

erated by the fear that the Allies would interfere and confiscate machines on hand before they could be exported.

On March 24, 1920, a German Junker type airplane appeared on Long Island. No public announcement of its origin and the plan to import and sell upon a commercial basis was made and for a time it occupied courtesy space in the American Flying Club's hangar at one of the U. S. Air Service's Long Island fields. As soon as the true status of the machine became known, the hospitality was withdrawn.

In spite of the fact that these German "ships" were reported to have made several remarkable flights and that their design and construction invited the serious attention of the industry, their origin, together with a series of fatal accidents, finally invited general hostility in the press.

Neither the American aircraft manufacturers nor officers of the Air Services of the Army and Navy were opposed to the importation of limited numbers of foreign aircraft of new design for study and experimentation, but both were opposed to saturation of the civilian market with cheap-priced craft which would build up a foreign industry, vital in time of war, at the expense of our own.

WHO SHALL DOMINATE THE AIR?

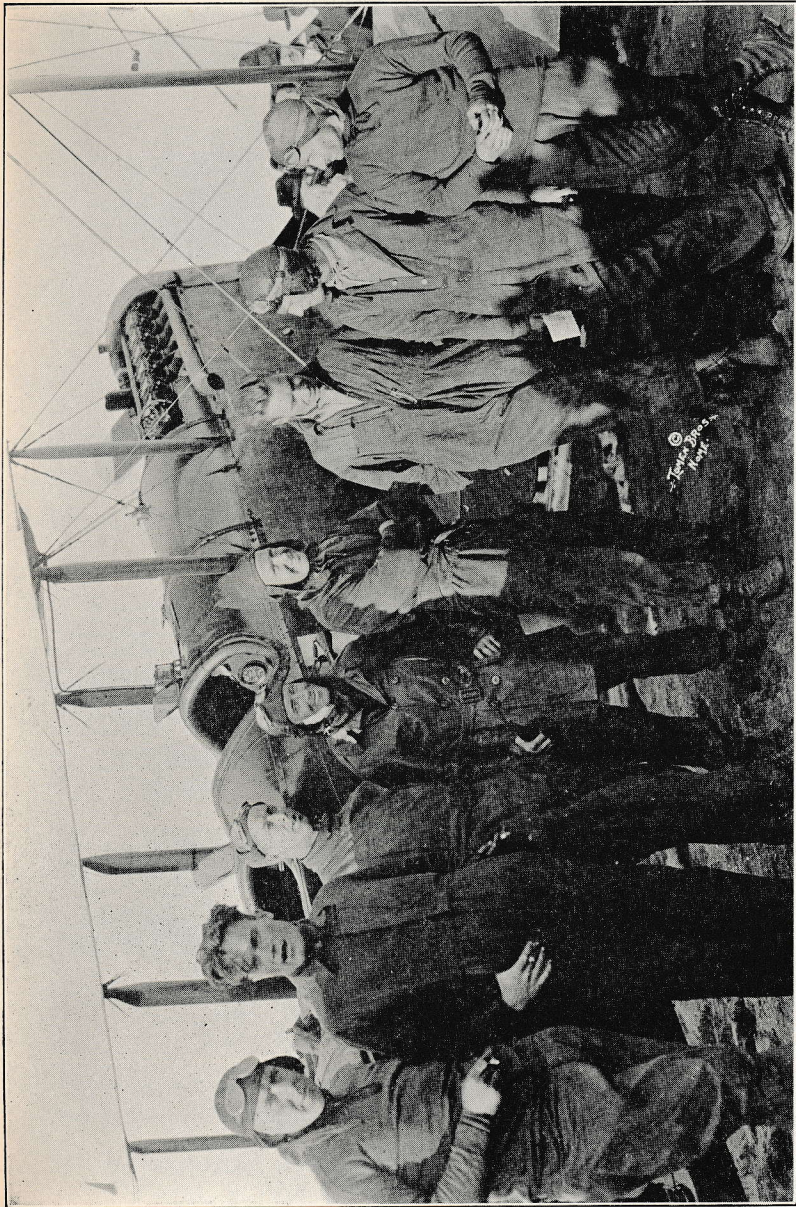
If Aircraft are to dominate the warfare of the future, is it unreasonable to believe that Germany hopes to dominate the air?

If England and France, fearful for their own safety, foresaw an unrepentant and dominant Germany on wings, were the officers of the United States Air Service, charged with the national security, to shut their eyes to any danger in the air, no matter from what direction it should come?

It was this responsibility that impelled the Air Service leaders to urge Congress for protection from aircraft dumping, irrespective of the country involved. Their protest was against Great Britain, not because of British ambitions as such, but because a "key" American industry was in peril.

Action in the Senate having failed, the Ways and Means Committee took up the subject, holding hearings May 28th and June 1st on a special aircraft anti-dumping bill, prepared by Representative John Q. Tilson of Connecticut along lines suggested by Senator Wadsworth, Senator New, Representative Kahn and other leaders in military affairs in Congress.

UNITED STATES AIR SERVICE PERCEIVES THE DANGER
Major General Charles T. Menoher, Chief of the Air Service,



Entire Personnel of Alaska Flying Expedition. *Left to right:* Sergeant Edmond Henriques, mechanic, plane No. 1; M. S. Joseph E. English, mechanic, plane No. 4; Sergeant James D. Long, mechanic, plane No. 3; Second Lieutenant Clarence C. Crumrine, pilot, plane No. 3; Second Lieutenant Erik H. Nelson, Engineer Officer, plane No. 2; Second Lieutenant Ross C. Kirkpatrick, pilot, plane No. 4; First Lieutenant Clifford C. Nutt, pilot, plane No. 2; First Lieutenant St. Clair Streett, pilot, plane No. 1, and commander of expedition.



General Pershing Congratulating Major-General Menoher, Chief of Air Service (in flying clothes), on conclusion of Alaska flight. Brigadier-General Mitchell, Assistant Chief of Air Service, in center.—Photo, U. & U.

who led the Rainbow Division through most of the war, and at the signing of the Armistice was in command of the 6th Army Corps, gave it as his personal opinion that the dumping of this surplus aircraft into the country would place in jeopardy the American aircraft industry. He said:

"I think I can say—and I think I am stating the attitude of the War Department also, on this particular thing,—that it is of vital importance to the national defense, to the Air Service directly, that there should be built up in this country an industry, an airplane manufacturing industry, so that in case of emergency we will have something to fall back upon. As to just how this is to be brought about, that is another thing of course, but I can state now, and would like to state now to emphasize it, that it is of vital importance that the airplane manufacturing industry be built up in this country so that we may have it to fall back upon in case of national emergency."

Brigadier General William Mitchell, Assistant Chief of the Air Service, who was in command of Air Service operations at the front in France, declared:

"I know as certainly as anyone can tell that if this market is flooded with this English equipment, it will practically knock out the possibility of our defending ourselves in the air in war. You will be turning over the key of the front door to some other nation."

Colonel W. L. Gillmore, Chief of Procurement and Supply, Army Air Service, said:

"As I look at this problem of bringing in perhaps 5,000 planes and 15,000 motors of foreign make, we are probably going to paralyze the American aircraft industry. Why, these planes and motors could be sold in this country at a price that no American manufacturer could meet. What would happen to our industry? They would not be able to continue on the small orders of the War Department. . . . I believe I can see where we are liable to put ourselves into the hands of the British on airplane production if our manufacturers quit and go out of business. Where are we going to turn to for the equipment we need?"

At these hearings, representatives of practically the entire American aircraft industry were present, and stated it as their unqualified conviction that, unless the dumping were prevented, the death of the industry would assuredly follow, or if not death, then tremendous burdens with a small source of supply would be placed upon the War and Navy Department.

EIGHT FEDERAL DEPARTMENTS PROTEST

Simultaneously with the hearings, the Sub-Committee on Commercial Aviation of the Economic Liaison Committee made a report urging prevention of the threatened dumping. The combined weight

of opinion of the State, War, Navy, Post Office, Commerce, Agriculture, Interior and Treasury Departments, was thus added to the Air Service argument. The special sub-committee, of which Lt. Col. Horace M. Hickam, chief of the Information Group, Air Service, was chairman, pointed out the necessity for building up and maintaining a civilian aerial reserve in the United States, with sources of supply wholly American. It was emphasized that these sources could not thus be kept wholly American if a foreign invasion with obsolete aircraft were to be permitted.

The Tilson bill was unanimously recommended by the Ways and Means Committee and was unanimously passed by the House. It was known to have the overwhelming support of the Senate, but it reached that body too late in the closing hours, so the second session of the 66th Congress ended without providing protection for an essential element in the national defense.

If the Congress failed to formulate a policy on aeronautics it was not because the country as a whole was indifferent to the necessity for action. On the contrary, the press of all parties, at a time when many other subjects were urged for consideration, came vigorously to the support of the Air Service. Scores of editorials appeared calling attention to the danger. There was little direct antagonism to the English, but there was insistent demand that we guard our own country and not be compelled to look to another for protection.

