle, Thatcher, Solomonsville, Duncan, Bowie, Safford, Bonita, Willcox, Cochise, Johnson, Dragoon, Wilmot, Mammoth, Tucson, Picacho, Florence, Nortons L'dg., Castle Dome L'dg., Falva, Sweetwater, Sacaton, Casaba, Mesa, Maricopa, Tempe, Phoenix, Redrock, Glendale, Estrella, Hassayampa, Cottonwood, Agua Caliente, Palomas, Gila, Adonde, Yuma, Tacna, Texas Hill, Sentinel, Painted Rock, Silverbell, Sahuarita, Twin Buttes, Papago, Pantano, Kadmon, Helvetia, Contention, Greaterville, Fairbank, Benson, St. David, Tombstone, Courtland, Pearce, Lewis Sps., Bisbee, Sulphur Sp., Dos Cabezos.

## California Division of the Wright Brothers Airway

The cities and smaller communities on the California Division of the Wright Brothers Airway are:

Potholes, Niland, Brawley, Mesquite, Cactus, Imperial, Holtville, Andrade, El Centro, Dixieland, Coyote Weils, Calexico, Campo, Potrero, National City, San Diego, Tia Juana, Nellie, Fruitland, Vista, Warner Springs, Escondido, Julian, Foster, Selwyn.

## Lower California Division of the Wright Brothers Airway

The cities and smaller communities on the Lower California Division of the Wright Brothers Airway are:

Descanso, Guadalupe, Mexicali, Hechicera, Don Juan.

# THE LANGLEY AIRWAY

**The Langley Airway,** named after Prof. Samuel Pierrepont Langley, the pioneer experimenter in aeronautics, represents a zone eighty miles in width, extending from Philadelphia, Pa., to Santa Barbara, Cal., which was selected in honor of Mrs. William H. Bliss, resident of Santa Barbara, who gave the funds with which to organize the First Aero Company, New York National Guard, which was the first reserve aero organization and contributed 54 aviators to the U. S. Army for the war. The center of this airway passes through the states of Pennsylvania, West Virginia, Ohio, Indiana, Illinois, Missouri, Kansas, Colorado, Utah, Nevada, Arizona and California. The map of this airway is under preparation.

## Pennsylvania Division of the Langley Airway

The cities and smaller communities on the Pennsylvania Division of the Langley Airway are:

Shamokin, Sunbury, Ashland, St. Clair, Donaldson, Minersville, Pottsville, Williamstown, Millersburg, Dauphin, Steelton, Harrisburg, Lebanon, Cornwall, Allentown, Hamburg, Alburtis, Topton, Barto, Quakertown, Reading, Doylestown, Colmar, Pottstown, Lansdale, Birdsboro, Adamstown, Phoenixville, Middletown, Norristown, Bristol, Conshohocken, New Holland, Lancaster, York, East Berlin, Coatsville, Columbia, Westchester, Media, Philadelphia, Darby, Chester, Hanover Junction, Hanover, Delta, Quarryville, Fairmont, Oxford, Grampum, Punxsutawney, Boardman, Bellefonte, Spring Mill, Ramey, Osceola Mills, Middleburg, Smicksburg, Idomar, Irvona, Benore, State College, Milroy, Grant, Mifflintown, Bellwood, Tyrone, Lewistown, Patterson, Ebensburg, Juniata, Altoona, Huntingdon, Wehrum, Rexis, Hollidaysburg, Oreminea, New Bloomfield, Newport, Blain, New Germantown, Jerome, Conemaugh, Johnstown, Brooks Mills, Mt. Union, Henrietta, Dudley, Blairs Mills, Carlisle, Windber, Boswell, Berlin, Macdonaldton, Meyersdale, Saxton, Cessna, Bedford, McConnellsburg, Richmond Furnace, Franklin Mills, Broadtop, Neelyton, Mechanicsburg, Shippensburg, Pine Grove Furnace, Chambersburg, Gettysburg, Waynesboro, Hyndman, Dewey, Mosgrove, Kittanning, Butler, Greendale, Winfield, Freeport, Iselin, Indiana, Apollo, Tarentum, Sharpsburg, Allegheny, Pittsburgh, East Newcastle, Chewton, Homewood, Beaver Falls, New Brighton, Beaver, Rochester, Callery, Etna, Imperial, McKees Rocks, Wilmerding, Jeannette, Latrobe, McKeesport, Ligonier, Mt. Pleasant, Somerset, Scottdale, Connellsville, Stewarton, Uniontown, Carnegie, Homestead, Hackett, Washington, Monongahela, Charleroi, West Union, Fayette City, Brownsville, New Salem, Edenborn, Rogersville, Greensburg, Waynesburg.

## New Jersey Division of the Langley Airway

The cities and smaller communities on the New Jersey Division of the Langley Airway are:

Pennsgrove, Salem.

## Delaware Division of the Langley Airway

The cities and smaller communities on the Delaware Division of the Langley Airway are:

Wilmington, Newark, Newcastle, Delaware City.

## Maryland Division of the Langley Airway

The cities and smaller communities on the Maryland Division of the Langley Airway are:

Freeland, Port Deposit, Elkton, Havre de Grace, Perryville, Manchester.

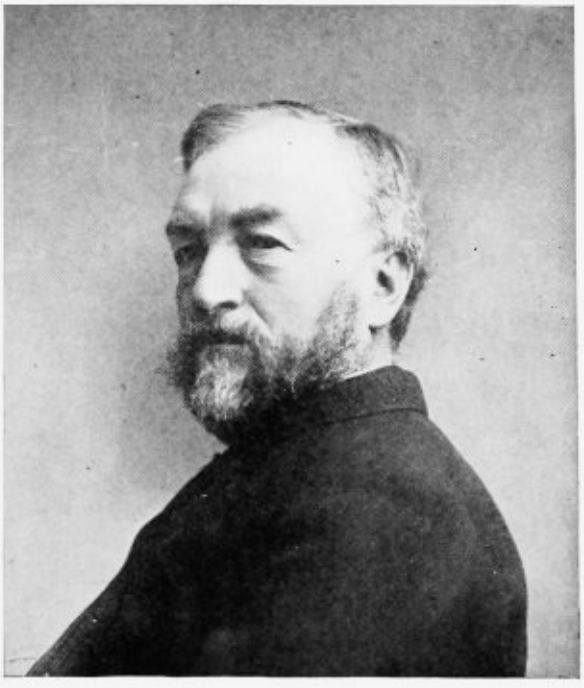
## West Virginia Division of the Langley Airway

The cities and smaller communities on the West Virginia Division of the Langley Airway are:

New Cumberland, Wellsburg, Wheeling, Moundsville, Cameron, Benwood.

## Ohio Division of the Langley Airway

The cities and smaller communities on the Ohio Division of the Langley Airway are:



Prof. Samuel Pierrepont Langley, the pioneer aeronautic engineer.

William Penn welcomes to Philadelphia a squadron of aeroplanes.

Salem, Leetonia, East Palestine, Massillon, Canton, Bayard, Lisbon, Bolivar, Shreve, Loudonville, Oneida, East Liverpool, Millersburg, Salineville, Wellsville, Canal Dover, Carrollton, New Philadelphia, Toronto, Mt. Vernon, Clark, Uhrichsville, Dennison, Cadiz Junction, Steubenville, Cadiz, Mingo, Centerburg, Coshocton, New Comerstown, Freeport, Piney Fork, Utica, Dresden, Granville, Newark, Cambridge, St. Clairsville, Zanesville, Byesville, Martins Ferry, Bridgeport, Bellaire, Barnesville, Summerfield, Powhatan, Glenford, Cumberland, Somerset, Crooksville, Woodsfield, Caldwell, New Lexington, McConnelsville, Bremen, Mt. Gilead, Plymouth, Sabina, Wilmington, Blanchester, Lebanon, Miamisburg, Camden, Franklin, Middletown, Oxford, Hamilton, Morrow, Mt. Healthy, Loveland, Norwood, Cincinnati, Lockland, Cardington, Ashley, Richwood, Bellefontaine, Peoria, Delaware, De Graff, Sidney, Versailles, Piqua, Marysville, Urbana, Greenville, Troy, Tippecanoe City, Arcanum, Dodson, New Paris, Eaton, Mechanicsburg, Springfield, Columbus, Dayton, London, Thurston, Duvall, South Charleston, Sedalia, Cedarville, Jeffersonville, Lancaster, Circleville, Washington, Xenia, Stockport, Glouster, Logan, Kingston, Bloomingville, Greenfield, Hillsboro.

## Indiana Division of the Langley Airway

The cities and smaller communities on the Indiana Division of the Langley Airway are:

Union City, Eaton, Cicero, Ridgeville, Muncie, Winchester, Anderson, Lynn, New Castle, Richmond, Greenfield, Pendleton, Daleville, Elwood, Alexandria, Liberty, Connersville, Dunreith, Cambridge, Cottage Grove, Rushville, Brookville, Greensburg, Laurel, Oldenburg, Hartsville, Weisburg, Fairland, Shelbyville, St. Paul, Hope, Columbus, Indianapolis, Franklin, Edinburg, Nashville, Martinsville, Bloomington, Greencastle, Cloverdale, Gosport, Spencer, Bloomfield, Worthington, Noblesville, Tipton, Frankfort, Sheridan, New Pittsburg, Lebanon, Lizton, Linden, Colfax, Thorntown, Crawfordville, Ladoga, Roachdale, Danville, Williamsport, Attica, Covington, Veedersburg, Newport, Hillsdale, Montezuma, Rockville, Carbon, Clinton, Nelson, Brazil, Terre Haute, Pimento, Clay City.

## Illinois Division of the Langley Airway

The cities and smaller communities on the Illinois Division of the Langley Airway are:

Paris, Oakland, Charleston, Kansas, Westfield, Marshall, Martinsville, Casey, Toledo, Alvin, Danville, Champaign, Urbana, Sidney, Westville, Humrick, Ridge Farm, Chrisman, Tuscola, Arcola, Boody, Blue Mound, Sullivan, Findley, Shelbyville, Mattoon, Windsor, Pana, Nokomis, Cowden, Tolono, Decatur, Bement, Illiopolis, Monticello, Maroa, Whiteheath, Riverton, Mt. Pulaski, Kenney, Lincoln, Clinton, Mansfield, Farmer, Lotus, Leroy, Atlanta, Rantoul, Springfield, Jacksonville, Winchester, Auburn, Stonington, Waverly, Pawnee, Taylorville, Roodhouse, Virden, Girard, Whitehall, Morrisonville, Greenfield, Carrollton, Litchfield, Jerseyville, Carlinville, Chapin, Bates, Ashland, Concord, Virginia, Petersburg, Greenview, Mason, Havana, Rushville, Astoria, Beardstown, San Jose, Vermont, Pittsfield, Pike, Kampsville, Hardin, Naples, Barry, East Hannibal, Fallcreek, Quincy, Mt. Sterling, Clayton, Camp Pt., Mendon, Golden, Augusta, Littleton, Delavan, Stewardson, Witt.

## Missouri Division of the Langley Airway

The cities and smaller communities on the Missouri Division of the Langley Airway are:

New London, Paris, Perry, Louisiana, Bowling Green, Vandalia, New Hartford, Eolia, Elsberry, Apex, Briscoe, Santa Fe, Mexico, Middletown, Auxvasse, Columbia, Sturgeon, Centralia, Hannibal, Monroe, Shelbina, Palmyra, Clarence, Shelbyville, West Quincy, Cherry Box, Newark, La Grange, La Plata, La Belle, Novelty, Canton, Moberly, Higbee, Salisbury, Clark, Miami, Glasgow, Montgomery, Slater, Fayette, Estill, Rocheport, Boonville, Pilot Grove, Marshall, Sedalia, Huntsville, Keytesville, Brunswick, Carrollton, Ardmore, Macon, Marceline, Brookfield, Sumner, Laclede, Linneus, Elmer, Lingo, Chillicothe, Bevier, Norborne, Lexington Junc., Waverly, Lexington, Kansas City, Independence, Blackburn, Higginsville, Odessa, Concordia, Sweet-

Photograph of business section of Akron, Ohio, taken from the air.—Courtesy of Norman Van Hyning.

springs, Lees Summit, Belton, Pleasant Hill, Warrensburg, Holden, Harrisonville, Freeman, Liberty, Richmond, Bogard, Kingston, Hamilton, Carlow, Cameron, Plattsburg, Monticello, Lathrop, Lawson, Edgerton Junc., Smithville, Platte City, Beverly, Parkville, Weston, E. Atchison, Excelsior Springs, Dawn, Braymer, Osborn, Nettleton.

## Kansas Division of the Langley Airway

The cities and smaller communities on the Kansas Division of the Langley Airway are:

Kansas City, Topeka, Rosedale, Cedar Junc., Eudora, Olathe, Spring Hill, Louisburg, Baldwin, Ottawa, Lyndon, Quenemo, Paola, Lawrence, Carbondale, Scranton, Oskaloosa, McLouth, Leavenworth, Meriden, Nortonville, Valley Falls, Holton, Muscotah, Atchison, Doniphan, Horton, Princeton, Burlingame, Eskridge, Alma, Junction City, Altavista, White, Council Grove, Diamond Springs, Osage, Melvert, St. Marys, Wamego, Manhattan, Louisville, Westmoreland, Garrison, Clay Center, Blaine, Omaga, May Day, Abilene, Hope, Herington, Carlton, Lincolnville, Hillsboro, Brookville, Gypsum, Canton, Chapman, Solomon, Salina, Juniata, Bennington, Manchester, Wakefield, Minneapolis, Barnard, Lamar, Delphos, Glasco, Miltonvale, Ellsworth, Linsboro, Marquette, McPherson, Little River, Pauline, Lyons, Sterling, Seward, Ellinwood, Great Bend, Hoisington, Claflin, Geneseo, Wilson, Russell, Lincoln, Lucas, La Crosse, Alexander, Ness City, Rush Center, Burdett, Jetmore, Larned, Hays, Ellis, Wakeeney, Codell, Plainville, Collyer, Utica, Dighton, Scott, Sharon Springs, Ravanna, Deerfield, Gove, Russell Springs, Hackberry Monument, Grainfield, Grinnell, Oakley, Tribune, Leoti, Coolidge, Syracuse, Kendall, Wallace, Corning, Blue Rapids, Clifton, Green, Holyrood.

Tablet placed by the citizens of Mill Valley, California, in honor of the Heroes of the Air.

## Colorado Division of the Langley Airway

The cities and smaller communities on the Colorado Division of the Langley Airway are:

Eads, Bristol, Holly, Granada, Caddoa, Las Animas, Lamar, Sheridan Lake, Cheyenne Wells, Arapahoe, Kit Carson, Higbee, Boone, Ordway, Sugar City, Manzanola, Rockyford, La Junta, Benton, Timpas, Nepesta, Fowler, Cripple Creek, Guffey, Victor, Parkdale, Canon City, Crestone, Wigwam, Fountain, Undercliffe, Huerfano, Walsenburg, Rosita, Silver Cliff, Gardner, Cucharas, Colorado Spgs., Manitou Junc., Florence, Texas Cr., Pueblo, Salt Creek, Coal Cr., Moffat, Center, Del Norte, Monte Vista, Summitville, Alamosa, Carnero, Grande, Saguache, Orient, West Cliffe, Wagon Wheel Gap, Villagrove, Bonanza, Cochetopa, Salida, Cotopaxi, Sargent, South Fork, Ora Junta, Pagosa Spgs., Needleton, Creede, Silverton, Lake City, Dallas, Vance, Maysville, Rockvale, Ridgeway, Rockwood, Hermosa, Durango, Florida, Ignacio, Cortez, Mancos, Telluride, Eureka, Dolores, Rico, Ouray, Trout Lake, Placerville, Animas, Piedra.


Looking down on Reno, Nevada, from an aeroplane.

### New Mexico Division of the Langley Airway

The cities and smaller communities on the New Mexico Division of the Langley Airway are:

La Plata, Cedar Hill.

### Arizona Division of the Langley Airway

The cities and smaller communities on the Arizona Division of the Langley Airway are:

Tuba, Chloride, Whitehills, Fredonia, Peach Springs, Mineral Park.

### Utah Division of the Langley Airway

The cities and smaller communities on the Utah Division of the Langley Airway are:

Bluff.

### Nevada Division of the Langley Airway

The cities and smaller communities on the Nevada Division of the Langley Airway are:

Jean, Arden, Las Vegas, Nelson, St. Thomas, Searchlight.

### California Division of the Langley Airway

The cities and smaller communities on the California Division of the Langley Airway are:

Ivanpah, Barnwell, Kelso, Crucero, Riggs, Zabriskie, Daggett, Newberry, Barstow, Hinkley, St. Elmo, Johannesburg, Searles, Lancaster, Victorville, Ravenna, Pasadena, Burbank, Kramer, Mojave, Cameron, Cinco, Santa Ynez, Tchachopi, Rosamond, Lang, Nordhoff, Newhall, San Fernando, Chatsworth, Newbury Park, Santa Monica, Ventura, Montalvo, Hueneme, Oxnard, Santa Barbara, Ludlow, Ash Hill, Muroc, Cajon, Santa Paula, Somis, Los Angeles, Goleta, Los Olivos.

Mrs. Anna B. Bliss, the pioneer patriotic American woman who made possible the organization of the First Reserve Aero Company, in 1915, which gave 54 aviators to the U. S. Army for the winning of the world war.


Buffalo as seen from a flying boat hovering over the harbor.—Courtesy of Matthews-Northrup Works.

## THE CHANUTE AND BELL AIRWAY

**The Chanute and Bell Airway** is named after the American experimenters in aviation, Octave Chanute, who encouraged and assisted the Wright brothers, and Alexander Graham Bell and Mrs. Bell, who paid for the early experiments of Glenn H. Curtiss. The Airway is a zone eighty miles in width, extending from Boston, Mass., to Seattle, Washington, then down to Portland and Salem, Oregon. The center of this airway passes through the states of Massachusetts, New York, Michigan, Wisconsin, Minnesota, North Dakota, Montana, Idaho, Washington, and Oregon. It also passes through the Dominion of Canada, at Lake Erie, and touches Pennsylvania at Erie, Pa. The map of this airway is under preparation.

### Massachusetts Division of the Chanute and Bell Airway

The cities and smaller communities on the Massachusetts Division of the Chanute and Bell Airway are:

Adams, Greenfield, Orange, Athol, Gardner, Leominster, Malden, Montague, Clinton, Cambridge, Somerville, Boston, Berkshire, Pittsfield, Waltham, Williamsburg, Amherst, Northampton, Newton, Marlboro, Easthampton, Framingham, Lee, Ware, Haverhill, Methuen, Lawrence, Andover, Lowell, North Adams, Hoosac Tunnel, Winchendon, Ashburnham, Fitchburg, Ayer, Worcester, Hyde Park, Housatonic, Holyoke, Spencer, Dedham, Grafton, Canton, Gt. Barrington, Chicopee, Milford, Sheffield, Palmer, Franklin, Brockton, Westfield, Springfield, Webster, Attleboro, Taunton, Woburn.

### Rhode Island Division of the Chanute and Bell Airway

The cities and smaller communities on the Rhode Island Division of the Chanute and Bell Airway are:

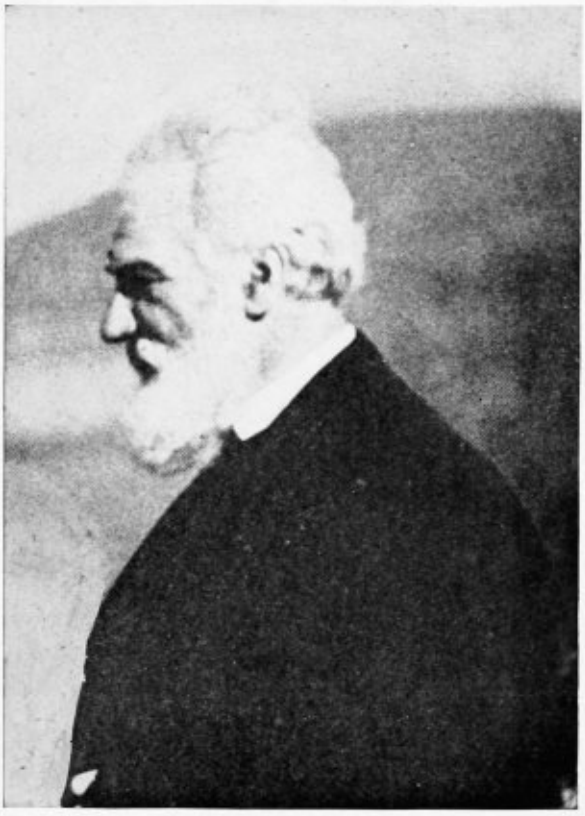
Woonsocket, Pascoag, Pawtucket, Providence, East Providence.

### Connecticut Division of the Chanute and Bell Airway

The cities and smaller communities on the Connecticut Division of the Chanute and Bell Airway are:

Canaan, Enfield, Stafford, Putnam, Suffield.

Octave Chanute.



Alexander Graham Bell.

## New Hampshire Division of the Chanute and Bell Airway

The cities and smaller communities on the New Hampshire Division of the Chanute and Bell Airway are:

Goffstown, Keene, New Boston, Manchester, Harrisville, Derry, Peterboro, Wilton, Winchester, Greenville, Milford, Nashua.

## Vermont Division of the Chanute and Bell Airway

The cities and smaller communities on the Vermont Division of the Chanute and Bell Airway are:

Manchester, Bellows Falls, Arlington, Newfame, Bennington, Brattleboro, Wilmington, Readsboro.

## New York Division of the Chanute and Bell Airway

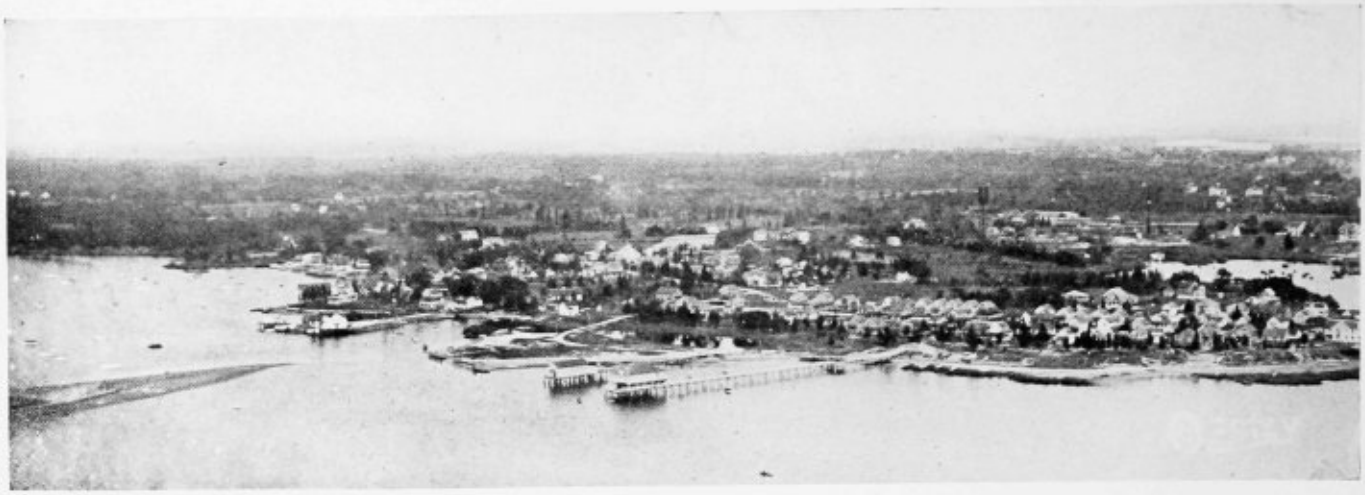
The cities and smaller communities on the Pennsylvania Division of the Chanute and Bell Airway are:

Cooperstown, New Berlin, Richfield Springs, Cherry Valley, Cooperstown Junc., Worcester, Oneonta, Stamford, Bloomville, Cobleskill, Schoharie, Middleburg, Westerlo, Coeymans, Coxsackie, Athens, Kaaterskill, Hunter, Palenville, Saugerties, Rensselaer, Schodack Landing, Chatham, Stateline, Hudson, Catskill, Boston Corners, Livonia, Geneva, Lancaster, Attica, Canandaigua, Depew, Batavia, Le Roy, Avon, Fairport, Macedon, Newark, Phelps, Seneca Falls, Weedsport, Clyde, Waterloo, Ovid, Auburn, Marietta, Preble, Homer, Cortland, Lansing, Freeville, Marathon, Wampsville, Cazenovia, Cincinnatus, Morrisville, Earlville, Norwich, Cassville, Edmeston, Clymer, Falconer, Jamestown, Little Valley, Mayville, Westfield, Brocton, Dunkirk, Gainesville, Silver Springs, East Aurora, Mt. Morris, Penn Yan, Perry, Silver Creek, Fredonia, Dayton, Freedom, Springville, Dansville, Wayland, Naples, Warsaw, Geneseo, Hamburg, West Seneca, Arcade, Collins, Sandy Creek, Pulaski, Richland, Oswego, Mexico, Boonville, Camden, Remsen, Central Square, Rome, Whitesboro, Syracuse, Oneida, Solvay, Sterling, Baldwinsville, Fair Haven, Sodus Pt., Marion, Lyons, Charlotte, Rochester, Carlton, Albion, Medina, Brockport, Holley, Lockport, Suspension Bridge, Niagara Falls, Tonawanda, North Tonawanda, Buffalo, Salem, Greenwich, Eagle Bridge, Hoosick Falls, N. Petersburg, Lansingburg, Fulton, Troy, Albany, Corinth, Greenfield, Saratoga Springs, Ballston Spa, Amsterdam, Mechanicsville, Scotia, Cohoes, Schenectady, Northville, Dolgeville, Gloversville, Little Falls, Johnstown, Fonda, Lake Pleasant, Morehouseville, Hinkley, Ohio, Poland, Stratford, Herkimer, Canajoharie, Moose River, Utica.

## Pennsylvania Division of the Chanute and Bell Airway

The cities and smaller communities on the Pennsylvania Division of the Chanute and Bell Airway are:

Erie, North Girard, Union City, Linesville, Lakeville, Tryonville, Meadville, Titusville, Sugargrove, Corry, Youngsville, Garland.



An air view near Providence, Rhode Island.

## Ohio Division of the Chanute and Bell Airway

The cities and smaller communities on the Ohio Division of the Chanute and Bell Airway are:

Conneaut, Ashtabula, Geneva, Jefferson, Painesville, Mentor, Willoughby, Andover.

## Canada Division of the Chanute and Bell Airway

The cities and smaller communities on the Canada Division of the Chanute and Bell Airway are:

Fort Niagara, Clifton, Welland, Fort Erie, Port Dover, St. Thomas, Port Stanley, Courtright, Chatham, Windsor, Comber, Essex, Amherstburg.

## Michigan Division of the Chanute and Bell Airway

The cities and smaller communities on the Michigan Division of the Chanute and Bell Airway are:

St. Clair, Marine City, Mt. Clemens, Detroit, Almont, Richmond, Romeo, Rochester, Birmingham, Grand Ledge, Portland, Edmore, Stanton, Sheridan, Ionia, Saranac, Lakeview, Greenville, Belding, Lowell, Morley, Durand, Howell, Corunna, Fowlerville, St. Charles, Owosso, Williamston, Lansing, Ithaca, St. Johns, Lapeer, Oxford, Pontiac, Wixom, Mt. Morris, Flint, Holly, Milford, Fenton, Howard, Cedar Springs, Grand Rapids, White Cloud, Newaygo, Sparta, Fremont, Holton, Nunica, Dalton, Muskegon, Fruitport, Grand Haven, Whitehall, New Era, Zeeland, Holland, Wayland, Fennville, Allegan, Otsego, South Haven, Grand Junc., Monteith, Middleville, Battle Creek, Lake Odessa, Hastings, Kalamazoo, Freeport, Nashville, Marshall, Charlotte, Albion, Homer, Hanover, Mason, Rives Junc., Jackson, Brooklyn, Chelsea, Manchester, Tecumseh, Dexter, Milan, Ann Arbor, Deerfield, Delray, Monroe, Wyandotte, Trenton, Plymouth, Wayne, Ypsilanti, Carleton, Eaton Rapids.

## Wisconsin Division of the Chanute and Bell Airway

The cities and smaller communities on the Wisconsin Division of the Chanute and Bell Airway are:

Waupun, Fox Lake, Burnett Junc., Mayville, Doylestown, Beaverdam, Horicon, West Bend, Juneau, Iron Ridge, Port Washington, Cedar Grove, Columbus, Reeseville, Clyman, Schleisingerville, Hartford, Richfield, Cedarburg, De Forest, Waterloo, Watertown, Granville, North Lake, Dillmans, Sun Prairie, Oconomowoc, Brookfield, Deerfield, Lake Mills, Hartland, Milwaukee, Jefferson, Dousman, Waukesha, Cudahy, S. Milwaukee, Stoughton, Edgerton, Fountain City, Buffalo, Arcadia, Alma, Stockholm, Bay City, Ellsworth, Prescott, West Salem, La Crosse, Norwalk, Newry, Rockton, Westby, Genoa, Viroqua, Hillsboro, Lafarge, Victory, Reedsburg, Sandusky, Ferryville, Richland Center, Bell Center, New Glarus, Galesville, Mineral Pt., Prairie du Sac, Muscoda, Sauk City, Lone Rock, Boscobel, Arena, Mazomanie, Highland, Madison, Blue Mounds, Oregon, Montfort, Dodgeville, Ft. Atkinson, Eagle, Whitewater, Waterford, Evansville, Milton Junc., Afton, Beloit, Albany, Hanover, Janesville, Elkhorn, Racine, Kenosha, Corliss, Delavan, Burlington, Lake Geneva, Portage, Neillsville, Merrillan, Hixton, Black River Falls, Babcock, Millston, North Bend, Mather, Valley Junc., Necedah, City Pt., Tomah, Friendship, Camp Douglas, Liberty Bluff, Norwalk, New Lisbon, Westfield, Mauston, Montello, Elroy, Wonewoc, Kilbourn City, Delton, Clinton, Genoa Junc., Salem, Ranney, Trempealeau, Sparta, Onalaska, Baraboo, Poynette, Dane, Augusta, Whitehall, Chippewa Falls, Eau Claire, Strum, Caryville, Colfax, Mondovi, Gillmanton, Red Cedar, Durand, Menomonie, Wheeler, River Falls, Hudson, Glenwood, Knapp, Weston, Arkansaw, Spring Valley, Emerald, Baldwin, Ellsworth, Clearlake, Osceola, St. Croix Falls, Monroe.

## Illinois Division of the Chanute and Bell Airway

The cities and smaller communities on the Illinois Division of the Chanute and Bell Airway are:

Warren, Rockton, Richmond, Zion City.

## Minnesota Division of the Chanute and Bell Airway

The cities and smaller communities on the Minnesota Division of the Chanute and Bell Airway are:

St. Paul, Mendota, Hastings, Farmington, New Trier, Cannon Falls, Northfield, Red Wing, Lake City, Wabasha, Faribault, Zumbrota, Weaver, Pine Island, Kenyon, Plainview, Minnesota City, Mantorville, Rochester, Eyota, Winona, St. Charles, Dakota, Chatfield, La Crescent, Rushford, Hokah, Reno, Caledonia, Crosby, Brainerd, Garrison, Ft. Ripley, Onamia, Little Falls, Vawter, Buckman, Mora, Milaca, Foley, Oak Park, Rush City, Sauk Rapids, Cambridge, Princeton, No. Branch, Clear Lake, St. Francis, Center City, Taylors Falls, Big Lake, Elk River, Wyoming, Anoka, Hugo, White Bear Lake, Stillwater, Belle Plaine, Jordan, Shakopee, Carver, Norwood, Chaska, Manannah, Richfield, Waybata, Minneapolis, Winsted, Delano, Dassel, Osseo, Buffalo, Monticello, Paynesville, Clearwater, St. Cloud, St. Joseph, Villard, Avon, Albany, Melrose, Sauk Center, Osakis, Swanville, Long Prairie, Motley, Georgetown, Lake Park, Moorhead, Barnesville, Perham, Manston, Pelican Rapids, Ashby, Rothsay, Wadena, Fergus Falls, Vining, Henning, Brooten, Staples, Parkers Prairie, Battle L., Glenwood, Elbow Lake, Brandon, Cyrus, Donnelly, Herman, Breckenridge, Campbell, Tintah, Wheaton, Manitoba Junc., Alexandria, Glynden, Hawley, Detroit, Cormorant, Frazee, Howard Lake.

## North Dakota Division of the Chanute and Bell Airway

The cities and smaller communities on the North Dakota Division of the Chanute and Bell Airway are:

Fairmount, Lidgerwood, Windsor, Dawson, Steele, Streeter, Napoleon, Hankinson, Great Bend, McKenzie, Stewartsdale, Glencoe, Livona, Gayton, Linton, Braddock, Ypsilanti, Litchville, Marion, Alfred, Enderlin, Ft. Ransom, Sheldon, Dickey, Grand Rapids, Edgeley, Lamoure, Lisbon, Abercrombie, Independence, Milnor, Fairview Junc., Harlem, Rutland, Wishek, Ft. Rice, Shields, Flasher, Brisbane, Sims, New England, Glen Ullin, New Leipzig, Amidon, Gladstone, Belfield, Marmarth, Nicholson, Mott, Bismarck, Forman, Wahpeton, Windmere, Killdeer, Manning, Beach, Medora, Dickinson, Werner, Stanton, Beulah, Washburn, Sanger, Wimbledon, Clementsville, Rogers, Ripon, Casselton, Sanborn, Valley City, Tower City, Everest, Fargo, Chaffee, Addison, Davenport, Hope, Center, Falconer, Regan, Wilton, Wogansport, Tuttle, Harmon, New Salem, Mandan, Sykeston, Melville, Pettibone, Medina, Jamestown, Pingree, Carrington, Kensal, Hannaford, Courtenay, Dazey, Hunter, Page, Erie, Gardner, Bowdon, Richardton, Hebron, Cannon Ball, Walcott.

## South Dakota Division of the Chanute and Bell Airway

The cities and smaller communities on the South Dakota Division of the Chanute and Bell Airway are:

White Rock.

## Montana Division of the Chanute and Bell Airway

The cities and smaller communities on the Montana Division of the Chanute and Bell Airway are:

Air view taken on the Chicago-Detroit flight.

Glendive, Wibaux, Terry, Blatchford, Ollie, Westmore, Tusler, Miles City, Etna, Sumatra, Musselshell, Rahway, Huntley, Waco, Custer, Big Horn, Hyde, Sanders, Howard, Myers, Calabar, Forsyth, Orinico, Rosebud, Monarch, Stanford, Moccasin, Grassrange, Lewistown, Forest Grove, Utica, Moore, Philbrook, Neihart, Roundup, Oka, White Sulphur Spgs., Bedford, Martinsdale, Shawmut, Harlowton, Hedges, Ringling, Lavina, Wilsall, Broadview, Helena, Clancy, Wickes, Elkhorn, Townsend, Boulder, Radersburg, Toston, Lombard, Eustis, Menard, St. Ignatius, Ravalli, Missoula, Marysville, Bearmouth, Drummond, Stevensville, New Chicago, Garrison, Avon, Victor, Stone Corvallis, Pioneer, Phillipsburg, Rimini, Deer Lodge, Race Track, Warmsprings, Calvin, Cable, Thompson Falls, Belknap, Plains, Paradise, St. Regis, Superior, Martina, Quartz, Basin.

## Idaho Division of the Chanute and Bell Airway

The cities and smaller communities on the Idaho Division of the Chanute and Bell Airway are:

Clagstone, Granite, Spirit Lake, Athol, Corbin, Rathdrum, Coeur d'Alene, Murray, Paragon, Burke, Cataldo, Enaville, Wallace, Harrison, St. Maries, Avery, Clarkia, Elk River, Bovill, Postfalls.

## Washington Division of the Chanute and Bell Airway

The cities and smaller communities on the Washington Division of the Chanute and Bell Airway are:

Dean, Trent, Hillyard, Spokane, Newport, Camden, Chewelah, Brewster, Springvale, Bridgeport, Chelan, Deer Park, Mansfield, Waterville, Wilbur, Almira, Davenport, Reardan, Edgecomb, Granite Falls, Arlington, Marysville, Everett, Snohomish, Monroe, Sultan, Index, Duval, Tolt, Seattle, Monte Cristo, Scenic, Entiat, Edmonds, Quilcene, Pt. Madison, Ballard, Seabeck, Bremerton, Port Orchard, Clifton, Windsor, Shelton, New Kamilche, McCleary Junc., Simpson, Aberdeen, Chehalis, Elma, Montesano, Cosmopolis, Cedarville, Tenino, Oakville, Wabash, Centralia, Raymond, Po Ell, Boisfort, Winlock, Vader, Grays River, Castle Rock, Cathlamet, Kelso, Kalama, Thorp, Palisades, Ephrata, Quincy, Neppell, Coulee City, Adrian, Gloyd, Dennys, Harrington, Belmont, Odessa, Lauer, Schrag, Marcellus, Farmington, Lamont, Oakesdale, Cheney, Sprague, Ritzville, Paxton, La Vista, Garfield, Rosalia, Marshall, Rockford, Spangle, Waverly, Tekoa, Malden, Camas, Washougal, Vancouver, Stevenson, Battle Ground, La Center, Yacolt, Silver Creek, Glenavon, Tono, Ashford, Ladd, Eatonville, Tumwater, Roy, McKenna, Olympia, Orting, Hillhurst, Nisqually, Fairfax, Spiketon, Carbonado, Buckley, Alderton, Palmer Junc., Steilacoom, Puyallup, Renton, Sumner, Bismarck, Tacoma, Auburn, Kent, Kerriston, North Bend, Snowqualmie, Newcastle, Douglas, Cle Elum, Roslyn, Wenatchee, Cashmere, Columbia River.

## Oregon Division of the Chanute and Bell Airway

The cities and smaller communities on the Oregon Division of the Chanute and Bell Airway are:

Portland, Banks, Hillsboro, Westport, Rainier, Clatskanie, Goble, Lafayette, Dundee, McMinnville, Woodburn, Sheridan, Amity, Broadmead, Salem, McCoy, Mt. Angel, Jewell, St. Helens, Houlton, Vernonia, St. Johns, Silverton, Wilhoit, Molalla, Cazadero, Estacada, Canby, Eagle Creek, Oregon City, Sandy, Fulton, Forest Grove, Yamhill, Newberg, Bull Run, Taylor.

Newport News, Virginia, photographed from an aeroplane. (Photo by Conway.)

## THE RODGERS AIRWAY

**The Rodgers Airway** is named in honor of Calbraith Perry Rodgers, the American aviator who was the first to make a transcontinental flight, in 1911. The Airway represents a zone eighty miles in width, extending from Norfolk to Los Angeles. The center of this airway passes through the states of Virginia, West Virginia, Kentucky, Indiana, Illinois, Missouri, Kansas, Oklahoma, Texas, New Mexico, Arizona and California. The map of this airway is under preparation.

### Virginia Division of the Rodgers Airway

The cities and smaller communities on the Virginia Division of the Rodgers Airway are:

Harrisonburg, Bridgewater, Mt. Sidney, Staunton, Crozet, Covesville, Scotts V., Madison, Stanardsville, Charlottesville, Bremo Bluff, Palmyra, Orange, Barbours V., King William, Lindsay, Gordonsville, Louisa, Tyler, Haden, Columbia, Goochland, Lee, Bowling Green, Penola, Ashland, Richmond, Tappahannock, Covington, Clifton Forge, King & Queen, Lovingston, Lowesville, Warren, Lexington, Buena Vista, Oakridge, Bessemer, Paint Bank, Fincastle, Balcony Falls, Buchanan, Lynchburg, Amherst, Stokesville, Waynesboro, Norwood, Farmville, Appomattox, Prospect, Pamplin, Burkeville, Meherrin, Nottoway, Creve, Blackstone, Monterey, McDowell, Mountain Grove, Warm Springs, Craigsville, Goshen, Newport News, Boykins, Franklin, Courtland, Jarratt, Zuni, Saluda, West Point, New Kent, Matthews, Gloucester, Williamsburg, Yorktown, Hanover, Sussex, Isle of Wight, Dinwiddie, Waverly, Smithfield, Surry, Prince George, Wilson, Petersburg, City Point, Jetersville, Chester, Charles City, Chesterfield, Amelia, Winterpock, Dorset, Manchester, Bolling, Cumberland, Walkerford, Buckingham, Powhatan, Millboro Spring, Hot Springs, Healing Springs, Griffiths, Claremont, Denbigh, Scotland, Hampton, Old Point Comfort, Rockbridge, Alum Springs, Phoebus.

### West Virginia Division of the Rodgers Airway

The cities and smaller communities on the West Virginia Division of the Rodgers Airway are:

Pt. Pleasant, Leon, Ripley, Reedy, Buffalo, Raymond City, Poca, Barboursville, Huntington, St. Albans, Milton, Charleston, Hamlin, Wayne, Winfield, Spraid, E. Lynn, Midkiff, Winifrede, Ft. Gay, Mistletoe, Racine, Seth, Gill, Dunlow, Madison, Sovereign, Logan, Ethel, Holden, Shock, Spencer, Minnora, Newton, Sutton, Pickens, Removal, Big Otter, Ivydale, Clay, Yankeedam, Academy, Summersville, Webster Springs, Cass, Dunmore, Huntersville, Gassaway, Strange Cr., Birch River, Tioga, Camden, Welch Glade, Richwood, Marlinton, Durbin, Mingo, Malden, Mammoth, Gauley Br., Mt. Carbon, Burnwell, Powellton, Snow Hill, Acme, Fayetteville, Kayford, Clifftop, Rainelle, Williamsburg, Macdonald, Lawson, Quinnimont, Lewisburg, Eccles, Beckley, Meadow Creek, Ft. Spring, Whitcomb, Roncevert, Surveyor, Raleigh, Alderson, Sullivan, Hinton, Union, Craneco, Sugar Grove.

## Ohio Division of the Rodgers Airway

The cities and smaller communities on the Ohio Division of the Rodgers Airway are:

Gallipolis, Oak Hill, Rushtown, Scioto, Campbell, Crown City, Ironton, South Pt., West Union, Ripley, Manchester, Portsmouth.

## Kentucky Division of the Rodgers Airway

The cities and smaller communities on the Kentucky Division of the Rodgers Airway are:

Quincy, Greenup, Ashland, Catlettsburg, Grayson, Carter, Vanceburg, Maysville, Flemingsburg, Johnson, Hillsboro, Augusta, Brooksville, Falmouth, Butler, Mt. Olivet, Cynthiana, Carlisle, Millersburg, West Liberty, Walton, Patriot, Warsaw, Williamstown, Carrollton, Owenton, Berry, Bedford, Sadieville, La Grange, New Castle, Prospect, Eminence, Bagdad, Uniontown, Corydon, Henderson, Owensboro, Hawesville, Brandenburg, Cloverport, Fordsville, Hardinsburg, Elizabethtown, Cecilian, Concordia, Lebanon Junc., West Point, Georgetown, Paris, Wyoming, Shelbyville, Midway, Highland Park, Frankfort, Lexington, Taylorsville, Versailles, Winchester, Lawrenceburg, Shepherdsville, Keene, Ford, Bloomfield, Salvisa, Bardstown, Nicholasville, Harrodsburg, Richmond, Mackville, Bargin, Springfield, Ft. Estill Jc., Morehead, Olive Hill, Willard, Owingsville, Sandy Hook, Mt. Sterling, Louisa, Morgan, Loveland, Frenchburg, Richardson, Ezel, Stanton, Hazel Green, Cannel City, Paintsville, Inez, Salyersville.

## Indiana Division of the Rodgers Airway

The cities and smaller communities on the Indiana Division of the Rodgers Airway are:

Lexington, Charlestown, Scottsburg, Orleans, Salem, Paoli, Livonia, Pekin, English, New Salisbury, New Albany, Jeffersonville, Corydon, Leavenworth, Laconia, Princeton, Owensville, Frt. Branch, Poseyville, New Harmony, Evansville, Mt. Vernon, Oakland City, Huntingburg, Ferdinand, Celina, Lincoln City, Boonville, Newburg, Rockport, Troy, Tell City, Cannelton, Elnora, Bicknell, Mitchell, Washington, Loogootee, Vincennes, Montgomery, Shoals, French Lick, Petersburg, Jasper, Vevay, Madison.

## Illinois Division of the Rodgers Airway

The cities and smaller communities on the Illinois Division of the Rodgers Airway are:

Ste. Marie, West Liberty, Bridgeport, Olney, Noble, Lawrenceville, Mt. Carmel, Albion, Grayville, Carmi, Enfield, Norris, Eldorado, Equality, Fairfield, Flora, Louisville, Edgewood, Xenia,

The late Calbraith Perry Rodgers, first to fly across the continent.—Drawing reproduced by courtesy of Mr. George K. Birge.

Kinmundy, Salem, Centralia, Sandoval, Vandalia, Greenville, Carlyle, Soranto, Highland, Summerfield, Staunton, Parkville, O'Fallon, Punker Hill, Edwardsville, Collinsville, Belleville, Hardin, Jerseyville, Grafton, Brighton, West Frankfurt, Alton, Granite, Galatia, Venice, Ft. St. Louis, Johnston City, Tamaroa, McLeansboro, Duquoin, Millstadt, Mascoutah, Columbia, Ashley, Waterloo, Nashville, Marissa, Mt. Vernon, Redbud, Coulterville, Dahlgren, Sparta, Pinckneyville, Percy, Chester, Benton, Parrish, Newton.

## Missouri Division of the Rodgers Airway

The cities and smaller communities on the Missouri Division of the Rodgers Airway are:

California Sulphur Springs, Jefferson City, Hillsboro, Otterville, Festus, Tipton, Richwoods, Fortuna, Victoria, Marshall, De Soto, Pilot Grove, Bloomsdale, Blackburn, Sweetsprings, Sedalia, Ste. Genevieve, Kansas City Junc., Windsor, Concordia, Pacific, Warrensburg, Pleasant Hill, Holden, Harrisonville, Freeman, Old Monroe, Post Oak, Adrion, Butler, Athol, Appleton City, Hume, Rich Hill, Schell City, Eve, Carondele, Elsberry, Apex, Portage de Sioux, Gilmore, St. Peters, Florisant, St. Charles, Clayton, St. Louis, Middletown, Briscoe, Montgomery, Danville, Troy, High Hill, Wright City, Fulton, Warrenton Hermann, Chamois, Auxvasse, Columbia, Claysville, Cedar City, Osage City, Fayette, Estill, Rocheport, Boonville, Jamestown, Hannon, Liberal, Mindenmines, Asbury, Nevada, Sheldon, Irwin, Lamar, Golden City, Greenfield, Arcola, Stockton, Humansville, Eldorado Springs, Walker, Roscoe, Vista, Preston, Hermitage, Osceola, Lowry City, Fairfield, Deepwater, Warsaw, Clinton, Proctor, Calhoun, Russelville, Versailles, Stover, St. Thomas, Eldon, Bagnell, Preston, Decaturville, Linn Creek, Tuscumbia, Iberia, Hancock, Linn, Gasconade, Vienna, Washington, Drake, Union, Byron, St. Clair, Sullivan, Cuba, Knobview, St. James, Steelville, Augusta, Kirkwood.

## Kansas Division of the Rodgers Airway

The cities and smaller communities on the Kansas Division of the Rodgers Airway are:

Toronto, Humboldt, Beaumont, Buffalo, Chanute, Severy, Erie, Howard, Fredonia, Altoona, Burden, Dexter, Grenola, Neodesha, Longton, Moline, Pittsburg, Parsons, Cherryvale, Arcadia, Walnut, St. Paul, Girard, Chicopee, Cherokee, Weir, Ashland, Bucklin, Protection, Coldwater, Oakland, Augusta, Belvidere, Springvale, Douglass, Millerton, Conway Springs, Mulvane, Belle Plaine, Sun City, Medicine Lodge, Attica, Harper, Wellington, Argonia, Oxford, Anthony, Winfield, Hardtney, Kiowo, Haviland, Cairo, Turon, Pratt, Garfield, Gibson, Dodge City, Santa Fe, Copeland, Satanta, Richfield, Springfield, Meade, Greensburg, Kinsley, Jetmore, Ingalls, Bellefonte, Cimarron, Liberal, Englewood, Hugoton, Elkhart, Rolla, Emporia, Madison, Hartford, Lebo, Burlington, Gates Center, Waverly, Le Roy, Neosho Falls, Iola, Princeton, Welda, Colony, Garnett, Bronson, Moran, Fort Scott, Oakwood, Osawatomie, La Cygne, Pleasanton, Mound City, Linton, Mantey, Cottonwood Falls, Bazaar, Matfield Green, Eureka, Marion, Seward, Sterling, Florence, Larned, Nickerson, Hutchinson, Moundridge, Peabody, St. John, Halstead, Burrton, Newton, Macksville, Stafford, Sylvia, Arlington, Haven, Whitewater, Sedgwick, De Graff, Eldorado, Wichita, Kingman, Neola, Castleton, Trousdale, Byers, Iuka.

## Oklahoma Division of the Rodgers Airway

The cities and smaller communities on the Oklahoma Division of the Rodgers Airway are:

Tyrone, Forgan, Gate, Beaver, Guymon, Hooker, Optima, Boise City, Texhoma.

## Texas Division of the Rodgers Airway

The cities and smaller communities on the Texas Division of the Rodgers Airway are:

Texline, Stratford, Dalhart, Hartley, Dumas, Channing, Bravo, Glen Rio, Hansford, Zulu, Ontario, Tascosa.

## Nevada Division of the Rodgers Airway

The cities and smaller communities on the Nevada Division of the Rodgers Airway are:

Searchlight.

## New Mexico Division of the Rodgers Airway

The cities and smaller communities on the New Mexico Division of the Rodgers Airway are:

Progresso, Torrance, Isleta, Los Lunas, Belen, Sabinal, La Joya, Lemitar, Magdalene, Socorro, San Antonio, Wingate, Casa Salazar, Chaves, San Mateo, Bluewater, Laguna, Ramah, Gallup, Defiance, Manuelito, Zuni, Puerto de Luna, Ft. Sumner, Anton Chico, Buchanan, Pastura, Negra, Vaughn, Clapham, Bueyeros, Medio, Atarque, Logan, Liberty, Tucumcar, Gallinas Sp., Santa Rosa Moriarty, Albuquerque, Chilili, Estancia, Willard, Luna.

## Arizona Division of the Rodgers Airway

The cities and smaller communities on the Arizona Division of the Rodgers Airway are:

Ft. Defiance, Sanders, Navajo, Holbrook, St. Johns, Woodruff, Concho, Snowflake, Taylor, Winslow, Hardy, Dennison, Angell, Cosnino, Flagstaff, Bellemont, Clarkdale, Williams, Chalender, Fair View, Ashfork, Collins Well, Camp Verde, Jerome, Jerome Junc., Cedar Glade, Chino, Peach Springs, Chloride, Mineral Park, Hackberry, Hualpai, Kingman, McConnico, Drake, Franconia, Liverpool, Landing, Signal.

## California Division of the Rodgers Airway

The cities and smaller communities on the California Division of the Rodgers Airway are:

Needles, Java, Goffs, Barnwell, Kelso, Fenner, Danby, Milligan, Cadiz, Archer, Newberry, Ludlow, Ash Hill, Siberia, Amboy, Cajon, Indio, Whitewater, Banning, Victorville, San Bernardino, Redlands, Lakeview, Perris, S. Jacinto, Hemet, Elsinore, Capistrano, Temecula, Colton, San Pedro, Ravenna, Burbank, Pasadena, Pomona, Los Angeles, Spadra, Newport Beach, Wilmington, Florence, Puente, Riverside, Norwalk, Corona, Downey, Anaheim, Orange, Long Beach, Santa Ana, Tustin.

Fort Sam Houston, Texas, photographed from Miss Katherine Stinson's aeroplane.

Looking down on Philadelphia.—Note the Independence Hall Tower in the right foreground.

## THE ATLANTIC AIRWAY

**The Atlantic Airway** represents a zone fifty miles in width, extending from Maine to Florida. It includes the states of Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Delaware, Maryland, Virginia, North Carolina, South Carolina, Georgia, and Florida. The map of this airway is under preparation.

### Maine Division of the Atlantic Airway

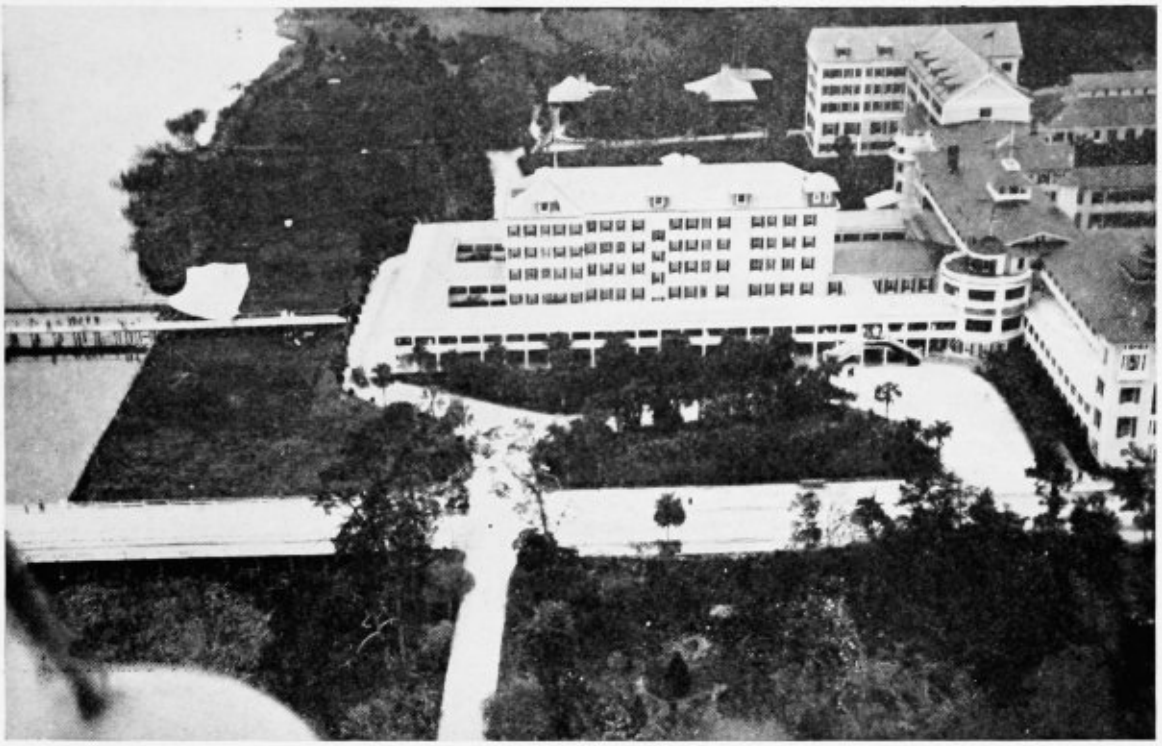
The cities and smaller communities on the Maine Division of the Atlantic Airway are:

Princeton, Calais, Perry, Eastport, Pembroke, Lubec, Greenfield, Great Pond, Milford, Deblois, Old Town, Orono, Machias, Bangor, Brewer, Cherryfield, Newport, Hampden, Pittsfield, Dixmont, Bucksport, Ellsworth, Hancock, Cooper, Gouldsboro, Burnham, Brooks, Searsport, Blue Hill, Eden, Bar Harbor, Fairfield, Waterville, Albion, Belfast, Castine, Tremont, Oakland, Winslow, Palermo, Augusta, Camden, Hallowell, Union, Vinal Haven, North Haven, Jefferson, Rockland, Thomaston, Danville, Brunswick, St. George, Waldoboro, Gilbertville, Jay, Livermore, Falls, East Livermore, Winthrop, Paris, Gardiner, Wiscasset, Bristol, Bethel, South Paris, Norway, Leeds Junc., Oxford, Mechanic Falls, Lewiston, North Bridgton, Auburn, Fryeburg, Lisbon, Bridgton, Casco, Bath, Bridgton Junction, East Baldwin, Freeport, Deering Junction, Gorham, Boothbay, Portland, Bar Mills, South Portland, Acton, Alfred, Saco, Sanford, Biddeford, Milton, Wells, Kennebunk, North Berwick, York Beach, Kittery.

### New Hampshire Division of the Atlantic Airway

The cities and smaller communities on the New Hampshire Division of the Atlantic Airway are:

Ossipee, Wolfeboro, Laconia, Altonbay, Belmont, Milton, Farmington, Rochester, Pittsfield, Somersworth, Dover, Concord, Pembroke, Newmarket, Portsmouth, Goffstown, New Boston, Exeter, Manchester, Seabrook, Derry, Wilton, Milford, Greenville, Nashua, Conway, Intervale, Tilton, North Weare.



Hotel Ormond, Ormond Beach, Florida, with Aeroplane tent and launching railway (at left).

## Massachusetts Division of the Atlantic Airway

The cities and smaller communities on the Massachusetts Division of the Atlantic Airway are:

Amesbury, Newburyport, Haverhill, Methuen, Lawrence, Lowell, Rockport, Fitchburg, Andover, Beverly, Gloucester, Ayer, Danvers, Gardner, Woburn, Lynn, Salem, Leominster, Marblehead, Clinton, Cambridge, Malden, Somerville, Waltham, Boston, Marlboro, Newton, Pemberton, Framingham, Quincy, Worcester, Cohasset, Dedham, Hyde Park, Spencer, Grafton, Milford, Canton, Rockland, Hanover, Franklin, Brockton, Webster, Woods

The Government Channel across Biscay Bay to the City of Miami, Florida.




Scene at a Naval Station, "Somewhere on the Atlantic," showing fifteen trying hydroaeroplanes on beach departing and arriving.

Hole, Bryantville, Attleboro, Plymouth, Taunton, Middleboro, Sandwich, Fall River, Provincetown, Truro, Eastham, Dennis, Harwich, Chatham, Barnstable, Fairhaven, New Bedford, Hyannis.

## Rhode Island Division of the Atlantic Airway

The cities and smaller communities on the Rhode Island Division of the Atlantic Airway are:

Bristol, East Greenwich, East Providence, Hope Valley, Kingston, Newport, Pascoag, Pawtucket, Providence, Warren, Westerly, Wickford, Woonsocket, Warwick.

## Connecticut Division of the Atlantic Airway

The cities and smaller communities on the Connecticut Division of the Atlantic Airway are:

Ansonia, Bethel, Branford, Bridgeport, Bristol, Colchester, Danbury, Danielson, Derby, Enfield, Essex, Georgetown, Groton, Haddam, Hartford, Litchfield, Meriden, Middletown, Milford, Montville, Naugatuck, New Britain, New Haven, New London, New Milford, Norwich, Plainfield, Putnam, Ridgefield, Rockville, Southington, South Norwalk, Stafford, Stamford, Stonington, Suffield, Tolland, Torrington, Vernon, Wallingford, Waterbury, Watertown, West Haven, Willimantic, Windsor, Winsted, Winchester Center, Newtown.

## New York Division of the Atlantic Airway

The cities and smaller communities on the New York Division of the Atlantic Airway are:

Poughkeepsie, Wappingers Falls, Walden, Newburg, Fishkill, Matteawan, Middletown, Cold Springs, West Point, Carmel, Port Jervis, Goshen, Peekskill, Pine Island, Greenwood Lake, Haverstraw, Ossining, New City, Nyack, Tarrytown, White Plains, Port Chester, Yonkers, Richmond, Brighton, New York, Brooklyn, Jamaica, Long Island City, College Point, Mineola, Hicksville, Locust Valley, Babylon, Amityville, Patchogue, Port Jefferson, Wading River, Manorville, Riverhead, Greenport, Sag Harbor, Montauk Point.

## New Jersey Division of the Atlantic Airway

The cities and smaller communities on the New Jersey Division of the Atlantic Airway are:

Asbury Park, Atco, Atlantic City, Barnegat, Bayonne, Belvidere, Beverly, Bordentown, Bridgeton, Burlington, Camden, Cape May, Cape May Court House, Chester, Denville, Dover, Egg Harbor City, Elizabeth, Elmer, Englewood, Farmingdale, Flemington, Franklin, Freehold, Gloucester City, Hackensack, Hammonton, Hoboken, Jamesburg, Jersey City, Keyport, Lakehurst, Lambertville, Long Branch, Mays Landing, Milford, Millville, Morristown, Mt. Holly, Newark, New Brunswick, Newton, Ocean City, Orange, Paterson, Perth Amboy, Plainfield, Pleasantville, Port Norris, Princeton, Rahway, Red Bank, Salem, Somerville, South Amboy, Somers Point, Sea Isle City, Toms River, Trenton, Tuckerton, Union, Vineland, Washington, Wharton, Williamstown, Woodbine, Woodbury, Edison, Slateford, Andover, Port Monmouth, Sea Girt, Seaside Park, Whiting, Chatsworth, Atsion, Beach Haven, Brigantine, Wildwood, Sandy Hook.

## Delaware Division of the Atlantic Airway

The cities and smaller communities on the Deleware Division of the Atlantic Airway are:

Bridgeville, Cheswold, Clayton, Delmar, Dover, Frederica, Georgetown, Greenwood, Harrington, Laurel, Lewes, Milford, Millsboro, Milton, Rehoboth, Seaford, Selbyville, Smyrna, Townsend, Wyoming.

Jacksonville, Florida, photographed from one of Mr. W. Earl Dodge's aeroplanes.

## Maryland Division of the Atlantic Airway

The cities and smaller communities on the Maryland Division of the Atlantic Airway are:

Sudlersville, Greensboro, Ridgely, Denton, Easton, Cambridge, Linkwood, Sharptown, Salisbury, Berlin, Ocean City, Elliott, Princess Anne, Peninsula Junction, Snow Hill, Pocomoke, Crisfield, Point Lookout.

## Virginia Division of the Atlantic Airway

The cities and smaller communities on the Virginia Division of the Atlantic Airway are:

Heathsville, Lancaster, Saluda, Matthews, Gloucester, Williamsburg, Yorktown, Hampton, Old Point Comfort, Phoebus, Scotland, Denbigh, Surry, Smithfield, Isle of Wight, Newport News, Ocean View, Virginia Beach, Zuni, Portsmouth, Norfolk, Princess Anne, Berkley, Suffolk, Munden, Franklin, Accomac, Pungoteague, Onancock, Bridgetown, Eastville, Cape Charles, Townsend.

## North Carolina Division of the Atlantic Airway

The cities and smaller communities on the North Carolina Division of the Atlantic Airway are:

Currituck, Winton, Gatesville, Beckford Junction, Camden, Ryland, Hertford, Elizabeth City, Mavaton, Colerain, Edenton, Columbia, Mackeys, Plymouth, Creswell, Fairfield, Belhaven, Swan Quarter, Bath, Aurora, Vanceboro, Vandemere, Dover, Kinston, Whiteville, Armour, Chadbourne, Bolton, Wrightsville, Bayboro, Stonewall, Trenton, New Bern, Pink Hill, Oriental, Croatan, Richlands, Magnolia, Warsaw, Kenansville, Maysville, Newport, Beaufort, Jacksonville, Garland, Morehead City, Swansboro, Willard, Elizabethtown, Delta, Burgaw, Clarkton, Boardman, Navassa, Wilmington, Fair Bluff, Kendall, Southport, Shallotte.

## South Carolina Division of the Atlantic Airway

The cities and smaller communities on the South Carolina Division of the Atlantic Airway are:

Dillon, Pages Mill, Latta, Pee Dee Junction, Nichols, Mullins, Marion, Little River, Scranton, Conway, Lake City, Georgetown Junction, Myrtle Beach, Bucksport, Rome, Kingstree, Plantersville, Summerville, Ridgeland, Beaufort, Port Royal, Hardeeville, Ferguson, Lanes, Andrews, St. Stephen, Georgetown, St. George, Monks Corner, Pregnalls, Strawberry, Ridgeville, Hampton, Walterboro, Mt. Pleasant, Stono, Hendersonville, Charleston, Brighton, Whitehall, Yonges Island, Yemassee.

## Georgia Division of the Atlantic Airway

The cities and smaller communities on the Georgia Division of the Atlantic Airway are:

Egypt, Springfield, Statesboro, Eden, Claxton, Cuyler, Savannah, Clyde, Hinesville, Fleming, Glennville, McIntosh, Ludowici, Darien Junction, Jesup, Pendarvis, Screven, Offerman, Darien, Everett, Blackshear, Hoboken, Nahunta, Brunswick, Racepond, Owens Ferry, Folkston, Kingsland, St. Marys.

## Florida Division of the Atlantic Airway

The cities and smaller communities on the Florida Division of the Atlantic Airway are:

Yulee, Fernandina, Callahan, Moniac, Mayport, Macclenny, Jacksonville, Pablo Beach, Sanderson, Baldwin, South Jacksonville, Orange Park, Bayard, Lawtey, Green Cove Springs, St. Augustine, Starke, Sampson, New Augustine, Waldo, Melrose, Palatka, Hawthorne, Ocoee, Wewahotte, Cocoa, Narcoossee, Kissimmee, Holopah, Eau Gallie, San Mateo, Crescent City, Ormond, Eldridge, Astor, Daytona, De Land, Summit, Beresford, New Smyrna, Lake Helen, Orange City Junction, Ft. Mason, Enterprise, Eustis, Sanford, Tavares, Maytown, Oviedo, Titusville, Winter Park, Chuluota, Orlando, Pine Castle, Melbourne, Grant, Kenansville, Orchid, Yeehaw, Ft. Drum, Ft. Pierce, Bassenger, Eden, Okeechobee, West Palm Beach, Palm Beach, Lake Worth, Lantana, Ft. Lauderdale, Dania, Biscayne, Miami, Homestead, Flamingo, Key West.

Airboating along the Gulf Airway.

## THE GULF AIRWAY

**The Gulf Airway** represents a zone fifty miles in width, extending from Key West, Florida, to Brownsville, Texas. It includes the states of Florida, Georgia, Alabama, Mississippi, Louisiana and Texas. The map of this airway is under preparation.

### Florida Division of the Gulf Airway

The cities and smaller communities on the Florida Division of the Gulf Airway are:

Dunnellon, Ocala, Juliette, Cedar Keys, York, Early Bird, Rosewood, Otter Creek, Silver Springs, Martin, Fairfield, Bronson, Levyville, Wilcox, Suwannee River, Newberry, Wannee, Stephensville, Buda, Salem, Fort White, Branford, Mayo, Alton, Fenholloway Hampton Springs, Perry Naples, Fort Meyers, Punta Gorda, Charlotte Harbor, Liverpool, Fort Ogden, Venice, Arcadia, Fruitville, Sarasota, Brownville, Miakka, Bradentown, Manatee, Ellenton, Palmetto, Wauchula, Fort Green, Terra Ceia, Tiger Bay, St. Petersburg, Agricola, Pierce, Keysville, Port Tampa, Nichols, Mulberry, Sand Key, Port Tampa City, Clearwater, West Tampa, Tampa, Plant City, Winston, Lakeland, Thonotosassa, Tarpon Springs, Anclote, Drexel, Port Richey, Tucker, Richland, Hudson, Dade, Sagana, Brooksville, Bayport, Tooke Lake, Clermont, Webster, Sumterville, Leesburg, Homosassa, Inverness, Panasoffkee, Hernando, Crystal River, Oxford, Londbridge, McAlpin, Luraville, Mayo Junction, Dawling Park, Live Oak, Ellaville, Crawfordville, Greenville, Madison, St. Marks, Westville, Econfina, Vernon, St. Andrews Bridge, Panama City, Noma, Graceville, Bonifay, Cottondale, Sneads, Chipley, Scotts Ferry, Youngstown, Fanlew, Monticello, Wacissa, Tallahassee, Capitola, Century, McDavid, Molino, Cantonment, Muscogee, Millview, Iola, Sumatra, Blounstown, Port St. Joe, Marianna, Bristol, Telogia, Smithcreek, Carrabelle, Apalachicola, Pensacola, Milton, Munson, Oak Grove, Otahite, Milligan, Crestview, Natural Bridge, Paxton, Freeport, De Funiak Springs, Point Washington, Havana, Quincy, Key West.

### Georgia Division of the Gulf Airway

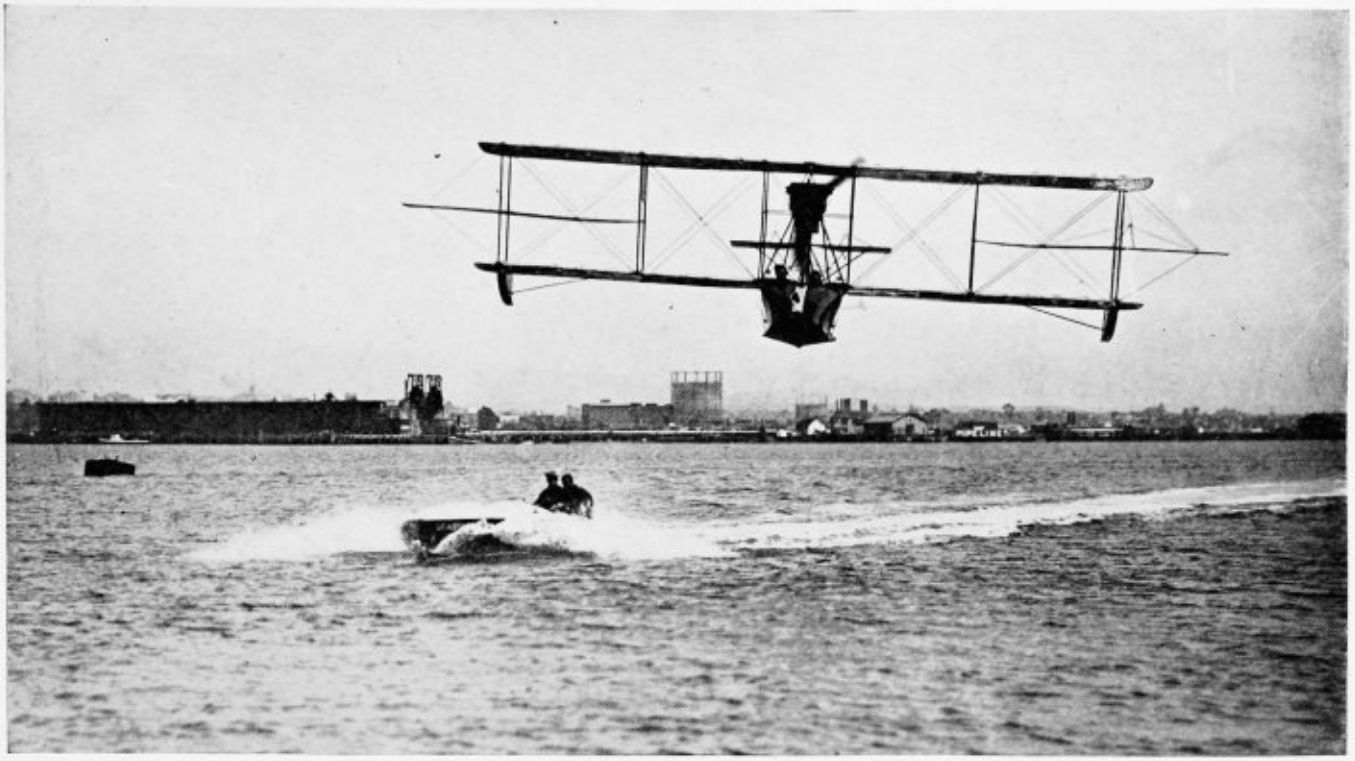
The cities and smaller communities on the Georgia Division of the Gulf Airway are:

Calvary, Climax, Cairo, Faceville, Boston, Thomasville, Amsterdam.

### Alabama Division of the Gulf Airway

The cities and smaller communities on the Alabama Division of the Gulf Airway are:

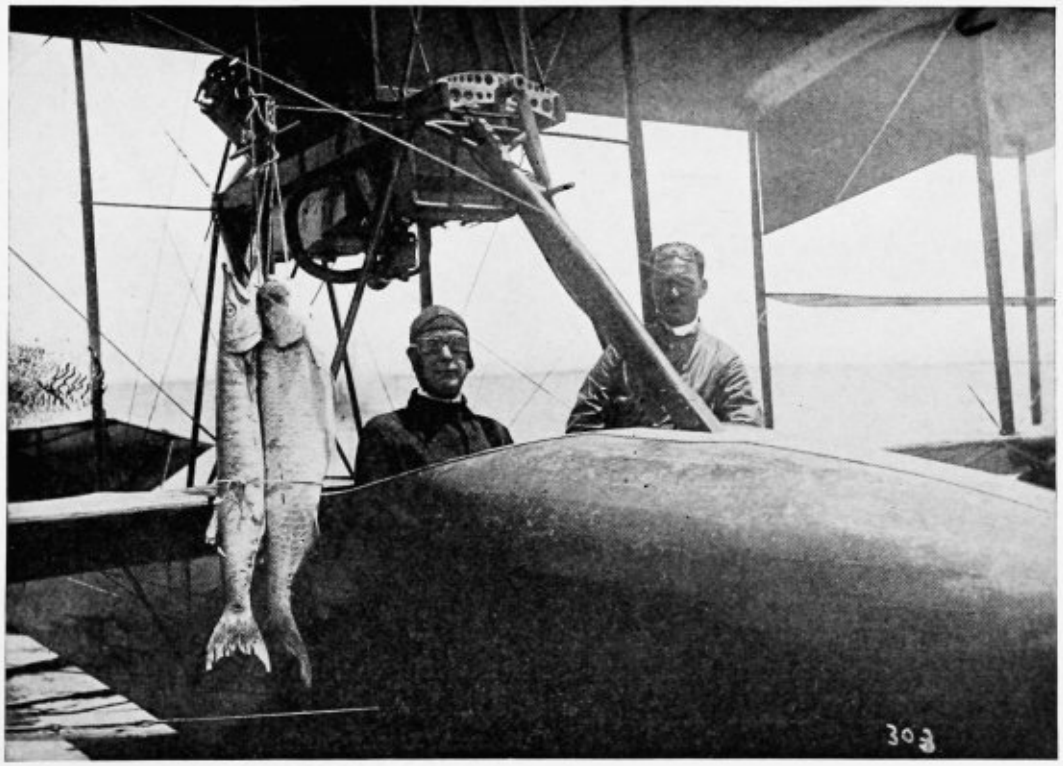
Geneva, Samson, Florala, Brewton, Pollard, Perdido, Atmore, Calvert, Sims Chapel, Citronelle, Bayou Labatre, Foley, Chunchula, Bay Minette, Gateswood, Mobile, Daphne.



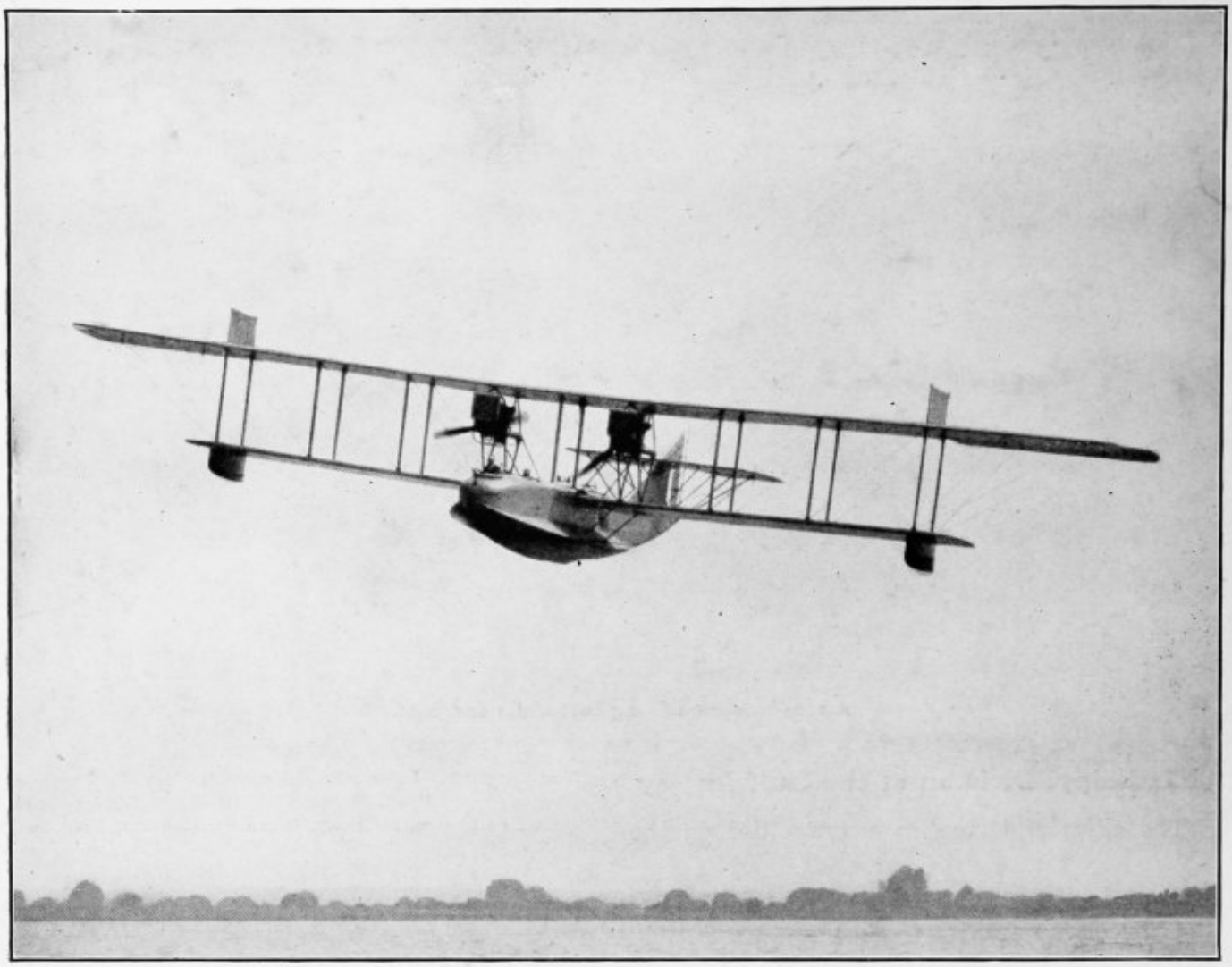
A race between a flying boat and a fast boat.

## Mississippi Division of the Gulf Airway

The cities and smaller communities on the Mississippi Division of the Gulf Airway are: New Augusta, Leakesville, Beaumont, Merrill, Lucedale, Evanston, Moss Point, Pascagoula, Brooklyn, Maxie, Bond, Wiggins, Perkinston, McHenry, Ocean Spgs., Bilori, Mississippi City, Pass Christian, Bay St. Louis, Gulfport, Waveland, Lumberton, Poplarville, Picayune, Gainesville.



Mr. E. R. Thomas and Harold D. Kantner, who combined training for national defense and sport in Florida during the past two winters. The photo shows two fish which Mr. Thomas caught and brought home on his flying boat.



Twin-motored Flying Boat, Curtiss type, two Liberty motors of 380 h. p. each, constructed at the Naval Aircraft Factory at Philadelphia.

## Louisiana Division of the Gulf Airway

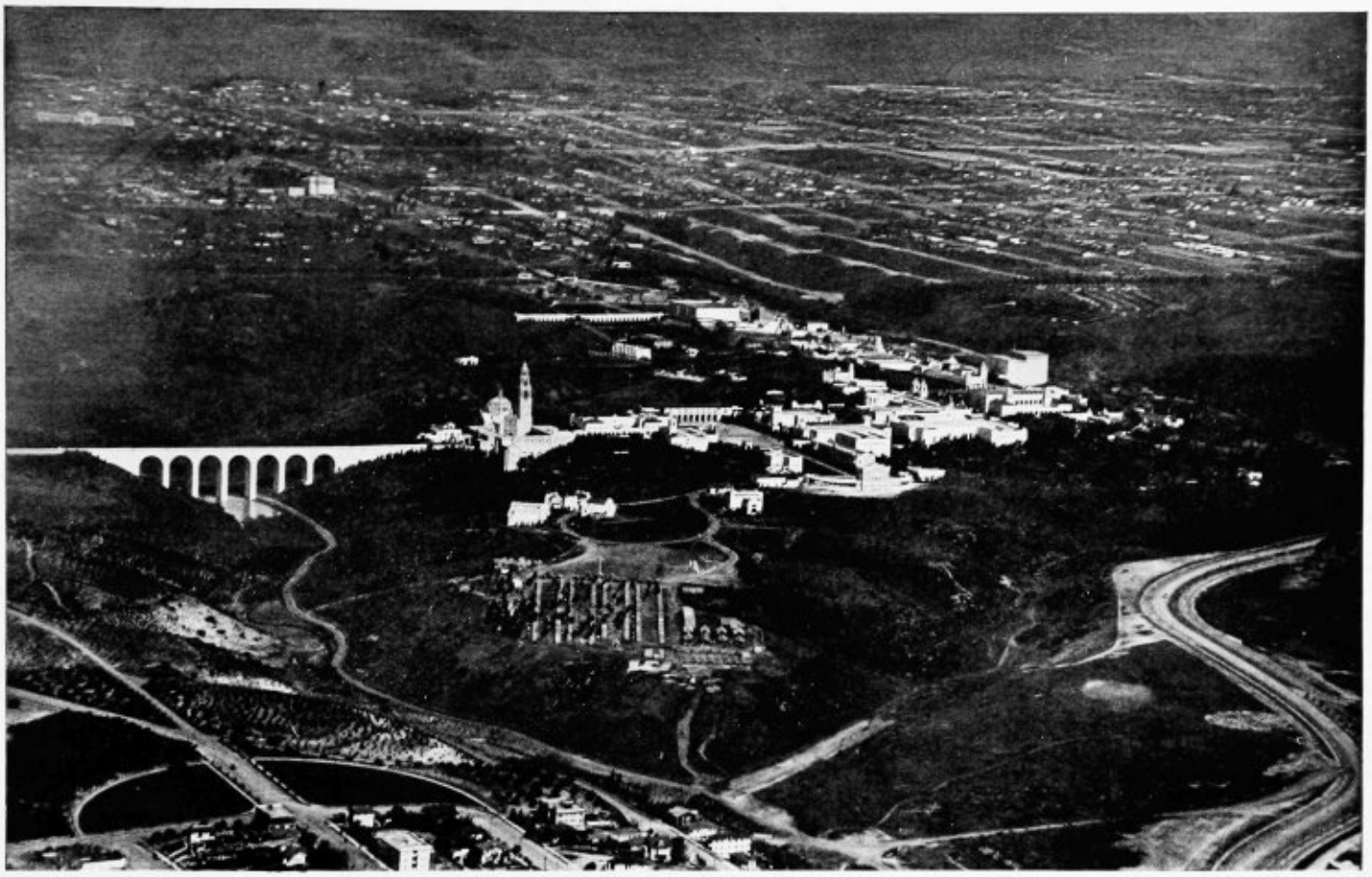
The cities and smaller communities on the Louisiana Division of the Gulf Airway are:

Angie, Franklinton, Rio, Folsom, Covington, Abita Springs, Madisonville, Mandeville, Pearl River, Slidell, Foley, Amite, Independence, Hammond, Baton Rouge, Springville, Convent, Edgard, Kenner, New Orleans, Hahnville, Algiers, Shell Beach, St. Bernard, Gretna, Schriever, Raceland, Belair, Lockport, Houma, Pointe a la Hache, Bohemia, Buras, Venice, Pilot Town, Montegut, Theriot, Port Allen, Livonia, Melville, Port Barre, Rosedale, Plaquemine, Bayou Goula, White Castle, St. Martinsville, Loreauville, Donaldsonville, Napoleonvile, Thibodaux, Morgan City, Gibson, Calumet, Shadyside, Baldwin, Parks, New Iberia, Jeanerette, Franklin, Arnaudville, Cypremont, Johnson's Bayou, Cameron, Edgerly, Jennings, Iota, Lafayette, Rayne, Mamou, Fenton, Mallard Junction, Lake Charles, Midland, Eunice, Milton, Ville Platte, Washington, Vizard, Bundick, Oberlin, Opelousas, Fulton, Kinder, Cades, Lakeside, Gueydan, Abbeville, Avery Island, De Quincy, Crowley, Holmwood, Mermentau, Lake Arthur.

## Texas Division of the Gulf Airway

The cities and smaller communities on the Texas Division of the Gulf Airway are:

Isabel, San Juan, Riohondo, Harlingen, Edinburg, San Patricio, Gregory, Rockport, Lagarto, Sinton, Mathis, Skidmore, Lamar, Austwell, Refugio, Tivoli, Seadrift, Anaqua, Port O'Connor, Port Lavaca, Heyser, Raymondville, Delfina, Rudolph, Sarita, Falfurrias, Katherine, Kingsville, Bloomington, Goliad, Collegeport, Placedo, Palacios, Matagorda, Carancahua, Victoria, Hawkinsville, Blessing, Bay City, Buckeye, Edna, Velasco, Caney, Richmond, San Diego, Corpus Christi, Alice, Robstown, Banquette, Odem, Van Vleck, Ganado, Brazoria, Columbia, Angleton, Chenango, Otey, Wharton, Hitchcock, Galveston, Alvin, Rosenberg, Port Bolivar, Algoa, Arcola, Clear Creek, Brownsville, San Benito, Santa Maria, Cabell, La Porte, Harrisburg, Houston, Anahuac, Sabine Pass, Crosby, Winnie, Wallisville, West Port Arthur, Port Arthur, Dayton, Nome, Beaumont, Deveres, Liberty, Orange, Sour Lake, Saratoga, Mauriceville, Bragg, Silsbee, Kountze, Bessmay, Call.



A remarkable aeroplane view of the San Diego Exposition.

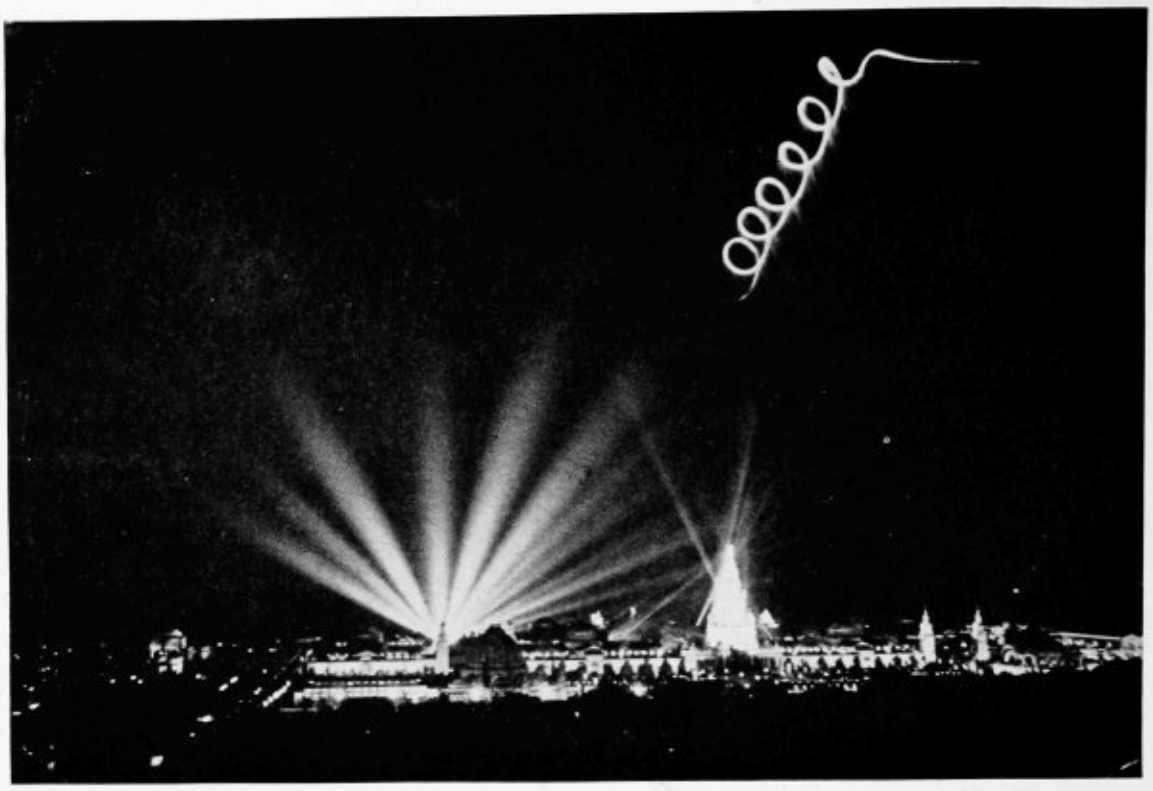
## THE PACIFIC AIRWAY

**The Pacific Airway** represents a zone fifty miles in width, extending from San Diego, Cal., to Puget Sound, Washington. It includes the states of Washington, Oregon and California. The map of this airway is under preparation.

### California Division of the Pacific Airway

The cities and smaller communities on the California Division of the Pacific Airway are:

Smith River, Seiad Valley, Crescent City, Happy Camp, Orleans, Forks of Salmon, Trinidad, Fieldbrook, Arcata, Korbel, Samoa, Eureka, Burntranch, Fortuna, Ferndale, Alton, Carlotta, Bridgeville, Scotia, Shively, Petrolia, Upper Mattole, Phillipsville, Garberville, Willits, Mendocino, McCann, Blocksburg, Dos Rios, Covelo, Westport, Longvale, Sherwood, Fort Bragg, Potter Valley, Albion, Christine, Upper Lake, Ukiah, Lakeport, Manchester, Boonville, Hopland, Kelseyville, Pt. Arena, Lower Lake, Cloverdale, Gualala, Knoxville, Clairville, Healdsburg, Calistoga, Guerneville, Ft. Ross, Fulton, St. Helena, Cazadero, Duncans Mills, Santa Rosa, Vacaville, Sebastopol, Sonoma, Petaluma, Tomales, Napa, Fairfield, Wingo, Donahue, Buchli, Napa Junction, Vacona Junc., Pescadero, New Almaden, Alma, Los Gatos, Swanton, Gilroy Hot Springs, Boulder Creek, Morgan Hill, Felton, Davenport, Gilroy, Santa Cruz, Watsonville, Pajarco, Hollister, San Juan, Tres Pinos, Castroville, Salinas, Pacific Grove, Monterey, Panoche, San Benito, Gonzales, Soledad, Paraiso Springs, Priest Valley, Pt. Reyes, Vallejo, Benicia, San Ratae, Concord, Antioch, San Anselmo, Pablo, Martinez, Berkeley, San Jose, Richmond, Tiburou, Byron, Sausalito, Oakland, Altamont, San Francisco, Alameda, San Ramon, Hayward, Livermore, San Bruno, Millbrae, Mt. Eden, Tesla, Niles, San Mateo, Newark, Granada, Milpitas, Redwood City, Purisima, Santa Clara, San Gregorio, San Fernando, Montalvo, Chatsworth, Oxnard, Hueneme, Newbury Park, Burbank, Pasadena, Los Angeles, Pomona, San Bernardino, Colton, Santa Monica, Redlands, Spadra, Florence, Puente, Banning, Riverside, Norwalk, Corona, Downey, Lakeview, Anaheim, Wilmington, Perris, Orange, Long Beach, Santa Ana, San Jacinto, San Pedro, Tustin, Jolon, Stone Canyon, Pleyto, San Miguel, Cholame, Paso Robles, Cambria, Morro, Lapanza, San Luis Obispo, Musick, Port San Luis, Arroyo Grande, Nipomo, Pentland Junc., Guadaloupe, Santa Maria, Sisquoc, Los Alamos, Lompoc Junc., Los Olivos, Lompoc, Santa Ynez, Goleta, Lang, Santa Barbara, Nordhoff, Ravenna, Newhall, Cajon, Ventura, Santa Paula, Somis, Hemet, Elsinore, Newport Beach, Capistrano, Temecula, Fallbrook, Nellie, Warner Springs, Vista, Oceanside, Carlsbad, Escondido, Encinitas, Julian, Foster, La Jolla, Selwyn, N. San Diego, San Diego, Coronado, National City, Campo, Potrero, Fruitland, Tia Juana.



Photograph of the Pan-American Exposition at San Francisco made at night while Art. Smith, veteran aviator, was looping the loop.

## Oregon Division of the Pacific Airway

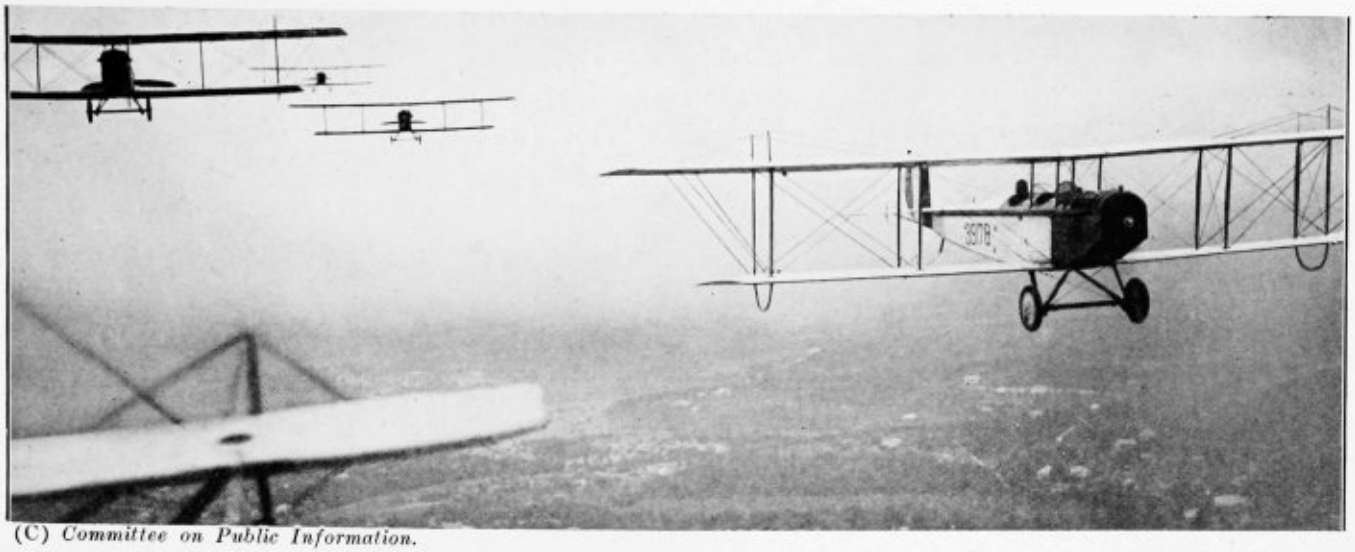
The cities and smaller communities on the Oregon Division of the Pacific Airway are:

Astoria, Warrenton, Westport, Rainie, Goble, Clatskanie, Seaside, Nehalem, Jewell, St. Helens, Houlton, Vernonia, Banks, Hobsonville, Hillsboro, Tillamook, Forest Grove, Yamhill, Newberg, Lafayette, Dundee, Hebo, McMinnville, Sheridan, Grand Ponde, Broadmead, McCoy, Falls City, Independence, Kings Valley, Summit, Yaquina, Tallman, Philomath, Corvallis, Harrisburg, Junction City, Oretown, Amity, Dallas, Salem, Airlie, Turner, Newport, Albany, Toledo, Alsea, Halsey, Rainrock, Noti, Beecher, Eugene, Florence, Booth, Gardiner, Scottsburg, Drain, Willard, Elkton, Kellogg, Oakland, North Bend, Marshfield, Wilbur, Cleveland, Beaver Hill, Roseburg, Dora, Lookingglass, Coquill, Bandon, Myrtlepoint, Camas Valley, Riddle, Denmark, Eckley, Powers, Glendale, Gold Beach, Wilderville, Kerby, Waldo.

