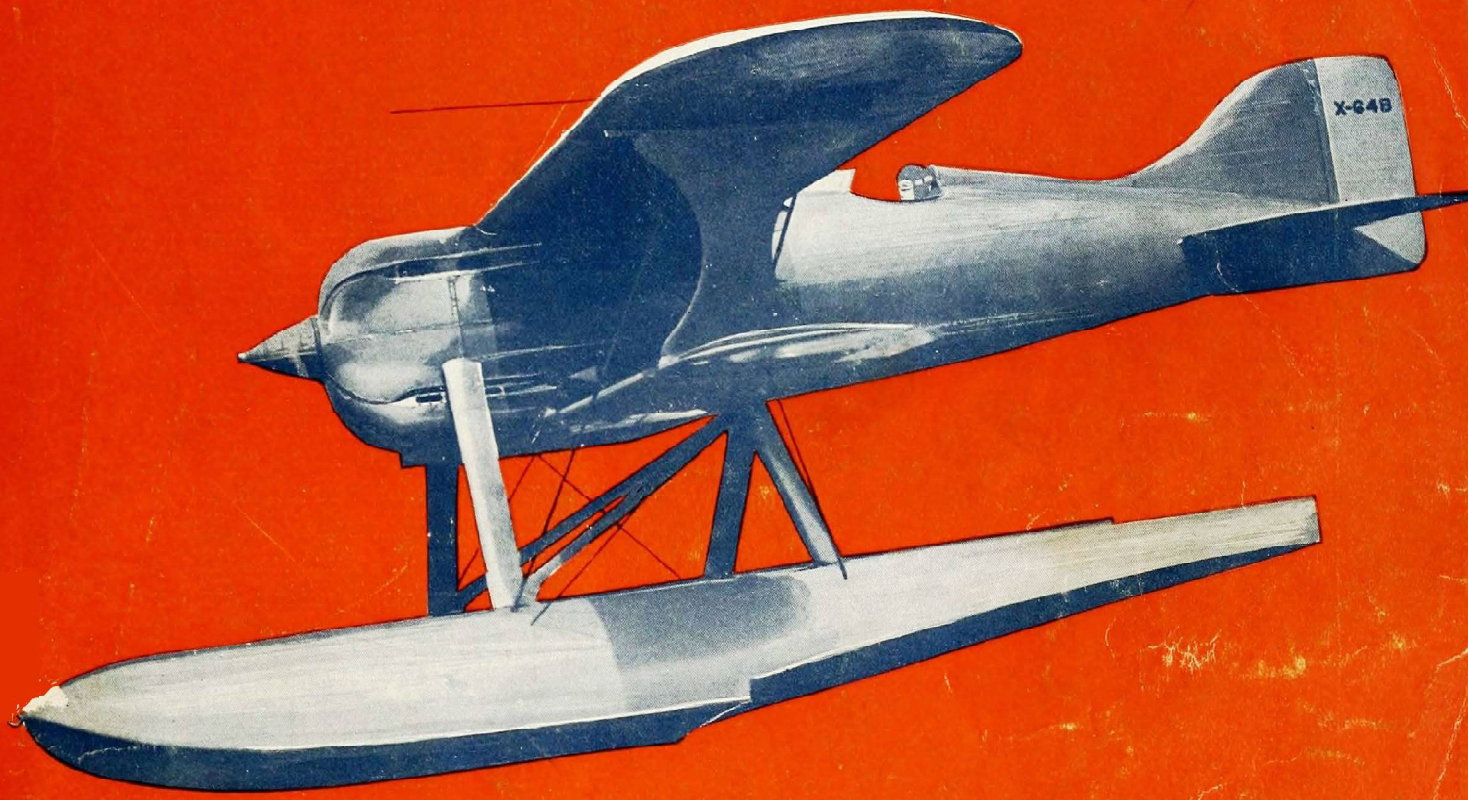
Vol. XI. No. 3 SEPTEMBER 1927 25 CENTS

AERO DIGEST



SEAPLANE SPEED RACE

The NATIONAL AIR RACES — NEW PLANES and ENGINES

New York-Rome

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DISTANCE FLIGHTS

U. S. to Hawaii

Around the World

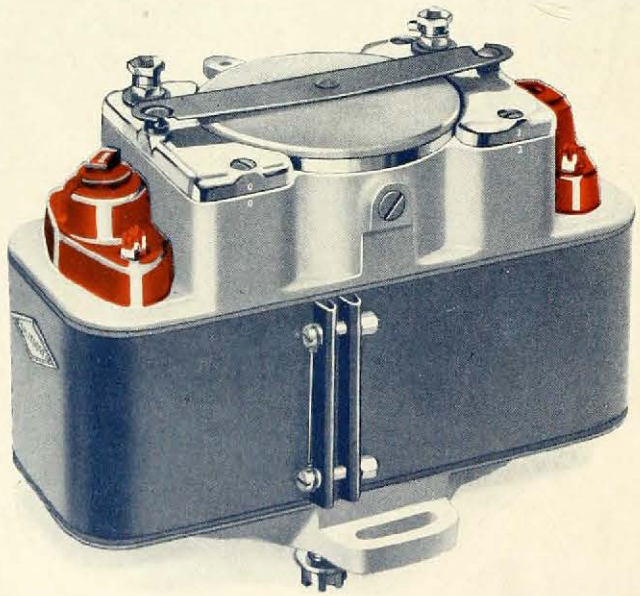
For completely dependable *sure-fire* ignition