PRESS URGES "AMERICA FIRST!"

Said the *Washington Post* on May 30th:

"The Domestic aircraft industry is in a bad way enough at present. It is 95% liquidated. The statement has been authoritatively made that one company which formerly utilized the services of 20,000 persons has now only a little more than 1,000 employed and that there are not more than 2,500 mechanics in the entire country engaged in the production of aircraft. If these figures are even approximately correct, they show that there is ample room for the building up of a great national industry in the ever-widening field of aviation. The Government can afford to encourage domestic airplane invention and manufacturers for the sake of preparedness."

The serious condition in which the American aircraft industry found itself, due to the threatened invasion from abroad, was taken cognizance of in the editorial columns of the *New York Times*, June 21st, as follows:

"Now our airplane industry is on the very verge of succumbing to foreign rivalry and will be preserved for a lingering existence only if it gets immediate protection of the sort that only legislation can give."

On June 30th, the *New York Tribune* pointed out:

"There is no market for the material in Great Britain, and Canada and Australia and France have enacted laws prohibiting the import of any parts of it. America is the only country where the material can be disposed of. A large quantity is already here and more is on the way, to be sold at prices far lower than any American manufacturer can meet. The arrival of the entire consignment will strangle American aviation, already struggling for a bare existence and seriously prejudice the country's aerial defense by putting the few remaining manufacturers completely out of business."

A broad view, pro-American, rather than anti-British, was expressed by the *St. Paul Pioneer-Press*:

"Great Britain cannot be blamed for wanting to get rid of its old equipment, nor can it be blamed for seeking to sell in what undoubtedly will be its best market—the United States. But what can be said for this country's policy, or rather lack of policy, which will allow a foreign power to cripple our airplane industry?"

Floyd W. Parsons, writing in the *Saturday Evening Post* under the significant heading "Everybody's Business" said:

"England has closed its markets against French war surpluses, and France has done the same with respect to the English supplies of war aircraft. America, therefore, now affords the chief market for Europe's obsolete machines.

"Just as a great fleet of merchant vessels is essential to a nation that would command the seas in time of war, so must a country in the future have a large and modern fleet of commercial aircraft to supplement and strengthen its military air forces if it expects or even hopes to hold mastery of the air."

The *Chicago Daily News* on May 25th inquired:

"Are Americans about to suffer British Dominion from the Air?"

On the same day the *Chicago Tribune* apparently provided the answer:

"Already all but two American manufacturers of airplanes on a large scale during the war have gone out of business. With such competition from Great Britain as now impends it is evident that even these cannot continue successfully. . . . In the eighteenth century Joshua Gee, an English writer and government official, said: 'We ought always to keep a watchful eye over our colonies to restrain them from setting up any of the manufactures that are carried on in Great Britain, and any such attempt should be crushed in the beginning, for if they are suffered to grow up to maturity, it will be difficult to suppress them.' We are no longer colonies, but the British trade policy remains the same."

The *New York World* on June 6 declared:

"It is a question of national defense!"

So, too, the *New York Sun* on June 10th:

"America and Americans want the American airship industry in all its

branches encouraged, not for the profit of individuals, but for the defense of the nation."

AMERICAN PATENT RIGHTS PROVIDE PROTECTION

Although no legislative relief was obtained, the protection which so many men in responsible public positions regarded as imperative came by way of the United States Courts. The Wright Aeronautical Corporation, owner of the Wright patents in the United States, secured a decision, the world-wide effects of which were admirably pointed out by the press. The *New York Sun*, in its issue of July 10th, 1920, reported the decision as follows:

"The plan of British interests to flood this country with thousands of obsolete British war airplanes at practically junk prices, thus crippling American aircraft manufacturers and, which is more important, rendering this country helpless in the air, should war come, appears to be defeated by a decision handed down by Judge Thomas I. Chatfield, in the United States District Court, Brooklyn.

"Curiously enough the decree which may save the American manufacturers from ruin and the Air Service from dependence on foreign airplanes, was based upon the fact that the airplane in its present form is strictly an American invention.

"The decree was secured by the Wright Aeronautical Company of Paterson, N. J., holder of the patent rights of Orville and Wilbur Wright, and perpetually prohibits the Interallied Aircraft Corporation of New York from using or selling foreign airplanes in this country. . . .

"According to manufacturers here the patent involved in the Chatfield decree, No. 821,393, is the one covering the basic idea of stability in flight which is maintained by warping the wings or by use of ailerons on the wings. Rights to the invention in certain foreign countries have been disposed of.

"'Judge Chatfield's decree,' says a statement authorized by the Wright Aeronautical Corporation, 'is interpreted to mean simply that the Wright patent in America is unimpaired by any privileges which may have been disposed of in other countries.

"'Some British airplanes have already been used and sold here in disregard of the rights of American inventors and patentees, not only Orville and Wilbur Wright, but Glenn H. Curtiss, Grover C. Loening and Alexander Graham Bell. The British airplanes, although using these American inventions, are doing so for the most part without license or payment of royalty.'"

On December 7, 1920, Judge Mayer in the United States District Court in New York City granted to the Wright Aeronautical Corporation, plaintiff, a preliminary injunction against Handley Page, Ltd., and the Aircraft Disposal Company, Ltd., British corporations, and their American representative at that time prohibiting them from bringing to this country and selling here airplanes from the 10,000 sold by the British Government to the Aircraft Disposal Company, Ltd. It appeared that the first lot to be sold here was 2,365 planes.

Judge Mayer pointed out that there is no market for all these airplanes in Great Britain or elsewhere, unless a market is created here for these planes, which were, in the main, designed for war service and sold by the British Government, obviously, because they were no longer needed for Governmental purposes.

The injunction was granted because of infringement of the Wright patent No. 821,393, owned by the plaintiff. Judge Mayer stated that "its policy of licensing is fair and conducive to the development of the industry in this country. It has granted licenses to nearly all the manufacturers in the United States." The claim of the defendants that the British Government had been licensed under this patent was rejected by the Court. He further declared:

"The Wright patent has been adjudicated to be valid, a pioneer and of wide scope by Judge Learned Hand, by Judge Hazel, and by the Circuit Court of Appeals of this Circuit. The validity and broad scope of the patent are today universally recognized by the aircraft industry of this country, which has paid, and is paying, very substantial royalties. Practically every manufacturer of airplanes in this country is licensed, and various importers of British, French and Italian airplanes are also licensed. The defendants do not question these facts.

"The defendants do not now deny title, validity or infringement. On behalf of defendants, the argument is put forward that the introduction of these machines will educate the American public to the utility of the airplane as a commercial proposition, hence create a large demand, hence ultimately stimulate American industry to supply that demand.

"The American manufacturer may, however, be trusted to make up his mind as to what is best for him, and his bitter opposition shows that he considers that if these machines are brought here and, as defendant Workman states, are laid down, 'duty and heavy transportation charges paid, in New York City—or in fact, anywhere in the United States—at a price which is but a fraction of their actual value,' such importation will destroy or gravely impair American industry in this regard.

"Whatever may be the correct economic view, the fact is that plaintiff is the owner of the patent; that the patent has been adjudicated, that the courts have given it a high place, and that defendants have thus far brought into this country only a few planes, and have not, in any sense, established an industry here.

"Defendants acquired these planes from the British Government with their eyes wide open and took their chances on their legal rights. They state that they have allotted 2,365 planes for the American market. The selling price of these planes is said to be \$6,510,000, and defendants assert that the expense of storage and other expenses are mounting high and, if a preliminary injunction goes against them they will lose the market and thus suffer great loss.

"Yet, this was their hazard. They should have known that plaintiff would move expeditiously and diligently, as it has. There are, then, no equities in favor of defendants, and they must rely on their legal rights."

Judge Mayer then decided that they had no legal rights and granted the injunction, upon the plaintiff's filing a bond for \$35,000.

DUTY OF CONGRESS TO ACT

Notwithstanding the two court rulings which offer temporary protection, the final solution has yet to be provided and in the meantime the danger of dumping remains. Each year European nations may be expected to declare numbers of their Military craft obsolete and the temptation will persist to endeavor to throw them on the United States market. The situation, as revealed by Gen. Menoher and Gen. Mitchell, is unchanged in so far as a national policy is concerned, and must remain pregnant with danger to the national defense until Congress enacts anti-dumping legislation protecting the aircraft industry.

CHAPTER XII

CHRONOLOGY OF AERONAUTICS

January 1-December 31, 1920

(For Earlier Chronologies, see *Aircraft Year Book*, 1919 and 1920)

*See amplification at close of this chapter.