## Washington Division of the Pacific Airway

The cities and smaller communities on the Washington Division of the Pacific Airway are:

Agy, Clallam, Ozette, Port Crescent, Forks, Evergreen, Windsor, Gordonville, Moclips, McCleary Junction, Hoquiam, Aberdeen, Simpson, Chehalis, Elma, Montesano, Ocasta, Cedarville, Oakville, Centralia, Cosmopolis, South Bend, Raymond, Bay Center, Pe Ell, Oysterville, Boistfort, Nahcotia, Winlock, Nemah, Vader, Ilwaco, Grays River, Castle Rock, Cathlamet, Kelso, Kalama, Pt. Angeles.



(C) *Committee on Public Information.*

Not less than 3,000 aeroplanes have been flying in the United States each day during the past year—training military aviators—covering a distance of about 500,000 miles. For military cross-country flying and the aerial mail service there will be needed aviation landing fields in or near every community, aviation fields being to aeroplanes what good roads are to automobiles and ports and harbors to ships.

## WHAT PERMANENT AERODROMES AND EMERGENCY FIELDS SHOULD BE

AN ideal aerodrome for permanent use should be at least 1,000 square yards in size. It may be square or not, so long as it permits landing and starting against the wind no matter what direction the wind may blow.

An emergency landing place should be about 1,000 feet by at least 600 feet.

The sketch given herewith shows a plan for an ideal permanent aerodrome. The hangars, repair shops, gasoline and supply stations, are shown on each side of the field. In the center of the field there is the superintendent's building, on top of which is a "Cook Wind Vane" and compass directions, both of which are illuminated at night, making them visible to aviators.

To assist the aviator in getting his direction there are laid on the field large white arrows of canvas or other material with the names of the cities to which they point printed on them.

The field superintendent's building may be placed in line with the hangars, but the better place, from a standpoint of convenience to the air traveler, is in the center of the field, so that when the air traveler lands he goes to the superintendent's building and states whether he just wants to take on gasoline and oil, or whether he wishes to have his machine repaired. Whichever, the superintendent assigns mechanics to "taxy" the machine to either the gasoline depot or to the repair shop, while the air traveler may use the club rooms in the superintendent's building.

As it is always necessary for the aviators to land and start against the wind, the "Cook Wind Vane" will point the direction of the wind and a large arrow of white canvas or other materials with the word "landing" printed on it in large black type, will indicate the place where the aviator should land. This arrow, which is commonly called, "landing arrow," will always be placed pointing against the prevailing wind.

The aviator will land on the field where the "landing arrow" is, but his machine will not stop on the arrow; he will leave the machine and the fieldman or mechanic will "taxy" the machine to the hangar, or to the gasoline depot or to the repair shop, whatever the need may be.

Aeroplanes will start on opposite side of the field from where they land, so as not to conflict with those landing.

The combination of the "Cook Wind Vane" and the direction arrows (patents applied for by Joseph A. Steinmetz, Morris Building, Philadelphia, Pa.), make it possible for the aviator to get his landing directions quickly.

The "Cook Vane" on the roof of the superintendent's building in the center of the field bears the name of the city or town where the field is located. Illumination makes it clearly visible because it is white and the platform on the superintendent's building is black.

The "Cook Vane" and the direction arrows are of exceptional value, not only to aviators starting from or landing on the aerodrome, but also to air travelers who are traveling to other places, who can get their bearings on passing over the field.

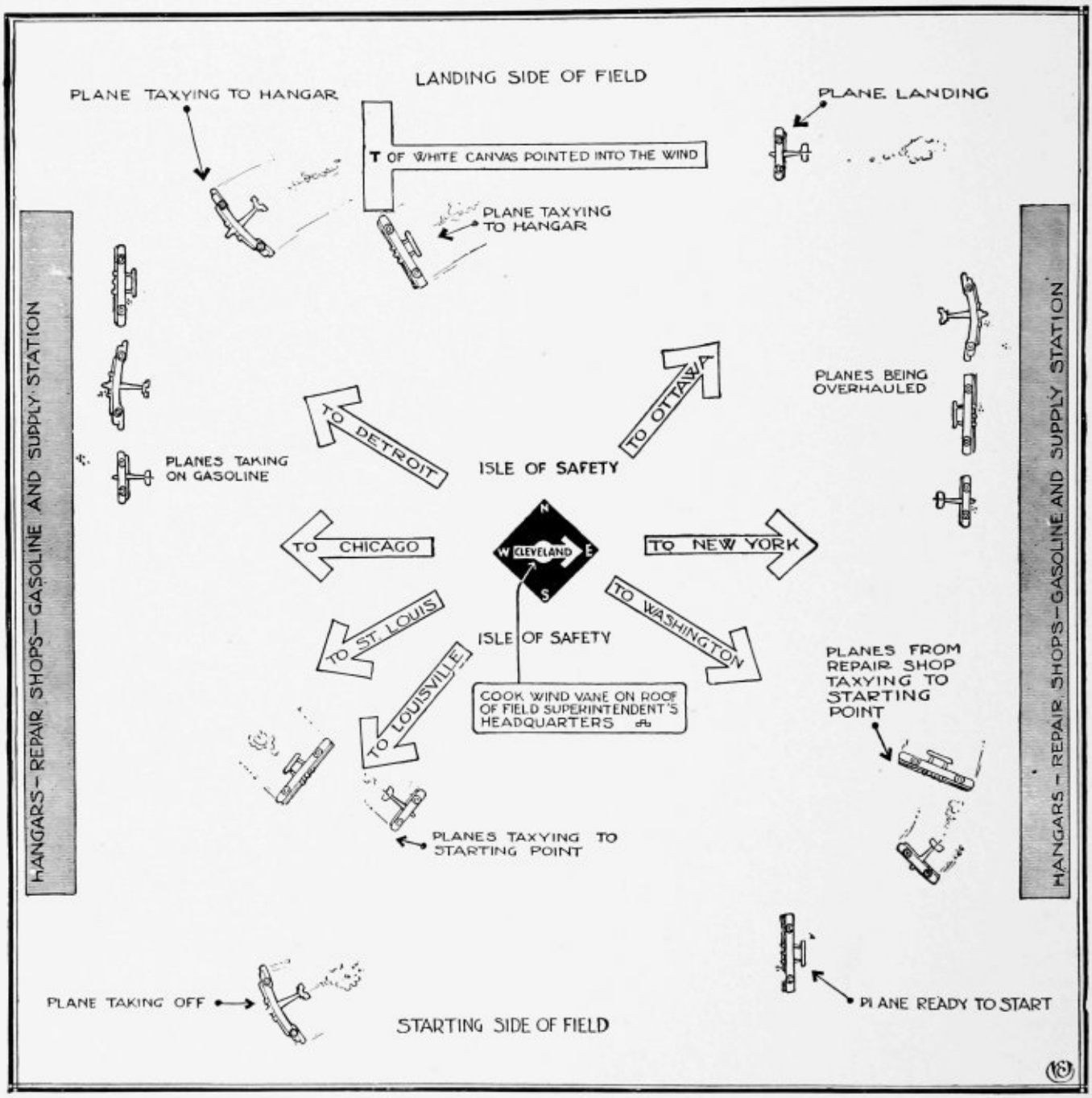
Special arrangement must be made for night landings. This arrangement will be discussed hereafter.

Emergency landing fields only need one of the wind direction

arrows used to indicate the landing place. A quarter of an hour or so before the hour when the aerial mail aeroplanes are due to pass over the field, the arrow is moved by boy scouts or other volunteers who wish to help the Post Office in its progressive work, to indicate the direction of the prevailing wind, so that the pilot may land against the wind if it becomes necessary for him to land.

Both the Cook Vane and the direction arrow can be obtained from Joseph A. Steinmetz, Philadelphia, Pa. The simplest arrows are of waterproof canvas about 45 x 5 ft. in size, have means of fastening them to ground, and stencils of the names of American and Canadian cities, and brushes and white and black paints for painting the names of the cities in summer and winter.

In summer the arrow is white and the names in black; in winter the arrow is black and the names in white. Mr. Steinmetz also supplies the more scientific system for directing aviators in landing and in finding their directions by day.




Ideal plan for landing field. It will be seen that the aviator can observe from aloft the direction of the wind and the exact direction of the principal cities in the vicinity. The arrangement of the superintendent's headquarters, the gasoline supply station and repair shops is especially convenient. The Cook wind vane and direction arrows are supplied by Joseph Steinmetz, Philadelphia, Pa., who has applied for patents on this system.

## THE SHOTWELL ELECTRIC WEATHER VANE

### For Aerodromes and Postmasters' Offices—Gives Wind Directions Far and Near

The Shotwell Electric Weather Vane, patented and made by the Shotwell Weather Vane Co., is a very useful article for aerodromes, for the offices of field superintendents, postmasters, commanding officers and flying officers of Army, Navy and Marine Corps aerodromes—and anybody interested in aeronautics boating, motoring, meteorology, etc.

It is a simple device consisting of a vane and a dial which permits a person in his office to know when the wind changes near or far. When he wants to know the direction of the wind over his building—or twenty-five or fifty miles away—he presses a button and the light on the dial shows the direction of the prevailing wind. It may be arranged to give thirty-two directions wherever the vane is located.

The Second Assistant Postmaster General and the Superintendent of the Aerial Mail, who have charge of the Aerial Mail Service in Washington, can, by pressing a button, see the exact direction of the wind at any point on any of the Aerial Mail routes. Knowing the direction of the wind they know whether the aviator has a head wind or a following wind or a cross wind, and can estimate whether he will arrive late or ahead of time. From the changes in wind directions they will also know whether rain or fair weather is to be expected.

The Commanding Officer or the flying officer or superintendent at an aerodrome can see the changes of the wind from his desk and can order the direction and landing arrows moved, so the landing aviators will know the direction of the prevailing wind, and will land against the wind.

The change in wind direction also warns of approaching storms, in which case the field must be cleared of aeroplanes and equipment and preparations must be made, in cases where electricity is generated by a local plant, to prepare for the approaching darkness. Passing aviators are warned of the approaching storm by ground signals or lights, so they can land and house their machines until the storm is over.

The Shotwell Electric Weather Vane records the exact direction of the wind at any time, regardless of the distance from the vane to the dial. As many dials may be used in conjunction with one vane as may be desired, so that the commanding officer, the flying officer and the chief of squadron can all get the wind directions from one single vane. If a very accurate reading of the wind is desired, the dial may be so arranged as to give thirty-two directions. This is much closer than the eye can read.


The dials are of a very attractive design, consisting of brass shells about eight inches in diameter. They are generally installed on a side-wall, so that the wires leading from the vane will be concealed, or on a desk. The light can be kept on, so that the direction of the wind can be seen at a glance without pressing the button. The installation is simple and the Vane can be installed equally as well on a skyscraper as it can on a hangar or country home.

People who fly for sport or travel and need not fly unless the weather is favorable, can save themselves the trouble of preparing for a flight—or for an automobile ride, for that matter—by getting the direction of the wind from the Vane.

(C) Committee on Public Information

A remarkable demonstration of formation flying at one of the American Training Fields.

## AERIAL MAIL FOR THE UNITED STATES AND OVERSEAS

By special arrangement between Postmaster General Burleson and Secretary Baker, the first permanent aerial mail routes have been established between New York, Philadelphia, Washington, Cleveland and Chicago. Others are to follow.

As Mr. Alan R. Hawley, the President of the Aero Club of America, has aptly pointed out, these are to be the forerunners of hundreds of mail routes. This is to happen very soon, and for two reasons: (1) we all want speed in delivery of our mail; (2) we can send longer and more accurate messages by aerial mail than by telegraph at *less* cost!

In his annual report Postmaster General Burleson states that a very wide extension of the aerial mail service is contemplated, and outlines are given for four routes, two of which extend outside the United States.

"The trunk line and feeders decided upon for the aerial mail," the Postmaster General says, "under the present programme are:—

"1. New York to San Francisco, with feeders from (a) Chicago to St. Louis and Kansas City. (b) Chicago to St. Paul and Minneapolis. (c) Cleveland to Pittsburg.

"2. Boston to Key West, with feeders from (a) Philadelphia to Pittsburg. (b) Washington to Cincinnati. (c) Atlanta to New Orleans.

"3. Key West via Havana to Panama.

"4. Key West via the West Indies to South America."

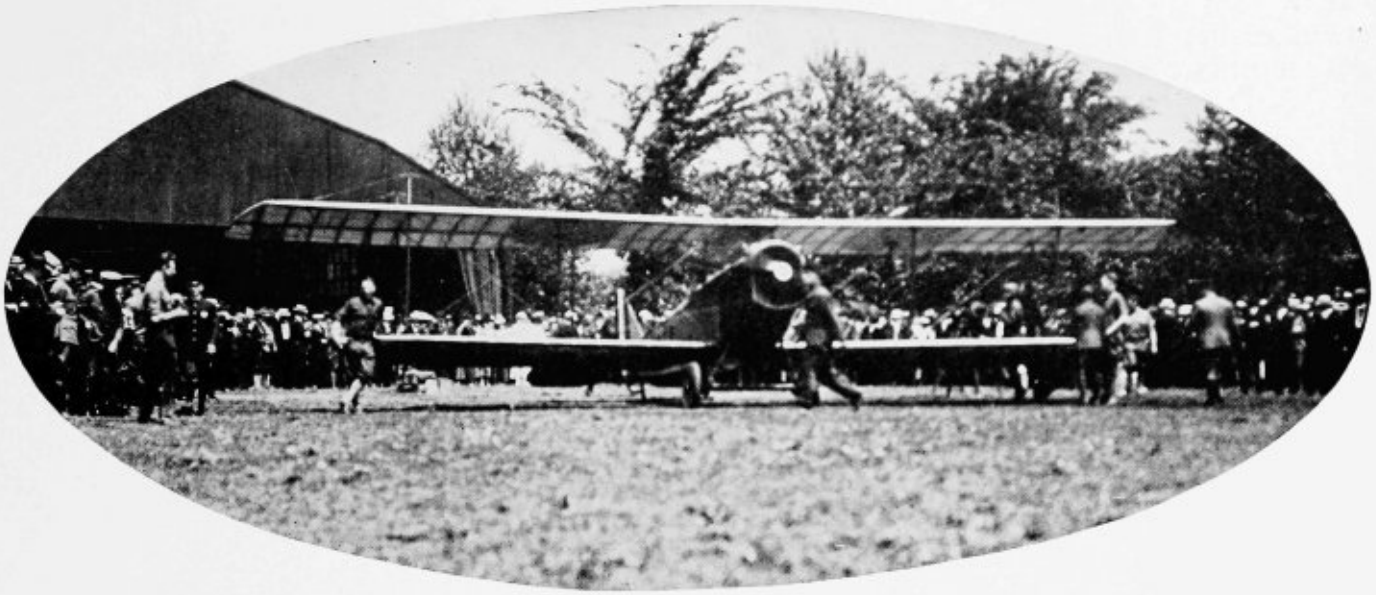
To run the 200 aerial mail lines already defined would take over 2,000 aeroplanes. To run a fairly complete aerial mail service in the United States, with lines across the Atlantic and to Canada, Cuba and Central and South America, will take tens of thousands of aeroplanes.

To run a single line across the Atlantic will mean sending out two large aeroplanes every hour, with relays from Newfoundland to the Azores and from the Azores to Portugal, England and France. As they will be large machines, it will keep a large factory busy to supply the machines for a single line.

This will be equally true if the line is to be direct from the United States to Ireland, using large flying boats which may land at intervals to get fuel.

Here are a few points worthy of special consideration:

(1) If we all help the Post Office, within twelve months a dozen additional aerial mail lines can be established, and the Post Office will be able to send by aeroplane at least half of the one hundred million day and night letters and



The start of the first aerial mail from Washington on May 15, 1918.

of the fifty million special delivery letters that are being sent each year in the United States.

(2) The day and night letters average close to $1 each, and special delivery letters thirteen cents each, making a total of over fifty million dollars worth of business which is waiting for the development of the aerial mail service.

(3) Aerial mail day letters are most effective within distance of 400 miles. Night aerial mail letters are effective over any distance, because the aeroplane can carry mail over 1,000 miles between 6 P. M. and 8 A. M.

(4) The aerial mail system will be much more efficient and cheaper than the present telegraphic night and day letter system can be, because the sender can send a letter written in his office which does not have to be transcribed by an operator, who may make mistakes, and the message will reach the person to whom it is addressed without anybody else reading it, thereby insuring greater privacy. The cost of an aerial mail letter will be only sixteen cents, for which price there can be sent a message that would cost $5 or more by telegraph.

(5) Twenty-five million dollars worth of parcel post can be sent by aeroplane, and about as much of trans-Atlantic mail.

(6) The Post Office pays eighty cents a pound to steamships of American registry to carry mail across the Atlantic. Charging one dollar per letter sent by aeroplane across the Atlantic, will make mail carrying across the Atlantic and across the Continent a paying proposition even now. The super Handley-Page or the 2,100-h.p. Caproni could take easily in the fuselage fifty bags of mail, weighing fifty pounds each, making a total of 100,000 letters each trip. It has carried 40 passengers in one flight!

### Passenger Carrying Between New York and Chicago in Six Hours at $150 Per

Passenger carrying between New York and Chicago at $150 each is going to be a fair business proposition. A great many people would be willing to pay even more to cut the journey between the two cities down to six hours. We may predict that within two years we will see

President Wilson, Mrs. Wilson, Second Assistant Postmaster Praeger, the Postmaster of Washington, D. C., at Potomac Park, the Postmaster holding the aerial mail bag at the inauguration of the Washington-New York aerial mail route.

air lines between New York and Chicago having to run an aeroplane every half hour, having stations along the route, and having express and "local" service.

Aerodromes are to the aeroplanes what good roads and garages are to automobiles.

Place a chain of landing places from here to San Francisco and flying will soon be as common between New York and San Francisco as it is from Paris to London, to Paris, to-day.

When an Allied aviator or military authority must make a trip of from several hundred to one thousand miles, either in Great Britain, France or Italy, he does not even make as much preparation as the average American makes to take a hundred mile automobile trip. Providing the weather is reasonably fair, all the pilot does is essentially to look up his map to ascertain the location of the chain of landing places to be found in every one of those countries, and then he starts out.

Captain Guido Laureati, the Italian officer who flew from Turin to London without stopping some months ago, did not make as much preparation for that trip, which involved flying over the Alps and crossing France, as the average person would make for a hundred mile automobile trip. He covered the distance of 656 miles in 7 hours and 22 minutes, which figures out an average speed of about 89 miles an hour.

Hardly more preparation was made by the three British officers and the two mechanics who flew from England to Salonica and then dropped bombs on Constantinople. The distance of 2,000 miles was covered in 31 hours of actual flying. They carried with them bedding, food and other equipment, including spare propellers and, I am told, a spare 300 h. p. Rolls Royce motor. They stopped at Paris, Lyons, Marseilles, Pisa, Rome, Naples, Otranto and Salonica. During the flight they crossed the English Channel, the Ligurian Sea, the Strait of Otranto and the Ægean Sea. They also crossed the French mountains between Paris and Lyons; the Apennines just past Naples; and the Albanian Alps on the way from Otranto to Salonica.

The fact that aeroplanes are already used more extensively than automobiles for out-of-city travel in Great Britain, France and Italy is not generally known—but quite obvious. Outside of cities one sees more aeroplanes in the air than automobiles on the road.

This is due to a combination of circumstances, the necessity of speed in travel and transmission of messages, predominance of military activities, shell-torn roads, which make automobiling difficult, and the need of keeping the highways clear of all vehicles, so that the armies that travel on wheels and military transportation be not delayed.

The group of aeronautic authorities at the inauguration of the first aerial mail, Belmont Park, May 15, 1918. From left to right they are: Dock Commissioner Murray Hulbert, Alan R. Hawley, President Aero Club of America; Henry Woodhouse, a Governor of the Aero Club of America; Postmaster Patten of New York City, Collector of the Port Byron R. Newton, Lieut. Torrey Webb (consulting the map), and the military officer in charge of the field.

The arrival of the first Aerial Mail at Chicago, September 5, 1918. Max Miller, Aero Mail Pilot Number 1, being greeted on his arrival with the first aero mail carried to Chicago. He is shown above (left) with Captain Benjamin B. Lipsner, Superintendent of Aerial Mail Services (right). Below are, from left to right, Mr. James S. Stevens, President Aero Club of Illinois; Mr. Dunlap; Mr. Wm. B. Carlile, Postmaster of Chicago; Mr. James O'Conner, Director of U. S. War Exposition; Augustus Post, Secretary of the Aerial League of America, and representative of the Aero Club of America. On the left are seen Captain Lipsner's sister and sister-in-law.

That there will never be less aeroplanes than in use to-day even in Europe can be taken for granted; that there will be more can safely be prophesied.

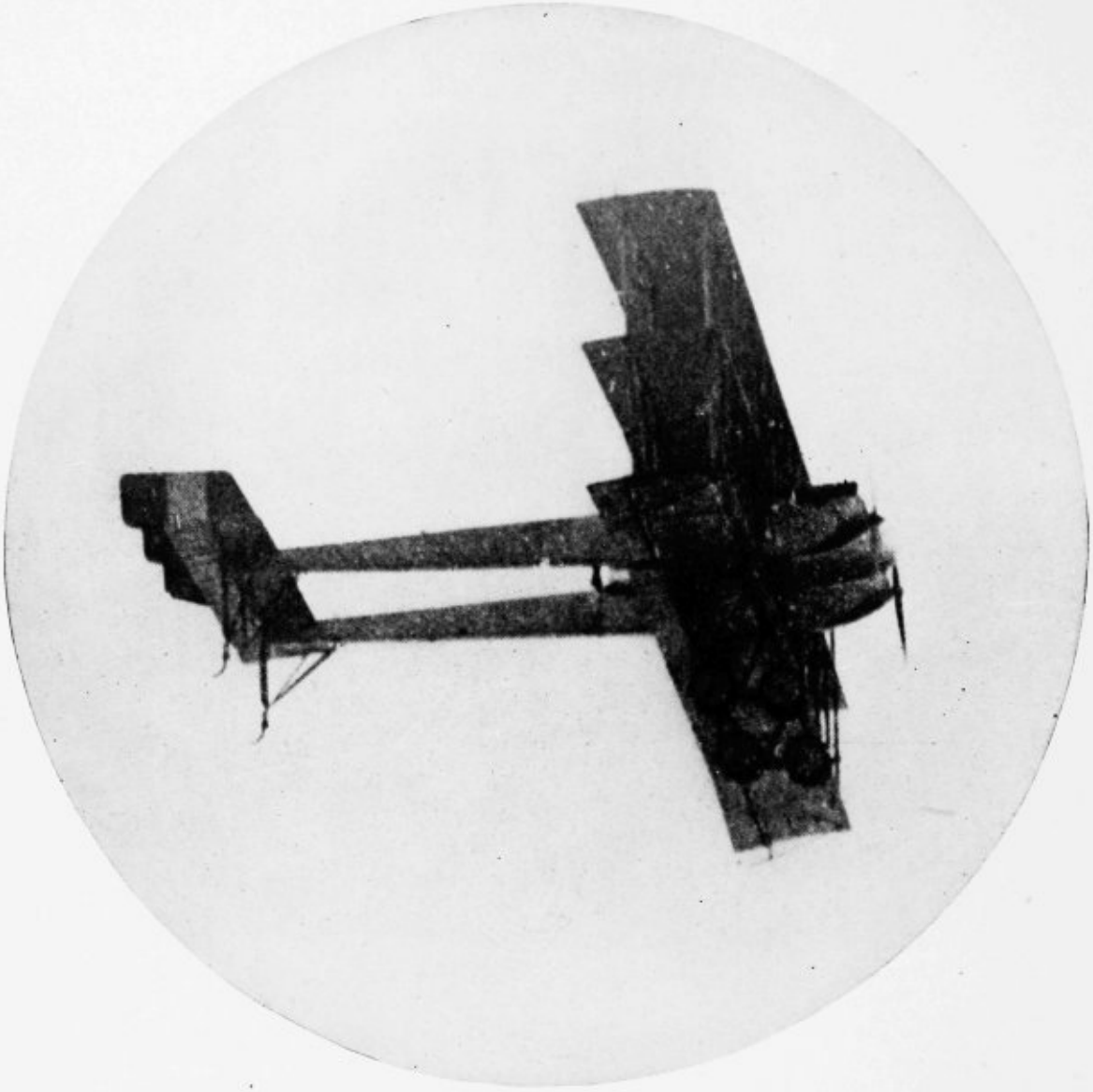
The United States, also, is spending close to $2,000,000,000 in aircraft.

## Looking Ahead to the Days of Aerial Transportation

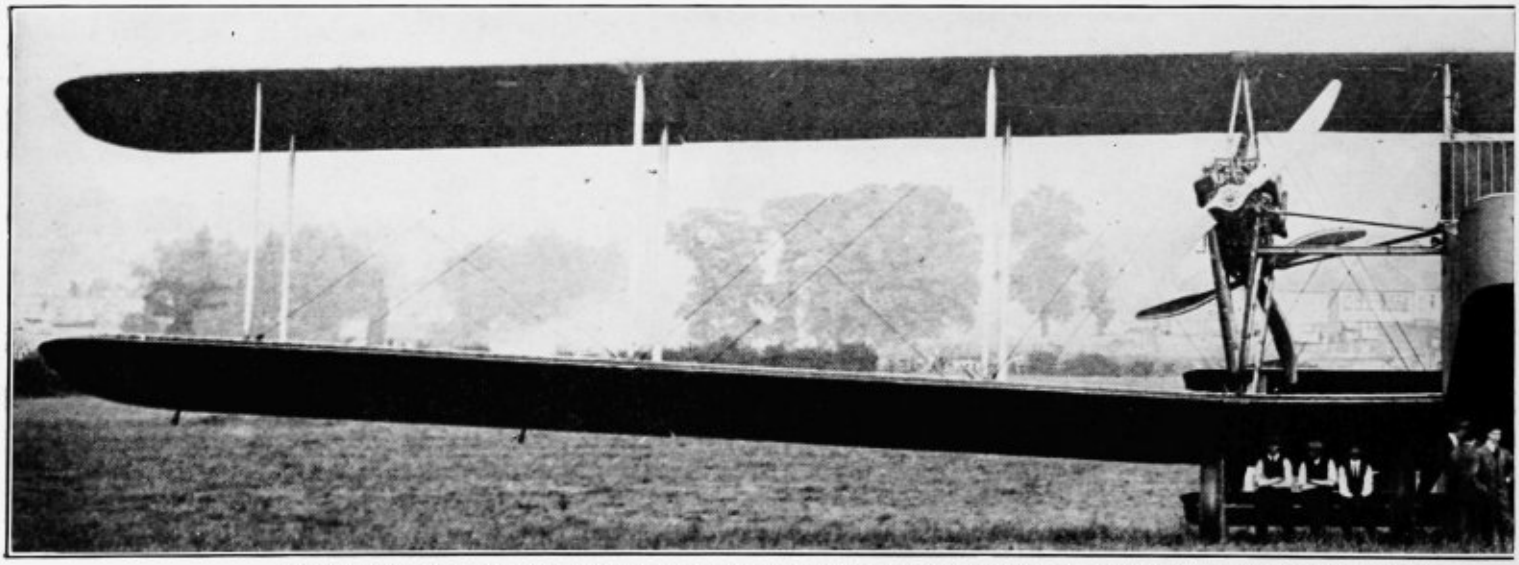
Looking ahead to the days of aerial transportation and the changes that will be brought about by it is a most refreshing and inspiring occupation. A meeting was held at the Clubhouse of the Aero Club of America, 297 Madison Avenue, New York, to consider this subject. The men who attended the meeting were the well-known energetic and serious-minded leaders of the national defense movement. They had to consider this subject because it was part of the program to get larger production of large aeroplanes and an increase in the number of military aviation training fields. It was inspiring to see the change that came upon them as they considered the future in the light of the changed conditions that will come with extensive aerial transportation.

Aeronautics is to be the most important factor in the reconstruction that will follow the war —just as it is to be the deciding factor in the war. Great economic and sociologic changes must be expected due to this tremendous increase in speed of traveling, which will annihilate distance and time for human beings just as the telephone and telegraph annihilated it for the human voice.

Before deciding on the eight great American Airways, the Committee had to consider a great



Enlarged snapshot of a three-motored Italian Caproni triplane in flight.



Photographs of the 15-ton Handley-Page Air Cruiser equipped with four motors. This machine can carry
It has carried 40

many things, a few of which are mentioned herewith:

(1) Aerial transportation, for a number of years, will be essentially transportation of people, of mail and express matter.

(2) It will be to a great extent transportation between cities and between railroad stations and ports.

(3) There will be "express" transatlantic and transcontinental air lines, the aircraft of which will navigate in the upper air levels, above 10,000 feet, and "local" air lines which will navigate at from 3,000 to 6,000 feet, since it would be too costly to burn fuel to reach the upper levels and would involve loss of time.

(4) As the average speed of aeroplanes is between eighty and 100 miles an hour, a transcontinental airway should be a belt not less than eighty miles wide. In future years it may be better to have each airway run straight from east to west, without deviations, but at present it is best to deviate, so as to facilitate air travel between important cities and industrial, commercial or military centers. Therefore it is considered best to draw a line from city to city, from east to west across the continent and make the airway "belt" forty miles on each side of the line, or half an hour flying distance.

This principle will permit traveling in two directions, at any level of the airway, and eliminate confusion.

(5) The transcontinental and coastal airways are to be interconnected by air routes which will be very numerous.

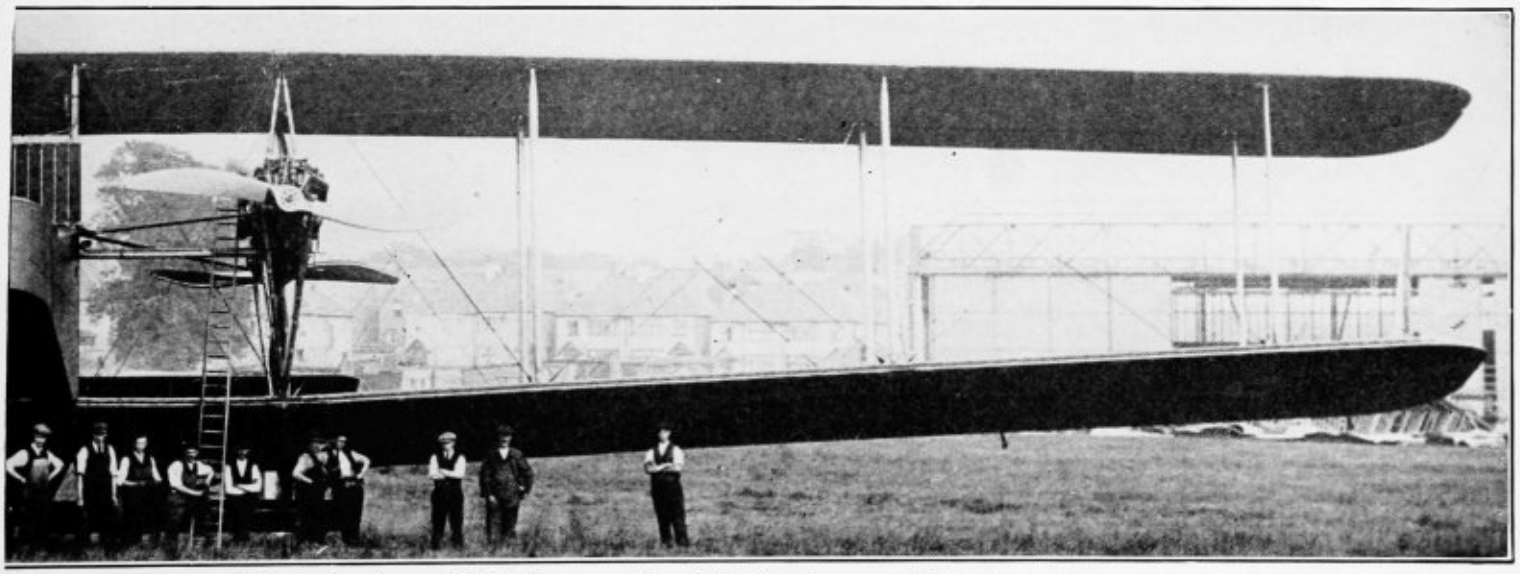
Custom and tradition have applied the terms "North" and "South" to sections of the country which are not so from an accurate geographic standpoint. As air travel is essentially navigation of the air by chart and compass, the same as navigation of the sea, it is advisable in establishing airways to have them follow as nearly as possible a directly easterly and westerly course. This exactness is not necessary in the air routes which will interconnect the airways, and will run in every direction like a spider's web.

(6) In establishing the airways and the air routes, the advantage of establishing them as much as possible along national highways will be taken into consideration, so as to gain the advantage afforded by the work already done and being done in establishing landing places, supply and fuel stations for aircraft.

An ideal plan would be to have the highways made large enough, with no telegraph poles or trees on the sides to make it possible for the aeroplanes to land on them. Also to arrange to have aeroplane parking places at intervals from twenty to fifty miles each, with supply and fuel stations.

## Post Office Plans to Establish Hundreds of Aerial Mail Routes

The U. S. Post Office has plans to establish hundreds of aerial mail routes. The first routes have been a great success and have led to defining and solving the problems of running air lines on schedule time. The list of 200 aerial mail routes proposed is printed elsewhere in this book.



more fuel and useful load than is needed to fly across the Atlantic by way of the Azores.
passengers over London.

## Aerodromes Should be Established within Cities

In city planning, provision should be made to establish a number of landing places for aeroplanes on land and water. Every city and town wishing to keep up with progress will soon have to have landing places for aeroplanes and within ten years the number of landing places may have to be quite numerous.

Aerial transportation in the near future is to be transportation between cities and places more or less like rail and boat transportation. In time aircraft will be developed that may easily land in streets, or changes in the make-up of cities will make it possible for aerial travelers to land in terminals located in central places in cities.

Aerodromes will be very much like the railroad stations of to-day, insofar as their equipment to serve the public is concerned. Taxicabs will be there to meet arrivals just as taxis meet trains now. One reason why aerodromes should be within cities is that otherwise it may be found that it takes less time to come from Philadelphia or Albany to New York, for instance, than to cross the city of New York in a taxicab or street car after arrival.

## Aerial Limousines More Comfortable than Pullmans

Considering the service stations for aerial travelers at the aerodrome brings out the fact that in traveling in an aerial limousine there will be less general discomfort than there is to-day in a train. And there will certainly not be any smoke, coal dust or other unpleasant details common in every other method of travel.

The one objectionable feature of the present day aeroplane is the roar of the motor. But mufflers are now being developed and I dare say that the noise of traveling aeroplanes will be far less within five years than the noise of the trains which one hears on Riverside Drive and other places near railroads at night.

For the time being and for a few years to come, aerodromes will essentially be flat open fields, between 250 and 300 acres in size, with hangars, repair and supply shops, etc.

Getting ready for the start of the Chicago-Cleveland-New York trip, which was made by Aviator Gardner between morning and evening of the same day. From left to right: Radel, the mechanic, Ed. V. Gardner, the pilot, Captain Benjamin B. Lipsner, Superintendent of the Aerial Mail Division, Charles Dickenson, president, Aero Club of Illinois; Augustus Post, representative of the Aero Club of America and Aerial League of America.

At the start of the first New York-Chicago aerial mail at Belmont Park, September 5, 1918. From left to right: V. M. Norris, C. S. K. U. S.; E. M. Norris, superintendent, mail for New York City; Captain Robert A. Bartlett, famous arctic explorer; Lieut. Eytinge, Canadian Air Service; Lieut. Pennypacker, U. S. Air Service; Mr. Alan R. Hawley, president, Aero Club of America; Mrs. May Brown- Dietrich, daughter of ex-Governor Brown of Maryland; Ed. V. Gardner, aero pilot No. 2; Postmaster Patten of New York; Max Miller, aero mail pilot No. 1; Robert Shank, aero mail pilot; Maurice A. Newton, aero mail pilot; C. De Hart, aero mail pilot; Mr. George L. Conner, chief clerk to Mr. Praeger; Henry Woodhouse, editor of Flying and Aerial Age Weekly; Harry L. Hartung, Belmont Park representative of the Post Office.

## Aerial Transportation Will Lead to Beautifying Cities

The science of city planning is young. Cities heretofore just grew without logic or efficiency. Looking at cities from an aeroplane or balloon makes us realize that the proverbial calf that marked the crooked path around which eventually grew a city was legion. I have a collection of several hundred photographs of cities taken from the air, including cities in Europe, Asia, Africa, America and Australia. Having lived in England, France, Italy, Switzerland and Belgium, I have had occasion to note that cities had grown around natural roads, streams and feudal castles. A glance at a photo shows just where modern city planning efficiency began to correct the disordinate growth of the city. For one thing the streets are straight and wider than the original streets.

Photographs of many of the European cities take us back to the medieval times when every city had its own defenses. You can see in the photos the relics of their dark past when cities were built within walls, and their expansion was restricted by those walls built around them for safety.

The reconstruction that will follow this war will tax our railroad facilities almost as much as the war itself is taxing them, and the Post Office alone will need thousands of machines to continue the mail lines established in the interim. The twenty Latin-American republics will also want thousands—they want them as soon as possible.

Transatlantic aerial mail lines will no doubt be established soon after the first transatlantic flight has been made and it is very likely that there will be a number of lines and each line will have regular departures of transatlantic aerial mail carriers every half hour. The same will be true of transcontinental aerial mail lines, and South and Central American and Canadian aerial mail lines.

# THE UNITED STATES POST OFFICE'S PLANS FOR TWO HUNDRED AERIAL MAIL LINES

The United States Post Office has many difficult problems of mail transportation to inaccessible places in this great big country that can be solved by the use of aeroplanes.

For instance, from New Bedford to Nantucket, Mass., the distance is about 52 miles by air, and can be covered in 52 minutes by aeroplane. At present it takes between five and six hours to cover the distance.

Here are a few of the 200 aerial mail lines that the Post Office would like to establish as soon as possible and would welcome bids for carrying the mail.

## Routes in Massachusetts

From New Bedford, by Woods Hole and Oak Bluffs, to Nantucket, 56 miles and back, thirteen times a week from June 15 to September 14 and six times a week from September 15 to June 14, each year, carrying such mail as the Department may dispatch, the total weight not to exceed 3,000 pounds a single trip, each way.

FROM JUNE 15 TO SEPTEMBER 14

Leave New Bedford daily at 10 A. M. and daily except Sunday at 4:15 P. M.

Arrive Nantucket by 12 M. and 6:05 P. M.

Leave Nantucket daily except Sunday at 6 A. M. and daily at 2 P. M.

Arrive at New Bedford by 7:45 A. M. and 6:45 P. M.

FROM SEPTEMBER 15 TO JUNE 14

Leave New Bedford daily except Sunday at 10 A. M.

Arrive at Nantucket at 12 M.

Leave Nantucket daily except Sunday at 2 P. M.

Arrive at New Bedford at 3:45 P. M.

## Routes in Alaska

From Valdez, by Beaver Dam, Tonsina, Copper Center, Gulkana, Paxson, Washburn (n. o.) and Salchaket to Fairbanks, 358 miles and back, three times a week all the year, carrying such mail as the Department may dispatch, the total weight not to exceed 1,600 pounds a single trip each way.

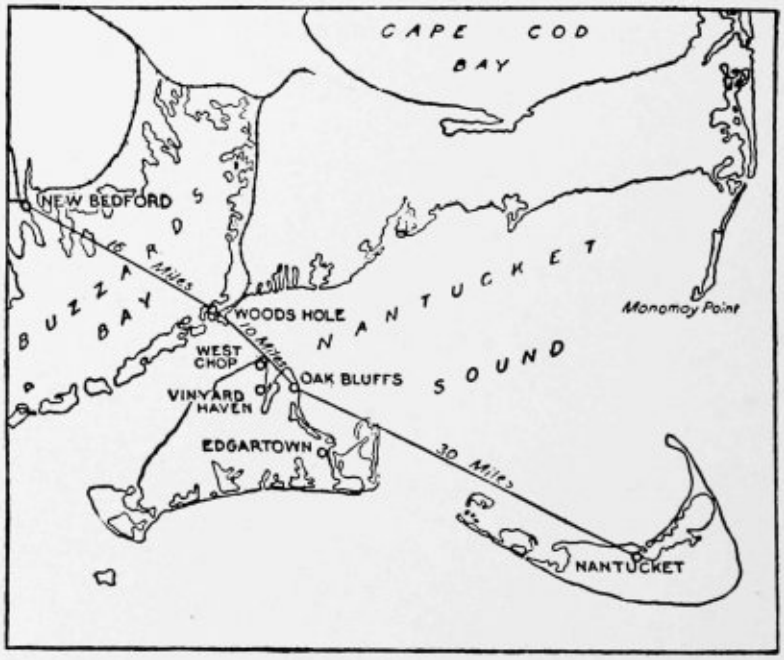
Leave Valdez Monday, Wednesday and Friday.

Arrive at Fairbanks in two days.

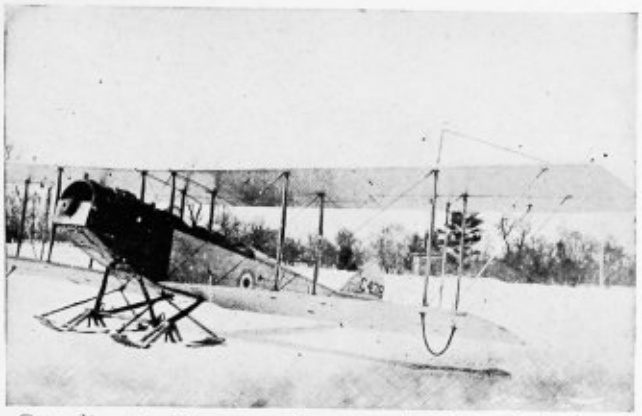
Leave Fairbanks Tuesday, Thursday and Saturday.

Arrive at Valdez in two days.

From Valdez, by Beaver Dam, Tonsina, Copper Center, Gulkana, Paxson, Washburn (n. o.) and Salchaket to Fairbanks, 358 miles and back, three times a week from October 1 to May 31, each year, carrying such mail as the Department may dispatch, the total weight not to exceed 1,600 pounds a single trip each way.




Sketch showing the proposed New Bedford to Nantucket aerial mail line.



A Canadian training aeroplane equipped with skids for work in deep snow. (Photograph by courtesy of Cadet I. W. Warshauer). The skids are about six feet long, one foot wide.

Leave Valdez Monday, Wednesday and Friday.

Arrive at Fairbanks in two days.

Leave Fairbanks Tuesday, Thursday and Saturday.

Arrive at Valdez in two days.

From Fairbanks by Tolovana, Hot Springs and Tofty to Tanana, 162 miles and back, three times a week all the year, carrying such mail as the Department may dispatch, the total weight not to exceed 2,000 pounds a single trip, each way.

Leave Fairbanks three times a week upon receipt of mail from Valdez.

Arrive at Tanana in twenty-four hours.

Leave Tanana Monday, Wednesday and Friday.

Arrive at Fairbanks in twenty-four hours.

From Fairbanks by Tolovana, Hot Springs and Tofty, to Tanana, 162 miles and back, three times a week from October 1 to May 31, each year, carrying such mail as the Department may dispatch, the total weight not to exceed 1,000 pounds a single trip each way.

Leave Fairbanks three times a week upon receipt of mail from Valdez.

Arrive at Tanana in twenty-four hours.

Leave Tanana Monday, Wednesday and Friday.

Arrive at Fairbanks in twenty-four hours.

From Tanana by Kokrines, Ruby, Yukokakat and Nulato to Kaltag, 331 miles and back, twice a week all the year, carrying such mail as the Department may dispatch, the total weight not to exceed 800 pounds a single trip each way.

Leave Tanana Tuesday and Friday.

Arrive at Kaltag in two days.

Leave Kaltag Monday and Friday.

Arrive at Tanana in two days.

From Tanana by Kokrines, Ruby, Yukokat and Nulato to Kaltag, 331 miles and back, twice a week from October 1 to May 31, each year, carrying such mail as the Department may dispatch, the total weight not to exceed 800 pounds a single trip each way.

Leave Tanana Tuesday and Friday.

Arrive at Kaltag in two days.

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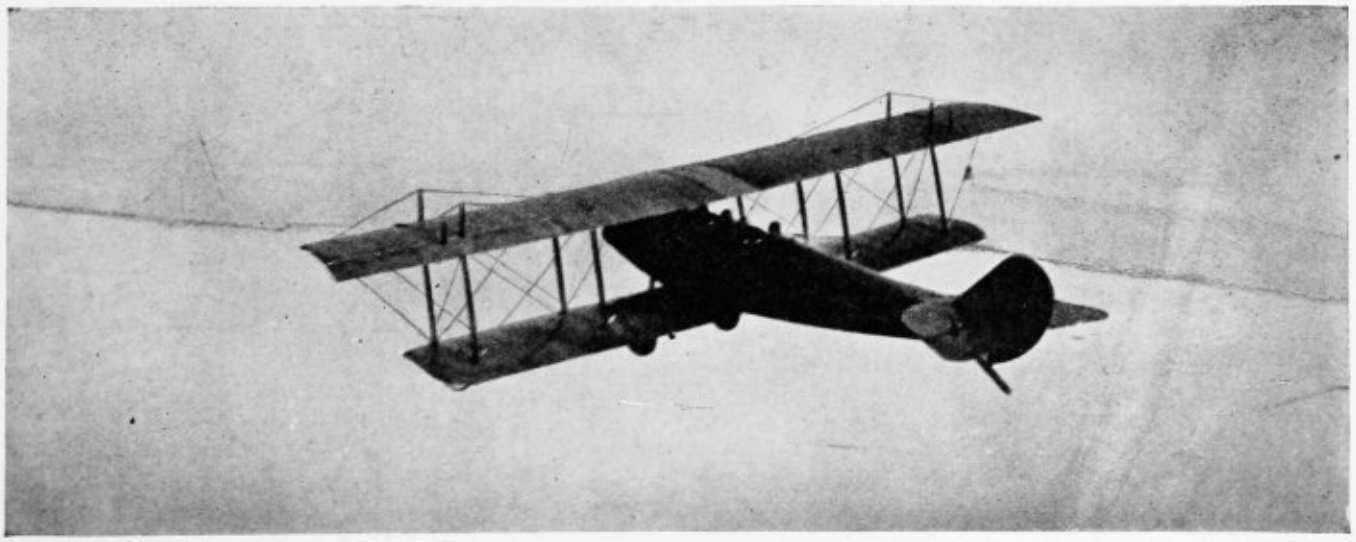
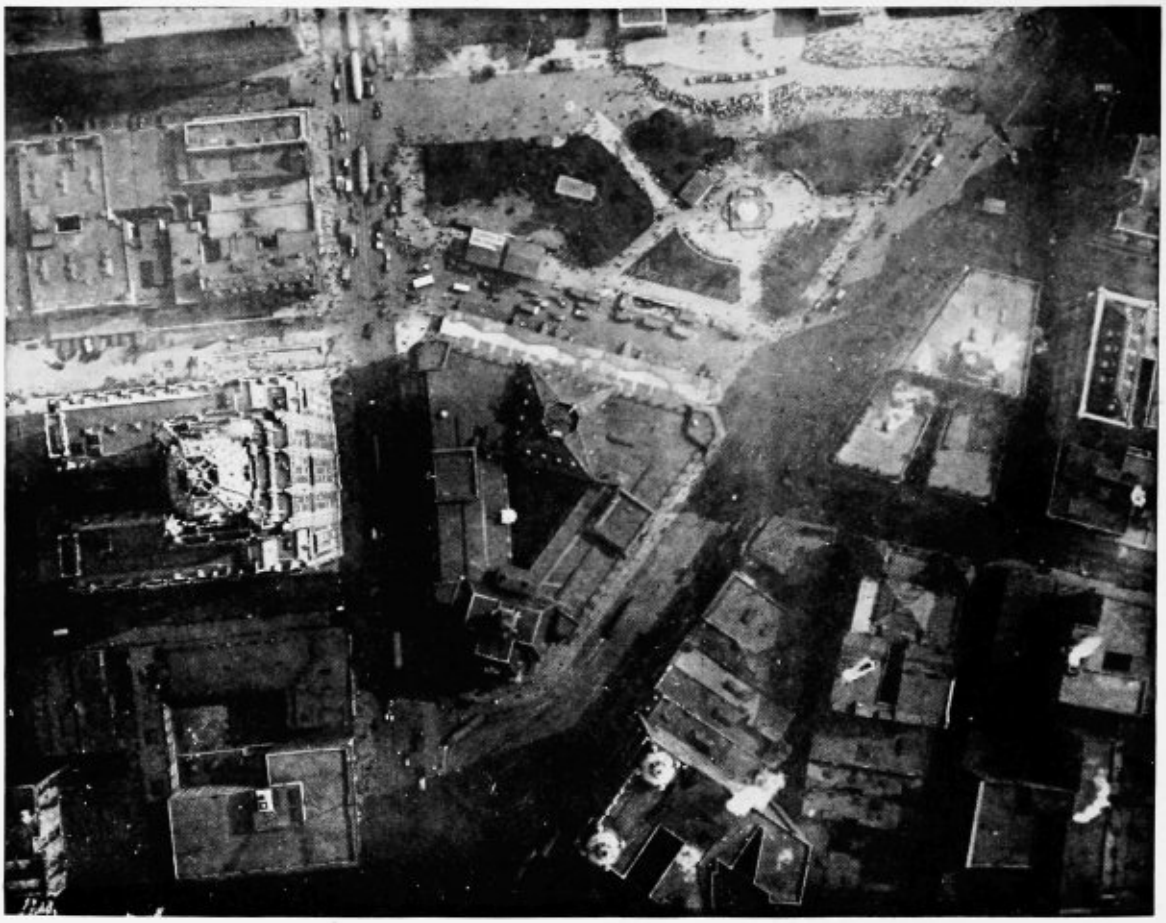


One of Mr. W. Earl Dodge's aeroplanes.



New York City photographed from an aeroplane by Lieutenant Earl Carroll, U. S. A.

From Kaltag to Golovin, Bluff and Solomon to Nome, 225 miles and back, twice a week all the year, carrying such mail as the Department may dispatch, the total weight not to exceed 600 pounds a single trip each way.

Leave Kaltag Monday and Friday.

Arrive at Nome in two days.

Leave Nome Tuesday and Friday.

Arrive at Kaltag in two days.

From Kaltag by Golovin, Bluff and Solomon to Nome, 225 miles and back, twice a year all the year, carrying such mail as the Department may dispatch, the total weight not to exceed 1,200 pounds a single trip each way.

Leave Kaltag Monday and Friday.

Arrive at Nome in two days.

Leave Nome Tuesday and Friday.

Arrive at Kaltag in two days.

### The Other Aerial Mail Lines

The other aerial mail lines the Post Office would like to establish are as follows: (Average speed of aeroplane given at only 75 miles an hour in the estimate of time necessary to cover given distances).

SECOND DIVISION, RAILWAY MAIL SERVICE

Philadelphia, Pa., and Wilkes-Barre, Pa.

Rail distance, 144 miles.

Time, 4 hours, 45 minutes.

Air-line distance, 102 miles, about.

Time, 1½ hours, about.

The present mail route is over the Lehigh Valley Railroad from Philadelphia to Bethlehem and from Bethlehem to Wilkes-Barre. Between the two latter points the road follows the windings of the Lehigh River, hence the difference between the rail and air-line mileage.

New York, N. Y., and Atlantic City, N. J.

Rail distance, 142 miles.

Time, 3 hours, 25 minutes.

Air-line distance, 100 miles, about.

Time, 1½ hours, about.

Country flat and sandy with good landing places at both ends of route.

The present mail route is over the Central

Railroad of New Jersey from Jersey City to Winslow Junction, N. J., and from Winslow Junction to Atlantic City over the Atlantic City Railroad. The road is roundabout from Jersey City, through South Amboy and Red Bank, and Winslow Junction is also off the direct line.

Washington, D. C., to Atlantic City, N. J., via Baltimore, Md.

Rail distance, 201 miles.

Time, 4 hours, 30 minutes, about.

Air-line distance, 150 miles, about.

Time, 2 hours, about.

No difficulty with landing places on this route. A more direct route would be from Washington to Atlantic City, without passing through Baltimore, a distance of 138 miles. Annapolis, Md., would be practically on the line of this route, where a stop could be made if necessary.

The present mail route is from Washington, through Baltimore, to Philadelphia, thence by ferry to Camden, N. J., and from Camden to Atlantic City, over the lines of the Pennsylvania Railroad. This route resembles two sides of a triangle with angles at Washington, Philadelphia and Atlantic City, while the air-line distance would be the hypotenuse of the same triangle.

Albany, N. Y., and Lake Placid, N. Y.

Rail distance, 142 miles.

Time, 8 hours, 10 minutes, about. (Depending on connections at Bluff Point.)

Air-line distance, 112 miles, about.

Time, 2 hours.

Landing places could be arranged at Albany without difficulty. The town of Lake Placid at one end of the lake of that name, is surrounded by mountains which rise abruptly from the lake. It would probably be necessary to have the machine start and land on the water.

The mail can be dispatched at present over either of two routes. The shorter one is over the Delaware & Hudson Co. from Albany to Bluff Point, near Plattsburg, and from there to Lake Placid over the Chateaugay Branch. In seeking a gateway through the mountains the road runs some distance north and east of Lake Placid and then curves downward like an inverted hook. This accounts for most of the difference between the rail and air-line mileage.

The second route is by way of the New York Central to Utica, and from there over the Adirondack Branch to a connection with the D. & H. at Saranac Lake.

Albany, N. Y., and Lake George, N. Y.

Rail distance, 70 miles.

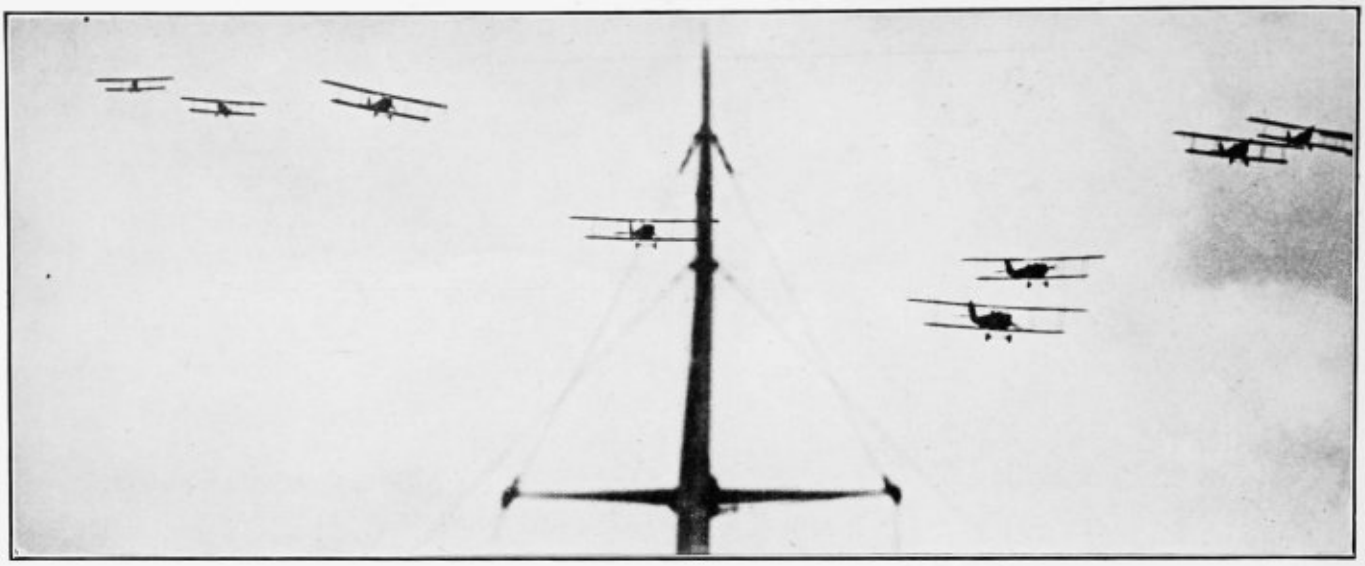
Time, 2 hours, 20 minutes.

Air-line distance, 52½ miles, about.

Time, 40 minutes.

There would be no difficulties with landing places on this route. Lake George has a large summer colony, the mail service during the summer months being of more importance than would ordinarily be the case with a town of this size.


A night flying aeroplane. The floodlight lights up the ground to assist in landing the machine.



A flight of American aeroplanes practicing formation flying.

The present mail route is over the Delaware & Hudson from Albany to Fort Edward, thence on a branch line to Lake George. This line makes practically a right angle to the main line, and in cutting this corner, the air-line mileage is made much shorter.

Sag Harbor, N. Y., and New London, Conn.
Distance by water, via Shelter Island Heights and Manhassett Manor, 46 miles.
Time, 3 hours.
Air-line distance, 25 miles.
Time, 20 minutes.
No difficulties with landing places. Practically entire route would be over Gardiner's Bay and Long Island Sound.

There was at one time star route service operated between Sag Harbor and New London, via Shelter Island Heights and Manhassett Manor, but owing to the irregular boat service, this was discontinued, and at present all mails for New London and points in the Eastern States are handled via New York.

New York, N. Y., and Boston, Mass.
Rail distance, 212 miles.
Air-line distance, 190 miles, about.
Time, 2 hours, 30 minutes.
There would be no difficulties with landing places on this route.

FOURTH DIVISION, RAILWAY MAIL SERVICE

New York, N. Y., and Atlanta, Ga.
Rail distance, 876 miles.
Time, 24 hours, 25 minutes.
Air-line distance, 740 miles, about.
Time, 10 hours, about.
This route might be divided into the following stages:
New York, N. Y., to Washington, D. C., 200 miles, about.
Washington, D. C., to Lynchburg, Va., 150 miles, about.
Lynchburg, Va., to Asheville, N. C., 220 miles, about.
Asheville, N. C., to Atlanta, Ga., 170 miles, about.

It will be noted that all these cities are practically on the air line. Lynchburg and Asheville are both in hilly sections of the country, and the route would parallel the Blue Ridge Mountains for the entire distance from Washington to Atlanta. Should the proximity to the mountains be deemed a disadvantage because of the adverse air currents or poor landing places, a route further to the east might be chosen. Such a route would be from Washington to Charlotte, N. C., 325 miles, and from Charlotte to Atlanta, 230 miles. This route would be 15 miles longer than the one first suggested.

FIFTH DIVISION, RAILWAY MAIL SERVICE

Key West, Fla., to Havana, Cuba.
Distance by water, 100 miles.
Time, southbound, 9 hours.
Time, northbound, 8 hours.

R. M. S. gives time as 11 hours.

Air-line distance, 100 miles.

Time, 1½ hours.

At present the mail arrives at Key West at 8 A. M., and is at once transferred to the boats of the Key West & Havana R. P. O., but does not reach Havana till late in the afternoon, too late for any business delivery. In the reverse direction the boats leave Havana at 9:30 A. M., in order to make connections at Key West, which is too early to get any business mail. The great benefits that would result from aeroplane mail service in this case are obvious.

SIXTH DIVISION, RAILWAY MAIL SERVICE

In this division, what might be called a loop service, is suggested, having as a base one of the larger towns on a railroad line. The aeroplane would start from this base and deliver mail to all the towns along the route, returning to the initial point on the completion of the circuit. The towns suggested are without railroad connection, and in such cases aeroplane service would be of real and immediate benefit to the communities served.

Harrisburg, Ill., through Rudemont, Herod. Hicks, Elizabethtown, and returning, through Golconda, Raum, Eddyville, Blanchard and Mitchellsville to Harrisburg.

Air-line distance, 70 miles.

Time, depending on stops, etc.

It might be deemed advisable to make Pleasant Hill, in Pike County, Ill., the base of operations, and if so, the same route practically could be followed, taking in Belleview and Mozier on detours, thus covering every office in Calhoun County, except Hamburg and Batchtown.

The country is level prairie land.

Peruque, Charles County, Missouri, is on the C., B. & Q. R. R., and Pearl and Pleasant Hill are on the Chicago and Alton.

SEVENTH DIVISION, RAILWAY SERVICE

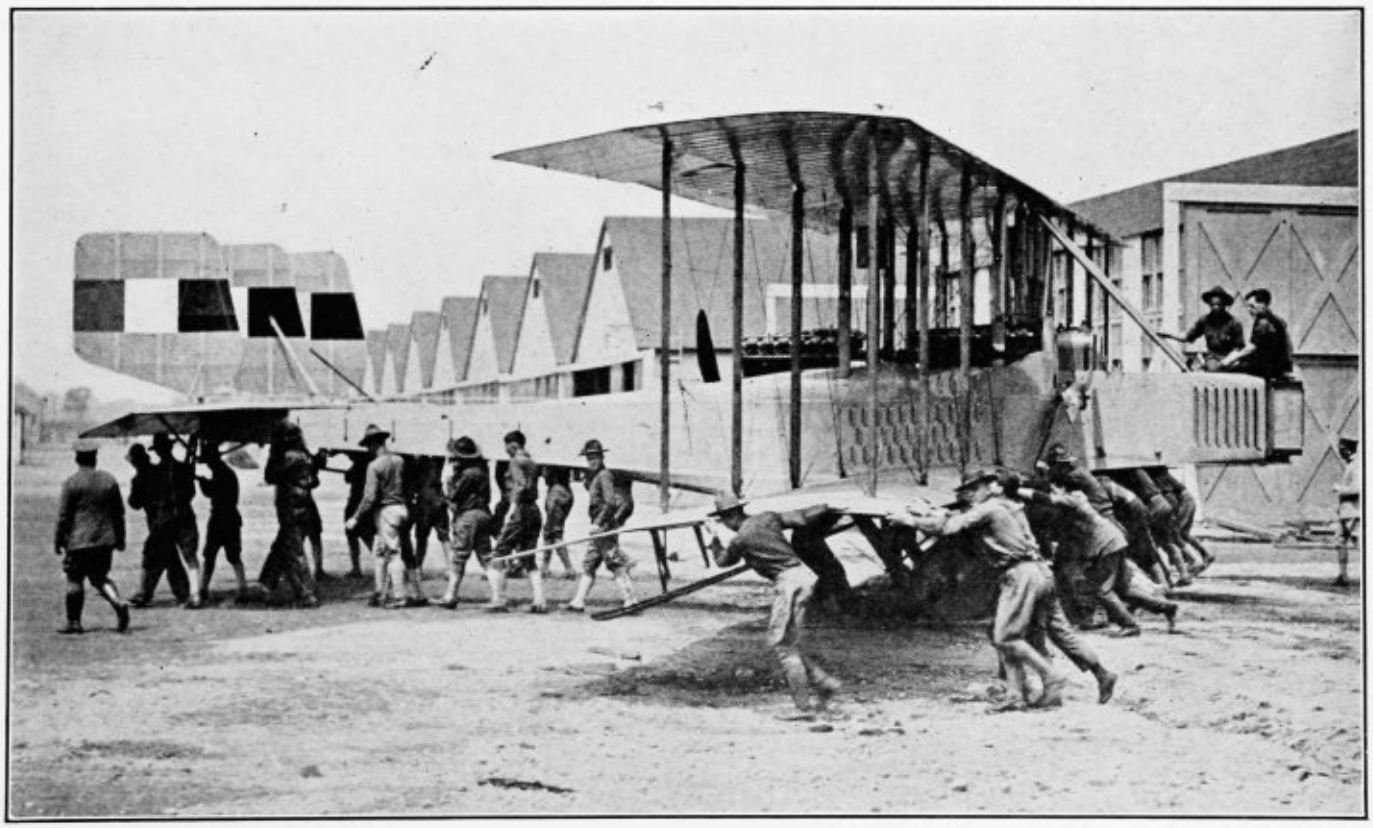
Rolla, through Licking and Houston, to Cabool, Mo.

Not connected by railroad. Distance by highway, 80 miles.

Air-line distance, 60 miles.

Time, 50 minutes.

The towns of Rolla and Cabool are situated on different lines of the Frisco System, while



An American-made Caproni biplane equipped with three Liberty motors being taken out of the hangar.

An evening flight.

the two intermediate towns are without railroad connection. The country is such that a rise to an altitude of 3,000 to 4,000 ft. would be necessary, and for this reason the time required for the trip might be somewhat more than suggested. The start from Rolla should be made about 1 P. M. after the arrival of St. Louis & Monett, Train 3, and delivery could be made in the early afternoon, resulting in the saving of practically one day. The return trip could be made over the same route with arrival in Rolla about 6 P. M.

EIGHTH DIVISION, RAILWAY MAIL SERVICE

Santa Maria and Shale, or Maricopa, Ga.
Rail distance, 410 miles.
Time, 15 hours, 10 minutes.
Air-line distance, 52 miles, about.
Time, 45 minutes, about.

These points are the centers of very important oil fields, and owing to the intimate association between them on account of the nature of their principal industry, direct mail communication would be of very great benefit. Owing to the fact that the towns are separated by a range of mountains 4,000 feet in height, it has been impossible to construct a direct railroad between the two towns, and at present the mail has to be sent via Guadaloupe, Burbank and Bakersfield, a distance of 410 miles. These mountains have proved an obstacle to the construction of a railroad line. It would be very costly to solve the engineering problems involved. They would not, however, hinder the flight of an aeroplane, and as in all probability, a pass through the mountain exists, the altitude while making the flight might not have to exceed 3,000 feet.

Leaving Buffalo, N. Y., in a flying boat.

NINTH DIVISION, RAILWAY MAIL SERVICE

Pentwater to Manistee, Mich., via Ludington.

Rail distance, no direct rail communication.

Time of mail between Pentwater and Ludington, 24 hours, 40 minutes.

Air distance, 35 miles.

Time, 30 minutes, about.

These three towns are situated on the shore of Lake Michigan, and are wholly without direct railroad connection, so that while they are actually but a short distance apart, it takes a letter over 24 hours to get from one to the other. This would seem to be an ideal route for aeroplane service and the topographical conditions are also particularly suitable to the use of flying machines.

Detroit, Mich., and Pontiac, Mich.

Railroad distance, 26.30 miles.

Time, 54 minutes.

Air-line distance, 25 miles.

Time, 20 minutes.

Pontiac is a city of about 20,000 inhabitants, and being the center of a large automobile industry, does a large amount of business with Detroit. At present the mail service is such that delays frequently occur.

Toledo, Ohio, and Detroit, Mich.

Rail distance, 57.6 miles.

Time, 1 hour, 43 minutes.

Air-line distance, 53 miles.

Time, 45 minutes, about.

At present mail which arrives at Toledo on New York & Chicago, Train 3, at 1 A. M., is held there till the departure of Detroit & Toledo, Train 2, which does not reach Detroit till 6:55, too late for the first carrier delivery. If the aeroplane left upon the arrival of Train 3, this mail could be delivered on time in the morning, and therefore result in the saving of several hours.

TENTH DIVISION, RAILWAY MAIL SERVICE

Bowman, N. D., and Newell, S. D.

Rail distance, 670 miles. (No direct rail connection.)

Star route distance, 122 miles.

Time on star route not furnished.

Air-line distance, 100 miles, about.

Time, 1½ hours.

The air route would be through the towns of Swartwood, Ludlow, Amburn, Buffalo, Fladmoe, Redig, Mason and Castlerock. This would connect the Black Hills territory of South Dakota and points south, with the Aberdeen & Miles City R. P. O. and connections, east, west and north. Present communication is via Pierre, Wolsey and Aberdeen, a distance of 670 miles.

Chamberlain and Winner, S. D.

Rail distance, 455 miles. (No direct rail connection.)

Time, not given.

Air-line distance, 43 miles, about.

Time, 35 minutes, about.

The air route would be via Oacoma, Kinnikinic and Hamill.

There is no direct rail connection at present between these termini. The present route is via Mitchell, Sioux City and Norfolk, 455 miles.

Minneapolis, Minn., to points on Lake Minnetonka and return.

Rail distance, round trip, 45 miles.

Time, Minneapolis to Mound, 2 hours.

Air-line distance, 45 miles.

Time, 35 minutes, about.

This service is now performed six times a week by steamboat. The amount of mail involved would be quite large, possibly amounting to 300 or 400 pounds per day.

Silver City, N. M., and Magollon, N. M., via Gila, Cliff, Buckhorn and Jackson.

Distance, by star route 89 miles.

Time, not given.

Air-line distance, 60 miles, about.

Time, 50 minutes, about.

The present service is by star route, six times a week. Several streams have to be crossed on this route, which are subject to overflow and are at times dangerous. For this reason the mail is sometimes delayed three or four days.

Silver City is the terminal of a branch of the A. T. & S. F. Ry., while the other towns are without railroad connection.

TWELFTH DIVISION, RAILWAY MAIL SERVICE

New Orleans, La., and Houston, Tex., thence to Galveston, Tex., with connection westward, via San Antonio, Tex.

Air-line distance, New Orleans to Houston, 320 miles, about.

Time, 6 hours, 25 minutes.

Air-line distance, Houston to Galveston, 56 miles, about.

Time, 3½ hours, about.

New Orleans, La., via Baton Rouge, La.;

Chicago business section photographed from the plane of Lieutenant Harry Bijur, U. S. A., at 3,000 feet. Michigan Avenue is shown looking from Twelfth Street.

Alexandria, La.; Shreveport, La.; Marshall, Tex., and Dallas, Tex., to Fort Worth, Tex.

Air-line distance, New Orleans to Baton Rouge, 85 miles.

Time, 1 hour, 10 minutes.

Air-line distance, Baton Rouge to Alexandria, 96 miles.

Time, 1 hour, 20 minutes.

Air-line distance, Alexandria to Shreveport, 115 miles.

Time, 1 hour, 35 minutes.

Air-line distance, Shreveport to Marshall, 33 miles.

Time, 30 minutes.

Air-line distance, Marshall to Dallas, 137 miles.

Time, 1 hour, 50 minutes.

Air-line distance, Dallas to Fort Worth, 31 miles.

Time, 25 minutes.

New Orleans, La., via Jackson, Miss., to Memphis, Tenn.

Air-line distance, New Orleans to Jackson, 150 miles.

Time, 2 hours.

Air-line distance, Jackson to Memphis, 200 miles.

Time, 2 hours, 40 minutes.

Memphis, Tenn., via Cairo, Ill., to St. Louis, Mo.

Air-line distance, Memphis to Cairo, 145 miles.

Time, 2 hours.

Air-line distance, Cairo to St. Louis, 120 miles.

Time, 1 hour, 45 minutes.

St. Louis, Mo., via Springfield, Ill., to Chicago, Ill.

Air-line distance, St. Louis to Springfield, 85 miles.

Time, 1 hour, 10 minutes.

Air-line distance, Springfield to Chicago, 170 miles.

Time, 2 hours, 20 minutes.

Memphis, Tenn., via Little Rock, Ark., to Oklahoma City, Okla.

Air-line distance, Memphis to Little Rock, 128 miles.

Time, 1 hour, 45 minutes.

Air-line distance, Little Rock to Oklahoma City, 205 miles.

Time, 4 hours.

New Orleans, La., via Meridian, Miss., and Birmingham, Ala., to Chattanooga, Tenn.

Air-line distance, New Orleans to Meridian, 175 miles.

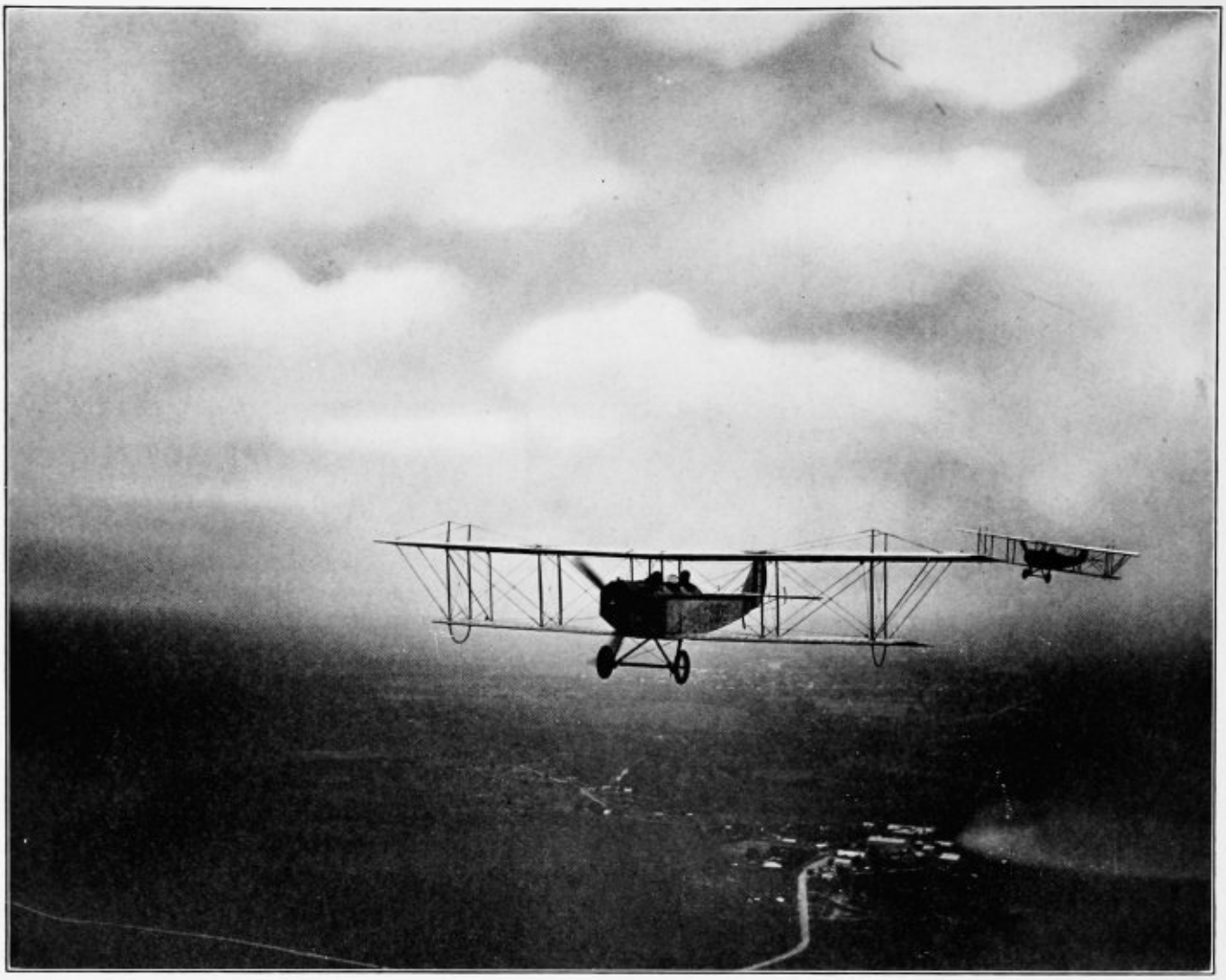
Time, 2 hours, 20 minutes.

Air-line distance, Meridian to Birmingham, Ala., 145 miles.

Time, 2 hours.

Air-line distance, Birmingham to Chattanooga, 160 miles.

An aerodrome in the winter in the U. S.



Two aeroplanes at 5,000 feet photographed from a third.

Time, 2 hours, 10 minutes.

Chattanooga, Tenn., via Louisville, Ky., to Cincinnati, Ohio.

Air-line distance, Chattanooga to Louisville, 220 miles.

Time, 3 hours.

Air-line distance, Louisville to Cincinnati, 90 miles.

Time, 1 hour, 20 minutes.

New Orleans, La., via Mobile, Ala., Pensacola, Fla., and Montgomery, Ala., to Atlanta, Ga.

Air-line distance, New Orleans to Mobile, 130 miles.

Time, 1 hour 50 minutes.

Air-line distance, Mobile to Pensacola, 50 miles.

Time, 45 minutes.

Air-line distance, Pensacola to Montgomery, 150 miles.

Time, 2 hours.

Air-line distance, Montgomery to Atlanta, 140 miles.

Time, 1 hour, 50 minutes.

Atlanta, Ga., via Charlotte, N. C., Greensboro, N. C., and Lynchburg, Va., to Washington, D. C.

(See data under Fourth Division.)

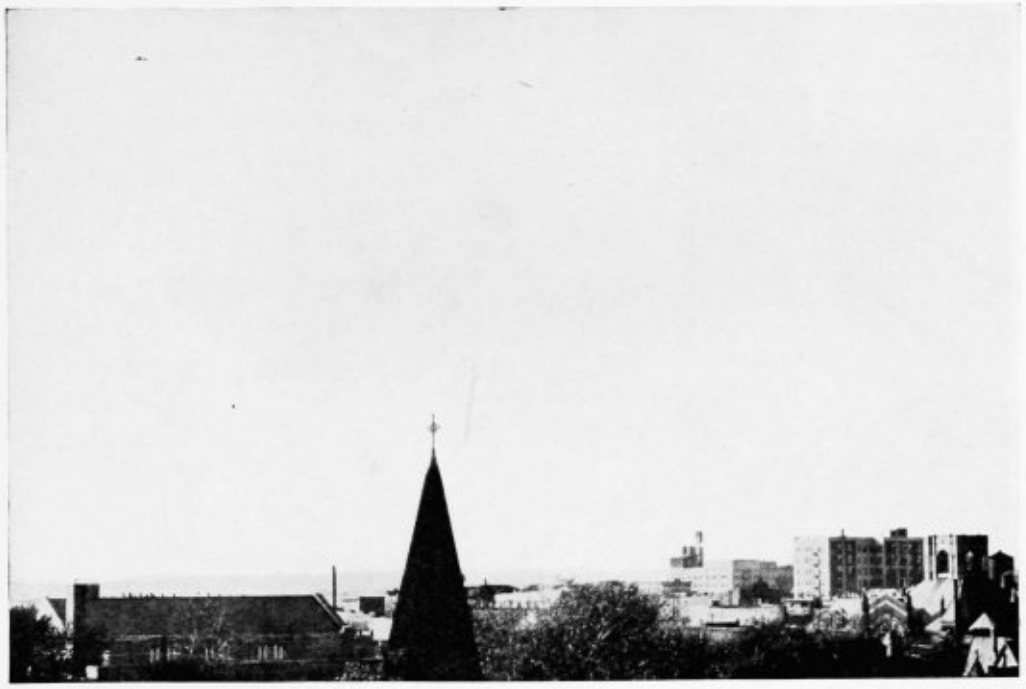
Air-line distance, Atlanta to Charlotte, 235 miles.

Time, 3 hours, 10 minutes.

Air-line distance, Charlotte to Greensboro, 75 miles.

Time, 1 hour.

Air-line distance, Greensboro to Lynchburg, 125 miles.



The sky line of Lincoln, Nebraska. An aeroplane can be seen 4,000 feet up, extreme upper left corner.

Time, 1 hour, 40 minutes.

Air-line distance, Lynchburg to Washington, 150 miles.

Time, 2 hours.

Key West, Fla., via Jacksonville, Fla., and Savannah, Ga., to Charleston, S. C.

Air-line distance, Key West to Jacksonville, 400 miles.

Time, 5 hours, 20 minutes.

Air-line distance, Jacksonville to Savannah, 125 miles.

Time, 1 hour, 40 minutes.

Air-line distance, Savannah to Charleston, 75 miles.

Time, 1 hour.

Charleston, S. C., via Wilmington, N. C., Norfolk, Va., and Richmond, Va., to Washington, D. C.

Air-line distance, Charleston to Wilmington, 150 miles.

Time, 2 hours.

Air-line distance, Wilmington to Norfolk, 215 miles.

Time, 2 hours, 50 minutes.

Air-line distance, Norfolk to Richmond, 87 miles.

Time, 1 hour, 15 minutes.

Air-line distance, Richmond to Washington, 98 miles.

Time, 1 hour, 20 minutes.

THIRTEENTH DIVISION, RAILWAY MAIL SERVICE

Roseburg, Oregon, and Marshfield, Oregon.

Distance, by rail and stage, 97 miles.

Time, 16 hours, 30 minutes.

Air-line distance, 40 minutes.

The present route is by stage from Roseburg to Myrtle Point, thence over the line of the Coos Bay, Roseburg & Eastern Railroad, taking in the towns of Blockway, Olalla, Camas Valley, Bridge and Coquille.

Lewiston, Idaho, and Boise, Idaho.

Rail distance, 450 miles.

Time, 40 hours.

Air-line distance, 95 miles.

Time, 1 hour, 20 minutes.

The present service is over the Oregon Short Line from Vale, through Harper, to Juntura, thence by stage to Burns, through Drewsey, Buchanan and Harney. All these towns are practically on the air line.

Ashland, Oregon, and Klamath Falls, Ore.

Rail distance, 204 miles.

Time, 8 hours.

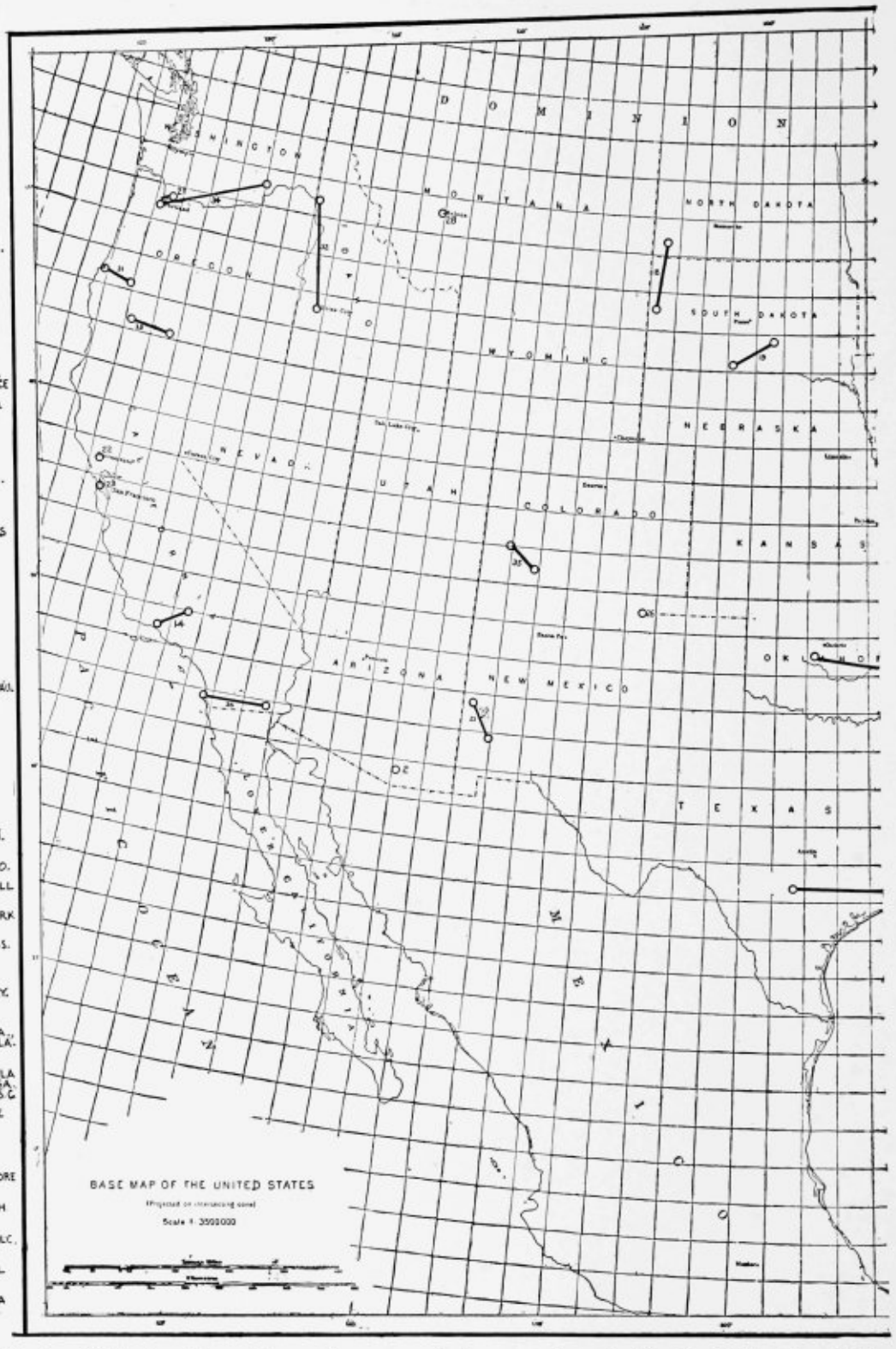
Air-line distance, 48 miles.

Time, 40 minutes, about.

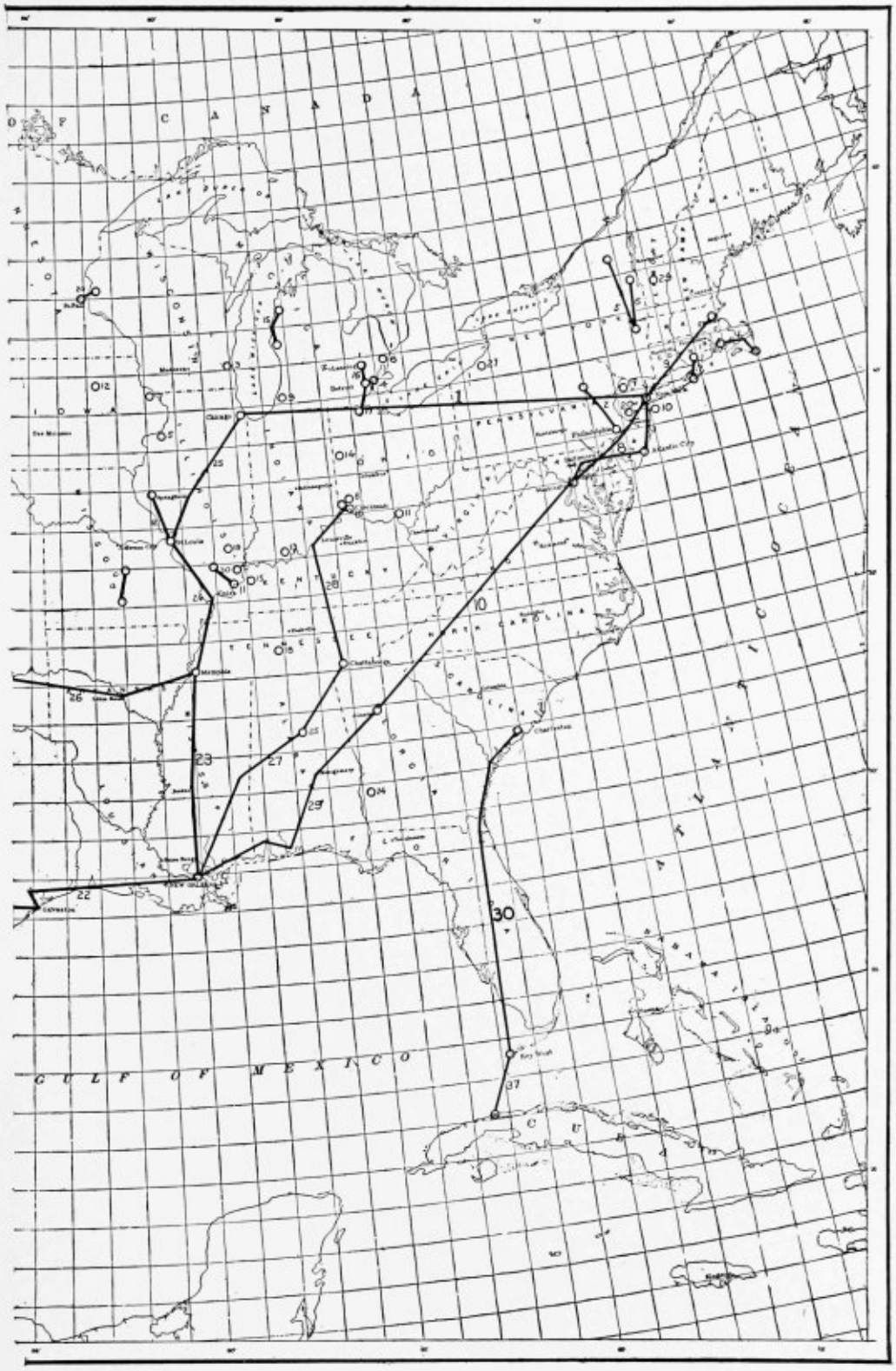
The present service is over the Southern Pacific via Wee, Cal., the route being the form of the letter U. The two towns are separated by a mountain range, Lower Klamath Lake and

## PROPOSED SERVICE

1. NEW BEDFORD MASS. & NANTUCKET I.D.
   DISTANCE 58 MILES TIME 4½ HOURS
   AIRLINE 51 MILES TIME 1 HOUR
2. PHILADELPHIA & WILKES-BARRE PA.
   RAIL 144 M. 4¾ H.
   AIRLINE 102 M. 2 H.
3. NEW YORK N.Y. & ATLANTIC CITY N.J.
   RAIL 142 M. 3½ H.
   AIRLINE 100 M. 2 H.
4. WASHINGTON D.C. & ATLANTIC CITY N.J.
   RAIL 201 M. 4½ H.
   AIRLINE 150 M. 3 H.
5. ALBANY N.Y. & LAKE PLACID N.Y.
   RAIL 142 M. 8¼ H.
   AIRLINE 112 M. 2¼ H.
6. ALBANY N.Y. & LAKE GEORGE N.Y.
   RAIL 70 M. 2½ H.
   AIRLINE 52½ M. 1½ H.
7. SAG HARBOR N.Y. & NEW LONDON CONN.
   BY WATER 46 M. 3 H.
   AIRLINE 25½ M.
8. NEW YORK N.Y. & WASHINGTON D.C.
   RAIL 227 M. 5 H.
   AIRLINE 200 M. 4 H.
9. NEW YORK N.Y. & BOSTON MASS.
   RAIL 212 M. 5 H.
   AIRLINE 190 M. 3¾ H.
10. NEW YORK N.Y. & ATLANTA GA.
    RAIL 876 M. 24½ H.
    AIRLINE 740 M. 15 H.
11. HARRISBURG ILL. & ELIZABETHTOWN ILL. AND RETURN. NO RAILROAD SERVICE
    AIRLINE 70 M.
12. PERUQUE MO. to BEECHVILLE ILL. & OTHER TOWNS IN PIKE & CALHOUN COUNTIES ILLINOIS
    AIRLINE 50 M. (APPROXIMATE)
13. ROLLA MO. to CABOOL MO.
    (NOT CONNECTED BY RR) 80 M. (HIGHWAY)
    AIRLINE 60 M. 1⅛ H.
14. SANTA MARIA, SHALE, OR MARICOPA CAL.
    RAIL 410 M. (CHANGES BY MTS.) 15¼ H.
    AIRLINE 52 M. 1 H.
15. PENTWATER MICH. to MANISTEE VIA LUDINGTON NO DIRECT RAIL CONNECTION
    TOWNS ARE ON LAKE MICHIGAN. 24¾ HOURS
    AIRLINE 35 M. ¾ H.
16. DETROIT MICH. to PONTIAC MICH.
    RAIL 26½ M. 1 H.
    AIRLINE 25 M. ½ H.
17. TOLEDO OHIO. to DETROIT MICH.
    RAIL 57 M. 1¾ H.
    AIRLINE 53 M. 1 H.
18. BOWMAN N.D. & NEWELL S.D.
    RAIL 670 M. (NO DIRECT CONNECTION)
    (THE ROUTE 122 M. (HIGHWAY)
    AIRLINE 100 M. (ABOUT) TIME 2 H.
19. CHAMBERLAIN & WINNER S.D.
    RAIL 455 M. (NO DIRECT CONNECTION)
    AIRLINE 43 M. (ABOUT) 1 H.
20. ST. PAUL & STILLWATER MINN. VIA N. ST. PAUL
    RAIL 20 M. ¾ H.
    AIRLINE 13 M. ½ H.
21. SILVER CITY & MOGOLLON NEW MEX.
    (STAR ROUTE 88 M. (HIGHWAY) NO R.R. CONN.
    AIRLINE 60 M. 1½ H.
22. NEW ORLEANS LA. VIA HOUSTON TEX.
    AIRLINE 320 M. 6½ H.
    HOUSTON to GALVESTON
    AIRLINE 56 M. 1 H.
    GALVESTON to SAN ANTONIO
    AIRLINE 255 M. 5 H.
23. NEW ORLEANS VIA JACKSON MISS.
    150 M. 3 H.
    JACKSON MISS. to MEMPHIS TENN.
    200 M. 4 H.
24. MEMPHIS TENN. VIA CAIRO ILL.
    145 M. 3 H. to ST. LOUIS MO.
    120 M. 2½ H.
25. ST. LOUIS MO. VIA SPRINGFIELD ILL.
    85 M. 1¾ H.
    to CHICAGO ILL. 170 M. 3½ H.
26. MEMPHIS TENN. VIA LITTLE ROCK ARK.
    128 M. 2½ H. to OKLAHOM CITY
    295 M. 6 H.
27. NEW ORLEANS LA. VIA MERIDIAN MISS.
    175 M. 3½ H.
    AND BIRMINGHAM ALA. 145 M. 3 H.
    to CHATTANOOGA TENN.
    160 M. 3¼ H.
28. CHATTANOOGA TENN. VIA LOUISVILLE KY.
    220 M. 4½ H. to CINCINNATI O.
    90 M. 2 H.
29. NEW ORLEANS LA. VIA MOBILE ALA.,
    130 M. 2½ H. PENSACOLA FLA.,
    150 M. 3 H. AND MONTGOMERY ALA.
    150 M. 3 H. to ATLANTA GA.
    140 M. 3 H.
30. KEY WEST FLA. VIA JACKSONVILLE FLA
    400 M. 8 H. AND SAVANNAH GA.
    125 M. 2½ H. to CHARLESTON S.C.
    75 M. 1½ H.
31. ROSEBURG ORE. & MARSHFIELD ORE.
    RAIL & STAGE 97 M. 16½ H.
    AIRLINE 47 M. 1 H.
32. LEWISTON IDAHO & BOISE IDAHO.
    RAIL & STAGE 450 M. 40 H.
    AIRLINE 95 M. 2 H.
33. ASHLAND ORE. & KLAMATH FALLS ORE
    RAIL 204 M. 8 H.
    AIRLINE 46 M. 1 H.
34. PORTLAND ORE. & N. YAKIMA WASH
    RAIL 378 M. 15 H.
    AIRLINE 130 M. 2¼ H.
35. SILVERTON COLO. & TELLURIDE COLO.
    RAIL 200 M. (BY MTS) 36 H.
    AIRLINE 20 M. ½ H.
36. SAN DIEGO, CAL. & EL CENTRO CAL.
    RAIL 340 M. 12 H.
    AIRLINE 93 M. 2 H.
37. KEY WEST FLA. & HAVANA CUBA
    BY WATER 100 M. S. 9 H. N. 8 H.
    AIRLINE 100 M. 2 H.