SPLITDORF Magnetos for aircraft are built with a thorough knowledge of the vital requirements of the service and with seasoned experience in the manufacture of magnetos for both government and commercial ships.

The extreme importance of utmost dependability under severe conditions has been the foremost consideration in their design and construction. They are built for absolute reliability — for sure-fire ignition under any circumstances.

The Splitdorf Model VA Double Magneto, illustrated opposite, has independent electrical circuits, produces four double sparks per revolution, either synchronized or staggered, and is suitable for the heaviest types of engines with from four to twelve cylinders. This instrument is provided with 30 degrees advance.

Full information on this model and other Splitdorf magnetos for air service sent on request. Splitdorf Electrical Company, 392 High Street, Newark, N. J. *Subsidiary of Splitdorf-Bethlehem Electrical Company.*



Splitdorf Model VA Double Magneto

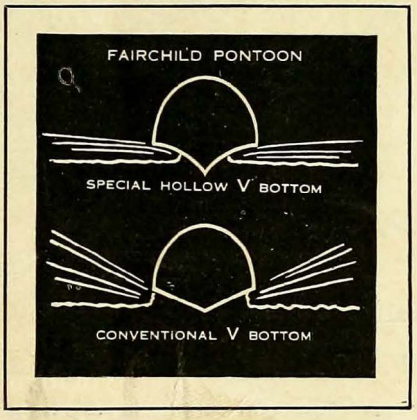
Reg. U. S. Pat. Off.

TRADE SPLITDORF MARK

Established 1858

AERO DIGEST, *September, 1927. Published every month. Volume XI, Number 3. Publication office, 220 West 42nd Street, New York, N. Y. Subscription price $3.00 a year; single copies, 25 cents; foreign subscriptions, $4.00. Entered as second-class matter July 17, 1922, at the Post Office at New York, N. Y., under the Act of April 3, 1879.*

This Spray Throwing Business....



IS something to think about... For many a good propeller has been cut off in its prime by hefty slugs of water thrown up by a poorly designed float. And now Fairchild engineers have developed a float bottom that *throws no spray*. This concave V-bottom planes better — permitting quicker takeoff than the ordinary V-bottom. In rough water the sharp V at the keel breaks the shock and allows softer landings.

These Fairchild floats are of composite construction. With their duralumin covering over a bolted wood frame, they retain the advantages of all-metal floats in not absorbing water. Yet this Fairchild construction eliminates the difficulty, found in all-metal floats of making a riveted seam permanently watertight.

The joints in Fairchild floats are sealed by use of a tape impregnated with a special waterproof and non-hardening glue. By clamping this tape between the metal covering and the wood frame with duralumin bolts, a flexible joint is obtained which *stays watertight* in any climate.

In the air, as in the water, Fairchild floats are scientifically designed to offer the minimum resistance. The tails are streamlined instead of being squared off, and 'planes equipped with these floats have a surprisingly high speed. The well streamlined nose is formed by a detachable bumper of heavy canvas stuffed with Kapok. This bumper nose serves to protect the float from damage and can be replaced if necessary.

Floats are now in production and ready for delivery for airplanes of 2500 to 4000 lbs. gross weight. Other sizes are being developed.

Metalboat Division: Fairchild Airplane Manufacturing Corporation, Subsidiary of Fairchild Aviation Corporation, Farmingdale, Long Island, N. Y.

FAIRCHILD PONTOONS

FAIRCHILD AIRPLANE MANUFACTURING CORPORATION.
FARMINGDALE, LONG ISLAND, N. Y.

I would like to have your pontoon catalog.

I { *now own* / *contemplate buying* } a.....

Airplane with a.....engine.

Name .....