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| January 1 | British Air Ministry announces opening of Cape to Cairo air route. |
| *January 2 | Commander A. C. Read completes recruiting flight of 7,740 nautical miles in N.C.-4. |
| January 2 | James H. Knight flies airplane mail from Cleveland to Bellefonte, Pa., 215 miles, in 83 minutes. Average speed 156 m.p.h. |
| January 3 | M. Sadi Lecoite, in Nieuport machine, reported to have covered 190 kilometers in 42 minutes 53 $\frac{1}{2}$ seconds. Speed 166 miles an hour. |
| January 8-15 | Chicago Aeronautical Exposition under auspices of the Manufacturers Aircraft Association, Inc. (See Appendix.) |
| January 10 | H. S. flying boat from Naval Air Station, Coco Solo, C.Z. with Lieut. (jg) O. D. Williams and Ensign E. Chourre pursues runaway kite balloon and rescues crew of three. |
| January 12 | Mississippi Valley Aviation Clubs Association organizes in Chicago and adopts resolutions recommending concentration of all air activities, military, naval and civil, within single department of the Government. |
| *January 13 | Hamilton Club of Chicago passes resolution urging necessity for National Aeronautical Department. |
| January 19 | Aerial survey of Panama region begun by Naval Aviation. |
| January 21 | Geological Survey co-operates with Aviation Section Marine Corps, in mapping coastline of Haiti. |
| January 21 | Aircraft responsible for victory of British and Italian troops over forces of the "Mad Mullah" in Abyssinia. |
| February | C. J. Zimmerman, Keyport, N. J., takes off and lands Aeromarine 40-L Flying Boat on the ice at Raritan Bay. |
| February 4 | Consignment of Curtiss H.S.-2-Ls, Curtiss H.-16s, and several Aeromarine and Boeing flying boats, and parts, worth a half million dollars is shipped to aerial transport company in China. |
| February 7 | Aerial Post started between Helsingfors, Finland, and Reval, Russia. |

- February 7 Sadi Lecointe, flying Nieuport biplane at Villacoublay, reported to have made speed record under new regulations of the F. A. I. covering kilometer course in both directions at 171.3 m.p.h.
- *February 14 Lieuts. Ferrari and Masiero start Rome-Tokio flight.
- February 17 M. Casale, in Spad Herbemont biplane, with two passengers, attains reported height of 7300 meters (24,000 ft.).
- February 19 The American Embassy organizes weekly aerial service from Paris to Warsaw, via Coblenz and Berlin.
- February 21 Congressional Committee visits Air Station at Hampton Roads. Representatives Britten, Hicks, Oliver and Venable make short flight in airship F.-1.
- February 21 Fleet of five H.S.-2 and five H.-16 flying boats from Naval Air Station, Pensacola, Fla., participate in Mardi Gras festival at New Orleans and one H.S.-1 and twelve N.-9s participate in fete at Mobile.
- *February 26 Major R. W. Schroeder, flying 400 h.p. Liberty motored Packard Lepere biplane equipped with Moss turbo-compressor, establishes world's altitude record of 33,000 ft. at McCook Field, Dayton, O. Record calibrated by U. S. Bureau of Standards. F. A. I. method indicates 33,114 ft.
- March Radio messages from airplanes during maneuvers of 37th Inf., Ft. Mackintosh received over distance of 175 miles.
- March 5 Calcutta-Bombay Flight. Handley Page airplane, piloted by Capt. Clarke and carrying one servant, two mechanics, three passengers and three press representatives, arrives at Bombay 9 p.m., having flown from Calcutta. Distance of 1200 miles in 17 hours.
- March 6 Maj. Albert D. Smith flies reconstructed Boeing-De Haviland 1400 miles in one day from Camp Lewis, Wash., to San Diego, Cal. His course lay almost entirely over mountains 6000 to 7000 feet high.
- March 6-13 Second annual aeronautical exposition Manufacturers' Aircraft Association at 71st Regiment Armory, New York City. (See Appendix.)
- March 8 Dayton-Washington Flight. Lieut. H. R. Harris with Lieut. A. L. Smith, Lieut. E. B. Koger of Navy, and Clarence B. Coombs fly 12-passenger Martin Army Transport Airplane from McCook Field, Dayton, to Bolling Field, Washington, 385 miles, in 3 hrs., 63 min.
- March 8 First seaplane flight of Belgian mission establishes aerial transport in Congo, between Kinshasa and Bolobo, 200 miles in 2 hrs., 39 min.
- March 10 New York State Legislature adopts resolution urging Congress to enact federal laws for regulation of aerial traffic, instead of leaving it to individual states to pass conflicting legislation. (See Legislative Section, Appendix.)
- March 13 Edward Musick, Aeromarine pilot, with J. J. Boland, company engineer, glides over snow covered ice in

- Aeromarine Flying Boat, takes off, and flies over steamship "Princess Ann," ashore off Rockaway Point. Finds that rescue work has been accomplished and returns, landing this time on snow covered landing field.
- March 18 Air Mail service started between Barcelona and Las Palmas, Mallorca, 112 miles.
- *March 20 First successful flight from Cairo to Capetown completed by Col. van Ryneveld and Major Brand.
- March 22 C. J. Zimmerman, pilot, makes successful trial flight in new Aeromarine Model A. S. Ship's Scout at Keyport, N. J. Seaplane hops off after run of five seconds.
- March 30 Air Mail pilot, James H. Knight, flies 340 miles from New York to Cleveland in 2 hrs., 10 min., average speed 157 m.p.h., with 16,000 letters.
- March 30 Radio communication established between seaplane and Naval Air Station, Anacostia, and between seaplane and submarine in Navy Yard, demonstrating possible communication up to 70 miles between submarine and seaplane.
- March 31-April 2 Capt. W. R. Lawson and Lieut. R. E. Davis make military reconnaissance flight of 900 miles between Langley Field, Va.—Camp Glenn, N. C.—Wilmington, N. C.—Fayetteville, N. C.—Charleston, S. C.—Fayetteville, N. C.—Langley Field, Va. Actual flying time 11 hrs., 23 min.; elapsed time 58 hours., 25 min.
- April 1 Lieut. Everett Davis, 8th Aero Squadron, in D.H.-4-B flies from Kelly Field to McAllen, Texas, covering 256 miles in 100 min.
- April 1 First Aero Conference of South Africa.
- April 1 Air Mail service opened on Frejus-Toulouse-Rabat route, for Spanish mails between Barcelona, Alicante and Malaga.
- April 4 Juan Leguia, son of Peruvian President, breaks local record for non-stop flight, covering 300 miles between Lima and Trujillo, Peru, in Curtiss "Oriole."
- April 14 During railroad tie-up, Aeromarine Flying boat piloted by C. J. Zimmerman, carrying 500 copies of the Wall Street Edition of the N. Y. *Evening Post*, flies to Red Bank, N. J., delivering papers 30 minutes after leaving New York.
- April 18-May 2 Seaplane races at Monaco, France. Grand Prix de Monaco is awarded to Sadi Lecointe.
- April 21-28 San Francisco Aeronautical Exposition under auspices of Manufacturers' Aircraft Association. (See Appendix.)
- April 22 Pacific Aeronautical Association at meeting, San Francisco, urges Congress to establish transcontinental air mail lines, air laws, regulate aviation in general, encourage cities to establish municipal landing fields and to aid development of commercial planes.
- April 22 Two naval H.S.2-Ls commanded by Lieut. Commander R. D. Kirkpatrick and Lieut. W. R. Cobb, fly from

- Honolulu to Hilo and back, a distance of 210 miles each way.
- April 25 Pilot Clifford Webster flies Curtiss H.S.2-L flying boat with two passengers from Florida to New York, 1,345 miles, in 18 hrs., 27 min.
- April 26 Over a measured course at Naval Air Station, Rockaway, Curtiss "Wasp" piloted by Roland Rohlf, flies at a speed of 140 miles an hour, breaking former speed record by 14 miles an hour. Flight made under official cognizance of navy officials.
- April 27 First warrant in United States for reckless aerial driving is issued in Los Angeles against Omer Locklear, Aero Club of Southern California, complainant.
- April 30 Orenco "Tourister" at Hazelhurst Field, Mineola, piloted by Clarence Coombs, with three passengers, reaches altitude of 6,000 feet in 8 min., 750 feet a min.
- May Aircraft Exposition opens Groningen, Holland.
- May 1 Lieut. F. D. Hackett flies from Mather Field to Ream Field, 490 miles, in a D.H.-9 Liberty in 4 hrs. 1 min.
- May 2 Eclipse of the moon observed by Lieuts. J. H. Tilton and W. H. Cushing of the naval station, Rockaway Beach, L. I., at height of nearly $3\frac{1}{2}$ miles.
- May 4 Oregon, Washington, and Idaho Airplane Company, Curtiss distributors for Northwest, contract with Oregon *Journal* for delivery of 300 pounds of newspapers daily to Astoria and Seaside during summer months. This service enables readers to get their papers ten hours earlier than would have been possible otherwise.
- May 5-11 Two Curtiss K-6 motored Standard J-1 planes fly from New York to Minneapolis with consignment of dry goods.
- *May 7 First annual intercollegiate competition held by U. S. Army Air Service, the Intercollegiate Flying Association, and the American Flying Club at Mitchel Field, Mineola, L. I.
- May 7 Opening of aerial mail route between Peking and Tien Tsin.
- May 7 Clarence Coombs with three passengers in Orenco touring plane, ascends 16,000 feet.
- May 9 Bournemouth Police Court, London, fines Reginald Edmund Tollerfield, pilot, for flying at dangerously low altitude. First procedure of the kind in England.
- May 12 D.H.-4 plane piloted by Lieut. R. W. Blessley with Lieut. D. D. Watson, observer, flies over Panama Canal. Aerial photographic map made, saving engineering corps months of work on the ground.
- May 14 First inter-city flight on Pacific Coast in dirigible B-18, non-stop from San Diego to Los Angeles and return, 250 miles in $5\frac{1}{2}$ hours.
- May 14-16 First annual army air tournament held at Bolling Field, exhibition of aerobatics and combat flying by army pilots.
- May 15 First aerial mail plane arrives in Chicago from Omaha