The map reproduced herewith is of historic value. It was the manuscript map made up by the Post Office to exhibit
Office did not have any aeroplanes at that time and as a convincing argument to show the practicability of the aerial
posed and the time required




PERFORMED SERVICE

1 CHICAGO - NEW YORK
2 TUCSON, ARIZ. FAIR GROUNDS TO P.O.
3 MILWAUKEE, WIS. FAIR GROUNDS TO P.O.
4 DETROIT, MICH. FAIR GROUNDS TO P.O.
5 ROCK ISLAND, EXPOSITION PARK TO P.O.
6 PORT HURON STA.B TO P.O.
7 DUBUQUE, IA. AVIATION GROUNDS TO P.O.
8 HAMILTON, OHIO. AVIATION GROUNDS TO P.O.
9 BENTON HARBOR; MICH. FAIR GROUNDS TO P.O.
10 SOUTH AMBOY TO PERTH AMBOY, N.J.
11 PORTSMOUTH, OHIO. AVIATION GROUNDS TO P.O.
12 CEDAR FALLS, IOWA. AVIATION GROUNDS TO P.O.
13 ROCKPORT, IND. FAIR GROUNDS TO P.O.
14 FORT RECOVERY, OHIO. AVIATION GROUNDS TO P.O.
15 PROVIDENCE, KY. FAIR GROUNDS TO P.O.
16 CONEY ISLD. CINCINNATI TO CALIFORNIA, OHIO.
17 RIDGEWOOD, N.J. FAIR GROUNDS TO P.O.
18 COLUMBIA, TENN. AVIATION GROUNDS TO P.O.
19 McLEANSBORO, ILL. TEMPORARY STA. TO P.O.
20 PLAINFIELD, N.J. AVIATION GROUNDS TO P.O.
21 PORTLAND, OREGON TO VANCOUVER, WASH.
22 SANTA ROSA, CAL. AVIATION GROUNDS TO P.O.
23 SAN FRANCISCO, CAL. INGLESIDE COURSING PARK TO P.O.
24 CUTHBERT, GA. AVIATION GROUNDS TO P.O.
25 BIRMINGHAM, ALA. FAIR GROUNDS TO P.O.
26 CLAYTON, N.M. FAIR GROUNDS TO P.O.
27 CELERON TO MAYVILLE, N.Y.
28 HELENA, MONT. FAIR GROUNDS TO P.O.
29 RUTLAND, VT. FAIR GROUNDS TO P.O.
30 CARMI, ILL. FAIR GROUNDS TO P.O.

at the First Pan-American Aeronautic Exposition, held by the Aero Club of America in February, 1916. The Post mail, there was written at the sides of the map the data regarding the flights made by aviators over the routes pro- by train and by aeroplane.

the Link River. The route is an ideal one for aeroplane service, so far as saving distance is concerned.

Seattle, Wash., and Tacoma, Wash.

Rail distance, 40 miles.

Time, 1 hour, 10 minutes.

Air-line distance, 25 miles.

Time, 20 minutes.

On account of the numerous inlets and bays the railroad is quite roundabout compared to the distance by air line.

Portland, Oregon, and North Yakima, Wash.

Rail distance, 378 miles.

Time, 15 hours.

Air-line distance, 130 miles.

Time, 1 hour, 45 minutes.

About one-half of this route would be over the intervening mountain range.

FOURTEENTH DIVISION, RAILWAY MAIL SERVICE

Silverton, Colo., and Telluride, Colo.

Rail distance, 200 miles.

Time, 36 hours.

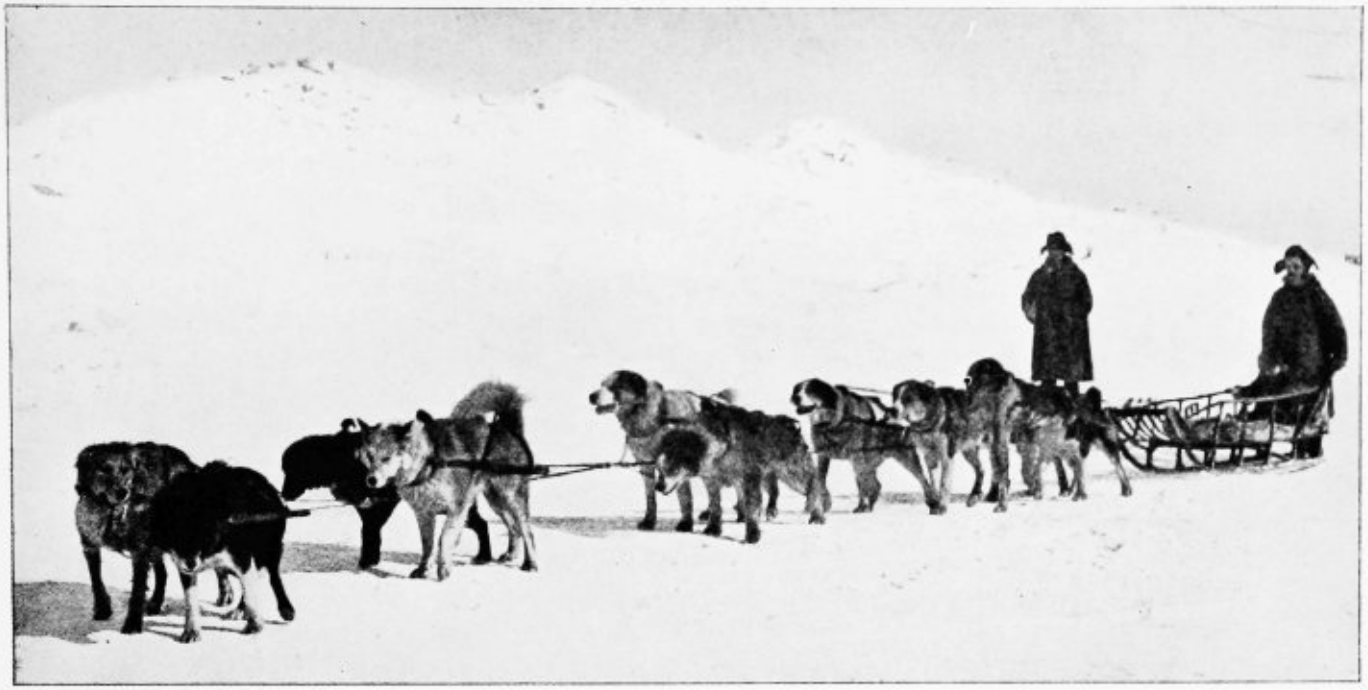
Air-line distance, 20 miles.

Time, 20 minutes, about.

Important mining towns separated by a range of mountains 12,000 feet high. The amount of mail between the towns is small, about 26 pieces of first-class mail and 16 newspapers per day. The interests of the two places are similar and many of the miners, living in one of the towns, have families in the other. In winter, even the unsatisfactory rail communication is often entirely cut off for many weeks at a time.

Should this service prove practicable, service might also be tried between Silverton and Ouray and Silverton and Lake City, where the conditions are similar to those outlined above. The distances on these two routes would be 17 and 23 miles by air line, respectively, making possible an important economy of time.

There are more prospective aerial mail routes —a great many. But the above gives a good idea of the extensiveness of the field.



A United States Mail Team near Nome, Alaska. It won a large prize as the best team in the races for covering 412 miles from Cripple Creek to Nome in 82 hours and 2 minutes.

## AERO MAIL SERVICE FOR ALASKA

By Gerald Ellis Cronin, Second Lieutenant 9th U. S. Infantry

(Courtesy of *Flying*)

To the people who live where the mail is collected and delivered many times a day, and the combination of fast trains, automobiles, and other up-to-date facilities, unrestricted by any physical obstructions, afford them quick and reliable mail service, aero mail may not seem an absolute necessity. But to those who live in the isolated places in northern Alaska, and in the Arctic Circle, and have to wait weeks and months for their mail for news from the active, outer world, aero mail looms up as a blessing. And one who is in touch with the swift developments of aviation conceives of an aeroplane line over the White Pass, or from White Horse, down the Yukon to St. Michael and Nome, and looks forward to the establishment of such a line with eager expectancy.

The isolation of the army posts and towns in northern Alaska due to the infrequent mail service has often led to many inquiries as to how this unpleasant feature of Alaskan life can be bettered. In the summer time, under the present conditions, the mail is sent by steamer from Seattle to Skagway, then over the White Pass and Yukon Railroad to White Horse, then by steamer to Dawson, where a change is made to a second steamer which carries the mail as far as Fort Gibbon, at the junction of the Tanana and Yukon Rivers. At this point a third change is made to either the towns on the lower Yukon or Fairbanks on the Tanana. This service is subject to numerous delays at the various points of transfer. The time from Seattle to Skagway is usually four days. If the steamer arrives at Skagway after 9:30 P. M. the train for White Horse is missed and a delay of twenty-four hours ensues. It takes the train seven hours to make the trip over the White Pass, and a forty-hour run down the river brings the mail to Dawson. After being transshipped at this point three or five days' steaming brings it to Tanana and Fort Gibbon where another transshipment takes place to either St. Michael or Fairbanks. The last two

stages of the trip consume five and three days, respectively.

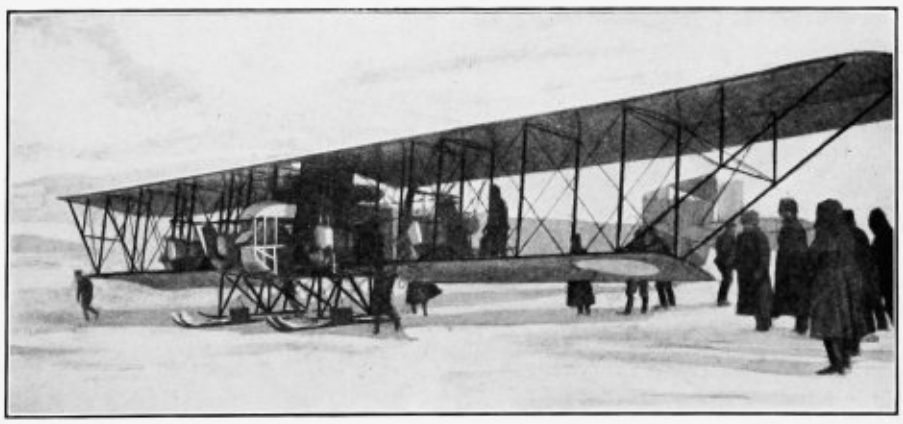
A hydroaeroplane fitted to carry a hundred-pound load of mail could fly from the steamer's dock at Skagway to White Horse in about one and one-half hours. At White Horse, machines could be changed for the next stage of the journey to Selkirk, 272 miles distant. The trip from White Horse to Selkirk could be made in less than four hours, as against the present time of twenty-four. Within another three hours Dawson would be reached. At this point considerable delay could be eliminated by the aero-mail service, and a five-hour flight would bring it to Fort Yukon which lies under the Arctic Circle. Less than five hours more would take it to Tanana, making the total run of less than twenty hours from Skagway. The present time in the summer season is fourteen days. Owing to the twenty-four hours daylight in summer, flying would be uninterrupted, thus making it possible to do in one day what now requires fourteen days. The trip to Fairbanks could be made in four hours, and the run down the Yukon to Kaltag in five hours. *The latter place is 570 miles from St. Michael by the river route and only 116 in an air line.* A two-hour flight across from Kaltag to St. Michael would complete the journey and bring the latter town only twenty-seven and a half hours from Skagway. An additional flight of two hours would take the hydroaeroplane to Nome. Here connections could be made with another line running across Bering Straits to Siberia.

Turning to the overland route from Cordova, on the south coast, it is estimated that the run to Fairbanks would take only about five hours. This is over very rough country, but it is feasible and entails no more danger to the airman than to the present carriers. On this route the aeroplanes would not need to be fitted with the hydros. By being equipped with wireless telegraph apparatus aid could be summoned, if necessary.

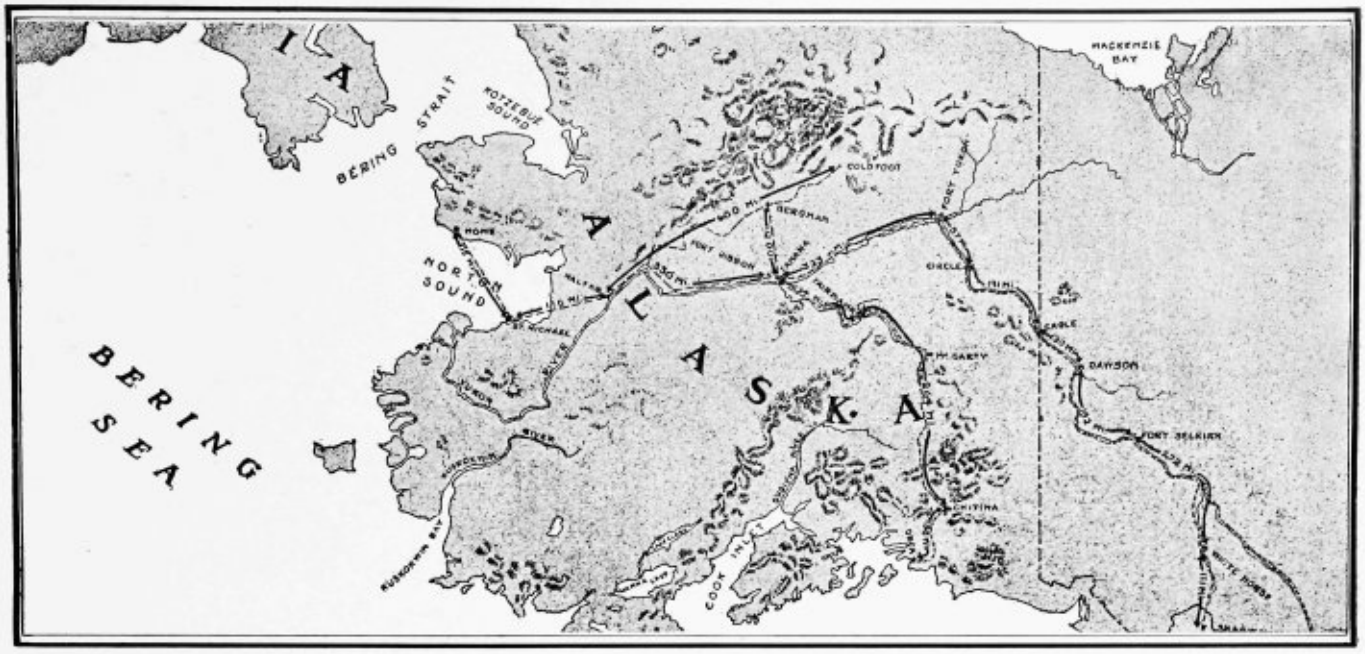
It is only a trifle over 165 miles on the Kovukuk mail trail from Tanana to the northern settlements on the great river that drains the gold fields nearest the Arctic Ocean, yet it takes many a weary week for the mail to reach those far-flung outposts of civilization. The aero-mail service would make the delivery of letters in this far-away region a question of hours instead of weeks.

The winter mail is carried over two trails: one from Chitina, on the Copper River Railroad, to Fairbanks, Tanana, St. Michael and Nome; the other from White Horse, the Canadian terminal of the White Pass and Yukon Railroad, to Dawson, Forty Mile, Eagle, and Circle. Horse stages are used from White Horse to Dawson, and from Chitina to Fairbanks. Beyond these points dog teams are used exclusively. First-class mail is carried, while second and third-class mail gets through very seldom. Parcel-post service in Alaska will be a very difficult matter under these conditions, unless the aeroplane is used.

During the summer months mail is often delayed owing to freight being hurried to its destination before the close of navigation. I recall that many times when the Copper River and Northwestern Railroad was tied up for several weeks, and Fairbanks, the largest city in Alaska, was without mail for two weeks. Nu-



A Russian Sykorsky biplane equipped with four motors and skids instead of wheels used as early as 1915, 1916. Aeroplanes with skids will be used for mail carrying in Alaska.




Map of Alaska showing proposed aero mail routes.

merous sacks of outgoing mail were blocked at Chitina and Cordova.

Almost any of the aeroplanes built to-day could be used for mail carrying, although twin motored planes with inclosed body would be more suitable. The inclosed body, heated with heat derived from the motor, will make it possible to travel in the coldest weather when horse sleds and dog teams are held up.

While it can easily be expected that an aeroplane of this type will travel for four hours without stopping, at a minimum speed of eighty or ninety miles an hour in a straight line, in the beginning the stations could be closer, say 100 to 150 miles from each other. Allowing a load of between 150 and 400 pounds of mail to each flight, which is only a fraction of the load which the machines must carry to pass the military tests, the problem of mail carrying in Alaska would be happily solved and the great handicap of inaccessibility being removed, Alaska would start on a new period of development, industrial and social.

The rivers are the commercial arteries of Alaska. In summer steamers ply; in winter dog sledges glide over the frozen surface. Real business activities continue in Alaska only during the summer months; in the winter those people who do not "mush" out to Seattle and civilization, merely exist until the next season.

The southeastern coast is girt with the greatest mountains and glaciers of the continent; but the broad northern valleys of the shoal Yukon and its tributaries, and of the streams that flow toward the Arctic, are mostly low stretching country, bare hills of not much ruggedness, and great plains of Tundras, or moss ridges.

Along these streams that are too shallow for navigation, and over this low, bare country, the aeroplane, adapted for water work as well, could be of a most excellent and practical service today, linking the now isolated camps and settlements of the interior and Arctic coast with the markets of civilization.

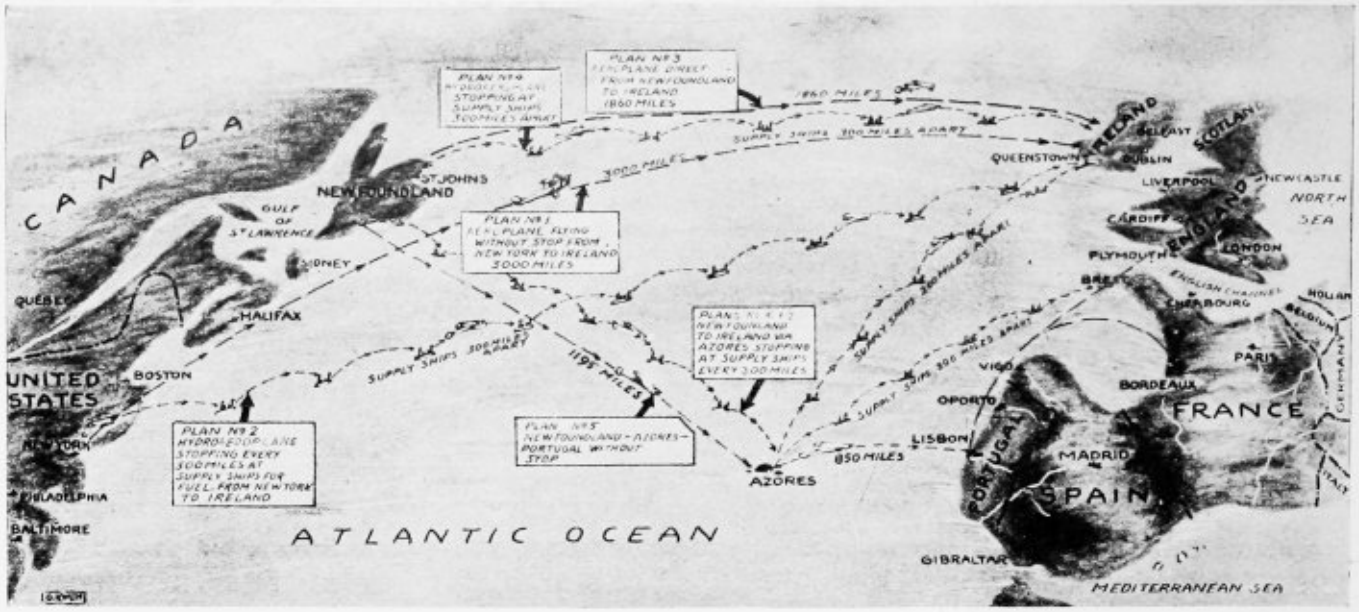
And who can say that, once initiated, an aero-mail service would not be found feasible to extend to take the place of the slow steamer and sledge service now maintained?

## Time Required for Mail to Reach Different Points in Alaska from Seattle at Present and Advantage to be Gained with Aeroplanes

| | SUMMER | | WINTER |
|---|---|---|---|
| From Seattle to Nome (all sea route) | 8 days | no changes | 40 days[1] |
| From Seattle to St. Michael (all sea route) | 9 days | no changes | 36 days[1] |
| From Seattle to Dawson (via Skagway) | 9 days | 2 changes | 10 days[2] |
| From Seattle to Eagle (via Skagway and Dawson) | 11 days | 3 changes | 12 days[2] |
| From Seattle to Circle (via Skagway and Dawson) | 12 days | 3 changes | 15 days[2] |
| From Seattle to Rampart (via Skagway and Dawson) | 14 days | 3 changes | 20 days[1] |
| From Seattle to Tanana (via Skagway and Dawson) | 14 days | 3 changes | 19 days[1] |
| From Seattle to Fairbanks (via Skagway and Dawson) | 16 days | 4 changes | 14 days[1] |
| From Seattle to Iditarod (via Skagway and Dawson) | 15 days | 4 changes | 34 days[1] |

In summer mail is transported by steamship to St. Michael, Nome, and Skagway; by railroad from Skagway to White Horse, and by steamers on the Yukon and other rivers. In winter mail is transported by steamship to Skagway and Cordova, by railroad from Cordova to Chitina, and from Skagway to White Horse, then by horse sleds from Chitina to Fairbanks, and from White Horse to Dawson. Beyond Fairbanks and Dawson dog teams are used exclusively.

[1]Via Cordova and Fairbanks. [2]Via White Horse and Dawson.




There are seven ways of flying across the Atlantic and three routes, as follows: (1) By means of large aeroplanes capable of flying the 3,000 miles from New York to Ireland without stopping. The construction of such aeroplanes is considered possible by prominent aeroplane manufacturers. They will be assisted by trade winds. (2) By means of flying boats and hydroaeroplanes, starting from New York and flying to Ireland, stopping to take fuel from ships stationed at every three hundred miles along the route. (3) By means of land aeroplanes, large or small, starting from Newfoundland and flying to Ireland, a distance of 1,800 miles, without stopping. The construction of aeroplanes capable of doing this is considered easy by prominent manufacturers. They will be assisted by trade winds. (4) By means of flying boats and hydroaeroplanes, starting from Newfoundland and flying to Ireland, 1,860 miles, taking on gasoline from ships stationed at every three hundred miles along the route. (5) By means of land machines, large or small, flying from Newfoundland to the Azores, 1,195 miles, and from the Azores to Portugal, 850 miles. (6) By means of hydroaeroplanes flying from Newfoundland to the Azores and from the Azores to Ireland, taking on fuel from ships stationed 200 miles apart along the route. (7) By means of flying boats flying from Newfoundland to the Azores and take on fuel there.

## TRANS-ATLANTIC AERIAL MAIL

A 5000 horsepower air liner will soon cleave the air. Caproni is meanwhile designing an 18,000 horsepower air cruiser. The trans-Atlantic aerial mail is therefore one of the logical developments of the progress of aeronautics. It is to be an economic solution of the problem of intercommunication between the two continents.

By transporting letters between the two continents in less than 30 hours, the trans-Atlantic aerial mail will not only compete with the cables, but will establish express delivery service between the two continents.

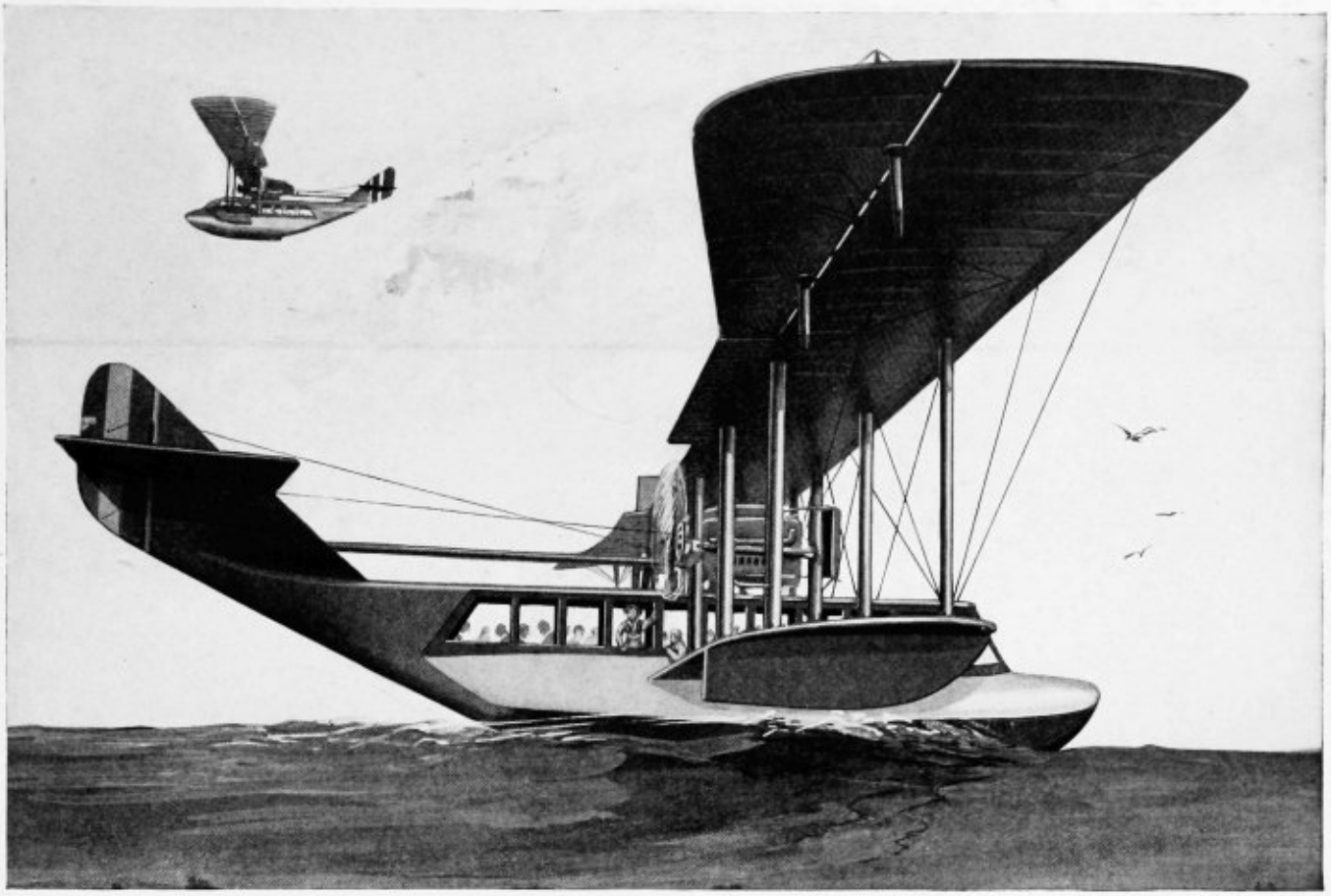
As soon as trans-Atlantic aeroplanes come into existence there will be trans-Atlantic air lines to carry mail in every direction over the globe, and for each line there will probably be two or more huge aeroplanes starting every half hour, making a minimum total of forty-eight large air liners which would be required for each air line.

There are seven routes for flying across the Atlantic and three favorite routes, as follows:

(1) By means of large aeroplanes capable of flying the 3000 miles from New York to Ireland without stopping. The construction of such aeroplanes is considered possible by aeroplane manufacturers. They will be assisted by trade winds.

(2) By means of flying boats and hydroaeroplanes, starting from New York and flying to Ireland, stopping to take fuel from ships stationed at every 300 miles along the route.

(3) By means of land aeroplanes, large or small, starting from Newfoundland and flying to Ireland, a distance of 1860 miles without stopping. The construction of aeroplanes capable of doing this is considered certain by



Ere long the present-day seaplanes will be converted into air yachts, illustrated herewith, which will make the trip between New York and Newport and New York and summer and winter residential centers and resorts at a speed of 75 miles an hour. These machines will make very efficient mail carriers.

prominent manufacturers. They will be assisted by trade winds.

(4) By means of flying boats and hydroaeroplanes, starting from Newfoundland and flying to Ireland, 1,860 miles, taking on gasoline from ships stationed every 300 miles along the route.

(5) By means of land machines, large or small, flying from Newfoundland to the Azores, 1,195 miles, and from the Azores to Portugal, 850 miles.

(6) By means of hydroaeroplanes, flying from Newfoundland to the Azores, and from the Azores to Ireland, taking on fuel from ships stationed every 200 miles apart along the route.

(7) By means of flying boats, flying from Newfoundland to the Azores and taking on fuel there.

Other possible routes are:

(1) By way of the Azores, then to Madeira, then to either Spain or Africa;

(2) From South America to Barbados and across to the Canaries;

(3) From Cape Orange to Cape Verde and then to the African Coast;

(4) From Pernambuco to St. Paul Island, then either to Cape Verde or straight to the African Coast;

(5) By way of Greenland and Iceland, to the Faroe Islands and from there to England:

(6) From St. Johns to Cape Farewell and from there to Ireland.

These are all possible routes, but the first three routes are the best. Besides the seven routes given above it is possible to cross the Atlantic with large dirigibles—but they must be as large as present day Zeppelins.

A three-motored seaplane of the flying boat type which could cross the Atlantic, by stopping *en route* to get gasoline. Larger planes of this type are under construction which will make the Transatlantic flight without stops.

## A FLIGHT ACROSS THE ATLANTIC

By ALFRED E. POOR

*(These are not so much days of prophecy as they are days to clearly define and visualize things to be done and doing them as fast as they can humanly be done.*

*The first step towards accomplishing the things that should be done is to define the value of the achievement, then the plans and the problems in the way of carrying out the plans. When this is done the problems should be solved and then the plan tested by putting it into effect. The following account of an hypothetical flight visualizes the flight as having been done.—* Editor.)

A little group of fishermen stood on the beach watching the boat with curious interest. They were a queer bunch, these Newfoundland men, with their misshapen hip-boots, their gaudy mackinaws and brilliantly colored toques. Although not one of them had ever seen an aeroplane before, they did not seem particularly surprised that our machine could fly. In fact, these unemotional people, who silently watched us as they puffed at old blackened and charred clay pipes, took us and the machine as a matter of course, and really only evinced that interest which they would show at the departure of one of their fishing dories.

Louis, the head mechanic, had started to fuss with the engines early in the morning, and now (it was about 3:30 in the afternoon) he was at last satisfied with his handiwork. For a time I watched him as his deft fingers made delicate adjustments on the carburetor, but this did not prove a very entertaining occupation for me, as Louis was as grouchy as ever and answered my innocent questions in curt monosyllables. Roy, his helper and ardent admirer, proved no more interesting to talk to, for his conversation was limited to, "Oh, boy, ain't them engines running sweet. Gee, they're some babies!"

Pete was talking to the natives about the weather. He had a faculty for getting to be everybody's best friend in a remarkably short time. Before we had been at Harbor Grace

three days, all the fishermen called him Pete and asked and followed his advice upon subjects about which he knew nothing, such as the best way to keep fish nets from rotting, or what to do when baby was teething. However, even he was unable to break through the cast iron reserve of these imperturbable folk, for when he bade them cheerily good-by, they only sucked harder upon their pipes and mildly suggested that we come back some time in August when the fishing was better.

After this peaceful leave taking, Pete wandered over to where I was sitting in the cockpit of the machine. The weather, he informed me, would probably be fair on Sunday, with a fresh breeze from the northwest. In the few minutes that remained before the scheduled time of departure, he briefly outlined to me the plans of our trip. We would have the wind with us all the way, as we were in the region of the prevailing westerlies. This helping zephyr would be strongest at about 15,000 feet, so we would probably fly at that altitude most of the time, coming down to make observations.

The name "prevailing westerlies" brought up dim recollections of a dry course in college about meteorology in which we studied over intricate weather maps similar to the ones Pete had been examining so carefully. As we were assured, not only by the Weather Department, but by the natives, that we would have good weather, I felt that our trip would be simplicity personified, and was rambling on to Pete about the joys of flying on a beautiful summer's day, when he rudely interrupted my monologue by telling me it was time to get ready. I was soon dressed in my clumsy leather union suit and strapped into my seat in the forward part of the cockpit. Pete sat beside me examining a whole pile of what he called unnecessary instruments. We were connected by a speaking tube arrangement that was attached to our leather helmets. "Rather bad dope," I thought. "Supposing Pete snores on his turn off duty." Another tube ran back to the engine compartment so that Louis could communicate with us if anything was going wrong with our motors.

Everything seemed ready aboard our flying boat. The two engines were running smoothly. Louis and Roy were huddled together in the back part of the compartment under the motors, vigorously chewing gum, and Pete had stopped his everlasting examination of the instrument board in front of us. I signaled to our boatmen to take hold of the wings and tail to guide the boat down the runway into the water. While we were sliding gently down the greased boards I took one last look at the shed where we had assembled the machine and waved at the few staid Newfoundlanders who hadn't gotten tired of waiting to see us start.

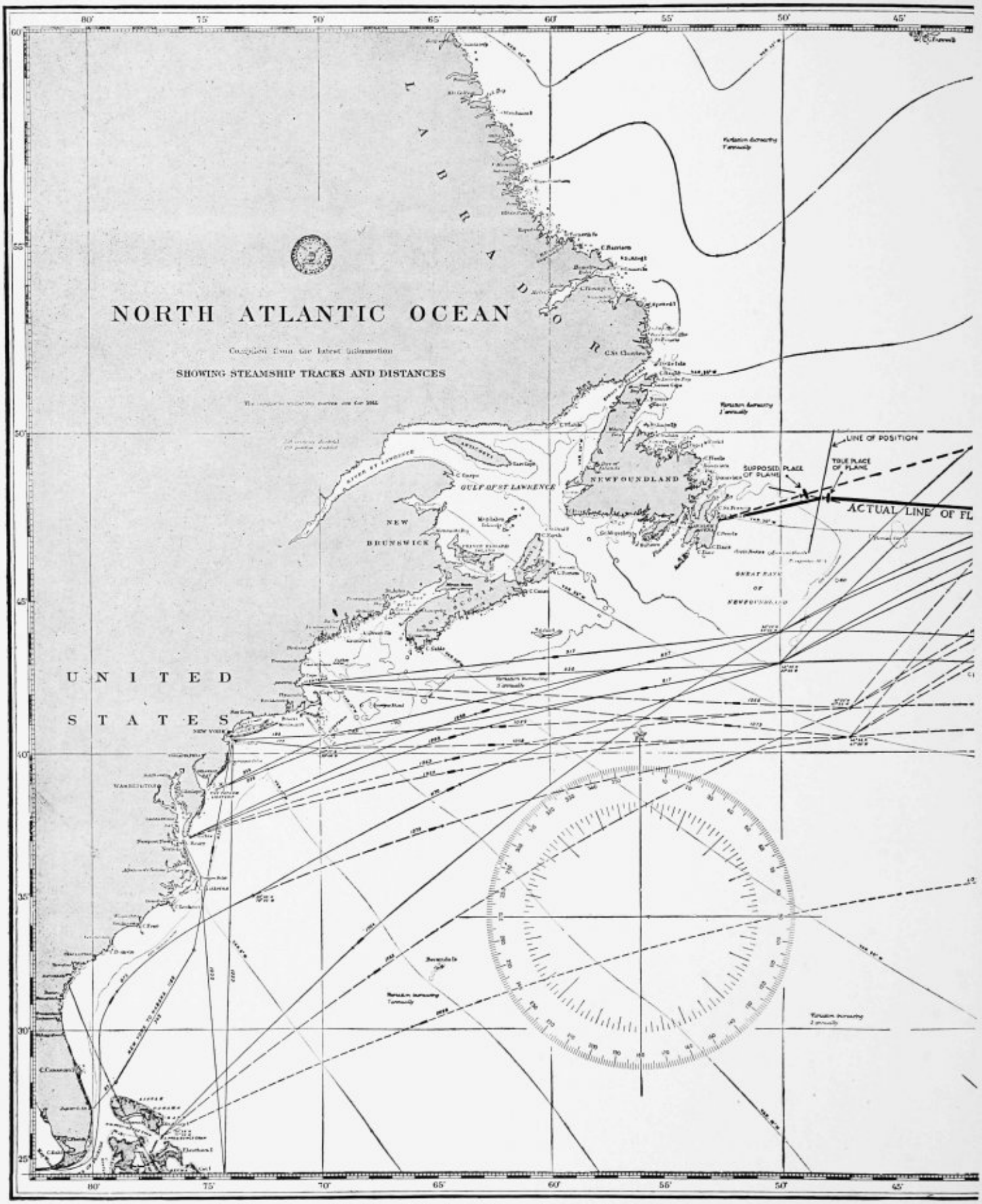
After quite a long "taxi" the 'bus rose to its proper element. It was exactly 4:02 P. M. when we left the water or 7 h. .02 m. Greenwich mean Time, Sunday, July 28th. We were soon flying at about 1,000 feet. I lounged comfortably in my seat and let the 'bus fly itself.

We climbed later to about 15,000 feet so as to have plenty of height when the darkness came. We were tossed about like the proverbial egg shell.

I was nearly exhausted and very glad to rest when eight o'clock brought along Pete's turn at the controls. After cramming in some of my precious chicken sandwiches and nearly draining one of the thermos bottles of lukewarm coffee, I shut my eyes to get some sleep. The last thing I remembered was being violently thrown against the side of the cockpit. That must have knocked me unconscious, or, anyway, knocked me to sleep for I felt the wicked bumps and lurches no more. In the midst of a delightful dream in which I was seated on the floor of a gigantic elevator munching chicken sandwiches, Pete woke me by vigorous pokes in the ribs. The elevator had broken its cables and was plunging down from the top of a 200-story skyscraper when I lapsed into frightened consciousness to find that our boat was gliding down at a sharp angle.

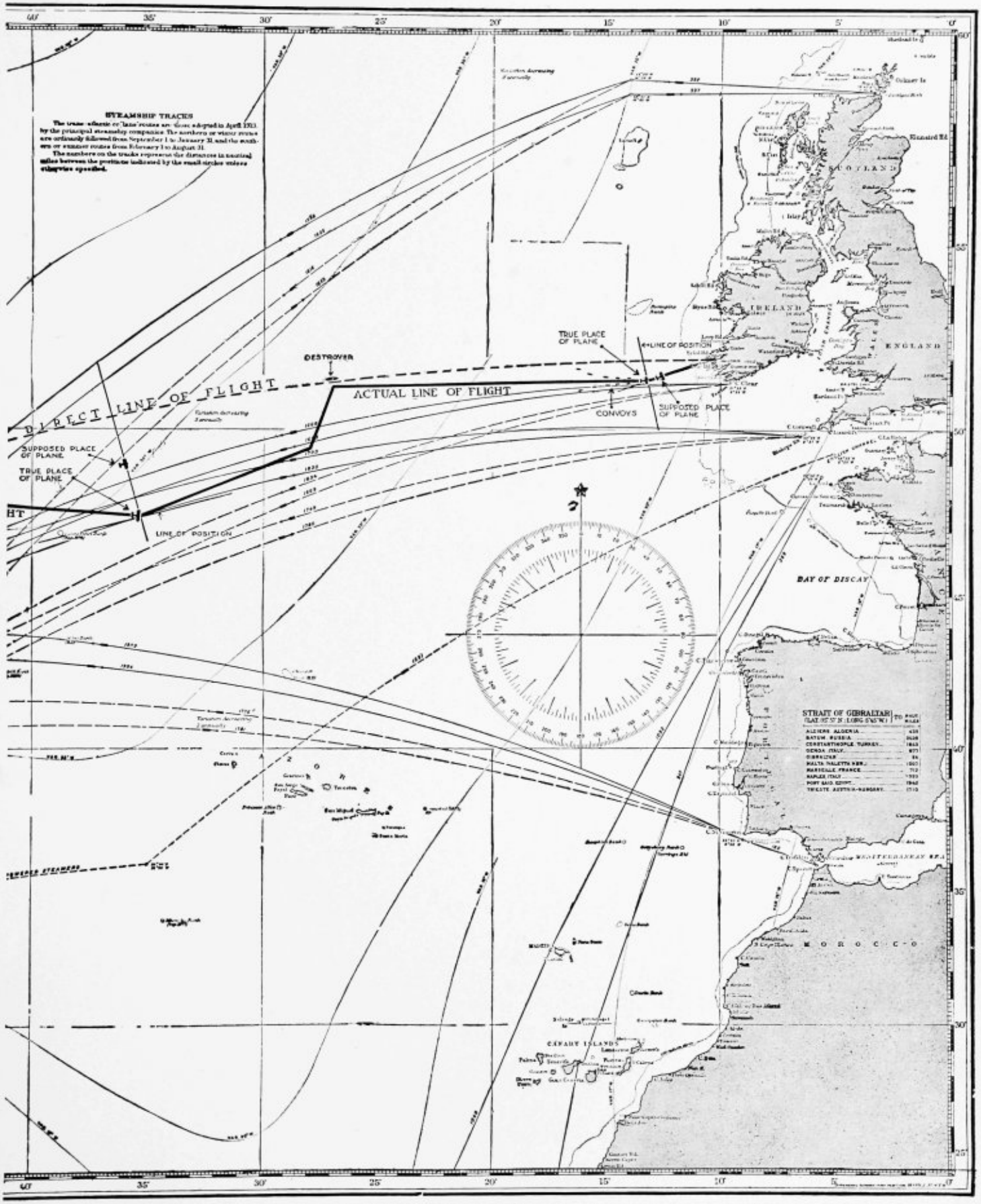
Pete nudged me at frequent intervals to make sure that I was awake before he gave me the controls. My disposition to return to the arms of Morpheus was augmented by the fact that it was only 11:50—Pete had waked me ten minutes early and I felt that I was being cheated out of my just portion of slumber. When we got down to 1,500 feet I leveled off. It was a beautiful night. The storm had quieted down

## Marine Chart Showing the Lines of Flight

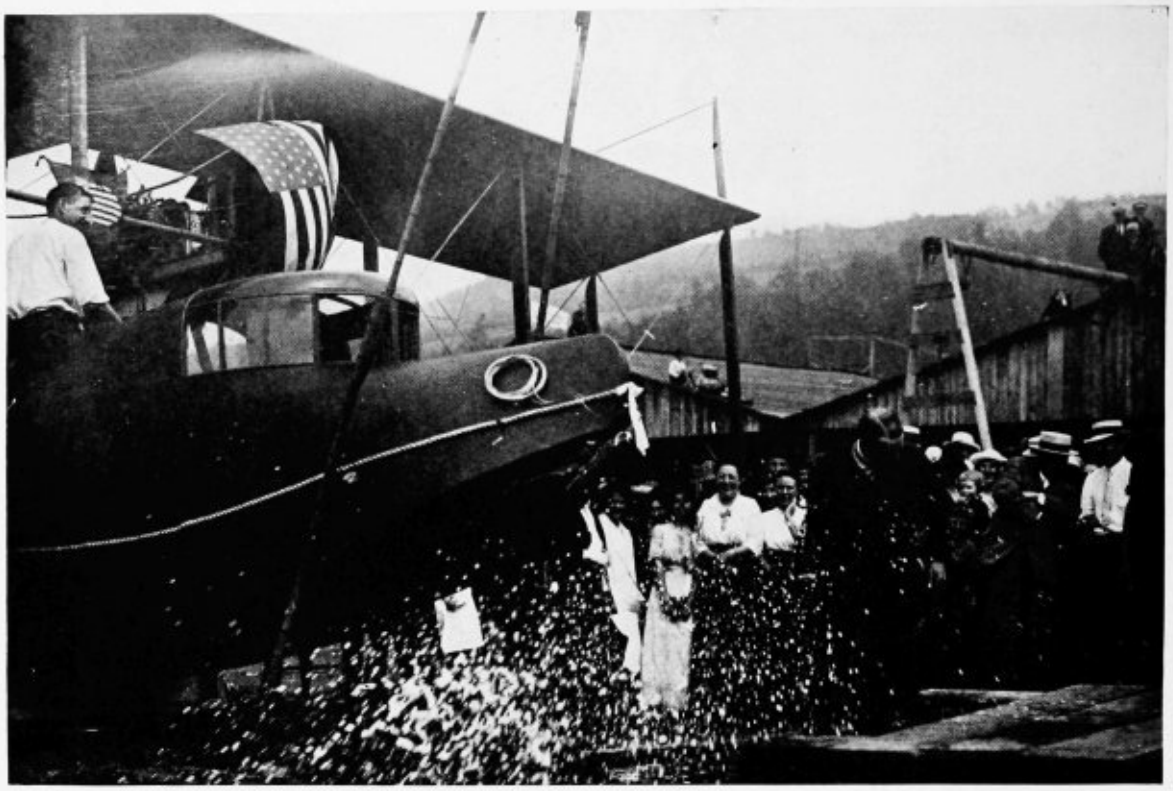



The dotted line shows the direct line of flight which should have been followed; the heavy line shows the actual line of flight across the Atlantic. It is expected that this deviation can be prevented in actual flights by the use of special de

## on Hypothetical Transatlantic Flight




flight and we see clearly how the aeroplane deviated greatly from the direct line of flight during the first half of the vices invented and evolved by Admiral Fiske, Professor Charles L. Poor, Elmer A. Sperry and Lawrence B. Sperry.



The christening of the Wanamaker Transatlantic Flyer: On June 22, 1914, the flyer was named "America," the name selected by Mr. Rodman Wanamaker. The photograph shows the scene at the christening, the breaking of the bottle of Hammondsport champagne by Lieut. Porte and Miss K. Masson. The American flag and the Aero Club of America flags on the "America" are the flags presented to Mr. Glenn H. Curtiss by the Club when he won the first Gordon Bennett Aviation Race. This flight was prevented by the war.

completely although it left the air a little bumpy in spots. I could just make out the ocean directly below, but ahead of us all was dark and mysterious.

While I steered, my companion took an observation of a star. After working out the results he informed me that we had gone 470 miles since our last position, or a total of 640 miles, and that we were over 100 miles south of our course. He tried to get into communication with the first of the three destroyers that had been placed in our line of flight to render any assistance that we might need, but after the first few flashes had gone out, the wireless passed gently away. The storm during the night—Pete said there had been lightning—I'm thankful that I was asleep—evidently was too much for the equipment. Louis was too busy to fix it for he had to nurse along the port engine which had developed pneumonia.

After stuffing down some food Pete curled up and soon gentle snores through the tube assured me that he was fast asleep. Louis had quieted the motor and he too turned in, leaving the engine under the care of Roy. Left in charge of our noble craft, I soon regained our former altitude and changed the course two points toward the north. This four-hour turn was much more pleasant than the previous one, for the air was quite smooth. With the continuous roar of the motors sounding in my ears, I was depressed by the loneliness and monotony. Nobody to talk to—Pete was asleep—nothing to do but to steer a straight course by the compass.

At about three o'clock as the sky began to pale with the coming dawn, I handed a bottle of coffee back to Roy, telling him to put it near the exhaust of one of the engines. This was the life, hot coffee with my breakfast! The half light of dawn lasted a long time at this altitude for it was over an hour before sunrise and I could see perfectly in spite of the dim gray mist which clung close to the water.

A few minutes after four I woke Pete and turned the controls over to him. After an enjoyable breakfast, to which the steaming coffee made a most welcome addition, I sent out

wireless calls for the second destroyer. Luckily I soon got in touch with her and from the position which she gave, Pete figured out that we were still to the south of our course, so he headed more to the north. The glorious ball of the sun popped up above the enshrouding horizon mists and cast pretty shimmering lights upon the dull ocean.

The destroyer wirelessed congratulations to us, and asked if we needed any aid. I replied that we certainly did not and that we were happy but hungry, and willing to tow them to England if they needed it. It was 4:45 when we passed the destroyer, which looked like a toy boat in the pond in Central Park, with inky cotton stuck down the funnels for smoke. I wanted to go down to greet her but Pete refused to waste the time, so after a final good-by and good luck over the wireless, we parted company. She was stationed 1,000 miles out, so we knew that we were well on our way and on the right course.

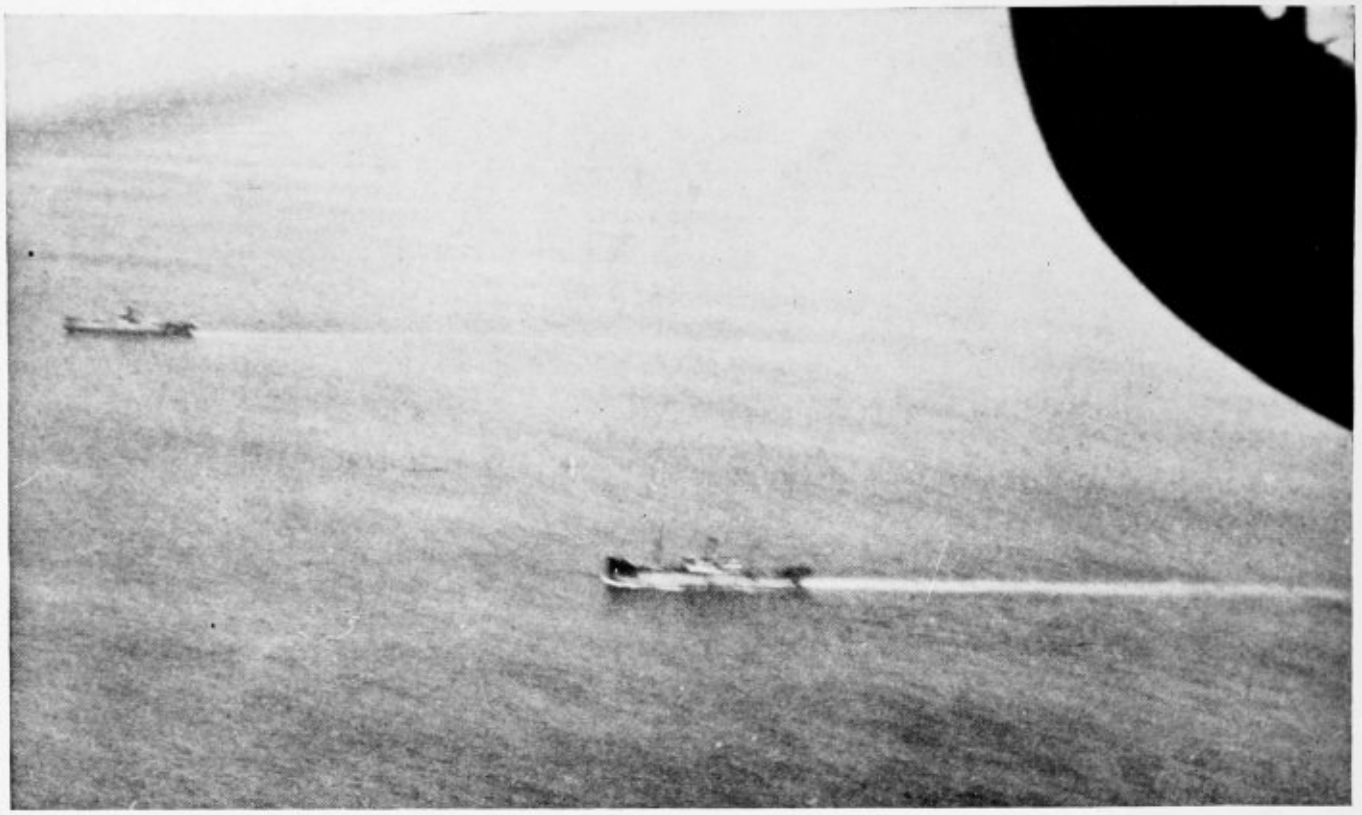
As my next turn didn't come until eight o'clock, I went to sleep again, with the steady throb of the motors pounding at my eardrums. Something felt very strange when I awoke. I looked at my watch—it said nine o'clock. Nothing queer about that except that I had an hour's more sleep than I deserved. It was unusually quiet—that was the trouble. The motors were barely turning over, and making a tremendous sputtering and fuss at that. Louis and Roy were frantically taping together a break in the gasoline feed pipe that had caused the trouble. We were not more than 200 feet above the surface when they finished their job and the motors once more pushed the boat ahead. We could have landed in the heavy swells, but it would have been more of a job to get under way again. I certainly was thankful that we didn't have to alight on the water, for a long stay surely would have made me seasick.

My next spell at the controls was very uneventful. According to our chief navigator, Pete, we should have passed the third destroyer at 11 A. M., but for some reason we couldn't get in touch with her. Either we or they were off course, so to make sure we came down at noon to "shoot the sun." Pete figured out that we were on the proper latitude and that we had gone about 1,500 miles.

Before we came down I saw a convoy in the distance, so I decided to keep at a low altitude until we passed over it, for if we were so high that the lookouts couldn't make out our insignia, some clever junior officer might take it into his head to try out the efficiency of his gun crew. The first boat we passed was one of the escorting destroyers that prowled in and out among the crowded troopships. She deigned to salute us by blowing her steam whistle. Of course, we couldn't hear the noise, but three puffs of white smoke shooting up from amid the dense black clouds that poured from her funnels, assured us that she was endeavoring to deliver a salute. As we had no pennant to dip in answer to this courtesy, we dipped ourselves, swooping down close over the forward deck. After this I flew our boat at a low altitude over the line of five transports that zigzagged between the protecting cordon of destroyers. American soldiers crowded to the rails of the troopships to wave violently at us, and although we couldn't hear, cheered lustily. In the tumult of their enthusiasm most of the lads threw hats into the air, and a few unfortunates had to watch with sad eyes and much dampened ardor as their cherished possessions sailed beyond their reach and into the sea. Somebody must have tipped

NAVIGATOR'S LOG, TRANSATLANTIC FLIGHT,
July 28-29, 1918. Greenwich Mean Time.

| | |
|---|---|
| *Sunday, July* 28, 1918. | |
| 7h 02m | Left Harbor Grace, Newfoundland. Course E. ½ N. true. |
| 9h 14m 20s | Measured altitude of lower limb of sun, as 15° 27′. Height, 2,000 feet. Horizon clear and distinct. Latitude, 48° 00′. Longitude, 48° 20′. Distance—170 nautical miles. |
| 12h | Heavy squall, with thunder below us—landing for about one hour. |
| 15h 20m | Measured altitude of "Dubhe" as 21° 33′. Height, 1,500 feet. Horizon very difficult. Position. Latitude, 47° 30′. Longitude, 35° 20′. Distance from land—660 nautical miles. |
| *Monday, July* 29, 1918. | |
| 5h 10m | Measured altitude of lower limb of sun, as 31° 50′. Height, 1,500 feet. Horizon hazy. Latitude, 51° 30′. Longitude, 13° 20′. Distance from Sybil Head, 110 nautical miles. |
| 7h 12m | Landed at Dingle Bay, Ireland. Time of flight 24h 10m. |



"The destroyer wirelessed congratulations to us and asked if we needed any aid. I replied that we certainly did not and that we were happy but hungry, and willing to tow them to England if they needed it."

them off as to who we were, for no ordinary aeroplane cou change the ennui and boredom of a long sea voyage into such excitement. To reward our soldiers, I turned a few figure eights around the two leading troopships before continuing our course.

At four o'clock Pete interrupted my afternoon tea—chicken sandwiches—to tell me that we should soon sight land. Of course, this information spoiled my appetite for if we were soon going to get ashore I would save up for a real spread. As nothing appeared after ten minutes of careful search through the powerful glasses, I relieved Pete at the controls, first stuffing my half finished meal into my mouth, while he prepared his instruments for an observation. After we had descended to 1,500 feet he "shot the sun" and worked out the results. We had gone 1,750 miles and were still 110 miles from land. As I had piloted the boat when we started, it was Pete's share of the honors to land her, so after he had stowed away the instruments he again took charge. Though I grumbled about his overestimating our speed and thus getting up my hopes prematurely, I was really in an extraordinarily good humor for I saw my visions of a real meal, at which there were to be no sandwiches and no canned stuff, materializing.

At 3:45 by my watch the dim outline of the Irish coast appeared out of the fog in much the same manner in which Newfoundland had disappeared the day before. At 4:12 by my watch, or $7^h$ $12^m$ Greenwich M. T., we landed in a little harbor on the sea coast, just 24 hours and 10 minutes after we left America.

## Principal Meteorological Stations in U. S.

The U. S. Weather Bureau is anxious to assist in every way possible in extending aerial transportation and air travel, and will gladly supply meteorologic data to people interested.

Forecasts can be quickly obtained from the local Weather Bureaus of different cities by telephoning to the local representatives of the Weather Bureau.

The first official aerial weather forecast was dated December 2, 1918, and read:

"New York to Cleveland: Cloudy 8 P. M. Snow near Lake Erie. Winds moderate northwest to north-northwest east of the Alleghenies up to 6,500 feet and moderate south winds west of Alleghenies, shifting to west-southwest at about 1,500 feet.

"Forecast: Snow to-day (Monday), with increasing northeast to north winds up to about 6,000 feet, backing to strong northwest above."

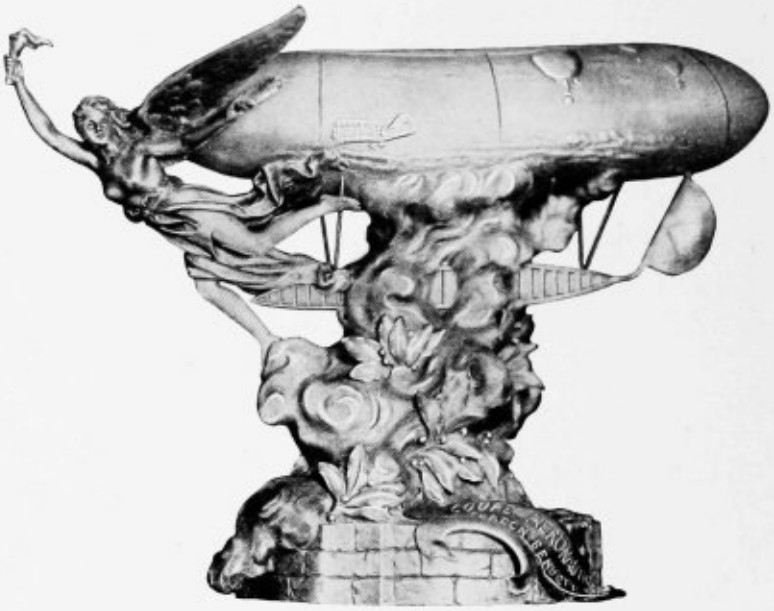
The Weather Bureau has extended the forecast for all the territory from New York to Chicago. This is a great step forward by the Weather Bureau and one which will be the greatest help to all air travelers.

The principal meteorologic stations in the United States are located as follows:

Bartow, Fla.....Jacksonville, Fla.
Basse-Terre, St. Kitts, W. I....Central Office
Billings, Mont.....Helena, Mont.
Blaine, Wash.....Portland, Ore.
Bridgetown, Barbados, W. I...Central Office
Brownsville, Tex.....Houston, Tex.
Burrwood, La.....New Orleans, La.
Canisus College.....Buffalo, N. Y.
Cañon City, Colo.....Pueblo, Colo.
Cape May, N. J.....Atlantic City, N. J.
Corinth, Miss.....Memphis, Tenn.
Corona, Colo.....Denver, Colo.
Curaco, W. I.....Central Office
Dutch Harbor, Alaska.....Central Office
Eagle, Alaska.....Central Office
East Wareham, Mass.....Boston, Mass.
Eustis, Fla.....Jacksonville, Fla.
Flagstaff, Ariz.....Phoenix, Ariz.
Fort Lauderdale, Fla.....Jacksonville, Fla.
French Lick, Ind.....Indianapolis, Ind.
Gainesville, Fla.....Jacksonville, Fla.
Georgetown University.....Central Office
Grand Forks, N. Dak.....Bismarck, N. Dak.
Greenville, Me.....Boston, Mass.
Independence, Cal.....San Francisco, Cal.
Jackson, Miss.....Vicksburg, Miss.
Kingston, Jamaica, W. I.....Central Office
Leadville, Colo.....Denver, Colo.
Marshfield, Ore.....Portland, Ore.
Medford, Ore.....Portland, Ore.
Meridian, Idaho.....Boise, Idaho
Miles City, Mont.....Helena, Mont.
Missoula, Mont.....Helena, Mont.
Monroe, La.....New Orleans, La.
Moorhead, Minn.....Minneapolis, Minn.
Muskogee, Okla.....Oklahoma, Okla.
New Brunswick, N. J.....Trenton, N. J.
Nome, Alaska.....Central Office
North Yakima, Wash.....Portland, Ore.
Notre Dame, Ind.....Chicago, Ill.
Pasadena, Cal.....San Francisco, Cal.
Paso Robles, Cal.....San Francisco, Cal.
Port au Prince, Haiti, W. I.....Central Office
Port of Spain, Trinidad, W. I..Central Office
Provo, Utah.....Salt Lake City, Utah
Redlands, Cal.....San Fransico, Cal.
Riverside, Cal.....San Francisco, Cal.
Roseau, Dominica, W. I.....Central Office
St. Louis University.....St. Louis, Mo.
San Bernardino, Cal.....San Francisco, Cal.
Sanford, Fla.....Jacksonville, Fla.
Santa Barbara, Cal.....San Francisco, Cal.
Santo Domingo, W. I.....Central Office
Siskiyou, Ore.....Portland, Ore.
Sitka, Alaska.....Central Office
Staunton, Va.....Richmond, Va.
Summit, Cal.....San Francisco, Cal.
Tanana, Alaska.....Central Office
Titusville, Fla.....Jacksonville, Fla.
Turks Island, W. I.....Central Office
Tucson, Ariz.....Phoenix, Ariz.
Urbana, Ill.....Springfield, Ill.
Valdez, Alaska.....Central Office
Wallace, Idaho.....Helena, Mont.

## Four of the Aeronautic International Trophies

The Gordon Bennett International Aviation Trophy, offered by Mr. Bennett in 1908 with $25,000 in prizes. Won twice by the Aero Club of America, and twice by the Aero Club of France, the present holders.



The Gordon Bennett International Aeronautic Trophy for Free Balloons, offered by Mr. Bennett in 1905 with $25,000 in prizes. Won four times by the Aero Club of America, the present holders.

The Transatlantic Flight Trophy offered with $5000 in prizes by Mrs. Victoria Woodhull Martin of the Woman's Aerial League of Great Britain.

The Michelin Trophy.

## INTERNATIONAL AERONAUTIC TROPHIES AND PRIZES ON FOR COMPETITION

(1) The Gordon Bennett Aviation Trophy.
(2) The Gordon Bennett Balloon Trophy.
(3) The Michelin Trophy.
(4) The International Marine Aviation Trophy.
(5) The American Annual Aerial Derby.
(6) The Pan American Aviation Trophy.
(7) The $50,000 Transatlantic Flight Prize.

All the above trophies are to be competed for under the rules of the International Aeronautic Federation, printed elsewhere in this book. The Aero Club of America is the sole representative of the Federation in the United States and sanctions all Aeronautic Sportive Contests and meetings and grants the certificates to the aviators who participate in these contests.

### The Gordon Bennett Aviation Trophy

HISTORY OF THE GORDON BENNETT CUP

The Gordon Bennett International Aviation Trophy, for five years emblematic of the world's championship in the sport of flying, was offered by Mr. James Gordon Bennett in December, 1908, for international competition, under the rules and regulations of the Fédération Aéronautique Internationale—the rules to change each year, increasing in severity as the science advanced, so as to always require from the contestants feats of severity proportionate with the general advance of the art.

The first contest for its possession was held on August 28, 1909, under the auspices of the Aero Club of France, during the Rheims Meet, which took place in the Province of Champagne at the Bethany Aerodrome. As provided by the rules for the year, the distance was 20 kilometers (12.42 miles), the course being one of 10 kilometers perimeter, to be covered twice. After elimination trials of the French aviators on August 22, Louis Blériot, Hubert Latham, and Ernest Lefebvre were chosen by the Aero Club of France to represent it against the only two other entrants, Glenn H. Curtiss of the Aero Club of America and Cockburn of the Aero Club of the United Kingdom. The race was a surprise. Curtiss, who was little known, flew his biplane, fitted with Curtiss motor, and made a record which the better known and quite famous Blériot and Latham could not equal. The race resulted as follows:

Glen H. Curtiss, 20 kilometers in 15 min. 50 3-5 sec.

Louis Blériot, 20 kilometers in 15 min. 56 1-5 sec.

Hubert Latham, 20 kilometers in 15 min. 50 3-5 sec.

Ernest Lefebvre, 20 kilometers in 20 min. 47 3-5 sec.

Cockburn did not complete the course.

The Aero Club of America, with its single entry, thus won the first race for the Aviation Cup.

#### 1910

The next contest accordingly took place in the United States; it was held on October 29, 1910, over a five-kilometer course at Belmont Park, near New York. Bad weather prevented the American elimination trials, and the defending team was chosen at a meeting held at the clubrooms on October 27 as follows:

Walter R. Brookins, J. Armstrong Drexel and Charles K. Hamilton, with J. C. Mars, John B. Moisant and Arch Hoxsey as substitutes. The other teams were Alfred Leblanc, Hubert Latham, and Emile Aubrun for France, and Claude Grahame-White, Alex Ogilvie, and James Radley for Great Britain.

## Winners of the International Aviation Trophy Races

Glenn H. Curtiss starting in the first Gordon Bennett Cup Race which he won for the United States, 1909.

Alfred Leblanc and Claude Grahame-White in the Gordon Bennett Race, 1910. White won it for England.

Charles T. Weymann rounding a pylon in the Gordon Bennett Cup Race, 1911. Weymann won it for the U. S.

The equipment was as follows:

A. Leblanc, France, Blériot, Gnôme, 100 H. P.

H. Latham, France, Antoinette, Antoinette, 100 H. P.

E. Auburn, France, Blériot, Gnôme, 50 H. P.

C. Grahame-White, Great Britain, Blériot, Gnôme, 100 H. P.

J. Radley, Great Britain, Blériot, Gnôme, 50 H. P.

A. Ogilvie, Great Britain, Wright, Wright, 36 H. P.

W. Brookins, United States, Wright, Wright, 60 H. P.

J. A. Drexel, United States, Blériot, Gnôme, 50 H. P.

C. K. Hamilton, United States, Hamilton, Hamilton, 115 H. P.

The rules for 1910 were the same as for the previous year—a contest for speed—except that the distance had been increased to 100 kilometers (62.14 miles).

Grahame-White was the first to start at 8:42 A. M.; he was closely followed by Leblanc at 9, and Ogilvie at 9:09. At thirty kilometers (six laps) Grahame-White was inside the world's record for the distance, and thereafter broke all records to the finish; Leblanc was, however, traveling faster than he, and in turn bettered all his records.

After completing 100 kilometers in 1 hour 1 minute 4 seconds, 74, Grahame-White continued for two laps to make sure of going the full distance, and landed in the infield at 9:52; a minute later Leblanc passed the timers' stand for the twentieth time, starting on his last lap with a lead of five minutes and a quarter over Grahame-White's time at this point. Half a mile further on, and when within 4,600 yards of the finish, Leblanc ran short of gasoline, and in the ensuing plunge earthward swerved off the course, wrecking his machine against a telegraph pole, but escaping with but slight personal injury.

Grahame-White's time remained unbeaten, so the Royal Aero Club of the United Kingdom was proclaimed the winner of the Gordon Bennett Cup.

Second place was won for America by John R. Moisant; sunset being at 5:02, starts were allowed until 3:32; Moisant crossed the line less than 25 seconds before this hour and covered the distance with one stop of 38 minutes, in 1 hour 57 minutes 54 seconds, 58. The full results were as follows:

C. Grahame-White, 100 kilometers in 1 hour 1 minute 4 seconds, 74.

John B. Moisant, 100 kilometers in 1 hour 57 minutes 54 seconds, 58.

Alex Ogilvie, 100 kilometers in 2 hours 6 minutes 36 seconds, 69.

Hubert Latham, 100 kilometers in 5 hours 47 minutes 53 seconds, 41.

Alfred Leblanc, 95 kilometers in 52 minutes 49 seconds, 70.

J. Armstrong Drexel, 35 kilometers in 26 minutes 4 seconds, 08.

## 1911

At the 1911 cup race the Aero Club of America was again represented by a single entrant—and was again successful. The race took place July 1 at Eastchurch, on the Isle of Sheppey, England. Originally five countries expressed their intention to send representatives, as follows: Aero Club of America, 3; Aero Club of France, 3; Aero Club of Germany, 3; Aero Club of Austria, 3; Royal Aero Club, 3.

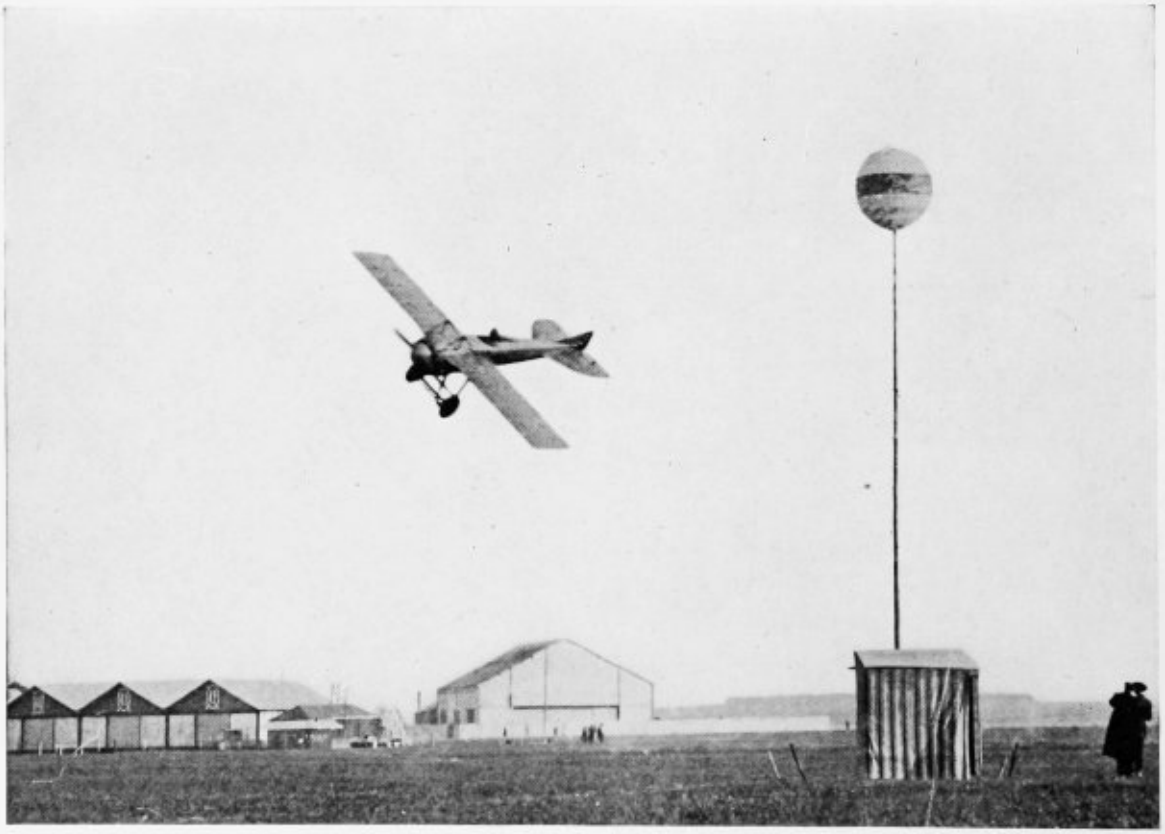
Eventually the German and Austrian entries were withdrawn; the English and American competitors decreased to two and one respectively. The Aero Club of America, being unable to secure American aviators with fast machines in America, secured Charles T. Weyman, one of the best aerodrome flyers in France. All the machines used in the race, except one, were French made, likewise the motors. The entrants and their equipment were as follows:

G. Hamel, Great Britain, Blériot (mono), Gnôme, 100 H. P.

A. Ogilvie, Great Britain, Wright (biplane), N. E. C., 60 H. P.

A. Leblanc, France, Blériot (mono), Gnôme, 100 H. P.

J. Vedrines in the Gordon Bennett Cup Race, 1912. Vedrines won it for France.



Emile Prevost in the Gordon Bennett Cup Race, 1913. Prevost won it for France.

E. Nieuport, France, Nieuport (mono), Gnôme, 70 H. P.

L. Chevalier, France, Nieuport (mono), Nieuport, 28 H. P.

C. T. Weyman, United States, Nieuport (mono), Gnôme, 100 H. P.

From technical as well as sporting standpoints, the race was a triumph. The Blériots had a wing span of only 17 feet, having been cut down to increase the speed. The motors were the powerful 100 horsepower Gnôme; they attained a speed of 78 miles per hour. The Nieuports were not generally known, having been in the field only a few months, but their appearance was, comparatively, symmetrically perfect. They proved a revelation, the high-powered one attaining a speed of 78 miles per hour; the low-powered one developing the comparatively high speed of 58 miles per hour. The biplane, one of the famous Baby Wrights, was remarkable, especially for its steadiness in the air.

Hamel, who started first, fell at the very start, through having banked too steeply in turning the first pylon. The small wings failed to support him, and he crashed to the earth. Fortunately he was thrown clear out of the machine as it struck the ground, and received only a shaking and a few bruises. Chevalier, who started second, was forced down after covering 11 laps. The rest—Ogilvie, Nieuport, Leblanc and Weyman—completed the 25 laps. Weyman was first, having covered the 150 kilometers at an average speed of 78.05. Leblanc won second with a speed of 75.85; Nieuport was third with a speed of 74.90.

The complete results were as follows:

C. T. Weyman, 150 kilometers in 1 hour 11 minutes 36 seconds, 2.

A. Leblanc, 150 kilometers in 1 hour 13 minutes 40 seconds, 2.

E. Nieuport, 150 kilometers in 1 hour 14 minutes 37 seconds, 2.

A. Ogilvie, 150 kilometers in 1 hour 49 minutes 10 seconds, 4.

L. Chevalier did not complete.

Thus the Aero Club of America with its single entry again carried away the Cup.

## 1912

The 1912 race was held at Chicago on September 9, 1912. Complete accounts were published in FLYING for October, 1912, and as it was stated then, the race, which was of 200 kilometers (124.8 miles), was disappointing as an international contest but a wonderfully convincing demonstration of the tremendous scientific development that had taken place in aeroplane construction. It was a fizzle through the lack of contestants, and a great success for what was accomplished. The entries for this race were as follows: France, three entries; Belgium, three entries; Holland, one entry; Switzerland, one entry; England, two entries.

Only the French entries were on hand for the contest, so the race was entirely between them. The entrants and their equipments were as follows:

Jules Vedrines, Deperdussin monoplane, 140 H. P. Gnôme motor.

Marcel Prevost, Deperdussin monoplane, 100 H. P. Gnôme motor.

André Frey, Hanriot monoplane, 100 H. P. Gnôme motor.

The results were as follows:

Jules Vedrines, 200 kilometers, 1 hour 10 minutes 56 seconds, 85.

Marcel Prevost, 200 kilometers, 1 hour 13 minutes 10 seconds, 82.

André Frey did not finish. He covered 24 of the 30 laps, or 94.3 of the 124 miles, in 1 hour 2 minutes 13 seconds, 70.

## 1913

The 1913 race was held at Rheims on September 29th. With the exception of Belgium all the countries who entered failed to compete.

The contestants were, therefore, only four, as follows:

Maurice Prevost (France), Deperdussin monoplane, 160 H. P. Gnôme motor.

Emile Védrines (France), Ponnier monoplane, 160 H. P. Gnôme motor.

Eugene Gilbert (France), Deperdussin monoplane, 160 H. P. Le Rhône motor.

M. Crombez (Belgium), Deperdussin monoplane, 160 H. P. Gnôme motor.

If it was again a disappointment as a race, it was certainly remarkable for what was accomplished. The winner covered the 200 kilometers at a speed of over two miles a minute, and all the competitors finished at a rate higher than 100 miles an hour!

The records made by the aviators were as follows:

1st, Prevost, 200 kilometers in 50 minutes 45 seconds 3-5, or an average of 200 kilometers 803 an hour.

2d, Védrines, 200 kilometers in 1 hour 51 seconds 2-5, or an average of 197 kilometers 183 an hour.

3d, Gilbert, 200 kilometers in 1 hour 2 minutes 55 2-5 seconds or 191 kilometers an hour.

4th, Crombez, 200 kilometers in 1 hour 9 minutes 52 seconds or 171 kilometers 755 an hour.

Thus in five years the speed of aeroplanes has jumped from forty-six to one hundred and twenty miles an hour, due principally to the Gordon Bennett Aviation Trophy.

The rules of the 1914 Gordon Bennett Race postponed by the War were as follows:

ART. 1. Speed test, to fly over a track, for a distance of 200 kilometers, landings and replenishings of fuel being allowed.

ART. 2. The course will have a minimum length of 5 kilometers, the ground having been freed from all obstacles that might cause upsetting, notably of crops above 20 centimeters in height, ditches being filled or covered with bridges allowing two automobiles to pass abreast; the track must have a minimum width in the straightaway of 80 meters and in the turns of 100 meters. An automobile must be able to move on it in any direction at 10 kilometers an hour. The track must have neither cuts nor fills within 20 meters of the edges.

ART. 3. Only those machines may take part in the test which have passed the elimination tests and fulfilled the following conditions:

Each competitor must make a straightaway flight and return of about 2 kilometers without touching the ground, at a practically uniform height of less than 30 meters. Speed out and in will be determined; the average speed must not exceed 70 kilometers an hour. Each competitor will be allowed three attempts. Rotation will be made every ten minutes so that the contestants will fly under the most equitable conditions possible.

ART. 4. The qualifying tests once made, machines must undergo no alterations. However, they may be repaired by the authority and under the surveillance of the stewards. Only in full flight are the contestants authorized to modify their wings as regards spread, form and incidence, and, in general, any other parts of their machines, but on the condition that they can always, in full flight, restore their machines to their original condition.

ART. 5. The winner will be the one who, having fulfilled all the eliminatory conditions, shall accomplish the flight of 200 kilometers in the shortest time.

## Rules of the Gordon Bennett Aviation Trophy

### GENERAL REGULATIONS

#### ARTICLE I

The Aero Club of France has received from James Gordon Bennett, Esq., under the following conditions, a trophy of the value of 12,500 francs, to be given to the International Aeronautic Federation as an International Aviation Trophy to be named the Gordon Bennett Aviation Trophy, and which is open to competition between the various clubs which form part of the International Aeronautic Federation. This trophy is open for challenge in accordance with the progress of the art of aviation and is to be competed for by flying machines of any kind. These rules are to be approved by the International Aeronautic Federation and are subject to revision by that body only. The first competition is to take place in France under the management of the Aero Club of France, which Club is authorized to accept the first challenges therefor. The Aero Club of France is required to pay over the sum of 25,000 francs to the Club which is in charge of the organization of the contest for each of the first three years in which the Cup is open for competition. The organizing Club is obliged to award that sum as a cash prize to the competitor who wins the trophy for his Club or who has successfully defended it.

#### ARTICLE II

SECTION 1. The contest will be for distance on a course to be determined in advance in a straight line, or in a broken line, or in a closed circle. The winner of the contest will be the competitor who covers the total distance designated. If several competitors succeed in making the complete distance, the winner will be the competitor who has made the distance in the shortest time.

SEC. 2. Each year before the end of the month of January, the Federation, having due regard to the progress made in aviation, must outline the general conditions of the annual contest. The Club in charge of the organization of this contest must conform to the program laid out by the Federation. If no contestant has made the total distance the trophy shall not be awarded, and shall remain at the office of the holding Federation or the holding Club, which shall be obliged to organize the meeting for the following year. However, a holding Federation or Club which retains the trophy under these conditions will not be considered to have won the trophy a second time. Should this happen the first time the Cup is competed for the Aero Club of France is to retain the custody of the trophy, and is to organize the contest to be given the following year.

#### ARTICLE III

The contest is open from its first year to the competition of aeroplanes of all types, under the condition that these can show previous performances of a satisfactory character.

ARTICLE IV

Any Federation or Club in the International Aeronautic Federation has the right to challenge the holding Club and to compete for the Cup. By the act of challenging, each Federation or Club places itself under the obligation, in case it wins the Cup, to organize the contest for the following year.

ARTICLE V

Every Federation or Club which desires to challenge for the Cup is obliged to notify the holding Club before the first of March of each year by registered letter addressed to the President of the holding Club. This letter must state how many competitors it will send to compete for the trophy, and it must be accompanied by as many times 500 francs as there are contestants designated. After the contest half of the entry fees of the competitors who actually start in the contest will be reimbursed.

ARTICLE VI

Each Federation or Club can enter each year three competitors at the most. At the same time it may name as many substitutes as there are competitors entered.

ARTICLE VII

The contestants entered and their substitutes must be of the same nationality as the Federation or the Club which has entered them, or else belong to a nation which is not represented in the International Aeronautic Federation. They must be named by their Club at least twenty-four hours before the date fixed for the contest.

ARTICLE VIII

The trophy must be competed for annually between the first of May and the first of November. The holding Club must fix the date before the first of April each year.

ARTICLE IX

The contest must be held in the country of the Club which holds the Cup. However, if for a reason beyond its control and duly recognized by the Federation, the Federation or the Club holding the trophy finds it impossible to fulfill its engagements in relation to the organization of the next contest, the International Federation will request the Federation or the Club which held the contest the previous year to organize the new contest. Should the last-named Federation or Club refuse to do so, the trophy will be competed for either in France or in the United States, these two countries drawing lots for the privilege.

ARTICLE X

The Contest Committee of the holding Club shall be charged with the organization of the contest and with the duty of applying the rules.

ARTICLE XI

In case the number of contestants is greater than the resources of the holding Club is able to cope with, the Club has the privilege of holding elimination contests and a final contest, the participants in each heat being drawn for by lot.

ARTICLE XII

The expenses of organizing the contest shall be assumed by the holding Club.

ARTICLE XIII

The Contest Committee of the Club recognized by the Federation in the holding country will award the trophy. This award must be made within thirty days after the contest, and the trophy must be delivered to the new holder within one month after the date of the award.

ARTICLE XIV

The Federation of the Club recognized by the International Aeronautic Federation, and whose representative has won the trophy, is declared to be the holder of the same.

ARTICLE XV

A Club cannot become the owner of the trophy until it has won three consecutive annual contests for the Cup. Until this is the case, the Club becomes merely the custodian of the trophy subject to the conditions of these rules. In case no challenge has been received for the trophy during five consecutive years, the trophy becomes the permanent property of the holding Club.

ARTICLE XVI

The holding Federation or Club which has not competed for the trophy or which has not been deprived of the trophy although challenged for it, shall not for this reason be considered as having won the trophy a second time in a contest.

ARTICLE XVII

In case of a protest or an appeal to the International Conference, in accordance with the rules of the International Aeronautic Federation, the trophy remains in the custody of the Club that has received the challenges until the question is finally settled.

ARTICLE XVIII

In case the holding Club disappears or ceases to exist, the trophy shall be delivered to the National organization of its country. If there is no such National organization it is to be delivered to the International Federation, and if the Federation has ceased to exist, the trophy is to be returned to Mr. James Gordon Bennett.

ARTICLE XIX

In addition to the three prizes of 25,000 francs given by Mr. James Gordon Bennett, as is indicated in Article I, and the other prizes which may be offered, the entrance fees and the forfeits must be divided among the contestants in the following manner: one-half to the contestant winning second place; one-third to the contestant wining third place, and the balance to the fourth.

If the contest is limited to three competitors, the entrance fees and forfeits will be divided in the following manner: two-thirds to the contestant winning second place, and one-third to the contestant winning third place.

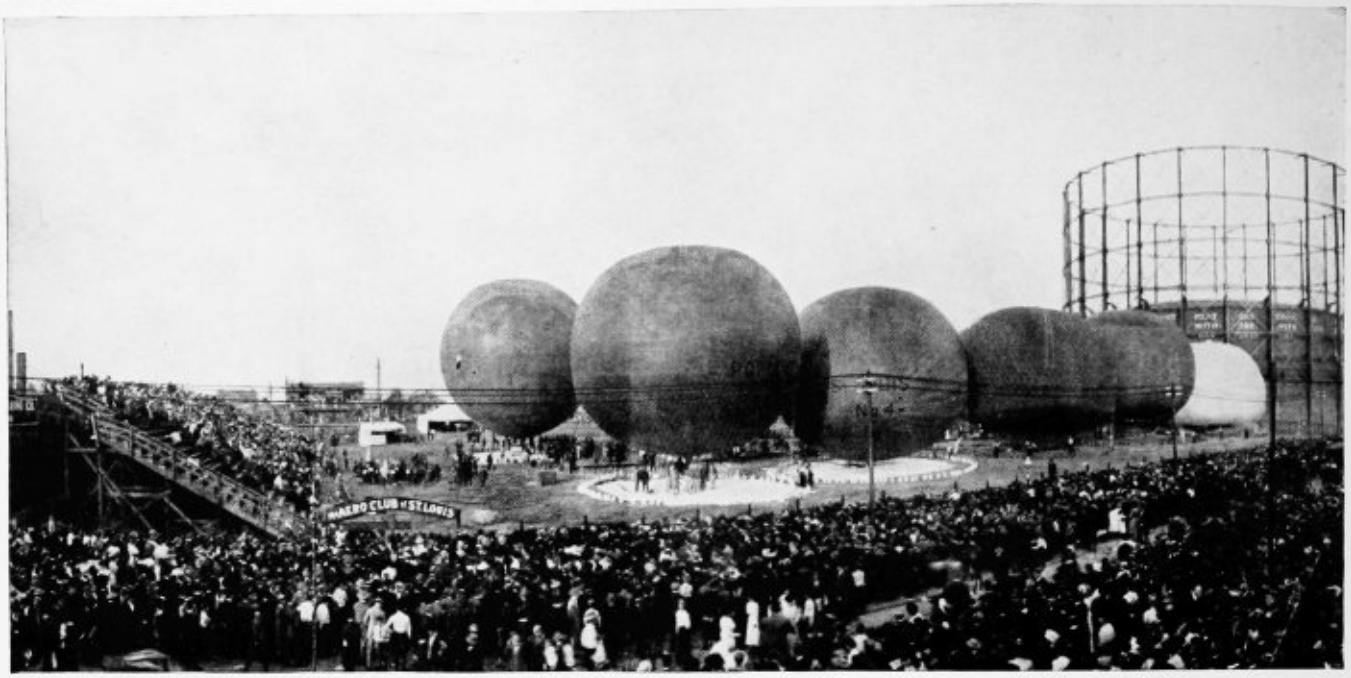
If but two contestants take part, the entrance fees and forfeits will be given the contestant wining second place, and in case there is but one contestant, he will receive all the entrance fees and forfeits.

In the case where the Cup has been competed for by a number of contestants and yet been won by none of them, entrance fees and forfeits will be put in the hands of the holding club as trustee to be held until the next annual contest in the year following. In this case the former entrance fees and forfeits will be added to the new entrance fees and forfeits for the second year.

ARTICLE XX

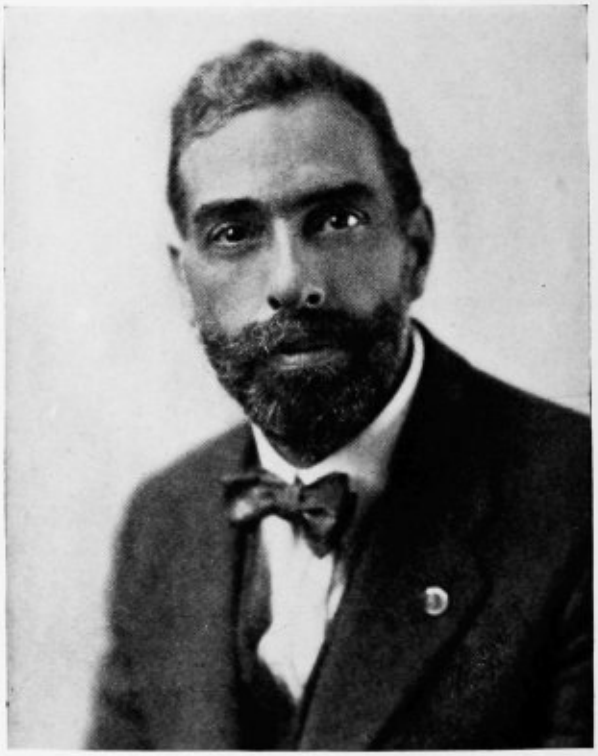
SECTION 1. Each Federation or Club winning the Cup binds itself formally to observe these rules and in cases not provided for, to apply the general rules of the International Aeronautic Federation.

SEC. 2. Every Federation, Club or contestant binds itself or himself to accept all decisions of the International Aeronautic Federation whatever they may be. The International Federation is hereby constituted a supreme court of appeal for all protests and disputed questions that may arise.




Start of International Balloon Race of 1910 from St. Louis won by Messrs. Alan R. Hawley and Augustus Post.

Mr. Alan R. Hawley, the veteran balloonist, for five years President of the Aero Club of America, who won the Gordon Bennett balloon race in 1910.



Mr. Augustus Post, the veteran balloonist, who was aide to Mr. Hawley in the Gordon Bennett Balloon race in 1910.

# THE GORDON BENNETT BALLOON TROPHY

By Alan R. Hawley

In 1906 James Gordon Bennett presented a handsome silver cup to be competed for by the clubs of various countries composing the Fédération Aéronautique Internationale. To become the permanent property of a club the cup had to be won three times in succession. The winning pilot of each race is presented with a gold replica, and the club which he represented with a large silver plaque of the cup. For the first four years Mr. Bennett also offered a cash prize of $2,500 to the winner.

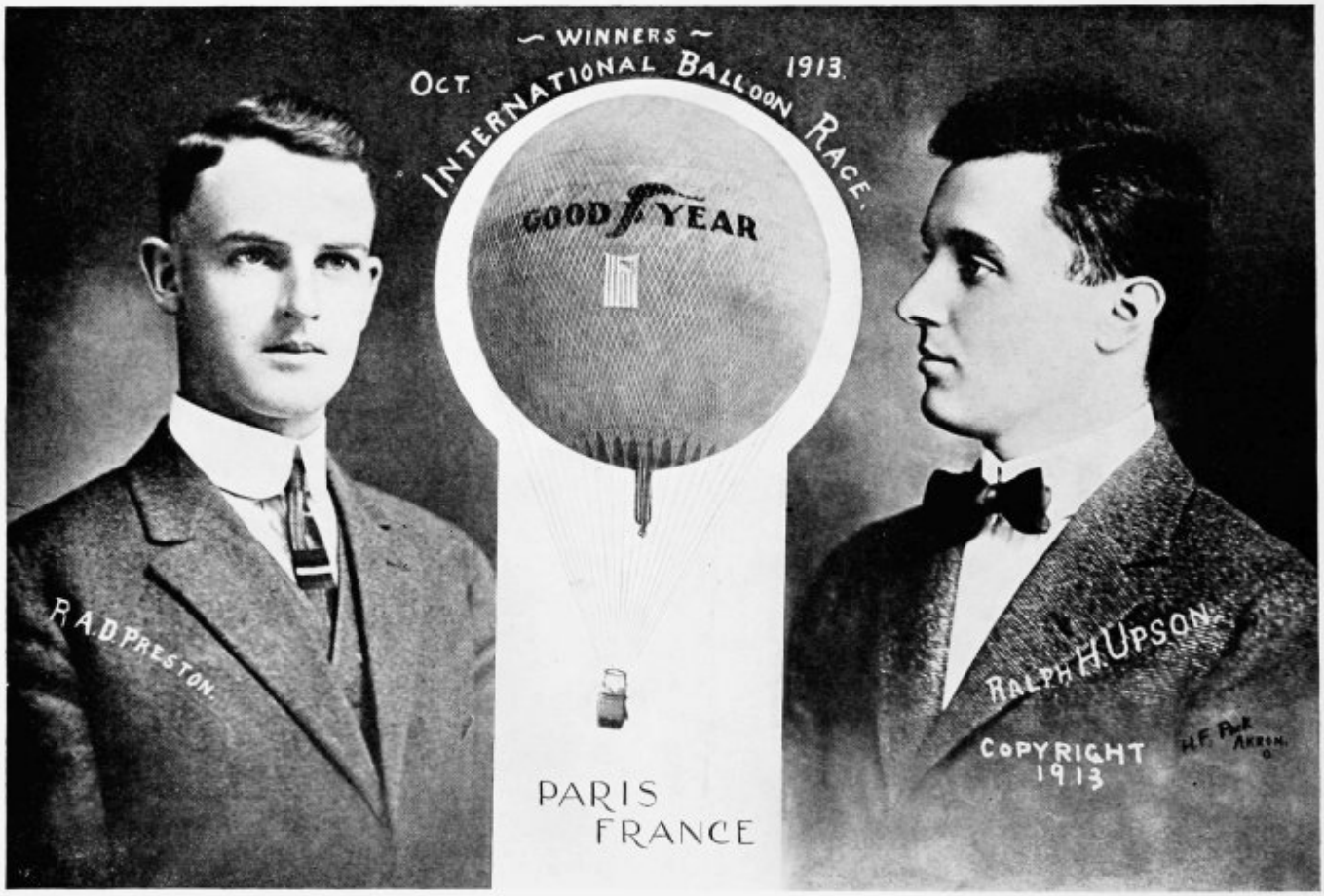
The first annual contest for the cup started from the Tuileries Gardens in Paris, September 30, 1906, under the auspices of the Aero Club of France. The following clubs had entered sixteen balloons: United States, Great Britain, France, Belgium, Italy, Germany, Spain.

The balloons used more than a million cubic feet of gas, and attracted fully 250,000 spectators. The first balloon to start was the entry of the Italian Club. It left the ground promptly at 4 P. M., and at five-minute intervals the rest followed. The Aero Club of America's entry, the balloon *United States,* piloted by Lieutenant Frank P. Lahm, was the twelfth to start, and got away at 4:45 P. M. Mr. Lahm telling his experiences said that they started directly west, passing the Eiffel Tower, and keeping an altitude of six to twelve hundred feet. At 11 P. M. there was a decided change in direction, and it was evident they would have to cross the sea, and at 11.17 P. M. they drifted out over the English Channel with the guide rope just off the water, and at 3:30 A. M. the next morning they were over England. During the crossing there was a clear sky and full moon, but about 4 A. M. heavy mists covered the land, and the earth was lost to sight. At 2 P. M. they reached an altitude of ten thousand feet, and shortly after the North Sea coast was sighted straight ahead, and it was necessary to valve and get to a much lower level, and finally to land, which they did at 3:12 the afternoon following the start of the race. The landing place was Flying Dales, 410 miles from Paris. Shortly after landing they received the good news that they had won the race.

The winning of the race by its representative put the responsibility of the next year's race up to the Aero Club of America, which had just been organized and had only one or two pilots with the International Federation licenses who could compete. While the club members were all highly pleased that they had won the first balloon race, they were somewhat puzzled how to hold the event in 1907 as there had been few ascensions in this country up to that time, and the Club members had little if any experience. The Club appointed a committee to go to St. Louis and see what could be done. This committee was headed by Cortlandt Field Bishop, then President of the Aero Club of America; Augustus Post, secretary; J. C. McCoy, and Alan R. Hawley, directors; Frank S. Lahm, the Club's foreign representative; and A. Leo Stevens acting in an expert capacity. The committee arrived in St. Louis, December 29, 1906, and received a royal welcome. On January 1, Messrs. McCoy and Hawley made an ascent in the balloon *Orient,* and found everything most satisfactory. The committee on its return to New York fixed October 21, 1907, at St. Louis, the date and place for the second contest.

In the spring of 1907 Mr. Hawley made the ten trips necessary to qualify as a pilot under the rules of the Federation. Mr. McCoy had also qualified, and the Club selected the following team to represent it: Lieutenant Frank Purdy Lahm, U. S. A.; J. C. McCoy, and Alan R. Hawley. They all agreed to have new and up-to-date balloons with first-class equipment.

Start of the International Gordon Bennett Balloon race from Zurich, 1909.




Mr. Ralph H. Upson and R. A. D. Preston, pilot and aide respectively of the balloon "Goodyear," which won the International Balloon races in 1913 for the United States.

Later on Lieutenant Lahm had to withdraw, owing to sickness, and Major Henry B. Hersey of the Weather Bureau took his place.

On Monday, October 21, 1907, the second race for the cup, there were nine entries in the race: three from Germany, two from France, one from England, and three from America. The New York "Herald" of October 22, 1907, said: "The start of the race brought interest in aerial navigation in America to its high water mark. The Aero Club of America, under whose auspices the International Cup is being contested for, covered itself with glory. The credit will be divided with the Aero Club of St. Louis, but wherever aeronauts meet hereafter will be sounded the praise of Cortlandt Field Bishop, the President of the Club, for his capacity, and for his fairness. Never has there been seen in America such an inspiring or novel spectacle as that presented on the balloon field in Forest Park when the time came to get ready for the actual assent." At this time it must be remembered that aeroplanes were unknown, and balloon flights attracted considerable attention. It is estimated that 300,000 people saw the start of this second race. Everything went off according to schedule. The first balloon, the *Pommern* of Germany, Oscar Erbslöh pilot, started promptly at four o'clock, and the rest in regular order five minutes apart. As each balloon started, the band played the national air of the country it represented. The race was won by Erbslöh, who landed at Asbury Park, making a distance of 872 miles, which broke the American record which had stood since 1859, and was made by Professor Wise in his flight from St. Louis to Henderson, N. Y. The race was christened "The Blue Ribbon Event of the Sky," and was spoken of as the most notable sporting event ever held in America. As soon as the official announcement was made that the German Aero Club had won the cup, the Aero Club of America promptly sent in three entries for the third race, which was to be held in Berlin, October 11, 1908.

For this race there were twenty-three entries from the aero clubs of the following countries: America, Germany, Spain, England, Belgium, Switzerland, Italy, France; this being the largest number of balloons to start since the race was organized. The contestants represented the most expert aeronauts in Europe. Prince Scipione Borghese, the winner of the Peking-Paris auto race, was one of the Italian competitors, also Celestino Usuelli, who had made a flight over the Alps in a balloon. Oscar Erbslöh represented Germany again, and the Hon. Charles S. Rolls represented England. The Aero Club of America was represented by J. C. McCoy, A. N. Arnold, and A. Holland Forbes. This race was won by Colonel Schaeck, representing the Swiss Aero Club, who established a world's record for duration, staying in the air 73 hours, and making a distance of 753 miles.

The fourth race was held in Zurich in October, 1909, under the auspices of the Swiss Aero Club, and was won by the Aero Club of America's representative, Mr. Edgar W. Mix, who landed in Warsaw, 696 miles from the start. The Aero Club had to assume the responsibility for the 1910 race, and profiting by the experience of 1907, everything was in readiness for the fifth race, which was held in St. Louis, October 17, 1910. There were ten entries, the following countries being represented: America, Germany, Switzerland, France.

Among the well-known pilots in this race were Colonel Schaeck, Alfred Leblanc, Hans Gericke, Hugo von Abercron, Jacques Faure, and Captain Honeywell. Everything was perfect, including the weather, and each balloon started promptly on time without a hitch. Conditions for long flights were most promising, and predictions were freely made that old records would be broken. The race created great excitement, as a number of the contestants were not heard from for days. The *America II* with Hawley and Post was given up for lost. If they had not fallen in the Great Lakes Professor A. R. Brock of the Dominion Survey said he had little hope that they would ever be found if they came down beyond a railroad. Large rewards were offered for anyone finding them who started out to search for them. The papers all had long accounts of the flight. The *America II* landed just north of Lake Sotogama near the Peribonka River, about fifty miles away from St. Ambroise, the nearest habitation.

Hawley and Post left St. Louis Monday, and landed Wednesday afternoon, and were lost in the wilderness until the following Wednesday. After five days' tramping they met two trappers, who guided them to St. Ambroise, where they received the good news that they had won the race. They were in the air 46 hours, and traveled 1,172 miles in a direct line, thereby establishing a new American record. On their arrival in New York, Friday night, they were met by Club members, given a hearty welcome, and warmly congratulated for winning the cup. The Club now felt very expert in holding balloon races, and the sixth race held in Kansas City, October 5, 1911, went off like clockwork, France, Germany, and America competing. This race was won by Lieutenant Hans Gericke, who landed at Ladysmith, Wisconsin, having traveled 468 miles, so the seventh race for the cup will have been competed for before this is published, and the Club members all hope that the good team that is going to Germany to compete will bring the cup back to the Aero Club, as it is sadly missed from the trophy room after two years of possession.

### The Gordon Bennett Balloon Race 1913

The race for 1913 took place on October 12, at the Tuileries Gardens, right in the heart of Paris. Ballooning in France was popular and the Gordon Bennett Race attracted more than half a million persons, including all the authorities, sporting, political and military. On every high spot in Paris from the Rue de Rivoli to Montmartre thousands of people stood watching the balloons as they ascended in the air and the points of vantage were crowded with people—more so than when the National Balloon Races are held. France had only seen one Gordon Bennett Balloon contest, that of 1906; so the people attended the second *en masse* and it was an enthusiastic, cheering crowd that watched the balloons as they arose and drifted slowly over the Seine.

The balloons started at intervals of five minutes, and as each rose the band played the national anthem of the country represented by the balloon. The order of start was as follows:

1. France, the *Picardie,* Mr. Maurice Bienaimé and Mr. Schneider.
2. Great Britain, the *Banshee,* Mr. John Dunville and Mr. Corbett.
3. Italy, the *B. A.,* Signor Agostini and Signor Valle.
4. Belgium, the *Patrie,* Mr. Léon Gérard and Mr. Jan Nuffel.
5. Austria, the *Astarte,* Herr Sigmundt and Herr Macher.
6. Germany, the *Duisburg,* Herr Kaulen and Herr Schmitz.
7. Switzerland, the *Zurich,* Mr. Victor De Beauclair and Mr. Gerber.
8. France, the *Ile de France,* Mr. Alfred Leblanc and Mr. Dubonnet.
9. England, the *Honeymoon,* Mr. J. de Francis and Mr. Jourdan.
10. Italy, the *Roma,* Signor Pastine and Signor Tullio.
11. United States, the *Uncle Sam,* Captain H. E. Honeywell and Mr. Wade.
12. Belgium, the *Belgica II.,* Mr. E. de Muyter and Mr. W. Leminck.
13. Austria, the *Frankfurt,* Herr Lehnert and Herr Kusch.
14. Germany, the *Hamburg II.,* Lieutenant von Pohl and Herr Perlewitz.
15. Switzerland, the *Helvetia,* Mr. Armbruster and Mr. Seiffert.
16. France, the *Stella,* Mr. René Rumpelmayer and Madame Goldschmidt.
17. United States, the *Goodyear,* Mr. Ralph H. Upson and Mr. R. A. D. Preston.
18. Germany, the *Metzeler,* Herr H. Berliner and Herr Mann.

A southern wind was blowing and the balloons practically followed each other.

Everywhere people speculated on the outcome and the general opinion was that the best chances stood with the French and German contestants. From time to time thereafter telegrams were received from various places southward and westward advising of the passing of balloons and of the finding of dispatches dropped from balloons which were forwarded to the Paris "Herald" which had supplied the blanks to the contestants.

Then began to come the reports of the land-

ings, and at last came the news that the *Goodyear,* representing the United States, had landed further than others and was thought to be in the lead. This proved to be so—and the *Uncle Sam,* the other American entry, proved to be second.

The places of landing and distance covered by the first and second balloons were as follows:

1st. The *Goodyear,* Ralph H. Upson pilot, R. A. D. Preston aide, landed near Bridlington on the Yorkshire coast, about 400 miles from Paris, having been in the air 43 hours and 20 minutes.

2d. The *Uncle Sam,* H. E. Honeywell pilot, J. H. Wade aide, landed at Pont de Buis, on the Atlantic coast, in Finistère, approximately 325 miles from Paris, having remained in the air 42 hours and 50 minutes.

The trophy was won by the combination of skill and daring. Veteran balloonists in Europe expressed their admiration of the way in which Messrs. Upson and Preston took advantage of certain atmospherical conditions, the value of which crack balloonists failed to recognize. Considering that Messrs. Upson and Preston had only just received their pilot certificates it was surprising to find such skill. Mr. F. A. Seiberling, president of the Goodyear Tire and Rubber Company, the maker and owner of the victorious balloon, informs us that the victory was the result of knowledge. His illuminating communication reads:

"This achievement was only accomplished through the scientific handling of the balloon by these young aeronauts. They were competing with men of experience, and under foreign conditions that from the beginning were considered a big handicap. These conditions, however, did not prevent the boys from exerting themselves to the utmost, and putting into practice all the knowledge they had ever known about the flying game.

"Mr. Upson has made a study of ballooning and was well informed on the various currents of air that were to be encountered along the coast. Upson and Preston have the honor of being the only two contestants who sailed their balloon outside of France. When the balloon *Goodyear* headed for the ocean, Upson was familiar enough with the prevailing air current to know that counter winds would be met that were sure to blow him back over the continent. This proved to be the case. They crossed the English Channel and traveled miles over the Atlantic, however, before these winds were encountered. Their scientific study of ballooning and the gas tightness of the fabric were the main reasons for enabling them to win.

"For some time we have been interested in aerial navigation," continues Mr. Seiberling, "and we have promoted the aeronautical business from a scientific standpoint. We have encouraged balloon flights, as in this manner we are enabled to ascertain from actual experience the correctness of design and strength of the fabric.

"The *Goodyear* was the same balloon that won the National Championship Balloon Race at Kansas City, July 4, 1913. It was also in the National Race of 1912.

"The honor and glory that the winning of the World's Championship Balloon Race brings to the United States mark an epoch in aeronautical history that is long to be remembered."

It is well to add that the leading French aeronautical authorities, with true sportsman spirit, cabled their congratulations to America.

## Rules of the Gordon Bennett Balloon Trophy

### ORIGIN AND GENERAL CONDITIONS

#### Article I

The Aero Club of France has received from Mr. James Gordon Bennett under the following conditions:

1. A trophy of the value of 12,500 francs, for delivery to the International Aeronautic Federation, which shall hold it as a prize for an inter-club aeronautic contest, called the Gordon Bennett Aeronautic Cup, which shall be:

Open in principle, in accordance with the progress of aeronautics, and according to the judgment of the International Aeronautic Federation, to all kinds of apparatus for aerial locomotion, and especially, on its first offering, to motor aerostats;

Contested for by means of international challenge and according to the present rules, especially approved by the International Aeronautic Federation, subject to its General Rules and to be revised by it only;

Offered for the first time in competition at Paris, through the Aero Club of France, which shall receive the first challenges.

2. The obligation rests upon the International Aeronautic Federation to deposit with the Club of the International Aeronautic Federation charged with the organization of the Contest, before each one of the first three contests for the Cup, the sum of 12,500 francs, which this Club shall hand over in cash, as a prize, to the contestant who shall have captured or retained the Cup for his Club.

NATURE OF THE CONTEST

ART. 2. The contest shall be for distance, but this may be changed into one for duration, subject to the atmospheric conditions. The decision is to be made by the Contest Committee, who alone is empowered to make any change up to the moment of departure.

NATURE OF THE APPARATUS

ART. 3. The contest shall be open to aerostats of the 3d, 4th and 5th series of the General Rules of the International Aeronautic Federation and to motor aerostats; to the latter on condition that by previous performances they have given signal and conclusive proof of eligibility.

Should the Club holding the Cup wish to admit apparatus of other series, it must obtain, prior to April 1, the authorization of the International Aeronautic Federation, which shall determine the conditions of admission. The admission of any apparatus for aerial locomotion other than aerostats and motor aerostats shall be determined directly by the International Aeronautic Federation within the same time.

QUALIFICATION OF THE CONTESTANTS

ART. 4. Any Federation or Club of the International Aeronautic Federation may challenge the holding Club and contest the Cup. Any Federation or Club, by virtue of its challenge, obligates itself to organize the next contest in case it wins the Cup.

ART. 5. Any qualified Federation or Club desiring to contest the Cup shall so notify the holding Club before March 1 of each year by a registered letter addressed to the President, indicating the number of the contestants for the Cup. This letter shall constitute an entry, and shall be accompanied by as many times 500 francs as there are contestants nominated.

There shall be refunded as many times one-half of this sum as there are actual starters of the Club entered.

ART. 6. Each Federation or Club may nominate each year not more than three contestants; it may at the same time designate one substitute for each balloon entered.

ART. 7. The pilots nominated and their substitutes must belong to the nationality of the Federation or Club of the International Aeronautic Federation which nominates them or to a country not represented in the International Aeronautic Federation. They shall be designated by name by their Club and at least two months before the date of the contest.

DATE AND PLACE OF THE CONTEST

ART. 8. The Cup may be contested every year between April 1 and November 1. The date shall be set by the holding Club before March 1.

ART. 9. The contest shall take place in the country of the holding Club.

However, if for a sufficient reason, recognized by the International Aeronautic Federation, the Federation or the Club holding the Cup should find itself unable to fulfill its engagement regarding the organization of the next contest, the International Aeronautic Federation shall ask the Federation or the Club which previously held the Cup to take charge of the organization; in case the Federation or Club refuses to do so, the contest shall be held in France.

ORGANIZATION OF THE CONTEST.

ART. 10. The Contest Committee of the holding Club shall have charge of the organization of the contest and the application of the Rules; but in whatever country the Cup may be contested, a member of the Contest Committee of the Aero Club of France shall always be a member of the Committee organizing the contest.

ART. 11. In case there should be too many contestants for the means at the disposal of the holding Club, it shall have the right to organize eliminatory contests and a final race, the composition of the heats to be decided by lot.

ART. 12. The order of departure shall be determined by lot among the Federations or Clubs inscribed, and the starts shall occur in the following order:

First: The first aerostat of the first country drawn.

Second: The first aerostat of the second country drawn. Then after one representative of each of the countries represented has started:

The second aerostat of the first country;

The second aerostate of the second country;

And so on.

This method of starting does not apply, of course, in the case provided for in Art. 11.

ART. 13. The gas shall be furnished to the contestants by the holding Federation or Club on the same conditions as to price as apply to its own ascensions. All the aerostats shall be filled with the same gas of the same manufacture. But motor aerostats can be filled with pure hydrogen.

ART. 14. The expense of organizing the contest shall be borne by the holding Club.

AWARDING OF THE CUP

ART. 15. The Contest Committee of the holding country shall make an attestation with reference to the Cup. This must be made not later than one month after the contest, and the Cup shall be delivered to the new holding Club not later than one month after the attestation.

ART. 16. The Federation or the Club recognized by the International Aeronautic Federation, of the Country whose representative shall have won the Cup, shall be the holder.

ART. 17. A Club may not become the possessor of the Cup until it has been victorious in three consecutive contests. Otherwise it shall be merely the holder, subject to the conditions of these Rules.

Similarly the Cup shall become definitely the property of the holding Club if it has not been challenged for during five consecutive years.

ART. 18. In case only one country should be represented at the start, and therefore in case of non-participation by the holding club, the Cup shall not be taken from it unless the distance covered or the duration attained is more than seventy-five per cent. of that which won the Cup for the holding Federation or Club.

This minimum percentage shall be reduced to fifty per cent. for the second year of non-participation by the holder and to twenty-five per cent. for the third year. The results obtained by the holding Club shall be entirely annulled after three consecutive years of non-participation.

But, in case the representatives of the Federation or Club competing alone should undertake a duration or a distance competition, when it was in a competition of the opposite kind that the challenged Federation or Club became holder, each hour would be represented by 40 kilometers and vice versa.

ART. 19. The holding Federation or Club which shall have refrained from participating, and shall not have been deprived of the Cup, although challenged, shall not on this account be considered as having again won the Cup.

ART. 20. In case of a protest or of an appeal before the Conference, conformably to the Rules of the International Aeronautic Federation, the Cup shall remain in the hands of the Club until the dispute has been decided.

ART. 21. In case the holding Club should disappear, the Cup shall be returned to the Federation of its country; if there is none, then to the International Aeronautic Federation; and if there is no International Aeronautic Federation, then to Mr. Gordon Bennett.

SECONDARY PRIZES

ART. 22. Aside from the three prizes of 12,500 francs each given by Mr. Gordon Bennett for each of the three first years, as indicated in Art. 1, and other prizes which may be offered, the entry charges and fines shall be divided among the contestants as follows: One-half to the first, one-third to the second, the remainder to the third.

SANCTION

ART. 23. Every Federation or Club becoming the holder of the Cup agrees thereby formally to observe these Rules, and in unforeseen cases to apply the General Rules of the Meetings of the International Aeronautic Federation.

## INTERNATIONAL MICHELIN TROPHY

This prize, given by MM. Michelin to the Aero Club of France, as representative of the International Aeronautic Federation, consists of the sum of 160,000 francs, the equivalent of $32,000, and is to be divided into eight annual prizes of the sum of 20,000 francs ($4,000) each. Contests for this prize can be held, as occasion offers, by any one of the Clubs forming part of the International Aeronautic Federation, and the conditions for winning the prizes for each year are progressive, in accordance with the progress made in aviation. The winner of the Cup for each year shall be the pilot of the machine which, at the expiration of the current year, shall hold the record established according to the rules for that particular year. No person can compete unless he is a member in good standing of the national Club in the country where the trial is made. The Contest Committee of the Club recognized by the Federation in each country has sole control of this contest.

The winner will receive each year, in addition to the sum of 20,000 francs, a bronze copy of an object of art costing $2,000. This constitutes the trophy. Each year a similar copy of the Cup will be given to the club of the country in which the record is established, if this Club has not already a replica of the trophy. The original object of art will go to the Club which finally wins the trophy at the end of the eight years. If the Cup is not won in any one year the cash amount of the prize will not be paid, but will be added to the total amount of the prize for the year following, and so on.

The first year in which this prize was open for contest was 1908; it was won by Wilbur Wright, of the Aero Club of America, who accomplished on December 31, 1908, without touching the ground, a flight officially controlled by the Aviation Committee of the Aero Club of France; the distance counting for the Michelin Cup proved to be 123.2 kilometers.

Since then the rules governing this contest, as drawn up by the Aero Club of France, have become more difficult and complicated each year, in accordance with the progress of aviation.

The second year the Cup was won by Henri Farman at the camp of Chalons, on November 3; he flew a distance of 234.212 kilometers in 4 hours 19 minutes 32 3-5 seconds.

In 1910 the trophy was won by Maurice Tabuteau and in 1911 and 1913 by Emmanuel Helen.

In August, 1914, a result of the attempt of Eugene Gilbert for the Michelin Trophy was reported, showing that he made the tour of France in 39 hours, covering 1,841 miles. As subsequent attempts for securing this Cup were curtailed by the outbreak of the European conflict, Gilbert will no doubt be proclaimed the winner for 1914.

The results of the competitions to 1914 are given below.

1st Year, 1908, Wilbur Wright: 124 kil. 700 (in 2 h. 20′ 31″), on December 31st, 1908, at the Camp d'Auvours, near Le Mans, France.

2nd Year, 1909, Henry Farman: 234 kil. (in 4 hr. 19′ 32 3/5″), on November 3rd, 1909, at the Camp d'Auvours, near Le Mans, France.

3rd Year, 1910, Maurice Tabuteau: 582 kil. 935 (in 7 h. 48′ 31 3/5″), on December 30th, 1910, at Buc, near Versailles, France.

4th Year, 1911, Emmanuel Helen: 1,252 kil 800 (in 13 h. 49′ 19″), on September 8, 1911, at Gidy-Lhumery.

5th Year, 1912, The Trophy was not warded.

6th Year, 1913, Emmanuel Helen: 16,126.8 kil., between October 31 and November 29.

7th Year, 1914, Eugene Gilbert: 3,062.169 kil., in 39 hours.

## THE INTERNATIONAL MARITIME AVIATION TROPHY

This trophy for hydroaeroplanes was given to the Aero Club of France by the French sportsman Jacques Schneider in 1913 for annual competition under rules established by the International Aeronautic Federation. These rules are similar in general to those applying to the two Gordon Bennett trophies, and each of the first three annual competitions is accompanied with a cash prize of 25,000 francs. The contest for 1913 was held in the Mediterranean Sea off Monaco on April 16th, 1913. It was won by Maurice Prévost flying a Déperdussin hydroaeroplane. The one American competitor, Mr. Charles Terres Weymann, was prevented from winning when his lubricating oil was exhausted near the end of his course, he being at that time well in the lead.

The contest for 1914 was held at the same place as that of 1913, on the 20th day of April. It was won by C. Howard Pixton, a British aviator, flying a Sopwith hydro-biplane. The two American entrants, William Thaw and Charles T. Weymann, and also R. Garros (France) and V. Stoeffler (Germany), did not start. Nine entries were made by five countries.

Subsequent contests have not been held because of the European conflict.

## $50,000 Transatlantic Flight Prize

The original rules for the $50,000 prize offered by the "Daily Mail" which was made in April, 1913, and suspended at the beginning of the War are as follows:

The proprietors of the "Daily Mail" have offered the sum of £10,000 to be awarded to the aviator who shall first cross the Atlantic in an aeroplane in flight from any point in the United States, Canada or Newfoundland, to any point in Great Britain or Ireland, in 72 consecutive hours.

(The flight may be made either way across the Atlantic.)

*Qualifications of Competitors.*—The competition is open to persons of any nationality holding an aviator's certificate issued by the International Aeronautical Federation and duly entered on the competitor's Register of the Royal Aero Club.

*Entries.*—The entry form, which must be accompanied by the entrance fee of £100, must be sent to the secretary of the Royal Aero Club, 166 Piccadilly, London, W., at least 14 days before the entrant makes his first attempt. (American entries will make application to the Royal Aero Club through the Aero Club of America.)

No part of the entrance fees is to be received by the "Daily Mail." All amounts received will be applied towards payment of the expenses of the Royal Aero Club in conducting the competition. Any balance not so expended will be refunded to the competitors.

*Starting Place.*—Competitors must advise the Royal Aero Club of the starting place selected and should indicate as nearly as possible the proposed landing place.

All starts must be made under the supervision of an official or officials appointed by the Royal Aero Club.

*Identification of Aircraft.*—Only one aircraft may be used for each attempt. It may be repaired en route. It will be so marked before starting that it can be identified on reaching the other side.

*Stoppages.*—Any intermediate stoppages may only be made on the water.

*Towing.*—Towing is not prohibited.

*Start and Finish.*—The start may be made from land or water, but in the latter case, the competitor must cross the coast line in flight. The time will be taken from the moment of leaving the land or crossing the coast line.

The finish may be made on land or water. The time will be taken at the moment of crossing the coast line in flight or touching land.

If the pilot has at any time to leave the aircraft and board a ship, he must resume his flight from approximately the same point at which he went on board.

1. A competitor, by entering, thereby agrees that he is bound by the regulations herein contained or to be hereafter issued in connection with this competition.

2. The interpretation of these regulations or of any to be hereafter issued will rest entirely with the Royal Aero Club.

3. The competitor shall be solely responsible to the officials for the due observance of these regulations, and shall be the person with whom the officials will deal in respect thereof, or of any question arising out of this competition.

4. A competitor, by entering, waives any right of action against the Royal Aero Club or the proprietors of the "Daily Mail" for any damages sustained by him in consequence of any act or omission on the part of the officials of the Royal Aero Club or the "Daily Mail" or their representatives or servants or any fellow competitor.

5. The aircraft shall at all times be at the risk in all respects of the competitor, who shall be deemed by entry to agree to waive all claim for injury either to himself, or his passenger, or his aircraft, or his employees or workmen, and to assume all liability for damage to third parties or their property, and to indemnify the Royal Aero Club and the proprietors of the "Daily Mail" in respect thereof.

6. The committee of the Royal Aero Club reserves to itself the right to add to, amend or omit any of these rules should it choose.

## The American Annual Aerial Derby

The American Annual Aerial Derby was proposed in 1915 and organized for that year, but had to be called off on account of the Mexican situation, which kept the few military and civilian aviators of the day busy in carrying out the modest aeronautic plans of the time. In 1916 conditions had not changed and in 1917 we entered the War.

The tentative schedule of events and prizes proposed at the time were as follows:

TENTATIVE SCHEDULE OF PRIZES TO BE OFFERED

1. A "best record" prize of $10,100 to be awarded in daily prizes of $100 each to the aviator who holds the best cross-country flying record at the end of each day, the record to have been made in a flight of not longer than ten hours' duration and the distance to be measured in a straight line. This prize has the special value of inducing aviators to fly daily in order to beat the standing record. It will undoubtedly result in aviators making flights between representative cities each day during the Competition. Ten hours is adjudged to be a normal flying day, and that limit has been imposed to prevent excess. (*The Aero Club of Illinois has started a subscription and by the time this appears may have officially offered this prize.*)

2. Eight "best record" prizes aggregating $10,100 to be awarded to the eight aviators who make the best records in the Daily Distance Competition, the prizes to be: $3,500, $2,500, $1,500, $1,000, $750, $500, $250 and $100. (*The Aero Club of America offers this prize.*)

3. A $25,000 prize to be divided between the three aviators who make the best time in flights across the continent, starting from or ending at

New York. This may induce the Eastern aviators to continue their flights to the Pacific coast and the Western aviators to the Atlantic, and possibly may result in a number of trans-continental flights during the Competition. (*This prize is being considered by two Western and two Eastern cities.*)

These prizes have not yet been offered:

4. A prize of $5,000 or $10,000 for the best demonstration of the practicability of mail carrying, to be judged from the standpoint of regularity of service, protection afforded to mail matter from the elements and the advantage of time saved over other methods of mail distribution. The Post Office Department has prepared a schedule of isolated places in certain states where the delivery of mail between points twenty and ninety miles apart now requires days, but which would require only an hour or two by aeroplane. The principal value of this prize is that it will afford to the Post Office Department the opportunity of determining if the people who want their mail delivered promptly will pay between 25 and 50 cents to have it delivered by aeroplane. If so, aero mail-carrying will be self-supporting and the Post Office Department can establish a number of lines immediately and thereby solve some difficult problems of mail distribution, as well as to begin the creation of an aviation reserve which will have the advantage of being used daily in peace, while being ever ready for service.

5. Prizes amounting to between $5,000 and $10,000 to be divided among the aviators who cover the greatest number of miles during the Competition, flying entirely by chart and compass.

Prizes of between $1,000 and $5,000 for:

6. The best land and water aeroplanes participating in the Competition, considered from the standpoint of engineering and general finish in construction of the machine and comfort afforded to the pilot and passengers.

7. The best "schedule record" made, judged by the number of times an aviator reaches previously designated places on time.

8. The best demonstration given by both land and water aeroplanes equipped with automatic stabilizers.

9. The lowest consumption of fuel and oil for miles covered.

10. The largest number of passengers carried a given distance in land or water aeroplanes, the construction of the machines to afford the pilot and passengers the greatest possible amount of convenience and having proper seating capacity for each.

11. The best demonstration given by either a land or water aeroplane equipped with two motors, which can be run independently of each other.

All conditions are made principally with the intention of fostering normal flying by normal aviators. Therefore, while the world's record for continuous flying is of 24 hours and 12 minutes, and for distance covered in one day is of 1,300 miles, the Contest Committee of the National Aeroplane Competition has limited the "flying day" to ten hours.

Prizes to encourage greater achievements that are easily within the possibilities of the present day aeroplanes and aviators are, however, to be offered—principally to induce the development of special aeroplanes for long-distance aerial touring, and to train aviators for long-distance cross-country flying.

## THE PAN-AMERICAN AERONAUTIC TROPHY

The offer of the Pan-American Aviation Trophy by the Aero Club of America was an important step in the development of the Pan-American aeronautic movement. This Club's offer was made during the Second Pan-American Scientific Congress, which was held in Washington at the end of December, 1915. Messrs. Santos-Dumont and Henry Woodhouse were delegates to the Congress and transmitted to Ambassador Da Gama of Brazil President Hawley's message offering the Pan-American Aviation Trophy. The announcement was made at the end of the address delivered by Santos-Dumont to the largest audience that gathered to hear any speaker during the Congress. He concluded his constructive address—the first he had ever delivered—with the following statement:

*"The aeroplane will knit the States of the Western Hemisphere into an integrally united, co-operating and friendly combination allied for their well-being, sport, trade and commerce as well as for strength in time of possible war."*

The audience—which included hundreds of officials and prominent representatives of the twenty-one nations of the Pan-American Union—had just expressed its appreciation for Santos-Dumont's prophecy of the coming wonderful aerial age by hearty applause, when Ambassador Da Gama read the following message from Mr. Alan R. Hawley:

"My Dear Ambassador Da Gama:

"It is a source of extreme regret to me that I cannot be present with you to-day to hear the admirable address of your illustrious inventor and sportsman, Mr. Alberto Santos-Dumont, which I have just read.

"I heartily approve the sentiment expressed by Mr. Santos-Dumont, and in the name of the Aero Club of America and its twenty-seven affiliated aero clubs, approve the plan proposed.

"We believe with Mr. Santos-Dumont that these aeroplanes of to-day, which already make it possible to carry a dozen passengers and a ton of useful load at a speed of eighty-five miles per hour, can solve most difficult problems of transportation, and that if applied for this purpose as well as for sport in and between the nations of the Western Hemisphere, they will become one of the most effective factors in bringing these nations into closer and most friendly alliance. In the words of Mr. Santos-Dumont, the aeroplane will knit the States of the Western Hemisphere into an integrally united, coöperating and friendly combination, allied for their well-being, sport, trade and commerce, as well as for strength in time of possible war.

"There are thousands of places not yet connected by railways or roads right in the United States, and there must be tens of thousands in the Western Hemisphere—where aeroplanes could transport mail and 'express merchandise' at a fraction of the time required at the present time. Taking only two instances from a plan outlined by the United States Post Office, the aeroplane makes it possible to carry mail between Albany, New York and Lake Placid, New York, in a district most closely connected by railway, in two hours and fifteen minutes, whereas it now takes eight hours and ten minutes; between Maricopa, California, and Santa Maria, California, the aeroplane can deliver the mail in one hour, where it now takes fifteen hours and ten minutes.

"This is made possible by the fact that the aeroplane can travel in a straight line, by the most direct route, and makes every

place an aerial part. All other vehicles must follow roads, and they are handicapped wherever there are no roads.

"For this reason we may well expect that there will soon be thousands of aeroplanes in use for peaceful purposes on this continent—which will form a valuable aeronautical reserve to be available for the protection of the countries of the Western Hemisphere. Dispatches from Europe make us realize daily that whereas aircraft are the deciding factor and the most effective weapons against submarines, had the nations of the Western Hemisphere ten thousand aeroplanes in use for sport and commercial purposes this continent would be well protected against unpleasant contingencies.

"Appreciating these truths, and concurring heartily in the sentiment expressed by Mr. Santos-Dumont, the Aero Club of America wishes to assist in hastening the coming of the day when we may travel in the air from Rio de Janeiro to New York and vice versa, making the trip in a few days, and to bring the people of this continent into closer relation through sport. As the first step we take pleasure in announcing, through you, the offer of a $5,000 Pan-American Aviation Trophy, to be competed for annually by the representatives of the nations of the Western Hemisphere, under the rules to be made by a Committee of the representatives of these nations, the first competition to take place at Rio de Janeiro as soon as possible. The following competitions may take place in the countries represented by the successive winners of the trophy. A cash prize of $5,000 is offered with the trophy to go to the winner of the first competition.

"The aviators who will fly in this race will be pioneers who will, in the name of Sport, open the aerial highways for the people of this continent to travel in. It is hoped, therefore, that each country will give hearty coöperation in the carrying out of this project.

"The conquest of the air through dynamic flight has been made possible by Americans. The Wright brothers, who made the first flight; your illustrious inventor and sportsman, Alberto Santos-Dumont, who, after demonstrating to Europe that the air could be navigated with dirigibles, evolved an aeroplane and made the first public flight ever made in the world; Glenn H. Curtiss, the father of marine flying; Chavez and Bielovucci, who, by flying over the Alps, led the way to the conquest of the mountains—all these pioneers are Americans. Through them the New World has given wings to the Old World—a suitable return for the gift of civilization! Santos-Dumont's flight near Paris; Wilbur Wright's flight near Auvours; Chavez's and Bielovucci's flights over the Alps; Curtiss' flights with a hydroaeroplane and a flying boat in Europe—each of these events may be considered by posterity as being as significant as the discovery of this continent by Columbus.

"Assuring you again of the hearty cooperation of the Aero Club of America and its affiliated Aero Clubs in fostering the development of Pan-American aeronautics, I beg to remain,

"Yours very truly,

(Signed) "ALAN R. HAWLEY,
"President, Aero Club of America."

This represented the first step ever taken to create closer relations between the nations of the Pan-American Union through the medium of Sport as well as a practical step towards materializing Santos-Dumont's prophecy. Those present fully realized the far-reachingness of this new development and the Pan-American aeronautic movement assumed importance as an international factor.

The Trophy was to be competed for at Rio de Janeiro in the summer of 1917, but was prevented by the War.

## PROPOSED PAN-AMERICAN AVIATION TROPHY

There being many facts about the history of the development of Pan-American aeronautics which should be perpetuated, and having had a number of unsatisfactory sketches submitted by artists, it was decided to give an artist all the facts that might be expressed in a trophy and let him try to work out a suitable trophy with as many of these facts as possible. The result is shown on this sketch, which is under consideration.

The winged figure of Victory, bearing aloft the aeroplane and crowning with the laurel wreath the aviator, surmounts the trophy. Standing on a pedestal, the top of which is domed to represent a section of the sphere of the earth, the Western Hemisphere, are grouped the representative figures of North and South America and the aviator.

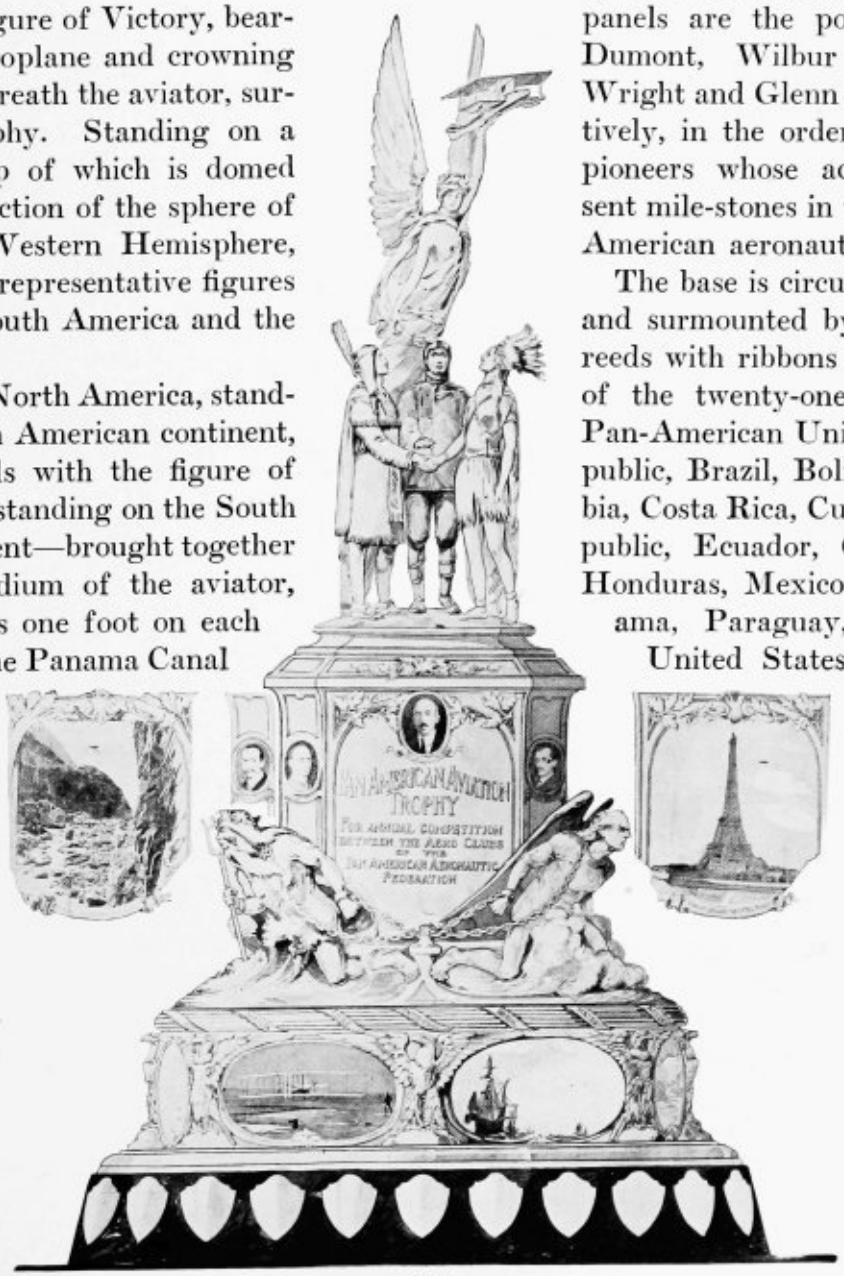
The figure of North America, standing on the North American continent, is clasping hands with the figure of South America, standing on the South American continent—brought together through the medium of the aviator, who, in turn, has one foot on each continent, with the Panama Canal passing between his feet, and with right hand extended, cementing the union of the two sister continents.

The figures are gazing aloft in unison at the aeroplane which has made possible the union of these great continents. The pedestal proper is triangular in construction with three major and three minor panels.

On the front panel is the inscription; on the left hand panel is shown a view of Santos-Dumont circling the Eiffel Tower, which happened in 1901, and was the first time that a man had navigated the air freely; on the third Chevez, the Peruvian, flying over the Alps in 1910, the first flight ever made over the Alps. Surmounting the front panel and placed in the three minor panels are the portraits of Santos-Dumont, Wilbur Wright, Orville Wright and Glenn H. Curtiss, respectively, in the order named—the four pioneers whose achievements represent mile-stones in the history of Pan-American aeronautics.

The base is circular in construction, and surmounted by a broad band of reeds with ribbons bearing the names of the twenty-one republics of the Pan-American Union: Argentine Republic, Brazil, Bolivia, Chile, Colombia, Costa Rica, Cuba, Dominican Republic, Ecuador, Guatemala, Haiti, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Salvador, United States, Uruguay, Venezuela.

The aeroplane will knit the states of the Western Hemisphere into an integrally united and friendly combination, allied for well-being in sport, trade and commerce, as well as in time of possible war.



## AMERICAN NATIONAL AERONAUTIC TROPHIES

The Triumph of Aviation
Aero Club of America Trophy

This trophy is emblematic of the triumph of wings over the dominating elements, the sea and the air.

Neptune, the ruler of the waves, who has controlled all marine craft throughout the ages (the Viking boat of thousands of years ago, Columbus' caravel, the Santa Maria, are shown in the distance), and who still holds control over the latest marine craft (some of the representative craft, the Yacht Cup winner, a liner, a dreadnought, and a submarine are shown in the net which he holds in his left hand) rises from the sea and reaches out for the flying boat which is flying over the globe. But this craft rises beyond his reach and he stands, amazed, his hand up-lifted in an attempt to grasp the fleeting aircraft.

Boreas, the ruler of the winds, blows drafts of wind and also reaches up for the flying boat, but his efforts are ineffective, the aircraft is undisturbed by them.

The flying boat is of the trans-Atlantic type, with cabin and two motors, and besides representing the supremacy of wings insofar as that by rising from the water the flying boat escapes the fury of sea-storms, it represents the fact that the aircraft of today, owing to its increased weight and speed, is fearless of the wind. It can rise above or below a storm, thus escaping its fury. Boreas stands higher than Neptune, that being its logical place. The idea of time past is conveyed by the sloping downward of the sea. The flying boat is supported over the globe by a column of cloud. The theme of the trophy is the conception of Mr. Henry Woodhouse and was executed in silver by Theo. B. Starr, Inc., of New York. The trophy is 3 feet 9¾ inches high and 2 feet 7 inches in diameter, entirely in sterling silver excepting the base, which is of onyx.

Mackay Army Trophy
Presented by Clarence H. Mackay.

## AMERICAN NATIONAL AERONAUTIC TROPHIES AND CONTESTS OPEN FOR COMPETITION

(1) The Curtiss Marine Flying Trophy.
(2) The Annual National Elimination Balloon Contest.
(3) The Annual National Elimination Aviation Contest.
(4) The MacKay (Military) Aviation Trophy.
(5) The Collier Trophy.
(6) The Pulitzer Trophy.
(7) The Model Competition Trophy.

### The Curtiss Marine Flying Trophy

#### GENERAL RULES AND REGULATIONS GOVERNING THE CURTISS MARINE FLYING TROPHY

Article 1. The Curtiss Marine Flying Trophy, offered by Mr. Glenn H. Curtiss through the Aero Club of America, in 1915, consists of a trophy valued at $5,000 and $5,000 in cash to be divided into five annual prizes of $1,000 each, or equivalent.

Article 2. Competitions for this trophy and these prizes will be held annually and the conditions for winning the trophy and the yearly prize will be progressive in accordance with the progress made in water flying.

Article 3. The trophy is open to competition to the members of the Aero Club of America and affiliated Aero Clubs, holders of aviator certificates, civilians and military.

The winner of the trophy each year shall be the member of the Aero Club of America or any of the affiliated Aero Clubs, military, naval or civilian, who at the expiration of the time set for the close of the Competition shall hold the record established in accordance with the rules given hereinafter. He shall receive the Cash Prize of $1,000 or equivalent and the Club of which he is a member shall become the record holder of the Trophy, which is to be held in custody by the Aero Club of America.

Article 5. A Club becomes the owner of the Trophy after five years when it has been won for three consecutive years by its members.

Article 6. The general rules for the Contest for each year are to be announced by the Aero Club of America on or before January first of each year.

Article 7. It is to be an event sanctioned by the Aero Club of America and conducted under the rules and regulations of the International Aeronautical Federation.

#### The First Contest

The first contest each year started on July 4th and closed on October 31, 1915.

The contest for the Curtiss Marine Flying Trophy for 1915 resulted in several remarkable flights. There were twelve entrants, representing five Aero Clubs as follows:

Oscar A. Brindley, Martin Military Tractor Hydroaeroplane, Curtiss 90 h.p. motor. Representing the Aero Club of California.

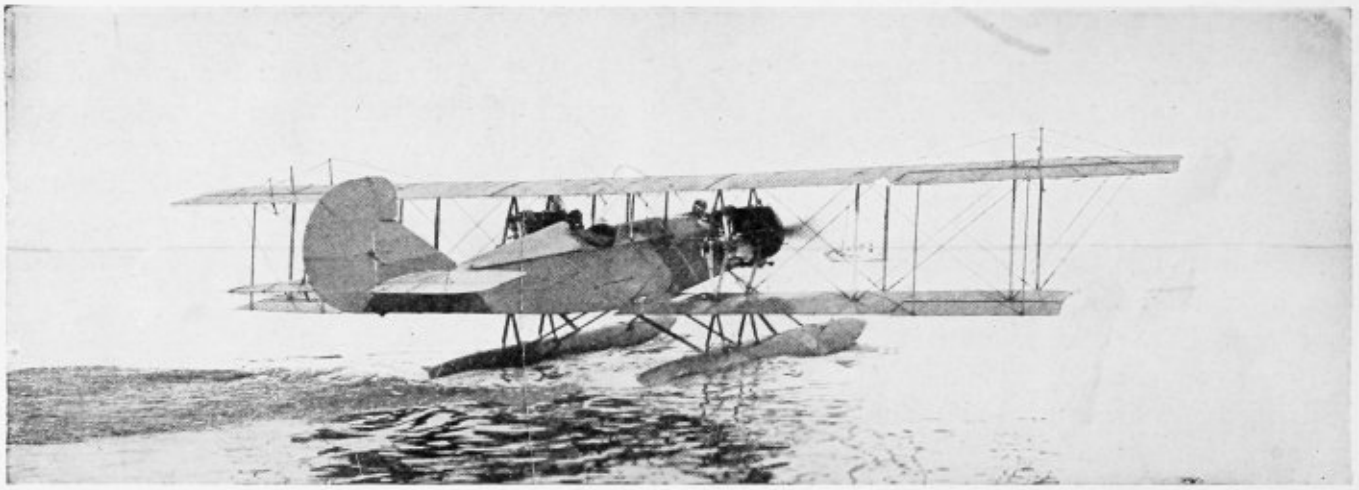
Frank H. Burnside, Curtiss Flying Boat, Curtiss 100 h.p. motor, representing the Aero Club of Buffalo.

John Lansing Callan, Curtiss Flying Boat, Curtiss 100 h.p. motor, representing the Aero Club of America.

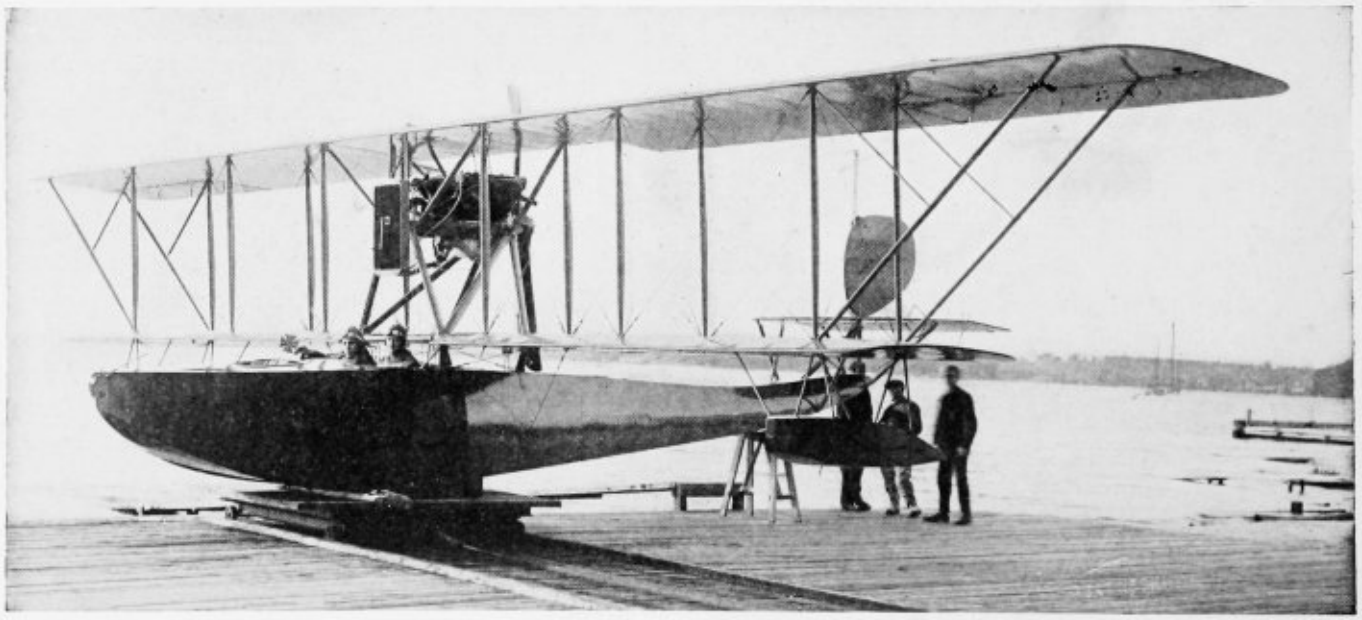
Lieut. H. A. Dargue, Martin Hydro-Biplane, Curtiss 90 h.p. motor, representing the Aero Club of America.

## Winners of the Curtiss Marine Flying Trophy

Major Oscar Brindley won the 1915 Curtiss Marine Flying Trophy.



Victor Carlstrom won the Curtiss Marine Flying Trophy in 1916.



Caleb Bragg won the 1917 Curtiss Marine Flying Trophy with an F. B. A. flying boat.

Robert G. Fowler, Burgess Seaplane, Curtiss 100 h.p. motor, representing the Pacific Aero Club.

Robert Glendinning, Curtiss Flying Boat, Curtiss 100 h.p. motor, representing the Aero Club of Pennsylvania.

Beryl H. Kendrick, Curtiss Flying Boat, Model F, Curtiss 100 h.p. motor, representing the Aero Club of America.

Theodore C. Macaulay, Curtiss Flying Boat, K Type, Curtiss 160 h.p. motor, representing the Aero Club of America.

David H. McCulloch, Flying Boat, Curtiss 90 h.p. motor, representing the Aero Club of America.

Raymond V. Morris, Flying Boat, Curtiss 90 h.p. motor, representing the Aero Club of America.

Lawrence B. Sperry, Curtiss Flying Boat, Curtiss 90 h.p. motor, representing the Aero Club of America.

Clarke Thomson, Curtiss Flying Boat, Curtiss 100 h.p. motor, representing the Aero Club of Pennsylvania.

Seven contestants made flight of over 150 miles as follows: Oscar A. Brindley, 526 miles (not yet homologated); Raymond V. Morris, 501 miles; David H. McCulloch, 450 miles; Theodore C. Macaulay, 427 miles; Beryl H. Kendrick, from Albany, N. Y., to Ocean City, Md.; Lieut. R. A. Dargue, U. S. A., 192 miles; Robert Glendinning, 160 miles.

### 1916 Contest

There were six entrants for the Curtiss Marine Flying Trophy in 1916. The winning flight was made by Mr. Victor Carlstrom on August 25, 1916, over a course from Newport News to Fisherman's Point, in a Curtiss Twin Motored Hydroaeroplane, representing the Aero Club of America. Mr. Carlstrom was declared the winner of this trophy for 1916 with a distance covered of 661.44 miles.

### Third Year Contest

The Curtiss Marine Flying Trophy for 1917 was won by Mr. Caleb S. Bragg, holder of Hydroaeroplane Pilot Certificate No. 70.

Mr. Bragg was requested by the Liberty Loan Committee of New York to fly to Troy and distribute Liberty Loan literature on the cities en route and entered this flight in competition for the Curtiss Marine Flying Trophy.

This trip was made on October 26th, 1917, Mr. Bragg, with Mr. Philip Boyer as passenger, leaving Port Washington, L. I., at 10:14, going a little north of Manhattan Island, then up the Hudson River to Troy, circling over that city and landing there at 12 noon. They started on their return trip at 1:40 P. M. and arrived at Port Washington, L. I., at 4:40 P. M., having made a non-stop flight back from Troy. The machine used in this flight was a Wright-Martin flying boat, equipped with a 150-h.p. Hispano-Suiza motor.

On notifying Mr. Bragg of the Club's action in awarding him the trophy and prize money of $1,000 for 1918, he sent the following letter addressed to the Contest Committee of the Aero Club of America:

"Gentlemen:

"Being requested by the Liberty Loan Committee of New York to fly to Troy and distribute Liberty Loan literature on the cities en route, am following the suggestion of Mr. Woodhouse to enter this flight for the Curtiss Marine Flying Trophy with the sole purpose of giving the prize money of one thousand dollars for the purchase of necessities for American aviators in the Army and Navy.

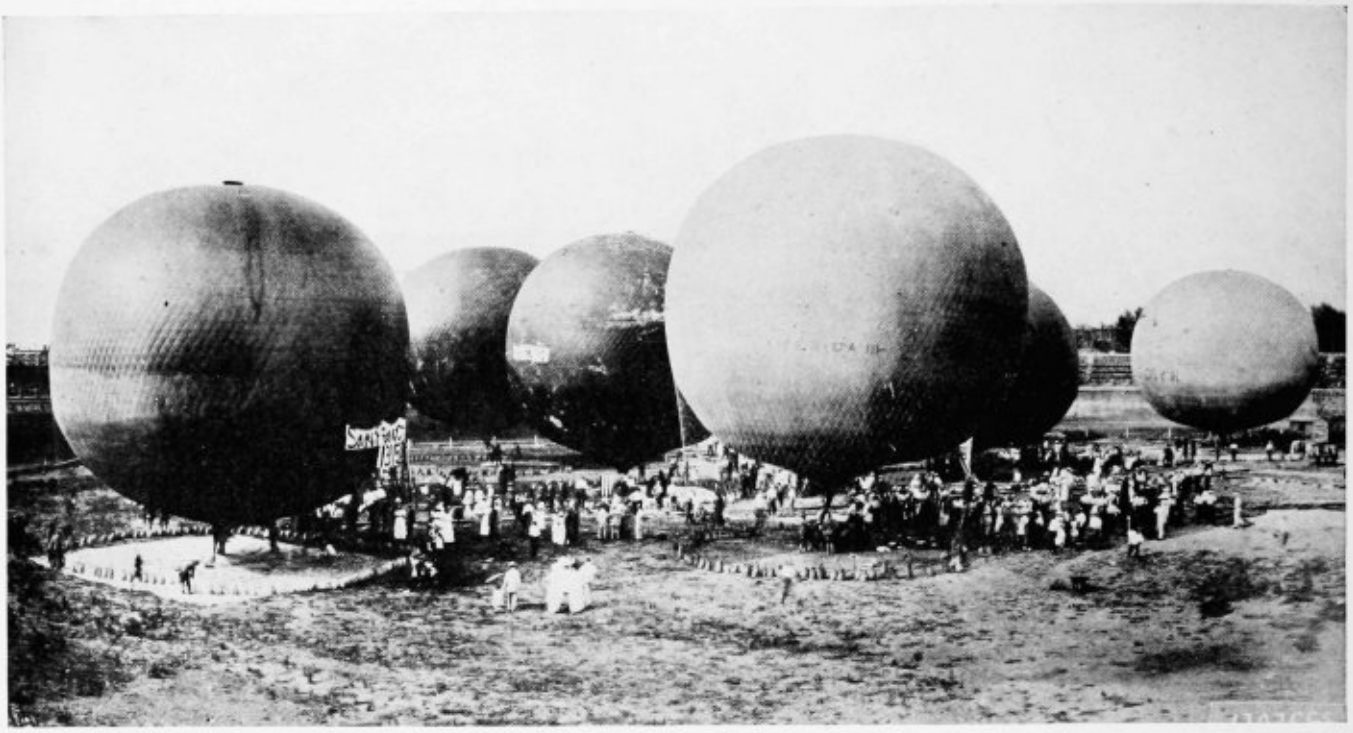
"I fully realize that a flight of this kind is entirely undeserving of the trophy or the money, but feel that the cause fully justifies it, and I hereby authorize the Aero Club of America to pay the money as follows:

"$500 to the Aviation Section, National Special Aid Society, to be used to purchase sweaters, helmets, wristlets and other necessities for Army aviators, and

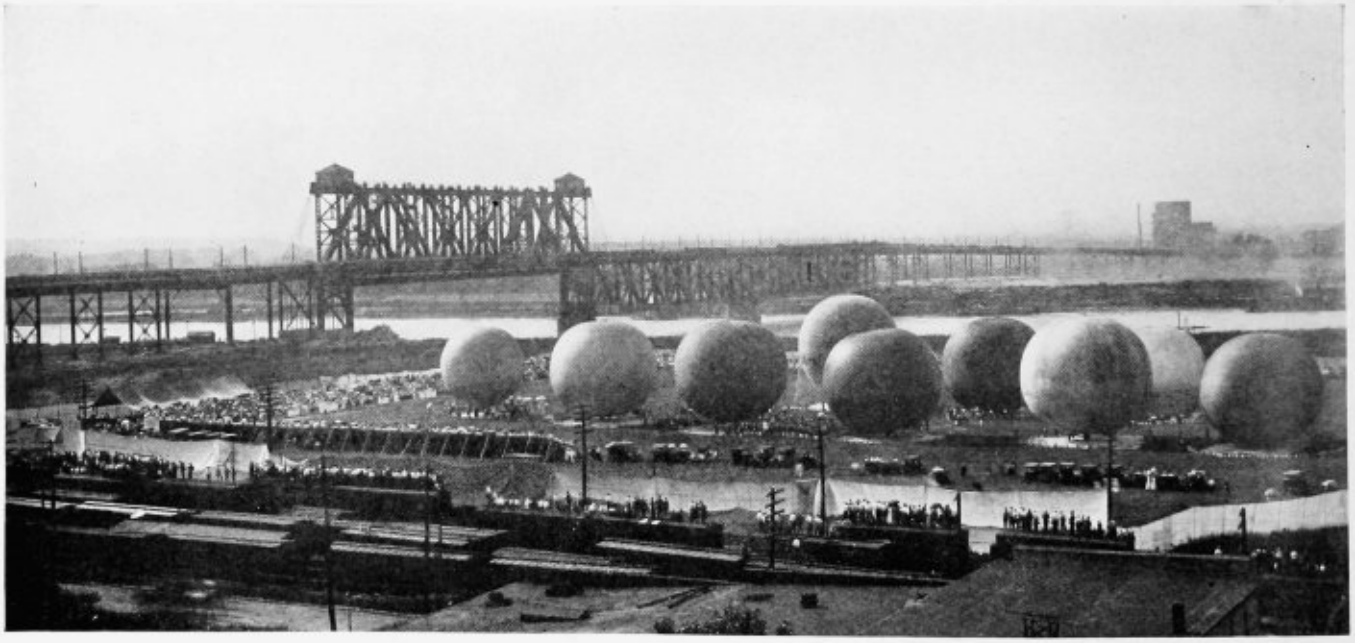
"$500 to the Woman's Naval Service, to be used to purchase comforts and necessities for Navy aviators.

"Yours very truly,

(Signed) "CALEB S. BRAGG."



National Balloon Race held at Priesters Park, St. Louis, August, 1914.



Start of the National Balloon Race from Kansas City, 1913.

## National Championship Balloon Race, 1912

| Place | Balloon | Pilot | Point of Landing | Distance Traveled | |
|---|---|---|---|---|---|
| | | | | Miles | Kilo |
| 1 | Uncle Sam | H. E. Honeywell | 1 mile W. of Manassas, Va. | 914 | 1,470 |
| 2 | Kansas City II | John Watts | 3 miles W. of Willis, Mich. | 650 | 1,045 |
| 3 | Drifter | Albert Holz | 3 miles S.W. of Calhoun, Wis. | 449 | 722 |
| 4 | Million Population II | Paul McCullough | 7 miles N.E. of Spring Green, Mich. | 377 | 606 |
| 5 | Million Population I | John Berry | Waddam Grove, Ill. | 347 | 558 |
| 6 | Goodyear | G. L. Bumbaugh | Polo, Ill. | 342 | 550 |
| 7 | Cole | L. E. Custer | McGregor, Iowa | 330 | 530 |

The start of this race took place from Kansas City, Mo., on July 27, 1912. This contest was used as an elimination to aid in selecting the American team, which took part in the International Contest three months later.

## National Championship Balloon Race, 1913

| Place | Balloon | Pilot | Point of Landing | Distance Traveled |
|---|---|---|---|---|
| | | | | Miles |
| 1 | Goodyear | Ralph H. Upson | 6 miles S. of West Branch, Agemaw County, Mich. | 685 |
| 2 | Kansas City II | John Watts | 2 miles E. of Goodrich, Genevee County, Mich. | 673 |
| 3 | Kansas City Post | H. E. Honeywell | 2½ miles E. of Rockwood, Wayne County, Mich. | 658 |
| 4 | Million Population Club | John Berry | 6 miles N.E. of Manchester, Wachita, Mich. | 616 |

The start of this race took place from Kansas City, Mo., on July 4, 1913. This contest was used as an elimination to aid in selecting the American team, which took part in the International Contest three months later.

## Official Distances Covered, Portland, Oregon, Balloon Race, June 11, 1914

| Balloon | Pilot | Start | Landed | Place | Position | Time | Miles |
|---|---|---|---|---|---|---|---|
| Kansas City, Ill. | John Watts | 4:09:30 | 9:20 A.M. | 6 miles E. of Cascadia | 44° 23½–122° 21½ | 17:10½ | 82¾ |
| Springfield No. 3 | Roy F. Donaldson | 4:25:00 | 7:00 A.M. | At Blue Lake | 45° 30⅓–121° 52¼ | 14:35 | 43½ |
| Million Pop. Club | John Berry | 4:30:15 | 8:30 P.M. | 2 miles S.W. of Clarke | 45° 11¼–122° 30′ | 3:59¾ | 28 |
| Uncle Sam | H. E. Honeywell | 4:15:50 | 7:45 P.M. | ¾ mile N.E. of Beaver Co. | 45° 17′ –122° 32′ | 3:29⅙ | 19 |

## The National Balloon Race, 1914, Held at St. Louis

| Balloon | Pilot | | | Latitude | Longitude | Distance |
|---|---|---|---|---|---|---|
| "Goodyear" | R. A. D. Preston | M. D. Tremelin | Nr. Constance, Ky. | 39 2′ 22″ | 84 38′ 38″ | 301.82 |
| "Pennsylvania II" | Arthur T. Atherholt | Philip T. Sharpless | Nr. Rockville, Ind. | 39 45′ 00″ | 87 21′ 00″ | 174.84 |
| "Uncle Sam" | Paul J. McCullough | William H. Trefts | Nr. Lewis, Ind. | 39 14′ 00″ | 98 09′ 30″ | 171.20 |
| "Aero Club of St. Louis" | John Berry | Albert Von Hoffmann, Jr. | Nr. Terre Haute, Ind. | 39 32′ 15″ | 87 20′ 00″ | 167.80 |
| "Miss Sofia" | William F. Assmann | No Aide | Nr. Flat Rock, Ill. | 38 54′ 00″ | 87 34′ 00″ | 147.70 |
| "America III" | Jerome Kingsbury | Clarence P. Wynne | Nr. Princeton, Ind. | 38 22′ 00″ | 87 39′ 30″ | 140.30 |
| "San Francisco 1915" | E. S. Cole | Raffe Emerson | McLeansboro, Ill. | 38 00′ 30″ | 88 24′ 30″ | 109.30 |
| "Kansas City II" | John Watts | W. F. Comstock | Nr. Enfield, Ill. | 38 08′ 00″ | 88 23′ 00″ | 107.40 |

## The National Balloon Race, 1915

| Place | Balloon | Pilot | Point of Landing | Distance Traveled |
|---|---|---|---|---|
| | | | | Miles |
| 1 | Aero Club of St. Louis | William Assman D. P. Woods | 11 miles S.E. Prescott, Ark. | 363 |
| 2 | Wichita II | H. E. Honeywell D. P. Woods | 4 miles N.E. Elkins, Ark. | 232 |
| 3 | Wichita | Paul McCullough | 6 miles East of Udall, Kans. | 67 |
| 4 | Kansas City | John Watts | | 19 |

The start of this race took place from Wichita, Kan., on October 7, 1915.

## The National Balloon Race, 1916

| Place | Balloon | Pilot | Point of Landing | Distance Travelled |
|---|---|---|---|---|
| | | | | Miles |
| 1 | "Uncle Sam, Kansas City Aero Club" | H. E. Honeywell Aide: Jack Horne | Cascade, Iowa | 520 |
| 2 | "City of Cleveland, Ohio" | E. S. Coles Aide: R. F. Zeisloft | 1½ miles S.E. Chariton, Ia. | 385 |
| 3 | "Aero Club of St. Louis" | Wm. F. Assmann Aide: Albert Von Hoffman | 9 miles West of Macon, Mo. | 316.8 |
| 4 | "Million Population Club, St. Louis" | John Berry | 3 miles North New Hampton, Mo. | 315.6 |
| 5 | "Dayton" | Warren Rasor | 4 miles west & 3½ miles north of Odesso, Mo. | 239 |
| 6 | "Wichita Aero Club" | Dr. L. E. Custer Aide: Dr. E. M Crume | Coweta, Okla. | 15 |

The start of this race took place from Muskogee, Oklahoma, on October 7, 1916.

## AERO CLUB OF AMERICA TROPHY FOR GREATEST ANNUAL ACHIEVEMENT

This bronze trophy, to be known as the "Aero Club of America Trophy," was presented by Robert J. Collier, Esq. The trophy is to be awarded annually for the greatest achievement in aviation in America, the value of which has been thoroughly demonstrated by use during the preceding year.

The first award was given to Glenn H. Curtiss for his development and demonstration of the hydroaeroplane during the year 1911.

The trophy for the year 1912 was again awarded to Glenn H. Curtiss for his development and thorough demonstration of the flying-boat, in which buoyancy is supplied by the fuselage.

In 1913 the trophy was awarded to Orville Wright in recognition of the development and demonstration of his automatic stabilizer.

For 1914 the trophy was awarded to Mr. Elmer A. Sperry, for his work in achieving the automatic control of an aeroplane by means of the gyroscope.

The trophy for the year 1915 was awarded to Mr. W. Starling Burgess, of Marblehead, Mass., in recognition of his development and demonstration of the Burgess-Dunne hydroaeroplane during the year 1915.

The Collier Trophy for 1916 was awarded to Mr. Elmer A. Sperry and Lawrence B. Sperry for the development and the demonstration of the Sperry drift indicator. No awards were made in 1917 and 1918, as it was inadvisable to make known the important technical developments of those years.

## MACKAY ARMY TROPHY

This trophy, presented by Mr. Clarence H. Mackay, a member of the Aero Club of America, is to be competed for annually by officers of the Army, under rules to be made and promulgated by the War Department of the United States.

The Army Trophy as competed for under the rules for the year 1912 was awarded to Lieutenant Henry H. Arnold.

The competition for 1913 was governed by conditions prescribed by the War Department and covering in effect the reconnoissance of troops. The contest was held near San Diego, California, on December 29th, 1913, and resulted in the awarding of the trophy to Second Lieut. Joseph E. Carberry, 6th Infantry, pilot, and Second Lieut. Fred Seydel, Coast Artillery Corps, observer.

The competition for 1914 was held in the vicinity of San Diego, California, on December 23, 1914, the conditions comprising the reconnoissance of troops. The winners were: Capt. Townsend F. Dodd, Signal Corps, pilot, and Lieut. S. W. Fitzgerald, Coast Artillery Corps, observer. For the year 1915 the above trophy was awarded to Lieutenant Byron Q. Jones, Signal Corps, for the best record and performance during the year. The two outstanding features of the record of Lieutenant Jones are:

(*a*) Flight of January 15, 1915, at San Diego with passenger—duration eight (8) hours and fifty-three (53) minutes.

(*b*) Flight of March 12, 1915, at San Diego with Corporal Hale and Corporal Houser as passengers from 10:02 A.M. to 5:06 P.M., a duration of seven (7) hours and four (4) minutes.

## THE PULITZER TROPHY

Mr. Ralph Pulitzer, on May 10th, 1916, offered, through the Aero Club of America, a silver trophy to be competed for annually under rules and conditions to be drawn by the Contest Committee of the Aero Club of America, said rules and conditions to be progressive, in accordance with the development made in aeronautics.

Mr. Pulitzer stated that he believed with sport coinciding with patriotic purpose, a proper inducement to encourage cross-country flying would stimulate a movement which within a short time would train aviators, evolve types of aeroplanes suitable for everyday purposes, and would cause the establishing of permanent landing stations throughout the country, which would do for aviation as much as good roads did for automobiling. He therefore advocated the holding—in 1916, if possible—of a transcontinental aeroplane competition, in which sportsmen, military and civilian aviators could participate.

Owing to the need of applying the undivided attention of aviators to the nation's immediate needs, arrangements for the holding of this Aerial Derby were postponed until after the War, when the Pulitzer Trophy will be one of the annual awards in connection with the Aerial Derby.

## THE VALENTINE TROPHIES OF THE AERO CLUB OF AMERICA TO PROMOTE EFFICIENCY IN THE U. S. ARMY, NAVY AND MARINE AVIATION CORPS

The Aero Club of America announces the gift of $6,000.00 trophies and Liberty Bonds, to promote efficiency in the U. S. Army, Navy and Marine Corps Aviation, as well as Intercollegiate Aviation and Balloon Trophies.

The gift is made under the terms of the will of the late Mr. Samuel Valentine, who was member of the Board of Governors of the Club, and left $10,000.00, to be spent at the discretion of the Board of Governors of the Club, for the development of aviation.

After giving the matter thorough consideration, the Board of Governors of the Club came to the following conclusions:

(1) That it would prove a great incentive for the development of efficiency in flying, bomb dropping, theoretical aerial combat, scouting, formation flying, and other phases of military and naval aviation, if the thousands of aviators and aviation students, who form the different Army Aviation Wings, and Naval and Marine Corps Aviation Stations, had competition.

(2) It became evident that the best results could be brought about by establishing several trophies to be competed for, under rules to be made by the Military, Naval and Marine Corps authorities, providing a trophy for each of the First and Second Provisional Wings of the U. S. Army, and one for the group of Naval and Marine Corps Air Stations located on the Atlantic Coast; and one for the group of Naval and Marine Corps Air Stations located on the Pacific Coast.

(3) The First Provisional Wing comprises a number of Army Aviation Fields which are separate units. The same is true of the Second Provisional Wing, which comprises a number of Aviation Schools located in the West. The aviators in the First Provisional Wing are mostly men who have had, or are having, advanced courses in military aeronautics. On the other hand, the Second Provisional Wing has more aviators who have not had the advanced courses. This, and the tremendous distance between the two wings, which would prevent one wing from competing against the other, brought about the conclusion to give two trophies instead of one.

The decision to have two trophies for the Naval and Marine Corps Air Stations was brought about by the fact that the tremendous distance between the Atlantic and Pacific Coast Stations would prevent competition between the two groups.

(4) Each of the four trophies is to cost $1,000.00, and with each trophy will be given five $100.00 Liberty Bonds, making five prizes of $100.00 each to go with each trophy. The idea in giving these Liberty Bond prizes was that while, under the rules of the competition, a station or squadron would have to win the trophy three times in succession to get permanent possession of it, the winning station or squadron would get a $100.00 Liberty Bond prize immediately upon winning the contest.

It is left to the Military, Naval and Marine Corps authorities to decide whether the $100.00 Liberty Bond prizes shall go to the squadrons, or to the stations, or the individuals competing.

The Military and Naval officers who were consulted by the Aero Club of America authorities stated that the offer of these trophies and prizes would greatly add to the interest of the work of training and developing professional efficiency in the Air Service. They pointed out, in the event it were not possible to hold contests between squadrons or stations, it would be possible to award the trophies and prizes for the greatest efficiency shown by the squadron or stations in their respective work, during a given period of time. For instance, one station or squadron may specialize in formation flying, another in bomb dropping, another in cross-country flying, another in patrolling, etc. Each station or squadron keeps a close record of its work, thereby making it easy to figure the percentage of efficiency, and the station or squadron having the largest percentage within the given period of time would be awarded the trophy and prize for that period.

In the event that the Military, Naval and Marine Corps authorities decide to hold the contests, or award the prizes, once each month, and the trophies are not won three times in succession by the same station or squadron, then the competition will continue until some one station or squadron does win it three times in succession.


Special War Medal of the Aero Club of America awarded to Allied aviators: The allegorical figure represents the tenth Muse: The Muse of the Air.—The inscription in Latin, as it will be awarded for distinguished service among the allies, signifies: "To the heroes of the skies, a crown of stars." There are 48 stars representing the States, and 13 stars, representing the original colonies, form the crown. The other side of the medal contains the seal of the Aero Club of America, with the laurels, and the inscription "Honor and Merit," which explains the purpose for which it is awarded. The ribbon is stamped with the recipient's name and the medal bears the date of the year of the entry of the United States into the war. The famous French Artist Pierre Roche is the sculptor.


Gold Medal presented to the Wright Brothers by the Aero Club of America.

## COMMEMORATIVE MEDALS OF THE AERO CLUB OF AMERICA

The following are the recipients of the Club's gold medals:

Alfred Leblanc, for breaking the world's duration record—44 hrs. 3 mins.—in his balloon voyage while competing for the Gordon Bennett Cup from St. Louis in 1907.

Thomas Scott Baldwin, for his achievement in constructing and delivering to the United States Government its first war air-craft in 1908. United States Signal Corps Dirigible No. 1.)

Glenn H. Curtiss, in commemoration of his winning the first race for the Gordon Bennett Aviation Cup, at Reims, in 1909.

Edgar W. Mix, in commemoration of his winning the Gordon Bennett Balloon Cup Race in 1909, from Zurich.

Alan R. Hawley and Augustus Post, in commemoration of their winning the Gordon Bennett Balloon Cup Race of 1911 from St. Louis and breaking the American distance record for this occasion.

Frank P. Lahm, for winning the first Gordon Bennett Balloon Race from Paris in 1906.

Charles Terres Weymann, in commemoration of his winning the third Gordon Bennett Aviation Cup Contest on the Isle of Sheepey, England, July 1st, 1911.

Calbraith P. Rogers, for his transcontinental flight from the Atlantic to the Pacific, December, 1911.

Ralph H. Upson, in commemoration of his winning the Gordon Bennett Balloon Cup Race in 1913 from Paris, France.

## MEDALS OF MERIT OF THE AERO CLUB OF AMERICA

R. A. D. Preston, for winning as aide, the Gordon Bennett Balloon Cup Race in France, 1913.

H. E. Honeywell, for securing second place in the 1913 Gordon Bennett Balloon Race, 1913.

J. B. R. Verplanck and Beckwith Havens, winners of the Great Lakes Flying Boat Cruise, 1913.

Lt. Joseph E. Carberry, U.S.A., and Lt. Fred Seydel, U.S.A., winners 1913 Mackay Army Trophy.

William S. Luckey, winner "Times" Aerial Derby, 1913.

W. Starling Burgess, for development of the Dunne inherently stable machine.

Capt. Townsend F. Dodd, U.S.A., American records Distance and Duration and 1914 Mackay Trophy.

Harold Kantner, winner of N. Y. City Fourth of July aeroplane race, 1914.

Theodore C. Macaulay, American altitude record.

Glenn L. Martin, American altitude record, with passenger.

Capt. H. LeRoy Muller, U.S.A., American altitude record.

W. C. Robinson, American cross-country record.

De Lloyd Thompson, American altitude record.

Glenn H. Curtiss, constructor of the "America" trans-Atlantic flyer.

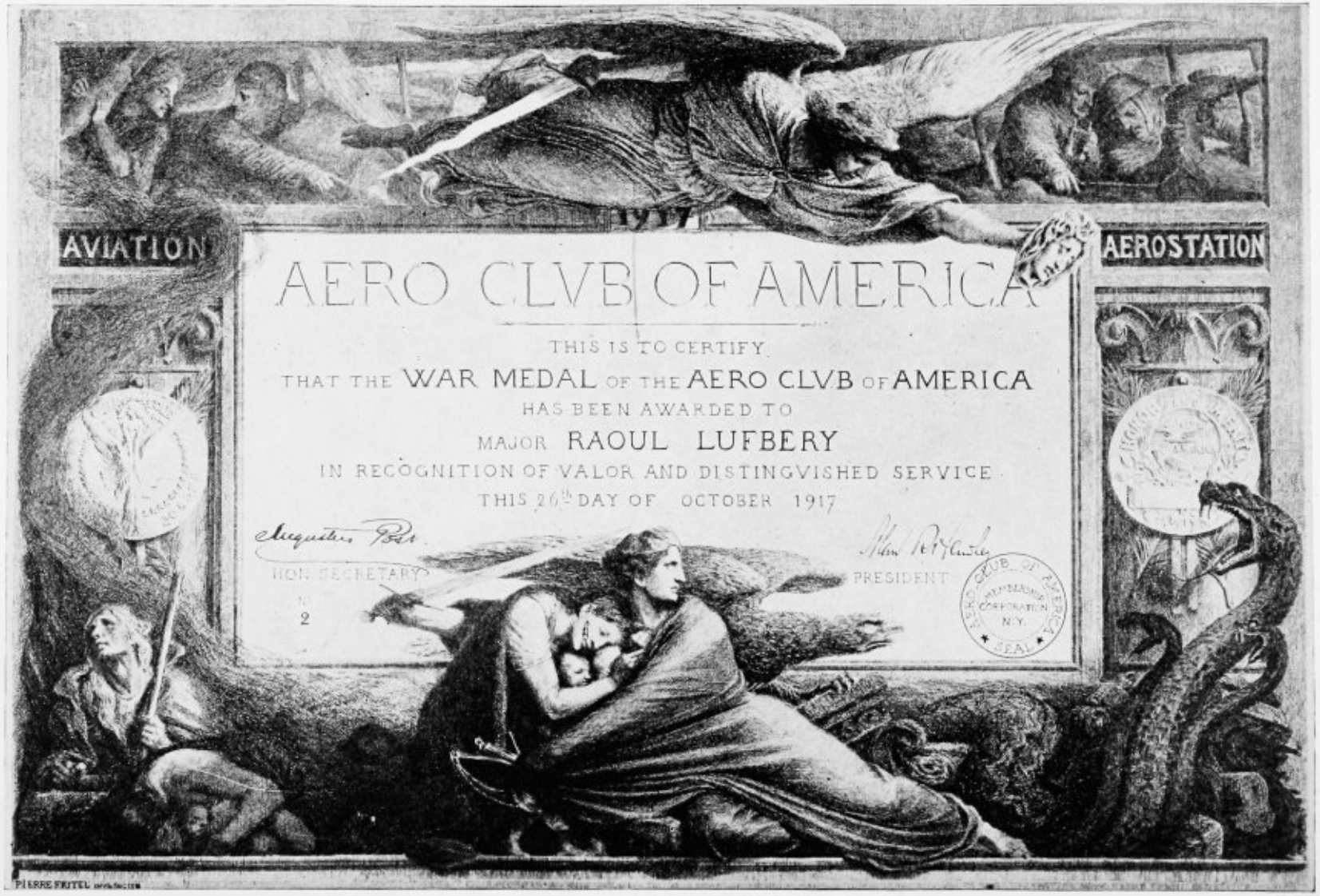
Lt. Shepler W. Fitzgerald, U.S.A., winner as observer, Mackay Trophy, 1914.

Lt. Commander H. C. Mustin, U.S.N., commanding Aeronautic ship *Mississippi* in the Mexican Expedition.

Lt. R. C. Saufley, U.S.N., Air Pilot and Observer, Mexican Expedition.

Ensign M. L. Stolz, U.S.N., Air Pilot and Observer, Mexican Expedition.

## The Aero Club of America Diploma Awarded to Allied Aviators with the War Medal




This remarkable diploma, which has been executed by Monsieur Pierre Fritel, the noted French artist, is 24x33 inches in size. The Allied officers who have received it, with the Aero Club of America Medal of Valor, and their families, have expressed hearty appreciation of this handsome award. The Medal of Valor is shown on the right and left of the diploma.

Ensign W. D. La Mont, U.S.N., Air Pilot and Observer, Mexican Expedition.

### 1915 Awards

Lieut. P. N. L. Bellinger, U.S.N., for breaking American Hydroaeroplane Altitude Record, height attained 10,000 feet.

First Lieut. R. C. Bolling, for his efforts in organizing an Aviation Section in the National Guard of New York.

Oscar A. Brindley, for notable flight of 554 miles in the Curtiss Marine Flying Trophy Competition.

Lieut. J. E. Carberry, U.S.A., for breaking American Altitude Record for pilot and one passenger. Height attained 11,690 feet.

Victor Carlstrom, for notable flight from Toronto, Canada, to New York City.

Lieut. Warren G. Child, U.S.N., in recognition of excellent work in developing machinery for aircraft.

H. K. Chow, S.B., S.M., Honor Man in Aeronautical Engineering, Massachusetts Institute of Technology, for 1915.

Lieut. H. A. Dargue, U. S. A., for flight of 192 miles for Curtiss Marine Flying Trophy.

Robert Glendinning, for flight of 160 miles for Curtiss Marine Flying Trophy.

George A. Gray, for participation, as aviator, in maneuvers of New York National Guard and Vermont National Guard.

Lieut. Jerome C. Hunsaker, U.S.N., in recognition of his excellent work in aeronautical engineering.

Lieut. Byron Q. Jones, U.S.A., for breaking American and American and World's Duration Record. American (pilot alone): 8 hours, 53 minutes. American and World's (pilot and two passengers): 7 hours, 5 minutes.

Beryl H. Kendrick, for flying from Albany, N. Y., to Ocean City, Md., in the Curtiss Marine Flying Trophy Competition.

Grover C. Loening, for meritorious development in steel aeroplane construction.

David H. McCulloch, for notable flight of 450 miles in Curtiss Marine Flying Trophy.

T. C. Macaulay, for two notable flights of 278 miles and 427 miles respectively, in Curtiss Marine Flying Trophy Competition.

Stephenson MacGordon, for breaking American Altitude Record for pilot and two passengers. Height attained 5,817 feet.

Captain Ralph McMillen, N.N.G., in recognition of his efforts in organizing an Aviation Section in Nebraska National Guard.

P. C. Millman, for participation, as aviator, in the Plattsburg Business Men's Training Camp.

Raymund V. Morris, for breaking American Altitude Record for pilot and two passengers. Height attained 8,024 feet, and for breaking American Altitude Record for pilot and three passengers. Height attained 8,105 feet. For flight of 501 miles in Curtiss Marine Flying Trophy Competition.

Commander H. C. Mustin, U.S.N., for being the first to make a flight from the *North Carolina* on the new launching device.

H. C. Richardson, Naval Constructor, U.S.N., in recognition of achievements in designing aeroplanes and aeroplane floats.

W. C. Robinson, for participation, as aviator, in maneuvers of the National Guard of Iowa.

Lieut. R. C. Saufley, U.S.N., for twice breaking American Hydroaeroplane Altitude Record in one year, attaining height of 11,975 feet.

Announcement of medals to be awarded to officers of the United States Army Aviation Section omitted, pending receipt of names from Commanding Officer.

### 1916 Awards

Mr. Hawley also announced the award of the Aero Club of America's medal of merit as follows:

To Miss Ruth Law, American distance record cross country, November 19, 1916, 512,123 miles.

Philip A. Carroll, for his patriotic work in training military aviators at Governor's Island, 1916.

Floyd Smith, American hydro altitude records: January 12, 1916, one passenger, 12,333 feet; January 11, 1916, two passengers, 9,524

feet; February 15, 1916, three passengers, 9,603 feet.

Corporal A. D. Smith, U. S. A., American hydro duration record, February 19, 1916, 8 hrs. 42 mins.

Captain C. C. Culver, U. S. A., for wireless experimentation, 1916.

James V. Martin, for the invention of the aerodynamic stabilizer.

Aerial Coast Patrol Unit No. 1, for its pioneer work in developing aerial coast defense.

In recognition of aviation service rendered at the Mexican Border, 1916: Major B. D. Foulois, Capt. J. E. Carberry, Capt. W. C. Kilner, Capt. Ira D. Rader, Capt. C. C. Chapman, Capt. H. A. Dargue, Capt. R. H. Willis, Capt. T. S. Bowen, Capt. E. S. Gorrell, Capt. A. R. Christie, Capt. T. S. Dodd, U. S. A.

Victor Carlstrom, three additional bars to Medal of Merit he already holds. No medals of interest were awarded for 1917, as it was inadvisable for military reasons to make known the important technical developments.

## AERO CLUB MEDALS OF VALOR

The Aero Club of America, through its Foreign Service Committee in Paris, has awarded and awards medals to officers and men of the Allied Air Service who distinguish themselves.

The medal is of bronze, elaborately engraved and is four inches in diameter. On one side an allegorical figure represents the tenth Muse with the inscription in Latin, "To the Heroes of the skys, a crown of stars." A circle of forty-eight stars represents the states and thirteen stars the original Colonies forming the Crown. The seal of the Aero Club of America is on the reverse side with the inscription "Honor and Merit." The recipient's name will be stamped on the medal with the date of the year of the entry of the United States into the War. The medal was designed by the famous French sculptor, Pierre Roche. With each medal is awarded an elaborate diploma, reproduced elsewhere.

These are the aviators receiving honor:

United States—Major Raoul Lufbery, L. Norman Barclay, Julian C. Biddle, Andrew C. Campbell, Jr., Oliver M. Chadwick, Victor E. Chapman, Edmund C. Genet, Ronald Hoskier, James R. McConnel, Douglas McMonagle, Norman Prince, Kiffen F. Rockwell, Ensign A. D. Sturdevant, Ensign C. S. Read and Lieut. Paul Pavelka, Capt. Frederick Libby, all of whom have been killed in action, and Major William Thaw, Lieut. Douglas Campbell, Lieut. Frank Luke, Capt. Edward Rickenbacher, Frank L. Baylies, David E. Putnam.

France—Capt. Guynemer, Lieut. Dorme, Adjutant Lenoir, Lieut. Chaput, Lt. Garros, Lieut. Coiffard, all of whom were killed in action and Lieut. Fonck, Lieut. Madon, Capt. Doullin, Capt. Pinsard, Sub.-Lt. Guerin, Sub-Lieut. Maurice Boyan, Sub-Lieut. Omer Demenldre, Lieut. Forest, Lieut. Marchal and Lieut. Nungesser.

Great Britain—Capt. Albert Ball, who is dead, and Capt. Fletcher Philip Fullard, Major William A. Bishop, Capt. James Byford McCudden and Major Edward Mannock.

Belgium—Lieut. Thieffrey and Lieut. Willy Coppens.

Italy—Lieut. Baracca and Sub-Lieut. Olivari and Major Piccio; Lieut. Fulvio Barrachini and Major Gabriello d'Annunzio.

## TROPHIES PERMANENTLY WON

The Lahm Aeronautic Cup was offered by the Aero Club of America for contests of distance in the United States, to be open to pilots of the Aero Club of America.

It was instituted by the Club to commemorate the victory of its representative, Lieutenant Frank P. Lahm, in the first contest for the Gordon Bennett International Aeronautic Cup, starting from Paris, France, September 30, 1906, crossing the English Channel and landing at Flying Dales, England, October 1, 1906, after traveling in the air a distance of 648 kilometers (402.40 miles) and defeating fifteen competitors representing the highest aeronautic skill in Europe.

### The Lahm Trophy

The Lahm Trophy was first won by Captain Charles de F. Chandler, who made a voyage from St. Louis, Mo., October 17, 1907, and landed, after being in the air 20 hours, 15 minutes, at Walton, Roane County, W. Va., a distance of 473.56 miles (762.5 kilometers).

The second holder of the Lahm Trophy was A. Holland Forbes, who, with Max C. Fleischman as aide, made a voyage from St. Louis, Mo., on October 12, 1909, and landed, after being in the air 19 hours and 15 minutes, at a place twenty miles south of Richmond, Va., in Chesterfield County, a distance of 697.17 miles (1,122.62 kilometers).

The third and permanent holder of the Lahm Trophy is Alan R. Hawley, who competed for this trophy in connection with the Gordon Bennett Balloon Race of 1910, starting from St. Louis on October 17. He landed near Lake Tschotogama, near Peribonka, Quebec, two days later, having traveled a distance of 1,172.9 miles (1,887.6 kilometers), the American balloon record. His aide was Augustus Post. Mr. Hawley, having held the American distance record for three years, the Lahm Trophy, under the rules governing the competitions, became his personal property in 1913.

### J. Stuart Blackton Trophy

Won by Harold Kantner in the New York City Fourth of July Race, 1914, flying from Governor's Island, up the Hudson to Spuyten Duyvil, back through the Narrows to Sea Gate and thence returning to starting point, comprising a distance of 46 miles covered in 43 mins. 26 1/5 secs.

### Frank H. Higgins Trophy

Won by Robert Glendinning in Balloon *L'Ecureuil* on October 8, 1914, in the Balloon and Automobile Chase event at Pittsfield, Mass.

### General Efficiency Trophy

This trophy, offered for competition by the Municipal Engineers Society of New York and the Brooklyn Engineering Society, was won by A. S. Heinrich for demonstration before them at Hempstead Plains on November 7, 1914.

# STATUTES OF THE INTERNATIONAL AERONAUTIC FEDERATION

(Fédération Aéronautique Internationale)

Translated from the French at the request of the Board of Governors of the Aero Club of America by Lieut. Col. Cornelius de W. Willcox, U. S. Army, Professor of Modern Languages, United States Military Academy.

The Fédération Aéronautique Internationale was founded on October 14, 1905, is the organization which controls all aeronautic sports and promulgates and makes official aeronautic records. The federation is represented in each country of the world by a single aeronautic organization. In the United States the representative of the Federation is the Aero Club of America, with offices at 297 Madison Avenue, New York City.

# STATUTES OF THE INTERNATIONAL AERONAUTIC FEDERATION

*Article 1.* Under the title "International Aeronautic Federation" is established an International Union of Federations or clubs that control aeronautic sport in their respective countries.

Every branch of aeronautics will be directly represented in this International Federation by the respective clubs and federations.

Only one sporting authority is recognized in each country for all branches of aeronautics.

These federations or clubs subscribe to the statutes that follow:

The principles of the F. A. I. are as follows:

(A) Acceptance by the F. A. I. of the national regulations and personal statutes of each affiliated federation or club.

(B) Regulation of competitions by two classes of statutes: (1) personal statutes; (2) real statutes.

## Personal Statutes

*Art. 2.* The status and qualifications of every aeronaut or pilot of the federated nations will be determined by his national code, or this failing, by the disposition in force in all the countries belonging to the F. A. I.

## Real Statutes

*Art. 3.* The regulations controlling competitions and records in one of the countries of the F. A. I. are applicable in that country, to any competitor, whatever may be his nationality.

## Object of the F. A. I.

*Art. 4.* The F. A. I. is charged with the international regulation of aeronautics. The F. A. I. will also decide, without appeal, issues that may arise between affiliated federations or clubs.

## Administration

*Art. 5.* The F. A. I. is directed and administered by a committee composed of seven vice presidents, of a secretary general, of a secretary recorder, of a treasurer, and of one delegate for each country not represented in the committee; the secretary general and the treasurer must reside at the seat of the F. A. I.

Vacancies occurring in the course of the year will be filled by the committee.