- at 6:50 P. M. Plane, piloted by D. Wald, left Omaha at 1 o'clock. Ray Benedict makes flight from Chicago to Omaha on the same day, opening first westward extension of Air Mail Service from Chicago.
- *May 15 Thomas-Morse S.-6 makes remarkable flight from Ithaca to Washington, to Dayton and then back to Ithaca.
- May 15 Maiden flight of first commercial dirigible (Goodyear), in America made from Commercial Airship Syndicate Field, Kansas City, Mo.
- May 16 Curtiss "Wasp," first military machine owned by the Bolivian Government, makes successful flights from airdrome at La Paz, 13,000 feet above sea level.
- May 17 Orenco "Tourister" reaches altitude of 17,150 feet with pilot and three passengers. Pilot, Clarence Coombs; engine, 150 h.p. Wright.
- *May 22 Dayton Wright model O.W. "Aerial Coupè" reaches height of 19,710 feet, with pilot and three passengers, making altitude flight in 2 hrs. 31 min.
- May 23-28 International Seaplane Meet at Barcelona, Spain.
- May 26 Lieut. Harry Weddington, with three passengers at Kelly Field, reaches an altitude of 20,081 feet, a record.
- May 29 First outdoor Aero Show on Pacific Coast opened at San Jose, California.
- May 30 Dayton Wright model O.W. "Aerial Coupè" flies from Dayton to Cleveland, Pittsburgh, Washington, D. C., with ice cream for banquet of Retail Ice Cream Dealers' Association in Washington.
- June 1 Curtiss airplanes and flying boats operate from flying stations at Manila, P. I.
- June 1 Lieut. Fronval, chief test pilot for Morane-Saulnier Co., reported to have made 962 loops in 3 hrs. 52 min. at Villacoublay, a record.
- June 3 Farman "Goliath" reported to have remained in the air 24 hours 19 min. 7 sec., a record.
- June 6 Sweden's first Flying Show opens at Stockholm.
- *June 7 Lieut. John H. Wilson of the 96th Aero Squadron, Kelly Field, Texas, leaps from De Haviland-B plane at altitude of 20,000 feet and lands safely.
- June 12 Donald Hudson in Curtiss "Wasp" crosses Andes Mountains at 30,000 feet.
- June 15 First photographs and motion pictures of Yosemite Valley National Park, taken from the air by Curtiss "Oriole."
- June 16 Two cents a mile is fuel cost of Goodyear "Pony Blimp" in economy record on San Diego-Los Angeles flight of 138 miles in 3 hrs. 11 min. on 9 gallons gasoline and 1/2 gallon oil.
- June 19 Municipal seaplane flying station opened by Mayor J. F. Hylan at 82nd Street and North River, New York City.
- June 22 Aeromarine Flying Yacht christened by Governor Edwards of New Jersey at Keyport, N. J. (See Chapter 2 and Appendix.)

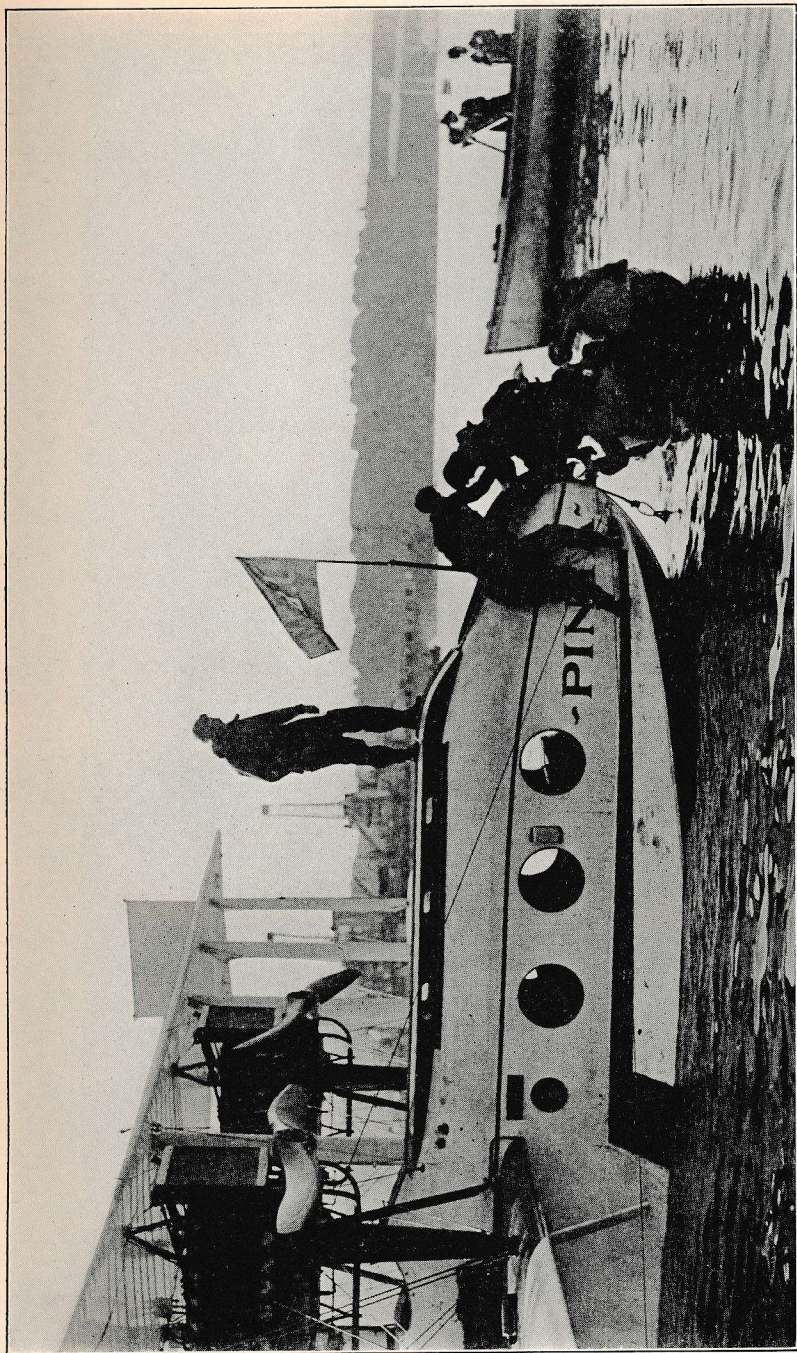
- June 27 German Junker monoplane attempting non-stop flight from Omaha, Neb., to New York City, lands at Lancaster, Pa.
- *June 28 Navy F.-5-L squadron completes 13,000-mile cruise with Atlantic Fleet through West Indian waters.
- June 30 Aeromarine "Navy Cruiser" makes night flight from Atlantic City to New York, carrying 14 passengers.
- June 30 Rice Bros. dairymen, Pasadena, Cal., make first delivery of milk on the Pacific Coast by airplane.
- July 1 Curtiss "Seagull" makes 1,100 mile demonstration flight to principal islands in Philippines, carrying mail, passengers and merchandise.
- July 1 Wright Aeronautical Corporation of Paterson, N. J., produces for the Army Air Service a Cannon Motor. 1½" shells are fired through propeller shaft while the plane is in flight.
- July 1 Aerial tour of the Atlantic Coast is made by Mr. and Mrs. Robert Ireland of Cleveland, Ohio, in Curtiss H.S.2-L piloted by C. L. Webster, of the America Transoceanic Company, including Bermuda, Savannah, Cuba, Palm Beach, New York, and Bar Harbor, Me.
- July 2 Attorney A. B. Reynolds of Sacramento flies from that city to Los Angeles and back in one day to get testimony of a witness in Los Angeles.
- July 2 Two thousand pounds of grape fruit reach New York from Miami, Fla., in hulls of two big flying boats of Aero Ltd. Make trip from Miami to New York in 16 hours, pilots, George Jay and George Cobb.
- July 4 German Air Mail service again started.
- July 7 Guided entirely by radio compass signals, naval seaplane F.-5-L flies from Norfolk ninety-five miles to pick up battleship Ohio at sea, with no knowledge of the vessel's location, then returns to Norfolk entirely by radio compass. Said to be the first time radio compass apparatus has been used to direct aircraft to a ship.
- July 9 Secretary of the Navy dedicates new airport at Seattle.
- July 9 International Aero Show opened at the Olympia, London.
- July 11 Ruth Kilpatrick, president of the Bridgeport, Mass., Woman's Club and Gracia Rice, treasurer of the National Federation of Business and Professional Women, fly from Bridgeport, Conn., to Springfield, Mass., for New England Convention of the Federation.
- July 14 Annual meeting of Manufacturers' Aircraft Association at its offices, No. 501 Fifth Avenue, New York City.
- July 16-24 International Yacht Races viewed for first time from air. Fleet of private planes besides the four H.S.2-L seaplanes of Aero Ltd.; Curtiss Aeroplane and Motor Corp. and America Transoceanic Co., with several Curtiss seaplanes, Aeromarine Plane & Motor Co.'s large "Navy Cruiser." All planes carried paying passengers. (See Chapter VII.)