The F. A. I. may name special committees for the investigation of particular questions.

## Seat of the F. A. I.

*Art. 6.* The seat of the F. A. I. is fixed in the city where the secretary general has his residence.

## Conferences

*Art. 7.* A conference, composed of delegates from affiliated federations or clubs, will be held each year.

*Art. 8.* The presence of the secretary of the F. A. I. at all conferences is obligatory.

*Art. 9.* Upon the request of four countries represented in the federation, an extraordinary conference will be called by the bureau of the F. A. I. within a month after the request has been made, and in a town or city to be designated by the bureau.

The preceding prescriptions are not applicable in the case of an appeal to the F. A. I. In such a case the bureau will not convoke an extraordinary conference except upon suitable recommendation properly supported and transmitted to it by a college of three arbitrators belonging to one of the countries involved and selected; the first two by the parties at issue, and the third by the President of the F. A. I., from a list composed of as many names as there are countries represented in the F. A. I. This list will be prepared each year by the ordinary conference.

The report of the arbitral college thus formed must include with its opinion upon the reasonableness of the appeal to an extraordinary conference its estimate of the merits of the case.

*Art. 10.* All questions transmitted to the secretary's office at least two months before the date of the conference shall be placed upon the order of business of the ordinary conference.

The order of business shall be communicated by the bureau, to the affiliated clubs or federations, at least a month before the meeting of the conference.

The modifications and remarks proposed and not entered upon the order of business are open to discussion, provided they shall be proposed by the delegates of two affiliated federations or clubs.

*Art. 11.* Requests for admission to the F. A. I. must be addressed to the Directing Committee, which will submit them to the next conference. Temporary admission may be granted by the committee until ratified by the conference.

*Art. 12.* Each delegate can represent but one affiliated federation or club.

*Art. 13.* Exclusion from the F. A. I. may not be declared against a club or federation except on a majority of two-thirds of the votes represented at the conference. The proposition to exclude must appear on the order of business under the conditions fixed in article 9, paragraph 1.

*Art. 14.* Reports must be sent out to the affiliated clubs one month after the conference.

### DUES

*Art. 15.* Dues shall be fixed each year by the conference. They shall be determined, according to a quota by votes, or by the number of votes of each country, with a minimum. This quota and this minimum shall be fixed each year.

### VOTES

*Art. 16.* Each country represented at the conference shall be entitled, according to its importance and to the degree of its aeronautic activity, to a certain number of votes which shall be fixed for the first time at the moment of the country's definitive admission. This number may never, for a given country, its colonies and dependencies, exceed twelve votes in all for each of the three branches of aeronautics, or a quarter of the votes represented in the F. A. I. at the preceding fall conference, and in each of the three branches of aeronautics.

Votes will be assigned by thirds to the three branches of aeronautics: 1st, free balloons; 2d, dirigible balloons; 3d, aviation apparatus.

The proportionality will be established for each country:

(1) For free balloons (Class A) in the ratio of the gas used for inflation during the year just passed (expressed in cubic meters).

(2) For dirigibles (Class B) in the ratio of the total volume of the dirigibles having covered at least 20 kuometers over a closed course during the year just passed (constructive dimensions expressed in cubic meters).

(3) For aviation (Class C) in the ratio of the total number of nationals or persons assimilated as nationals (Article 4, General Regulations) holding a certificate as aviation pilots, this number having been fixed on the 31st of December of the year just passed.

The quorum leading to the establishment of this proportionality will be determined by dividing by *twelve* the sum of the numbers greater than zero, announced by the various countries in each category, and dividing the result thus obtained by the number of these countries.

It is, however, understood that each country, by the fact of its admission to the F. A. I., will be entitled in any case to a vote in each of the categories.

*Art. 17.* The allotment of votes is subject to revision each year at the conference.

Whenever it is necessary to vote, in a plenary session of the F. A. I., upon a question dealing particularly with one of the three branches of aeronautics, the bureau will cause the vote to be taken on the basis of the number of votes allotted to each country in the branch of aeronautics which is the object of deliberation.

*Art. 18.* Each affiliated federation or club may be represented at the conference by as many delegates as it has votes.

A delegate may have several votes for the same federation or club.

*Art. 19.* The delegates of each country must be chosen from its nationals, or these failing, from non-nationals with the consent of the federated club of their country of origin.

*Art. 20.* Each country represented in the F. A. I. is understood to be a nation, properly so-called, comprising its dependencies and colonies.

### MEMBERSHIP

*Art. 21.* In order to become a member of the F. A. I. a request must be addressed to the secretary's office, the request being accompanied by two copies of the statutes, two copies of the regulations for competitions and records, and, in case of necessity, by models of medals and of pilot certificates.

### SANCTIONS

*Art. 22.* Penalties pronounced by competent authority of any federation or club of the F. A. I. will be recognized and applied by all the federations and clubs of the F. A. I.

Art. 23. Any disqualification or suspension of a competitor will have full force from the day on which the penalty shall have been declared, and all engagements made by him, even those anterior to this date, will be ex-officio null and void.

*Art. 24.* All federations or clubs inflicting penalties will at once notify the secretary's office of the F. A. I., which will transmit them to the federations or clubs, and these in turn will immediately transmit them to their affiliated societies, and to all persons under their jurisdiction.

### LICENSES AND CERTIFICATES

*Art. 25.* The quality of pilot shall be recognized by diploma.

*Art. 26.* Pilots wishing to obtain certificates or licenses must address the club of the country of their actual residence; but if they belong to a foreign nation, the club of their country will be consulted and then informed in order that the issue of the certificate or license may be entered upon its list.

*Art. 27.* No federation or club may permit a pilot to operate under different pseudonyms.

*Art. 28.* Any federation or club may, upon the occasion of any competition or test, issue a temporary license as pilot, for this one test only, to any person whose qualifications it will consider sufficient.

### RECORDS

*Art. 29.* The secretary of the F. A. I. will keep up to date a list of the national records in accordance with the documents furnished him by each federation or club.

*Art. 30.* World records will be recognized in conformity with the general regulation, controlling meets, and records that follow these statutes.

### AMENDMENTS TO THE STATUTES

*Art. 31.* Amendments to the statutes must be requested by two affiliated federations or clubs two months before the conference.

These amendments, before adoption, must have the support of two-thirds of the votes represented in the conference.

## General Principles

*Article 1.* The F. A. I. is the sole sporting authority in the world empowered to make regulations for sporting events and aeronautic records.

*Art. 2.* Apart from its conferences, its powers are vested in each country in the Governing Board recognized by it.

*Art. 3.* Sporting events, recognized as such by the Governing Boards, and aeronautic records are governed by the present regulations. All regulations and programs must state this fact.

*Art. 4.* The Contest Committee, or any other body specially empowered as such by the Governing Board of each country represented in the F. A. I. passes as a court of last resort upon differences that may arise between its nationals; the Governing Board has the right to create organizations to act as court of first instance.

Every competitor belonging to a country not represented in the F. A. I. will be treated like the nationals of the country in a meet which he is taking part.

*Art. 5.* Sporting events must be organized by permanent or temporary bodies known as "Committees of Organization."

*Art. 6.* Each Governing Board may subdivide its Contest Committee into three sections which will then have the direction of the sporting control, respectively, of sporting events and of records in the following manner:

| | | |
|---|---|---|
| 1st Section— | Class A. | Free balloons |
| 2d Section— | Class B. | Dirigibles |
| | Class C. | Motor aviation |
| 3d Section— | Class D. | Motorless aviation |
| | Class E. | Kites |

The Governing Boards may also consolidate the three sections or two of them into one.

*Art. 7.* Every person organizing or taking part in a sporting event of whatever nature is supposed:

1st. To know the present regulations thoroughly.

2d. To agree to submit without restrictions to the consequences that result therefrom.

*Art. 8.* All sporting events not organized according to these regulations are forbidden; the organizers, the officials, and the competitors in such sporting events will be suspended.

*Art. 9.* In competitions, meets, or races, prizes or awards will be given only to the person in whose name the entry is made. These persons may be fictitious personalities.

*Art. 10.* The record belongs personally and exclusively to the

pilot of the aeronautic material with which it was made. The statement of the record must indicate the aeronautic material with which the record was made or broken.

## Sporting Events

DEFINITIONS

*Art. 11. Particulars of Sporting Events.*—Sporting events held under the present regulations, in conformity with the stipulations of Article 3, shall comprise competitions, meets, and races.

*Art. 12. Competitions.*—A competition is an occasion controlled by regulations in which prizes or awards may be given, and in which each competitor chooses the moment of execution within a period fixed by the regulations.

*Art. 13. Meets.*—A meet is a competition or a number of competitions in which several competitors take part, and in respect of which the date and place are fixed by the regulations.

*Art. 14. Races.*—A race is a competition in which speed is the only factor for classification.

## Scope of Sporting Events

*Art. 15. Definition of Scope.*—Sporting events are either national or international; they may be open or closed.

*Art. 16. Open National Events.*—Open National Events are those in which any person may take part who belongs to the country of the Governing Board that organizes it, and who is qualified under the present regulations, especially under the stipulations of paragraph 2, article 4.

*Art. 17. Open International Events.*—An open international event is one in which any person qualified under the regulations may take part, no matter what his nationality.

*Art. 18. Closed Events.*—A closed event is one in which may take part only such competitors as may satisfy conditions stipulated in the regulations by the Committee of Organization.

A closed event may be national or international, but in the latter case only the national code applies.

## Nature of Sporting Events

*Art. 19. Nature of Recognized Sporting Events.*—Events of the same nature as those for record accepted by the F. A. I. and in which distance, speed, duration, or altitude serve as a basis for classification, shall be recognized as sporting events.

*Art. 20. Sporting Events Not Specifically Covered by the Present Regulations.*—In addition the Contest Committee of the Governing Boards may admit or allow events of other sorts on the request of the Committee of Organization.

## Events Covering Several Countries

*Art. 21. Definitions of the Powers of Organizations, Control, and Homologation.*—Whenever an event shall extend over the territories of several nations the sporting control, as a matter of principle, shall belong to the country of initial departure, no matter what may be the country of arrival.

The homologation of the results of such international events shall, in principle, be pronounced by the Contest Committee of the Governing Board of the country of departure.

However, the consent of the sporting authority of each interested country is mandatory. This consent shall be requested by the sporting authority of the country of departure, through the secretary general of the F. A. I.

## Aeronautic Apparatus and Material

CLASSIFICATIONS AND DEFINITIONS

*Art. 22.—Classes.*—Events and records are classified according to the nature of the apparatus as follows:

Class A: Free balloons
" B: Dirigibles
" C: Motor aviation
Class D: Motorless aviation
" E: Kites

*Art. 23. Right to Classification.*—The Governing Board is the sole judge of the classification of all aeronautic material as well as of all questions which may arise under this head.

*Art. 24. Class A: Free Balloons.*—A free balloon (Class A) is any aerial apparatus whose support shall be due exclusively to statical means, and in whose equipment no propelling motor shall be used to give it an inherent speed.

*Art. 25. Categories.*—In Class A balloons inflated with illuminating gas are divided into the following categories, the only ones admitted:

1st Category: Balloons of 600 cubic meters and below (21,189 cubic ft.).
2d Category: Balloons of 601 to 900 cubic meters (21,234 to 31,783 cubic ft.).
3d Category: Balloons of 901 to 1,200 cubic meters (31,818 to 42,378 cubic ft.).
4th Category: Balloons of 1,201 to 1,600 cubic meters (42,413 to 56,504 cubic ft.).
5th Category: Balloons of 1,601 to 2,200 cubic meters (56,539 to 77,692 cubic ft.).
6th Category: Balloons of 2,201 to 3,000 cubic meters (77,727 to 105,942 cub. ft.).
7th Category: Balloons of 3,000 to 4,000 cubic meters (105,077 to 141,256 cub. ft.).
8th Category: Balloons of 4,001 and above cubic meters (141,291 cubic ft.).

*Art. 26. Determination of Volumes.*—The cubical contents of free balloons are established by the tables appended to these regulations. (See appendix No. 1.) They follow from the equatorial and meridianal dimensions. In other cases, they are defined by the geometric forms.

*Art. 27. Permissible Variation of Volumes.*—A variation of five per cent. is allowed; consequently there can be considered as belonging to a given category balloons exceeding by five per cent. the maximum, or falling below by five per cent. the minimum volume of that category. In these cases the competitor will be allowed to choose which one of the two categories he wishes to compete in.

*Art. 28.—Classification into Categories of Free Balloons Inflated with Other Than Illuminating Gas.*—For free balloons inflated with other than illuminating gas the category shall be that of a balloon which filled with illuminating gas shall have the same ascensional force.

In practice the fictitious volume determining the category will be obtained by multiplying the true volume of the balloon by the ratio between the ascensional force of the gas actually used to fill the balloon and that of illuminating gas. A balloon of 1,500 cubic meters, inflated with hydrogen having an ascensional force of 1.05 kilograms, corresponds to a balloon of $1{,}500 \frac{1.05}{0.70}$ = 2,250 filled with illuminating gas having an ascensional force of 0.7 kilograms; this balloon filled with hydrogen would then fall within the 6th category.

*Art. 29. Class B: Dirigibles.*—A dirigible is any aerial apparatus whose support is not due exclusively to mechanical means, in whose equipment any gas whatsoever shall contribute to the supporting power however trifling may be its share in the effort of general support and however temporary its application.

*Art. 30. Class C: Motor Aviation.*—An apparatus of motor aviation is any aerial apparatus whose support shall be due to mechanical means and which shall be susceptible of a proper speed.

*Art. 31. Class D: Motorless Aviation.*—An apparatus of motorless aviation is any apparatus whose support shall be due to mechanical means, not including any propelling motor, and in which the initial velocity shall not be obtained from any exterior source of energy other than that of gravity.

*Art. 32. Class E: Kites.*—A kite is an aerial apparatus whose support shall be connected funicularly with the ground.

*Art. 33.—Doubtful Classification.*—As to any apparatus not falling clearly within one of these five classifications, the Governing Board will determine the class in which it shall be judged proper to place it.

## Personnel

### CONTEST COMMITTEE OF THE GOVERNING BOARD

*Art. 34.—Relations with the F. A. I.*—The Governing Board alone is entitled to correspond with the F. A. I.

*Art. 35.—Function.*—Contest Committees are especially charged:

To apply authoritatively the present regulations.

To homologate and apply the national regulations enacted by the Governing Board.

To direct and control all the events occurring in their respective countries as well as those extending over several countries with the management which their country is charged.

To adjudicate as a court of appeal of first instance all questions that arise out of sporting events taking place in their country or those with which their country is charged, between the nationals belonging to different countries represented in the F. A. I. (subject to the provisions of Art. 4).

To adjudicate as a court of last appeal under the same conditions if the parties in interest are their fellow countrymen or assimilated thereto (subject to the provisions of Art. 4).

To examine and approve with or without modification the regulations and programs of meets.

To homologate the results.

To keep up to date the list of suspended or disqualified competitors, and to make sure that they take no part in the meet. This list shall be communicated by the sporting authority to the secretary of the F. A. I. whenever it shall have undergone modification.

To pass upon the admissibility of competitors.

To designate or approve the choice of stewards.

To keep the list of stewards up to date.

To appoint timers, and to revise the list every year.

To homologate the records recognized by the F. A. I.

To enact and apply penalties provided by the present regulations.

To issue licenses to pilots.

To issue sanctions.

*Art. 36. Delegation of Authority.*—The Contest Committees of the Governing Board shall have the right to delegate all or a part of their powers in respect of the direction and control of events, as well as of the infliction of penalties.

## Committees of Organization

*Art. 37. Designation.*—The following shall be recognized as Committees of Organization:

1st. The Governing Boards.

2d. Their adherents or associates.

3d. Temporary groups appointed by their Governing Board or by their adherents or associates for a given particular sporting event.

4th. Independent temporary groups who shall have obtained a sanction issued by the Contest Committees of the Governing Boards.

*Art. 38. Composition.*—No person suspended or disqualified in any sport whatever by a recognized federation shall be a member of a Committee of Organization.

*Art. 39. Function.*—The duties of the Committee of Organization are:

1st. To request sanctions, if necessary.

2d. To elaborate programs and rules for competitions, meets and races.

3d. To prepare the definitive list of competitors admitted after favorable action by the Contest Committee of the Governing Board.

4th. To perform all administrative and financial operations relating to the meet or race.

5th. To establish measures and execution of regulations to insure safety.

6th. To designate the personnel in charge of the general organization, and ultimately of stewards and experts.

7th. To supply timers.

*Art. 40. Appointment of Stewards for Meets, and Races.*—For meets and races, Committees of Organization may propose to the Contest Committee of the Governing Board the appointment of stewards, but the Contest Committee may always limit their number, impose stewards of its own selection, or further demand that new proposals be made to it.

*Art. 41. Appointment of Stewards for Competitions.*—For competitions the Committees of Organization may nominate directly one or more responsible stewards taken from the list drawn up by the Contest Committee of the Governing Board.

*Art. 42. Papers Relating to Organizations: Approval.*—The Committee of Organization must send to the Governing Board for approval, at least three days before the date of their publication, the following documents:

1st. List of entries.

2d. Names of the stewards.

3d. Three copies of the program.

4th. Three copies of each of the regulations.

5th. A description of the terrain over which the events will take place, accompanying it, when involving events of the classes, B, C, D, E, by a map on the scale of 1/50,000.

*Art. 43. Sanctions.*—A request for the sanction prescribed in paragraph 4, art. 37, is obligatory. It implies on the part of a Committee of Organization making it the acceptance, without reserve, of these regulations as well as of the national regulations.

*Art. 44. Data To Be Submitted in Order to Obtain a Sanction.*—The request for a sanction must, in addition to the data specified in article 42, be accompanied by the following complementary data:

Names, status, and addresses of the proposed members constituting the Committee of Organization and its office address.

## Officials

*Art. 45. Personnel of the Hierarchy.*—The hierarchy of a sporting organization is composed of stewards, responsible stewards, assistant stewards, and timers. They are designated as officials.

*Art. 46. Participation of Officials in Sporting Events.*—At no time during any event may an official go on board an aeronautic apparatus except in the discharge of his duties and upon the order of a steward.

*Art. 47.—Stewards.*—Each year the Contest Committee of the Governing Board draws up a list of the persons having charge of the sporting control in competitions, races and meets. These persons are known as stewards.

The list of stewards is revisable each year and may be modified during the course of the year.

Any official charged with the control of a race or meet shall be known as a steward.

The official who directs the operations of control in a competition shall be known as the responsible steward.

Any official assisting a steward shall be known as an assistant steward.

*Art. 48. Insignia.*—Stewards wear a red brassard embroidered in gold, bearing the name of the club to which they belong.

Responsible or assistant stewards wear a red and blue brassard, bearing the name of the Governing Board.

*Art. 49. Duties.*—It is the duty of the stewards and of the responsible stewards:

1st. To assure the execution of the programs, the application and the observance of the regulations by Committees of Organization, by the officials, by competitors, by pilots, and their aides and passengers.

2d. To adopt all measures to insure the genuineness of events.

3d. To make all decisions relating to claims and protests.

4th. To draw up all the papers relating to the events.

5th. To draw up the final report of the meets and races, and submit the results to the Contest Committee of the Governing Board for homologation.

*Art. 50. Application of Decisions: Appeals.*—The decisions of the stewards will be immediately carried out. However, an appeal may lie against them as set forth in Art. 178.

*Art. 51. Right of Stewards to Inflict Penalties.*—Stewards have the right to inflict penalties in conformity with the provisions of Articles 163, 165, 169, 172.

They may, moreover, request the Contest Committee to apply severer penalties.

*Art. 52. Appointment of Assistant Stewards.*—Stewards and responsible stewards always have the right to designate assistant stewards.

*Art. 53. Timers, Appointment of.*—The Contest Committee of the Governing Board appoints the timers for the current year.

*Art. 54. Program To Be Followed in Appointing Timers.*—A timer before being appointed must:

1st. Pass an examination established by the Contest Committee of the Governing Board.

2d. Pass an examination established by the Contest Committee of the Governing Board.

3d. Prove that he owns, or has received from a club, a split-second, fly-back stop watch, accompanied by a certificate of the first class issued by one of the official observatories recognized by the Contest Committee of the Governing Board.

*Art. 55. Admission of Timers, Belonging to Other Governing Boards.*—The Contest Committee of the Governing Board have the right to admit without formality of examination timers recognized by the sporting authority of any other sport.

*Art. 56. Renewal of the Certificates of Stop Watches.*—Every other year timers are required to renew the certificates of their stop watches and furnish a new rating certificate.

*Art. 57. Official Certificates of Time Records.*—No time can serve as a basis of classification of record unless taken by a regulation stop watch recorded on a time sheet drawn up and signed by the timer, with the exception of the cases provided in Articles 61, 126, 127, 140.

*Art. 58. Subordination of Timers.*—Timers are completely independent of the Committee of Organization, but are under the order of the stewards.

*Art. 59. Duties and Insignia.*—A timer must:

1st. Take the exact instant of departure and, if necessary, of arrival. The time is always the official time of the country in which it is taken.

2d. Record the time thus taken under the form of a report (time sheet, Art. 57).

Timers wear a brassard of fair leather with the inscription "Timer."

*Art. 60. Reports of Timing.*—The report drawn up by the timer has the force of law in classifying competitors and in homologating results. Every timer must always sign the report of the operation or of the times that he has taken.

*Art. 61. Formalities to the Taking of Time.*—Every timer who signs a sheet not drawn up by him, or who takes time with an unregulated stop watch, will be definitely relieved of his duties and his relief may bring on nonhomologation by the mere decision of the Contest Committee of the Governing Board.

Nevertheless, in national closed meets the timers may be authorized by the Committee of Organization to request help from assistants not furnished with the title of timer, and not provided with an official watch, and to countersign times thus taken with the express reservation that these times may in no case serve as a basis for the homologation of records.

*Art. 62. Forbidden Timing.*—Any timer who may have assisted a suspended or disqualified competitor, or a Committee of Organization not furnished with a sanction, shall be relieved of his functions for a time, the duration of which shall be fixed by the Contest Committee of the Governing Board.

In case of repetition the suspension will be obligatorily definite.

*Art. 63. Submission of Reports of Timing.*—Timers must submit their reports to the stewards to whom they are assigned.

*Art. 64. Requests for Timing.*—Requests for timing must be addressed to the Contest Committee of the Governing Board.

*Art. 65. Charges for Timing.*—The Contest Committee of each Governing Board must draw up timing tariffs for the information of interested persons; it will be obligatory upon timers.

*Art. 66. Penalties for Professional Misconduct.*—Timers may be suspended for professional misconduct for faults affecting their integrity.

However, this measure shall become definitive only after the accused timer shall have been heard or regularly summoned by the Contest Committee of the Governing Board.

## Pilots

*Art. 67. Pilotage Obligatory.*—No apparatus of classes A, B and C may take part in an event or be used to establish a record unless it is piloted or commanded by a pilot who must be on board, and who must be furnished with a license issued by the Contest Committee of the Governing Boards (Art. 70).

*Art. 68. Issue of Pilot Certificates.*—Pilot certificates of the F. A. I., namely,

The certificate of balloon pilot, Class A,
" " " dirigible " " B,
" " " aviation " " C,

are issued by each Governing Board under conditions regulated by the F. A. I.

They are to be considered as certificates of professional capacity and do not relieve one of the necessity of obtaining licenses.

The regulations bearing upon these certificates are appended to the present regulations (Appendices 2, 3, and 4).

*Art. 69. Pseudonyms in Pilot Certificates.*—A pilot certificate may in no case be issued under a pseudonym.

*Art. 70. Licenses.*—Every person furnished with a pilot certificate of the F. A. I. may obtain the license issued by the Contest Committee of the Governing Board to its own nationals or assimilated persons. This license constitutes the title of qualification which alone allows the holder to serve as pilot, in events controlled by the present regulations. It is independent of those set forth in Art. 28 of the statutes.

*Art. 71. Application for License.*—All applications for licenses must contain the following: Name and surname, date of birth, nationality, origin and number of pilot certificate.

Every request must be accompanied by the certificate itself.

*Art. 72. Validity and Withdrawal of a License.*—A license will be valid until the 31st of December of the current year.

It may be withdrawn either temporarily or definitely by the Contest Committee except with the consent of the Governing Board.

## Competitors

*Art. 73. Pilot Competitors.*—Every licensed pilot taking part in an event controlled by the present regulations, in virtue of an entry, acquires the status of competitor.

*Art. 74. Competitors and Pilots—Delay in Securing Designation of Pilots—Relay of Pilots.*—The status of competitor belongs also to every person making an entry, although not acting as a pilot himself. In case this person is not a licensed pilot, the entry must indicate the name of the pilot designated to operate the machine and the number of his license.

However, the regulations governing meets may in this case permit a delay for the designation of a pilot. This delay must always expire one week before the beginning of the meet.

Competitors will have the right, even at this moment, of designating several eventual pilots and of selecting among them the definitive pilot. The regulations must stipulate the moment at which the committee must be informed of the choice.

The regulations may also authorize the employment of several pilots to relay one another on board during a race, but under the condition that no one of these shall be the competitor.

*Art. 75. Pseudonyms.*—Permission to use a pseudonym must be requested of the Contest Committee of the Governing Board with the reasons therefor. In such a case the license issued must show the authorized pseudonym.

*Art. 76. Change of Pseudonyms.*—A change of pseudonyms will be subject to the same formalities as the original grant.

*Art. 77. Dropping of Pseudonyms.*—A person who shall have been authorized to take a pseudonym may resume his name only after a new decision of the Contest Committee of his Governing Board who will issue him a new license.

*Art. 78. Right of Protest.*—The right of protest belongs only to competitors; however, the stewards may act of their own accord even when no protest has been lodged with them.

*Art. 79. Bond and Conditions of Reimbursement.*—Protests will not be entertained unless presented in writing accompanied by the sum of ten dollars (fifty francs), which will be returned only if the validity of the protests is recognized.

*Art. 80. Time Within Which a Protest May Be Lodged.*—All

protests must be addressed to the stewards five days at the latest after the close of the event unless special stipulations of the regulations provide an exception.

*Art. 81. Protests—To Whom Addressed.*—If there are no stewards, protests are addressed within the same time limits, to the Contest Committee of the Governing Board or to the Organization established by virtue of the provisions of Article 4, within a week after the date of this homologation.

*Art. 83. Retention of Prize in Case of Protest.*—A prize won by a competitor who is under cloud of protest is withheld until the protest has been definitively decided.

*Art. 84. Summons.*—Any person against whom a protest has been lodged must be duly summoned.

*Art. 85. Rejection of a Protest Notification.*—Notice of the rejection of a protest must be given in writing to the protestant at the address which must be set forth in the protest itself.

*Art. 86. Convocation of Officials.*—In competitions the competitor is required to secure the coöperation of the officials contemplated by the regulations and to call upon them of his own motion.

*Art. 87. Simultaneous Entries.*—A competitor who voluntarily gives up participation in a meet for which he has made entry is forbidden to take part for any reason whatever, in any other event taking place on the same date or in the same period of time.

*Art. 88. Descents in the Sea.*—Any competitor who descends in the sea and is obliged to use a boat in any way whatever, is out of the race without penalty unless the particular regulations have a special stipulation on the subject.

*Art. 89. Advertisement on Apparatus.*—Competitors are forbidden to display on their apparatus or material any commercial advertisement except the trademark of the constructor of the apparatus.

*Art. 90. Misleading Publicity.*—Penalties may be applied to any competitor who upon the occasion of any sporting event whatever shall have given out false information altering the facts of the case.

*Art. 91. Publicity Before Homologation.*—Nothing may be made public relative to a performance before the homologation of this performance by the Contest Committee of the Governing Board; but a protest, however, does not suspend the right of publicity.

## Preliminaries to the Opening

*Art. 92. Elaboration and Approval of the Regulations.*—Every meet will give rise to the preparation of a set of rules which must not be published before its approval by the Contest Committee of the Governing Board, or else by the authority declared competent by virtue of Article 36.

*Art. 93. Preparation of Regulations.*—Rules and regulations submitted to the Contest Committee of the Governing Boards for their approval must necessarily contain all the information set forth below, in the following order:

1st. Definition of the event (competition, meet, race) and its nature (distance, duration, altitude, point of landing, etc.).

2d. The name under which this event shall be designated if the occasion calls for it (*Circuit de l'Est Coupe Michel Ephrussi*, "Daily Mail" prizes, etc.).

3d. A statement that the rules are drawn up in conformity with the requirements of the general regulations of the F. A. I. and of the Contest Committee of the Governing Board in question.

4th. Details of the conditions under which the event shall take place (number of passengers, surcharge, handicap, etc.).

5th. Specifications of the classes of apparatus admitted and of the categories in each case if the occasion calls for it.

6th. Detailed information in respect of the number of prizes and their value for each event. The total value of these prizes can never be reduced.

7th. The number, maximum or minimum of competitors admitted for each event. The total value of these prizes can never be reduced.

8th. The scope of the event (national, international, open, closed).

9th. The amount of the entrance fees, and the forfeitures if the occasion calls for any.

10th. (A) The place, the date, and the hour of opening and closing entries for races and meets.

(B) The time limits in which entries can be received for competitions.

11th. The exact specifications governing the material for the sporting event (receipt and examination of material, day, hour, etc.).

12th. The condition under which starts are to be made (day, hour, place, etc.).

13th. The direction in which the track must be passed over, if necessary.

14th. A statement of the various means and instruments of control required of competitors.

15th. Obligations imposed upon competitors (pavilions, numbers, marks).

16th. Conditions under which arrivals must take place.

17th. The names of the stewards, if no programs are published. These prescriptions are not limitative.

*Art. 94. Validity of Entries.*—Should occasion require, in case of competitions, the rules must indicate the time within which the entry shall hold good.

*Art. 95. Changes in the Rules—New Prizes.*—No changes may be made in the rules after their publication without the consent of the Contest Committee of the Governing Board, and these changes must be made before the day of opening the entries.

Nevertheless, with the approval of the stewards, new prizes may be added to the program during a meet, but without producing any modification in the regulations.

*Art. 96. Issue of the Rules.*—Each competitor, at the moment of his entry, shall receive a copy of the rules of the meet for which he makes an entry.

*Art. 97. Preparation of Programs.*—The preparation of programs lies with the Committee of Organization, and these programs must necessarily contain the following information:

1st. The composition of the Committee of Organization.

2d. The names of the stewards.

3d. The list, the order, the date and hour of the events.

4th. The list of competitors, with their numbers.

## Entries

*Art. 98. Formalities To Be Followed in Making Entries.*—Competitors make personal entry for each event in which they take part:

1st. By letter.

2d. By telegram, confirmed by letter of same date. The entry must be signed by the competitor.

*Art. 99. Only One Person May Make an Entry.*—Single entries may not be made by more than one person.

*Art. 100. Forwarding the Entry Fee.*—Every entry, or its confirmation by letter if the entry is made by telegram, must be accompanied, under penalty of nullity, by the total amount of the entry fee.

*Art. 101. Closing of Entries in International Events.*—In the case of international meets the interval between the closing of the entry list and the date of the meet shall not exceed three months.

*Art. 102. Delayed Entries.*—Every entry received after the closing hour shall be ipso facto null and void.

*Art. 103. Stipulations in the Entry.*—The entry must set forth the license number of the pilot, unless there are stipulations to the contrary, as set forth in Article 74.

*Art. 104. Reimbursement of Entry Fee.*—The regulations will indicate whether the total amount of the entry fees, as fixed by the Committee of Organization (Article 93) is or is not reimbursable to the starters.

The entry fee is legally reimbursable:

1st. To a competitor declared inadmissible.

2d. To a competitor eliminated by lot or by his place on the list.

*Art. 105. Fees Barred by Limitation.*—If not claimed within three months the total amount of reimbursable entry fees shall accrue to the Committee of Organizations.

*Art. 106. Forfeiture.*—In the case of declaration of forfeiture the amount of the entry fee may be retained either in whole or in part under the conditions that are stipulated in the regulations.

*Art. 107. Admissibility of Entries.*—Entries are final only after having been pronounced admissible by the Contest Committee of the Governing Board and then accepted by the Committee of Organization.

*Art. 108. Communication of the Entries to the Contest Committee.*—The list of entries must be in the hands of the Contest Committee of the Governing Board within twenty-four hours after the official closing of the entries.

*Art. 109. Elimination of Competitors.*—Whenever the Contest Committee of the Governing Board shall have decided upon the elimination of a competitor, it shall not be required to give reasons therefor.

*Art. 110. Designation of Starters.*—Should the number of competitors satisfying the prescribed conditions of admission exceed the maximum number of competitors fixed by the rules, the starters shall be designated according to the order of entry or by lot.

## Terrains

*Art. 111. Approval of Terrains.*—The general conditions of the circuit and terrain, for every sporting event, must have been approved by the Contest Committee of the Governing Board or else by the authority recognized by it (Article 36).

*Art. 112. Approval of Aerodromes.*—No meet shall be authorized on an aerodrone if the ground does not satisfy the conditions specified by the Governing Board.

*Art. 113. Refusal to Accept Grounds or Aerodromes.*—If by reason of the number of competitors or of surrounding obstacles, or if for any other reason, the lay of the ground shall not be considered suitable, the Contest Committee of the Governing Board may, notwithstanding the observance of the prescriptions laid down in the preceding article, refuse to accept the grounds and the aerodromes proposed.

*Art. 114. Marks and Circuits.*—Whenever an aerodrome consists of a track in the form of a closed polygon without reentrant angles, the vertices of the polygon will be marked by stakes.

Competitors in making a turn must pass completely outside the stakes, taking them always on the same hand, which will be indicated by the rules.

In the case of open circuits or of closed staked circuits with reëntrant angles, competitors will be required to turn the stakes on the side of the vortex of the angle.

*Art. 115. Fouling a Mark.*—Any competitor who has failed to turn a stake properly may validly continue on the circuit provided he makes a complete turn of the said stake and then continues his trip in the same direction.

*Art. 116. Site, Surface and Dimensions of Landing Places—Site.*—The terrain must be completely open, easy of approach, not surrounded by trees, houses, or other obstacles (drill grounds, race courses, etc.) and as near a railway station as practicable.

*Nature of the Ground.*—The ground must be free from obstacles, practically level, and must allow an automobile to pass over it at a minimum speed of 30 kilometers per hour.

*Dimensions.*—Except under the special authority of the Contest Committee of the Governing Board, the dimensions must be a minimum, 300 meters in length as well as in breadth.

Where the terrain is surrounded by obstacles these dimensions must be increased to a minimum of 500 meters in all directions.

## Control

*Art. 117. Right of Supervision of Members of Contest Committee.*—The individual members of the Contest Committee of the Governing Board have the right of supervision over all events controlled by the present regulations.

On presentation of their visiting cards, insignia, or brassards they will be admitted wherever an event is organized under the regulations.

The brassard will be violet embroidered in gold.

*Art. 118. Refusal or Cessation of Control.*—In a competition the responsible steward has full authority to exercise control over the terrain within the limits of the regulations in force. He also has the right to refuse or discontinue control of the competition whenever he shall judge proper.

*Art. 119. Control Out of Sight of the Stewards.*—Whenever, in an event, apparatus may for any reason whatsoever be compelled to execute all or a part of their circuit out of sight of the stewards, the latter will impose upon the competitors such measures as may seem suitable to insure proper control, even beyond the means provided in similar cases by the regulations.

*Art. 120. Prescriptions Relative to Control Apparatus.*—In all events the competitor may be required to provide himself with control apparatus sealed or not by the stewards. The Contest Committees of the Governing Boards have the right to impose models of these apparatus or to improve those presented by the competitors.

The stewards have the right to interchange between competitors the control apparatus brought by them.

If it is necessary, the competitor will be required to mount the instruments anew according to instructions that shall be given immediately before departure.

*Art. 121. Faulty Behavior of Control Apparatus.*—In the case of faulty behavior of control apparatus the stewards may annul all or a part of the performance no matter what may be the origin of the control apparatus.

*Art. 122. Prescriptions Special to the Control of Class—A.*—In events of Class A the competitor must deliver or send to the Committee of Organizations, within twenty-four hours after landing, by registered mail or train, all the control documents prescribed by the regulations. They must bring back or send under the same conditions as to time the control or registering apparatus, after taking all precautions for their delivery intact.

The competitor is responsible for the arrival at destination, within the prescribed time limits, of the documents addressed to the Committee of Organizations.

*Art. 123. Incompetency of a Competitor.*—If in any event a competitor shall have shown himself notoriously incompetent, the stewards shall inform the Contest Committee of the Governing Board, which may then order the temporary withdrawal of his license and his exclusion from the event.

*Art. 124. Handicap.*—Handicapping is permitted; it must have for its object the greatest possible equalization of the chances of the competitors.

Regulations of handicapped events must define, in a precise manner, the methods of control followed to insure their equity.

Contest Committees of Governing Boards have complete power to accept or refuse the methods of handicapping proposed and to impose such complementary measures of control as they may think suitable.

*Art. 125. Points of Arrival Not Fixed.* In every event in which the point of arrival shall not have been fixed, the place of landing and the exact moment of this landing will be determined by the control documents to be drawn up by the competitor and obligatorily addressed, within the time limits imposed, to the Committee of Organization.

These documents shall contain under pain of nullity:

(a) The log (model appendix No. 5).

(b) Certificates of landing (model appendix No. 6).

*Art. 126. Preparation of Documents in Case Point of Arrival Is Not Fixed.*—The documents mentioned in Article 125 must be in scrupulous conformity with the instructions therein mentioned. The hours must be indicated in accordance with those of departure registered by the watch of the competitor, which must have been regulated by the watch of the timer, or if this is impossible, by that of the steward; or finally by the official time of the place of departure.

*Art. 127. Certificates of the Log.*—The log is obligatorily signed by the competitor who certifies that his declarations are true and must be countersigned by the aides, or passengers with the following note:

"The aides and passengers traveling on board the aeronautic apparatus controlled by Mr. ———, certify that the declarations stated above are correct in whatever concerns the ascension of the ———."

The log must be kept with indelible ink or pencil.

*Art. 128. Preparation of Landing Certificates.*—The certificates of the witnesses of the descent or of the landing must give information indicated in the printed form of the Landing Certificate.

*Art. 129. Case Where Official Certification of Documents Is Impossible.*—If the signature or seal of a municipal magistrate or agent of the authorities, or of a railway, cannot be placed upon the landing certificate, especially in the document with the attestation of the witnesses as to the descent or of the landing.

*Art. 130. Agreement of Hours.*—The competitor will indicate if the time mentioned in the landing certificate is in accord with that of the place of descent or of departure.

*Art. 131. Dispatch of Documents.*—The Contest Committee of the Governing Boards must keep printed forms of the log and landing certificate at the disposition of interested parties, but nonfulfillment of these requirements will not excuse competitors from drawing up these two control documents in the prescribed form.

*Art. 132. Telegrams.*—As soon as possible after the descent, competitors will be required to send a telegram to the committee indicating briefly the hour, the place of descent, and the name of the nearest town.

This telegram must be sent to the address specified by the rules or program by the Committee of Organization.

*Art. 133. Declarations Under Oath.*—In case of uncertainty concerning the conditions of performance the competitor may be allowed to complete the data necessary to establish his classification in a declaration sworn to before the stewards.

The competitor must give this oath and the stewards must mention this declaration in detail as well as the reasons that led to it.

Any declaration recognized as false after the inquiry by the Contest Committee of the Governing Board may lead to disqualification of the competitor.

*Art. 134. Optional Measures of Control.*—The Committees of Organization are free to impose other measures of control, defining them in the rules.

*Art. 135. Supplementary Investigation.*—The stewards will make all the investigation necessary to the establishment of the truth.

*Art. 136. Definition of Starts.—Class A.*—A balloon is considered as having started at the moment when the person charged with verifying the start begins to see the bottom of the basket, if at this moment there is no connection between the balloon and the soil, or at the moment when this connection shall have been cast off.

Class B. A dirigible is considered as having started under the same conditions as laid down for Class A.

Class C. There are two kinds of starts for apparatus of Class C:

1st. Flying start.

2d. Standing start.

A flying start is one not effective until the apparatus crosses a starting line in full flight.

An apparatus making its start in full flight is considered as having started when it has completely crossed the starting line.

A standing start is one which is effective at the moment in which the apparatus at rest receives the order of departure from an official.

*Art. 137. Regulation of Starts.*—The regulations governing starts must indicate for all classes, the nature of the start as well as the method of controlling these starts.

*Art. 138. Landing.*—Every voluntary stop is a landing which must be reported on the log by the competitor, with its exact duration.

*Art. 139. Involuntary Stops.*—An involuntary stop must also be considered as a landing and reported as such, except for apparatus of Class A, for which an involuntary stop constitutes a landing only if it lasts longer than fifteen minutes, but the log must report every stop no matter what its duration.

*Art. 140. Passage of Marks—Stops.—Class A*—A balloon is considered as stopped when any part whatever of its equipment is no longer taken on by it.

The instant of stop is consequently that in which the balloon ceases to advance and not that in which the basket touches the ground.

The moment of stop is determined by the log, by the certificate of witnesses to the descent or to landings, and by the control instruments.

If the stop occurs at night or out of sight of any inhabitants, the fact shall be mentioned on the log.

*Classes B & C.*—In order that an apparatus shall be considered as having passed a stake it must completely cross the bisectrix of the angle of which this stake is the vortex.

*Art. 141. Arrivals.*—The regulations must state exactly the conditions under which these arrivals shall, if necessary, be verified and timed.

*Art. 142. Measurement of Distances.*—Distances are measured:

1st. Up to five kilometers by direct measurement, or by sights made according to methods that shall appear most suitable to the stewards.

2d. Between five kilometers and fifty kilometers either are indicated above (Par. 1.) or on a general staff map.

3d. Beyond fifty kilometers by the arc of the great circle taken at the level of the sea which joins the verticals passing through the two points considered.

*Art. 143. Evolution of Distances—Staked Circuit.*—In the case of a staked circuit the distance passed over shall be evaluated according to the distance which separates the stakes.

## Closure

*Art. 144. Documents.*—Each meet gives rise to the establishment of a file of documents which must contain all the information necessary to homologation for the granting of the prizes set forth in the rules.

*Art. 145. Mention of Records.*—If records have been established or broken during a meet the documents must mention them. They must also in addition contain the official data necessary to the homologation of these records.

*Art. 146. Delay of Transmission of Documents.*—The files must be addressed to the Contest Committee of the Governing Board:

1st. In the case of competitions, by the responsible stewards, within twenty-four hours after the close of the competition.

2d. In meets or races, by the stewards, within six days after the close of the meet.

*Art. 147. Reports.*—Each meet gives rise to the preparation of a report by the stewards and signed by them, which must accompany the documents provided in Art. 144.

*Art. 148. Preparation of Reports.*—The report must contain in the following order:

1st. The general classification for each event with the award of prizes.

2d. The list of the competitors entitled to reimbursement of the entry fee.

3d. The list of competitors not entitled to this reimbursement and reasons therefor.

4th. The list of penalties inflicted.

5th. The list of records made or broken.

6th. The list of Protests made by the competitors with a note of the decisions made in consequence thereof and the date of the promulgation of these decisions.

## Homologations

*Art. 149. Authority of Homologate.*—The Contest Committee of the Governing Boards pass upon the homologation of the results of the meets whose documents are submitted to them.

*Art. 150. Delays.*—This homologation must be announced, as far as possible, within a month after the submission of the files and of the reports.

*Art. 151. Promulgation.*—The homologation of the results of a meet is considered as having been daily communicated to all persons interested when posted at headquarters of the secretary of the Contest Committee of the Governing Board which has pronounced this homologation, or by its publication in the

official organ, unless special provisions have been made in a particular set of regulations.

## Prizes

*Art. 152. Delay in the Transmission of Prizes.*—The total amount of the prizes and awards shall be held at the disposition of the competitors who have made the entries (Arts. 73 and 74), immediately after the expiration of the time within which protests can be made (Art. 82).

*Art. 153. Postponement of Transmission of Prizes.*—Before the payment of prizes or the delivery of rewards, the Committee of Organization must assure itself that no competitor is liable to the provision of Art. 83.

*Art. 154. Deposits in the Case of Appeal in the F. A. I.*—Whenever the homologated results of a meet shall have given rise to a protest upon which the Contest Committee of the Governing Board shall have been unable to adjudicate as a court of final appeal, the Committee of Organization will be required, upon the demand of the Governing Board of the protestant, to deposit the amount of the prize in a financial institution of good standing.

## Jurisprudence

### Penalties

*Art. 155. Powers.*—All infractions of the present regulations, of the regulations of the Contest Committee of the Governing Boards, or of special regulations approved for any special event, committee by organizers, officials, competitors, pilots, etc., are liable to the penalties by the F. A. I. or by the Governing Board and carried into effect by the Contest Committees of the Governing Boards, or of their authorized delegates.

*Art. 156. Delegation of Powers.*—Each Contest Committee is authorized to delegate the right to inflict certain of these penalties in conformity with Articles 4 and 36.

*Art. 157. Execution of Penalties.*—All penalties shall be immediately carried into effect.

*Art. 158. Scale of Penalties and Persons Authorized to Inflict Them.*—Penalties that may be inflicted are: loss of place, censure, fine, exclusion, suspense, disqualification.

Among these, loss of place, censure, fines up to $100 (500 francs) and exclusion may be inflicted by the stewards.

*Art. 159. Cause for Loss of Place.*—Loss of place may be pronounced against any competitor who, in a race, shall have executed an irregular maneuver.

*Art. 160. Definition of Loss of Place.*—Loss of place consists in putting the competitor back one or more places.

*Art. 161. Extension.*—Loss of place may moreover bring on the infliction of another penalty.

*Art. 162. Record of Time in Relation to Loss of Place.*—The time of a competitor who has been put back is not taken.

*Art. 163. Delegation.*—The stewards have the right to inflict loss of place.

*Art. 164. Censure.*—Censure is inscribed on the papers of the offender in the archives of the Contest Committee of the Governing Board. It may be made public immediately through official channels.

*Art. 165. Delegation.*—Stewards have the right to censure.

*Art. 166. Fines, Responsibility.*—Fines may be imposed upon competitors as well as upon pilots, aides and passengers not conforming to the requirements of the regulations or to the injunctions of the stewards.

Competitors are responsible for the fines incurred by their pilots, aides or passengers.

*Art. 167. Time in Which Payment is Due.*—The total amount of the fine must be sent within forty-eight hours after notice in the office of the secretary of the Contest Committee of the Governing Board, or to the stewards.

*Art. 168. Delay.*—Any delay in paying a fine brings on suspension, at least until the fine shall have been paid.

*Art. 169. Delegation.*—Stewards have the right to impose fines up to $100 (500 francs).

*Art. 170. Application of Fines.*—The total amount of fines imposed during the course of the year must be used by the Governing Board in the establishment of Prizes to be awarded during the following year. Governing Boards have the right to intrust the organization and control of the prizes to the clubs under their control.

*Art. 171. Exclusion.*—Exclusion may be inflicted for any grave fault. It prevents the offender from taking part in an event in respect of which it is declared. It involves in all cases loss of the entry fee, which then becomes the property of the Committee of Organization.

*Art. 172. Delegation.*—Stewards have the right to inflict exclusion.

*Art. 173. Suspension.*—Suspension temporarily suppresses the right of the offender to take part in any aeronautic meet.

*Art. 174. Withdrawal of License, Delay.*—Any licensed competitor who has been suspended is required to send his license to the office of the secretary of the Contest Committee of the Governing Board, as soon as informed of the decision. Any delay occurring in transmittal will be added to the original duration of the penalty.

*Art. 175. Entry of Any Person under Suspension.*—Suspension involves the annulment of all anterior entries taking place during the time of this suspension.

It involves also the loss of the entry fees relating to these events.

*Art. 176. Disqualification.*—Disqualification definitively extinguishes the offender's rights to take part in any aeronautic meet.

It has, as a consequence, the annulment of the entries contracted before with the loss of the entry fees.

The list of suspended or disqualified competitors is communicated by the Contest Committee of the Governing Boards to the secretary of the F. A. I., who must transmit it by letter to the affiliated clubs.

*Art. 177. Loss of Rights by Disqualified Persons.*—Any competitor disqualified in a meet will lose all right to receive any of the prizes decreed during the stated meet.

## Appeals

*Art. 178. Rights and Jurisdiction of Appeals.*—Competitors have the right of appeal:

1st. From the decisions of the stewards to the sections of the first instance.

2d. From the decisions made in the first instance to the Contest Committee of the Governing Board with all its sections assembled, or to the organization of last resort (Article 4).

*Art. 179. Delay of Appeal.*—The right of appeal set forth in the preceding article expires a fortnight after the date of the promulgation of the decision.

*Art. 180. National Jurisdiction.*—The Contest Committee of the Governing Boards or the organizations created under Article 4, sit as a court of last resort on the appeals made by their nationals, or assimilated.

*Art. 181. Citation of Interested Persons.*—The Contest Committee of the Governing Boards, or the organizations established under Article 4, cannot pass upon an appeal until they have duly cited the interested parties to appear.

*Art. 182. Suspension of Sentence.*—The Contest Committee of the Governing Boards, or the organizations created under Article 4, as well as the sections of first instance have the right to delay a sentence inflicted for a first offense. Whenever this suspension is declared the penalty shall not be applied, but it will be recalled and added to a new penalty if the offender should be punished again within one year. After one year from the day on which it will have been applied, the suspension becomes permanent.

*Art. 183. International Jurisdiction.*—The conference of the F. A. I. constitutes the international court of appeal. It decides as a court of last resort.

*Art. 184. Right of Appeal to the F. A. I.*—Only the sporting authority of a country affiliated with the F. A. I. may appeal to the conference of the F. A. I. from the decision of a club or any other country with respect to its own nationals.

*Art. 185. Definition of Right of Appeal.*—An appeal may not be brought before the conference of the F. A. I. save as

against a decision of the Contest Committee of the Governing Board, or of an organization created under Article 4, in favor of a competitor belonging to a country foreign to that of the nationality which had charge of the meet.

*Art. 186. Time Within which an Appeal Must be Made.*—This right of appeal expires a month after the promulgation of the decision in question, unless postal delays shall have occurred.

*Art. 187. Address of Appeals.*—The appeal must be addressed to the Secretary of the F. A. I., and the Contest Committee of the Governing Board which made the decision must be notified by the same mail.

## Records

*Art. 188. Definition.*—A record at a given moment is the maximum result obtained by a pilot in events under the control of one and the same set of regulations.

*Art. 189. Ownership.*—Records shall belong personally and exclusively to the designated pilot of an aeronautic apparatus, which must be named.

*Art. 190. Control Obligatory.*—In order to establish valid records a pilot is required to assure himself of the coöperation of the officials necessary to control.

He also must provide himself with all the control apparatus required of him by the stewards.

*Art. 191. Publications.*—The F. A. I. shall publish every year:

1st. The list of records of which it authorizes the homologation.

2d. The list of world records.

*Art. 192. Cognizance of Records.*—Contest Committees of the Governing Boards alone are entitled to take cognizance of records established or broken in their respective countries with respect to aeronautic apparatus of Classes A, B, C, D, and E (Article 22).

*Art. 193. Homologation.*—Contest Committees of the Governing Boards may homologate as established or broken only such records as are admitted by the F. A. I. under the conditions laid down in the present regulations (Appendix No. 7).

*Art. 194. Definition of National Records.*—A national record is one established in the territory of the Governing Board considered (country of departure) whatever may be the nationality of the designated pilot. No record may be homologated for any country not represented in the F. A. I.

*Art. 195. Publication of National Records.*—The Contest Committee of the Governing Board publish periodically, and in any case each year, the list of national records and communicate it in due time to the F. A. I. for the establishment of world records.

*Art. 196. Formalities of Homologation.*—In respect of records established during a meet, the request for homologation must be approved by an official.

If records are established elsewhere than at a meet the request for homologation must be accompanied by documents and testimony furnishing exact and authentic date.

For records in which distance is a factor, the request for homologation must, in addition, always be accompanied by a record of the measurements.

A record of altitude or of height can be broken only by a difference of at least 150 meters.

*Art. 197. Accuracy of records.*—No record can be homologated by results established by deduction. For example: A time cannot be homologated unless it has been accurately taken on a stop-watch.

*Art. 198. Choice in Case of Multiple Performances.*—Whenever an accepted record shall have been comprised and controlled several times in the same trial for record, the competitor shall have the right to demand the homologation of the best performance.

*Art. 199. Request for homologation.*—Contest Committees of the Governing Boards are required to homologate records only upon the request of competitors.

*Art. 200. Jurisprudence.*—In respect of protests and appeals, records come under the same jurisdiction and the same legislation as sporting events.

## Appendices to F.A.I. Regulations

1. Dimensions of Balloons; 2, Balloon Pilot Certificate; 3, Dirigible Balloon Pilot Certificate; 4, Aviation Pilot Certificate; 5, Log; 6, Landing Certificate; 7, Records Recognized by the F. A. I.

## Spherical Balloon Pilot Certificate

The contest committee controlling ballooning in each country represented in the F. A. I. is alone empowered to deliver the balloon pilot certificate to all persons requesting it, who must be at least eighteen years of age, and belonging to its jurisdiction, to wit:

1st. To its nationals.

2d. To foreigners belonging to a country not represented in the F. A. I.

3d. To foreigners belonging to a country that is represented in the F. A. I., but in this case the certificate can be delivered only with the consent of their national sporting authority.

Candidates will be required to meet the following conditions:

A. Five ascensions without any conditions.

B. An ascension to last at least one hour with the candidate alone on board.

## Spherical Balloons

| Volume of the Balloons V. Cubic Meters | Volume of the Categories of the F. A. I. with VARIATIONS $+5\%$ $-5\%$ Cubic Meters | Diameter of the Balloon $D=\sqrt[3]{\frac{6V}{\pi}}$ Meters | Circumference of the Balloons $D\sqrt[3]{\frac{6V}{\pi}}$ Meters | Circumference of the Balloons $C=\pi D$ Meters | Circumference of the Balloons $C=\pi D$ Meters |
|---|---|---|---|---|---|
| 100 | ..... | 5,759 | ..... | 18,092 | ..... |
| 150 | ..... | 6,592 | ..... | 20,710 | ..... |
| 200 | ..... | 7,257 | ..... | 22,797 | ..... |
| 250 | ..... | 7,816 | ..... | 24,554 | ..... |
| 300 | ..... | 8,306 | ..... | 26,093 | ..... |
| 350 | ..... | 8,744 | ..... | 27,469 | ..... |
| 400 | ..... | 9,142 | ..... | 28,719 | ..... |
| 450 | ..... | 9,508 | ..... | 29,869 | ..... |
| 500 | ..... | 9,847 | ..... | 30,937 | ..... |
| ..... | 570 | ..... | 10,297 | ..... | 32,349 |
| 600 | ..... | 10,465 | ..... | 32,875 | ..... |
| ..... | 630 | ..... | ..... | ..... | 33,411 |
| 700 | ..... | 11,016 | ..... | 34,608 | ..... |
| 800 | ..... | 11,518 | ..... | 36,184 | ..... |
| ..... | 855 | ..... | 11,776 | ..... | 36,995 |
| 900 | ..... | 11,979 | ..... | 37,633 | ..... |
| ..... | 945 | ..... | 12,175 | ..... | 38,249 |
| 1,000 | ..... | 12,407 | ..... | 38,978 | ..... |
| ..... | 1,140 | ..... | 12,952 | ..... | 40,690 |
| 1,200 | ..... | 13,184 | ..... | 41,420 | ..... |
| ..... | 1,260 | ..... | 13,401 | ..... | 42,100 |
| 1,400 | ..... | 13,880 | ..... | 43,604 | ..... |
| ..... | 1,520 | ..... | 14,265 | ..... | 44,814 |
| 1,600 | ..... | 14,511 | ..... | 45,589 | ..... |
| ..... | 1,680 | ..... | 14,759 | ..... | 46,366 |
| 1,800 | ..... | 15,092 | ..... | 47,414 | ..... |
| 2,000 | ..... | 15,632 | ..... | 49,109 | ..... |
| ..... | 2,090 | ..... | 15,863 | ..... | 49,835 |
| 2,200 | ..... | 16,136 | ..... | 50,693 | ..... |
| ..... | 2,310 | ..... | 16,401 | ..... | 51,525 |
| 2,500 | ..... | 16,839 | ..... | 52,901 | ..... |
| ..... | 2,850 | ..... | 17,590 | ..... | 55,261 |
| 3,000 | ..... | 17,894 | ..... | 56,216 | ..... |
| ..... | 3,150 | ..... | 18,183 | ..... | 57,124 |
| 3,500 | ..... | 18,838 | ..... | 59,180 | ..... |
| ..... | 3,800 | ..... | 19,343 | ..... | 60,770 |
| 4,000 | ..... | 19,695 | ..... | 61,873 | ..... |
| ..... | 4,200 | ..... | 20,018 | ..... | 62,889 |
| 4,500 | ..... | 20,484 | ..... | 64,351 | ..... |
| 5,000 | ..... | 21,216 | ..... | 66,651 | ..... |

Note: One cubic meter equals 35.314 cubic ft.

C. A night ascension of at least two hours to come off between sunset and sunrise.

The issue of the certificate is always optional.

## Dirigible Balloon Pilot Certificate

The sporting authority having charge of aeronautics in each country represented in the F. A. I. alone may issue a dirigible pilot certificate to all applicants at least eighteen years old and belonging to its jurisdiction, to wit:

1st. To its nationals.

2d. To foreigners belonging to a country that is represented in the F. A. I., but in this case the certificate can be delivered only with the consent of their national sporting authority.

Applicants must

A. Give proof of their possession of a balloon pilot certificate.

B. Furnish proof of the accomplishment of six trips in dirigibles at different dates, one of which must have been at least an hour in duration, and the maneuvers of three of which must have been made by the candidate.

An application for the certificate must be countersigned by two dirigible pilots who shall have been present at at least three of the departures and landings of the candidate.

The issue of the certificate is always optional.

## Aviation Pilot Certificate

The sporting authority having charge of aeronautics in each country represented in the F. A. I. alone may issue aviation pilot certificates to all candidates at least eighteen years of age and belonging to its jurisdiction, to wit:

1st. To its nationals.

2d. To foreigners belonging to a country not represented in the F. A. I.

3d. To foreigners belonging to a country represented in the F. A. I. but in this case the certificate can be delivered only with the consent of their national sporting authority.

Applicants must take the three following tests:

A. Two distant tests consisting each in executing, without touching either the ground or water, a closed circuit representing a minimum length of five kilometers (this length to be measured as explained hereafter).

B. An Altitude test consisting in rising to a minimum height of fifty meters above the point of departure.

C. Test B may be carried on at the same time as one of tests A.

A start from and an alighting on the surfaces of the water will be authorized only in one of the tests A.

The course over which the aviator will execute the two aforementioned circuits will be marked by two posts or buoys distant at the most 500 meters one from the other.

After each turn around a post or buoy the aviator will change direction in order to turn around the other. The circuit will therefore constitute an uninterrupted series of figure 8, each hop of which will contain alternately one of the two stakes or buoys.

The distance counted for the trip made between the two turns shall be the distance separating the two posts or buoys.

In each of the tests the landing shall be made:

1st. By definitely stopping the motor not later than first contact with the ground or water.

2d. By stopping completely at a distance of less than fifty meters from a point selected by the candidate before the test.

Landings must be made in normal fashion and the steward must indicate in his report the conditions under which they shall have been made. The issue of the certificate is always optional.

The responsible officials must be taken from a list drawn up by the sporting authority of each country.

## Appendix No. 5—The Log

The log, the blank form, is obtainable from the sporting authority or organization having charge of aeronautics in each country as representative of the F. A. I. In this form will be recorded the following information: Place and date of departure; Name of club which organized the meet; Event; Name of pilot; Aerial apparatus; Names of aids and passengers; Date of trip; Place of start; Hour of start; Type and horse power of motor; Characteristics of apparatus; Surface barometric pressure at start; Surface temperature of start; Direction of wind; Velocity of wind; Also (Appendix 5 A) record of conditions during the trip; Altitudes; Pressures; Temperatures; Ballast expended; Valve pulled; Hygrometric state; Atmosphere; Clouds; Route followed; Speed; etc., etc., and Appendices 5 B and 6; Observations of arrival; Date of final landing hour; Conditions of landing; Place of landing; Township; County; State; surface barometric pressures; Surface temperature. Direction and speed of wind; Certificates of landing with place where certified; Signature of authorities and witnesses, etc., etc.

## Records Recognized by the F. A. I.

(January 1, 1913)

Class A—

Duration (without landing).
Distance (without landing).
Altitude (above the level of the sea).

Class B—

Duration (without landing).
Distance (closed circuit without landing).
Speed (closed circuit).
The greatest speed over a minimum course of five kilometers.
Altitude (above the level of the sea).

Class C—

*Duration.*

The longest duration in a closed circuit without landing. The aviator alone. Aviator with one passenger. Aviator with two passengers, etc., etc.

*Distance.*

The greatest distance over a closed circuit, without landing. Aviator alone. Aviator with one passenger, etc, etc.

*Speed.*

The greatest speed over a closed circuit. Aviator alone. Aviator with one passenger, etc., etc. Distance of 5 kilometers 10, 20, 30, 40, 50, 100, 150, 200, 250, 300, 350, 400, 450, 500, and increasing beyond this by 100 kilometers.

*Speed in a given time.*

Closed circuit. Aviator alone. Aviator with one passenger, etc., etc., ¼ hour, ½ hour, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 hours, etc., etc.

*Greatest Speed.*

Speed per hour over a closed circuit, no matter what may be the duration of flight. Aviator alone. Aviator with one passenger, etc., etc.

*Altitude.*

(Above point of departure.) Aviator alone. Aviator with one passenger, etc., etc.

Altitudes will be determined by the barometric depression, which will be converted into altitude by taking into account the initial pressure, either by formula or by table, with hygrometric or any other correction.

*Passengers.*

To validate records, passenger must be at least eighteen years of age and each individual weigh at least 143 pounds or else brought up to this weight by ballast.

Class E—

*Altitude* (above point of departure).

A. Apparatus not equipped.
Apparatus equipped.

# RULES AND REGULATIONS OF THE INTERNATIONAL AERONAUTIC FEDERATION GOVERNING THE ISSUE OF PILOTS' CERTIFICATES

All pilot certificates in the United States are issued by the Aero Club of America, 297 Madison Avenue, New York, the sole representative of the International Aeronautic Federation in the United States. The Aero Club of America may grant aeronautical and aviation pilots' certificates to persons who are over eighteen (18) years of age, citizens of the United States, or citizens of a country not represented in the F.A.I., or citizens of a country represented in the F.A.I., with the permission of the representative organization of the applicant's nationality.

The following are the rules under which certificates are granted by the Aero Club of America:

1. A person desiring a pilot certificate must apply in writing to the Secretary of the Aero Club of America. He must state in his letter the date and place of his birth, and enclose therein two unmounted photographs of himself about $2\frac{1}{4} \times 2\frac{1}{2}$ inches, together with a fee of five dollars. In case the applicant is a naturalized citizen of the United States he must submit proof of naturalization.

2. On the receipt of an application the Secretary will forward it promptly to the Contest Committee, which, in case of an application for an aviator's certificate, will designate a representative to supervise the test prescribed by the International Aeronautical Federation, and will advise the representative of the name and location of the applicant and, through the Secretary, advise the applicant of the appointment of the representative to take the test.

3. In case the application is for a spherical balloon or for a dirigible balloon pilot certificate the applicant will be fully advised by the Contest Committee.

4. All applications for aviator's certificates must reach the Secretary a reasonable time in advance of the date that the applicant may expect to take the required test.

5. No telegraphic applications for certificates will be considered.

Applicants for each class of certificate must be of the age of 18 years, and in the case of dirigible certificates 21 years, and must pass, to the satisfaction of the properly designated representatives of the Aero Club, the tests prescribed by the F.A.I., as follows:

## Spherical Balloon Pilot's Certificate

Candidates must pass the following tests:

(A) Five ascensions without any conditions.

(B) An ascension of one hour's minimum duration undertaken by the candidate alone.

(C) A night ascension of two hours' minimum duration comprised between the setting and the rising of the sun.

The issue of a certificate is always optional.

## Dirigible Balloon Pilot's Certificate

Candidates must be 21 years of age.

They must hold a spherical balloon pilot's certificate and furnish proof of having made twenty (20) flights in a dirigible balloon at different dates.

They must also undergo a technical examination.

In case, however, the candidate does not already possess a spherical balloon certificate, he must have made twenty-five (25) ascensions in dirigibles before he can apply for a certificate.

The application for the certificate must be countersigned by two dirigible balloon pilots, who have been present at at least three of the departures and landings of the candidate.

The issue of the certificate is always optional.

### Aviator's Certificate

1. Candidates must accomplish the three following tests, each being a separate flight:

A and B. Two distance flights, consisting of at least 5 kilometers (16,404 feet) each in a closed circuit, without touching the ground or water, the distance to be measured as described below.

C. One altitude flight, during which a height of at least 100 meters (328 feet) above the point of departure must be attained; the descent to be made from that height with the motor cut off. A barograph must be carried on the aeroplane in the altitude flight. The landing must be made in view of the observers, without restarting the motor.

2. The candidate must be alone in the aircraft during the three tests.

3. Starting from and landing on the water is only permitted in one of the tests A and B.

4. The course on which the aviator accomplishes tests A and B must be marked out by two posts or buoys situated not more than 500 meters (547 yards) apart.

5. The turns round the posts or buoys must be made alternately to the right and to the left so that the flight will consist of an uninterrupted series of figures of 8.

6. The distance flown shall be reckoned as if in a straight line between the two posts or buoys.

7. The landing after the two distance flights in tests A and B shall be made:

(*a*) By stopping the motor at or before the moment of touching the ground or water;

(*b*) By bringing the aircraft to rest not more than 50 meters (164 feet) from a point indicated previously by the candidate.

8. All landings must be made in a normal manner, and the observers must report any irregularities.

The issuance of the certificate is always optional.

Official observers must be chosen from a list drawn up by the governing organization of each country.

### Hydroaeroplane Pilot's Certificate

The tests to be successfully accomplished by candidates for this certificate are the same as those for an aviator's certificate, except that starting from and landing on the water is permitted for all of the tests.

### Licenses

Every person holding a pilot's certificate of the F.A.I. may obtain the license issued optionally by the Contest Committee of the Governing Board to its own citizens or those under its jurisdiction. This license constitutes the title "qualification" which alone allows the holder to act as pilot in events governed by the present regulations of the F.A.I. It is independent of those set forth in Article 28 of the Statutes of the F.A.I.

### Application for License

All applications for licenses must contain the following particulars: name and surname, date of birth, nationality, origin and number of pilot certificate.

Every request must be accompanied by the certificate.

### Validity and Withdrawal of a License

A license shall be valid until the thirty-first of December of each calendar year.

It may not be withdrawn either temporarily or definitely by the Contest Committee except after approval by the national governing body.

### Expert Aviator

The Aero Club of America, having established the grade of EXPERT AVIATOR, has instructed its Contest Committee to prescribe the qualifications for that grade and to make the necessary rules.

The following is published for the information and guidance of all concerned:

The Aero Club of America may grant a certificate as EXPERT AVIATOR to all aviation pilots holding certificates under the Regulations of the Federation Aeronautique Internationale,

who are over 21 years of age, and have been recommended for this by the Contest Committee. An aviator desiring this certificate must apply in writing to the Secretary of the Aero Club of America giving the sum of five dollars. He must pass, to the satisfaction of properly designated representatives of the Aero Club of America, at a place and date fixed by the Contest Committee, such tests as may be prescribed for the calendar year in which he may take his tests.

### Tests for Calendar Year 1919

Each applicant must pass a thorough physical examination by a reputable, competent physician, designated by the Contest Committee of the Aero Club of America. The applicant must possess normal heart and lungs as well as normal sight and hearing and shall be free from all nervous affections. In case the physician is in doubt as to the physical stability of the applicant, an examination shall be made immediately following a trial flight to determine this point.

After passing the physical examination the applicant must pass the following tests:

1. A Cross-country flight, from a designated starting point to a point at least 25 miles distant and return to the starting point without alighting.

2. A glide, without power, from a height of 2,500 feet, coming to rest within 164 feet of a previously designated point without the use of brakes.

3. A Figure Eight around two marks, 1,640 feet apart. In making turns, the aviator must keep all parts of his apparatus within semi-circles of 164 feet radius from each turning mark as a center.

## GENERAL RULES APPLYING TO ALL AVIATION CONTESTS AND RECORDS

**Established under the Control of the Aero Club of America**

No application for a sanction shall be considered unless it shall have been received by the Secretary of the Club at least sixty (60) days in advance of the date of opening of the meet for which sanction is desired.

All contests for prizes and trials for records which are under the control of the Aero Club of America shall be held under the supervision of its Contest Committee or a properly appointed representative. All such tests and trials which take place over an aerodrome shall be held during the period between one-half hour before sunrise and one-half hour after sunset, of the day of the trial.

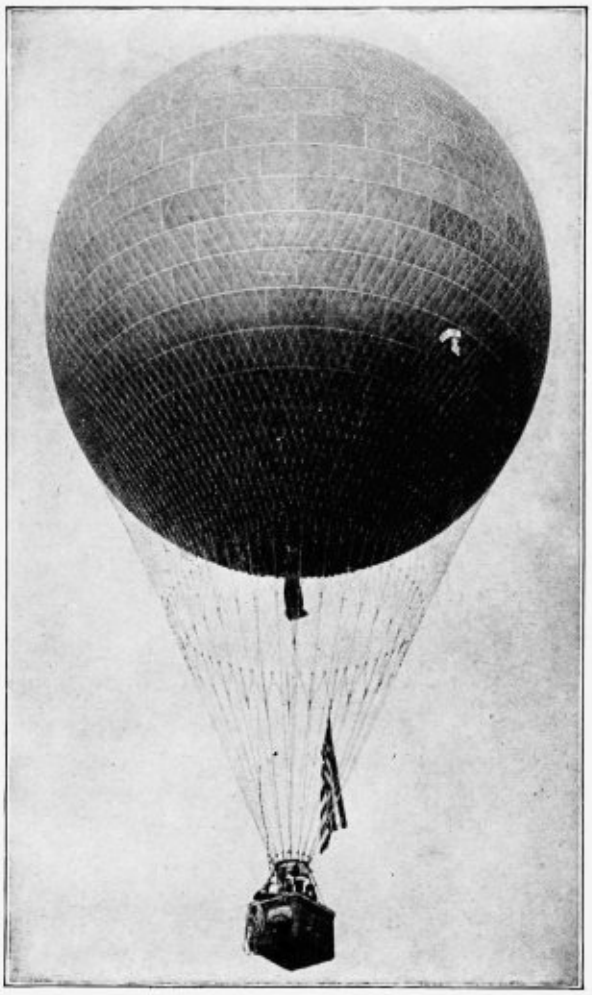
The acceptance of entries for any contest or trial for record is discretionary with the Board of Governors of the Club, and is based on the condition that the applicant, his representative or agent, is bound to accept without appeal, any decision of the Board of Governors on any matter arising from his entry, and the applicant pledges himself, his representative or agent, not to carry any matter arising out of his entry into the courts for review or adjustment.

The Aero Club of America is not responsible for any accident of any nature whatsoever to persons or property that may occur during any event or trial for record under its control, sanction or supervision.

The filing of any entry is *ipso facto* an acceptance by the entrant of the above conditions.

Persons desiring to enter for contests or establish records at times other than at regularly organized licensed meets, shall make application in writing to the Secretary of the Aero Club of America for a representative or representatives to supervise the events or trials and, in making the application, shall allow ample time for the journey of the representative or representatives to the place designated for the trial.

# HOLDERS OF F. A. I. SPHERICAL BALLOON CERTIFICATES ISSUED BY THE AERO CLUB OF AMERICA



Ballooning is a thrilling sport—and of military value. The early balloon pilots proved of great assistance in the war. This photo shows an army balloon piloted by Major J. C. McCoy, holder of certificate No. 1, with Major General William S. Kenly, Colonel G. C. Brant, Colonel H. B. Hersey, Colonel A. L. Fuller and Colonel F. M. Davis as passengers.

| No. of Certificate | Name of Holder |
|---|---|
| 1. | J. C. McCoy |
| 2. | A. Leo Stevens |
| 3. | Frank S. Lahm |
| 4. | Lieut. Frank P. Lahm, U. S. A. |
| 5. | Carl E. Myers |
| 6. | Henry B. Hersey |
| 7. | Alan R. Hawley |
| 8. | Capt. Charles de F. Chandler, U. S. A |
| 9. | Thomas S. Baldwin |
| 10. | Albert C. Triaca |
| 11. | A. Holland Forbes |
| 12. | Charles J. Glidden |
| 14. | Nason Henry Arnold |
| 15. | J. H. Wade, Jr. |
| 16. | A. H. Morgan |
| 17. | Charles Walsh |
| 18. | A. B. Lambert |
| 19. | Charles Levec |
| 20. | H. E. Honeywell |
| 21. | G. L. Bumbaugh |
| 22. | Dr. R. M. Randall |

| No. of Certificate | Name of Holder |
|---|---|
| 23. | Carl G. Fisher |
| 24. | John Berry |
| 25. | Wm. F. Whitehouse |
| 26. | Edgar W. Mix |
| 27. | S. Louis von Phul |
| 28. | Clifford B. Harmon |
| 29. | James Bemis |
| 30. | Henry H. Clayton |
| 31. | Roy A. Knabenshue |
| 32. | George B. Harrison |
| 33. | Jay B. Benton, |
| 34. | J. Walter Flagg |
| 35. | Wm. T. Assmann |
| 36. | Arthur T. Atherholt |
| 37. | William Van Sleet |
| 38. | Dr. L. E. Custer |
| 39. | E. S. Cole |
| 40. | Horace B. Wild |
| 41. | Frank M. Jacobs |
| 42. | Albert Holz |
| 43. | Samuel Reber |

| No. of Certificate | Name of Holder |
|---|---|
| 44. | J. J. Van Valkenburg |
| 45. | Paul J. McCullough |
| 46. | John Watts |
| 47. | Roy F. Donaldson |
| 48. | Ralph H. Upson |
| 49. | R. A. D. Preston |
| 50. | Warren Rasor |
| 51. | Robert Glendinning |
| 52. | Jerome Kingsbury |
| 53. | Raffe Emerson |
| 54. | Lt. Comdr. F. R. McCrary, U. S. N. |
| 55. | Lt. L. H. Maxfield, U. S. N. |
| 56. | Lewis C. Davidson |
| 57. | Hugh J. McElgin |
| 58. | James Prentice |
| 59. | H. R. Vaughan, |
| 60. | Hollis LeR. Muller |
| 61. | John H. Jouett |
| 62. | D. H. Bower |
| 63. | B. B. Daggett |
| 64. | Frank Goodale |
| 65. | Arthur Boettcher |
| 66. | Tolbert F. Hardin |
| 67. | Max Fleischmann |
| 68. | R. L. Sparks |
| 69. | Roderick H. Tait, Jr. |
| 70. | R. S. Tait |
| 71. | John H. McCoweley |
| 72. | Jules Monti |
| 73. | F. Rozier Wickard |
| 74. | Fred W. Murphy |
| 75. | E. A. Henshe |
| 76. | Karl S. Axtater |
| 77. | F. A. Post |
| 78. | Ralph A. Deacon |
| 79. | Joseph S. Jablouski |
| 80. | Ira R. Koenig |
| 81. | F. H. Maenner |
| 82. | E. A. Yeager |
| 83. | Leo C. Ferrenbach |
| 84. | Arthur Thomas |
| 85. | Roland T. Ingels |
| 86. | Robert J. Keefe |
| 87. | James E. Lentz |
| 88. | Francis H. Murphy |
| 89. | Russell E. Collins |
| 90. | Joseph G. Halsey |
| 91. | Charles Conrad |
| 92. | Carl W. Dammann |
| 93. | Walter Roman, Jr. |
| 94. | Oscar Roman |
| 95. | Frederic J. Grant |
| 96. | C. J. Schiller |
| 97. | John A. Paegelow |
| 98. | Maurice R. Smith |
| 99. | M. L. Witherup |
| 100. | Neal Creighton |
| 102. | Richmond J. Harris |
| 103. | Elmer D. Kidder |
| 104. | Ashley C. McKinley |
| 105. | Charles L. Hayward |
| 106. | S. T. Moore |
| 107. | Edward Glik |

| No. of Certificate | Name of Holder |
|---|---|
| 108. | W. W. Pemberton, |
| 109. | Thomas P. Breen |
| 110. | Louis C. Sanguinet, Jr. |
| 111. | James A. McDevitt |
| 112. | James H. Zipp |
| 113. | Thomas D. Jordan |
| 114. | Fred S. Dunn |
| 115. | John Richardson |
| 116. | L. D. Palmer |
| 117. | Allan P. McFarland |
| 118. | Joseph E. Kirkham |
| 119. | Walter J. Reed |
| 120. | Cyrus W. Merrell |
| 121. | Ray W. Thompson |
| 122. | Birge M. Clark |
| 123. | H. Lee Meyers |
| 124. | Roland Gaupel |
| 125. | E. B. Weston |
| 126. | Glenn Phelps |
| 127. | A. C. Duncan |
| 128. | Emer G. Marschurty |
| 129. | George Call Johnson |
| 130. | Graves C. Barclay |
| 131. | Henry A. Emmons |
| 132. | Harold C. Fischer |
| 133. | Guy F. Donohoe |
| 134. | P. J. Allan |
| 135. | John S. McKibben |
| 136. | Ralph H. Sarazan |
| 137. | Phillip B. Chase |
| 138. | E. Paul Phillips |
| 139. | Angus W. MacDougall |
| 140. | Donald R. Stevens |
| 141. | Jerome D. Cohen |
| 142. | Claude F. Wolfe |
| 143. | John M. Drescher |
| 144. | Eugene S. Daley |
| 145. | Cliff Booth |
| 146. | David J. Aaron |
| 147. | Vincent J. Hays |
| 148. | David Q. Hammond |
| 149. | Harold R. Miller |
| 150. | Frank J. Kelly |
| 151. | Carroll W. Peck |
| 152. | Edward C. Williams, Jr. |
| 153. | Walter W. Hill |
| 154. | H. W. Proudfoot |
| 155. | James P. Haight |
| 156. | Joseph S. Batt |
| 157. | Harold O. Young |
| 158. | William P. Healey |
| 159. | Edward Valentic |
| 160. | Allen E. Bardwell |
| 161. | Emmann Bach |
| 162. | James P. Mahoney |
| 163. | William W. Crehore |
| 164. | Joseph J. Cooney |
| 165. | Walter W. Ponchot |
| 166. | Cleves S. Fisher |
| 167. | George F. Hersey |
| 168. | Gilbert M. Sopp |
| 169. | Harry D. Baird |
| 170. | Joseph M. O'Reilly |
| 171. | Edwin F. Hermanns |
| 172. | Arthur O'Leary |
| 173. | C. C. Guthrey |
| 174. | Roy S. Geiger |
| 175. | James W. Daley |
| 176. | David G. Boyd |
| 177. | Roger S. McCullough |
| 178. | Aiden J. Gorman |
| 179. | Leslie B. Haddock |
| 180. | William C. Young |
| 181. | Mortimer W. Mears |
| 182. | H. H. Holland |
| 183. | Grosvenor E. Glenn |
| 184. | Philip Meyer |
| 185. | R. G. Penneyer |
| 186. | Henry C. Hill |
| 187. | T. Aldin Straw |
| 188. | Edward M. Gallagher |
| 189. | R. R. Dickey, Jr. |
| 190. | Leo J. Griffin, |
| 191. | Marion A. Baldwin |
| 192. | John A. Allen |
| 193. | James H. Ferguson |
| 194. | Max DeV. McCutcheon |
| 195. | Wm. R. Toston |
| 196. | Donald M. Burleigh |
| 197. | Joseph J. Fitzgerald |
| 198. | Joseph I. Sullivan |
| 199. | Gail H. McMillin |
| 200. | William E. Woodman |
| 201. | Edmond C. Turner |
| 202. | Howard B. Blanchard |
| 203. | Blake R. McGinnes |
| 204. | Forrest D. Bradshaw |
| 205. | Chester J. Sharp |
| 206. | Martin M. Andrews |
| 207. | Paul M. Mueller |
| 208. | Edward E. Denniston |
| 209. | Robert V. Ignico |
| 210. | Paul N. A. Rooney |
| 211. | Lt. Herbert W. Ryan |
| 212. | Kenneth C. Ovitt |
| 213. | Isaac H. Coulter |
| 214. | W. E. Nieman |
| 215. | Howard G. Verbeck |
| 216. | Michael E. McHugo |
| 217. | C. H. Lobitz |
| 218. | J. W. Lavers, Jr. |
| 219. | Ladis H. Ottofy |
| 220. | Saml. E. White |
| 221. | Clyde A. Kuntz |
| 223. | Sanford E. Williams |
| 224. | Earl H. Diggs |
| 225. | Kinsey Burr |
| 226. | Robt. T. Williams |
| 227. | Don Russell Cameron |
| 228. | Julius C. Turcott |
| 229. | Kenneth P. Hill |
| 230. | George R. Durkee |
| 231. | Robt. D. Connell |
| 232. | Edward L. Fernstein |
| 233. | Guy Eugene Armantrout |
| 234. | John Whelan |
| 235. | Lester W. Pierce |
| 236. | Herman J. Ninsman |
| 237. | J. A. Boettner |
| 238. | John M. O'Connell |
| 239. | Beverly W. Holmes |
| 240. | Wm. H. Heftye |
| 241. | Elmer J. Bowling |
| 242. | Geo. E. Quisenberry |
| 243. | John Chris Rahn |
| 244. | James M. T. G. Neely |
| 245. | Herbert C. Welch |
| 246. | Lawrence G. Simpson |
| 247. | Harry E. Schellberg |
| 248. | Herman B. Post |
| 249. | DeWitt T. Spence |
| 250. | Harry C. Lydiard |
| 251. | Bartlett G. Long |
| 252. | Frederick C. Wiggins |
| 253. | Robert S. Olmsted |
| 254. | Harry G. Montgomery |
| 255. | Loren D. Schiff |
| 256. | Arthur I. Burgess |
| 257. | Arthur H. Barry |
| 258. | Edmund E. Kipling |
| 259. | John J. Quinn |
| 260. | John C. Schwabe |
| 261. | George A. Spooner |
| 262. | Lawrence K. Smith |
| 263. | Victor B. Caldwell |
| 264. | Willard Heller |
| 265. | O. McCrackin |
| 266. | Earl H. Latimer |
| 267. | Ensign Elmer B. Nough |
| 268. | Leslie H. Campbell |
| 269. | Herman M. Brown |
| 270. | Crane Gartz |
| 271. | Prentice W. Duell |
| 272. | John S. McGurk |
| 273. | Leroy C. Perkins |
| 274. | Edmund J. Felt |
| 275. | Edward H. Mulliken |
| 276. | Hollace N. Jennings |
| 277. | Geo. A. Phillips |
| 278. | Herbert H. Kennedy |
| 279. | Wm. S. Barker |
| 280. | Telford B. Null |
| 281. | Martin O'Neill |
| 282. | Samuel Y. Baldwin |
| 283. | Charles Gerlinger |
| 284. | Harold Cogswell |
| 285. | Homer R. Geddes |
| 286. | John Ogden |
| 287. | Walter Jewell |
| 288. | Rea Murphy |
| 289. | Frederic Wm. Evans |
| 290. | Charles H. Smith |
| 291. | Aaron L. Van Emden |
| 292. | Daniel D. Madden |
| 293. | Ulysses H. Bonney |
| 294. | Orin J. Bushey |
| 295. | A. B. Cole |
| 296. | Henry E. Hochettem |
| 297. | Robert F. Cameron |
| 298. | Don L. Hutchins |
| 299. | John S. Holloran, Jr. |
| 300. | Harry C. Hahlbeck |
| 301. | Howard B. Andrews |
| 302. | Wm. H. Holmes |
| 303. | Ruby F. Hatcher |
| 304. | Reuben J. Shay |
| 305. | S. F. Christian |
| 306. | Maurice F. Gillern |
| 307. | Franklin S. Clark |
| 308. | Warren G. Child |
| 309. | Ira F. Fravel |
| 310. | Wm. D. Kelley |
| 311. | Walter B. Griffin |
| 312. | Arthur B. Cragin |
| 313. | Arthur B. Hillabold |
| 314. | Harley F. Brown |
| 315. | Matt Corbett |
| 316. | Berton M. Fitzgerald |
| 317. | E. J. Verheyden, Jr. |
| 318. | Herbert F. Ross |
| 319. | John P. Hall |
| 320. | Duncan L. Edwards |
| 321. | Wm. N. Nensley, Jr. |
| 322. | John W. Shoptaw |
| 323. | Robert H. Finley |
| 324. | Kirk R. Patrick |
| 325. | Mortimer P. Lawton |
| 326. | Lawrence A. Lawson |
| 327. | Richard S. Harper |
| 328. | Milton D. Sapiro |
| 329. | Fred R. Patterson |
| 330. | Walter J. Krpof |

| No. of Certificate | Name of Holder |
|---|---|
| 331. | Ray Lane |
| 332. | Wm. D. Simpson |
| 333. | Raymond T. Vredenburgh |
| 334. | Geo. G. Lundberg |
| 335. | Robert J. Marshall |
| 336. | Leo G. Praff |
| 337. | Herbert E. Mills |
| 338. | Richard E. Thompson |
| 339. | Hubert K. Owen |
| 340. | Richard H. Anderson |
| 341. | Carl H. Peinze |
| 342. | John R. Gibson |
| 343. | John E. McLafferty |
| 344. | Roland R. Cummings |
| 344a. | Robert K. Blakey |
| 345. | Carlton G. Eldridge |
| 346. | Wm. R. Ehrmanntrant |
| 347. | Harold C. Harris |
| 348. | Eugene F. Close |
| 349. | Dale White |
| 350. | W. B. Farrar |
| 351. | Frank J. Conway |
| 352. | Thomas H. Ashton |
| 353. | Charles S. Powell |
| 354. | George C. MacLeod |
| 355. | Arthur O. Ridgeley |
| 356. | James P. Roberts |
| 357. | N. Robert Reasoner |
| 358. | Alan N. Morse |
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| 361. | Robt. G. Simmons |
| 362. | King Whitney |
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| 368. | Sanford M. Warren |
| 369. | Frank Cimmine |
| 370. | M. E. Welsh |
| 371. | Gordon F. Jaques |
| 372. | Harry H. Crawford |
| 373. | Harley B. Lewis |
| 374. | John LeT. Noland |
| 375. | Bruce A. McQueen |
| 376. | Everette P. Russell |
| 377. | Oscar F. McLaughlin |
| 378. | Charles A. Ogilbee |
| 379. | Mason E. Franklin |
| 380. | Roswell W. Kenninger |
| 381. | Frederick R. Lang |
| 382. | Fred D. Babcock |
| 383. | Kenneth C. Hawkins |
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| 386. | David H. Ham |
| 387. | Ray A. Shattuck |
| 388. | Earl Wollam |
| 389. | Henry M. Coesfeld |
| 390. | H. B. Montgomery |
| 391. | Harold S. Schultz |
| 392. | Ward T. Van Orman |
| 393. | Owen S. Brown |
| 394. | Merton L. Wright |
| 395. | Harry O. Geary |
| 396. | Hunter J. vonLeer |
| 397. | Frederick T. Fuller |
| 398. | Paul A. Greene |
| 399. | Louis Kent Klay |
| 400. | Cornelius J. Kelleher |
| 401. | Wm. B. Sammon |
| 402. | Ora L. Taylor |
| 403. | Frank A. Wachob |
| 404. | Glenn E. Wallace |
| 405. | Henry R. Whitty |
| 406. | Horatio Blakeley |
| 407. | Charles W. Lorraine |
| 408. | Walter Chamberlain, Jr. |
| 409. | Clyde F. Cretsinger |
| 410. | Theo. R. Goethe |
| 411. | Melvin M. Turner |
| 412. | Harold W. Mills |
| 413. | Barrett H. Fournier |
| 414. | John H. Bishop |
| 415. | George B. Thummel |
| 416. | Hugo F. Froehlich |
| 417. | R. Turner |
| 418. | Harold D. Allen |
| 419. | Francis Barrington |
| 420. | Donald A. Loyhed |
| 421. | Allen M. Ham |
| 422. | Clarence R. Westaby |
| 423. | Craig Culbertson |
| 424. | Benj. B. Cassiday |
| 425. | Lawrence C. Phipps, Jr. |
| 426. | Milton E. Keyser |
| 427. | James F. Shade |
| 428. | Sherwood W. Pardee |
| 429. | F. J. McDonald |
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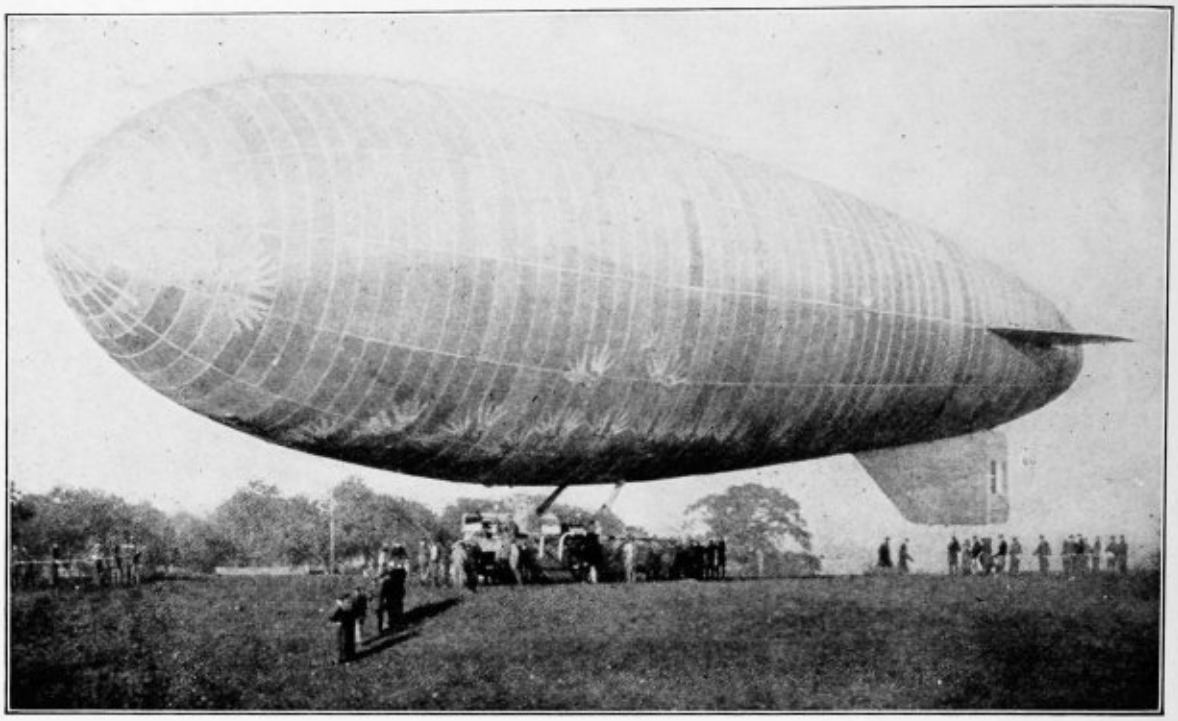
| 431. | V. Vincent Guerin |
| 432. | Leonard W. Larrabee |
| 433. | Russell D. vonBoren |
| 434. | Arvin J. Welch |
| 435. | Lot R. Ward, Jr. |
| 436. | Clarence F. Smith |
| 437. | Dwight M. Buckingham |
| 438. | John J. Oflieger |
| 439. | F. L. Taylor |
| 440. | Leon LeR. Biche |
| 441. | George Grady |
| 442. | Frank M. McKee |
| 443. | Robert A. Drake |
| 444. | Joseph H. Vernon |
| 445. | Earle S. Montgomery |
| 446. | Harold R. Hall |
| 447. | Edward R. Geary |
| 448. | Paul E. Adams |
| 449. | Charles F. Putnam |
| 450. | Charles H. Napier |
| 451. | James H. Dale |
| 452. | George E. Daniel |
| 453. | John S. Cranford |
| 454. | Harold S. Case |
| 455. | Frank M. Henry |
| 456. | Ralph L. Milnes |
| 457. | Gerald N. Rowey |
| 458. | O. Wendell Shepard |
| 459. | Winthrop Bancroft |
| 460. | John S. Godfrey |
| 461. | Gustave E. Sachers |
| 462. | Felix V. Cutler |
| 463. | Paul C. Harding |
| 464. | Glenn R. Lassiter |
| 465. | Joseph N. Smith |
| 466. | William P. Turnbull |
| 467. | Joseph R. Williamson |
| 468. | Lee B. Jones |
| 469. | Charles H. Roth |
| 470. | Robert E. Lum |
| 471. | Clifford V. Pratt |
| 472. | Edwin M. Hooper |
| 473. | John W. Spencer, Jr. |
| 474. | Marcus H. Esterly |
| 475. | Amos J. Parkhurst, Jr. |
| 476. | Thomas G. MacLaughten |
| 477. | Philip E. Philbrook |
| 478. | Charles L. Blodgett |
| 479. | Max F. Moyer |
| 480. | Frank H. Kramer |
| 481. | Charles A. Abels |
| 482. | Harold M. Hine |
| 483. | Maynard F. Lydiord |
| 484. | W. E. Riley |
| 485. | E. S. Kessler, Jr. |
| 486. | Harry A. Burdick |
| 487. | Frederick T. Smith, Jr. |
| 488. | Thomas C. Matthews |
| 489. | Samuel G. Frantz |
| 490. | R. S. Wright |
| 491. | Jasper C. Augustine |
| 492. | Carl E. Shumway |
| 493. | James W. Hensley |
| 494. | George D. Kingsland |
| 495. | Emmet K. MacArthur |
| 496. | Edward B. Packard |
| 497. | Robert P. Lehr |
| 498. | Stanley W. Hahn |
| 499. | Edward R. Burke |
| 500. | Victor A. Space |
| 501. | Lee Seguin |
| 502. | George W. Adams |
| 503. | Leon A. Winter |
| 504. | Donald C. Spalsbury |
| 505. | Harold P. Baldwin |
| 506. | Harold K. Hine |
| 507. | Richard B. Millin |
| 508. | Martin M. Mitchell |
| 509. | Theo. E. Nelson |
| 510. | Don W. Stewart |
| 511. | William G. Shelton |
| 512. | Elmer W. Raeder |
| 513. | Charles F. Baer |
| 514. | Harry A. Dukeworth |
| 515. | Joseph W. Benson |
| 516. | James A. Watt, Jr. |
| 517. | William L. Thibadean |
| 518. | Francis P. Gately |
| 519. | Ralph T. Wilson |
| 520. | William G. Briscoe |
| 521. | Angelo P. Bizzozero |
| 522. | Frank A. Fournier |
| 523. | Gustave H. Madsen |
| 524. | Clare B. Bazart |
| 525. | Alonzo E. Stone |
| 526. | Carl P. Eiffler |
| 527. | Thomas J. Berry |
| 528. | Courtland M. Brown |
| 529. | Edward L. Baugh |
| 530. | Andrew N. Johnson |
| 531. | Herbert E. Hoadley |
| 532. | Andrew C. Anderson |
| 533. | Harry Rasmussen |
| 534. | William H. Wilkenson |
| 535. | Chester T. Wardwell |
| 536. | Raymond L. Fulmer |
| 537. | Harry C. DeLamatre |
| 538. | George L. Thompson |
| 539. | Jerome E. Burke |
| 540. | Kenneth B. Case |
| 541. | Harry W. Warner |
| 542. | Harold J. Tillou |
| 543. | Hilding L. Jacobson |
| 544. | Arthur G. Thomsen |
| 545. | Charles N. Conzetti |
| 546. | Franklin P. Quick |
| 547. | George C. White |
| 548. | Horace O. Welsh |
| 549. | Kenneth H. Patterson |
| 550. | Carlton T. Olde |
| 551. | Oran L. Weber |

| No. of Certificate | Name of Holder |
|---|---|
| 552. | Clark C. Dresser |
| 553. | John T. McQuinn |
| 554. | Joseph L. Silva |
| 555. | Stanley T. Switzer |
| 556. | Ray T. Wakefield |
| 557. | Everett T. Bowman |
| 558. | L. A. Reed |
| 559. | George W. Boyd |
| 560. | Herman W. Nolker |
| 561. | John W. Guinee |
| 562. | Arthur T. Sewell |
| 563. | Theo. E. Faulk |
| 564. | Harold B. Austin |
| 565. | Leverett C. Clark |
| 566. | Elmer R. Meservey |
| 567. | Frederick W. Schlaich |
| 568. | Lawrence R. Heath |
| 569. | McDonald Lovell |
| 570. | Chester P. Dudley |
| 571. | John C. Oaks |
| 572. | Ralph T. Ott |
| 573. | Richard J. Lewis |
| 574. | Harry B. Groony |
| 575. | George S. Barker |
| 576. | Robert McLean, Jr. |
| 577. | Albert W. Evans |
| 578. | Murray A. Baldwin |
| 579. | Eugene Falk |
| 580. | Joseph G. Laycock |
| 581. | Charles D. Williams, Jr. |
| 582. | Otto Leutz, Jr. |
| 583. | August L. Loseth |
| 584. | Ambrose V. Clinton |
| 585. | J. Dean Ellis |
| 586. | H. Williams Brady |
| 587. | George S. King |
| 588. | Robert L. Sanders |
| 589. | Earl A. Gardner |
| 590. | Ronald Z. Mickey |
| 591. | Robert G. Washburn |
| 592. | Ward H. Bentley |
| 593. | Michael J. McDermott |
| 594. | William H. Breen |
| 595. | Rolland E. Corbin |
| 596. | Henry Rodgers |
| 597. | Waymouth Finn |
| 598. | John J. Harrigan |
| 599. | Robert W. Dickson |
| 600. | Ezrom S. Walling |
| 601. | Theo. E. Cook |
| 602. | Harold V. Snell |
| 603. | S. R. Kirkpatrick |
| 604. | George Hockensmith |
| 605. | Julian R. Sloan |
| 606. | Andrew B. Talbot |
| 607. | Chester S. Edwards |
| 608. | Joseph R. Torrey |
| 609. | Charles S. Moore |
| 610. | Emmett K. McClintock |
| 611. | Sheppard Knapp |
| 612. | W. Robert Catton |
| 613. | James P. Norfleet |
| 614. | Otto B. Rockville |
| 615. | W. A. Leet |
| 616. | Harry H. Patrick |
| 617. | Paul L. Whitney |
| 618. | Herbert E. Brown |
| 619. | M. D. Tremelin |
| 620. | Bert N. Johnson |
| 621. | Orlo A. Bartholomew |
| 622. | John M. VanHulsteyn |
| 623. | Thili VanR. Griffin |
| 624. | James M. Burke |
| 625. | Fred B. Barton |
| 626. | Carl W. Holmguist |
| 627. | Thomas H. McClure |
| 628. | George U. Bertoniere |
| 629. | Clarence W. Tyndell |
| 630. | Frederick G. Sweetland |
| 631. | Hysom R. Hartwell |
| 632. | Allen H. Edwards |
| 633. | William L. Armstrong |
| 634. | Merrill Haskell |
| 635. | Frederick R. Mitchell |
| 636. | Frank T. Magennis |
| 637. | Fitzwilliam Sargent |
| 638. | Alfons G. Taylor |
| 639. | Alfred S. Gray |
| 640. | George K. Keith |
| 641. | J. S. F. McCormick |
| 642. | Thomas I. Morrow |
| 643. | Charles E. Brannigan |
| 644. | Walter W. Morton |
| 645. | Nathaniel R. Landon |
| 646. | Lloyd Volckening |
| 647. | Richard A. Edlundh |
| 648. | Robert B. Wann |
| 649. | Norman H. Van Hyming |
| 650. | Norman M. Lyon |
| 651. | Royden E. Reed |
| 652. | Gardner P. Eastman |
| 653. | John R. Whitney |
| 654. | Henry S. Honodle |
| 655. | F. K. Gampper, Jr. |
| 656. | Cyrus G. Davisson |
| 657. | Albert W. Erdman |
| 658. | W. Blogden Myers |
| 659. | Harold I. Lush |
| 660. | Raymond A. Foster |
| 661. | Harold T. Weiss |
| 662. | Percy E. Van Nostrand |
| 663. | Eugene W. Crockett |
| 664. | Jacob W. S. Wuest |
| *665. | Thomas J. Connelly |
| 666. | Sullivan Burgess |
| 667. | R. L. Train |
| 668. | Van Breed Hart |
| 669. | Charles E. Reed |
| 670. | Harvey B. Rowes |
| 671. | Garrett F. Hoagland |
| 672. | John W. Dennis |
| 673. | Harold W. Bell |
| 674. | Dorsey J. Griffith |
| 675. | Harold A. Scholle |
| 676. | Ralph S. Beek |
| 677. | Clarence E. Earle |
| 678. | Donald G. Cathcart |
| 679. | Carl N. Hand |
| 680. | Guy N. Gardner |
| 681. | E. T. Ferguson |
| 682. | W. Griffin Temple |
| 683. | Reed C. Peters |
| 684. | A. G. Maranville |
| 685. | Guy Drumm |
| 686. | Dudley C. Lunt |
| 687. | Frank H. Helsley |
| 688. | Clarence W. Smith |
| 689. | Charles A. Greef |
| 690. | John R. Chamberlain |
| 700. | George H. Bockius |
| 701. | Fred P. Schlichter |
| 702. | Clarence F. Gonyo |
| 703. | Lyscom A. Bruce |
| 704. | William S. Taylor |
| 705. | Alfred S. Greene |
| 706. | William C. Uhri |
| 707. | Arthur J. Robinson |
| 708. | Martin O'Brien |
| 709. | Thomas B. Flood |
| 710. | Raymond S. Bamberger |
| 711. | Ross O. Asbill |
| 712. | Robert N. Dorland |
| 713. | Kenneth S. McColl |
| 714. | William F. Collins |
| 715. | Russell V. Polland |
| 717. | E. B. Scandrett, Jr. |
| 718. | Andrew Hale |
| 719. | Edward W. Powers |
| 720. | William McFerren |
| 721. | Thomas E. Yerxe |
| 722. | Victor H. Jones |
| 723. | George P. Welzant |
| 724. | Vernon B. Hill |
| 725. | Richard Ziesing, Jr. |
| 726. | Gilbert R. Byrne |
| 727. | Philip Heusel |

* Deceased.



Getting a Goodyear navy dirigible ready for the Akron-New York cruise.

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| 6. | Frank W. Goodale |
| 7. | R. H. Upson |
| 8. | R. A. D. Preston |
| 9. | Walter J. Pouchot |
| 10. | Noel Chadwick |
| 11. | Warren G. Child |
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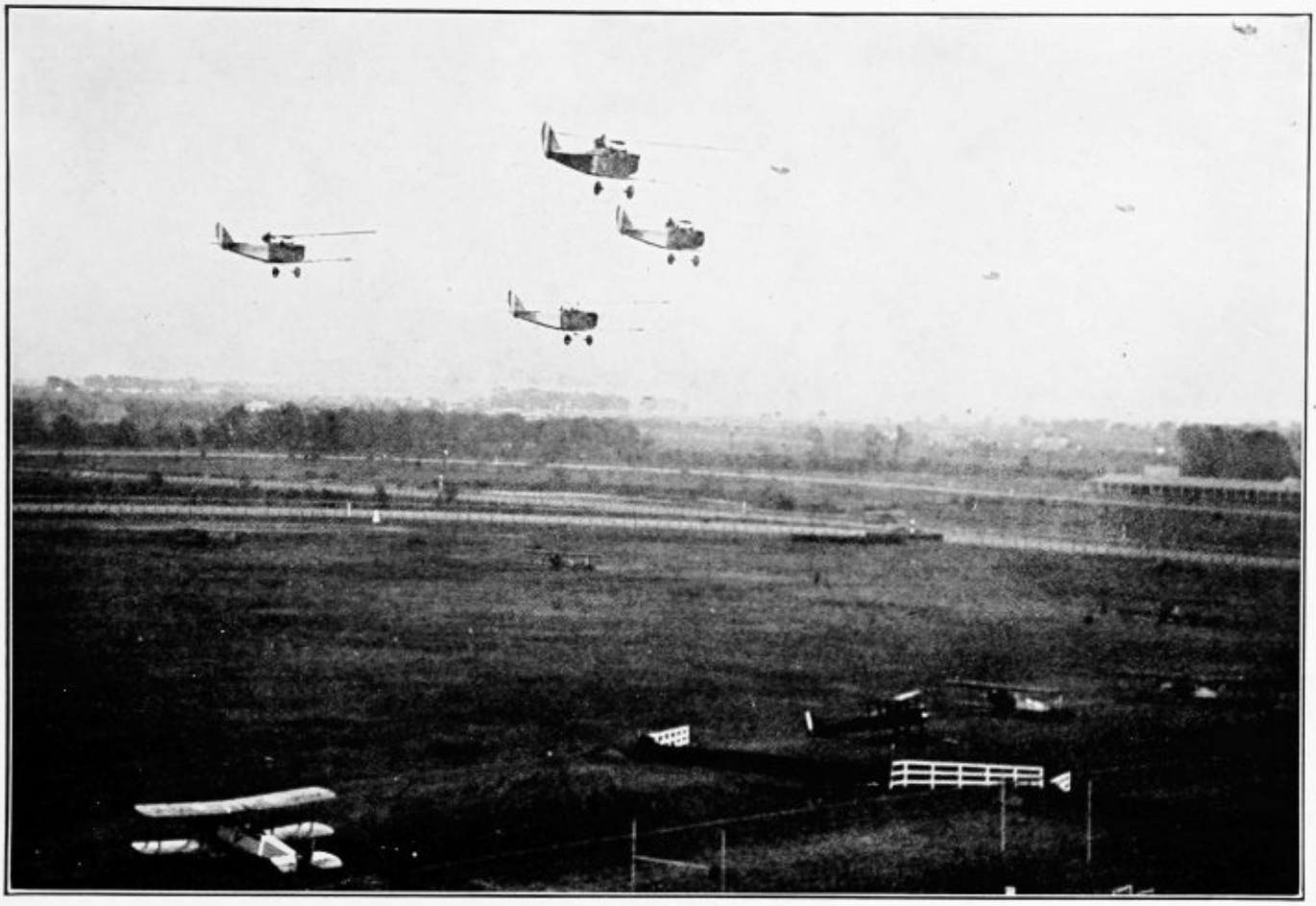
| 13. | J. A. Boettner |
| 14. | William D. Kelley |
| 15. | Paul A. Greene |
| 16. | James P. Norfleet |
| 17. | Karl S. Lange |
| 18. | Joseph R. Torrey |
| 19. | Albert W. Evans |
| 20. | Rolland E. Corbin |
| 21. | Murray Baldwin |
| 22. | Michael McDermott |
| 23. | Clifford A. Wise |
| 24. | George Crompton |
| 25. | Thomas I. Morrow |
| 26. | J. D. Ellis |
| 27. | George Hockensmith |
| 28. | Norman H. Van Hyning |
| 29. | Walter B. Griffin |
| 30. | A. T. Sewell |
| 31. | Bert N. Johnson |
| 32. | William Brady |
| 33. | Donald R. Stevens |
| 34. | Herbert H. Kennedy |
| 35. | W. C. Young |
| 36. | C. K. Wollam |
| 37. | Herman T. Kraft |
| 38. | Henry W. Hoyt |
| 39. | A. G. Maranville |
| 40. | Raffe Emerson |
| 41. | John J. Quinn |
| 42. | George H. Bockius |
| 43. | George S. King |
| 44. | F. H. Helsley |
| 45. | Carl N. Hand |
| 46. | Lyscom A. Bruce |
| 47. | Waymouth Finn |
| 48. | Scott E. Peck |
| 49. | William L. Pemberton |
| 50. | Thomas J. Connelly |
| 51. | Lloyd I. Volchening |
| 52. | B. S. Bamberger |
| 53. | T. K. Gampner |
| 54. | Edgar T. Manning |
| 55. | Frank T. Magennis |
| 56. | Wm. John Medusky |
| 57. | A. Wm. Erdman |
| 58. | Richard Ziesing, Jr. |
| 59. | Thomas E. Yerxa |
| 60. | Victor H. Jones |
| 61. | Harold W. Bell |
| 62. | Cyrus G. Davisson |
| 63. | Van Breed Hart |
| 64. | Gardner P. Eastman |



Curtiss, De Havilands, Thomas Morse, and Standard, American types of aeroplanes in the air and on the ground at Belmont Park, Long Island.

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| 8. | J. Armstrong Drexel |
| *9. | Todd Schriver |
| 10. | Charles F. Willard |
| 11. | J. C. Mars |
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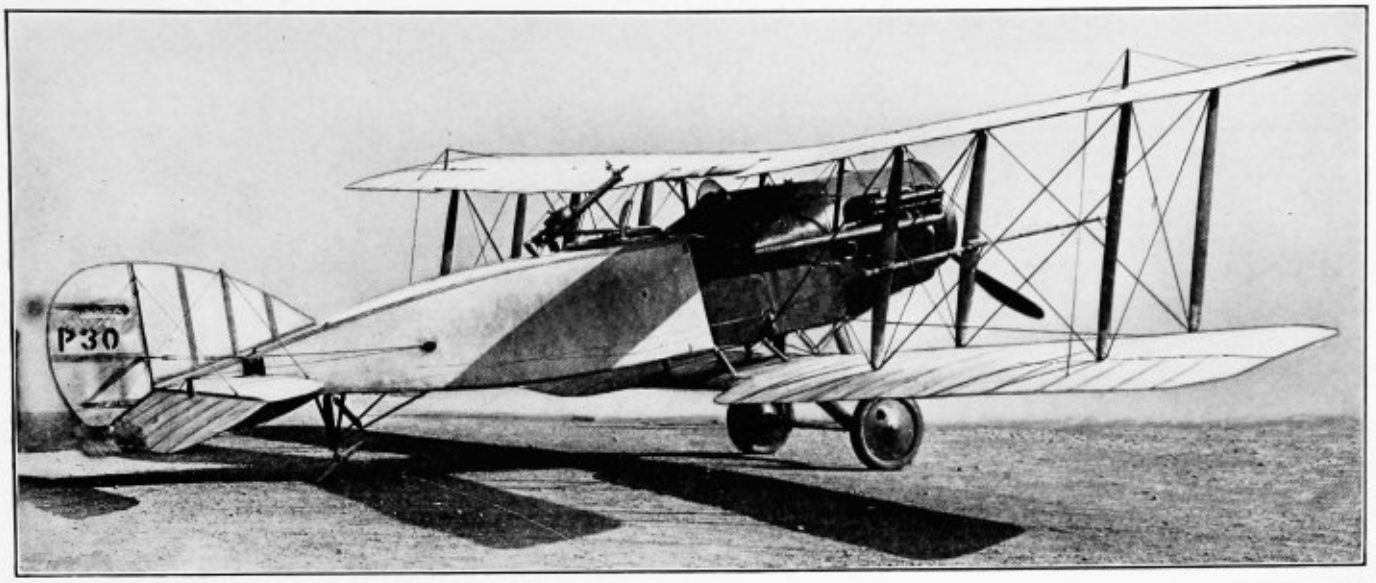
| *13. | John B. Moisant |
| 14. | Charles T. Weymann |
| 15. | Arthur Stone |
| 16. | Harry S. Harkness |
| *17. | Eugene Ely |
| 18. | J. A. D. McCurdy |
| 19. | Walter R. Brookins |
| *20. | Ralph Johnstone |
| *21. | Arch Hoxsey |
| 22. | J. C. Turpin |
| *23. | A. L. Welsh |
| *24. | J. J. Frisbie |
| *25. | P. O. Parmelee |
| 26. | Frank T. Coffyn |
| *27. | Lincoln Beachey |
| 28. | Lieut. T. G. Ellyson |
| 29. | Lieut. H. H. Arnold |
| 30. | Lieut. T. de Witt Milling |
| *31. | Howard W. Gill |
| 32. | Edson F. Gallaudet |
| 33. | Harry N. Atwood |
| 34. | Lee Hammond |
| 35. | W. Redmond Cross |
| *36. | William Badger |
| *37. | Harriet Quimby |
| 38. | Ferdinand de F. Murias |
| 39. | Capt. Paul W. Beck |
| 40. | William C. Beers |
| 41. | George W. Beatty |
| 42. | Hugh Robinson |
| *43. | Cromwell Dixon |
| 44. | Matilde E. Moisant |
| 45. | Lieut. R. Carrington Kirtland |
| 46. | Oscar Allen Brindley |
| 47. | Leonard Warden Bonney |
| 48. | Lieut. John Rodgers |
| *49. | C. P. Rodgers |
| *50. | Andrew Drew |
| *51. | Louie Mitchell |
| 52. | James J. Ward |
| 53. | Charles C. Witmer |
| 54. | Shakir S. Jerwan |
| 55. | Norman Prince |
| 56. | Glenn L. Martin |
| *57. | Paul Peck |
| 58. | Harold H. Brown |
| 59. | Capt. Chas. de F. Chandler |
| 60. | John D. Cooper |
| 61. | A. B. Lambert |
| 62. | Lieut. J. H. Towers |
| 63. | L. E. Holt |

| No. of Certificate | Name of Holder |
|---|---|
| 64. | Jesse Seligman |
| 65. | Harold Kantner |
| 66. | Mortimer F. Bates |
| 67. | George W. McKay |
| 68. | Phillips Ward Page |
| 69. | Clifford L. Webster |
| 70. | Claude Couturier |
| 71. | Beryl J. Williams |
| 72. | Fred Dekor |
| *73. | Max T. Lillie |
| 74. | Henry W. Walden |
| 75. | Albert Elton |
| *76. | John H. Worden |
| 77. | Clarence A. de Giers |
| 78. | Francisco Alvarez |
| 79. | Alfred Bolognesi |
| 80. | Anthony Jannus |
| 81. | Josef Richter |
| 82. | Henry D. W. Reichert |
| *83. | H. F. Kearney |
| 84. | Arch Freeman |
| 85. | F. T. Fish |
| 86. | Frank S. Champion |
| 87. | Earl S. Dougherty |
| *88. | Frank M. Stites |
| 89. | Hillery Beachey |
| 90. | Lieut. J. W. McClaskey |
| 91. | William Hoff. |
| 92. | S. C. Lewis |
| 93. | Charles W. Shoemaker |
| 94. | J. B. McCalley |
| *95. | Weldon B. Cooke |
| *96. | Rutherford Page |
| 97. | Frank M. Kennedy |
| 98. | W. B. Atwater |
| 99. | Albert Mayo |
| 100. | Frederick A. Hoover |
| 101. | R. C. St. Henry |
| 102. | J. L. Callan |
| 103. | Ensign V. D. Herbster |
| 104. | C. E. Underwood |
| 105. | Emory C. Malick |
| 106. | T. T. Maroney |
| 107. | J. D. Spaulding |
| *108. | F. J. Terrill |
| 109. | C. A. Berlin |
| 110. | W. M. Stark |
| 111. | R. E. McMillen |
| 112. | Clarke Thomson |
| 113. | Harry Park |
| 114. | Marshall Earle Reid |
| 115. | L. H. de Remer |
| *116. | William Piceller |
| 117. | Edward Korn |
| *118. | Charles Francis Walsh |
| 119. | Frederick W. Kemper |
| *120. | M. Kondo |
| 121. | J. G. Kaminiski |
| *122. | Koha Takeiski |
| 123. | M. M. Singh |
| 124. | Wilbur David Andrews |
| 125. | John G. Klockler |
| 126. | William Kabitzke |
| 127. | Beckwith Havens |
| 128. | Warren S. Eaton |
| 129. | D. C. de Hart |
| 130. | Lieut.-Col. Charles B. Winder |
| 131. | Tom Gunn |
| 132. | R. B. Russell |
| *133. | Julia Clarke |
| 134. | DeLloyd Thompson |
| *135. | Otto W. Brodie |
| 136. | W. Starling Burgess |
| 137. | Sidney F. Beckwith |
| 138. | Carl T. Sjolander |
| 139. | Floyd E. Barlow |
| 140. | Lieut. Benjamin D. Foulois |
| *141. | Cecil Peoli |
| 142. | George A. Gray |
| 143. | Fred J. Schuman |
| 144. | Victor Carlstrom |
| 145. | Oliver G. Simmons |
| 146. | William H. Hemstrought |
| 147. | Henry L. Hattemer |
| 148. | Katherine Stinson |
| 149. | W. Irving Twombly |
| 150. | John F. Gray |
| 151. | Lieut. William C. Sherman |
| 152. | Lieut. Harry Graham |
| 153. | Capt. Frederick B. Hennessy |
| 154. | Sergeant Vernon L. Burge |
| *155. | Lieut. Moss L. Love |
| 156. | Chauncey M. Vought |
| 157. | William Bouldin, 3d |
| 158. | Osmond T. Belcher |
| 159. | Clifford B. Prodgers |
| 160. | Peter Colovon |
| 161. | Nels. J. Nelson |
| *162. | W. C. Robinson |
| 163. | E. Norman Hunt |
| 164. | Walter E. Johnson |
| 165. | Lieut. Lewis C. Rockwell |
| 166. | Lieut. Harold Geiger |
| 167. | Taras Weiner |
| 168. | Alexander C. Beech |
| 169. | Grover C. Bergdoll |
| 170. | Alberto Salinas |
| 171. | John Guy Gilpatric |
| 172. | Gustavo Salinas |
| 173. | Bernetta A. Miller |
| 174. | H. C. Richardson |
| 175. | Charles L. Wiggins |
| 176. | Cord Meyer |
| 177. | John S. Schaefer |
| 178. | Robert Elliott |
| 179. | P. H. Reid |
| 180. | John S. Sverkerson |
| *181. | Charles F. Niles |
| 182. | Horacio Ruiz |
| 183. | William A. Lamkey |
| 184. | Glenn M. Tait |
| 185. | Ralph Myron Brown |
| 186. | H. Roy Waite |
| 187. | Samuel J. Crossley |
| 188. | Ruth Bancroft Law |
| 189. | C. Nakashima |
| 190. | George B. Dalwigk |
| 191. | David Edelman |
| 192. | P. J. Sakamoto |
| 193. | Charles Baysdorfer |
| 194. | C. Yamada |
| 195. | Erhard Scholovinck |
| 196. | Dr. Frank J. Bell |
| 197. | William A. Hetlick, Jr. |
| 198. | George H. Arnold |
| 199. | Genzo Nojima |
| 200. | Lieut. L. E. Goodier |
| 201. | Grover E. Bell |
| 202. | Didier Masson |
| 203. | Haldeman Figyelmessy |
| 204. | Harry Holmes |
| 205. | Robert R. Johnson |
| 206. | William H. Bleakley |
| 207. | J. Floyd Smith |
| *208. | G. M. Bryant |
| 209. | C. Murvin Wood |
| 210. | Lieut. Samuel H. McLeary |
| 211. | Lieut. Lewis Hyde Brereton |
| 212. | Frank H. Burnside |
| 213. | Earl V. Fritts |
| 214. | Elling O. Weeks |
| 215. | Allen S. Adams |
| 216. | Frederick C. Hild |
| 217. | Juan P. Aldasoro |
| 218. | Eduardo Aldasoro |
| 219. | Takayuki Takasaw |
| *220. | Charles C. Roystone |
| 221. | J. A. Riddell |
| 222. | Klaus August Bergenthal |
| *223. | Joseph D. Park |
| 224. | W. K. Martin |
| 225. | S. F. Samura |
| 226. | Edward Olivier |
| 227. | Tokuji Nakamura |
| 228. | Theodore C. Macaulay |
| 229. | G. Rush Strong |
| 230. | Arthur Blasiar |
| 231. | Robert Y. Hoskino |
| 232. | George A. Rawson |
| 233. | Lawrence O. Strouc |
| 234. | James D. Hill |
| 235. | Alexander T. Heine |
| 236. | Bernard F. Marusky |
| 237. | Maurice R. Priest |
| 238. | A. R. Smith |
| 239. | Henry K. Crowell |
| 240. | Edward Wm. Steele |
| 241. | Lieut. C. G. Chapman |
| 242. | Lieut. Herbert A. Dargue |
| *243. | C. Perry Rich |
| 244. | Tohomoskige Ikuhara |
| 245. | Arthur F. Lyn |
| 246. | John A. Bixler |
| 247. | Bernard L. Whelan |
| 248. | A. A. Bressman |
| 249. | Joseph A. Ritchie |
| *250. | Lieut. Walter R. Taliaferro |
| 251. | Lieut. Joseph E. Carberry |
| *252. | J. P. Pendhayn |
| 253. | Maurice T. Schermerhorn |
| 254. | R. M. Wright |
| 255. | N. M. McGuire |
| 256. | George Puflea |
| 257. | Winfield E. Bowersox |
| 258. | Florence B. Seidell |
| 259. | Cornelius Jackson Schaap |
| 260. | Rudolph G. Sestak |
| 261. | Frank Castori |
| 262. | Henry Sheehy Keating |
| 263. | A. W. Lorain |
| *264. | Lieut. Henry B. Post |
| 265. | Dante Nannini |
| 266. | Howard M. Rinehart |
| 267. | Lindop E. Brown |
| *268. | Albert J. Jewell |
| 269. | A. B. Gaines, Jr. |
| 270. | Chriss J. Petersen |
| 271. | William Walb |
| 272. | Capt. Hollis LeRoy Muller |
| 273. | Lieut. V. E. Clark |
| *274. | Thomas J. Hill |
| 275. | Lieut. Robert H. Willis, Jr. |
| 276. | John Bernard McCue |
| 277. | Albert Sigmund Heinrich |
| 278. | Ritsugo Tsubota |
| 279. | George A. Page, Jr. |
| 280. | Lieut. Townsend Foster Dodd |
| 281. | Milton Winter Primm |
| 282. | Joseph Raymond Hutchinson |
| 283. | Augustus Jones Brubaker |
| 284. | Carl T. Kuhl |
| 285. | Lieut. Bernard L. Smith |
| *286. | Percy Van Ness |
| 287. | Charles Grieder |
| 288. | Lieut. Joseph C. Morrow, Jr. |

| No. of Certificate | Name of Holder |
|---|---|
| 289. | Lieut. Fred Seydel |
| 290. | Harry James Webster |
| 291. | Charles Eugene Fisher |
| 292. | Sekiji Tateishi |
| 293. | William Charles Ocker |
| 294. | Baxter Harrison Adams |
| 295. | Thomas Melville Ross |
| 296. | Charles Lester Zimmerman |
| 297. | Yuwujiro Nakamura |
| 298. | Gee Wee |
| 299. | Lloyd Earl Norman |
| 300. | C. E. Utter |
| 301. | Mrs. Richberg Hornsby |
| 302. | Curtis LaQ. Day |
| 303. | Marjorie Stinson |
| 304. | Lieut. Kenneth Whiting, U. S. N. |
| 305. | Kiyoshi Nishide |
| 306. | William Fray |
| 307. | Griffith Brewer |
| 308. | Byron Q. Jones |
| 309. | Lyle H. Scott |
| 310. | Lawrence W. Brown |
| 311. | Frank Kitamura |
| 312. | Lt. Douglas B. Netherwood, U.S.A. |
| 314. | Tom T. Yamanaka |
| 315. | Iyeyasu Nakazawa |
| 316. | Redondo B. Sutton |
| 317. | Lieut. W. G. Kilner, U. S. A. |
| 318. | Lieut. Shepler W. Fitzgerald |
| 319. | Lieut. Leslie MacDill |
| 320. | James Jenson |
| 321. | Dan Davison |
| 322. | Overton M. Bounds |
| 323. | Lieut. Arthur R. Christie, U. S. A. |
| 324. | Lieut. Edgar S. Gorrell, U. S. A |
| 325. | Thomas James Dean |
| 326. | Lieut. Henry W. Harms, U. S. A. |
| 327. | Lieut. Ira A. Rader, U. S. A. |
| 328. | Lieut. Harry Gantz, U. S. A. |
| 329. | James M. Johnson |
| 330. | Sokuro Morizono |
| 331. | F. C. G. Eden |
| 332. | Verne Carter |
| 333. | Ferdinand Eggena |
| 334. | Robt. Edward Lee |
| 335. | J. Morrow Alexander |
| 336. | John A. Loetscher, Jr. |
| 337. | Chas. McH. Pond |
| 338. | J. K. La Grove |
| 339. | H. B. Evans |
| 340. | A. W. Briggs |
| 341. | Goroku Moro |
| 342. | Lieut. Earl L. Canady |
| 343. | Arthur C. Harland |
| 344. | Edward P. Beckwith |
| 345. | B. Blakeman Lewis |
| 346. | Geo. H. Simpson |
| 347. | Gordon Fraser Ross |
| 348. | K. G. Macdonald |
| 349. | Percy E. Beasley |
| 350. | Stearne T. Edwards |
| 351. | Maurice Raphael Berckmans |
| 352. | Emile Berckmans |
| 353. | K. F. Saunders |
| 354. | Albert D. Smith |
| 355. | Harold Emile Jensen |
| 356. | Murray Bayne Galbraith |
| 357. | Arthur Gerald Woodward |
| 358. | Walter James Sussan |
| 359. | John Clark Simpson |
| 360. | James S. Krull |
| 361. | Arthur Roy Brown |
| 362. | Harley G. Smith |
| 363. | Cuthbert J. Creery |
| 364. | John Galpin |
| 365. | Basil Duncan Hobbs |
| 366. | James Lindsay Gordon |
| 367. | William Edgar Robinson |
| 368. | W. Roy Walker |
| 369. | Ed. Musick |
| 370. | A. C. Burns |
| 371. | Joseph Gorman |
| 372. | Herbert Mackenzie |
| 373. | S. W. Callaway |
| 374. | Otokichi Shibaki |
| 375. | Edward A. Stinson |
| 376. | John A. Harman |
| 377. | Marcel C. Dubuc |
| 378. | August Thiele |
| 379. | Alfred J. Croft |
| 380. | Warren A. Lord |
| 381. | G. H. Witts |
| 382. | James Alexander Shaw |
| 383. | Patrick S. Kennedy |
| 384. | Lloyd S. Breadner |
| 385. | William Hargrove Chisam |
| 386. | Robert McC. Weir |
| 387. | Walter S. Penty |
| 388. | Harold B. Smith |
| 389. | Roy Teernstra |
| 390. | Capt. Wm. Lay Patterson, U. S. A. |
| 391. | Lieut. Harrison H. C. Richards |
| 392. | Lieut. John F. Curry |
| 393. | Lieut. Ralph Royce |
| 394. | Lieut. Roy Stuart Brown |
| 395. | Austin A. Adamson |
| 396. | Ira O. Biffle |
| 397. | Gerald Atkinson Magor |
| 398. | Charles McNicoll |
| 399. | Harold M. Hewitt |
| 400. | Cecil G. Brunson |
| 401. | Alfred E. McKay |
| 402. | Norman A. Magor |
| 403. | John R. Bibby |
| 404. | Frank M. Ouge |
| 405. | Steve Boldy |
| 406. | Thomas Jones |
| 407. | Vernon B. Castle |
| 408. | Frederick C. Biette |
| 409. | Arthur T. Whealey |
| 410. | Arthur Y. Wilkes |
| 411. | Gordon S. Harrower |
| 412. | L. Carlton Angstrom |
| 413. | William N. Brown |
| 414. | Thomas C. Wilkinson |
| 415. | John G. Ireland |
| 416. | Arthur H. Pearce |
| 417. | George Breadner |
| 418. | Samuel A. Appold |
| 419. | Horace B. Tuttle |
| 420. | Charles L. Bailey |
| 421. | Stewart W. Cogswell |
| 422. | John F. Chisholm |
| 423. | Hibbert B. Brenton |
| 424. | Milton S. Beal |
| 425. | William D. Matheson |
| 426. | Arthur J. Ahring |
| 427. | Lt. Harold S. Martin, U. S. A. |
| 428. | Lt. Carl Spatz, U. S. A. |
| 429. | Lt. John B. Brooks, U. S. A. |
| 430. | Lt. Bert M. Atkinson, U. S. A. |
| 431. | Stanley V. Coyle |
| 432. | Ledyard Blake |
| 433. | John W. Baillie |
| 434. | George Bagrie |
| 435. | Frederic F. L. Washington |
| 436. | Walter E. Flett |
| 437. | Wilfrid F. MacDonald |
| 438. | Harry L. Pell |
| 439. | Ruskin Watts |
| 440. | Reginald G. Malcolm |
| 441. | Alexander B. Thaw, 2nd |
| 442. | William Lodge |
| 443. | Donald H. Masson |
| 444. | Doyle Bradford |
| 445. | William S. Oliver |
| 446. | Gordon T. Bysshe |
| 447. | William M. Alexander |
| 448. | Angus G. MacDonald |
| 449. | Kenneth E. Whyte |
| 450. | Rutherford Fullerton |
| 451. | Wallace H. McMillan |
| 452. | Robert Simon |
| 453. | George B. Anderson |
| 454. | Lt. George E. A. Reinburg, U. S. A. |
| 455. | Lt. Sheldon H. Wheeler, U. S. A. |
| 456. | Leon E. Canady |
| 457. | Harold Drummond |
| 458. | Louis M. Seemann |
| 459. | Ralph K. Blair |
| 460. | Howard Linn |
| 461. | Joe Graham Trees |
| 462. | Christopher W. Ford |
| 463. | David D. Findlay |
| 464. | Harold M. Ireland |
| 465. | Fulsom Arbuckle |
| 466. | Lewis Kelly |
| 467. | Henry J. Bath |
| 468. | John B. Daniels |
| 469. | Henry McC. Hutchison |
| 470. | Walter D. Hudson |
| 471. | Childs Frick |
| 472. | Frederick W. Zimmer |
| 473. | Peter C. Millman |
| 474. | E. C. Christy |
| 475. | Lambert Vervoort |
| 476. | Lt. George H. Brett, U. S. A |
| 477. | Lt. John C. McDonnell |
| 478. | Robert W. Hogg |
| 479. | Garnet R. Halliday |
| 480. | Charles Reed |
| 481. | Frederick H. Prime |
| 482. | Louis T. Barin |
| 483. | Harold S. Bagg |
| 484. | Herbert Wolf |
| 485. | Lt. Jack W. Heard, U. S. A. |
| 486. | Reginald M. Charley |
| 487. | Frank G. Garratt |
| 488. | Lt. John W. Butts, U. S. A. |
| 489. | Lt. Leo. G. Heffernan, U. S. A. |
| 490. | Walter B. Kellogg |
| 491. | Chas. T. Brimer |
| 492. | James M. Graham |
| 493. | James E. Potvin |
| 494. | Paul V. Morris |
| 495. | J. P. B. Jeejeebhoy |
| 496. | Arthur P. Haywood |
| 497. | Wellington C. Ault |
| 498. | John Frost |
| 499. | Leslie H. Ingersoll |
| 500. | Claude E. Neidig |
| 501. | Lt. John C. P. Bartholf, U. S. A. |
| 502. | Chas. W. Bailey |
| 503. | Willis G. Hickman |
| 504. | David H. Patterson |
| 505. | Arthur Farquhar |
| 506. | Morgan B. More |
| 507. | Fred E. Banbury |
| 508. | Curry A. McDaniel |
| 509. | Thomas E. Springer |
| 510. | George E. Turnbull |
| 511. | Lt. Boyd F. Briggs, U. S. A. |
| 512. | Clifford C. Goodhue |
| 513. | Harry L. Crowe |
| 514. | Henry G. Boswell |

| No. of Certificate | Name of Holder |
|---|---|
| 515. | Edgar W. Bagnell |
| 516. | John R. Booth, 2nd |
| 517. | Ralph L. Taylor |
| 518. | Harved H. Ganyau |
| 519. | Reginald Gouraud |
| 520. | Edmund D. Roach |
| 521. | Langley F. W. Smith |
| 522. | Everett M. Smith |
| 523. | Louis E. Fideler |
| 524. | Frank W. Wright |
| 525. | Barnard Cummings |
| 526. | Francis Stanton |
| 527. | Lt. Wm. A. Robertson, U. S. A. |
| 528. | Howard C. Davidson |
| 529. | Lt. Maxwell Kirby, U. S. A. |
| 530. | Thomas F. Fergie |
| 531. | Brian Devlin |
| 532. | Emil M. Laird |
| 533. | Lt. Clinton W. Russell, U. S. A. |
| 534. | Lt. Davenport Johnson, U. S. A. |
| 535. | Lt. Millard F. Harmon, U. S. A. |
| 536. | Raynal C. Bolling |
| 537. | Fairman Rogers Dick |
| 538. | James E. Miller |
| 539. | Wm. Prentice Willetts |
| 540. | Gust Jameson |
| 541. | Ralph P. Hansen |
| 542. | Fred L. Hollin |
| 543. | Stephen H. Noyes |
| 544. | Joe R Forkner |
| 545. | Edward G. Schultz |
| 546. | Charles D. Wiman |
| 547. | Albert D. Sturtevant |
| 548. | Seth Low, 2nd |
| 549. | Lyman W. Doty |
| 550. | Ewart C. Hugh |
| 551. | Harold B. Mott |
| 552. | John J. Whitmore |
| 553. | Dr. Chas. K. Holgate |
| 554. | Lt. John C. Walker, U. S. A. |
| 555. | James Hartness |
| 556. | Stedman S. Hanks |
| 557. | Claude C. Purdy |
| 558. | Alexander McB. Young |
| 559. | Herbert A. Munter |
| 560. | Lt. Richard B. Barnitz |
| 561. | Dorothy Rice Peirce |
| 562. | John D. Probst |
| 563. | Fred C. Cressman |
| 564. | Carl T. Batts |
| 565. | George C. Whiting |
| 566. | Oliver C. LeBoutillier |
| 567. | Alan C. Simpson |
| 568. | Harry H. Metcalf |
| 569. | George Sykes |
| 570. | Raphael S. de Mitkiewicz |
| 571. | William F. Prentice |
| 572. | Hamilton Coolidge |
| 573. | George Butler |
| 574. | William H. Cheney |
| 575. | William G. Schauffler, Jr. |
| 576. | Frank S. Patterson |
| 577. | Joseph R. Torrey, 2nd |
| 578. | Edmond E. Bates |
| 579. | William B. Bacon |
| 580. | Mahlon P. Bryan |
| 581. | Alexander F. MacDonald |
| 582. | Frederic S. Allen |
| 583. | Robert H. Stiles |
| 584. | Francis I. Amory, Jr. |
| 585. | Francis V. DuPont |
| 586. | Rufus R. Rand |
| 587. | Earle H. Bean |
| 588. | Roderick S. G. MacLean |
| 589. | Lawrence Leon |
| 590. | Russell H. Moore |
| 591. | Lt. Marton F. Scanlon, U. S. A. |
| 592. | Lt. John D. von Holtzendorff, U. S. A. |
| 593. | Edwin M. Post, Jr. |
| 594. | Lt. Paul L. Ferron, U. S. A. |
| 595. | Louis Bodor |
| 596. | Jack R. McHugo |
| 597. | Peter Maraschi |
| 598. | LeGrand B. Cannon |
| 599. | Lt. Dean Smith |
| 600. | Sen Yet Young |
| 601. | G. L. Bumbaugh |
| 602. | Douglas Manning |
| 603. | B. McK. Doolittle |
| 604. | Harmon J. Norton |
| 605. | Carter Tiffany |
| 606. | F. A. Robinson |
| 607. | George U. Kobashi |
| 608. | Donald D. Harries |
| 609. | John A. Robinson |
| 610. | Harry W. Wheatley |
| 611. | Lt. Geo. E. Lovell, Jr. |
| 612. | Lt. James L. Dunsworth |
| 613. | Lt. Henry A. Ilse |
| 614. | F. T. Blakeman |
| 615. | Royden Foley |
| 616. | Luis Kwan |
| 617. | Henry Andersen |
| 618. | Albert Fong Tom |
| 619. | Ira J. Proffitt |
| 620. | Earl B. Fuller |
| 621. | August Koerbling |
| 622. | Fletcher L. McCordic |
| 623. | Lt. B. R. Osborne |
| 624. | Harold T. Lewis |
| 625. | Elliot P. Hinds |
| 626. | Morton P. Lane |
| 627. | Robert R. McMath |
| 628. | Neil C. McMath |
| 629. | Nugent Fallon |
| 630. | Walter R. Bullock |
| 631. | E. R. Kenneson |
| 632. | Lt. Ivan P. Wheaton |
| 633. | Helen Hodge |
| 634. | Frank Bryant |
| 635. | Newton B. Woodville |
| 636. | Capt. L. Phil Billard |
| 637. | Luis Quimson |
| 638. | Theo. M. Hequembourg |
| 639. | Edward A. Bellande |
| 640. | Vitalis H. Park |
| 641. | Way J. Jung |
| 642. | Lee Quong Fay |
| 643. | Paul R. Morrow |
| 644. | Theo. de Kruijff |
| 645. | Jacob B. Struble |
| 646. | Gustav J. Ekstrom |
| 647. | Edwin W. Hansen |
| 648. | Donald R. McGee |
| 649. | Frank A. Hansen |
| 650. | George S. Brown |
| 651. | R. Bonomi |
| 652. | Lester J. Williams |
| 653. | Benj. G. Weir |
| 654. | Benj. W. Mills |
| 655. | Earl LaRue Naiden |
| 656. | C. W. Howard |
| 657. | Jos. T. McNarney |
| 658. | H. F. Wehrle |
| 659. | Carl Carlstrom |
| 660. | Walter E. Lees |
| 661. | Kaspar F. Wrede |
| 662. | George Pulsifer, Jr. |
| 663. | James F. Byrom |
| 664. | Walter J. Wynne |
| 665. | Thos. J. Hanley, Jr. |
| 666. | Harry B. Anderson |
| 667. | Jay Ingram |
| 668. | Herbert Carolin |
| 669. | Samuel Mustain |
| 670. | James O. Jensen |
| 671. | Andrew H. Heermance |
| 672. | Harold M. Gallop |
| 673. | Howard P. Culver |
| 674. | Walter V. Barnebey |
| 675. | Belden B. Brown, Jr. |
| 676. | Clive Burke |
| 677. | Edward H. Holterman |
| 678. | Henry J. Damm |
| 679. | Harold M. Clark |
| 680. | Ralph P. Cousins |
| 681. | William Ord Ryan |
| 682. | C. C. Benedict |
| 683. | George E. Stratemeyer |
| 684. | Seth W. Cook |
| 685. | James G. Colgan |
| 686. | Lawrence S. Churchill |
| 687. | George W. Krapf |
| 688. | Melchoir McE. Eberts |
| 689. | C. C. Culver |
| 690. | James S. Martin |
| 691. | Roderick H. Jones |
| 692. | William M. Blair |
| 693. | Miles Irmes |
| 694. | Lewis M. Gray |
| 695. | Carl W. Connell |
| 696. | M. H. Boulware |
| 697. | Michael Brown |
| 698. | Joseph Bennett |
| 699. | Roland Rohlfe |
| 700. | Michael F. Davis |
| 701. | James R. Alfonte |
| 702. | Adlai H. Gilkeson |
| 703. | Patrick Frissell |
| 704. | Arnold M. Krogstad |
| 705. | Whitten J. East |
| 706. | John W. Reynolds |
| 707. | H. M. Brown |
| 708. | Chas. T. Holloway |
| 709. | Harry Wagner |
| 710. | Edward P. Larrabee |
| 711. | John W. Welch |
| 712. | Chas. Joseph Wagner |
| 713. | Hugh L. Miller |
| 714. | Earl W. Golding |
| 715. | Richard S. Townsend |
| 716. | Thorne Donnelley |
| 717. | Herbert R. Harmon |
| 718. | Franklin K. Lane, Jr. |
| 719. | Cecil D. Murray |
| 720. | Amor L. Smith |
| 721. | Percy R. Pyne |
| 722. | Samuel W. Skinner |
| 723. | Allen S. Topping |
| 724. | Frederick B. Davy |
| 725. | George M. Dery |
| 726. | Arthur L. Richmond |
| 727. | Charles K. Chun |
| 728. | Chan Hungwan |
| 729. | William R. Becker |
| 730. | Daniel P. Morse |
| 731. | Verne Lee Murray |
| 732. | Hiram Bingham |
| 733. | James F. Hodges |
| 734. | Will D. Parker |
| 735. | Lawrence Duncheskie |
| 736. | C. K. Rhinehardt |
| 737. | N. W. Peck |
| 738. | William B. Peebles |




**The Bristol fighter used by Captain R. W. Schroeder in his world's record altitude flight at the Wilbur Wright Aviation Field on September 18, 1918, equipped with a 300 horse power Hispano-Suiza motor.**

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| 744. | H. B. S. Burwell |
| 745. | Leon Richardson |
| 746. | Herbert Pulitzer |
| 747. | Oliver S. Ferson |
| 748. | Edwin W. Hubbard |
| 749. | Percival Dodge |
| 750. | I. Octave Blake |
| 751. | Theo. S. Avery |
| 752. | Edmund A. Kruss |
| 753. | John E. Rossell |
| 754. | Gordon C. Prince |
| 755. | James F. Mabbett |
| 756. | Lawrence Schenk |
| 757. | Cecil G. Sellers |
| 758. | David H. Young |
| 759. | Edwin E. Newbold |
| 760. | Moseley Taylor |
| 761. | Roderick C. Ferguson |
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| 763. | John I. Moore |
| 764. | L. H. De Garmo |
| 765. | Thomas M. Ring |
| 766. | Samuel P. Mandell |
| 767. | Arthur L. Boorse |
| 768. | David B. Lindsey |
| 769. | Leo A. Walton |
| 770. | Delos C. Emmons |
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| 772. | Edward L. Hoffman |
| 773. | Earl F. White |
| 774. | Paul R. Stockton |
| 775. | Newt. Frey |
| 776. | H. H. White |
| 777. | Frank C. Behrend |
| 778. | Wilburn C. Dodd |
| 779. | Felix Steinle |
| 780. | Roland S. Knowlson |
| 781. | William H. Derbyshire |
| 782. | Samuel A. Smith |
| 783. | Horace W. Bonine |
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| 785. | Thomas F. Ward |

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| 793. | Mark W. Walton |
| 794. | Myron E. O'Hanley |
| 795. | Henry G. Saal |
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| 797. | Emert Shields |
| 798. | Frederick I. Eglin |
| 799. | Ernest Clark |
| 800. | K. G. Pulliam, Jr. |
| 801. | Harry C. Hequembourg |
| 802. | Aubrey L. Carter |
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| 812. | Richard P. Lewis |
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| 814. | George O. Weiler |
| 815. | Richard H. Hearn |
| 816. | W. Frank Lewis |
| 817. | Reuben M. Fleet |
| 818. | Thomas Turner |
| 819. | Alfred R. Scheleen |
| 820. | George C. Furrow |
| 821. | Almon Stroupe |
| 822. | Edwin H. Whitney |
| 823. | Alan H. Boynton |
| 824. | Philip J. Barnes |
| 825. | Nielson Edwards |
| 826. | Herbert G. Fales |
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| 829. | Alfred J. Cromwell |
| 830. | Edwin B. Henry |
| 831. | Carrol H. Huddleston |
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| 842. | Leon Lannoy |
| 843. | Vincent P. Hollingsworth |
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| 847. | Charles P. Requa |
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| 849. | Vincent Kerens |
| 850. | Harold B. Breene |
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| 855. | Frank D. Sinclair |
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| 858. | Allen F. Bourdon |
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| 860. | Robert T. Jefferson |
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| 887. | Robert Marsh, Jr. |
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| 898. | George F. Hughes |
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| 903. | Murray Earle |
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| 907. | Donald B. Wurzburg |
| 908. | Tsunetare K. Oguri |
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| 910. | Edgar F. Waters |
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| 915. | Hugh McE. Lumsden |
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| 923. | C. R. W. Cabanies |
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| 1021. | Hugh M. Pierce |
| 1022. | Walter E. Watipka |
| 1023. | Harry H. Lynch |
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| 1025. | E. J. F. Miller |
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| 1027. | James B. Rixey |
| 1028. | Thomas R. Scott |
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| 1030. | Elmer E. Nichols |
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| 1036. | Henry P. Tithers |
| 1037. | John E. Thorp, Jr. |
| 1038. | Juniuos H. Houghton |
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| 1040. | Charles L. Clark |
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| 1042. | Hugh Lowry |
| 1043. | Carrol V. Stein |
| 1044. | Robert M. Carrigan |
| 1045. | Emanuel Hahn |
| 1046. | Ralph C. J. Somers |
| 1047. | Richard B. Barry |
| 1048. | Casper M. Kielland |
| 1049. | Stephen A. Ross |
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| 1053. | Edward L. Williams, Jr. |
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| 1057. | Oscar Young |
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| 1059. | William F. Baker |
| 1060. | Claude E. Vollmayer |
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| 1062. | Joseph D. Wight |
| 1063. | R. Maurice Lawson |
| 1064. | W. Jackson Hunt |
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| 1066. | James M. Bovard |
| 1067. | James L. Edwards |
| 1068. | Fred Feasel |
| 1069. | W. Howard Henry |
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| 1075. | M. H. Goodnough |
| 1076. | Edward Butte, Jr. |
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| 1094. | Louis E. Neidhart |
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| 1096. | Townsend J. Taylor |
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| 1098. | C. F. O'Niell |
| 1099. | Paul B. King |
| 1100. | Charles S. Lyon |
| 1101. | C. Lamar Nelson |
| 1102. | Leland C. Hurd |
| 1103. | Joseph M. Dawson |
| 1104. | Marion B. Sulzberger |

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| 1108. | Philip E. Hassinger |
| 1109. | James G. Ray |
| 1110. | Herbert B. Bartholf |
| 1111. | William A. Frye |
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| 1116. | Roger Amory |
| 1117. | Kenneth Decker |
| 1118. | David R. Jackson |
| 1119. | Merrill K. Riddick |
| 1120. | Horace H. Barse |
| 1121. | John W. Sharpnack |
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| 1138. | Asbury W. Meadows |
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| 1147. | Roy R. Fetterhoff |
| 1148. | James A. Keating |
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| 1152. | Joseph F. Haskins |
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| 1154. | Harold R. Kelly |
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| 1157. | Frank B. Dudley |
| 1158. | Lynn E. Melendy |
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| 1160. | Harvey F. Houck |
| 1161. | Cyrus E. Clarkson |
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| 1164. | Ray W. Carritson |
| 1165. | Frank M. O'Connor |
| 1166. | Lloyd M. DeShong |
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| 1169. | Theo. W. Hubbard |
| 1170. | Robt. E. Morsbach |
| 1171. | Harold S. Kennedy |
| 1172. | Harry B. Hortman |
| 1173. | Charles W. Keene |
| 1174. | Herman V. Boley |
| 1175. | Jesse W. Simpson |
| 1176. | William B. Cowart |
| 1177. | George V. Gray |
| 1178. | Cushman Hartwell |
| 1179. | John P. Brooks |
| 1180. | Irving S. Morange |
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| 1183. | Benj. M. Merton |
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| 1186. | Hubert S. James |
| 1187. | Edward M. Johnston |
| 1188. | Malvin Carl Aney |
| 1189. | Philip S. Kamm |
| 1190. | Walter W. Kamm |
| 1191. | Lawrence Roberts |
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| 1193. | Rodney M. Armstrong |
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| 1197. | James J. Offutt |
| 1198. | Paul W. Loudon |
| 1199. | Wilson Marshall, Jr. |
| 1200. | Albert Clark Foulk |
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| 1203. | John A. Macready |
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| 1205. | Joel F. McDavid |
| 1206. | Lester L. Meyer |
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| 1215. | Lowell K. Weaver |
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| 1217. | Roy W. White |
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| 1230. | Bernard A. Law |
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| 1232. | Buel L. Webster |
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| 1237. | William L. Purcell |
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| 1242. | Clifford A. McElvain |
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| 1245. | Frederic E. Luff |
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| 1247. | Edwin C. Klingman |
| 1248. | Richard C. Martin |
| 1249. | George W. Blakeley |
| 1250. | Bernard M. Doolin |
| 1251. | Zenos R. Miller |
| 1252. | David S. Bonduvant |
| 1253. | Robert S. Houston |
| 1254. | Warren Anderson |
| 1255. | William E. Grimmer, Jr. |
| 1256. | Golden H. Benefiel |
| 1257. | Granville O. Woodward |
| 1258. | Howard W. French |
| 1259. | Horace Shidler |
| 1260. | LeRoy G. Woodward |
| 1261. | Cedric E. Pyle |
| 1262. | John P. Grethen |
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| 1264. | Frank D. Healy |
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| 1268. | Richard Anderson |
| 1269. | Harrison W. Flickinger |
| 1270. | Wm. R. Kuhn |
| 1271. | Charles D. Seward |
| 1272. | J. L. Johnson |
| 1273. | David M. McClure |
| 1274. | Joseph R. Pearson, Jr. |
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| 1276. | Roy T. Hazzard |
| 1277. | Jesse C. Millard |
| 1278. | Harry S. Aldrich |
| 1279. | Raymond F. Sanderhoff |
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| 1281. | Lt. John S. Owens |
| 1282. | Lt. Harry M. Smith |
| 1283. | Chas. C. Gaines |
| 1284. | Horace Orlady |
| 1285. | Frederick H. Harris |
| 1286. | Calvin W. Greene |
| 1287. | Gardner A. Dailey |
| 1288. | Maurice McC. Kidd |
| 1289. | Harold J. Forshay, Lt. |
| 1290. | Herbert C. Huebner |
| 1291. | W. P. Jennings |
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| 1293. | Frank S. Ennis |
| 1294. | Clifford C. Nutt |
| 1295. | Wm. W. Tanney |
| 1296. | Wm. Hazel Plyler |
| 1297. | Michael M. Rubner |
| 1298. | Thomas H. Marshall |
| 1299. | Tyler C. Bronson |
| 1300. | George B. Bailey |
| 1301. | W. Watson LeForce |
| 1302. | Lt. Paul V. Alden |
| 1303. | Francis M. Simonds, Jr. |
| 1304. | Delbert E. Jones |
| 1305. | Dudley M. Outcalb |
| 1306. | Wm. R. Sweeley |
| 1307. | Hobert LaD. Wilson |
| 1308. | Donald E. Greene |
| 1309. | Henry F. George |
| 1310. | Ralph E. Davison |
| 1311. | Howard H. Powal |
| 1312. | John J. Goodfellow, Jr. |
| 1313. | Leonard Sullivan |
| 1314. | Wm. E. Brotherton, Lt. |
| 1315. | Emile J. Vadnais |
| 1316. | Kenneth L. Porter |
| 1317. | L. C. Simon, Jr. |
| 1318. | Wilbur T. Broun |
| 1319. | Harry C. Hogan |
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| 1324. | Clayton C. Lavene |
| 1325. | Francis P. Lynch |
| 1326. | John C. Miller |
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| 1329. | Louis C. Geisendort |
| 1330. | Leland D. Schock |

| No. of Certificate | Name of Holder |
|---|---|
| 1331. | Henry G. MacLure |
| 1332. | Donald C. Russell |
| 1333. | Jas. C. Marquardt, 1st Lt. |
| 1334. | Chas. G. Hoffman |
| 1335. | Lt. Saml. G. Eaton, Jr. |
| 1336. | Lloyd R. Clowes |
| 1337. | Leon deFremery |
| 1338. | Jos. L. Whitney |
| 1339. | George A. Miller |
| 1340. | Herbert C. Tiffany |
| 1341. | Seth Axley |
| 1342. | Paul W. Chase |
| 1343. | Maurice N. Murphy |
| 1344. | Ralph C. Gray |
| 1345. | John E. Davis |
| 1346. | Douglas Lathrup |
| 1347. | George W. McKenzie |
| 1348. | Robt. Sutherland |
| 1349. | Wm. B. Kuen |
| 1350. | Lt. Donald H. Gilmore |
| 1351. | Horace R. Bennett |
| 1352. | Lt. Claude F. Gilchrist |
| 1353. | Henry H. Sibley |
| 1354. | Francis L. L. Stevenson |
| 1355. | Thomas V. Hyne |
| 1356. | Kenneth R. Unger |
| 1357. | Frank Banke |
| 1358. | Wm. H. Miles, 1st Lt. |
| 1359. | Hugh M. Rice |
| 1360. | Lt. James M. Gruminey |
| 1361. | Chauncey D. Howe |
| 1362. | Samuel A. Sloan |
| 1363. | Jos. H. Garnett |
| 1364. | Albert J. Davis |
| 1365. | Baron S. Barnes |
| 1366. | Stuart M. Butler |
| 1367. | Samuel Welsh |
| 1368. | 1st Lt. Roscoe Fawcett |
| 1369. | Albert C. Sager |
| 1370. | Phillip C. Goettel |
| 1371. | Saml. A. Buckmaster |
| 1372. | Harry L. McDonough |
| 1373. | Douglas E. Buchanan |
| 1374. | Harold P. Sutton |
| 1375. | Allen T. Archer |
| 1376. | Lt. J. J. Donnohue |
| 1377. | Horace W. Leeper |
| 1378. | Paul Dickey |
| 1379. | Rodman Wanamaker, Jr. |
| 1380. | Ira B. Humphreys |
| 1381. | Lt. James N. Kelly |
| 1382. | Lt. Robt. E. Ellis |
| 1383. | Chas. D. Hightower |
| 1384. | Benj. H. Tolbert |
| 1385. | Ralph V. Valtier |
| 1386. | Wm. J. Blackman |
| 1387. | Russell H. Klyver |
| 1388. | Verne W. Hoffman |
| 1389. | Geo. A. S. Robertson |
| 1390. | Russell G. Jones |
| 1391. | A. Robertson Frye |
| 1392. | Edwin C. Moore |
| 1393. | Thomas L. Hill |
| 1394. | Chas. R. Hoffman |
| 1395. | Karl C. Vogel |
| 1396. | James J. Cabot |
| 1397. | Bard M. Squiers, Lt. |
| 1398. | Rudolph W. B. Cameron |
| 1399. | George B. Stephens |
| 1400. | Thomas L. Tousley |
| 1401. | Francis B. Stites |
| 1402. | Edmund P. Livingston |
| 1403. | Harold A. Steiner, Lt. |
| 1404. | Charles W. Reynolds |
| 1405. | Russell E. Evans |
| 1406. | Victor G. Strain |
| 1407. | Lt. Sherwood L. Waterman |
| 1408. | Hugh C. Power |
| 1409. | Lt. Carl Wm. Badenhausen |
| 1410. | Lt. Ralph M. Phelps |
| 1411. | Byron B. Freeland |
| 1412. | Wm. E. DeCourcy |
| 1413. | Robt. B. Sewell |
| 1414. | Maurice F. O'Brien |
| 1415. | Edw. J. Larkin |
| 1416. | Howard F. Rough |
| 1417. | Allen W. Valentine |
| 1418. | Earl Lathrup |
| 1419. | Marshall W. Waite |
| 1420. | John M. Hayward |
| 1421. | Val T. Billups |
| 1422. | Gibson G. Wolfe |
| 1423. | 1st Lt. Walter A. Thomson |
| 1424. | Lt. Henry B. Sullivan |
| 1425. | Bennett Bates |
| 1426. | William Biehl |
| 1427. | Edmund M. Emmerich |
| 1428. | Lt. Philip R. Babcock |
| 1429. | William Couch |
| 1430. | Harold K. Atkinson |
| 1431. | Lt. Paul C. Wanser |
| 1432. | Capt. Walter C. Douglas |
| 1433. | George H. Kimber |
| 1434. | William Watson |
| 1435. | Lt. Norman B. McPeak |
| 1436. | Hugh M. Brosnan |
| 1437. | Harold B. Koster |
| 1438. | Wm. R. House, Lt. |
| 1439. | Elmer C. Goldsworthy, Lt. |
| 1440. | August G. Kimmerle |
| 1441. | Roy E. Ludick |
| 1442. | Lt. Jos. A. Marincik |
| 1443. | John Whitall |
| 1444. | Raymond A. Mitchell |
| 1445. | John Wm. Bailey, Jr. |
| 1446. | Maurice Holland |
| 1447. | Ernest W. Dichman |
| 1448. | Olin C. Francis |
| 1449. | Merrill D. Mann, Jr. |
| 1450. | James A. Ellison, Lt. |
| 1451. | Frank H. Sheffield, Lt. |
| 1452. | Lt. Murray Chas. Fartham |
| 1453. | Frank E. Hollingsworth |
| 1454. | Russell F. Hall |
| 1455. | Lt. David Magee |
| 1456. | Lt. Comdr. G. C. Dichman |
| 1457. | Lt. Arthur J. McHenry |
| 1458. | Lt. A. Burt Hill, Jr. |
| 1459. | Herman A. VanEiff |
| 1460. | Chester J. Jacobson |
| 1461. | Willis C. Brown |
| 1462. | Joseph B. Judge |
| 1463. | Johnson D. Kenyon |
| 1464. | Louis C. Boldenweck |
| 1465. | Lt. Chas. A. Browne |
| 1466. | Francis J. Buckley |
| 1467. | Lt. Wm. C. Morris |
| 1468. | Edw. K. Merrill |
| 1469. | Walter F. Richards |
| 1470. | Lt. Geo. E. Johnson |
| 1471. | R. J. Mahon |
| 1472. | Lt. Russell R. Dale |
| 1473. | Lt. Russell M. Greenslade |
| 1474. | Wm. Carl Jacobs |
| 1475. | Lt. Niles E. Miles |
| 1476. | John M. Bolton, Lt. |
| 1477. | Calvin P. Erdman |
| 1478. | Owen S. Payne |
| 1479. | Geo. Washington Galinger |
| 1480. | Edwin M. Welch, Lt. |
| 1481. | Ralph R. Kirkland |
| 1482. | Theobald J. Leseman |
| 1483. | Robt. R. Steiger |
| 1484. | Daryl Gardner |
| 1485. | Hugh C. Campfield |
| 1486. | R. F. Whitfield |
| 1487. | Lt. Stuart A. Morgan |
| 1488. | Percival E. Jackson |
| 1489. | Hugh A. Divins |
| 1490. | John R. Hogan |
| 1491. | Richard Owen, Jr. |
| 1492. | Marll J. Plumb |
| 1493. | George M. Comey |
| 1495. | Lawrence B. Neuburger |
| 1496. | Egbert Phelps Lott |
| 1497. | Henry D. Whitaker |
| 1498. | Dale A. Changnon |
| 1499. | Lt. Ernest C. Friesen |
| 1500. | Lt. Russell Wherritt |
| 1501. | Lt. James L. Hebbards |
| 1502. | Glenn C. Salisbury |
| 1503. | Daniel Steigelbauer |
| 1504. | Avery John Black |
| 1505. | John R. Blake |
| 1506. | Gerald H. Israel |
| 1507. | Lt. Wm. Winston Harrison |
| 1508. | Leslie J. Luder |
| 1509. | Percy P. Kirkham |
| 1510. | Elmer S. Bailey |
| 1511. | Claude Wm. S. Leffler |
| 1512. | Harry J. Wolf |
| 1513. | George M. Arnold |
| 1514. | Lt. George C. Reilly |
| 1515. | Rudolph W. Dussean |
| 1516. | Lionel H. Dunlap |
| 1517. | Carlyle F. Straub |
| 1518. | Theodore Arter, Lt. |
| 1519. | Francis F. Hughes |
| 1520. | Sam. Pickard, Lt. |
| 1521. | Edgar G. White |
| 1522. | Geo. H. Newkirk |
| 1523. | John Wm. Tierney |
| 1524. | Lt. James C. Morison |
| 1525. | Wm. L. Lockhart, Lt. |
| 1526. | Wm. K. Dolphin |
| 1527. | D. E. Butts |
| 1528. | Wm. Lester Lamkin |
| 1529. | S. H. Dicran |
| 1530. | Raymond L. Grantz |
| 1531. | George N. Emory |
| 1532. | Clyde J. Schuemacher, Lt. |
| 1533. | Harold B. Thomas |
| 1534. | Albert K. Walker |
| 1535. | 2nd Lt. Frank K. Spiedel |
| 1536. | 2nd Lt. Wm. E. Zander |
| 1537. | Allison Cassidy |
| 1538. | L. Gahagan Pugh |
| 1539. | 2nd Lt. Chas. B. DeShields |
| 1540. | Andrew Currie |
| 1541. | Howard W. Gildersleeve |
| 1542. | Aaron R. Ferneau |
| 1543. | Frederick H. Lovenberg |
| 1544. | Murray McConnell |
| 1545. | Frederick W. Keller |
| 1546. | Alex. R. Dean |
| 1547. | Clifford Johnstone |
| 1548. | Archie Lochhead |
| 1549. | Stuart J. Davies |
| 1550. | William R. Hartline |
| 1551. | Cyril L. Coombs |
| 1552. | John S. Moore |
| 1553. | Paul Penberthy |
| 1554. | Ben. B. Ehrlichman |
| 1555. | William J. Barrett |
| 1556. | C. E. Archer |

A remarkable photograph of Carl Batts, who looped the loop 130 times in succession in 1916, taken from another aeroplane.

| No. of Certificate | Name of Holder |
|---|---|
| 1557. | Carl B. Squier |
| 1558. | Landreth M. Harrison |
| 1559. | Oliver M. Colby |
| 1560. | Abner F. McGehee |
| 1561. | Robert W. Pyke |
| 1562. | Marion J. Aubimeau |
| 1563. | John D. Gillett |
| 1564. | William B. Souza |
| 1565. | Herbert K. Baisley |
| 1566. | LeRoy W. Burns |
| 1567. | Philip John Kelly |
| 1568. | Geo. E. Strong |
| 1569. | E. Osmun Barr |
| 1570. | Arthur S. Frandsen |
| 1571. | George J. Goldsborough |
| 1572. | Paul H. Joseph |
| 1573. | William B. Robinson |
| 1574. | Rollin N. Schanck |
| 1575. | George A. Meyler |
| 1576. | Franklin Wortley |
| 1577. | Richard W. Bonnevalle |
| 1578. | Samuel Greenwood, Jr. |
| 1579. | Julian K. Ross |
| 1580. | Chas. H. Smith |
| 1581. | Edw. P. Rodenhurst |
| 1582. | Walter F. Thomas |
| 1583. | Clarence H. Johnson |
| 1584. | Maurice C. Owen |
| 1585. | Louis G. Stanton |
| 1586. | Wm. J. Brodrick |
| 1587. | Lt. Wright E. Turner |

| No. of Certificate | Name of Holder |
|---|---|
| 1588. | Lt. Wesley R. McKenzie |
| 1589. | John E. McGovern |
| 1590. | Geo. N. Hyland |
| 1591. | Lt. David S. Starring |
| 1592. | George H. Durar |
| 1593. | Lt. Rudolph E. Brofft |
| 1594. | Gelston T. King |
| 1595. | Verne E. Treat, Lt. |
| 1596. | Lt. Wm. G. King |
| 1597. | Lt. Alfred S. Koch |
| 1598. | Lt. R. F. Crawford |
| 1599. | Lawrence B. Moon |
| 1600. | Hiram H. Rowe |
| 1601. | Horace W. Wood, Jr. |
| 1602. | Lt. Rolfe T. Miller |
| 1603. | Lloyd C. Blackburn |
| 1604. | David C. Collier |
| 1605. | Robt. H. Benson |
| 1606. | Raymond Kenny |
| 1607. | Harold E. Dimmick, Lt. |
| 1608. | Lt. Percy C. Henry, Jr. |
| 1609. | Wm. H. Reich |
| 1610. | Landis S. Smith |
| 1611. | James A. McKnight |
| 1612. | Lt. Paul P. Smith |
| 1613. | Samuel L. Cook |
| 1614. | Lt. Chas. Elwell |
| 1615. | Chas. E. Cutter, Jr., Lt. |
| 1616. | Andrew J. LaBoit |
| 1617. | Lt. M. A. deBettencourt |
| 1618. | Roy E. Harding |

| No. of Certificate | Name of Holder |
|---|---|
| 1619. | Lt. Price E. Gross |
| 1620. | Augustus H. Kriggler, Lt. |
| 1621. | Lt. John L. Burns |
| 1622. | Bruce Johnson |
| 1623. | Robt. C. Black |
| 1624. | Robt. E. McConnell |
| 1625. | Darrel M. Monteith |
| 1626. | George R. Larkin |
| 1627. | Keith B. Werrill |
| 1628. | Norman D. Frank |
| 1629. | LeRoy B. Duffield, Lt. |
| 1630. | Lt. Clifford A. James |
| 1631. | Fred. R. Hammond |
| 1632. | Albert E. Marsh |
| 1633. | Thomas F. Dunn |
| 1634. | Irving T. Hecht |
| 1635. | Winder Gary |
| 1636. | George L. Boulware |
| 1637. | Lt. F. C. Turner |
| 1638. | Owen N. Price |
| 1639. | Kenneth G. Barnes |
| 1640. | Ruel F. Burns |
| 1641. | James A. Donaghty |
| 1642. | Richard M. Anderson |
| 1643. | Morgan W. Wichersham |
| 1644. | Frank W. Wilbourn |
| 1645. | John Lindsay Morehead |
| 1646. | Geo. E. McKernon |
| 1647. | Lt. Wm. T. Nelson |
| 1648. | Harvey R. Olds |
| 1649. | Wm. E. Carroon, Jr. |

| No. of Certificate | Name of Holder |
|---|---|
| 1650. | Lt. Wm. A. Hogan |
| 1651. | Lt. Oliver P. H. Crane |
| 1652. | Edwin C. Karnitz, Lt. |
| 1653. | Little Ridding |
| 1654. | Roy A. French |
| 1655. | Max H. Friedman |
| 1656. | Edwin P. Dillion |
| 1657. | Lt. Fridolph Lundgren |
| 1658. | Fredk. W. Curtiss, Jr. |
| 1659. | Carleton W. Blanchard |
| 1660. | Wm. Rechsteinier, Lt. |
| 1661. | Lt. Ward F. Robinson |
| 1662. | Wm. H. Fillmore |
| 1663. | Wm. Laurie Seman |
| 1664. | Raphael Baez, Jr. |
| 1665. | Fred. H. Steil |
| 1666. | Vernon A. Watson |
| 1667. | George J. Golonsbe |
| 1668. | Wm. D. Jaenke |
| 1669. | Arthur W. Johnson |
| 1670. | Chas. G. Blackard |
| 1671. | James Stites |
| 1672. | Earl Carroll |
| 1673. | William W. Batchelder |
| 1674. | John C. Doyle |
| 1675. | Joseph R. Rollins |
| 1676. | Frederic H. Taylor |
| 1677. | Harry W. Huking |
| 1678. | Theo. L. Beattie |
| 1679. | Walter F. Daley |
| 1680. | Robert O. Crosthwaite |
| 1681. | John C. Howland |
| 1682. | James P. Buchannan |
| 1683. | Benjamin J. Nasief |
| 1684. | Otto A. Hesse |
| 1685. | J. Wm. Bonsteel |
| 1686. | Manuel Trinta |
| 1687. | Clifford E. Jones |
| 1688. | Rollins G. Johnson |
| 1689. | Wallace W. Dahman |
| 1690. | Frank A. Page |
| 1691. | Victor L. Giroux |
| 1692. | Donovan L. Shaw |
| 1693. | Frederick C. T. Slawson |
| 1694. | Carroll G. Taylor |
| 1695. | Robert B. Holmes |
| 1696. | Paul Langdon Williams |
| 1697. | Russell T. Cowgill |
| 1698. | Louis Spilman |
| 1699. | John Lyle Steele |
| 1700. | Bert P. Meyen |
| 1701. | Don M. Campbell |
| 1702. | James H. Doolittle |
| 1703. | Richard M. Beil |
| 1704. | Charles M. Commins |
| 1705. | Harold E. Trotter |
| 1706. | Lawrence N. Despain |
| 1707. | Roland N. Nash |
| 1708. | John B. Shaver |
| 1709. | Fred. C. Schmocker |
| 1710. | Chas. J. Drake |
| 1711. | Chas. J. Belsky |
| 1712. | MacCrea Stephenson |
| 1713. | Jesse Keller Fenna |
| 1714. | Merritt L. Lawton |
| 1715. | Percy Frederick Barnes |
| 1716. | Henry C. Smith |
| 1717. | Leland M. Means |
| 1718. | William H. Pascoe |
| 1719. | Ralph C. Diggins |
| 1720. | Harold Anderson |
| 1721. | Kenneth P. Grubb |
| 1722. | Leslie E. Still |
| 1723. | Spencer S. Hunt |
| 1724. | August C. Immig |
| 1725. | Ralph C. Russell |
| 1726. | Preston E. Tupper |
| 1727. | James P. Haddock |
| 1728. | Gilbert S. Southworth |
| 1729. | Chas. Stoffey |
| 1730. | Don O'Neill Rich |
| 1731. | Claude S. Garrett |
| 1732. | Robert E. Kennedy |
| 1733. | Ray Chas. Cook |
| 1734. | Florin F. Swerffeger |
| 1735. | Elmer A. Crowell |
| 1736. | Earl F. Boxell |
| 1737. | Clyde Y. Irvin |
| 1738. | Harold R. Barnes |
| 1739. | John B. Jaqua |
| 1740. | Carl W. Edwards |
| 1741. | Eyir L. Sloniger |
| 1742. | Christopher V. Pickup |
| 1743. | Lloyd E. Hederman |
| 1744. | Clarence E. Holborn |
| 1745. | Chauncey C. Mason |
| 1746. | Francis C. Slater |
| 1747. | John R. Moran |
| 1748. | John Rice Eldridge |
| 1749. | Clesson E. Mason |
| 1750. | Clyde H. Butler |
| 1751. | Geo. S. Thompson |
| 1752. | Raymond Wilson, Lt. |
| 1753. | Ames M. Kidder, 1st Lt. |
| 1754. | Stephen P. Walker, Lt. |
| 1755. | James R. Gibson |
| 1756. | Paul K. Melick |
| 1757. | Alvin R. Hodge, Lt. |
| 1758. | Lt. D. W. Mills |
| 1759. | LeRoy P. DeArce |
| 1760. | Lindsey D. Few |
| 1761. | Sewall C. Catheart |
| 1762. | Lt. Lee H. Peck |
| 1763. | Lt. Henry C. Sandusky |
| 1764. | Frederick W. Eiedermeyer, Jr. |
| 1765. | Lt. Marvin Stoddard |
| 1766. | Lt. Robt. W. Bell |
| 1767. | Lt. Thos. S. M. Bloodworth |
| 1768. | Wm. E. Moore, Lt. |
| 1769. | Milton Tilley |
| 1770. | Edgar Eugene Glenn |
| 1771. | Geo. A. Brammer, Lt. |
| 1772. | Ralph K. Smith |
| 1773. | Lt. Geo. L. Heck |
| 1774. | Lt. John Roehlk |
| 1775. | Wm. H. Cunliff, Jr. |
| 1776. | Magrudu W. Offutt, Jr. |
| 1777. | Karl J. Ammerman |
| 1778. | Thomas Hitchcock |
| 1779. | Frank H. Bentley |
| 1780. | Robert C. Watt |
| 1781. | Herbert C. Drescher |
| 1782. | Ralph P. Collier |
| 1783. | Jacob A. Heng |
| 1784. | Leonard B. Chapman |
| 1785. | William J. Crawford |
| 1786. | Ivan T. Arnold |
| 1787. | John F. Sheehy |
| 1788. | Francis M. Hamblet |
| 1789. | Stanley Smith |
| 1790. | Kirk W. Todd |
| 1791. | Maurice C. Myers |
| 1792. | Dan A. Kimball |
| 1793. | Harvey W. Edmund |
| 1794. | Clarence A. Olsen |
| 1795. | John Stanley |
| 1796. | Benj. F. Castle |
| 1797. | Marney D. Perry |
| 1798. | Frederick Frankfort |
| 1799. | Benton F. Vessey |
| 1800. | Lawton V. Smith |
| 1801. | Gordon J. Lindsey |
| 1802. | Wm. T. Howley |
| 1803. | Max H. Conrad |
| 1804. | Edmund H. Jewett, Jr. |
| 1805. | John W. Williams |
| 1806. | Floyd M. Pickrell |
| 1807. | Harold R. Wells |
| 1808. | Robert O. Cupp |
| 1809. | Frederick M. Kern |
| 1810. | Harry A. Sutton |
| 1811. | John W. Templeton |
| 1812. | Chas. Graham, Jr. |
| 1813. | William H. Bell |
| 1814. | William W. West |
| 1815. | Ralph J. Bushman |
| 1816. | Alexander S. Gregory |
| 1817. | Harold S. Whetworth |
| 1818. | Edward P. Frost |
| 1819. | E. Rice Frost, Jr. |
| 1820. | John W. Frost |
| 1821. | Thos. E. Colleton |
| 1822. | John E. Greer |
| 1823. | John P. Wiegman |
| 1824. | Frank A. Dickman |
| 1825. | Edward J. Politoske |
| 1826. | Myron Aloe |
| 1827. | Eugene B. Mechling |
| 1828. | Ed. W. Killgore |
| 1829. | Walter C. Crowdus |
| 1830. | John E. Wall |
| 1831. | Marcus H. Rice |
| 1832. | Arthur W. Noble |
| 1833. | John F. Jacobs |
| 1834. | Elmer N. May |
| 1835. | Wm. DeVoe Coney |
| 1836. | John P. Davies |
| 1837. | James A. Rose |
| 1838. | Frederick J. Rundbaken |
| 1839. | Charles H. Anglin |
| 1840. | Oscar H. Engblom |
| 1841. | Franklin P. Reynolds |
| 1842. | Stanley V. Wright |
| 1843. | Robert B. Thiewe |
| 1844. | David S. Kennedy |
| 1845. | Claude W. Sleete |
| 1846. | W. J. B. Lycan |
| 1847. | Harley H. Montague |
| 1848. | James R. Bergh |
| 1849. | William H. Jones |
| 1850. | Alfred W. Nelb |
| 1851. | Alfred V. Eaton |
| 1852. | John W. Metcalfe |
| 1853. | Toy Gon |
| 1854. | Harry Saganas |
| 1855. | Timothy E. Meehan |
| 1856. | Henry W. Macomber |
| 1857. | Claude Raibourn |
| 1858. | Roy J. Wasson |
| 1859. | Richard E. Pond |
| 1860. | Robert E. Pollock |
| 1861. | William F. Jones |
| 1862. | Wilfred Dalton |
| 1863. | Ferris E. Pence |
| 1864. | Joseph F. Wehner |
| 1865. | Bruce E. Braun |
| 1866. | Harold Meyers |
| 1867. | Milton E. Ryniker |
| 1868. | Percy O. Brewer |
| 1869. | Nelson B. Keyes, Jr. |
| 1870. | A. C. Nelson |
| 1871. | Kenneth H. Franzheim |
| 1872. | Herman C. Krause |
| 1873. | Harry Lachmund |
| 1874. | William T. Adams |

| No. of Certificate | Name of Holder |
|---|---|
| 1875. | Robt. E. Newman |
| 1876. | James A. Royer |
| 1877. | George F. Ziesmer |
| 1878. | William L. Perry |
| 1879. | Lewis H. Steward |
| 1880. | George E. Marshall |
| 1881. | Lester C. Bermant |
| 1882. | Ralph Colton |
| 1883. | James C. Cauthen |
| 1884. | Henry Brewster |
| 1885. | Everett B. Johnson |
| 1886. | John L. Moran |
| 1887. | M. Rex Martin |
| 1888. | William P. Braun |
| 1889. | James F. Cavagnaro |
| 1890. | Royal W. Gill |
| 1891. | John Comly |
| 1892. | Joseph W. Jackson |
| 1893. | Walter H. Helmrich, Jr. |
| 1894. | Paul R. Henderson |
| 1895. | V. A. Graicunas |
| 1896. | Edward T. McGovern |
| 1897. | Rufus A. Oliphant |
| 1898. | Burdett H. O'Connor |
| 1899. | William J. Hajek |
| 1900. | Charles A. Willoughby |
| 1901. | Joseph L. Ingle |
| 1902. | William N. MacKenzie |
| 1903. | Henry V. Minges |
| 1904. | Frederick A. Zender |
| 1905. | Jacob K. Lobdell |
| 1906. | Kenneth M. Murray |
| 1907. | Eben B. Smith |
| 1908. | Robert P. Benedict |
| 1909. | Lorenzo J. A. Keenan |
| 1910. | William J. Clark |
| 1911. | Douglas G. Woolf |
| 1912. | Raymond L. Bailey |
| 1913. | Howard B. Norton |
| 1914. | Milton D. Baer |
| 1915. | Claude E. Hartford |
| 1916. | Harold D. Smith |
| 1917. | Fred. S. Hartmann |
| 1918. | William A. Thiel |
| 1919. | Arthur E. Silcott |
| 1920. | Winfield S. Breese |
| 1921. | Galem Miller |
| 1922. | Grant W. Ernst |
| 1923. | Daniel Kiely |
| 1924. | Howard D. Norris |
| 1925. | Alvin M. St. John |
| 1926. | George S. Reiss |
| 1927. | Ralph M. Gilmore |
| 1928. | Paul A. Bogan |
| 1929. | Oliver A. Reardon |
| 1930. | Frederick R. Blount |
| 1931. | Oliver C. Lindsay |
| 1932. | Robert H. Barnes |
| 1933. | James W. Junken |
| 1934. | Leland L. Waters |
| 1935. | Charles W. Murray |
| 1936. | Lawrence D. Coffing |
| 1937. | Andrew A. Skidmore |
| 1938. | George R. Rideout |
| 1939. | Louis H. Spafford |
| 1940. | William M. Russell |
| 1941. | Marvin E. Croom |
| 1942. | Mortimer Middleton |
| 1943. | Addison A. Apple |
| 1944. | Gordon P. Fitzgerald |
| 1945. | John J. McFarland |
| 1946. | John M. Coleman |
| 1947. | Leon C. Brookes |
| 1948. | Francis W. Nunenmacher |
| 1949. | Harry M. Lundquist |
| 1950. | Carlton M. Bliss |
| 1951. | Raymond R. Massey |
| 1952. | Roland H. Kinder |
| 1953. | Charles E. Hanst |
| 1954. | Edward L. Bloom |
| 1955. | Ralph S. Armstrong |
| 1956. | Werner F. Hoyt |
| 1957. | Harley L. Hooper |
| 1958. | Floyd W. Shephard |
| 1959. | Charles C. Higgins |
| 1960. | Francis L. Appleton |
| 1961. | Malcolm G. Robinson |
| 1962. | Vance C. Peterson |
| 1963. | Ralph E. Foster |
| 1964. | Paul E. King |
| 1965. | Dwight V. Peabody |
| 1966. | George H. Reynolds |
| 1967. | Theo. S. Van Veghten |
| 1968. | Frank D. Murphy |
| 1969. | Robert P. Alecander |
| 1970. | Leonidas L. Koontz |
| 1971. | Philip G. Kemp |
| 1972. | Harold J. Folsom |
| 1973. | John P. Rogers |
| 1974. | G. Raymond Richman |
| 1975. | Earle J. Carpenter |
| 1976. | Hugh Watson |
| 1977. | Miles D. Rombough |
| 1978. | Vernon D. Summerfield |
| 1979. | Thomas E. Saver |
| 1980. | David G. Logg |
| 1981. | Joseph V. Rempson |
| 1982. | Edward Zogg |
| 1983. | Lyman G. Smith |
| 1984. | John H. Crippen |
| 1985. | Morris O. Hastings |
| 1986. | Emil Gustafson |
| 1987. | Joseph G. Bastow |
| 1988. | David K. Trotter |
| 1989. | John C. Barcklow |
| 1990. | Leslie N. Duryea |
| 1991. | Walter W. Mayer |
| 1992. | Henry W. Salisbury |
| 1993. | C. A. Wright |
| 1994. | William R. Flowrnoy |
| 1995. | Charley Miller |
| 1996. | Nelson C. Hinckley |
| 1997. | Eric Algot Erikson |
| 1998. | M. C. Ziebur |
| 1999. | Alexander Tolchan |
| 2000. | Frank Phiscator |
| 2001. | Jonathan Fortney |
| 2002. | Gero A. Himebaugh |
| 2003. | Haskell H. Bass |
| 2004. | Leon P. Gendron |
| 2005. | Sidney A. Riley |
| 2006. | Walter E. Brinkman |
| 2007. | Brevard M. Jones |
| 2008. | Thomas Menke |
| 2009. | Lucien A. Marsh |
| 2010. | Merritt S. Beach |
| 2011. | Warren J. Dempster |
| 2012. | Leo J. Leeburn |
| 2013. | George A. Benton, Jr. |
| 2014. | Charles McK. Robinson |
| 2015. | Franklin B. Davis |
| 2016. | Ralph H. Wooten |
| 2017. | Alfred A. Montague |
| 2018. | Jerome J. Dixon |
| 2019. | John F. Lee, Jr. |
| 2020. | William F. Ordway |
| 2021. | Harold D. Macklin |
| 2022. | Donald G. Stitt |
| 2023. | William J. Lenox |
| 2024. | Esty Foster |
| 2025. | Lewis W. Goss |
| 2026. | Malcolm A. Bateman |
| 2027. | William R. Davis |
| 2028. | Russell B. Horton |
| 2029. | Gardner S. Turrill |
| 2030. | Kenneth P. Behr |
| 2031. | Donald P. Strahan |
| 2032. | Border Blockburn |
| 2033. | Henry Schlachter |
| 2034. | Burris A. Jenkins |
| 2035. | William H. Pepin |
| 2036. | A. Foster Smith |
| 2037. | George R. Denie |
| 2038. | George B. Allen |
| 2039. | George J. Milburn |
| 2040. | Paul E. Olson |
| 2041. | Joseph H. O'Neil |
| 2042. | Eugene J. Scanlon |
| 2043. | Frederick Don Fagg |
| 2044. | Fred Don Pollard, Jr. |
| 2045. | Leslie D. Blanchard |
| 2046. | Robert R. Towers |
| 2047. | Lawrence W. Frankley |
| 2048. | Richard H. Fairclough |
| 2049. | Sinus J. Nelson |
| 2050. | Floyd B. Meisenheimer |
| 2051. | Maitland C. Harper |
| 2052. | James H. Knight |
| 2053. | Harry E. Stovell |
| 2054. | Harold M. Harvey |
| 2055. | Harold J. Lestrade |
| 2056. | Graham C. Dugas |
| 2057. | Max Miller |
| 2058. | Lambert R. Walker |
| 2059. | Floyd A. Wilson |
| 2060. | Peter W. Welch |
| 2061. | James E. Webb |
| 2062. | Thomas H. McCormack |
| 2063. | Charles B. Copp |
| 2064. | Bob G. Towner |
| 2065. | Louis W. Rabe |
| 2066. | Nathaniel H. Meeker, Jr. |
| 2067. | John MacE. VenderVoort |
| 2068. | Rufus Riddlesbarger |
| 2069. | Carl E. Malmgren |
| 2070. | Russell R. Fox |
| 2071. | Howard F. Huber |
| 2072. | Frank W. K. Hartshorne |
| 2073. | Laurence G. Howe |
| 2074. | K. M. Haugen |
| 2075. | Lambert G. Neff |
| 2076. | Camil N. Roos |
| 2077. | Merritt A. Vickery |
| 2078. | Bert J. Birnbaum |
| 2079. | Elling H. Veblen |
| 2080. | Thomas F. Horrigan |
| 2081. | Ira W. Hirshfield |
| 2082. | Robert Kauch |
| 2083. | Harold L. Taylor |
| 2084. | Harry C. Short |
| 2085. | Parker Wagner |
| 2086. | Marsh M. Corbitt |
| 2087. | Louis M. Bruch |
| 2088. | Louis E. Gallo |
| 2089. | Carl F. Paulson |
| 2090. | John H. Batty |
| 2091. | Leland I. Case |
| 2092. | Earl L. Bilheimer |
| 2093. | Charles M. Freeman |
| 2094. | Frank D. Croxford |
| 2095. | George E. Gause |
| 2096. | Leon D. Ferguson |
| 2097. | Chester P. Hegan |
| 2098. | William B. Wimer |
| 2099. | Lewis T. Edwards |