- *July 17 Monument at Le Mans, France, designed by Paul Landowski, is dedicated by prominent French and Americans to Wilbur Wright commemorating his first public flight in Le Mans and the pioneer work of the Wright Brothers.
- *July 15-Aug. 24 New York-Alaska Flight. Four D.H.-4-B planes commanded by Capt. St. Clair Street, complete flight from Mineola, N. Y., to Nome, Alaska, in 55 hrs. actual flying time.
- July 24 Aerial Derby held at Hendon airdrome, London.
- July 30 Capitalists and bankers among 14 passengers in Aeromarine flying cruiser on flight to Southampton, L. I., from New York, 110 miles in 72 minutes.
- August 2 Omer Locklear, aerial acrobat, killed in night flight at Los Angeles, Calif.
- August 3 British Air Ministry Competition at Martlesham Heath, England.
- August 5 Daily air mail service organized between London and Amsterdam.
- August 8 Two German Junker monoplanes which left New York July 29th arrive at San Francisco, Cal.
- August 9 Gallaudet "Liberty Tourist" biplane flies to Franklin Roosevelt's notification ceremonies at Hyde Park, N. Y., delivering 1,000 copies of the New York *Evening Post* special airplane edition, containing full account, arriving a few minutes after speeches were made.
- August 12 Gallaudet "Liberty Tourist" flies from New York to Washington, with consignment of perfumes.
- *August 15 Laura Bromwell breaks world's loop-the-loop record for women at Curtiss Field with official total of 87 loops.
- *August 16 Board of Governors of Aero Club of America and the American Flying Club vote for amalgamation under name of the Aero Club of America.
- *August 21 Lt. A. G. Hamilton jumps 20,900 feet by parachute at Carlstrom Field and reaches ground in 12 minutes, a record.
- August 23 U. S. Army Air Service airplanes participate in National Rifle matches at Camp Perry, Ohio, with D.H.4-Bs, using both synchronized and flexible guns. Lt. Oakley, E. Kelley, and Serg. Stekel winners.
- September 1 British Air Ministry holds second competition for seaplanes and amphibians.
- September 2 Curtiss N.-9 seaplane flies 120 miles over Sierra Mountains from Sacramento to Lake Tahoe, Cal.
- September 3 A Martin bombing plane carrying crew of four men and 1000 pound torpedo flies from Washington to Yorktown, 125 miles, in 64 min.
- September 5 Successful experiments made by two Army planes making landing by using variable pitch propeller. Plane stopped 75 feet from point where landing gear first touched ground.
- September 7 Fish and Game Commissioner A. L. Monahan locates

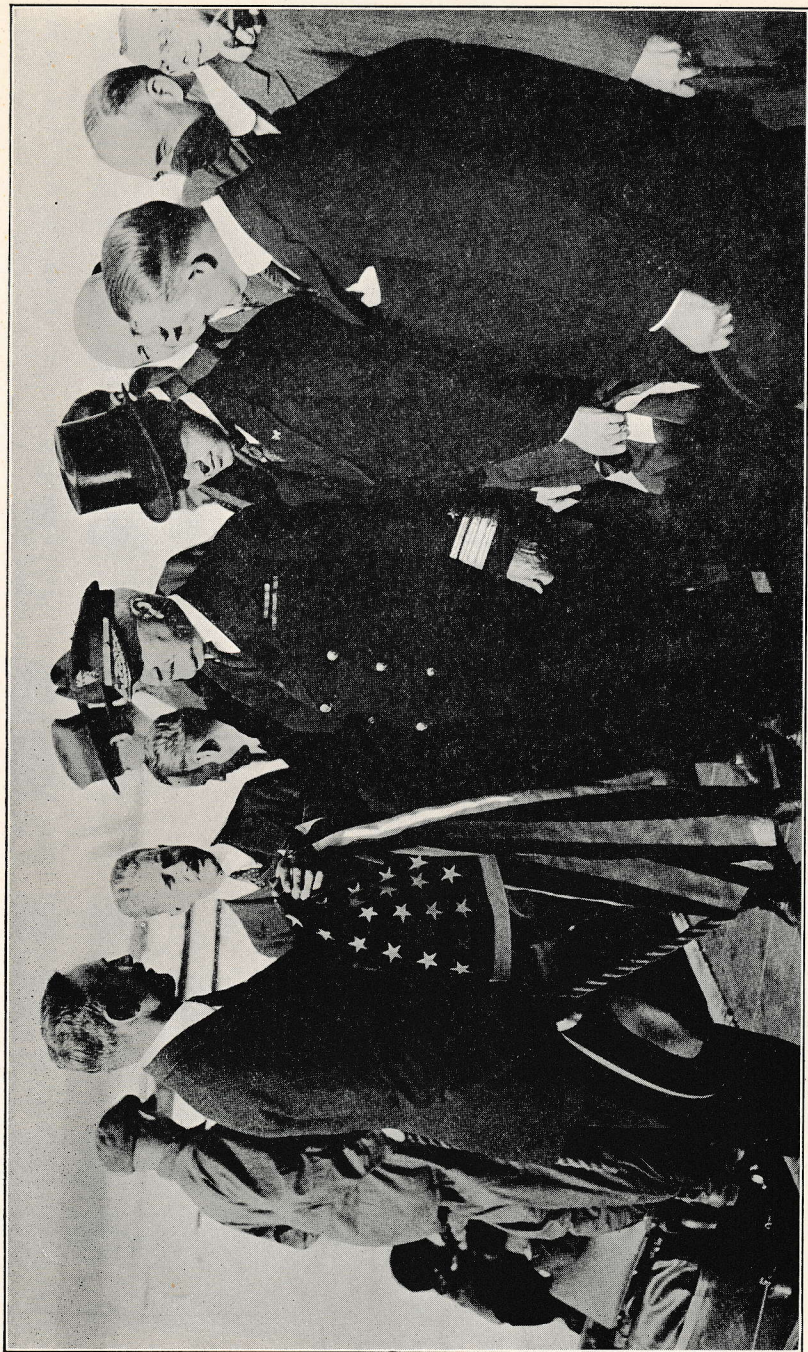
- schools of fish from dirigible near San Diego, Calif.
- September 8-10 Federation Aeronautique Internationale conference held at Geneva.
- September 8 Transcontinental Air Mail Service from New York to San Francisco started.
- September 10 Survey of Southern Lake Michigan completed by Great Lakes Navy Station.
- September 11 Three dirigibles of the U. S. Army Air Service fly for two hours in formation at Langley Field, Va. radio communication directing them.
- September 15 Dayton Wright "K-T" "Cabin Cruiser" makes film delivery from Famous Players-Lasky Corp., flying from Dayton Wright Field to Cincinnati, Richmond, Indianapolis, Columbus and return.
- September 18-19 International Airplane Race at Venice for Schneider Cup won by Naval Lt. Chevalier Luigi Balogna, piloting a Savoia 12, Ansaldo motor, 375½ kilometers in 2 hrs., 35 min. at 152½ m.p.h.
- September 22 Eleven million marks subscribed for establishment of Air Post at Bremen, Germany.
- *September 25 National balloon race at Birmingham, Ala., under auspices of the Aero Club of America and F. A. I.
- September 27 The American Legion in National Convention at Cleveland, Ohio, adopts resolution urging Congress to enact laws regulating aerial transport, and reaffirming resolution of 1919 calling for separate departments of aeronautics. (See Aerial Law Section of Appendix.)
- *September 27 Gordon Bennett Cup Race held at Etampes near Paris under auspices of Aero Club of France.
- September 28 Airplane piloted by Paul Collins demonstrated fire-proof paint invented by Parker H. Bradley, at Hazelhurst Field, Garden City, L. I., New York. The flight, made at night and witnessed by Air Service officials.
- September 29 L.W.F. "Giant" 3 Liberty motored bomber accepted by Army Air Service after trials at Mitchel Field, L. I.
- October 8-10 Aero Club of France holds important flying meet at Buc.
- October 10 Sadi Lecointe beats speed record of Capt. De Romanet. Capt. De Romanet flew a kilometer in 12.3 seconds, or at the rate of 292.82 kilometers, or about 181.95 miles an hour. Lecointe covered the kilometer in 12.1 seconds or at the rate of 296.694 kilometers (about 185 miles per hour).
- October 10 Pioneer flight into isolated region of Northern Ontario. Capt. W. Roy Maxwell of Hamilton in a Curtiss seaplane flies to Moose Factory station of Hudson Bay Co.
- October 11 Airplane attached to Harding-Coolidge Campaign Committee of New Jersey leaves Lakewood, N. J., on a flight to take in every county in the State.
- October 12 Joseph Flannigan, Democratic candidate for Sheriff of Queens, N. Y. C., begins his campaign by airplane.

- October 15 Seattle-Victoria Air Mail starts on contract awarded by Post Office Department to Edward Hubbard operating two Boeing machines.
- October 16 Lt. Austin attempts flight from France Field, Panama, to Washington, but a hurricane forces him to return. (See Chapter III.)
- October 16 Fire destroys hangars, machine, fabric and woodworking shop, storeroom and other buildings with 15 planes, at Naval Air Station, Anacostia.
- *October 17 Canadian Air Board completes relay flight across Canada from Halifax, N. S., to Vancouver, B. C.
- *October 20 Four U. S. Army D.H.4-B airplanes complete return trip from Alaska, arriving at Mitchel Field with total round trip flying time of 112 hours for 9,000 miles.
- October 21 Preliminary to five year expedition by airplane to the Antarctic regions by a group of London scientists, a party headed by John L. Cope, F. R. G. S., leaves Norfolk, Va., on a two years' survey of the west coast of the Woodell Sea and Graham Land. (See Chapter VI.)
- *October 23 Gordon Bennett International Balloon race held at Birmingham, Alabama, under auspices of Aero Club of America and F. A. I.
- October 23-Nov. 9 International Aero Exhibition held at Prague, Czechoslovakia.
- October 23 The "Santa Maria" and "Pinta," two-passenger and mail-carrying Aeromarine flying boats leave New York City, each with eleven passengers, a pilot, and three mechanics on board, for Key West, Fla. (See Chaps. II, III, and Appendix.)
- October 28 Passenger-carrying record broken. Nine men and women, the largest number ever carried by a single-motored airplane, fly over New York City in tests of new Curtiss "Eagle." (See Chap. II and Appendix.)
- October 31 U. S. Army airship, D-2, completes test at Akron, O., and flies to Langley Field via Pittsburgh.
- October 31 Toledo, Ohio, is bombarded by airplanes carrying Socialistic literature in behalf of Eugene V. Debs.
- November 1 Airplanes entering United States from foreign countries subjected to same quarantine regulations as steamers coming from foreign ports.
- November 1 Test flight of smallest airplane in U. S. Air Service, the "Messenger."
- November 1 A Monoplane of the Mercury Aviation Company leaves De Mille Field, Los Angeles, at 12 noon and reaches San Diego an hour and 20 minutes later, on initial flight of regular passenger service.
- November 1 Air Mail Service starts between United States and Cuba with two Aeromarine flying cruisers. (See Chap. III.)
- November 4 Army Air Service co-operates with anti-aircraft guns at Fort Monroe. Radio telephone used in airplane and at battery commander's directions, the pilot properly

- reports operations. This is first time anti-aircraft battery commanders have been able to get accurate data on timing of anti-aircraft shells.
- November 7 The Army's largest dirigible, "Zodiac," flies to Washington, D. C., from Langley Field and return. Motion pictures made and dirigible is in constant radio communication with stations at Langley Field and Washington. Radio telephone used.
- November 10 Navy demonstrates that radio telephone can be used from aircraft 300 miles away.
- November 10 Frank Clarke, flying German Fokker equipped with Hall-Scott motor, flies from Oakland to Venice, Cal., in 3 hrs. 45 min.
- November 11 Second Annual Aviators Reunion Dinner held at Hotel Astor, New York City.
- November 11 Two big passenger seaplanes of the Aero Ltd. fleet, with several men and Edith Gordon and Rose McDonald, fly from New York to Florida.
- November 17 Two American commercial Standard-Wright airplanes, the first to enter Mexico, leave Chihuahua for Mexico City, with greetings from American to Mexican officials. Mark landing fields and advertise and sell airplanes.
- November 20 Aeromarine flying boat, the "Nina," third plane built for the Aeromarine West Indies Airways, Inc., leaves New York for Cuba with 14 passengers including I. M. Uppercu, President of the Aeromarine Plane & Motor Co.
- November 21 Dirigible passenger line establishes half hour service, using Goodyear "Pony Blimp," between Los Angeles and Catalina.
- November 24 Aviation Field at Camp Stotzenberg Tambango, Philippine Islands, named Clarke Field in honor of Major Harold M. Clarke, Air Service.
- *November 25 First Airplane Race for Pulitzer Trophy and Valentine Liberty Bond prizes held at Mitchel Field, Garden City, L. I.
- November 30 The National Aircraft Underwriters' Association holds annual meeting, New York City, and passes resolution urging Federal air laws. (See Appendix, Aerial Law Section.)
- December 2 Police of Winnipeg, Can., report airplanes used by organized band of bootleggers smuggling across the United States border.
- December 3 U. S. Air Mail sets new record, carrying 16,000 letters from Chicago to New York in 5 hrs., 56 min.
- December 4 James Means, a pioneer in aviation, whose writings inspired the Wright Bros., dies at his home in Boston, Mass.
- December 11 Aeromarine flying cruiser "Christopher Columbus" arrives at Miami, Fla., 16 hrs. 30 min. flying time from New York.
- December 14 U. S. Navy Free Balloon A-5598, with Lieuts. Louis A.



Flying Boat "Pinta" of Aeromarine West Indies Airways, Inc., taking on Passengers at New York City for Key West and Points in the West Indies.



Dedication of Aeromarine West Indies Airways, Key West to Havana Passenger and Mail Service, at Columbia Yacht Club, New York City. Rear-Admiral Glennon, U.S.N., presenting American flag to Major G. H. Bonnell. At the right of the Admiral are Hon. Cayetana de Quesada, Cuban Vice-Consul, Washington, D. C.; I. M. Uppercu, one of the founders of the line, and C. F. Redden, an official of the company.

- Kloor, Walter Hinton and Stephen A. Farrell lands near Moose Factory, on James Bay, Ontario, Canada, after 25 hours in the air, having drifted 852 miles from Rockaway Naval Station, Long Island, N. Y.
- December 25-26-27 Winter Air Tournament, Long Beach, Calif., under auspices of Aero Club of Southern California.
- December 28 Eduardo Chaves of Sao Paulo, Brazil, flies Curtiss "Oriole" 1,200 miles between Rio de Janeiro and Buenos Aires, winning \$25,000 prize offered by Brazilian Government.
- December 30 Twelve U. S. Navy F.-5-L and two N.C. flying boats leave San Diego, Calif., on long flight to Balboa, Panama Canal Zone.

N.C.-4's RECRUITING TRIP

The N.C.-4 (Navy-Curtiss) made a noteworthy series of flights from Sept. 22, 1919, to Jan. 2, 1920, recruiting for Naval Aviation. As when a few months before it had made the first flight across the Atlantic Ocean, Commander Albert C. Read was in charge. His report after the trip, which extended from Rockaway, L. I., N. Y., down the Atlantic Coast, along the Gulf Coast, and up the Mississippi River to Cairo, Ill., and return after hopping from New Orleans to Galveston, Texas, was of considerable value to commercial aviation.

The port, forward center and starboard engines, operated for 118 hours and 42 minutes with no trouble whatever except ignition. The rear engine operated for 82 hours and 15 minutes before adjustments or repairs were necessary. The same tractor propellers were used throughout and on the return to Rockaway were still in good condition. Although 900 starts were made, the starters remained operating, only one having been replaced. The spark plugs functioned for 40 hours without cleaning or resetting. The remarkable feature of the trip was that the Packard Liberties operated on the very difficult river flight very largely on commercial gasoline which was picked up from point to point. The average gasoline consumption per hour per engine at 1480 r.p.m. was 21 gallons. The oil consumption at first was 1 pint per hour but during the last 20 hours of the flight, it was $\frac{1}{2}$ gallon per hour. Radio communication was kept up constantly for distances as great as 350 miles.