| No. of Certificate | Name of Holder |
|---|---|
| 2100. | W. E. Price |
| 2101. | Robert M. Davidson |
| 2102. | Bertrand J. McElin |
| 2103. | James H. Keeley |
| 2104. | Leon W. Crowl |
| 2105. | Walter R. Lalley |
| 2106. | Joseph John Moore |
| 2107. | Deane Dana |
| 2108. | John A. Brokaw |
| 2109. | Theodore Maynz |
| 2110. | John H. Jones |
| 2111. | Peyton Gibson |
| 2112. | William H. Brougher |
| 2113. | Eric H. Biddle |
| 2114. | Charles H. Mills |
| 2115. | August L. Grimme |
| 2116. | James A. Woodruff |
| 2117. | Jay A. Rummel |
| 2118. | John H. Hweings |
| 2119. | Harold D. Stites |
| 2120. | Gerald F. Hermann |
| 2121. | Frank Chirieleison |
| 2122. | Robert V. Campbell |
| 2123. | Oscar Nordin |
| 2124. | Ernest G. Horne |
| 2125. | Alexis B. McMullen |
| 2126. | J. Peter Tiernan |
| 2127. | Harry W. Wait |
| 2128. | Harrison P. Smith |
| 2129. | Minor W. Stout |
| 2130. | Lamar Sellers |
| 2131. | William O. Kinberg |
| 2132. | Edward B. Williams |
| 2133. | George R. Christie |
| 2134. | E. Hamilton Lee |
| 2135. | Gordon K. Hood |
| 2136. | Philip A. Wachtell |
| 2137. | Kenneth M. Henry |
| 2138. | Smith D. V. Clark |
| 2139. | Frank J. Nelson |
| 2140. | Edwin K. Davis |
| 2141. | Robert Erickson |
| 2142. | Robert H. Wheat |
| 2143. | Cyril H. Steele |
| 2144. | William W. Gleerup |
| 2145. | Richard H. Dietrich |
| 2146. | Raymond C. Zettel |
| 2147. | Louis C. Bailey |
| 2148. | Howard I. McBride |
| 2149. | Harold A. White |
| 2150. | George C. Beck |
| 2151. | Frank F. Crawford |
| 2152. | Adolph E. Gude |
| 2153. | George F. Quinn |
| 2154. | Raymond C. Dreher |
| 2155. | Laurence C. Couberly |
| 2156. | Bernard D. Boatright |
| 2157. | Waldo H. Rose |
| 2158. | Rexford B. Levisee |
| 2159. | Joseph E. Meagher |
| 2160. | Courtlandt B. Griffin |
| 2161. | Kent D. Currie |
| 2162. | Roe F. Montgomery |
| 2163. | Florimond J. Dusossoit |
| 2164. | Clarence P. Hammerstein |
| 2165. | Charles F. Backus |
| 2166. | James L. Lyon |
| 2167. | Thomas J. Smith |
| 2168. | Joseph A. Rauh |
| 2169. | Edward B. Lowry |
| 2170. | John F. Morrissey |
| 2171. | Robert C. Stoops |
| 2172. | Christopher Magee |
| 2173. | Joseph A. Ruegg |
| 2174. | Harold E. Moore |
| 2175. | Harold G. Peterson |
| 2176. | Harold R. Hanley |
| 2177. | Louis H. Abbott |
| 2178. | Thomas P. Campbell |
| 2179. | Dudley E. Rowland |
| 2180. | John H. Cooper |
| 2181. | Charles T. Pennebaker |
| 2182. | Andrew J. Eastman |
| 2183. | Frederic F. Stevenson |
| 2184. | Thomas Kiernan |
| 2185. | Thomas C. Quinn |
| 2186. | Henry H. Kerr |
| 2187. | Hawley D. W. Newberry |
| 2188. | Lionel P. Hopkins |
| 2189. | James E. Spier |
| 2190. | Julian F. Miller |
| 2191. | Frank J. Cummings |
| 2192. | Kenneth M. Stewart |
| 2193. | William C. McConnell |
| 2195. | Hugh Sears |
| 2196. | Gardner Dunton |
| 2197. | Charles C. Marshall |
| 2198. | Laurence D. Hammond |
| 2199. | Lloyd L. Harvey |
| 2200. | Joseph B. Lievre |
| 2201. | Victor W. Porter |
| 2202. | Harold B. Ransom |
| 2203. | John P. Maloney |
| 2204. | Paul N. Ritter |
| 2205. | W. L. Lyon |
| 2206. | Samuel F. McDonald |
| 2207. | Henry A. Kratzer |
| 2208. | William C. Bealmer |
| 2209. | Leland T. Seymour |
| 2210. | Julian S. Daniels |
| 2211. | Edmond A. Garesche |
| 2212. | William A. Radford |
| 2213. | Paul A. Smith |
| 2214. | Neal J. Scott |
| 2215. | Arch G. Chilton |
| 2216. | Isaac J. Williams |
| 2217. | Emerson C. Russell |
| 2218. | Walter S. Reilly |
| 2219. | Charles F. Bell |
| 2220. | Arthur C. Parson |
| 2221. | Clarence M. Cutler |
| 2222. | John D. Crehore |
| 2223. | Cecil W. Buckley |
| 2224. | Duncan R. Weidemann |
| 2225. | Morrill N. Pheatt |
| 2226. | Harold C. McCartney |
| 2227. | Lewis S. Webster |
| 2228. | James L. Hever |
| 2229. | Carroll F. Purdy |
| 2230. | Theophilus Lee |
| 2231. | Charles B. Sullivan |
| 2232. | William J. Hahnel |
| 2233. | John B. Hiatt |
| 2234. | Thomas H. Highley |
| 2235. | William T. Brady |
| 2236. | Lamar Williamson |
| 2237. | Leonard W. Garden |
| 2238. | Clarence A. Davis |
| 2239. | John Kramer |
| 2240. | Martin P. Detels |
| 2241. | Romeyn B. Hough, Jr. |
| 2242. | Clyde E. Hudspeth |
| 2243. | James C. Hooper |
| 2244. | William P. Hamann |
| 2245. | Max Vere Armstrong |
| 2246. | Harold B. Stine |
| 2247. | Kenneth N. Decker |
| 2248. | Carl Weinstein |
| 2249. | John A. Steel |
| 2250. | James L. Wilkinson |
| 2251. | Harold R. McNabb |
| 2252. | Millard E. Robbins |
| 2253. | Gordon W. Clark |
| 2254. | David W. Thornburg |
| 2255. | Walter E. Price |
| 2256. | Earl O. Spangeler |
| 2257. | Leslie E. Pierce |
| 2258. | Dean B. Fraser |
| 2259. | Lawrence Early |
| 2260. | Edwin L. McFalls |
| 2261. | Leo Chase |
| 2262. | Joseph W. Austin |
| 2263. | Ray S. McWhorter |
| 2264. | Arnold Poppie |
| 2265. | Rudy W. Schroeder |
| 2266. | George H. Wirth |
| 2267. | Gordon Fowler |
| 2268. | Earl H. Weisiger |
| 2269. | Walter T. Fitzpatrick |
| 2270. | Emil A. Kann |
| 2271. | John E. Clark |
| 2272. | Thomas F. Shea |
| 2273 | Walter Fraser |
| 2274. | Walter O. Brandenburger |
| 2275. | George L. Hall |
| 2276. | Howard H. Jones |
| 2277. | Stanhope S. Boggs |
| 2278. | F. Wyllys Caldwell |
| 2279. | Theo. A. Peck |
| 2280. | Alex. V. Macauley |
| 2281. | Edward A. Leyden |
| 2282. | Thomas C. Curtis |
| 2283. | Clifford S. Bernard |
| 2284. | John A. Frost |
| 2285. | Harvey O. Chalfant |
| 2286. | Denison M. Budd |
| 2287. | William S. Heltzen |
| 2288. | Leslie R. Shope |
| 2289. | Lucas V. Beau |
| 2290. | Clarence A. Hartmann |
| 2291. | James G. McConkey |
| 2292. | Everett B. Thomas |
| 2293. | Charles G. Runkle |
| 2294. | Thomas Duncan |
| 2295. | Clyde H. Rickard |
| 2296. | George D. Stuart |
| 2297. | Hugh M. Rockwell |
| 2298. | Eugene H. Austin |
| 2299. | Arnold R. McClintock |
| 2300. | Alexander K. Ogilvie |
| 2301. | William H. Boother |
| 2302. | James G. Ware |
| 2303. | W. Heath Proctor |
| 2304. | Russell L. Bruch |
| 2305. | John T. Hickmott |
| 2306. | Edward H. Gross |
| 2307. | Ray P. Tracy |
| 2308. | Joseph Dowdall |
| 2309. | Elmer C. de Garmo |
| 2310. | John K. McArthur |
| 2311. | Carroll B. Crossan |
| 2312. | John R. Dow |
| 2313. | Richard R. Gormley |
| 2314. | Clarence F. Shankle |
| 2315. | Roger F. Peterson |
| 2316. | Harold C. Goodwin |
| 2317. | Lay A. Wendell |
| 2318. | Arthur W. Fox |
| 2319. | Homer L. Gibson |
| 2320. | Reuben J. Yocum |
| 2321. | James G. Bishop |
| 2322. | Harry B. Crewdson |
| 2323. | Bradford S. Bush |
| 2324. | DeGarmo Hickmott |
| 2325. | Charles E. McCartney |

| No. of Certificate | Name of Holder |
|---|---|
| 2326. | Zanna P. Lee |
| 2327. | Augustus S. Hocker |
| 2328. | Jerome E. Pennington |
| 2329. | Gilbert W. Burnet |
| 2330. | George W. Tuttle |
| 2331. | Horace S. Stevens |
| 2332. | Howard E. Smith |
| 2333. | R. R. Studler |
| 2334. | Thomas H. Hayden |
| 2335. | Kyle J. Pinney |
| 2336. | Edwin Johnson |
| 2337. | Lloyd G. Schultz |
| 2338. | Arthur R. Gilman |
| 2339. | Nelson Lawnin |
| 2340. | Herbert C. Sampter |
| 2341. | Robert B. Hollender |
| 2342. | George L. Simpson |
| 2343. | Kenneth L. Earl |
| 2344. | Andrew R. Tipton |
| 2345. | Henry B. Clagett |
| 2346. | Daniel Kiser |
| 2347. | Lester J. Maitland |
| 2348. | John D. Stodder |
| 2349. | Charles R. Enlow |
| 2350. | Howard H. Fowle |
| 2351. | Kingman W. Putnam |
| 2352. | Ruby Leventhal |
| 2353. | Cecil E. Leonard |
| 2354. | William W. Innes |
| 2355. | Laurence W. Helweg |
| 2356. | David E. Hinman |
| 2357. | John P. Charlton, Jr. |
| 2358. | George C. Bond |
| 2359. | Robert S. Fogg |
| 2360. | George L. Roberts |
| 2361. | Harold F. Smith |
| 2362. | Byrl H. Shrake |
| 2363. | Chester A. Baird |
| 2364. | Donald B. Carnes |
| 2365. | Eugene S. Borner |
| 2366. | Leon M. Bocker |
| 2367. | Sterling R. Mensch |
| 2368. | Odber R. Hartt |
| 2369. | John E. Grimm, Jr. |
| 2370. | E. W. Cleveland |
| 2371. | Daniel J. Houlihan |
| 2372. | George P. Pawley |
| 2373. | Howard L. Roach |
| 2374. | Cecil R. Hickman |
| 2375. | Alfred B. Carroll |
| 2376. | Solomon B. Ebert |
| 2377. | Henry L. Watson |
| 2378. | L. H. Haggerty |
| 2379. | Chester A. Hoover |
| 2380. | Joseph V. Hughes |
| 2381. | Charles B. Howe |
| 2382. | James D. M. Gray |
| 2383. | Kenneth C. Tomlinson |
| 2384. | Alfred C. Carrier |
| 2385. | Raymond A. Piper |
| 2386. | Leonard F. Plaut |
| 2387. | Clinton F. Woolsey |
| 2388. | Esme Rosaire |
| 2389. | Denny E. Henderson |
| 2390. | Frederick E. Seiler |
| 2391. | Ralph O. Huntington |
| 2392. | John L. Seawell |
| 2393. | Lieut. Curry Lea |
| 2394. | George H. Bissonnet |
| 2395. | Albert A. Allen |
| 2396. | Hugh R. Johnstone |
| 2397. | Leslie P. Arnold |
| 2398. | Ernest DeW. Scott |
| 2399. | Charles H. Beehler |
| 2400. | James B. Low |
| 2401. | Donald T. Jones |
| 2402. | William O. Horton |
| 2403. | Peter E. Fluor |
| 2404. | Clarence A. Braukman |
| 2405. | Ellsworth F. Gaskell |
| 2406. | Chauncey E. Needham |
| 2407. | Ernest E. Keeling |
| 2408. | Walter V. Dunn |
| 2409. | Lloyd B. Walker |
| 2410. | John R. Schmitt |
| 2411. | Richard G. Williams |
| 2412. | William A. Woodward |
| 2413. | Frank G. Atwater, Jr. |
| 2414. | Howard Bickett |
| 2415. | Paul C. Guild |
| 2416. | Noble S. Shropshire |
| 2417. | William T. Atkinson |
| 2418. | Eugene N. Berglund |
| 2419. | Will Clark Crawford |
| 2420. | William W. Robson |
| 2421. | H. G. Bone |
| 2422. | Alger M. MacCready |
| 2423. | John W. Delaplane |
| 2424. | Herbert G. Pratt |
| 2425. | Barry F. Coles |
| 2426. | Homer Trantham |
| 2427. | Frank H. Barber |
| 2428. | Louis C. Sanquinet |
| 2429. | J. Frank Hoffman |
| 2430. | Earle K. Parker |
| 2431. | Sherwin F. Kelly |
| 2432. | Donald C. Christie |
| 2433. | Lee Wood Foster |
| 2434. | Hubert M. O'Toole |
| 2435. | H. C. Khruhlenberg |
| 2436. | Ralph Victor Fritts |
| 2437. | J. C. South |
| 2438. | Roy W. Ammel |
| 2439. | Earland F. Clark |
| 2440. | Whitman Taylor |
| 2441. | Parrish D. Mercer |
| 2442. | Fred C. Goddard. |
| 2443. | Albert W. Franklin |
| 2444. | Bennie A. Miller |
| 2445. | John W. Becker |
| 2446. | Fred. C. Bennett |
| 2447. | Ulysses G. Jones |
| 2448. | Lloyd K. White |
| 2449. | Elmer H. Jones |
| 2450. | Howard B. Pearce |
| 2451. | Nathaniel B. Ison |
| 2452. | Harry Sloan |
| 2453. | Celesta F. Owens |
| 2454. | James B. Ready |
| 2455. | Elliott Billman |
| 2456. | Howard E. Reeve |
| 2457. | Grover A. Youngs |
| 2458. | Charles Hill |
| 2459. | Clinton Elliott, Jr. |
| 2460. | Augustus M. Brenneke |
| 2461. | Marlin G. Moore |
| 2462. | Charles H. Wilkins |
| 2463. | Harry O. Clawson |
| 2464. | Dana X. Bible |
| 2465. | Walter E. Mast |
| 2466. | Harvey M. Cronk |
| 2467. | Victor M. Young |
| 2468. | Fred. E. Gilson |
| 2469. | Gernest G. Myers |
| 2470. | James L. Zimmerman |
| 2471. | Marshall C. Crisp |
| 2472. | Anthony J. Grady |
| 2473 | Arthur G. Carlson |
| 2474. | Walter F. Moore |
| 2475. | Chas. B. Hebbard |
| 2476. | Frank M. LeHardy |
| 2477. | Frederic J. Sonday |
| 2478. | Newton A. Dahl |
| 2479. | Joseph B. Boylston |
| 2480. | C. C. V. Gooding |
| 2481. | Joseph C. Mattingly |
| 2482. | Marshall G. Torrey |
| 2483. | Forrest Graham Cooper |
| 2484. | Fred. C. Wright |
| 2485. | George A. Trozer |
| 2486. | John C. Semple |
| 2487. | William S. Kenyon |
| 2488. | Harold K. Near |
| 2489. | J. T. Blanford |
| 2490. | Robert H. Bowen |
| 2491. | Burt E. Kinkley, Jr. |
| 2492. | Harold R. Donaldson |
| 2493. | Walter H. Gerke |
| 2494. | David B. Morris |
| 2495. | James W. Woodard |
| 2496. | Ralph S. McKee |
| 2497. | Raymond C. Spencer |
| 2498. | Charles M. Cummings |
| 2499. | Neil S. Johnston |
| 2500. | Ernest W. Swedberg |
| 2501. | George E. McVey |
| 2502. | Truman H. Ahle |
| 2503. | Howard E. Krum |
| 2504. | Herman Mengel |
| 2505. | Harold C. Hodgson |
| 2506. | Edward T. Lowstuter |
| 2507. | Wesley C. Bonn |
| 2508. | Harold R. Ford |
| 2509. | Louis Dussere |
| 2510. | Hubert B. McDonough |
| 2511. | Wm. Trott King, Jr. |
| 2512. | Charles S. Keyes |
| 2513. | Ross P. Jamison |
| 2514. | Timothy W. Bradley |
| 2515. | Wesley L. Keough |
| 2516. | Daniel J. McGinty |
| 2517. | Lloyd H. Williams |
| 2518. | Harold B. Rivers |
| 2519. | Walter DeWitt Cannon |
| 2520. | Howard Adgate Hall |
| 2521. | Henry F. Bailey |
| 2522. | Wilbur L. Davidson |
| 2523. | Carl P. Kloke |
| 2524. | John Henry Rothwell, Jr. |
| 2525. | Frank E. Pritchett |
| 2526. | Ernest W. Sundberg |
| 2527. | John C. Dawson, Jr. |
| 2528. | Floyd Gahman |
| 2529. | Sterling M. Garwood |
| 2530. | Carl V. Vickery |
| 2530a. | Matt H. Dobson |
| 2531. | Trosevant Collier |
| 2531a. | Clarence D. Wiley |
| 2532. | William R. House |
| 2533. | Claire A. Bower |
| 2534. | Irving C. Stenson |
| 2535. | Charles L. Notting |
| 2536. | Charles R. Heard |
| 2537. | William A. Gates |
| 2537a. | George P. Buzane |
| 2538. | Robert Critz, Jr. |
| 2539. | Wesley L. Smith |
| 2540. | Sidney F. Law |
| 2541. | James A. McCaffery |
| 2542. | Harry E. Brants |
| 2543. | Lucas V. Bean, Jr. |
| 2544. | Karl H. Ways |
| 2545. | Lawrence J. Eckstrom |
| 2546. | Livingston B. Stedman, Jr. |
| 2547. | Arthur H. Evans |

| No. of Certificate | Name of Holder |
|---|---|
| 2548. | George D. Riedel |
| 2549. | Lingard Loud |
| 2550. | Ralph B. Robbins |
| 2551. | John O. Fry |
| 2552. | Burnis A. Snarenberger |
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| 2560. | Bryan W. Payne |
| 2561. | Earl Appleman |
| 2562. | Chester D. Wahle |
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| 2564. | Joseph M. Cerreta |
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| 2566. | Harold J. Polson |
| 2567. | DeWitt A. Forward |
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| 2569. | Walter E. Pierson |
| 2570. | Emmet E. Furey |
| 2571. | Donald W. McIlhiney |
| 2572. | Charles R. Cargill |
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| 2652. | Solomon F. Baker |
| 2653. | Brian R. Muirhead |
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| 2656. | Claude S. Abernethy |
| 2657. | Earl W. Elhart |
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| 2658. | Cortlandt S. Johnson |
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| 2767. | James O. Lewis |
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| 2837. | R. Harry Stanley |
| 2838. | William C. Wales |
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| 2841. | Ray G. Myers |
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| 2843. | Earl F. Cardoff |
| 2844. | Robert H. Candlish |
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| 2847. | L. J. McNamara |
| 2848. | Chas. A. Dunn |
| 2849. | James M. Mason |
| 2850. | George H. Pemberton |
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| 2858. | Walter E. LaParle |
| 2859. | Guy S. Lennstrand |
| 2860. | William Feick |
| 2861. | Steward B. Clear |
| 2862. | Roger Q. Williams |
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| 2865. | John F. Raleigh |
| 2866. | John B. Mallers, 3rd. |
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| 2887. | Kenneth Lee deVose |
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| 2889. | Ralph P. Nienhauser |
| 2890. | A. W. Magruder |
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| 2954. | John W. Garrett |
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| 2958. | Albert G. Allen |
| 2959. | Delmar H. Dunton |
| 2960. | Orian I. Dheia |
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| 3016. | Francis B. Wilson |
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| 3019. | Leslie A. Roche |
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| 3021. | Harold Lindsay |
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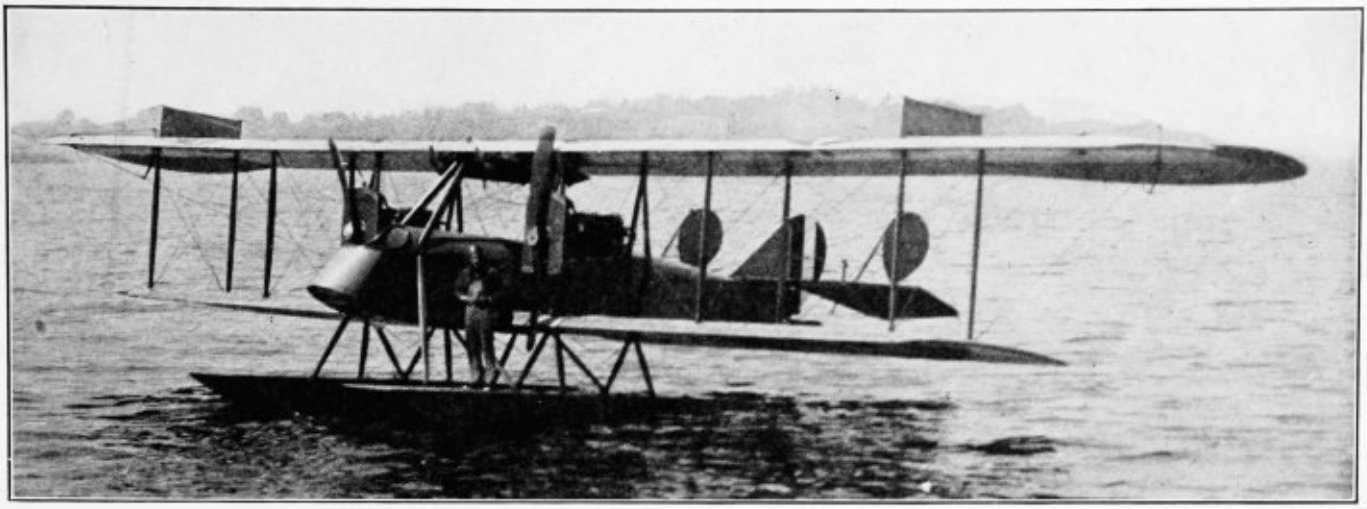
| 3024. | George D. Chandler |
| 3025. | Reed H. Haslam |
| 3026. | Charles V. Ewan |
| 3027. | Glenn DeWitt Morris |



A Burgess twin-motored seaplane equipped with two pontoons.

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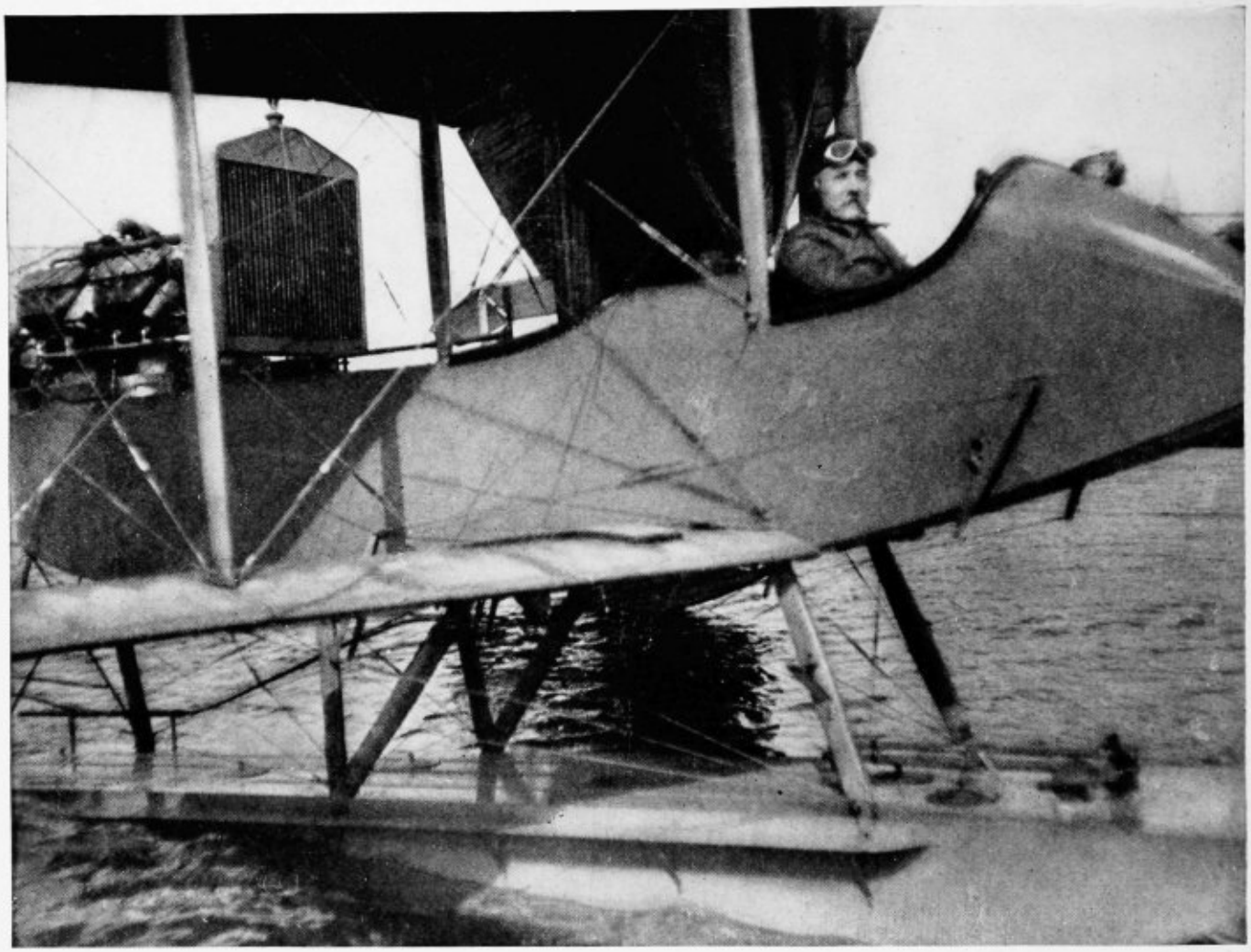
| 125. | Royal Wetherald |
| 126. | Dean E. Lochman, Jr. |



Lieutenant Godfrey L. Cabot, one of the veteran sportsmen-aviators, about to start for a flight in his Burgess Dunne biplane.

| No. of Certificate | Name of Holder |
|---|---|
| 127. | Donald E. Alvord |
| 128. | Theodore P. Groavanor |
| 129. | Frederick H. Becker |
| 130. | Edwin R. Greenfield |
| 131. | S. S. Hawkins |
| 132. | Lt. Wm. Maeek |
| 133. | David Wnedoza |
| 134. | Wm. Jackson |
| 135. | Donald M. Macaulay |
| 136. | John S. Buchanan, 2nd |
| 137. | John W. Ashley |
| 138. | E. L. Van Houten |
| 139. | Arthur G. Macdonald |
| 140. | Lloyd A. Perry |
| 141. | Lewis H. Lee |
| 142. | John H. Davidson |
| 143. | Stanley P. Waugh |
| 144. | Clarence H. Geyer |
| 145. | Lloyd R. Moore |
| 146. | Webster M. Wright |
| 147. | Lloyd A. Hammer |
| 148. | Jas. A. Nisbet |
| 149. | Walter Hinton |
| 150. | Oscar G. Wheeler |
| 151. | Thomas M. Bergin |
| 152. | Joshua Garrison |
| 153. | Chas. F. Kunkel |
| 154. | Wayne Duffett |
| 155. | Frederick Boger, Jr. |
| 156. | G. J. T. Birdsall |
| 157. | Ellis J. Burchart |
| 158. | James A. Whitted |
| 159. | Raymond L. Atwood |
| 160. | Alan J. Lowrey |
| 161. | Ralph A. Powers |
| 162. | Ensign Wm. T. Snow |
| 163. | Ralph A. Lehan |
| 164. | Ensign John F. Staub |
| 165. | Louis J. Bergen |
| 166. | Delozier Davidson |
| 167. | Chas. A. McLellan |
| 168. | Chas. Edw. Hubbard |
| 169. | Ensign George S. Hodges |
| 170. | Gilbert Nichols Swett |
| 171. | Wilson W. Coile |
| 172. | Alvin W. Smith, Jr. |
| 173. | Frank E. Hutcheon |
| 174. | Howard C. Sargent |
| 175. | Morris H. Bailey |
| 176. | Gibsob Gardner |
| 177. | Wm. K. Bruckhauser |
| 178. | Alan L. Nichols |
| 179. | Stanley C. Kennedy |
| 180. | Geo. F. Baker |
| 181. | R. C. Mudge |
| 182. | Harry W. Krumm, Jr. |
| 183. | Irving B. Tribken |
| 184. | W. E. Crosscup |
| 185. | Anthony S. Santos |
| 186. | Thomas W. M. Draper |
| 187. | Robert C. Cautwell |
| 188. | Clinton D. Backus |
| 189. | Fred. T. Estabrook |
| 190. | Henry Comyn Clayton |
| 191. | Harvey C. Norman |
| 192. | Arthur C. Wheeler |
| 193. | Jos. L. Dean |
| 194. | Ensign Horatio Blakeley |
| 195. | R. S. Ordway |
| 196. | Ensign Stuart M. Butler |
| 197. | Albert F. Rice |
| 198. | Junius F. Andrews |
| 199. | James K. Noble |
| 200. | Rettig A. Griswold |
| 201. | W. Malcolm West |
| 202. | John E. Powell |
| 203. | Lawson M. Pinkham |
| 204. | Herbert F. Sullivan |
| 205. | Paul J. Haaren |
| 206. | J. Franklin Burke, Jr. |
| 207. | Chauncey K. Williams, Jr. |
| 208. | Lt. Comdr. G. C. Dichman |
| 209. | George Willman |
| 210. | Lewis K. Marshall |
| 211. | Anthony D. Colby |
| 212. | Forrest C. Osgood |
| 213. | Frederick B. Hicks |

| No. of Certificate | Name of Holder |
|---|---|
| 214. | Hazen Curtis Pratt |
| 215. | Wm. Sinclair Cormack, Jr. |
| 216. | Carl O. Peterson |
| 217. | Earl B. Smith |
| 218. | John M. Miller, 3rd |
| 219. | Winfield Scott Shannon |
| 220. | Robert Matter |
| 221. | Howard H. Tewksbury |
| 222. | James B. Taylor, Jr. |
| 223. | Richard L. Williamson |
| 224. | Mark M. McChesney |
| 225. | George C. Mattison |
| 226. | Ensign Jas. R. Gillon |
| 227. | Lt. Richard E. Byrd, Jr. |
| 228. | Joseph W. Austin |
| 229. | James H. Walsh |
| 230. | James S. Robinson |
| 231. | Thomas R. Shearer |
| 232. | Thomas T. Hoopes |
| 233. | Ralph P. Evans |
| 234. | Harold D. Whitcomb |
| 235. | S. S. Halliburton |
| 236. | Gordon D. Gates |
| 237. | Harold A. Pulliam |
| 238. | Henry P. Lewis |
| 239. | Robert F. Dibble |
| 240. | Kirk W. Todd |
| 241. | Ned Troutmar |
| 242. | A. Penrose Robinson |
| 243. | Paul E. Shumay |
| 244. | Esten B. Koger |
| 245. | Lyman A. Hodgdon |
| 246. | Elmer L. Mitchell |
| 247. | Paul Pryibil |
| 248. | William J. Medusky |
| 249. | Otto W. Schlums |
| 250. | Francis Hartley, Jr. |
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| 254. | Francis P. Smith |
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| 256. | Charley Miller |
| 257. | Robert T. Young |
| 258. | Edgar B. Laferty |
| 259. | Frank M. Kinner |
| 260. | Harry E. Stovall |
| 261. | Robb Gover |
| 262. | Thatcher W. Rea |
| 263. | Arthur Corry |
| 264. | Samuel D. W. Sheldon |
| 265. | Robert S. Waters |
| 266. | Madison F. Welsh |
| 267. | Albert M. Darby |
| 268. | Russell P. Place |
| 269. | Eugene T. Izant |
| 270. | Justin D. Graves |
| 271. | William H. Sheppard |
| 272. | Carlyle D. Weston |
| 273. | Herbert Schiff |
| 274. | Henry W. Hoyt |
| 275. | Williams C. McConnell |
| 276. | John H. Oxley |
| 277. | Lee H. Bristol |
| 278. | Fileto F. DaS. Santos |
| 279. | Mario C. Godinho |
| 280. | Colegate O. McShane |
| 281. | Antonio J. DaSilva |
| 282. | William H. Bard |
| 283. | Howard P. Knauer |
| 284. | Stephen A. Freeman |
| 285. | Irving M. McQuiston |
| 286. | George A. Midwood |
| 287. | Earle P. McKellar |
| 288. | Frank B. Hubachek |
| 289. | Edgar H. Rust |
| 290. | John P. Holden |
| 291. | John M. Lott |
| 292. | Wallace K. Harding |
| 293. | Andrew Anderson |
| 294. | Bryant W. Donaldson |
| 295. | Hubert Harder |
| 296. | Horace F. Gibson |
| 297. | Frederick R. Maxwell |
| 298. | Edward J. Mershon |
| 299. | Allan W. Stephens |
| 300. | Paul A. Philbin |
| 301. | George B. Post |
| 302. | Truman J. Strong |
| 303. | Julius R. St. Clair |
| 304. | Henry Wm. King |
| 305. | Harry D. Horton |
| 306. | Irving W. Lyon |
| 307. | Harry W. Dunlap, Jr. |
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| 309. | George E. Rogers |
| 310. | Victor F. Marinelli |
| 311. | Odean T. Hallum |
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| 313. | Bayle M. Richardson |
| 314. | Walter W. Hagy |
| 315. | Bruno P. Haas |
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| 320. | James H. Hulse |
| 321. | Clarence A. Roedell |
| 322. | William H. Van Tuyl |
| 323. | John W. Harris |
| 324. | Francis J. Carlucci |
| 325. | Gerald T. Tyner |
| 326. | S. H. Krouse |
| 327. | Alfred F. Ingold |
| 328. | Henry Bomgardner |
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| 330. | Thomas L. Nudd |
| 332. | Samuel Frothingham |
| 333. | Louis J. Filley |
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| 336. | John G. W. Husted |
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| 345. | Everet L. Thompson, Jr. |
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| 349. | Howard A. Miller |
| 350. | Ronald P. Hallett |
| 351. | William R. M. Moss |
| 352. | Felix M. Blotuer |
| 353. | Delbert L. Conley |
| 354. | Howard S. Robinson |
| 355. | Richard P. Hummer |
| 356. | Sterling M. Nordhouse |
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| 359. | James S. McCormack |
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| 362. | William A. Magee, Jr. |
| 363. | William J. Walker |
| 364. | Mathew S. Martin |
| 365. | James F. Nash |
| 366. | George G. Cannon |
| 367. | Walter H. Berghorn |
| 368. | Robert Jordan |
| 369. | Isidor Richmond |

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| 4. | Lieut. Henry H. Arnold, U. S. A. |
| 5. | Capt. Chas. de F. Chandler, U. S. A. |
| 6. | Capt. Paul W. Beck, U. S. A. |
| 7. | Lieut. B. D. Foulois, U. S. A. |
| 8. | DeLloyd Thompson |
| 9. | Lieut. Harold Geiger, U. S. A. |
| 10. | Lieut. L. E. Goodier, Jr., U. S. A. |
| 11. | Lieut. Roy C. Kirtland, U. S. A. |
| 12. | Lieut. Samuel H. McLeary, U. S. A. |
| 13. | Lieut. Lewis H. Brereton, U. S. A. |
| 14. | Lieut. C. G. Chapman, U. S. A. |
| 15. | Lieut. Frank P. Lahm, U. S. A. |
| 16. | Lieut. Herbert A. Dargue, U. S. A. |
| 17. | Lieut. Joseph E. Carberry, U. S. A. |
| *18. | Lieut. Walter R. Taliaferro, U. S. A. |
| *19. | Lieut. Henry B. Post, U. S. A. |
| 20. | Theodore C. Macaulay |
| 21. | Capt. Hollis LeRoy Muller, U. S. A. |
| 22. | Lieut. R. H. Willis, Jr., U. S. A. |
| 23. | Lieut. Townsend Foster Dodd, U. S. A. |
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| 25. | Lieut. Joseph C. Morrow, U. S. A. |
| 26. | Lieut. Theodore G. Ellyson, U.S.N. |
| 27. | Lieut. John H. Towers, U. S. N. |
| 28. | Lieut. Comdr. Henry C. Mustin, U. S. N. |
| 29. | Lieut. Patrick N. L. Bellinger, U. S. N. |
| 30. | Lieut. Victor Herbster, U. S. N. |
| 31. | Lieut. Bernard L. Smith, U.S.M.C. |
| 32. | Lieut. Godfrey de C. Chevalier, U. S. N. |
| *33. | Lieut. Richard C. Saufley, U. S. N. |
| 34. | Lieut. William M. McIlvain, U. S. M. C. |
| *35. | Lieut. Clarence K. Bronson, U.S.N. |
| 36. | Lieut. Kenneth Whiting, U. S. N. |
| 37. | Lieut. Holden C. Richardson, U. S. N. |
| 38. | Lieut. Redondo B. Sutton, U. S. A. |
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| 40. | Lieut. Arthur R. Christie, U. S. A. |
| 41. | Lieut. Douglas B. Netherwood, U. S. A. |
| 42. | Lieut. L. H. Maxfield, U. S. N. |
| 43. | Lieut. Harry Gantz, U. S. A. |
| 44. | Lieut. Harry W. Harms, U. S. A. |
| 45. | Lieut. Earl W. Spencer, U. S. N. |
| 46. | Lieut. H. T. Bartlett, U. S. N. |
| 47. | Raymund V. Morris |
| 48. | B. Blakeman Lewis |
| 49. | 1st Lt. Alfred A. Cunningham, U. S. M. C. |
| 50. | Howard M. Rinehart |
| 51. | Capt. J. F. Curry, U. S. A. |
| 52. | 1st Lt. H. S. Martin, U. S. A. |
| 53. | Lt. Edward O. McDonnell, U. S. N. |
| 54. | Lt. B. M. Atkinson, U. S. A. |
| 55. | 1st Lt. John B. Brooks, U. S. A. |
| 56. | Charles Reed |
| 57. | A. Blair Thaw |
| 58. | Lt. Roy S. Brown, U. S. A. |
| 59. | Lt. John C. McDonnell, U. S. A. |
| 60. | 1st Lt. J. E. Miller, N. G., N. Y. |
| 61. | Capt. R. C. Bolling, N. G., N. Y. |
| 62. | Sergt. W. P. Willetts |
| 63. | Frederick T. Blakeman |
| 64. | Lawrence B. Sperry |
| 65. | 1st Lt. G. E. A. Reinburg, U. S. A. |
| 66. | Capt. R. L. Taylor |
| 67. | A. Livingston Allan |
| 68. | Lieut. B. R. Osborne |
| 69. | Seth Low, 2nd |
| 70. | Cord Meyer |
| 71. | Norbert Carolin |
| 72. | William G. Schauffler, Jr. |
| 73. | Harold M. Gallop |
| 74. | Howard P. Culver |
| 75. | Walter V. Barnebey |
| 76. | Victor Carlstrom |
| 77. | Stewart W. Cogswell |
| 78. | James M. Johnson |
| 79. | Walter E. Lees |
| 80. | L. Phil. Billard |
| 81. | Carl T. Batts |
| 82. | John G. Colgan |
| 83. | Roderick H. Jones |
| 84. | Carl W. Connell |
| 85. | Franklin H. Lane, Jr. |
| 86. | Ira O. Biffle |
| 87. | James S. Krull |
| 88. | Stanley V. Coyle |
| 89. | Daniel P. Morse, Jr. |
| 90. | Stephen H. Noyes |
| 91. | E. H. Holterman |
| 92. | Leon Richardson |
| 93. | E. A. Kruss |
| 94. | William O. Ryan |
| 95. | H. J. Damm |
| 96. | Jack W. Heard |
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| 98. | David B. Lindsay |
| 99. | Ivan P. Wheaton |
| 100. | William B. Peebles |
| 101. | Earl F. White |
| 102. | Harry H. White |
| 103. | Felix Steinle |
| 104. | Herbert Pulitzer |
| 105. | Chauncey R. Todd |
| 106. | John B. Stetson, Jr. |
| 107. | Frank C. Behrend |
| 108. | K. G. Pulliam, Jr. |
| 109. | Thorne Deuel |
| 110. | Arthur A. A. Scheelen |
| 111. | Frank W. Wright |
| 112. | Paul Goldsborough |
| 113. | Clarence B. Coombs |
| 114. | Cushman A. Rice |
| 115. | Alfred Cram |
| 116. | D. I. Lamb |
| 117. | Robert Marsh, Jr. |
| 118. | George F. Hughes |
| 119. | Louis Bennett, Jr. |
| 120. | Alonzo M. Drake |
| 121. | Thorne Donnelley |
| 122. | A. C. Read |
| 123. | Reuben H. Fleet |
| 124. | D. E. Ellis |
| 125. | Donald Johnston |
| 126. | D. R. Stockton |
| 128. | Herbert G. Partridge |
| 129. | Charles Thurlow, Jr. |
| 130. | Samuel J. Mustain |
| 131. | Lawrence E. Cook |
| 132. | A. C. Burns |
| 133. | R. L. Noggle |
| 134. | Arthur E. Simonon |
| 135. | Hubert DeV. McLean |
| 136. | Samuel P. Mandell |
| 137. | Albert G. Simpson |
| 138. | Henry S. Houghton |
| 139. | D. C. Rumsey |
| 140. | Wayman Haney |
| 141. | Norris E. Pierson |
| 142. | Hugh M. Pierce |
| 143. | John S. North |
| 144. | Emi' H. Molthan |
| 145. | John S. Taber |
| 146. | William H. Derbyshire |
| 147. | Harmon C. Rorison |
| 148. | Tobin S. Curtis |
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| 154. | Carrol F. Watson |
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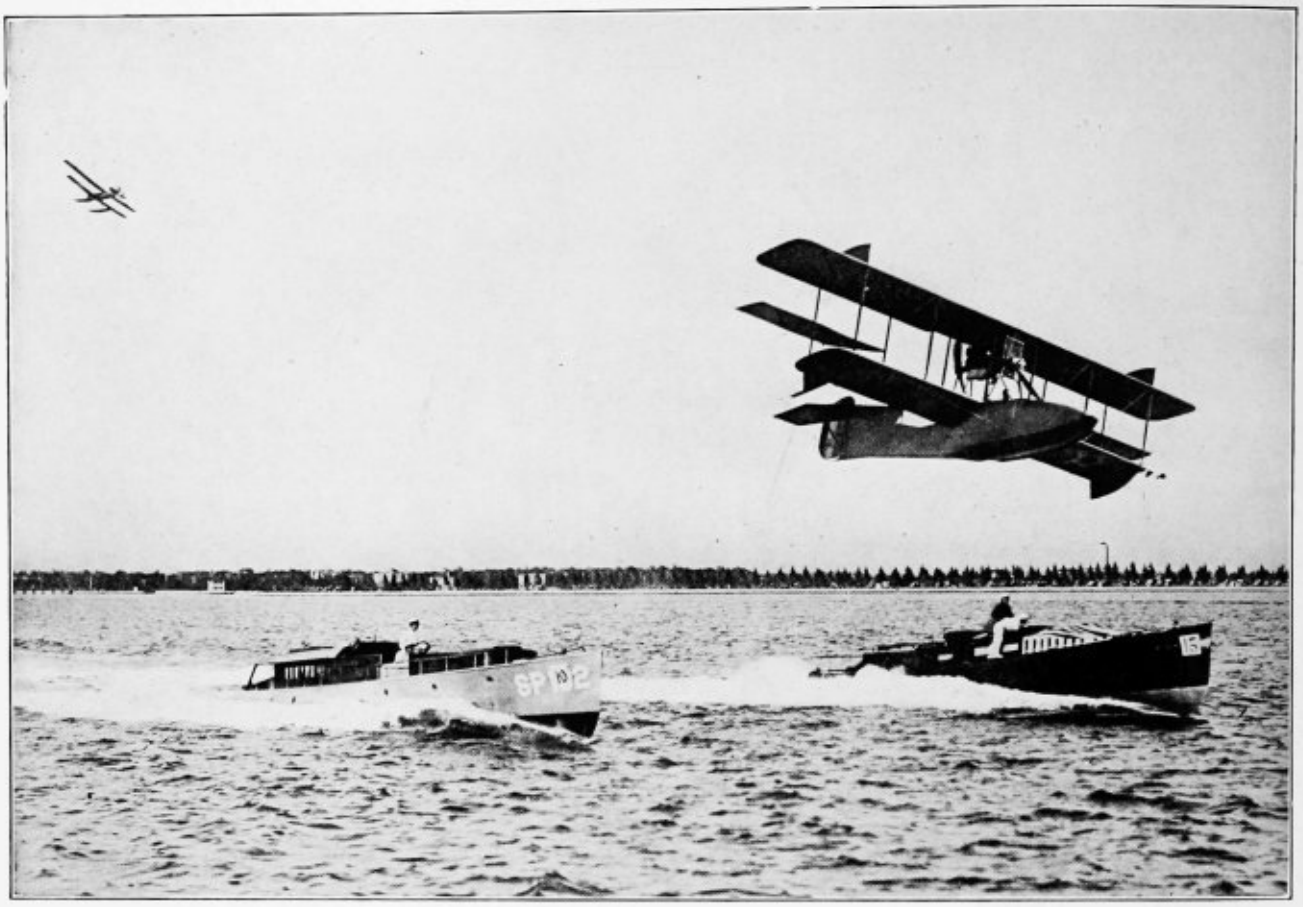
| 157. | William B. McLaren |
| 158. | C. H. Monroe |
| 159. | Horace N. Heisen |
| 160. | Richard B. Berry |
| 161. | J. N. Thorp, Jr. |
| 162. | Henry A. Ilse |
| 163. | Roland S. Knowlson |
| 164. | Francis Stanton |
| 165. | Walter P. Jacobs |
| 166. | Earl S. Hoag |
| 167. | Horace H. Barse |
| 168. | Frank L. Boyd |
| 169. | Patrick S. Curtis |
| 170. | Gerard H. Hughes |
| 171. | John E. Davis |
| 172. | Theodore S. Avery |
| 173. | Lottia A. Smith |
| 174. | Thomas J. Lenihan |
| 175. | Baron S. Barnes |
| 176. | Rodman Wanamaker |
| 177. | William Lindley |
| 178. | Ira B. Humphreys |
| 179. | Lester A. Patterson |
| 180. | Henry P. Withers |
| 181. | G. C. Dichman |
| 182. | James B. Taylor, Jr. |
| 183. | Louis J. Wolford |
| 184. | William H. Bleaklry |
| 185. | David G. Logg |
| 186. | Curtiss LaQ Day |
| 187. | E. Hamilton Lee |

| No. of Certificate | Name of Holder |
|---|---|
| 188. | Gordon K. Hodd |
| 189. | Harold A. Pulliam |
| 190. | Marcus H. Rice |
| 191. | Joseph B. Lievre |
| 192. | Daniel Kiser |
| 193. | Arthur Corry |
| 194. | Alfred S. Koch |
| 195. | Harry B. Crewdson |
| 196. | Harry B. Crewdson |
| 197. | Maurice H. Murphy |
| 198. | F. B. Meisenheimer |
| 199. | E. W. Cleveland |
| 200. | E. N. Pickerill |
| 201. | Paul Pryibil |
| 202. | Carl Weinstein |
| 203. | Richard H. Depew |
| 204. | Lloyd R. Clowes |
| 205. | John D. Gillett |
| 206. | Earl Carroll |



Air and Nautical Races at the Recent Power Boat Regatta.

## INTERCOLLEGIATE AERONAUTIC TROPHIES

Another important item has been added to the extensive plans of the Aero Club of America for fostering the use of aircraft for sport, pleasure, civic and scientific purposes.

Appreciating the fact that a large percentage of the 25,000 Army and Navy aviators are college men, including approximately 50 per cent graduates and 50 per cent undergraduates, and that most of them are intensely interested in aviation as a sport, the Board of Governors of the Aero Club of America has decided to create Intercollegiate Aeronautic trophies for graduates and undergraduates, for lighter and heavier than air craft to be competed for annually under rules similar to the rules governing the Intercollegiate regattas. The Board of Governors of the Aero Club of America is considering the advisability of creating two Intercollegiate Aviation Trophies, one to be competed for by graduates and one to be competed for by undergraduates.

The creation of the Intercollegiate Aeronautic Trophies is made possible under the bequest of the late Mr. Samuel H. Valentine, who was a member of the Board of Governors of the Aero Club of America, and who left $10,000.00 to the Club to be given in trophies or prizes for the development of Aviation.

This makes a total of 18 trophies and prizes for aeronautic events which are to be competed for during the coming year under the auspices of the Aero Club of America. Some of these trophies, like the International Aviation Trophy and the international Marine Flying Trophy, will be competed for in France, and the National Elimination Races will be held in the United States under the auspices of the Aero Club of America, to select the American representatives to be sent to France. The aeronautic trophies and prizes to be competed for during this year are listed in the Aero Blue Book, as follows: For International Competition; The International Aviation Trophy; The International Balloon Trophy; The Michelin Trophy; The International Marine Aviation Trophy; The American Annual Aerial Derby; The Pan-American Aviation Trophy; The $50,000.00 and $5,000.00 Trans-Atlantic Flight Prizes. For National Competition: The Curtiss Marine Flying Trophy; The Annual National Elimination Aviation Contest; The Annual National Elimination Balloon Contest; The Mackay (Military) Aviation Trophy; The Valentine Trophies of the Aero Club of America; for Military and Naval Competition; The Collier Trophy; The Intercollegiate Aviation Trophies.

All these trophies and competitions are held under the rules of the International Aeronautic Federation, of which the Aero Club of America, No. 297 Madison Avenue, New York City, N. Y., is the sole representative on the American Continent.

Prospective entrants and competitors for these trophies will be required to hold the pilot's certificate which is issued by the Aero Club of America.

The competition for these trophies is expected to be the factor that will bring about the employment of aircraft for general purposes. It will also be the factor that will bring about the development of aircraft especially suited for civil purposes.

The arrangements for, and the rules and regulations governing the competitions for these trophies and prizes, which are not competed for under the international rules, will be made by the Contest Committee of the Aero Club of America, of which Mr. Alan R. Hawley is Chairman, and the following are members: W. Redmond Cross; Lieut. Godfrey L. Cabot, U. S. N.; Col. C. DeF. Chandler, U. S. A.; Major A. B. Lambert, U. S. A.; Major J. C. McCoy, U. S. A.; Commander H. C. Mustin, U. S. N.; Henry A. Wise Wood, and Henry Woodhouse.

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Henry A. Wise Wood
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G. F. Campbell-Wood

The Aero Club of America is the national organization and the oldest aeronautic body in the United States and on the western hemisphere. It was founded in 1905 and is the sole representative of the Federation Aeronautique Nationale and the Pan American Federation in the United States and therefore controls all aeronautic sports and the issuing of pilots' certificates in the United States.

The Aero Club of America has been the mainspring of aeronautic activity and of the movement to upbuild our air forces. Thanks to its efforts three hundred aviators were trained at private expense in 1915-1916, who were taken over by the Army and Navy and were the first aviators to be sent over seas. Following are excerpts from the certificate of incorporation and constitution of the Club. (1) To advance the development of the science of aeronautics and kindred sciences. (2) To encourage aerial navigation, conferences, expositions, congresses and contests. (3) To maintain a club house or club houses, aerial garages and accessories, aeronautic or otherwise incidental to the purposes of the Club. (4) To do everything necessary, suitable and proper for the accomplishment of any of the purposes or the furtherance of any of the powers hereinbefore set forth, and to do every other act or acts incidental or appurtenant to or connected with the aforesaid purposes, sports or powers or any part or parts thereof, provided the same be not inconsistent with the laws under which this corporation is organized.

The territory in which its operations are to be principally carried on comprise the Continents of North and South America and the islands adjacent thereto.

MEMBERSHIP

SECTION 1. The membership comprises six classes, viz.:

(*a*) Honorary members;
(*b*) Life members;
(*c*) Resident members;
(*d*) Non-resident members;
(*e*) Army and Navy members;
(*f*) Collegiate members.

The honorary membership is limited to twenty, and includes ex-officio, the following: The President of the United States; the Governor of the State of New York; the Mayor of the City of New York.

The resident membership is limited to one thousand, exclusive of life members.

GOVERNMENT OF THE CLUB

The officers of the Club consist of a President, a first Vice-President, a Second Vice-President, a Third Vice-President, a Fourth Vice-President, a Secretary, and a Treasurer.

The President and First Vice-President are persons who are also Governors of the Club.

AFFILIATED CLUBS

The Board of Governors have the power to agree to Articles of Affiliation between this Club and other clubs organized for any purpose whatsoever. Such agreements of affiliation in so far as required shall be in accordance with the rules and regulations governing this Club's membership in the Fédération Aéronautique Internationale.

## BY-LAWS, AERO CLUB OF AMERICA, REGARDING MEMBERSHIP

SECTION 1. Any persons distinguished for their political, scientific, literary, industrial, administrative or other capacities, may, upon nomination by the Board of Governors, be elected honorary members at annual meetings of the Club.

SEC. 2. Any member may become a life member by the payment of five hundred dollars at one time.

SEC. 3. The resident membership shall be limited to seven hundred and fifty but may be increased from time to time by the Governors to not exceeding one thousand.

SEC. 4. Each candidate for resident or non-resident membership shall be proposed and seconded in writing and must be personally known to the proposer and seconder, both of whom shall be members of the Club in good standing. The proposer must state the name, address and occupation of the person proposed, which shall be sent to the Secretary of the Club and be by him delivered to the Committee on Membership. The name, address and occupation of the person proposed with the names of the proposer and seconder must be posted in a conspicuous place in the Club rooms at least one week before action is taken by the Board on such proposal. Elections to membership by the Board shall be by ballot and two negative votes shall prevent an election. Notice of the election of a candidate shall be sent to him and on the payment of the initiation fee and annual dues, within thirty days thereafter, such person shall become a member of the Club. The election of a member by the Board shall be final and conclusive as to his membership in the Club, notwithstanding the non-observance of rules and regulations concerning the election of members. All proceedings of the Board or Committee on Membership relating to the election of any person proposed for membership shall be strictly confidential and no Governor or member of such Committee shall be questioned in regard thereto.

SEC. 5. Only persons whose place of residence is distant more than fifty miles from the City Hall in the City of New York, and whose principal office or place of business is not within said limits, shall be eligible for non-resident membership.

SEC. 6. Only commissioned officers of the regular Army and Navy of the United States of America shall be eligible for election as Army and Navy members.

SEC. 7. Only undergraduate students of an American University or College shall be eligible for election as a Collegiate Member. Collegiate Members shall have all the privileges of regular members, except that they shall not have the right to vote and shall pay in cash for all purchases in the Club House. Upon a Collegiate Member ceasing to be an undergraduate student at an American University or College his membership in the Club as such a Collegiate Member shall cease, provided, however, that upon ceasing to be such Collegiate Member such member may become a regular resident or non-resident member of the Club upon the payment of an additional initiation fee of fifteen dollars to become a non-resident member, or forty dollars to become a resident member.

SEC. 8. No application for membership shall be acted

upon by the Board of Governors unless accompanied by letters from the proposer and seconder stating the qualifications of the candidate.

Sec. 9. Any member in good standing not in arrears or indebted to the Club may resign his membership by delivering a notice thereof to the Secretary.

Sec. 10. Termination of membership from any cause whatsoever shall operate as a release and termination of all right or title or interest of such members in the property and assets of the Club.

### CHAPTER VII.

Section 1. Initiation Fees. Resident members shall pay an initiation fee of fifty dollars. Non-resident members shall pay an initiation fee of twenty-five dollars. Army and Navy members shall pay an initiation fee of ten dollars. Collegiate members shall pay an initiation fee of ten dollars.

Dues. Resident members shall pay annual dues of twenty-five dollars per year, which shall be payable on the first day of November in each year. Non-resident members shall pay annual dues of ten dollars per year, payable on the first day of November in each year. Provided, however, that resident members admitted to membership in the Club after the first day of April and before the first day of November in any year shall for the balance of such current year pay dues to the amount of twelve dollars and fifty cents.

Army and Navy members shall pay annual dues of ten dollars per year. Collegiate members shall pay annual dues of ten dollars per year.

*Applications for membership must be made in writing to the Secretary, 297 Madison Avenue, New York City. Three references must be sent with the application, excepting in the case of officers of the U. S. Army, Navy and Marine Corps Air Service, who can apply without submitting other references than the evidence that they are officers.*

## Organizations Affiliated with the Aero Club of America

The following organizations are affiliated with the Aero Club of America:

Aerial League of America
Aero Club of Baltimore
Aero Club of Buffalo
Colorado Aero Club
Aero Club of Connecticut
Aero Club of Cuba
Aero Club of Dayton
Aero Club of Denver
Aero Club of Hawaii
Aero Club of Illinois
Aero Club of Michigan
Aero Club of New England
Aero Club of New York
Aero Club of Ohio
Aero Club of Pennsylvania
Aero Club of Pittsfield
Queen City Aero Club
Aero Club of St. Louis
Aero Club of Washington
Aircraft Club of Peoria
Harvard Aeronautical Society
Kansas City Aero Club
Milwaukee Aero Club
Pacific Aero Club
Rochester Aero Club
Aero Club of Northwest
Aero Club of Vermont
Western Aero Association
Wichita Aero Club
Aero Club of Wyoming
Aeronautical Society of California
Aero Club of Iowa
Aero Club of the Philippines

## ARTICLES OF AFFILIATION OF AERO CLUBS IN THE UNITED STATES WITH THE AERO CLUB OF AMERICA FOR THE YEAR 1918

WHEREAS, the Aero Club is the sole representative in the United States of America of the Fédération Aéronautique Internationale, and is willing to accept the affiliation of clubs having for their principal purpose the promotion of interest in aeronautics, and to extend to them certain of the benefits of said international relations, and

WHEREAS, the Affiliated Club is desirous of obtaining such affiliation, and

WHEREAS, both parties are desirous, through such affiliation and consequent closer intercourse and relationship, to advance and improve the sport and science of aeronautics in America;

NOW, THEREFORE, the parties hereto do mutually agree as follows:

FIRST: Members of the Affiliated Club may, during the life of this agreement, participate under the same conditions as members of the Aero Club, in the following events:

(*a*) The National Championship Balloon Race;
(*b*) Competition for trophies and prizes held by the Aero Club for competition;
(*c*) All contests and events organized by the Aero Club;
(*d*) All open contests and events under the control of the Fédération Aéronautique Internationale, whether in the United States or elsewhere.

SECOND: The President of the Affiliated Club may, during the life of this agreement, upon written application, and without the formality of election, become a member of the Aero Club without the payment of any initiation fee.

THIRD: The Affiliated Club will receive free of charge:

(*a*) The Official Bulletin of the Aero Club and those of the other Affiliated Clubs;
(*b*) The Annual Year-Book of the Aero Club;
(*c*) The regulations and programmes of all general meets and competitions conducted by the Aero Club.

FOURTH: The Aero Club and its members, and the Affiliated Club and its members, may take part only in such events and competitions as are organized by:

(*a*) The Aero Club;
(*b*) The Affiliated Club, or other Affiliated Clubs, with the consent of the Aero Club;
(*c*) Persons or committees duly sanctioned by the Aero Club;
(*d*) Clubs which are members of the Fédération Aéronautique Internationale, or which are affiliated with such members

FIFTH: The Affiliated Club will obey the rules and regulations of the Fédération Aéronautique Internationale, and of the Aero Club, and any amendments or additions thereto which may be from time to time enacted; will permit no entries or competition in contests which it shall organize or control, except from itself or from other Affiliated Clubs, or from the Aero Club or from Clubs belonging to the Fédération Aéronautique Internationale, or from members of either; will upon notice from the Aero Club, send a representative or representatives to such meetings or conventions of clubs affiliated with the Aero Club, as may from time to time be convened by the Aero Club; will supply the Aero Club, immediately after the execution thereof, and thereafter on the 1st days of January and July respectively in each and

every year, with a complete list of the officers and members of the Affiliated Club, a statement as to the amount of annual dues required from each member, and as to the amount of initiation fee required upon becoming a member, and with copies of its constitution and by-laws; will supply to the Aero Club and to its other Affiliated Clubs, free of charge, copies of the publications of the Affiliated Club immediately upon the issuance thereof; and will advise the Aero Club from time to time of any modifications or amendments in the constitution or by-laws of the Affiliated Club.

SIXTH: Neither party hereto will elect to membership any person who has been dropped from the rolls of the Aero Club or any club affiliated therewith, whether by resignation or otherwise, unless the written consent of the Club from whose rolls said person was dropped shall have been thereto first obtained.

SEVENTH: In the event that the Affiliated Club shall apply to the Aero Club for a sanction for an aeronautic contest or exhibition, and some other club, committee or person in the town or city which is the home of the Affiliated Club, shall also apply for a sanction for such contest to be given at or about the same time as the proposed contest of the Affiliated Club, the Aero Club will, if the Affiliated Club shall have complied with the rules and conditions of the Aero Club, give to the Affiliated Club a preference over said other Club, committee or person, in the granting of such sanction. This provision shall not limit the right of the Aero Club in its discretion to refuse any such sanction or any such preference, in cases where such sanction would be refused if no question of preference arose. The Affiliated Club, upon obtaining a sanction for an aeronautical contest or event organized, conducted or controlled by it, engages that the regulations governing said contest shall comply with the rules of the Aero Club and of the Fédération Aéronautique Internationale.

EIGHTH: This agreement shall remain in full force and effect until specifically terminated by either of the parties hereto. Such termination may be effected by thirty days' notice in writing addressed and mailed by either party to the other.

## Rules for Application for Affiliation with the Aero Club of America

Clubs applying for affiliation with the Aero Club of America must observe the following rules in respect to their application:

FIRST: The club desiring affiliation must make application therefor, addressed to the Secretary of the Aero Club of America, signed by a majority of the Governors of the affiliating club.

SECOND: The application must be accompanied by a copy of the charter of incorporation of the Affiliating Club, duly certified by the Secretary of the State in which it is incorporated; also a copy of the constitution and by-laws of the Affiliating Club, duly certified by the secretary of said Club; also by a list of the officers of said club, a statement as to the location of its main office or club-house, a description of the colors or insignia adopted by the Club, a statement as to the number of its members, resident, non-resident, active and associate, together with the amount of initiation fee required of each class of members, and the amount of dues paid by each class of members.

## BOARD OF DIRECTORS

Mrs. Wm. A. Bartlett
Charles Jerome Edwards
Brig. Gen. Robert K. Evans, U. S. A.
John Hays Hammond, Jr.
Alan R. Hawley
Hon. Murray Hulbert
Rear Admiral Robert E. Peary, U. S. N.
Augustus Post
Mrs. Marie E. Peary Stafford
Mrs. Elizabeth Ogden Wood
Henry A. Wise Wood
Henry Woodhouse

## HONORARY MEMBER

Woodrow Wilson, Commander in Chief, U. S. Air Service, Army and Navy

AERIAL LEAGUE OF AMERICA

American Headquarters
297 Madison Ave., New York City
Murray Hill 71
Washington, D. C., Office
Union Trust Bldg.
Foreign Service Committee
42, Faubourg Poissonniere, Paris, France

## PRESIDENT

Rear Admiral Robert E. Peary

## VICE-PRESIDENTS

Brig. Gen. Robert K. Evans, U. S. A.
Rear Adm. Bradley A. Fiske, U. S. N.
Alan R. Hawley
Hon. Murray Hulbert
Senator Morris Sheppard, M. C.
Henry Woodhouse

## SECRETARY AND TREASURER

Augustus Post

## RECORDING SECRETARY

Leroy B. Gulotta

## HONORARY MEMBERS

Captain Thomas S. Baldwin
Hon. Alexander Graham Bell
Mrs. Alexander Graham Bell
Mrs. William H. Bliss,
Who Made Possible the Organization of the First Reserve Aero Squadron, 1915-16
Professor John A. Brashear
W. Starling Burgess
Hon. Albert S. Burleson
Mrs. E. H. Harriman,
Contributed to Training and Equipment of Aviators During 1916-17-18
Mrs. Newbold Le Roy Edgar,
Who Fostered American Aeronautics in 1905-6
Lieut. Henri Farré,
Founder of the New School of Art
Colonel Lester Jones,
Superintendent, U. S. Coast and Geodetic Survey
Captain George Heurtaux,
French Flying Corps Ace
Hon. Murray Hulbert
Director of Port of New York for his Pioneer Support of Aeronautics
Major Gen. Wm. L. Kenly, U. S. A.,
Chief, Division Military Aeronautics
Miss Ruth Law
Charles M. Manly
Charles F. Kettering,
President, Society of Automotive Engrs.
Captain Benjamin B. Lipsner,
Hon. Thomas R. Marshall
Emerson McMillin
Who Paid for the Training of 32 Reserve Aviators in 1915-16
Dr. Charles F. Marvin,
Chief, U. S. Weather Bureau
Hon. Byron R. Newton
General John J. Pershing
Second Assistant Postmaster General Otto Praeger
Hon. Theodore Roosevelt
Frank H. Russell,
President, Manufacturers' Aircraft Assn.
Alberto Santos-Dumont,
Pres., Pan-American Aeronautic Federation
Hon. William G. Sharp,
U. S. Ambassador to France
Senator Morris Sheppard
Vice-Admiral William S. Sims
Frank A. Seiberling
Elmer A. Sperry
Mrs. Edward T. Stotesbury,
Chairman, Nat'l Recreation and Comforts, Comm. Woman's Naval Service, Inc.
Miss Alice Carpenter,
Vice-Chairman, Nat'l Recreation and Comforts Comm. Woman's Naval Service, Inc.
Col. Chas. de F. Chandler
Rear Admiral Colby M. Chester
T. Jefferson Coolidge,
Who Paid for Training a Number of Reserve Aviators in 1916
Glenn H. Curtiss
Mrs. H. P. Davison,
Who Ogranized Aerial Coast Patrol Unit No. 1
Hon. Thomas A. Edison
Dr. W. S. Stratton
Miss Katherine Stinson
Lieut. Col. William Thaw
W. K. Vanderbilt,
For his Support to Lafayette Flying Corps
Mrs. Benjamin Thaw,
Who Contributed Extensively to Development of Allied Aerial Forces
Mrs. Charles A. Van Rensselaer,
Chairman, Nat'l Aeronautic Comm., Woman's Naval Service, Inc.
Miss Katharine Wright
Orville Wright
Dr. Charles D. Walcott,
Secretary, Smithsonian Institution
A. Francis Zahm

# EXTRACTS FROM THE BY-LAWS OF THE AERIAL LEAGUE OF AMERICA

## Article II—Objects

The objects of the League are:

*Section* 1. (a) To be a national organization, through which patriotic men, women, boys and girls can assist in the work of securing the aerial supremacy which is necessary for the maintenance and protection of our national institutions, by assisting in educating the Nation to its aeronautic task and, in the words of President Wilson: "Stimulating recruiting and patriotic interest in the war to the end that the utmost coöperation of all citizens in the successful prosecution of the war be secured";

(b) To make known generally that the war is to be decided in the air; and that after the war, Aerial Transportation, through eliminating frontiers and bringing people of different nations into closer contact—as fast transportation always has done—promises to become the most important factor in the reconstruction that will follow the war;

(c) To evolve plans for the employment of aircraft for civil and commercial purposes so that our aviators may have employment after the war;

(d) To coöperate in establishing airways and air routes, and promote and encourage in all ways the construction of aerodromes, stations and aircraft landing places, and other facilities for air travelers;

(e) To coöperate in securing national and international legislation and the formation of proper rules and regulations to govern aerial navigation and to protect the interests of owners and users of aircraft against unjust and unreasonable legislation, and to maintain the lawful rights and privileges of owners and users of all forms of aircraft whenever and wherever such rights and privileges are menaced;

(f) To promote original investigation and development of every branch of the science and art of aeronautics;

(g) To hold conferences, meets and events intended to create public interest in aeronautics;

(h) To do everything necessary, suitable and proper for the accomplishment of any of the purposes or the furtherance of any of the powers hereinbefore set forth, and to every other act or acts incidental or appurtenant to or connected with the aforesaid powers or parts thereof.

*Sec.* 2. The Aerial League of America shall be essentially a members' organization, supported by members' subscriptions, and not carried on for profit.

## Article III—Membership and Dues

*Section* 1. The League shall consist of Associate (Junior) Members; Members; Army and Navy; Fellows; Supporting Members; Life Members and Patrons.

*Sec.* 2. Associate (Junior) Members shall be persons of either sex or who are under 18 years of age. They shall pay annual dues of $5.00. They shall not vote or hold office.

*Sec.* 3. Members shall be persons of either sex who are over 18 years of age, who are interested in the objects of the League. They shall pay annual dues of $5.00 or $75.00 for life membership.

*Sec.* 4. Army and Navy Members shall be officers of the United States Army and Navy, National and Reserve Forces. They shall pay annual dues of $5.00 or $75.00 for life membership.

*Sec.* 5. Fellows shall be persons of either sex, engaged in scientific work pertaining to aeronautics and allied sciences and commissioned officers of the U. S. Army, Navy and National and Reserve Forces. They shall pay annual

dues of $10.00, or $100.00 for life membership.

*Sec.* 6. Supporting Members shall be persons of either sex who have contributed Two Hundred and Fifty Dollars ($250.00) to the objects of the League. They shall be entitled to all the privileges of membership for life.

*Sec.* 7. Patrons shall be persons of either sex who have contributed One Thousand Dollars ($1,000.00) to the objects of the League. They shall be entitled to all the privileges of membership for life.

*Sec.* 8. Honorary Members shall be persons of either sex who have attained eminence through the promotion of aeronautics or who hold office in Federal, State, City or Civil Organizations, whose officers are so honored by the League. They shall not vote or hold office.

Applications for membership must be addressed to the Secretary, Aerial League of America, 297 Madison Avenue, New York, N. Y.

## The Pan American Aeronautic Federation

UNITED STATES HEADQUARTES: 297 MADISON AVENUE, NEW YORK.

The Pan-American Aeronautic Federation was founded as a result of the conference of National Aero Clubs of North, Central and South American countries held at Santiago, Chile, March, 1916. In accordance with Article 2, of its statutes, the purposes of the P. A. A. F. are:

(a) Spreading the knowledge of aeronautics by publications, conferences and having aeronautic exhibitions of all kinds.

(b) Fostering the establishments of schools for training pilots for aeroplanes, balloons and dirigibles.

(c) Fostering the establishment of schools for mechanics for aeroplanes and dirigibles.

(d) Fostering the establishing on the American continent of aerotechnical laboratories for testing and improving aeronautic material and conducting of all kinds of research.

(e) Fostering the study of the atmosphere of the American Continents in cooperation with the observatories of the different countries.

(f) Fostering the making and issuing of aeronautic and topographical maps to be used in the service of aeronautics in different countries.

(g) Establishing aerodromes and setting apart proper landing places for aircraft throughout the different countries.

(h) Fostering the study of the history, theory and application of aeronautics pertaining to aerial navigation; including the publication of literary works on same and introducing the study of aeronautics in American Universities.

(i) Studying and analyzing the progress of aerial navigation in different countries.

The officers of the Federation are: Honorary president for life, Mr. Alberto Santos-Dumont (United States); president, Mr. Jorge Matto Gormaz (Chile); first vice-president, Mr. Henry A. Wise Wood (United States); second vice-president, Mr. Marechal Borman (Brazil); third vice-president, Mr. Joaquin C. Sanchez (Uruguay); fourth vice-president, Mr. Amador F. Del Solar (Peru); general secretary, Mr. Alberto Mascias (Argentina); informing secretary, Armando Venegas (Chile); treasurer, Mr. Severo Vaccaro (Argentine); directors, Mr. Manuel Seminario (Ecuador); Roberto Araya (Paraguay); Colonel Mr. Carlos Nunez del Prado (Bolivia).

The United States delegates to the Pan-American Aeronautic Federation are: *Scientific:* Orville Wright; *For Sports:* Alan R. Hawley; *Juridical:* Emerson McMillin; *Military:* Rear Admiral Robert E. Peary; *Public Education and Industries:* Henry Woodhouse.

# THE AIR SERVICE INSTITUTE OF THE UNITED STATES

HEADQUARTERS, UNION TRUST BUILDING, WASHINGTON, D. C.

## OFFICERS

PRESIDENT: LIEUT. COL. WM. THAW, U. S. ARMY AIR SERVICE
VICE-PRESIDENT: COMMANDER V. D. HERBSTER, U. S. N. AIR SERVICE
VICE-PRESIDENT: COLONEL E. LESTER JONES, U. S. ARMY AIR SERVICE
TREASURER: MAJOR J. C. MCCOY, U. S. ARMY AIR SERVICE
SECRETARY: LIEUT. GRANVILLE A. POLLOCK, U. S. AIR SERVICE (LATE LAFAYETTE ESCADRILLE)
RECORDING SECRETARY: W. H. L. HOWARD

## HONORARY MEMBERS
(EX-OFFICIO)

The President of the United States
The Secretary of War
The Secretary of the Navy
The Assistant Secretary of War in Charge of Aeronautics
The Director of Department of Military Aeronautics
The Chief of Staff of Department of Military Aeronautics.
The First Assistant Director of Naval Aeronautics
The Director of the Bureau of Aircraft Production
The Director of Naval Aeronautics
The First Assistant Director of Bureau of Aircraft Production
The Commander of the U. S. Military Air Forces Overseas
The Chief Executives and Commanders of the Air Forces of the Countries Allied with the United States
The Heads of the Aeronautic Missions of the Allied Countries in the United States
Major Orville Wright
The First Three United States Army Aviators
The First Three United States Navy Aviators

The Institute is a Service Organization, which has for its object the advancement of professional and scientific knowledge in military and naval aeronautics and promoting better *esprit de corps* in the Air Service.

Its plan of organization and practice are identical with the plan of organization and practice of the Naval Institute of the United States, which was established in 1873, and is the leading Naval Organization in America.

Following the practice of the U. S. Naval Institute, the Air Service Institute will offer an annual prize of $200 and a gold medal for the best essays, which will be on aeronautic subjects.

The essays will be published in the Institute's official organ, *Air Power,* if their publication is deemed advisable and permitted by the Censor.

The Air Service Institute has offices in the Union Trust Building, Washington, D. C., and in New York at 297 Madison Avenue.

The Aero Club of America has extended to the members of the Institute, the courtesies of the club, and the use of its club-house, extensive library, dining-room and conveniences in New York.

The Paris office is at 42 Faubourg Poissonnière. Offices are also being established in England and Italy.

The membership of the Institute, which is close to the two thousand mark, consists of regular, life and associate members. The by-laws provide that the regular members shall be officers of the Army, Navy and Marine Corps Air Service, and all civil officers attached to the Air Service. Those who do not come under this class will be associate members. Membership is open to Officers of the Air Services of the countries allied with the United States.

Officers of the other branches of the Army and Navy and Marine Corps known to have been interested in aeronautics for at least one year shall be entitled to full membership.

Dues: The annual dues for regular and associate members are $2.00, which entitle the members to all the privileges of membership in the Institute and to a monthly copy of *Air Power,* the Institute's official organ. Life membership shall be $40.00.

*Air Power,* successor to *Navy Air Pilot,* founded in 1915 on the U. S. S. North Carolina, is a Service magazine published by the Institute, and all profits derived from its publication go to the Institute, for the extension of its work.

*Air Power* is published monthly; subscription for non-members, $3.00; enlisted men, U. S. Air Service, $2.00. Single copies, by purchase, 25 cents.

All letters should be addressed Air Service Institute of the U. S., Union Trust Building, Washington, D. C., and all checks, drafts, and money orders should be made payable to the same.

## THE NATIONAL AERIAL COAST PATROL COMMISSION

ADDRESS: UNION TRUST BUILDING, WASHINGTON, D. C.

The National Aerial Coast Patrol Commission was founded in 1915 and was responsible for training over one hundred naval aviators at private expense, who were the first to be sent overseas when the U. S. entered the war. An account of its important patriotic work is given in the Textbook of Naval Aeronautics, The Century Co., New York.

*Central Committee:* Hon. Thomas R. Marshall, Vice-president of the United States, Honorary Chairman; Rear Admiral Robert E. Peary, U. S. N. retired, Chairman; Senator Morris Sheppard, of Texas; Senator James E. Watson, of Indiana; Representative Julius Kahn, of California; Representative Murray Hulbert, of New York; Hon. Byron R. Newton; Hon. William M. Ingraham; Mr. Alan R. Hawley, President, Aero Club of America; Mr. Henry Woodhouse, member Board of Governors, Aero Club of America, Delegate on Industry and Education Pan-American Aeronautical Federation; Lieut. F. Trubee Davison, Flying Reserve, U. S. Navy, Organizer, Aerial Coast Patrol Unit No. 1; Dr. E. Lester Jones, Superintendent U. S. Coast and Geodetic Survey; Dr. H. C. Frankenfield, Chief Forecaster U. S. Weather Bureau; Hon. Emerson McMillin, Mr. John Hays Hammond, Jr.

*Secretary:* Mr. Wm. L. H. Howard, Washington Representative Aero Club of America.

*State members:* The President of the Aero Clubs affiliated with the Aero Club of America.

The Adjutants General and the Commanding officers of the Naval Militia of the States.

## AIR SERVICE CLUBS' ASSOCIATION

The purpose of the Association, which is announced as THE BLUE BOOK is going to press, is to promote the efficiency of the Air Service; to foster esprit de corps by maintaining its best standards and traditions, to disseminate professional knowledge and provide means for social activities at all places where members are stationed.

All officers of the various branches of the Air Service, civilian employees who are heads of departments of the Air Service and all foreign officers on duty with the Air Service are eligible to membership.

The second meeting of the Association was held in the Interior Building at Washington, on Tuesday, October 2, and was attended by about 300 officers of the Air Service stationed at Washington. Major General Wm. L. Kenly, Chief of the Division of Military Aeronautics, presided. Captain J. H. Packard, head of the Aeronautical Information Branch of the Air Service, acted as Secretary. Following the adoption of the constitution, an election of officers was held, and the following officers were elected:

Major-General Wm. L. Kenly, President; W. C. Potter, 1st Vice-President; Col. G. C. Brant, 2nd Vice-President; Col. G. C. Edgar, Treasurer; Lt. Col. H. S. Brown, Assistant Treasurer; Captain John H. Packard, Secretary, and 1st Lieut. Tom Poe, Assistant Secretary. John D. Ryan, Assistant Secretary of War, was elected chairman of the Board of Control, and the following were elected members of the Board of Control: Col. H. H. Arnold, Col. W. E. Gillmore, Col. C. A. Seonne, and Mr. A. A. Landon, for one year; Col. Arthur Woods, Col. F. R. Kenney, Col G. H. Crabtree, and Mr. C. W. Nash, for two years; and Col. A. L. Fuller, Lt. Col. B. F. Castle, Lt. Col. Millard F. Harmon, Jr., and Major Wm. R. Malone, for three years.

# THE TREASURE AND TRINKET FUND

*(Patterned after the "Silver Thimble" Fund of Great Britain)*

## To Help the Wings of the U. S.

*Conducted under the auspices of the Aviation Committee*

*of the*

NATIONAL SPECIAL AID SOCIETY, Inc.

Headquarters: 259 Fifth Avenue, New York

Telephone: Madison Square 1179

*Endorsed by the Aero Club of America, The National Aerial Coast Patrol Commission, The Aerial League of America and The National Institute of Efficiency.*

*Purpose of the Fund.*—The Treasure and Trinket Fund has been established to meet the needs of the Air Service, the welfare of dependents in the case of disaster, and the long list of the flyer's wants in so far as we are able.

*We Appeal:* For money or gold and silver that is lying idle in bureau drawers. *Send Us:* Anything—everything you have that is made of gold and silver—old thimbles, spoons, bracelets, brooches, chains, cigarette cases, coins, useless trinkets. No broken bit is too small to be returned to the *mint*. No piece of jewelry, antique or modern, is too fine. Address to Mrs. William A. Bartlett, Chairman, Aviation Committee.

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## THE SOCIETY OF AUTOMOTIVE ENGINEERS

29 West 39th Street, New York City.

The Society of Automotive Engineers was the result of the amalgamation, in 1916-17, of the Society of Automobile Engineers and the American Society of Aeronautic Engineers.

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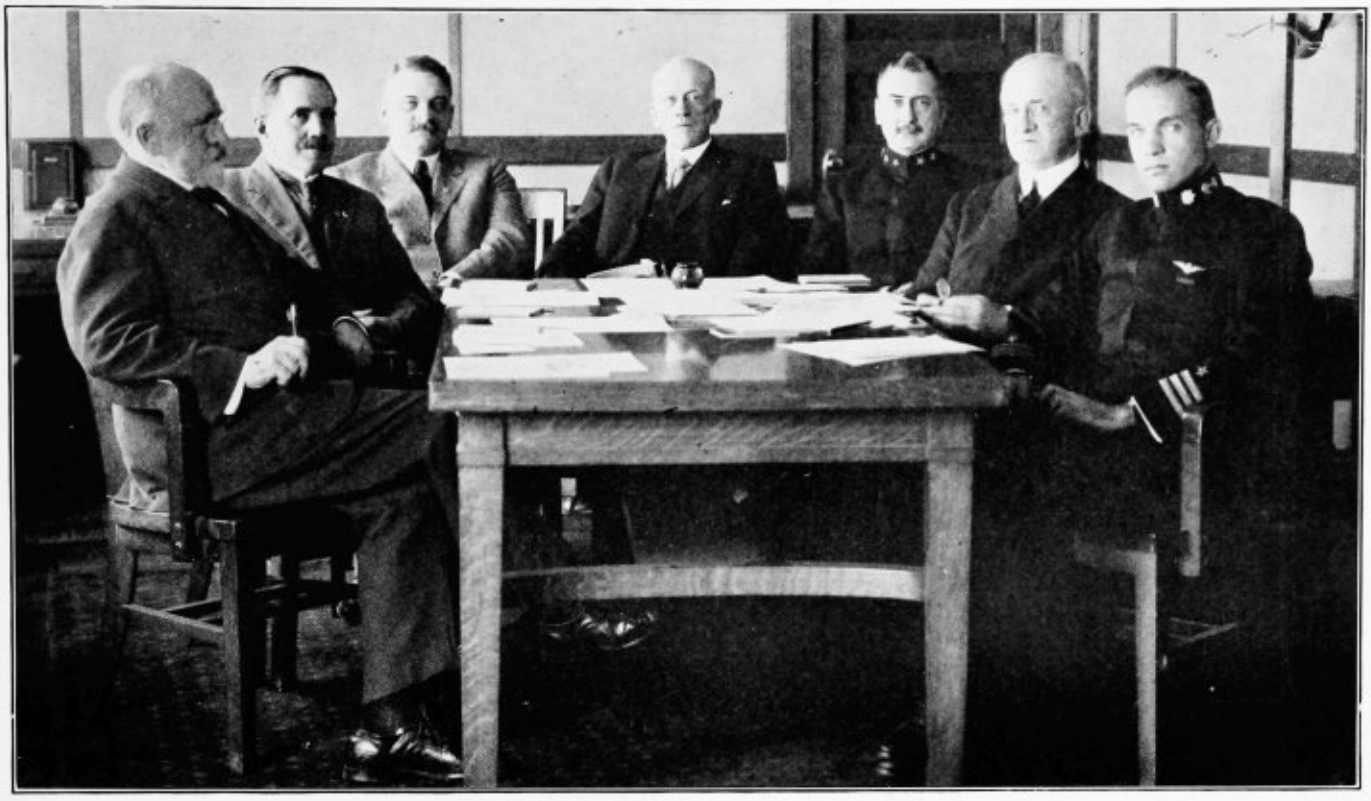


Members of the Executive Committee of the National Advisory Committee on Aeronautics. From left to right: Messrs. John R. Freeman, C. E.; Charles F. Marvin, M. E.; S. W. Stratton, Sc.D.; Charles D. Walcott, Sc.D.; Rear Admiral D. W. Taylor, U. S. N.; Joseph S. Ames, Ph.S.; Lieutenant-Commander J. H. Towers, U. S. N.

## THE NATIONAL ADVISORY COMMITTEE FOR AERONAUTICS

The National Advisory Committee for Aeronautics was established by Congress by act approved March 3, 1915. Under the law the committee is charged with the supervision and direction of the scientific study of the problems of flight with a view to their practical solution, the determination of the problems which should be experimentally attacked, their investigation and application to practical aeronautics. The committee is also authorized to direct and conduct research and experiment in aeronautics in such laboratory or laboratories, either in whole or in part, as may be placed under its direction.

The committee has 12 members appointed by the President. As authorized by Congress, the personnel of the committee consists of 2 members from the War Department, from the office in charge of military aeronautics; 2 members from the Navy Department, from the office in charge of naval aeronautics; a representative each of the Smithsonian Institution, of the United States Weather Bureau, and of the United States Bureau of Standards; and not more than five additional persons acquainted with the needs of aeronautical science, either civil or military, or skilled in aeronautical engineering or its allied sciences.

The annual meetings of the Advisory Committee are held in October and the semiannual meetings in April.

For carrying out the work of the Advisory Committee the regulations provide for the election annually of an executive committee, to consist of seven members, and to include further any member of the Advisory Committee not otherwise a member of the executive committee, but resident in or near Washington and giving his time wholly or chiefly to the special work of the committee.

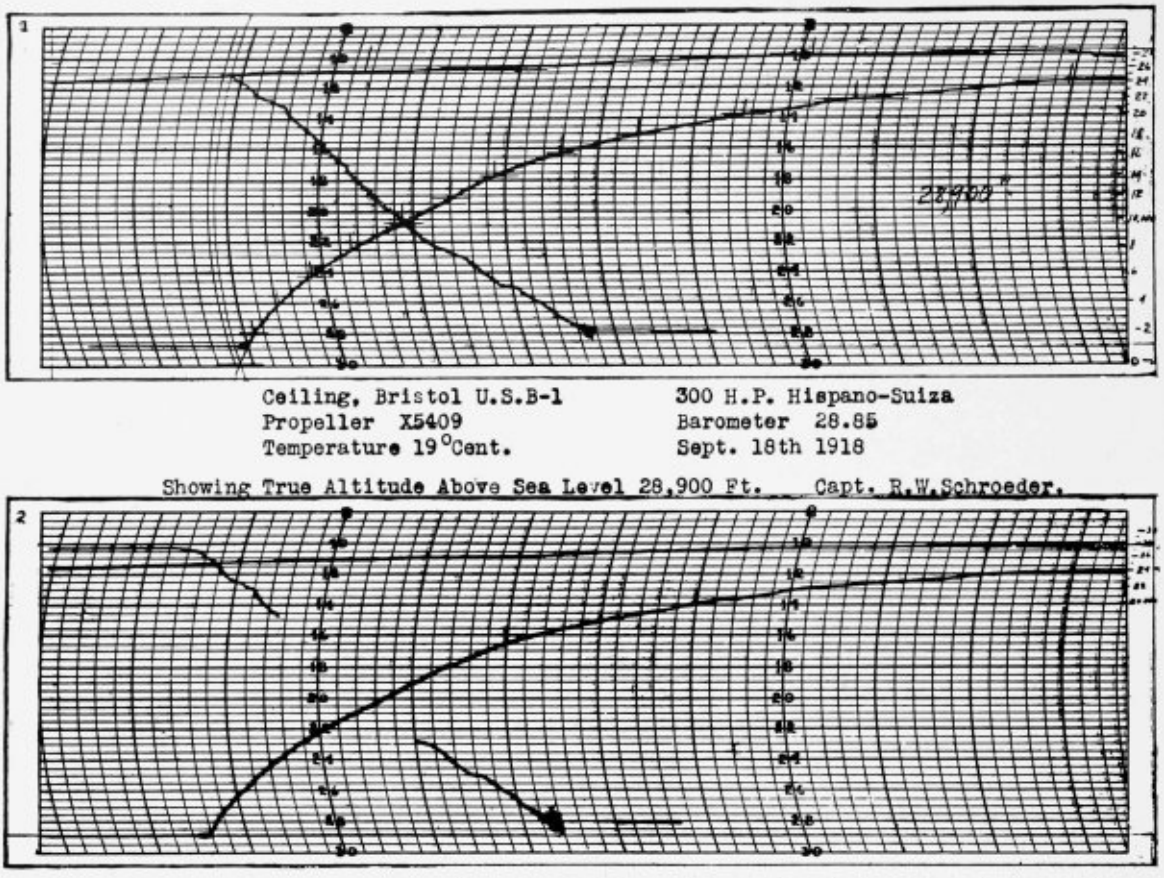
## THE MANUFACTURERS' AIRCRAFT ASSOCIATION

501 Fifth Avenue, New York City.

The Manufacturers' Aircraft Association was organized in 1916.

Glenn H. Curtiss is Honorary President, Frank H. Russell, President, Albert H. Flint, Vice-President, Harry B. Mingle, Treasurer, Benj. L. Foss, Secretary, and Samuel S. Bradley, General Manager.

Further information, not available at date of going to press, will be given in the next edition of THE BLUE BOOK.




Charts showing altitude curve of Major Schroeder's world record altitude flight of 28,900 feet.

## GENERAL RULES APPLYING TO ALL AERONAUTIC RECORDS AND CONTESTS

### TO MAKE RECORDS OFFICIAL

All records to be accepted by the International Aeronautic Federation and the Pan-American Aeronautic Federation must be witnessed by official observers appointed by the national Aero Club of the country in which the record is made. In the United States the national club, sole representative of the International Aeronautic Federation, is the Aero Club of America, whose headquarters are at 297 Madison Avenue, New York City.

Persons desiring to enter for contests or establish records at times other than at regularly organized licensed meets, shall make application in writing to the Secretary of the Aero Club of America for a representative or representatives to supervise the events or trials and, in making the application, shall allow ample time for the journey of the representative or representatives to the place designated for the trial.

No application for a sanction for holding meets or contests shall be considered unless it shall have been received by the Secretary of the Club at least sixty (60) days in advance of the date of opening of the meet for which sanction is desired.

All contests for prizes and trials for records which are under the control of the Aero Club of America shall be held under the supervision of its Contest Committee or a properly appointed representative. All such tests and trials which take place over an aerodrome shall be held during the period between one-half hour before sunrise and one-half hour after sunset, of the day of the trial.

The acceptance of entries for any contest or trial for record is discretionary with the Board of Governors of the Club, and is based on the condition that the applicant, his representative or agent, is bound to accept without appeal, any decision of the Board of Governors on any matter arising from his entry, and the applicant pledges himself, his representative or agent, not to carry any matter arising out of his entry into the courts for review or adjustment.

The Aero Club of America is not responsible for any accident of any nature whatsoever to persons or property that may occur during any event or trial for record under its control, sanction or supervision.

The filing of any entry is *ipso facto* an acceptance by the entrant of the above conditions.