The ease with which the great flying boat is controlled was demonstrated when continuous flights were made by one pilot for almost 10 hours at a time, without strain. The Weather Bureau co-operated with Commander Read and gave valuable assistance. Great variation was found in the weather. It was so cold at St. Louis that the radiators had to be drained to prevent freezing. One of the

handicaps which Read experienced was the lack of maps.

The following table shows only the operations from city to city. Actually the N.C.-4 flew a total of 7,740 nautical miles in its 3½ months' cruise. It visited 43 cities, made 50 landings and was in the air 129 hours.

FLYING OPERATIONS OF N.C.-4 RECRUITING TRIP

		Nautical Stat.			
		Hrs.	Min.	Miles	Miles
Rockaway to Atlantic City	Sept. 22, 1919	1	16	76	87
Rockaway to Portland, Me.	Sept. 25, 1919	4	6	246	276
Portland to Boston	Sept. 27, 1919	1	38	88	101
Boston to New Bedford	Oct. 1, 1919	...	44	44	51
New Bedford to Providence	Oct. 1, 1919	...	21	21	24
Providence to New Haven	Oct. 3, 1919	1	16	76	87
New Haven to Rockaway	Oct. 6, 1919	1	..	61	70
Rockaway to Atlantic City	Oct. 7, 1919	2	25	76	87
Atlantic City to Philadelphia	Oct. 7, 1919	2	10	49	56
Philadelphia to Baltimore	Oct. 11, 1919	1	18	78	90
Baltimore to Washington	Oct. 15, 1919	...	30	30	35
Washington to Norfolk	Oct. 18, 1919	...	50	127	146
Hampton Roads to Manteo, N. C.	Oct. 24, 1919	1	..	62	71
Manteo, N. C., to Charleston	Oct. 25, 1919	4	48	284	327
Charleston to Savannah	Oct. 28, 1919	1	15	72	83
Savannah to Jacksonville	Oct. 29, 1919	3	48	109	125
Jacksonville to Miami	Oct. 30, 1919	4	44	284	327
Miami to Pensacola	Nov. 2, 1919	7	44	464	535
Pensacola to New Orleans	Nov. 4, 1919	2	65	147	169
New Orleans to Memphis	Nov. 4, 1919	5	7	307	353
Memphis to Cincinnati	Nov. 6, 1919	5	50	361	415
Cincinnati to Louisville	Nov. 11, 1919	1	25	79	91
Louisville to Owensboro, Ky.	Nov. 13, 1919	1	15	72	83
Owensboro to Evansville, Ind.	Nov. 15, 1919	...	20	21	24
Evansville to Paducah, Ky.	Nov. 17, 1919	...	47	82	94
Paducah, Ky., to St. Louis, Mo.	Nov. 19, 1919	3	01	118	136
St. Louis to Hannibal, Mo.	Nov. 22, 1919	1	15	85	98
Hannibal to Cairo, Ill.	Nov. 25, 1919	3	15	191	220
Cairo to Memphis	Nov. 27, 1919	1	64	123	141
Memphis to Helena, Ark.	Nov. 30, 1919	3	35	38	44
Helena to Arkansas City	Dec. 1, 1919	1	10	62	71
Arkansas City to Greenville, Miss.	Dec. 3, 1919	...	41	15	17
Greenville to Vicksburg	Dec. 5, 1919	1	50	61	70
Vicksburg to Natchez, Miss.	Dec. 9, 1919	1	10	53	61
Natchez to Baton Rouge, La.	Dec. 10, 1919	1	45	78	90
Baton Rouge to New Orleans	Dec. 12, 1919	2	40	66	76
New Orleans to Galveston	Dec. 16, 1919	6	00	248	285
Galveston to Grand Island	Dec. 20, 1919	4	..	284	327
Grand Island to Mobile	Dec. 21, 1919	2	42	73	84
Mobile to Pensacola	Dec. 23, 1919	...	50	38	44
Pensacola to Panama City, Fla.	Dec. 31, 1919	1	..	88	101
Panama City to Charleston	Jan. 1, 1920	7	20	332	382
Charleston to Rockaway	Jan. 2, 1920	9	..	553	636
		113	19	5822	6690

HAMILTON CLUB OF CHICAGO URGES ESTABLISHMENT OF AERONAUTICAL DEPARTMENT

The members of the Hamilton Club of Chicago, at an aviation luncheon held in that city, Jan. 13, 1920, during Chicago's first National Commercial Aeronautical Exposition adopted the following resolution:

Whereas, the City of Chicago, because of its geographical location and natural advantages has become the center of transportation of the United States by land and water, and is destined for the same reasons to play an equally important part in the development of air transportation, and

Whereas, the first commercial aviation exhibition on this continent now in session in our city, has forcefully called attention to the need of immediate active co-operation on the part of all municipalities, and business men, as well as those holding positions of importance in public life, and

Whereas, we, the members of the Hamilton Club, assembled for the purpose of discussing the possibilities of aviation commercially, believe it to be our duty to give all the impetus to the development of the science which lies within our power, and

Whereas, this science, in its relation to national defense and commerce is bigger than party or local lines and therefore is not a party issue, now, therefore,

Be it Resolved: That we, the members of the Hamilton Club, communicate to the Representatives of Illinois in Congress, regardless of party affiliations, the fact that we believe the best interests of the City, State and Nation demand the establishment by Congress, at as early a date as is consistent with a thorough study of the needs of the Nation, of an Aeronautical Department of the Government, under a cabinet officer and with a sufficient appropriation to insure such development as will provide an adequate aerial force for the purpose of national defense, and

Be It Further Resolved: That the officers and directors of the Hamilton Club be directed to lend every assistance to the Aviation Commission of Chicago, or such other agency as is constituted for the purpose, in at once acquiring for Chicago the best, biggest and most convenient municipal landing field that can be laid out, in conformity with the specifications of the United States Government, and

Be it Further Resolved: that a copy of these resolutions be transmitted to each member of Congress from the State of Illinois.

ROME-TOKIO FLIGHT

The Italian Government detailed ten airplanes for the Rome-Tokio flight; two Caproni biplanes, as "pilot machines"—2 Caproni triplanes and 6 S.V.A. biplanes. The flight started February 2, 1920, and on May 31, Lieuts. Ferrari and Masiero, piloting S.V.A. machines, arrived at the capital of Japan. Several of the planes crashed en route and were eliminated. The flight of more than 10,000 miles was considered a remarkable triumph for Italian wings. The route was from Rome to Gioia del Colle 237 miles; Gioia del Colle to Salonica 313 miles; Salonica to Adalia 481 miles; Adalia to Aleppo 375 miles; Aleppo to Bagdad 469 miles; Bagdad to Bassora 302 miles; Bassora to Bender-Abbas 574 miles; Bender-Abbas to Charbor 351 miles; Charbor to Karachi 359 miles; Karachi to Delhi 668 miles; Delhi to Benares 402 miles; Benares to Calcutta 414 miles; Calcutta to Rangoon 643 miles; Rangoon to Bangkok 348 miles; Bangkok to Hanoi 643 miles; Hanoi to Canton 508 miles; Canton to Fuchau 442 miles; Fuchau to Shanghai 375 miles; Shanghai to Kiauchau 394 miles; Kiauchau to Peking 348 miles; Peking to Chefu 399 miles; Chefu to Fusan 419 miles; Fusan to Osaka 359 miles; Osaka to Tokio 270 miles; total 10,379 miles.

SCHROEDER'S RECORD ALTITUDE FLIGHT

Continuing experiments in developing the supercharger, the U. S. Air Service on Feb. 27, 1920, sent up a Packard built Lepere biplane which broke the world's altitude record held by Roland Rohlfs, chief test pilot for the Curtiss Aeroplane and Motor Corporation. The pilot of the Army plane was Maj. Rudolph W. Schroeder, chief test pilot at the army engineering experimental station, McCook Field, Dayton, O.

Schroeder battled upward through hurricane winds to a height which the Bureau of Standards, on calibrating his instruments, fixed officially at 33,000 feet, while by the rules of the Federation Aeronautique Internationale, under which world records are homologated, the figures were 33,114 feet.

The Bureau of Standards' method was sufficient, however, to transfer the record from Rohlfs to Schroeder, the former's record being 32,450 feet made with a Curtiss "Wasp" triplane, without a supercharger, at Garden City, Sept. 18, 1919.

Schroeder had reached 29,000 feet on Sept. 6, that year, consequently he and Rohlfs were friendly rivals for honors, and it was Rohlfs who was the first to wire congratulations to Schroeder for his remarkable exploit—an achievement particularly attractive to the public because of the thrilling incidents accompanying it.

Schroeder's plane was especially prepared to spend many hours in the unexplored atmosphere far out of sight of those who watched him ascend from McCook Field. Special fuel was provided through the efforts of Thomas Midgely, Jr., who had been developing "anti-knock" fuels for the Dayton Wright Company. Dressed in the warmest flying clothes obtainable, Schroeder was also provided with two tanks of oxygen, one a reserve, calculated to supply his lungs for three hours after leaving the zone of life-sustaining air within which the earth revolves. His principal object was to explore the trade winds sweeping from west to east at marvelous speed, though too high to sustain life without artificial aid.

At 18,000 feet Schroeder began "smoking" his oxygen. The temperature had fallen 67 degrees below zero (Fahrenheit). The center section of the sturdy Lepere was coated an inch thick with ice. Exhaust from the motor sprayed fumes of carbon-monoxide over the pilot.

The 400 h.p. Liberty motor maintained its climbing ability with the aid of the supercharger which provided just the right mixture even at the height of 33,000 feet. Schroeder had no idea how high it is possible to fly. He believed the ceiling to be about 48,000 feet. Finding that he was then higher than any human being had been before him, Schroeder examined his gauges and seeing that he still had fuel for an hour and a half, continued to push on, climbing steadily, meanwhile making notes of the performance of plane and motor, recording the temperature every 50 feet and, most important of all, observing the winds which had been driving against his machine and pushing it backward faster than the propeller could pull it forward during the climb.

He had found one series of these trade winds at 30,000 feet, ranging from 100 to 300 miles an hour in velocity. At the peak of his climb, 33,113 feet, he found the winds blowing eastward at 225 miles an hour. At this juncture he missed the oxygen and hurriedly investigated. He had been using the reserve tank, the first one having failed to function. He found the reserve tank empty and turned back to the first tank, which continued to fail him.

Tearing off his ice-encrusted goggles and gasping for want of air and inhaling the poisonous fumes of carbon-monoxide from the motor exhaust, Schroeder threw his machine nose down and leaned forward to cut the switch just as he fainted. It was found later that he had cut out the motor. This saved his life. Those on the field who had been scanning the sky for first sight of the daring flier, saw a thin wisp of vapor, like smoke, appear over the city. Moments later they made out the plane. It was spinning and out

of control. As it neared the ground they saw it straighten out and, after an anxious delay, circle about and glide into McCook Field. Limp and helpless, Schroeder's body was slouched in the cockpit, his head drooped over the side and, to the amazement of everyone, his eyes were frozen wide open. He looked like a dead man coated with the ice that made the machine a ghostly ship. Schroeder spent many days in the hospital nearly blinded and with a valvular disturbance of the heart. He asserted that his plane had been out of control from the peak of his climb till he regained consciousness sufficiently to recognize his danger a few hundred feet over the city.

The plane had fallen five miles and its pilot lived, promising the world that if opportunity afforded, he would go up in a glass enclosed, sealed, cabined machine amply fueled to fly to the ultimate roof of the world.

CAIRO-CAPETOWN FLIGHT

The Cairo-Capetown air route was difficult and no fewer than four expeditions endeavored to cover the 5206 miles. Col. P. Van Ryndveld and Maj. C. J. Q. Brand, in a D.H.-9, supplied by the Union of South Africa Government, completed the journey on the afternoon of March 20, 1920. The "Silver Queen" Vickers-Vimy machine in which this expedition started, had been wrecked so that none of the contestants completed the flight in the plane with which they started. The other three contestants also crashed en route and did not procure new machines.

The Vickers-Vimy "Silver Queen" in charge of Van Ryndveld and Brand, left Brooklands, England, for Cairo on February 4th and arrived in the Egyptian capital five days later. Setting out the following day they planned a non-stop flight to Khartoum, Egypt, but crashed at Wady Halfa. Returning to Cairo they made a fresh start on the 22nd and their machine crashed on the way to Bulawayo on March 5th. The Union government sent another machine to Bulawayo so that the fliers were able to resume their flight on the 17th. They arrived at Capetown March 20, 1920.

The country over which they flew was unfavorable in many places. The middle part of the route was littered at times with dense brush and tropical forests. Landing at other than the grounds prepared by the Government was dangerous. Ant hills, often twenty-five feet in height and between twenty-five and forty-five feet in diameter dotted the ground. In most of the southern sections, with the exception of Northern Rhodesia, conditions were better and forced landings could be made without mishap.

FIRST INTERCOLLEGIATE AIR MEET

Reserve flight officers, students at Yale, Harvard, Princeton, Columbia, Lehigh, Cornell, Pennsylvania, Pittsburgh, Wesleyan, Williams, and Rutgers, flew in five flying races held under the auspices of the Intercollegiate Flying Association, U. S. Air Service, and the American Flying Club, at Mitchel Field, Garden City, L. I., May 7, 1920. Yale won first place with a score of 9 points, Williams was second with 6 points, and Princeton and Columbia tied for third with 5 points each. Hundreds of spectators witnessed the races. In the long distance race, Henry Fawn of Yale was the winner, Knowle of Lehigh, second, Cornell, third and fourth. The alert contest: R. K. Perry of Williams, winner; Wesleyan, second; Yale, third. Acrobatic contest: Columbia first, Yale, second, Pennsylvania, third. Landing contest: Princeton, first; Pittsburgh, second; Williams, third.

Lacking privately owned aircraft, pilots representing the colleges applied to the Air Service and were granted the use of Curtiss J.N.-4 planes by reason of their status as reserve aviators. Despite the fact that many of the contestants had not flown in months, the races were completed without accident.

THOMAS-MORSE S.-6 FLIGHT

The Thomas-Morse model S-6 plane used on the Ithaca-Washington-Dayton-Ithaca trip had been flown constantly for a year and 4 months with practically no attention, and Paul Wilson started his trip without preparation, except for a general inspection. The start was made at 10:30 A. M. on April 30th. It was necessary to fly into the wind about 25 degrees in order to keep a straight course. Two hours and 10 minutes later Wilson landed in Middletown, having flown a distance of 160 miles. Only 14 gallons of gasoline and 3 gallons of oil were consumed. After a short inspection, the machine took off again for Washington, covering the 115 miles in 1 hour and 35 minutes.

The start for Dayton was made on Monday, May 10th, with 5 gallons of castor oil in the front seat. After two hours battling through a storm, Wilson landed in a field near Newark, Ohio. Shortly after 2 o'clock he was in the air again, taking off going up hill. McCook Field at Dayton was reached without delay.

Returning, he left McCook Field May 15th for Ithaca. A north-east wind made two more fuel stops necessary and forced the pilot to fly under 1000 feet altitude. A landing was made at New London for fuel and also at the Martin Field in Cleveland and Ripley,

New York. After passing over Buffalo, the plane landed at the Curtiss Field. At 8:30 p. m., just as the sun was dropping out of sight, Wilson took off again and followed the railroad tracks east from Buffalo. There was a moon and the night air was ideal for flying. Wilson reported that the machine practically flew itself over long periods. The flash from a lighthouse on Cayuga Lake informed him that he was over his own landing field. Flares were lighted, and at 10 minutes after ten he came down safely.

ALTITUDE FLIGHT OF DAYTON WRIGHT "AERIAL COUPÈ," WITH PILOT AND THREE PASSENGERS

Starting from McCook Field, Dayton, O., B. L. Whelan, pilot, and three passengers, arose to a height of 19,710 feet on May 22nd, 1920, making what was then an American altitude record for three passengers and pilot. While the Dayton Wright Coupè was a two-passenger-and-pilot airplane the test was made with three passengers and the pilot. The machine was powered with a 180 h.p. Wright engine. The four persons were comfortably seated in the upholstered cabin. Ordinarily when attempts are made for altitude records, pilot and passengers wear plenty of clothing, but in this case no special preparations were made and all the occupants wore street clothes. No discomfort was experienced at the peak of the climb where the temperature was 5° below zero.

WEST INDIES CRUISE OF NAVY F.-5-L's

From New York to the West Indies and return, a distance of 13,000 miles without mishap, was the achievement of a fleet of six Navy F.-5-L flying boats commanded by Lieut. Commander Bruce G. Leighton. The cruise was made in connection with the maneuvers of the Atlantic Fleet. Climatic conditions which made surface travel hazardous and uncomfortable for those on board ships, did not delay the flying boats, which carried full equipment, including anchors, radio apparatus, food, water, etc., in addition to a crew of from six to ten men each.

The squadron left Philadelphia Nov. 12, 1919, and flew from Delaware Breakwater to Hampton Roads, Va.; Rockaway, Long Island; Hampton Roads, Va.; Charleston, S. C.; Savannah, Ga.; Tampa, Pensacola, and Key West, Fla.; Neuviatas, Guantanamo, and Cape Maisi, Cuba; Cape Haitien, Samana Bay, and Sanchez, Haiti; San Juan, P. R.; St. Thomas, Virgin Islands; Ponce and Mayaguez, P. R.; Aquin Bay, Haiti; Kingston, Jamaica; Guantanamo, Guacanayabo Bay, Santa Cruz del Sur, Media Luna Cay, and Neuviatas, Cuba; Turtle Harbor, Fla.; St. Marys, Ga.; Fernandina, Fla.;