# WORLD'S AVIATION RECORDS TO DEC. 31, 1915

Passed by the Fédération Aéronautique Internationale

## AVIATION

### SPEED—Closed Circuit without Alighting

| Distance | Aviator | Country Holding Record | Date of Record | Time |
|---|---|---|---|---|
| kiloms. | | Aviator only | | h. m. s. |
| 5 | J. Vedrines | U. S. | 9th Sept., 1912 | 0 1 43 2/5 |
| 10 | M. Prevost | France | 29th Sept., 1913 | 0 2 56 3/5 |
| 20 | M. Prevost | France | 29th Sept., 1913 | 0 5 54 1/5 |
| 30 | M. Prevost | France | 29th Sept., 1913 | 0 8 52 1/5 |
| 40 | M. Prevost | France | 29th Sept., 1913 | 0 11 50 1/5 |
| 50 | M. Prevost | France | 29th Sept., 1913 | 0 14 48 1/5 |
| 100 | M. Prevost | France | 29th Sept., 1913 | 0 29 40 |
| 150 | M. Prevost | France | 29th Sept., 1913 | 0 44 38 |
| 200 | M. Prevost | France | 29th Sept., 1913 | 0 59 45 3/5 |
| 250 | J. Vedrines | France | 9th Jan., 1913 | 2 1 53 3/5 |
| 300 | Gobioni | Italy | 28th Mar., 1912 | 2 49 0 |
| 350 | Gilbert | France | 30th Dec., 1912 | 3 26 16 |
| 400 | Gilbert | France | 30th Dec., 1912 | 3 55 27 3/5 |
| 450 | Gilbert | France | 30th Dec., 1912 | 4 24 44 4/5 |
| 500 | Gilbert | France | 30th Dec., 1912 | 4 54 6 1/5 |
| 600 | Gilbert | France | 30th Dec., 1912 | 5 52 38 |
| 700 | Fourny | France | 11th Sept., 1912 | 9 31 1 |
| 800 | Fourny | France | 11th Sept., 1912 | 10 44 45 4/5 |
| 900 | Fourny | France | 11th Sept., 1912 | 11 59 9 3/5 |
| 1,000 | Fourny | France | 11th Sept., 1912 | 13 1 12 |
| | | Aviator and 1 Passenger | | |
| 5 | H. Bier | Austria | 1st Oct., 1912 | 0 2 58 |
| 10 | G. Legagneux | France | 20th July, 1912 | 0 4 24 4/5 |
| 20 | G. Legagneux | France | 20th July, 1912 | 0 8 51 |
| 30 | G. Legagneux | France | 20th July, 1912 | 0 13 18 3/5 |
| 40 | G. Legagneux | France | 20th July, 1912 | 0 17 44 4/5 |
| 50 | G. Legagneux | France | 20th July, 1912 | 0 23 13 |
| 100 | G. Legagneux | France | 20th July, 1912 | 0 34 36 3/5 |
| 150 | G. Legagneux | France | 20th July, 1912 | 1 7 10 |
| 200 | E. Renaux | France | 9th June, 1914 | 1 53 40 |
| 250 | E. Renaux | France | 9th June, 1914 | 2 21 56 |
| 300 | E. Renaux | France | 9th June, 1914 | 2 50 28 |
| 350 | E. Renaux | France | 9th June, 1914 | 3 18 44 1/5 |
| 400 | E. Renaux | France | 9th June, 1914 | 3 47 17 |
| 450 | E. Renaux | France | 9th June, 1914 | 4 15 29 2/5 |
| 500 | E. Renaux | France | 9th June, 1914 | 4 43 16 |
| | | Aviator and 2 Passengers | | |
| 5 | Ch. Nieuport | Austria | 30th June, 1912 | 0 2 52 |
| 10 | Ch. Nieuport | Austria | 30th June, 1912 | 0 5 45 |
| 20 | Ed. Nieuport | France | 9th Mar., 1911 | 0 11 59 3/5 |
| 30 | Ed. Nieuport | France | 9th Mar., 1911 | 0 17 52 3/5 |
| 40 | Ed. Nieuport | France | 9th Mar., 1911 | 0 22 44 2/5 |
| 50 | Ed. Nieuport | France | 9th Mar., 1911 | 0 29 37 2/5 |
| 100 | Ed. Nieuport | France | 9th Mar., 1911 | 0 59 8 |
| | | Aviator and 3 Passengers | | |
| 5 | P. Mendelli | Austria | 16th Aug., 1912 | 0 3 48 |
| 10 | G. Busson | France | 10th Mar., 1911 | 0 6 16 |
| 20 | P. Mendelli | Austria | 16th Aug., 1912 | 0 12 3 |
| 30 | P. Mendelli | Austria | 16th Aug., 1912 | 0 17 37 |
| 40 | P. Mendelli | Austria | 16th Aug., 1912 | 0 23 11 |
| 50 | P. Mendelli | Austria | 16th Aug., 1912 | 0 29 47 |
| 100 | P. Mendelli | Austria | 16th Aug., 1912 | 0 56 33 |
| | | Aviator and 4 Passengers | | |
| 5 | G. Busson | France | 10th Mar., 1911 | 0 3 34 |
| 10 | Garaix | France | 10th June, 1914 | 0 5 27 2/5 |
| 20 | Garaix | France | 10th June, 1914 | 0 11 0 1/5 |
| 30 | Garaix | France | 10th June 1914 | 0 16 32 3/5 |
| 40 | Garaix | France | 10th June, 1914 | 0 22 1 4/5 |
| 50 | Garaix | France | 10th June, 1914 | 0 27 32 4/5 |
| 100 | Garaix | France | 10th June, 1914 | 0 55 12 4/5 |
| 150 | Champel | France | 15th April, 1913 | 1 49 11 4/5 |
| 200 | Champel | France | 15th April, 1913 | 2 25 2 1/5 |
| 250 | Champel | France | 15th April, 1913 | 3 1 17 |
| | | Aviator and 5 Passengers | | |
| 10 | Garaix | France | 10th June, 1914 | 0 5 32 2/5 |
| 20 | Garaix | France | 10th June, 1914 | 0 11 5 2/5 |
| 30 | Garaix | France | 10th June, 1914 | 0 16 39 2/5 |
| 40 | Garaix | France | 10th June, 1914 | 0 22 14 |
| 50 | Garaix | France | 10th June, 1914 | 0 27 47 2/5 |
| 100 | Garaix | France | 10th June, 1914 | 0 56 20 1/5 |
| 150 | Garaix | France | 10th June, 1914 | 1 24 11 1/5 |
| | | Aviator and 6 Passengers | | |
| 10 | Garaix | France | 22nd April, 1914 | 0 5 35 |
| 20 | Garaix | France | 22nd April, 1914 | 0 11 12 1/5 |
| 30 | Garaix | France | 22nd April, 1914 | 0 16 48 4/5 |
| 40 | Garaix | France | 22nd April, 1914 | 0 22 28 1/5 |
| 50 | Garaix | France | 22nd April, 1914 | 0 28 5 2/5 |
| 100 | Garaix | France | 22nd April, 1914 | 0 56 44 |
| | | Aviator and 49 Passengers | | |
| 3 | D. McCulloch | United States | November, 29th 1918 | Speed 115.9 |

*(A record made in England in which forty persons were carried over London and another record made in France in which thirty-five persons were carried over Paris have not been promulgated.)*

### GREATEST SPEED—Closed Circuit without Alighting

| Aviator | Country Holding Record | Date of Record | Speed per Hour in Flight of 5 Kiloms. |
|---|---|---|---|
| | Aviator only | | |
| M. Prevost | France | 29th Sept., 1913 | 203.850 |
| | Aviator and 1 Passenger | | |
| G. Legagneux | France | 20th July, 1912 | 135.952 |
| | Aviator and 2 Passengers | | |
| E. Nieuport | France | 20th July, 1912 | 102.855 |
| | Aviator and 3 Passengers | | |
| P. Mendelli | Austria | 16th Aug., 1912 | 106.029 |
| | Aviator and 4 Passengers | | |
| Garaix | France | 10th June, 1914 | 109.956 |
| | Aviator and 5 Passengers | | |
| Garaix | France | 10th June, 1914 | 108.303 |
| | Aviator and 6 Passengers | | |
| Garaix | France | 22nd April, 1914 | 107.642 |

### DISTANCE—Closed Circuit without Alighting

| Aviator | Country Holding Record | Date of Record | Distance Covered |
|---|---|---|---|
| | Aviator only | | kiloms. |
| A. Seguin | France | 13th Oct., 1913 | 1,021.200 |
| | Aviator and 1 Passenger | | |
| E. Renaux | France | 9th June, 1914 | 500 |
| | Aviator and 2 Passengers | | |
| H. Bier | Austria | 1st Oct., 1911 | 112 |
| | Aviator and 3 Passengers | | |
| Mendelli | Austria | 16th Aug., 1912 | 110 |
| | Aviator and 4 Passengers | | |
| Champel | France | 15th April, 1913 | 250 |
| | Aviator and 5 Passengers | | |
| Garaix | France | 10th June, 1914 | 150 |
| | Aviator and 6 Passengers | | |
| Garaix | France | 22nd April, 1914 | 110 |

DISTANCE—In a Straight Line without Alighting

| | | | | kiloms. |
|---|---|---|---|---|
| | | Aviator and 1 Passenger | | |
| Deroye | Italy | 17th July, | 1913 | 784 |
| | | Aviator and 6 Passengers | | |
| Garaix | France | 22nd April, | 1914 | 110 |

TIME—Closed Circuit without Alighting

| Time | Aviator | Country Holding Record | Date of Record | | Distance |
|---|---|---|---|---|---|
| | | Aviator only | | | |
| hours | | | | | kiloms. |
| 1/4 | M. Prevost | France | 29th Sept., | 1913 | 50 |
| 1/2 | M. Prevost | France | 29th Sept., | 1913 | 100 |
| 1 | M. Prevost | France | 29th Sept., | 1913 | 200 |
| 2 | J. Vedrines | France | 9th Jan., | 1913 | 246.937 |
| 3 | M. Tabuteau | France | 24th Jan., | 1912 | 310.281 |
| 4 | Gilbert | France | 30th Dec., | 1912 | 401.900 |
| 5 | Gilbert | France | 30th Dec., | 1912 | 510 |
| 6 | Bournique | France | 31st Dec., | 1910 | 400 |
| 7 | M. Tabuteau | France | 30th Dec., | 1910 | 522.935 |
| 8 | Fourny | France | 11th Sept., | 1912 | 585.200 |
| 9 | Fourny | France | 11th Sept., | 1912 | 661.200 |
| 10 | Fourny | France | 11th Sept., | 1912 | 744.800 |
| 11 | Fourny | France | 11th Sept., | 1912 | 820.800 |
| 12 | Fourny | France | 11th Sept. | 1912 | 904.400 |
| 13 | Fourny | France | 11th Sept., | 1912 | 980.400 |
| | | Aviator and 1 Passenger | | | |
| 1/4 | G. Legagneux | France | 5th July, | 1912 | 31.020 |
| 1/2 | G. Legagneux | France | 5th July, | 1912 | 66.639 |
| 1 | G. Legagneux | France | 5th July, | 1912 | 133.469 |
| 2 | E. Renaux | France | 9th June, | 1914 | 211.620 |
| 3 | E. Renaux | France | 9th June, | 1914 | 316.228 |
| 4 | E. Renaux | France | 9th June, | 1914 | 422.128 |
| | | Aviator and 3 passengers | | | |
| 1 | P. Mendelli | Austria | 16th Aug., | 1912 | 106.029 |
| | | Aviator and 4 Passengers | | | |
| 1/4 | Garaix | France | 10th June, | 1914 | 26.580 |
| 1/2 | Garaix | France | 10th June, | 1914 | 53.141 |
| 1 | Garaix | France | 10th June, | 1914 | 107.580 |
| 2 | Champel | France | 15th April, | 1913 | 164 |

TIME—Closed Circuit without Alighting

| Time | Aviator | Country Holding Record | Date of Record | | Distance |
|---|---|---|---|---|---|
| | | Aviator and 4 Passengers | | | |
| hours | | | | | kiloms. |
| 3 | Champel | France | 15th April, | 1913 | 247.303 |
| | | Aviator and 6 Passengers | | | |
| 1/4 | Garaix | France | 22nd April, | 1914 | 20 |
| 1/2 | Garaix | France | 22nd April, | 1914 | 50 |
| 1 | Garaix | France | 22nd April, | 1914 | 104.141 |

DURATION—Closed Circuit without Alighting

| Aviator | Country Holding Record | Date of Record | | Time | | |
|---|---|---|---|---|---|---|
| | | Aviator only | | h. | m. | s. |
| W. Landman | Germany | 26-27 June, | 1914 | 21 | 48 | 45 |
| | | Aviator and 1 Passenger | | | | |
| Gaubert | France | 30th Aug., | 1913 | 6 | 42 | 49 3/5 |
| | | Aviator and 2 Passengers | | | | |
| Lt. Byron Q. Jones, U. S. A. | San Diego, Cal. | | | 7 | 5 | |
| | | Aviator and 3 Passengers | | | | |
| Garaix | France | 2nd July, | 1914 | 4 | 3 | 39 4/5 |
| | | Aviator and 4 Passengers | | | | |
| Champel | France | 15th April, | 1913 | 3 | 1 | 17 |
| | | Aviator and 5 Passengers | | | | |
| Garaix | France | 10th June, | 1914 | 1 | 24 | 11 1/5 |
| | | Aviator and 6 Passengers | | | | |
| Garaix | France | 22nd April, | 1914 | 1 | 2 | 25 3/5 |
| | | Aviator and 7 Passengers | | | | |
| L. Noel | Great Britain | 22nd April, | 1913 | 0 | 17 | 25 2/5 |
| | | Aviator and 8 Passengers | | | | |
| Frantz | France | 2nd Mar., | 1913 | 0 | 11 | 28 2/5 |
| | | Aviator and 9 Passengers | | | | |
| L. Noel | Great Britain | 2nd Oct., | 1913 | 0 | 19 | 47 |

ALTITUDE

| | | | | metres |
|---|---|---|---|---|
| | | Aviator only | | |
| Capt. R. W. Schroeder | | | | 9,480 |
| | | Aviator and 1 Passenger | | |
| H. Bier | Austria | 27th June, | 1914 | 6,170 |
| | | Aviator and 2 Passengers | | |
| H. Bier | Austria | 28th June, | 1914 | 5,440 |
| | | Aviator and 3 Passengers | | |
| E. v. Losse | Austria | 27th June, | 1914 | 4,770 |
| | | Aviator and 4 Passengers | | |
| Garaix | France | 25th Feb., | 1914 | 3,050 |
| | | Aviator and 5 Passengers | | |
| Garaix | France | 4th Feb., | 1914 | 2,230 |
| | | Aviator and 6 Passengers | | |
| Garaix | France | 31st Jan., | 1914 | 1,750 |
| | | Aviator and 7 Passengers | | |
| Garaix | France | 17th Mar., | 1914 | 1,600 |
| | | Aviator and 8 Passengers | | |
| Garaix | France | 28th Mar., | 1914 | 1,530 |
| | | Aviator and 9 Passengers | | |
| Garaix | France | 30th Mar., | 1914 | 1,590 |
| | | Aviator and 15 Passengers | | |
| Sykorsky | Russia | 25th April, | 1914 | 300 |

# AMERICAN AVIATION RECORDS

(Checked To December 31, 1915)

## *A. SPEED*

### 1. *Time on a given distance*

*(a) Aviator Alone*

| *Distance* | | | | | | | |
|---|---|---|---|---|---|---|---|
| *Kilom.* | *Miles* | *Holder* | *Place* | *Date* | *Machine* | *Motor* | *Time* |
| 5 | 3.107 | Jules Vedrines | Clearing, Ill. | Sept. 9, 1912 | Deperdussin | 140 Gnome | 1′ 43.38″ |
| 10 | 6.214 | Jules Vedrines | Clearing, Ill. | Sept. 9, 1912 | Deperdussin | 140 Gnome | 3′27.87″ |
| 15 | 9.32 | Jules Vedrines | Clearing, Ill. | Sept. 9, 1912 | Deperdussin | 140 Gnome | 5′11.58″ |
| 20 | 12.427 | Jules Vedrines | Clearing, Ill. | Sept. 9, 1912 | Deperdussin | 140 Gnome | 6′55.95″ |
| 30 | 18.641 | Jules Vedrines | Clearing, Ill. | Serp. 9, 1912 | Deperdussin | 140 Gnome | 10′32.51″ |
| 40 | 24.855 | Jules Vedrines | Clearing, Ill. | Sept. 9, 1912 | Deperdussin | 140 Gnome | 14′ 3.59″ |
| 50 | 31.068 | Jules Vedrines | Celaring, Ill. | Sept. 9, 1912 | Deperdussin | 140 Gnome | 17′34.88″ |
| 100 | 62.137 | Jules Vedrines | Clearing, Ill. | Sept. 9, 1912 | Deperdussin | 140 Gnome | 35′16.65″ |
| 150 | 93.205 | Jules Vedrines | Clearing, Ill. | Sept. 9, 1912 | Deperdussin | 140 Gnome | 53′ 4.73″ |
| 200 | 124.274 | Jules Vedrines | Clearing, Ill. | Sept. 9, 1912 | Deperdussin | 140 Gnome | 1 hr. 10′56.85″ |
| 250 | 155.342 | St. C. Johnstone | Mineola, N. Y. | July 27, 1911 | Moisant | 50 Gnome | 3 hr. 32′562/5″ |

*(b) Aviator and One Passenger*

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 10 | 6.214 | C. Grahame-White | Nassau Boulevard, N. Y. | Sept. 30, 1911 | Nieuport | 70 Gnome | 6′13 2/5″ |
| 20 | 12.427 | C. Grahame-White | Nassau Boulevard, N. Y. | Sept. 30, 1911 | Nieuport | 70 Gnome | 12′26 3/5″ |
| 30 | 18.641 | C. Grahame-White | Nassau Boulevard, N. Y. | Sept. 30, 1911 | Nieuport | 70 Ghome | 18′42″ |
| 40 | 24.855 | C. Grahame-White | Nassau Boulevard, N. Y. | Sept. 30, 1911 | Nieuport | 70 Gnome | 24′49 4/5′, |
| 50 | 31.068 | C. Grahame-White | Nassau Boulevard, N. Y. | Sept. 30, 1911 | Nieuport | 70 Gnome | 31′01 3/5′, |

*(c) Aviator and Two Passengers*

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 5 | 3.107 | T. O. M. Sopwith | Chicago, Ill. | Aug. 15, 1911 | Wright | 30 Wright | 6′56 2/5″ |

2. *Distance in a given time.*

*(a) Aviator alone*

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 40 | 24.855 | Jules Vedrines | Chicago, Ill. | Sept. 9, 1912 | Deperdussin | 140 Gnome | 15′ |
| 80 | 49.7 | Jules Vedrines | Chicago, Ill. | Sept. 9, 1912 | Deperdussin | 140 Gnome | 30′ |
| 166.6 | 103.5 | Jules Vedrines | Chicago, Ill. | Sept. 9, 1912 | Deperdussin | 140 Gnome | 1 hr. |
| 141.97 | 88.216 | St. C. Johnstone | Mineola, N. Y. | July 27, 1911 | Moisant | 50 Gnome | 2 hrs. |
| 214.57 | 133.327 | St. C. Johnstone | Mineola, N. Y. | July 27, 1911 | Moisant | 50 Gnome | 3 hrs. |
| 283.628 | 176.238 | St. C. Johnstone | Mineola, N. Y. | July 27, 1911 | Moisant | 50 Gnome | 4 hrs. |

*(b) Aviator and One Passenger*

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 24.14 | 15 | C. Grahame- White | Squantum, Mass. | Sept. 4, 1911 | Nieuport | 70 Gnome | 15′ |
| 36.24 | 30 | C. Grahame- White | Nassau Boulevard, N. Y. | Sept. 30, 1911 | Nieuport | 70 Gnome | 30, |

3. *Greatest speed obtained, whatever the length of the flight*

*(a) Aviator Alone*

| *Holder* | *Place* | *Date* | *Machine* | *Motor* | *Speed per Hour* *Kilom.* | *Miles* |
|---|---|---|---|---|---|---|
| Jules Vedrines | Chicago, Ill. | Sept. 9, 1912 | Deperdussin | 140 Gnome | 174.1 | 108.18 |

*(b) Aviator and One Passenger*

| | | | | | | |
|---|---|---|---|---|---|---|
| C. Grahame-White | Squantum, Mass. | Sept. 4, 1911 | Nieuport | 70 Gnome | 101.762 | 63.232 |

*(c) Aviator and Two Passengers*

| | | | | | | |
|---|---|---|---|---|---|---|
| T. O. M. Sopwith | Chicago, Ill. | Aug. 15, 1911 | Wright | 30 Wright | 56.263 | 34.96 |

## *B. GREATEST DISTANCE*

*Aviator Alone*

| | | | | | |
|---|---|---|---|---|---|
| W. C. Robinson | Des Moines, Ia., to Kentland, Ind. | Oct. 17, 1914 | Parasol type | Robinson Radial | 535.300 miles 332 |

## *DISTANCE CLOSED CIRCUIT*

*Aviator and Five Passengers*

| | | | | | |
|---|---|---|---|---|---|
| T. C. Macaulay | Newport News, Va. Point Lookout and return | May 4, 1916 | Curtiss | Curtiss | 154 08 miles |

## *C. DURATION*

*(a) Aviator Alone*

| | | | | | |
|---|---|---|---|---|---|
| Lt. Byron Q. Jones, U.S.A., | San Diego, Cal. | Jan. 15, 1915 | | | 8 hrs. 53′ |

*(b) Aviator and One Passenger*

| | | | | | |
|---|---|---|---|---|---|
| Lieut T. F. Dodd, U.S.A., | San Diego to Burbank, Cal. | Feb. 14, 1914 | Burgess-Tractor biplane | 70 Renault | 4 hrs. 43′ |

*(c) Aviator and Two Passengers*

| | | | | | |
|---|---|---|---|---|---|
| Lt. Byron Q. Jones, U.S.A. | San Diego | March 12, 1915 | | | 7 hrs. 5′* |

## *D. ALTITUDE*

1. *Greatest Altitude*

*(a) Aviator Alone*

| | | | | | *Altitude Attained* |
|---|---|---|---|---|---|
| Capt. R. A. Schroeder | Sept. 18, 1918 | Bristol Fighter | 300 h.p. Hispano | Suiza | 27,000 |

*(b) Aviator and One Passenger*

| | | | | | |
|---|---|---|---|---|---|
| Victor Carlstrom | Newport News, Va. | April 30, 1916 | Curtiss Tractor | Curtiss Ox | 16,225 |

*Aviator and Two Passengers*

| | | | | | |
|---|---|---|---|---|---|
| Victor Carlstrom | Newport News, Va. | April 19, 1916 | Curtiss Tractor | Curtiss Ox | 11,180 |

*Aviator and Three Passengers*

| | | | | | |
|---|---|---|---|---|---|
| R. V. Morris | Buffalo, N. Y. | Aug. 10, 1915 | | | 8,105 |

2. *Climbing. (Upward Vertical Speed)*

*(a) Aviator Alone*

| | | | | | *Altitude* *Meters* | *Time* |
|---|---|---|---|---|---|---|
| R. Simon and T. O. M. Sopwith (tie) | Chicago, Ill. | Aug. 19, 1911 | Blériots Simon Sopwith | 50 Gnome 70 Gnome | 500* (1,640 ft.) | 3′35″ |

*(b) Aviator and One Passenger*

| | | | | | | |
|---|---|---|---|---|---|---|
| C. Grahame- White | Nassau Boulevard, N. Y. | Sept. 30, 1911 | Nieuport | 70 Gnome | 1,000 * (3,280 ft.) | 9 min. |

## *E. ALIGHTING*

| | | | | *Distance from mark* |
|---|---|---|---|---|
| T. O. M. Sopwith | Nassau Boulevard, N. Y. | July 22, 1911 | H. Wright biplane (Farman-type) 60 h.p.E.N.V. | 1 ft. 5½ in. |

## *F. WEIGHT CARRYING*

| | | | | | *Weight* |
|---|---|---|---|---|---|
| P. O. Parmelee | Chicago, Ill | Aug. 19, 1911 | Wright | 30 Wright motor | 458 lbs. |

**World's Records*

## CROSS COUNTRY

*DISTANCE*

(a) *Aviator Alone*

| *Holder* | *Place* | *Date* | *Machine* | *Motor* | *Distance Covered Miles* |
|---|---|---|---|---|---|
| Catherine Stinson | Chicago-Binghamton N. Y. | May 23, 1918 | Curtiss | | 601,763 |

(b) *Aviator and One Passenger*

| | | | | | |
|---|---|---|---|---|---|
| Victor Carlstrom | Newport News, Va. to Sheepshead Bay, N. Y. | May 20, 1916 | Curtiss Tractor | Curtiss Ox | 283.02 |

*DURATION*

(a) *Aviator Alone*

| *Holder* | *Place* | *Date* | *Machine* | *Motor* | *Time* |
|---|---|---|---|---|---|
| Catherine Stinson | Binghamton, N. Y. | May 23rd 1916 | Curtiss | Curtiss | 10 hr. 10 min. |

(b) *Aviator and One Passenger*

| | | | | | |
|---|---|---|---|---|---|
| Lt. T. F. Dodd, U.S.A. | San Diego to Burbank, Cal. | Feb. 14, 1914. | Burgess Tractor biplane | 70 Gnome | 4 hrs. 43′ |

## AEROSTATS (Spherical Balloons)

*Distance*

| *Holder* | *Voyage* | *Date* | *Distance—Kilo.* |
|---|---|---|---|
| A. R. Hawley | St. Louis to Lake Tchotogama (Peribonka) River, Quebec | Oct. 17-19, 1910 | 1887.6 (1172.9 miles) |

*Duration*

| | | | |
|---|---|---|---|
| C. B. Harmon | St. Louis to Edina, Mo. | Oct. 4, 1909 | 48 hrs. 26′ |

## HYDROAEROPLANE RECORDS

*DISTANCE*

*Aviator and One Passenger*

| | | | | |
|---|---|---|---|---|
| Lawrence B. Sperry | Brooklyn Navy Yard to Ossining and Return | Jan. 20, 1915 | Curtiss Flying Boat | 60 |

*Aviator and Two Passengers*

| | | | | |
|---|---|---|---|---|
| Adolph G. Sutro | San Francisco Bay, Cal. | Sept. 28, 1913 | Sutro Hydro—biplane type | 33½ |

*Pilot and Four Passengers*

| | | | | |
|---|---|---|---|---|
| J. C. Macaulay | Newport News to Baltimore, Md. | | May, 6, 1916 | 178.3 |

*DURATION*

*Aviator Alone*

| | | | | |
|---|---|---|---|---|
| Corpl. A. D. Smith, S. C. | San Diego, Cal. | Feb. 19, 1916 | Martin Hydro 120 H.P. Hall Scott Motor | 8 hrs., 42 mins. |

*Aviator and One Passenger*

| | | | | *Time* |
|---|---|---|---|---|
| Lawrence B. Sperry | Brooklyn Navy Yard to Ossining and Return | Jan. 20, 1915 | Curtiss Flying Boat | 1 hr. 25′ 4 |

*Aviator and Two Passengers*

| | | | | |
|---|---|---|---|---|
| J. C. Macaulay | | | May 16, 1916 | 3 hr. 1 min. |

*Aviator and Four Passengers*

| | | | | |
|---|---|---|---|---|
| Adolph G. Sutro | San Francisco Bay, Cal. | Sept. 28, 1913 | Sutro Hydro—Biplane type | 1 hr. 15′35″ |

*Aviator and Five Passengers*

| | | | | |
|---|---|---|---|---|
| T. C. Macaulay | Newport News, Va. | May 4, 1916 | Curtiss Flying Boat | 2 hrs., 23 mins. |

*ALTITUDE*

*Aviator Alone*

| | | | | |
|---|---|---|---|---|
| *Lt. R. C. Saufley | Pensacola, Fla. | March 29, 1916 | Curtiss Hydroaeroplane | 16,010 ft. |

*Aviator and One Passenger*

| | | | | |
|---|---|---|---|---|
| Caleb Bragg | Port Washington | Sept. 19, 1917 | Wright Martin | 139.50 |

*Aviator and Two Passengers*

| | | | | |
|---|---|---|---|---|
| Caleb Bragg | Port Washington | August 25, 1917 | Wright Martin Flying Boat | 12,900 ft. |

*Aviator and Three Passengers*

| | | | | |
|---|---|---|---|---|
| Floyd Smith | North Island, Cal. | Feb. 15, 1916 | Martin Hydro | 9,603 ft. |

*Aviator and Six Passengers*

| | | | | |
|---|---|---|---|---|
| T. C. Macaulay | Newport News, Va. | May 4, 1916 | Curtiss Flying Boat | 775 ft. |

*Aviator and Five Passengers*

| | | | | |
|---|---|---|---|---|
| T. C. Macaulay | Newport News, Va. | April 30, 1916 | Curtiss Flying Boat | 875 ft. |

**Deceased*

## World's Model Flying Records

(TWIN PROPELLER PUSHER TYPE MODELS)

*Monoplane*

Year 1916. Thomas Hall (America), hand launched, distance 5337 feet.

Year 1915. Wallace A. Lauder (America), hand launched, distance 3537 feet.

Year 1915. Wallace A. Lauder (America), hand launched, duration 195 seconds.

Year 1914. Fred Watkins (America), rise off ground, distance 1761 feet.

Year 1914. J. E. Louch (England), rise off ground, duration 169 seconds.

Year 1915. E. C. Cook (America), rise off water, duration 100 seconds.

(TWIN PROPELLER TRACTOR TYPE)

*Monoplane*

Year 1913. Harry Herzog (America), rise off water, duration 28 seconds.

(TWIN PROPELLER PUSHER TYPE)

*Biplane*

Year 1915. A. H. Wheeler (America), rise off ground, duration 143 seconds.

(SINGLE PROPELLER PUSHER TYPE)

*Monoplane*

Year 1914. J. E. Louch (England), hand launched, duration 95 seconds.

Year 1914. W. E. Evans (England), rise from ground, distance 870 feet.

Year 1914. J. E. Louch (England), rise from ground, duration 68 seconds.

Year 1914. L. H. Slatter (England), rise from water, duration 35 seconds.

(SINGLE PROPELLER TRACTOR TYPE)

*Monoplane*

Year 1915. D. Lathrop (America), hand launched, distance 1039 feet.

Year 1915. D. Lathrop (America), hand launched, duration 240 seconds.

Year 1914. C. D. Dutton (England), rise from ground, distance 570 feet.

Year 1914. J. E. Louch (England), rise from ground, duration 94 seconds.

Year 1915. L. Hittle (America), rise from water, duration 116 seconds.

(SINGLE PROPELLER TRACTOR TYPE)

*Biplane*

Year 1915. Laird Hall (America), rise from ground, duration 76 seconds.

(FLYING BOAT TYPE)

*Monoplane*

Year 1915. Robert LaTour (America), rise from water, duration 43 seconds.

(FLYING BOAT TYPE)

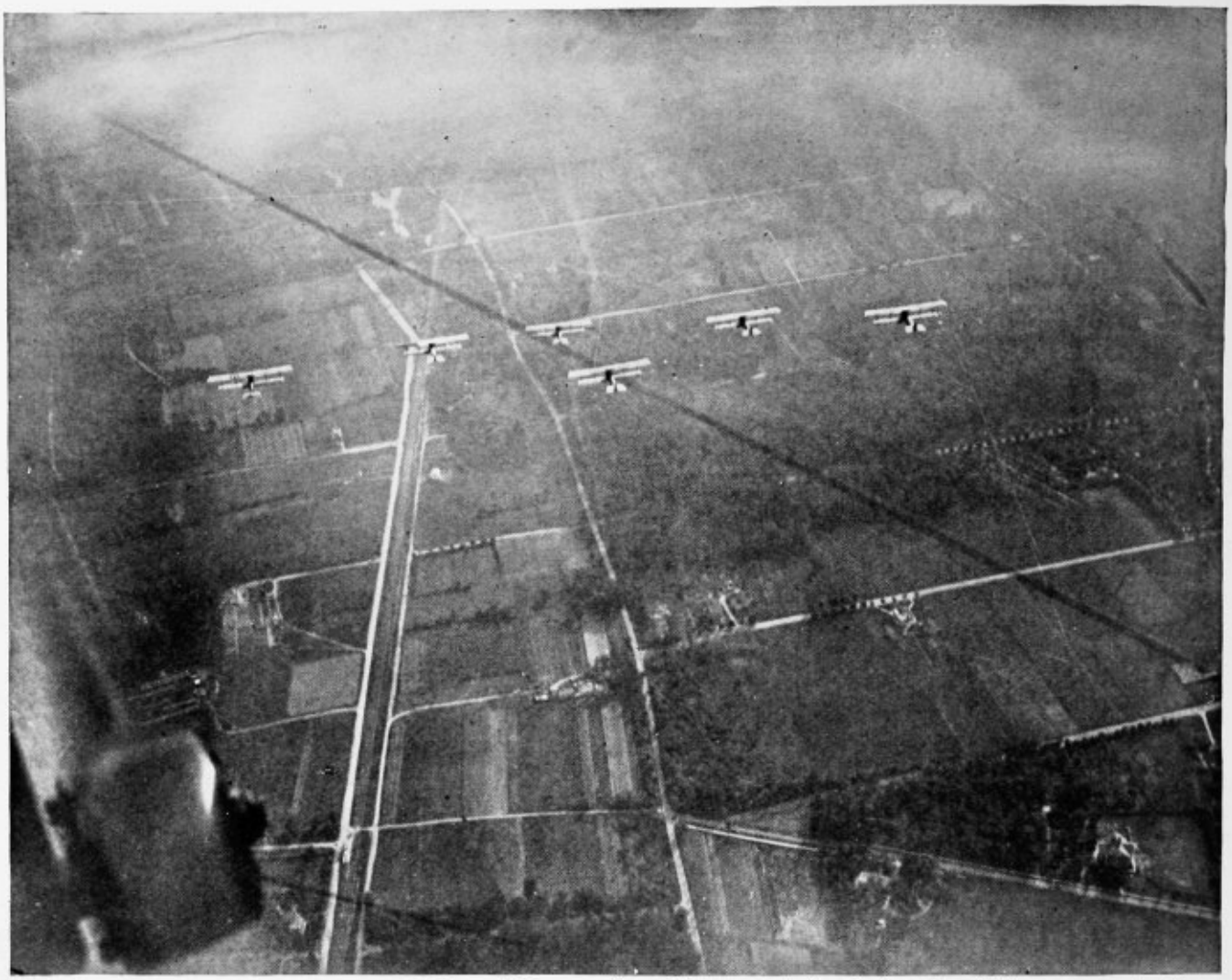
*Biplane*

Year 1914. C. V. Obst (America), rise from water, duration 27 seconds.

(MECHANICAL DRIVEN MODEL)

Year 1914. D. Stanger (England), rise from ground, duration 51 seconds.

(All British records are quoted from *Flight*.)



Now that hundreds of planes are used daily, and the age of aerial transportation is dawning, it is necessary to formulate aerial laws to govern aerial transportation.

## AERIAL LAWS

The subject of aerial laws is a very extensive, as well as a new subject. A complete discussion of the subject, with the Aerial Navigation Acts of different countries, legal precedents covering various phases of the subject, definition of the status of international, national and state aerial laws and aerial rights and other phases of this very important subject are given in the forthcoming "Textbook of Aerial Laws."

Elsewhere in this book are given the rules and regulations promulgated by the International Aeronautic Federation, which govern international aeronautic sports and contests. The rules for flying issued by the British military authorities and the regulations for flying at naval aviation stations are to be found on pages 78 to 85 of the "Textbook of Naval Aeronautics" (Century Co., New York City).

The creation of a substantial permanent committee to draft a series of laws covering national and international aerial navigation was authorized in December, 1918, by the Board of Governors of the Aero Club of America.

This was done upon the recommendation of the temporary committee of the Club, which reported to the Board of Governors to-day, urging prompt action.

This subject has been studied and followed by a committee of the Club, consisting of the Hon. Murray Hulbert, Director of the Port of New York; Alan R. Hawley; W. W. Miller; Rear Admiral Robert E. Peary; Rear Admiral Bradley A. Fiske; Henry A. Wise Wood; Henry Woodhouse; Alberto Santos-Dumont; John Hays Hammond, Jr.; W. W. Young; Colonel E. Lester Jones; Emerson McMillin; Charles Jerome Edwards; Augustus Post.

Members of this committee have followed every phase of development of aerial laws in Europe, and have had opportunity to study the effectiveness of the British Aerial Navigation Acts of 1911 and 1913, as well as the French, Italian and German aerial laws.

They have also studied the problems of national aerial navigation and have come to definite conclusions as to the necessity of having federal registration of aircraft, which they believe should be similar to the federal registration of ships.

The committee points out that all aerial navigation acts of European nations were intended to restrict the circulation and use of aircraft. They were essentially military measures, restricting aerial navigation to certain definite zones within nations.

What must be done now is to shape laws to govern international aerial navigation based on broad fundamental principles which will meet the conditions arising from the general use of large aircraft for the transportation of mail, express and passengers, as well as international air travel. It is pointed out that unless attention is given to this subject now, there is danger that half measures or restrictive laws may be adopted, and there is even danger of states adopting state registration laws, which would be absurd, since aircraft travel so fast that their employment for flying across the continent will soon be common. Therefore federal registration is recommended.

## RULES OF THE AIR FOR FLYING OVER LAND

1. Machines meeting must pass each other left wing to left wing.

2. A machine diving or overtaking another machine must keep out of the way of the lower or slower machine, as the case may be.

3. *Machines Crossing.*
The machine which has the other machine on its right-hand forward quarter must give way.

4. A machine landing has the right of way over a machine on the ground. After he has landed, the pilot must look around before taxi-ing to see that he does not obstruct the landing of some other machine.

5. A machine which has its engine shut off and landing has the right of way over a machine flying with his engine on.

6. Near aerodromes, machines landing must keep a sharp lookout on their forward right-hand quarter for other machines but it must be distinctly understood that Rule 5 takes precedence over Rule 3.

7. *Machines Taking Off.*
Pilots, when taking off, are responsible for seeing that in doing so they do not obstruct the landing of another machine, and are cautioned to make certain that they have a clear field ahead.

8. *Taking Off.*
No machine will turn until clear of the aerodrome.

9. *Machines Taking Off and Landing.*
All machines will take off and land into the wind, on aerodromes.

10. *Flying Around Aerodrome.*
No machines will cross the aerodrome under 4,000 feet. All advanced flying such as spirals, etc. will be done well outside the circuit of machines; this applies up to 4,000 feet.

11. *Circuits.*
All Pilots must obey the rules regarding the right and left hand circuits; this applies up to 4,000 feet.
A red flag means right-hand circuits, and a blue flag means left-hand circuit.

12. No machine may turn while over aerodrome, or cross it except over 4,000 feet.

13. Zooming is a dangerous stunt, and will not be done by any one unless having sufficient height.

14. Pupils will not go beyond gliding distance of the aerodrome without special permission from their instructor.

15. *Stopping Engine.*
No Pilot, under any circumstances, must leave Pilot's seat while engine is running.

16. No machine will taxi faster than a walk at any time.

17. No pupil will take up an aeroplane without orders from an Instructor.

18. No machine will be flown out of gliding distance of land. No machines, under any circumstances, will fly over any cities or towns under 3,000 feet.

19. A Safety Belt should always be worn, properly fastened.

## RULES OF THE AIR FOR MARINE FLYING

*(Based upon existing nautical practice)*

1. When, on surface, two machines meet head on each shall steer to the right, and pass on the left-hand side of the other.

2. When one machine is on surface and the other is off surface the machine on the lower level shall have right of way.

3. When two machines meet obliquely on the same level, whether on surface or off surface, the one having the other on the left hand shall have right of way.

4. When two machines are moving parallel over open water or good country, the one nearest an obstruction shall be given plenty of room.

5. A machine which is gliding shall have right of way over a machine in normal flight; or over a machine under control which is moving on surface.

6. In normal flight the machine below shall have right of way, excepting only when the machine above is gliding. (A gliding machine may be a disabled machine.) *It is urged upon water flyers that they adopt the muffler without delay, in order that the Government blast-code, which follows, may become effective.*

One short blast (of whistle or horn) signifies intention of or assent to pilot first giving the signal to direct his course to his right-hand side; except when two craft (air or water) are approaching each other at right angles or obliquely, when it signifies intention of pilot who is to the right hand of the other to hold his own course and speed.

Two short blasts signify intention of or assent to pilot first giving the signal to direct his course to his left-hand side; except when two craft are approaching each other at right angles or obliquely, when they signify desire of or assent to the pilot who is to the left hand of the other to cross his bow.

Three short blasts mean, "My engines are going at full speed astern"—obviously, a rule of little use to the aviator but one which should be understood when heard.

Three long blasts signify a salute; which is answered with three similar blasts.

Four or more short blasts signify that the craft giving it fails to understand the intention or course of another—this is the danger signal.

In thick weather a power craft under way shall sound a prolonged blast at intervals of not more than one minute; if at anchor it shall ring a bell rapidly for five seconds at intervals of not more than one minute.

*A life belt should be provided for each person aboard a hydraeroplane; and means for extinguishing a gasoline fire should always be carried.*

## AERONAUTIC MAPS

Aeronautic maps are divided into five categories, as follows:

(1) The large wall map showing the eight American Airways, giving the names of all the communities located on the Airways, showing also the actual and the proposed aerial mail lines and the Canadian Airways and Air Routes. This map is most accurate, being based on Government Maps and containing the results of the latest surveys. It is mounted on cloth and is suitable for hanging on the walls of offices, stores, clubs, railroad and steamship stations, banks and schoolrooms.

(2) The maps of the American and Canadian Airways, identical with the map of the Woodrow Wilson Airway, reproduced on pages 9 to 15 of this book.

Each Airway represents a zone eighty miles in width, extending across the continent or coastal.

The Airway zone extends forty miles on each side of the line, so the air traveler can reach the extreme part of either side of the zone in half hour flying. Any city or community located within this eighty miles belt is designated as being on that Airway.

As fast as aerodromes, aerial mail stations, and emergency landing places are established, they will be marked on the maps in red as follows:

Aerodrome, where hangars, repair shops, etc., exist, red square. If equipped with lights for night flying, a beacon is added.

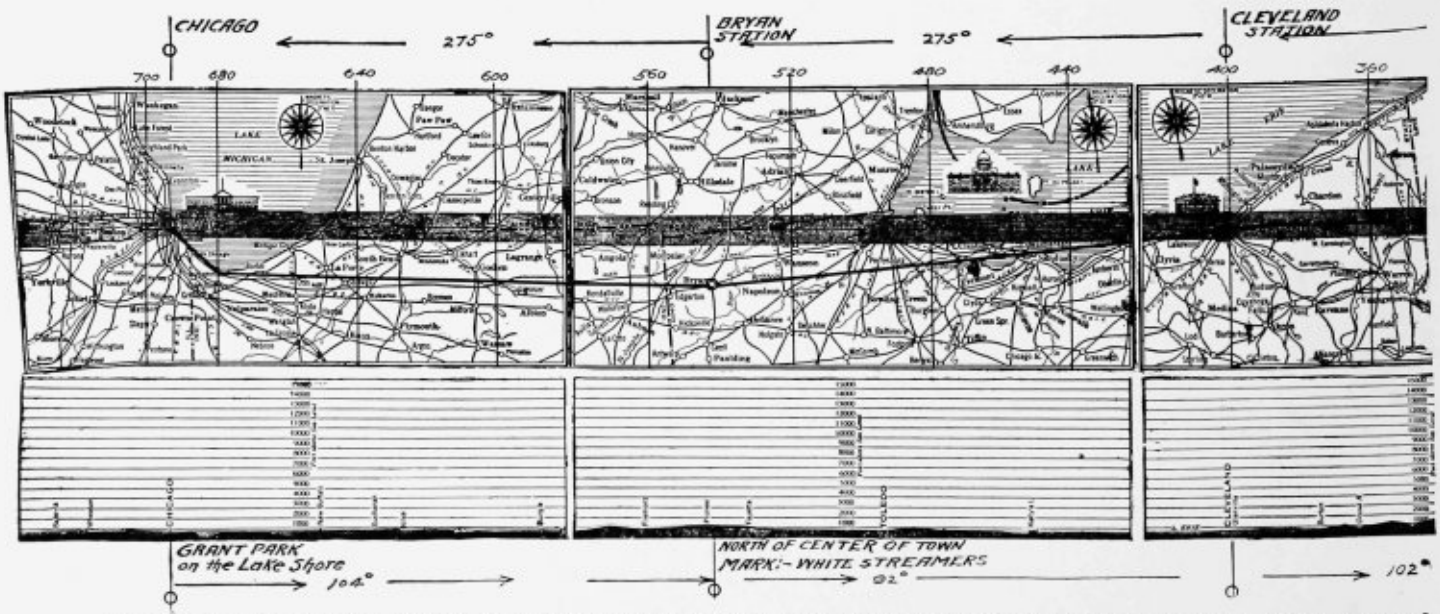
Aerial Mail Station, red triangle.

Emergency landing places where gasoline can be obtained, red circle.

Landing fields with 500 yards landing space marked with "landing" arrows, bearing the name of the city, black square.

Landing fields of about 1000 yards in size, marked having flood lights for night landings, black rectangle with a beacon.

These maps are made on a suitable scale which shows on the map to the aviator who is




A reduced section of the Woodrow Wilson Airway Map used by the aviators in the New York-Cleveland-Chicago and Airway shown on pages 9 to 25 was used. The route to be followed was traced on the map with red ink, the compass

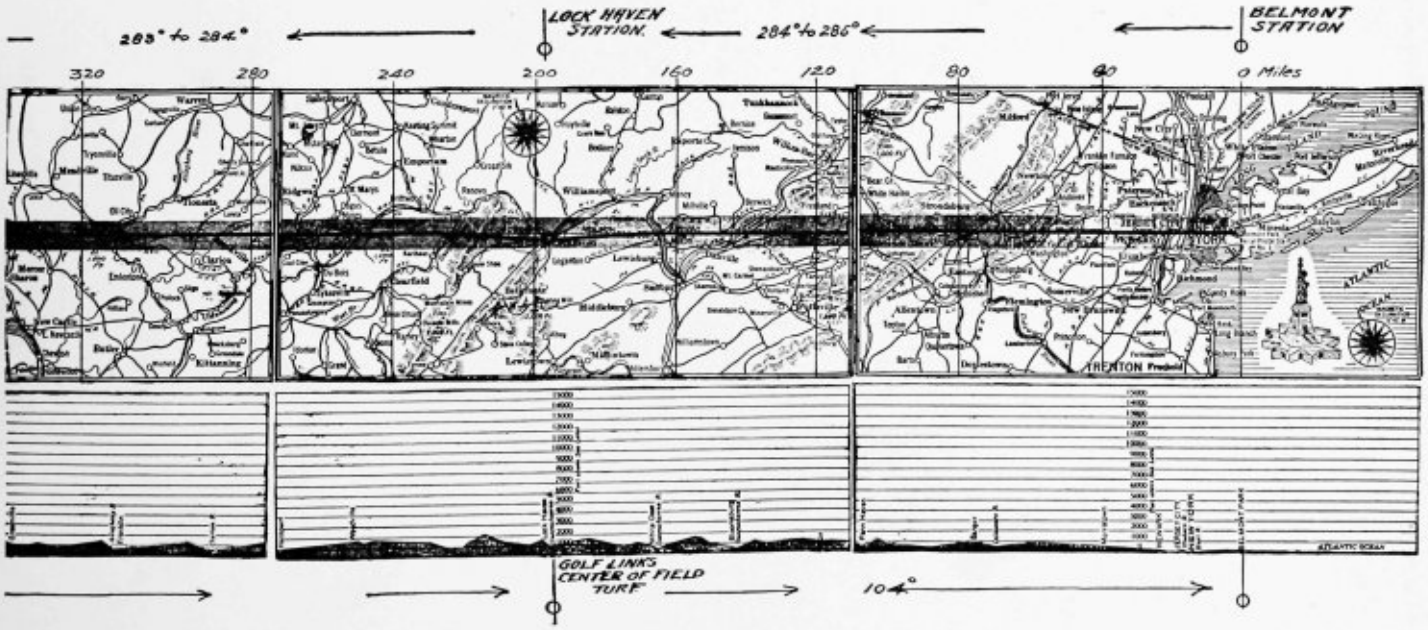
Getting ready to fly over the South of Tachepi Pass, California. Lieut. Col. Emmons, Colonel Hensley, Major Stevenot, Lieuts. Hawkins, H. C. Kenly, W. L. Kenley, Buffington and Mr. Robbins in the trip from Mother Field to Arcadia, California

traveling at a speed of from 80 to 100 miles an hour, at an altitude of from 4000 to 6000 feet, what he sees below, forty miles on each side and one hundred miles ahead. This map prevents the aviator from becoming confused by too many details, which is the case when he uses maps giving a lot of details.

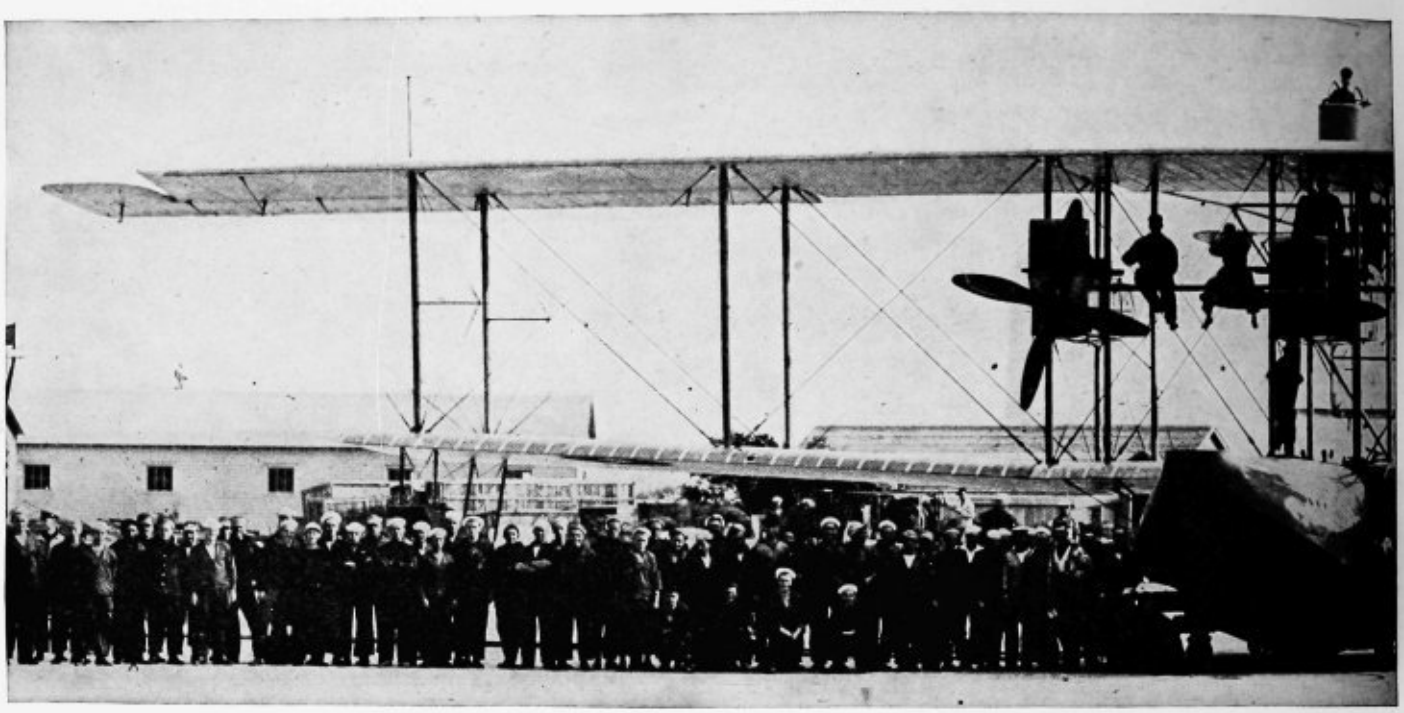
These maps give the ground elevations, principal landmarks, compass directions, etc. They have been pronounced by U. S. Army, Navy and Aerial Mail aviators as being most efficient.

These maps are supplied by the Aeronautic Maps Association of 299 Madison Avenue, New York City, owners of the copyright, who also supply special map-holders light in weight, water-proof, which fasten to the aviator's knee or to the arm.

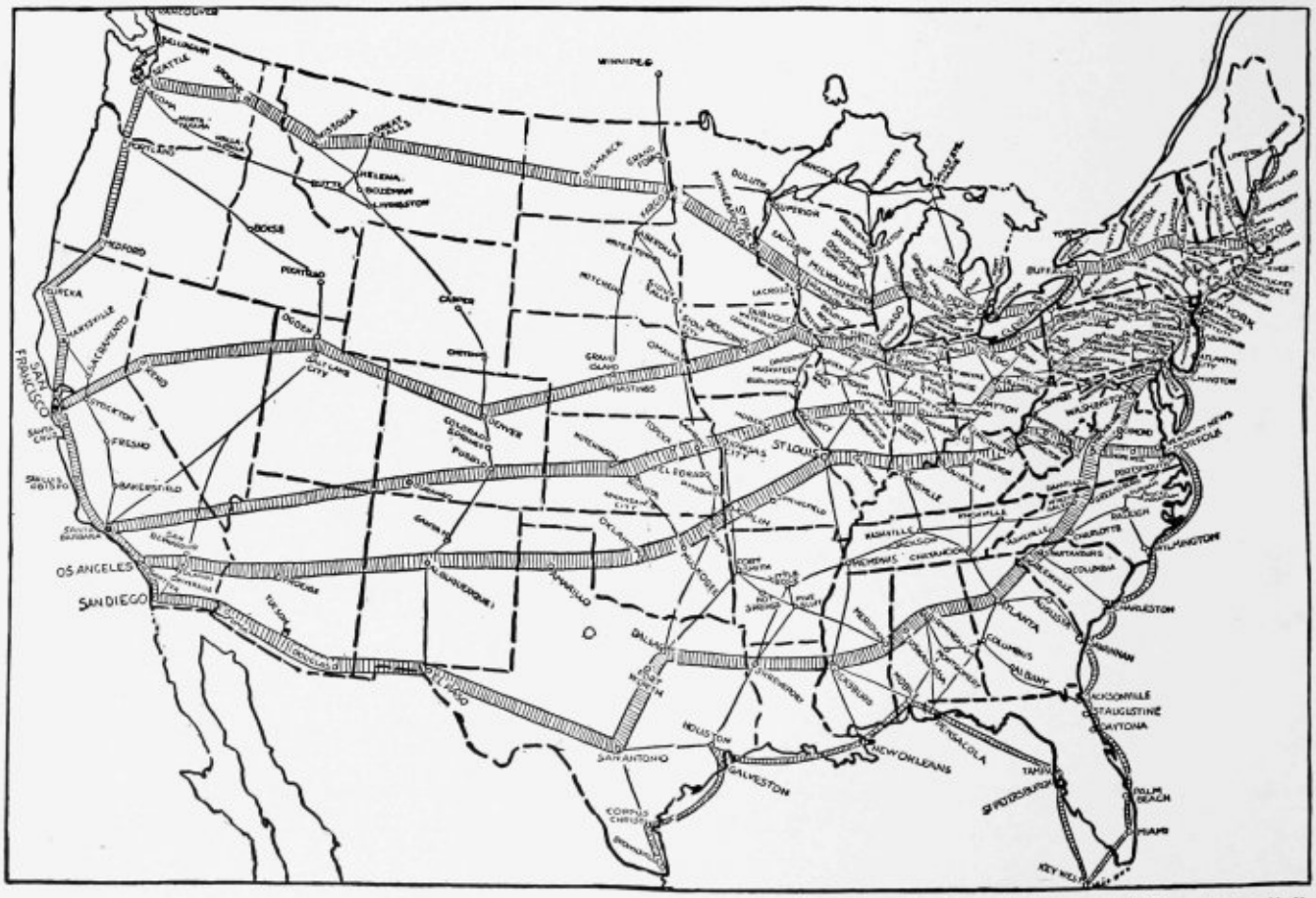
(3) Maps of air routes being established and




return aerial mail flights, which extends from New York to San Francisco. The special map of the Woodrow Wilson directions were written on top for the trip to Chicago and under the map for the return.
299 Madison Ave., New York City.

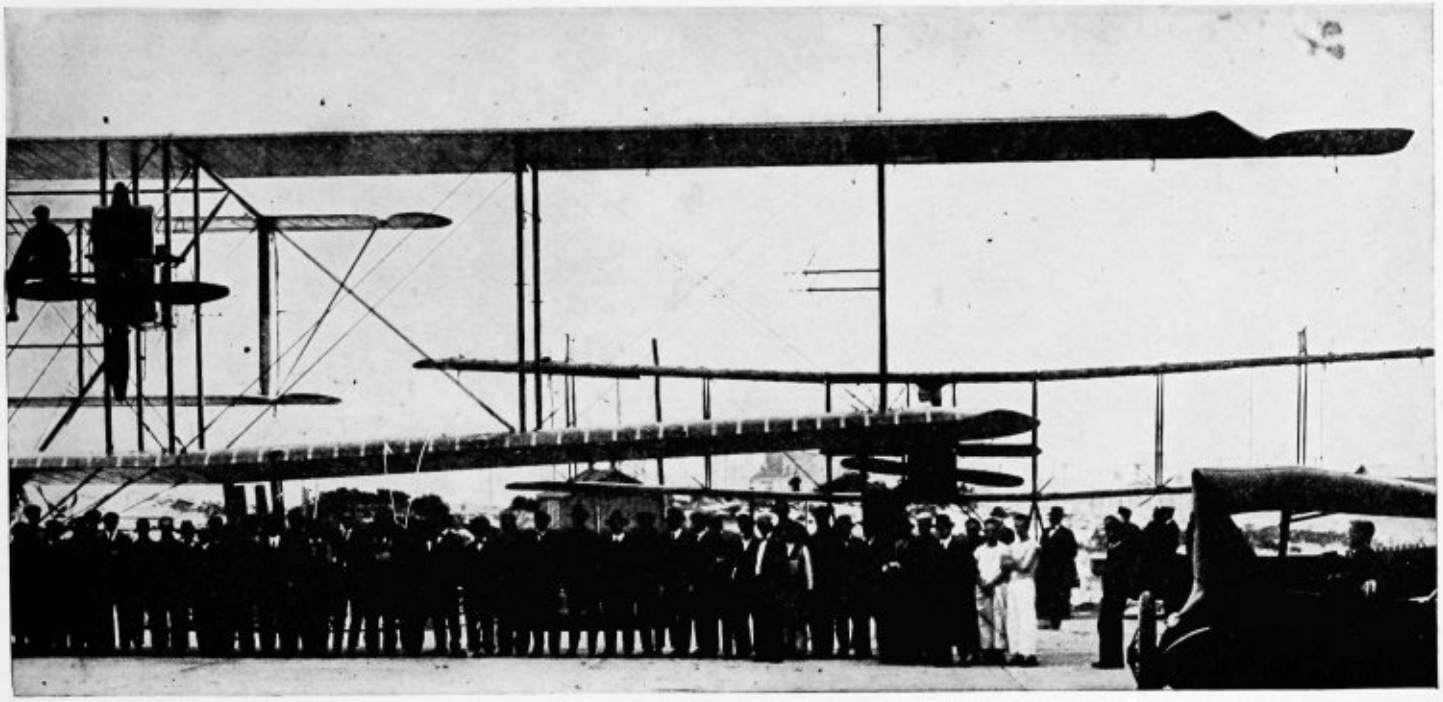


The Curtiss U. S. N. C. 1. flying boat which carried 51






An outline map of the United States showing the Airways.



passengers on November 27, 1918, breaking the world record.

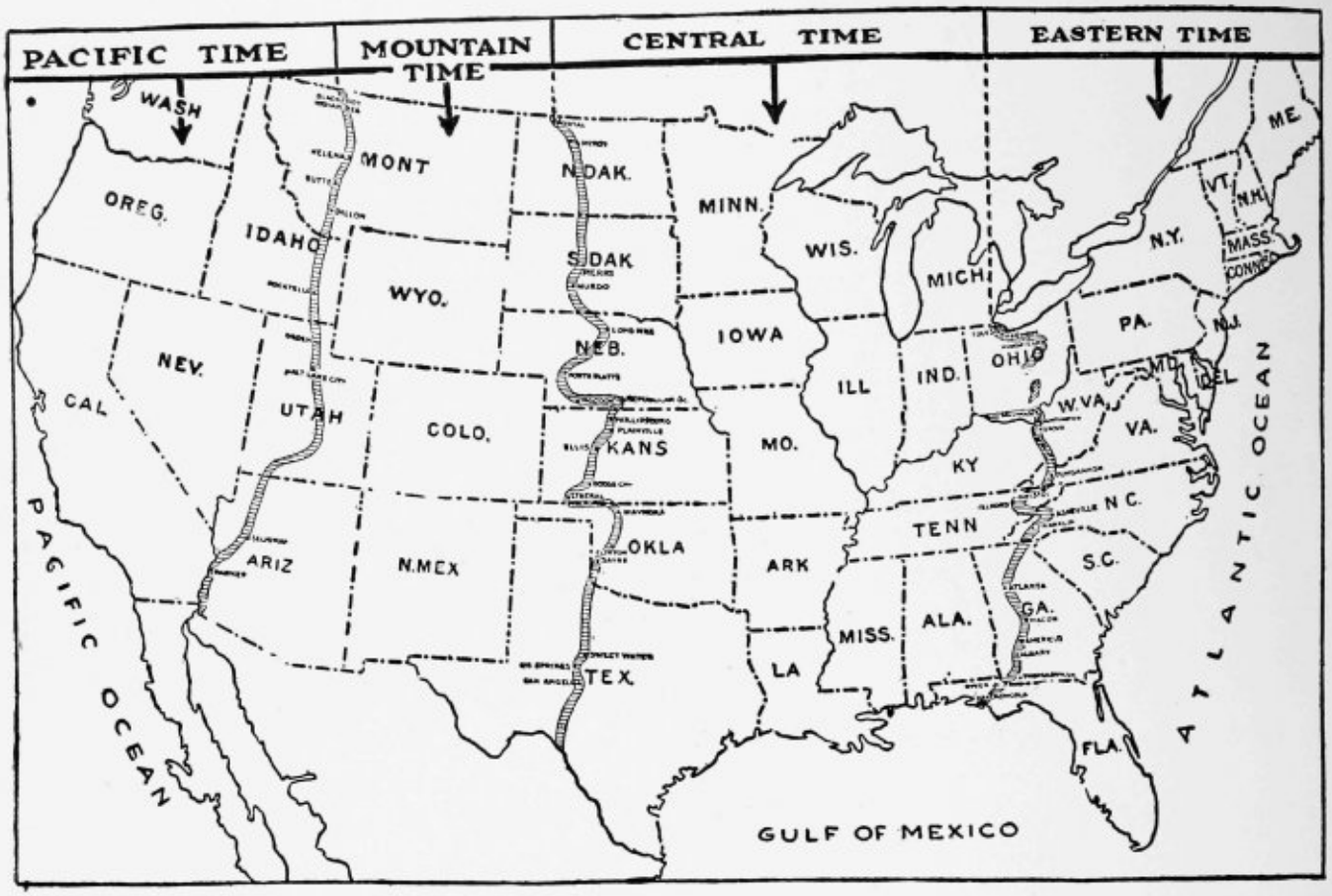
to be established from time to time. These maps are made on the plan of the maps of the airways.

(4) Special maps illuminated by lights or radio composition, for use in night flying (patents applied for). These maps will be most useful for long distance night flights, giving the aviator practically an illuminated reproduction of his course, showing the night lights of different cities and the signals of different landing places.

(5) Map of the World's Proposed Airways and Air Routes:

This large wall map shows all the airways and air routes authorized and proposed by the different governments and aeronautic bodies. It is a most fascinating map, giving a broad view of the aeronautic developments of the near future.

This map is based on the official nautical maps and gives the world's ship lines as well as the world's airways and air routes.




## NEW STANDARD TIME DIVISIONS

New and official boundaries for time zones in the United States, unifying existing lines and moving them slightly westward, became effective at 2 A. M. January 1, 1919.

This order is pursuant to the daylight saving act, which in addition to authorizing advance of the clock during the summer provided for permanent United States standard time, and required the commission to define the limits of the standard time zones which previously had been fixed only by custom of cross continent railroad or by local law.

The line fixed by the commission separating the eastern and central time zones, beginning at the great lakes, follows the boundary of Michigan through Toledo, Fremont, Clyde, Bellevue, Monroeville, Willard, Shelby Junction, Mansfield, Galion, Marion, Columbus, Lancaster, Dundas and Gallipolis, Ohio; Huntington, Kenova and Williamson, W. Va.; Dungannon, Va.; Bristol, Va.-Tenn.; Telford, Tenn.; Asheville and Franklin, N. C.; Atlanta, McDonough, Macon, Perry, Americus, Albany and Thomasville, Ga.; the north boundary of Florida to River Junction and the Apalachicola River to the Gulf of Mexico.

### Mountain Time Line

Between central and mountain time the line begins at the Canadian boundary at Portal, N. D., running through Minot and Goodall, N. D., and following the Missouri River to Pierre, S.

D., then through Murdo Mackensie, S. D.; Long Pine, North Platte, McCook and Republican Junction, Neb.; Phillipsburg, Plainville, Ellis, Dodge City and Liberal, Kan.; Waynoka, Clinton and Sayre, Okla.; Sweetwater, Big Springs and San Angelo, Texas, and the one hundredth meridian to the Rio Grande River.

Between mountain and Pacific time zones the line is fixed following the eastern boundary of the Blackfeet Indian reservation in Montana and the Continental Divide to Helena, Butte and Dillon, Mont.; Pocatello, Idaho and the Oregon Short Line to Ogden and Salt Lake City, Utah; thence the Los Angeles and Salt Lake Railroad and the west and south boundaries of Utah to the 113th meridian, thence to Seligman and Parker, Ariz., and along the Colorado River to the Mexican boundary.

### One Zone for Alaska

All of Alaska is left within a single time zone, the commission holding that it cannot deal with this matter, nor with the omission of the Hawaiian Islands, from the terms of the daylight saving act.

Municipalities along the line separating the eastern and central zones are to be governed by central time, except Fremont, Clyde, Bellevue, Monroeville, Willard, Selby Junction, Galion, Lancaster, Dundas and Gallipolis, Ohio; Dungannon, Va.; Bristol, Va.-Tenn.; Asheville and Franklin, N. C.; McDonough, Macon, Perry and Thomasville, Ga., which will take eastern time.

Between the central and mountain time zones cities on the line will take mountain time, except Portal, Flaxton and Minot, N. D.; Murdo Mackensie, S. D.; Phillipsburg, Stockton, Plainville, Ellis and Liberal, Kan.; Waynoka, Ralph and Sayre, Okla.; Sweetwater, Big Spring and San Angelo, Texas.

All municipalities on the boundary between mountain and Pacific time zones will use mountain standard time.

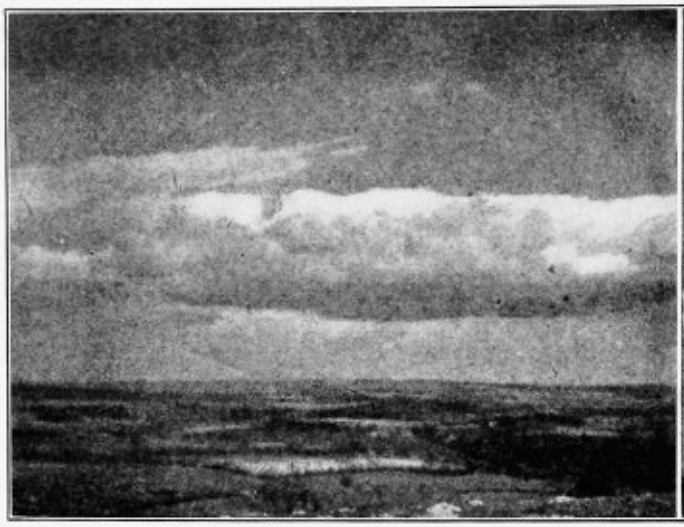


Fig. 1. Part of a squall cloud. The cloud stretched right and left as far as could be seen. When it came overhead there was a moderate squall with snow

Fig. 2. Very small cumulus clouds beginning to form.

## CLOUD DIVISIONS

To the airman clouds stand in much the same relation as roadways and surrounding scenery to the traveler on land. The system of clouds universally adopted fall into ten divisions as follows:

(1) *Cirrus.*—Detatched clouds, delicate and fibrous in appearance and feathery in form, which often float in belts flung in great circles across the sky.

(2) *Cirro-stratus.*—Thin film like clouds forming white sheets which often entirely cover the sky, giving it a whitish appearance. They often appear like a tangled web and produce a halo around the sun or moon.

(3) *Cirro-cumulus.* — Clouds which form small globular masses, white and flake-like without shadows which are often arranged in groups or lines.

(4) *Alto-cumulus.*—Large globular masses, gray or white in color, which appear either in groups or lines often so close together that their edges are confused. Such clouds are often

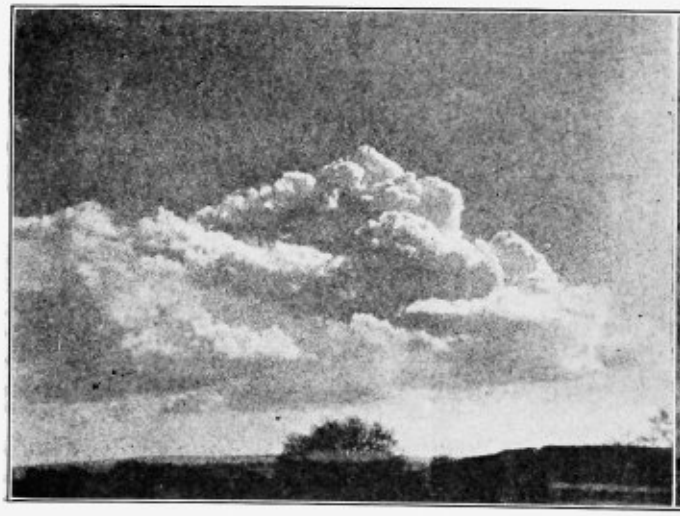


Fig. 3. Simple cumulus with hard edge rounded top

Fig. 4. Cumulus beginning to turn into cumulo-nimbus: the top of the cloud in the center is becoming soft edged fibrous

Fig. 5. Fully developed cumulo-nimbus: the whole top of the main cloud is a mass of false cirrus

Fig. 6. Fog forming on the aerodrome at Farnborough when a snow shower was followed by bright sunshine.

spread out in lines which extend in two directions.

(5) *Alto-stratus.* — Clouds appearing in thick sheets, blue or gray in color, with light portions near the sun or moon, but without haloes. Usually these are observed one and one-half times higher up than the Cirro-stratus.

(6) *Strato-cumulus.*—Large masses or rolls of clouds, dark in color, which often cover the entire sky, especially in winter. The blue sky may often be seen through them.

(7) *Nimbus (rain clouds).*—Thick layers of dark clouds, shapeless, with rugged edges, threatening continued rain or snow. Such clouds often have openings through which the upper layers of the clouds may be seen.

(8) *Cumulus (wool pack clouds).*—Very thick clouds with dome shaped upper edges and horizontal bases. Such clouds throw deep shadows. The upper portions are sometimes dark while the edges are brightly illuminated. They are often broken by strong winds.

(9) *Cumulo-nimbus (the thunder cloud).*—Appearing in heavy masses, mountainlike in form, with turret-shaped tops. Local showers fall from their bases.

(10) *Stratus.*—Foglike clouds appearing in horizontal sheets, easily broken into irregular forms by the wind.

# EXPRESSING AEROPLANES AND AIRSHIPS

The great weight and irregular form of aeroplanes and airships have made it necessary for the express companies in the United States to make special rules for their shipment. Fully ninety per cent of such shipments must be loaded in special end door cars, as in the case of automobiles, necessitating unusual trouble and expense. The first class express rate is the minimum or base rate in shipping aeroplanes and airships, and for most shipments an excess rate is charged and a minimum of 10,000 pounds is fixed by common agreement of the express companies. An exception to this rate is made in some classes of transcontinental shipments. In the following tables quoted from the Official Express Classification, effective July 1, 1917, the term 1½t1 indicates one and a half times the regular first class rate, 2t1 twice the rate, 4t1 four times the rate, etc. The initials K. D. mean knocked down. The rates are as follows:

*Aeroplane Boxes and Crates* ..... 2 t 1

*Aeroplanes and Other Flying Machines (Not Airships or Balloons)*— Must not be accepted for shipment until the dimensions and weight have been reported to the Superintendent and arrangements have been made by him for handling and forwarding the shipment through to destination, if such arrangements can be made:

K. D., boxed .....

K. D., in crates, with or without canvas-covered sides ..... 1½ t 1

K. D., not boxed or not crated ..... 2 t 1

Not K. D., and not boxed or not crated .... 3 t 1

If shipment consists of both boxes and crates apply First-Class rate to the boxed portion and one and one-half times First-Class rate to the crated portion of the shipment.

*Airships:*

Boxed or crated, with or without engine attached ..... 4 t 1

Not boxed or crated, with or without engine attached ..... 8 t 1

*Engine or Motor,* boxed or crated ..... 1

*Engine or Motor,* not boxed or crated ..... 2 t 1

*Balloon Parts of Airships,* securely packed in canvas, or boxed or crated ..... 1

The following regulations apply to such shipments:

*Carload or Bulky Shipments, Not Including Live Animals or Live Stock:*

Property classified herein as first-class or higher, which by reason of its bulk, length, or weight, cannot be loaded or carried in the ordinary express car, and for which a special car must be provided, or heavy castings or other shipments of unusual size or weight, originating at or destined to way stations, even though they could be loaded in the ordinary express car, must not be accepted for shipment until the dimensions, the weight and a complete description of the property have been reported to the Superintendent and arrangements have been made by him for handling and forwarding the shipment through to destination, if such arrangements can be made.

When the transportation of a shipment requires the use of an exclusive or special car, application for same must be made by the shipper in writing, and when such exclusive or special car is furnished the minimum charge on the shipment must be the charge on 10,000 lbs., at First-Class rate; if the shipment consists of articles or commodities that, under the Classification, are subject to higher than First-Class rate, and the gross weight is less than 10,000 lbs., the charge must not be more than the charge for 10,000 lbs. at the First-Class rate; if weighing 10,000 lbs. or more, the charge shall be for the actual gross weight at First-Class rate.

If a shipper makes written request for an exclusive or special car for a shipment of second class matter, and such car is furnished by the Express Company, the charge will be based on actual weight at second class rate, minimum 12,000 lbs.

The charge on less than a carload shipment carried in regular express car must not be greater than the charge on a carload shipment in a special car.

The crating of aeroplanes and airships must conform to the following regulations:

"Crated," as appearing in the Classification, means that all sides and ends of any article or machine so packed must be protected by wooden slats, nailed, screwed or dovetailed together, and of sufficient strength to hold the article so packed and to protect it from abrasion or damage when the same is handled and transported with the ordinary and usual care.

# AERONAUTIC BIBLIOGRAPHY

TEXTBOOK OF NAVAL AERONAUTICS, by HENRY WOODHOUSE. PRICE $6.00.

An authoritative book of absorbing interest, with 300 large quarto pages and 300 illustrations.

The comprehensive nature of the book is indicated by the subjects of some of the forty chapters, as follows:

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For all who wish to fly in the service of the Navy, or for pleasure this work is indispensable. The general reader will find this record of the conquest of the air in the Great War as entertaining as the most thrilling fiction.

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AIRCRAFT MECHANICS' HANDBOOK, a practical necessity to the mechanic, aviator and student. Following are some of the chapters given in this book: The General Construction, Theory of the Planes, The Propeller, Wiring the Plane, Aeroplane Standards of the S. A. E., Woods for Aeroplane Construction, the Aeroplane Engine, The Curtiss Engine, Care and Operation Hall-Scott Aeroplane Engines, Suggestions as to the Sturtevant Aeroplane Engine, The Thomas-Morse Engine, Gnome Aeroplane Engine, The Hispano-Suiza Engine, the U. S. Standard Aviation Engine or "Liberty" Engine, Characteristics of American Aeroplane Engines, Notes and Instructions to Government Inspectors of Aeroplanes and Aeroplane Engines, Specification for U. S. A. Military Training (Advanced) Aeroplanes, Details of Training Planes, Assembling Curtiss Training Machines, How the "Eyes" of the Army Work, The Canadian Training Cap at Borden, Instruments for Aeroplanes, The Lewis Machine Gun, Tables and Diagrams; Also a glossary of aeronautic terms in the back of the book.

AVIATION ENGINES, by VICTOR PAGE. PRICE, $3.00.

AVIATION ENGINES is a valuable textbook used by the Boston Technology and all the Aviation Schools throughout the country. This book has 589 pages of valuable information about the Design, Construction, Repair, etc., of aviation engines, with 252 pages of striking illustrations.

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Mr. Sherbondy is a consulting member of the Naval Consulting Board, consulting engineer to the Aeroplane Engineering Department of the Bureau of Aircraft Production, and well known as the author of important works on internal combustion engines and aeronautic and automobile engineering.

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THE AEROPLANE SPEAKS, by H. BARBER, A. F. Ae.E. (CAPTAIN, ROYAL FLYING CORPS). PRICE, $3.00.

Captain Barber, whose experience in designing, building and flying aeroplanes extends over a period of eight years, has written this book to be of assistance to the pilot and his aids. Lucid and well illustrated chapters on flight, stability and control, rigging, propellers and maintenance are followed by a glossary of aeronautical terms and thirty-five plates illustrating the various types of aeroplanes and their development from the first practical flying machine. This book has 150 pages with 106 striking illustrations.

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*The Aeronautical Motor,* prepared by The American School of Correspondence. 50 cents.
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*Gas Engine Principles,* by Whitman. $1.60.
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*Production of Hydrogen:* A series of three articles, by Harry L. Barnitz, in pamphlet form, at 50c per article.

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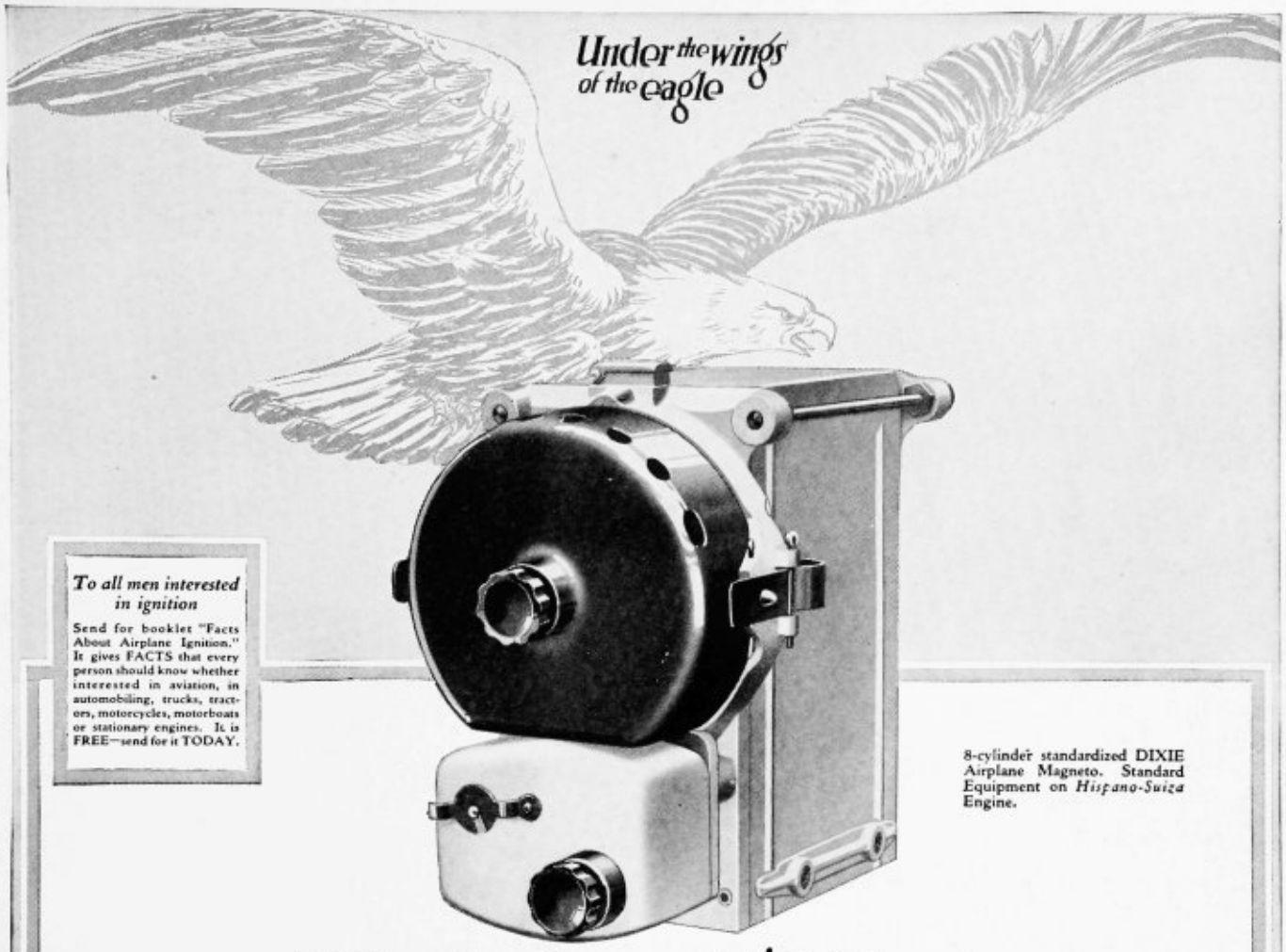

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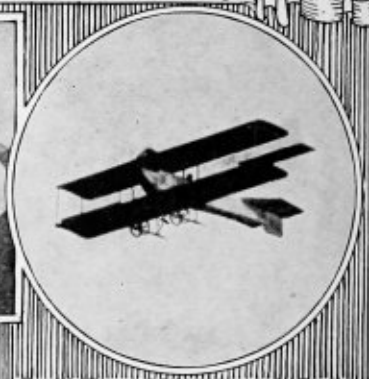

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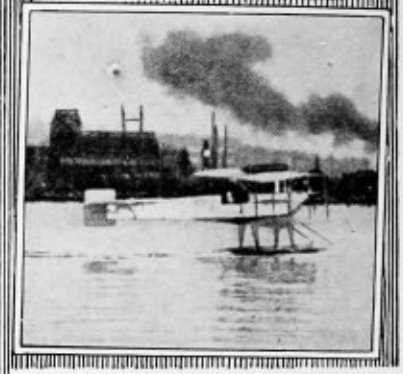

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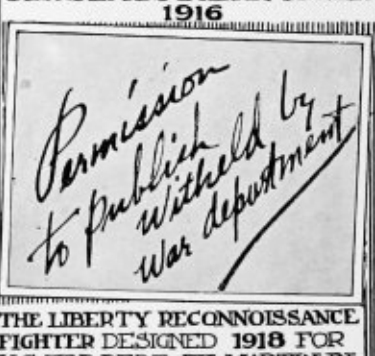


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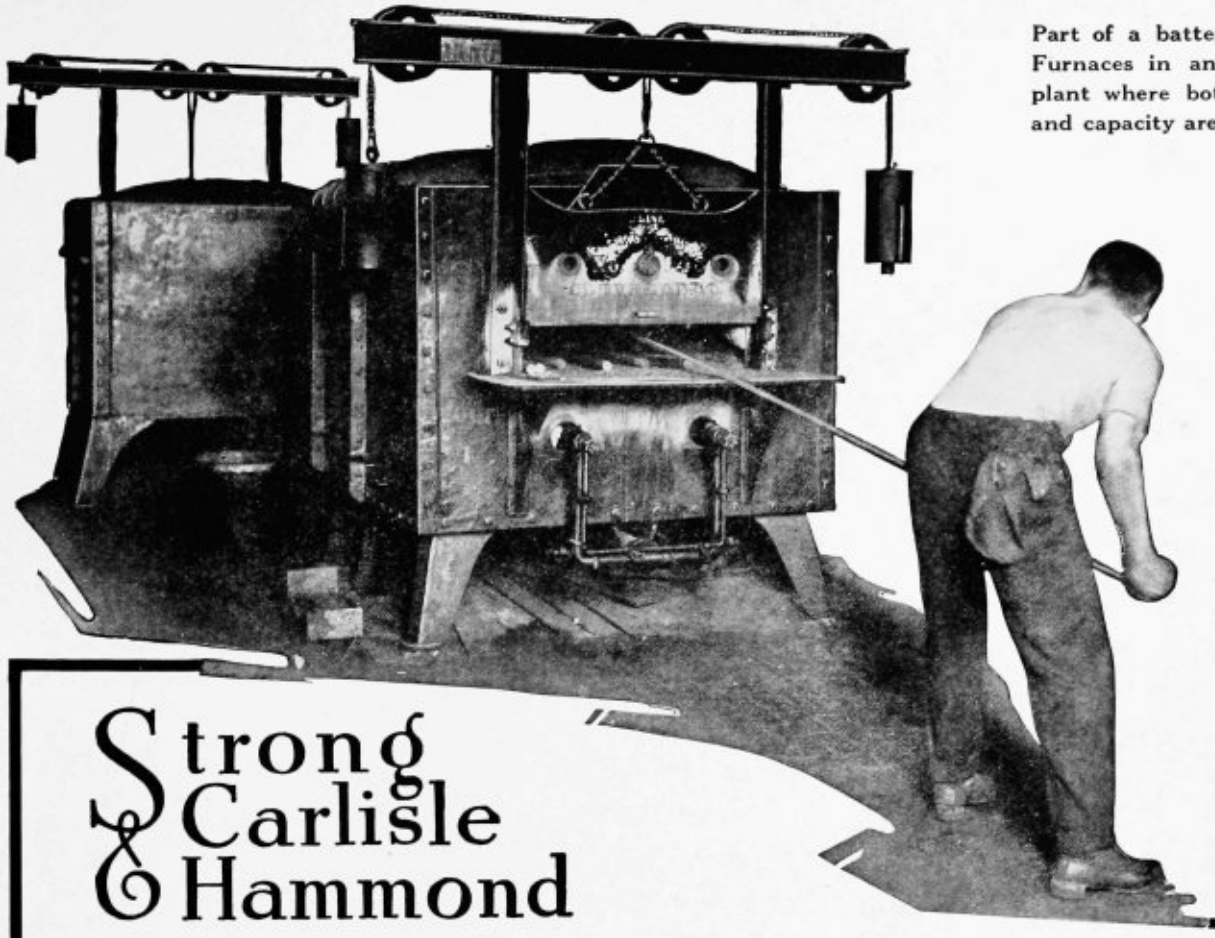

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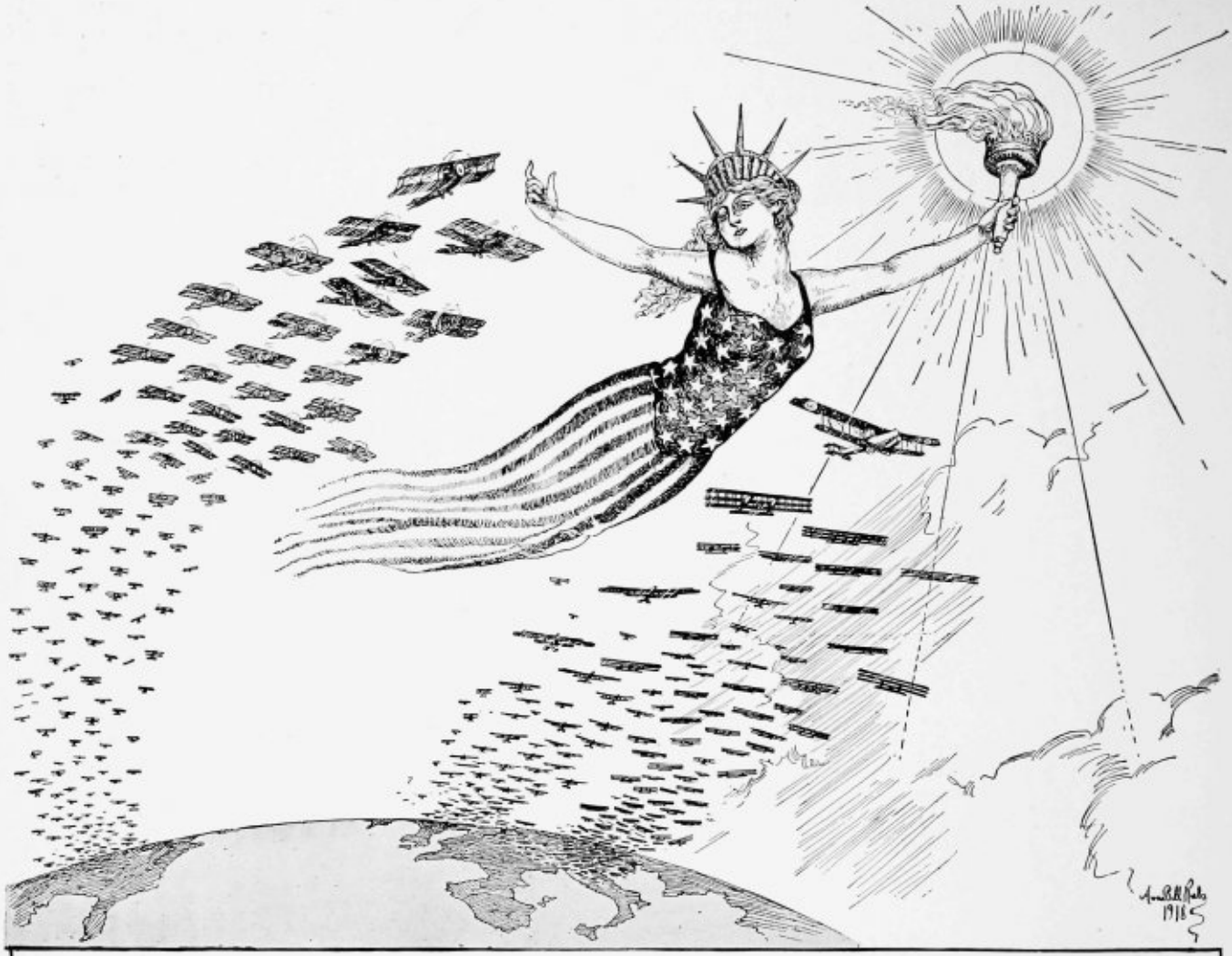

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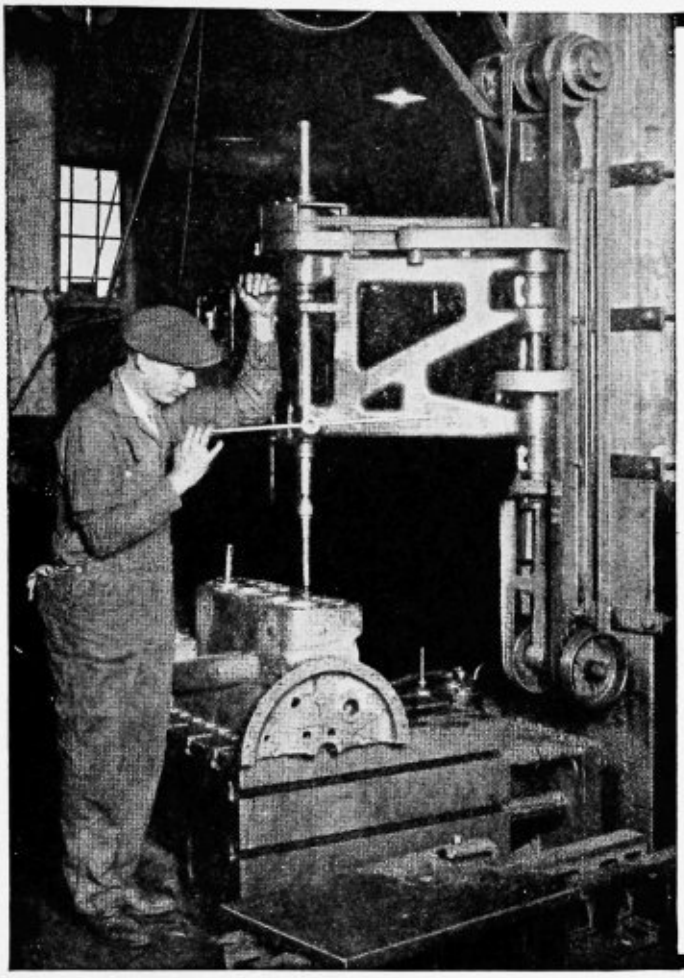

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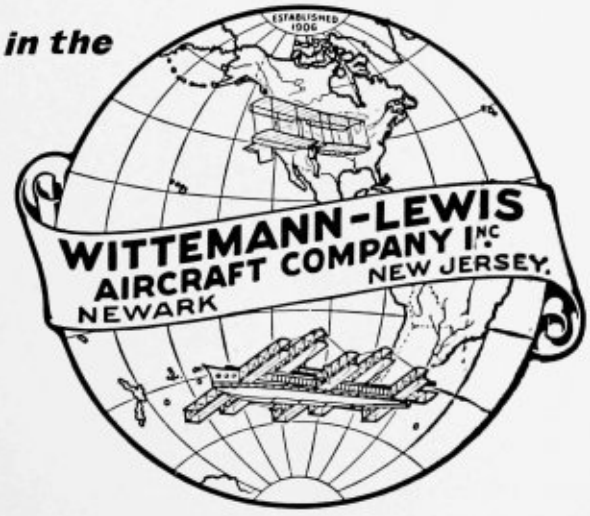


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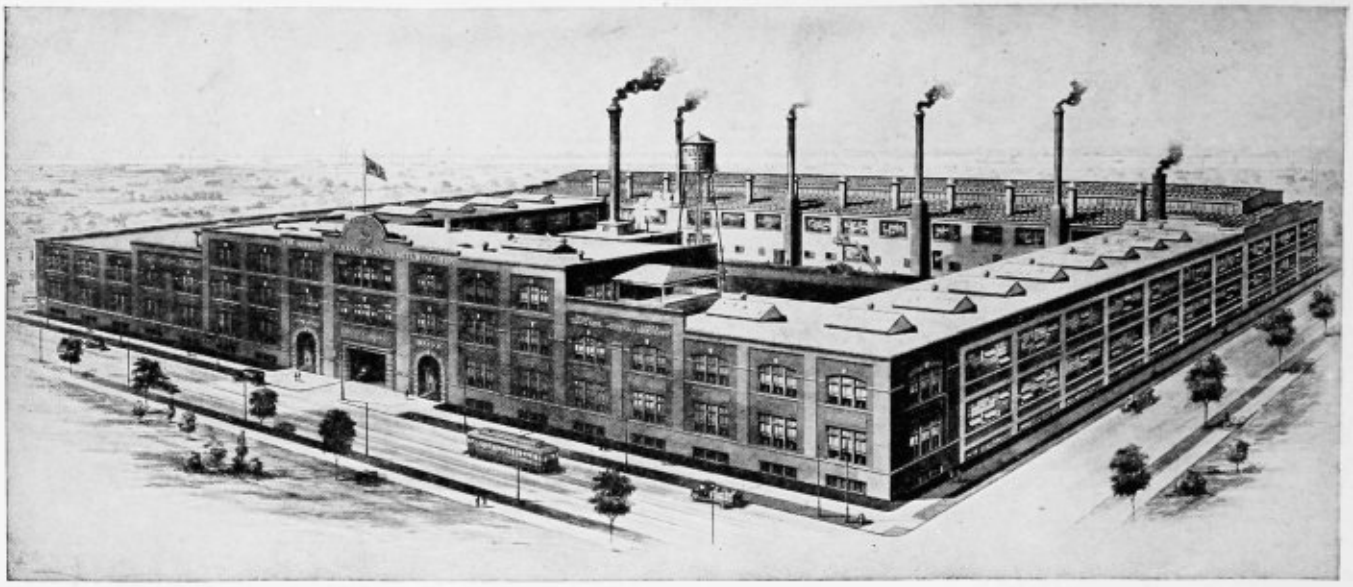

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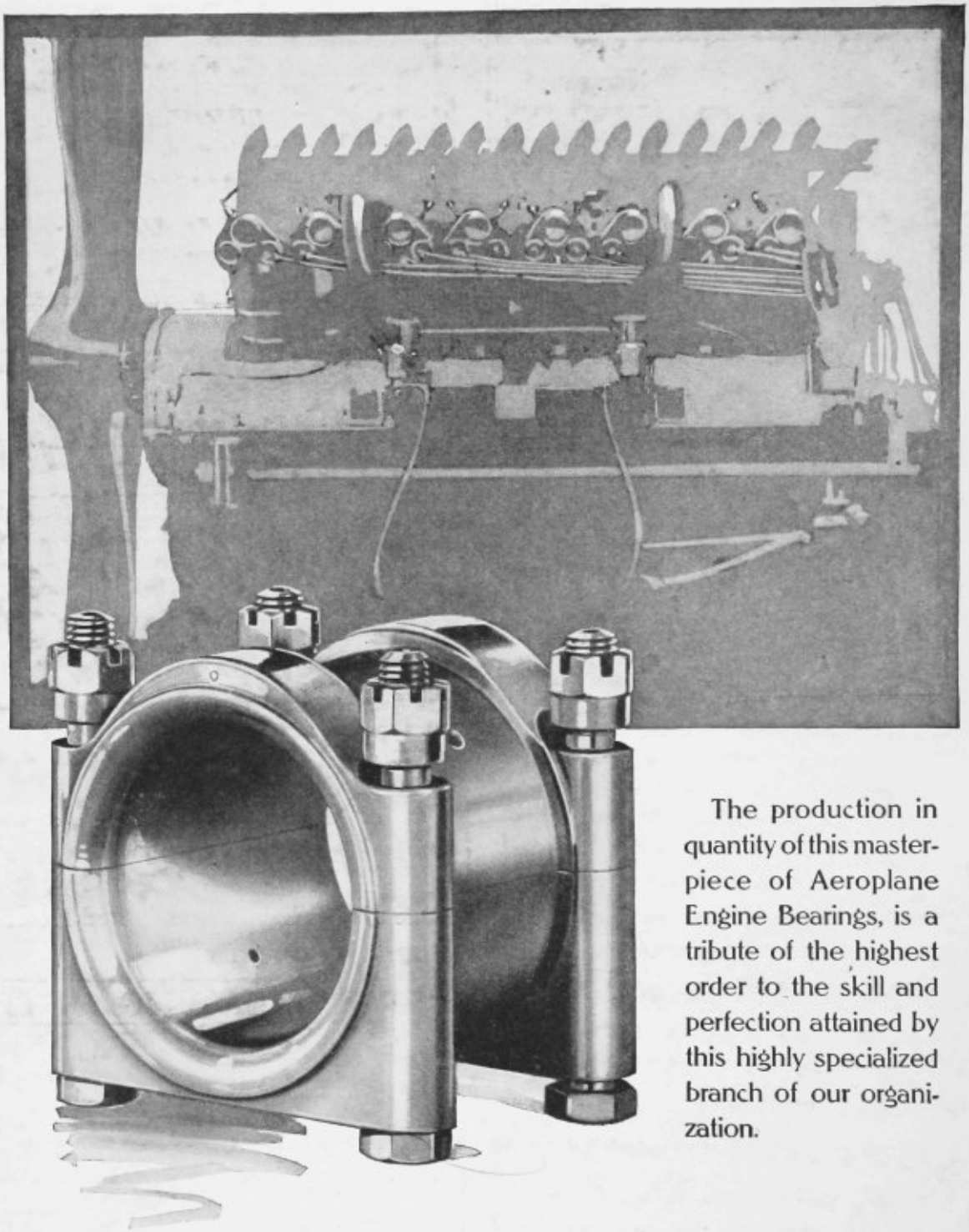

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