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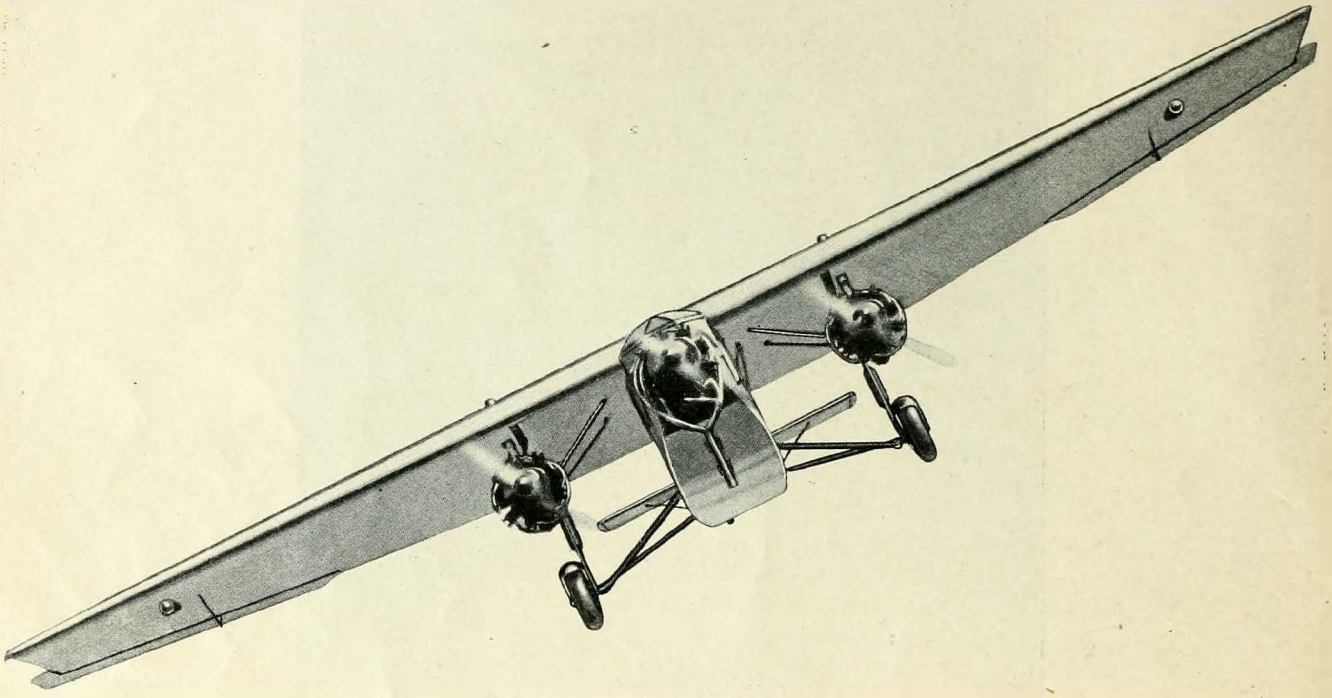
FA

Interesting features of the Ford tri-motored transport



THE Ford tri-motored transport has been built strictly for earning its way in the air by carrying loads swiftly, regularly and safely at a minimum of expense to the air-line operator.

The size of the plane has been selected to fit the greatest range of commercial use and the widest field of operations under present conditions. Things as they are, not as the industry hopes they will be, govern aviation today. The Ford monoplane is built to meet today's needs.

It is a ten-passenger, cabined transport monoplane with tank capacity for five hours' fuel. The power is furnished by three Wright Whirlwind engines giving a total of 645 horsepower.

The entire plane is built of duralumin, a copper-aluminum alloy as strong as structural steel but only one-third as heavy. The plane is weather-proof and needs only to be kept clean to prevent corrosion even though left out-of-doors for long periods. This has been proved in actual practice.

Every part of the monoplane is replaceable direct from factory stock. One of the many advantages of its metal construction is that replacement parts fit. All sections are simple in outline, easy to repair and every rivet in the plane can be inspected. We know of no other plane which allows inspection of the *inside* of the wings without taking off the covering. Ease of inspection in the Ford monoplane is further assurance of continued safe operation.

The landing gear is of striking interest. The most modern shock-absorbing equipment, rubber discs and oleo cylinders, is built in. The wheel tread is sixteen feet five inches. Each wheel has a brake which operates independently of the other. These not only shorten the run after landings, but also facilitate cross and down wind taxying and reduce the number of men required for ground handling.

Here we can give but the barest description of the plane. However, in our new booklet of more than thirty pages—"The New Era of Transportation"—you can learn what this advanced ship really is, and what it has done. We suggest you write for this booklet. It contains, in addition, much valuable information on forming and operating air-lines—information based on experience on the Ford air-lines. And any other information you wish on technical, experimental, construction and operation work of Ford ships will be gladly furnished.

THE STOUT METAL AIRPLANE CO.
Division of Ford Motor Company
Dearborn, Michigan

AERO DIGEST

THE MAGAZINE OF THE AIR

Vol. 11 No. 3 SEPTEMBER, 1927

CONTENTS

Phone: Wisconsin 3771. AERO DIGEST Cable Address: AERODIG.

is published monthly by

THE AERONAUTICAL DIGEST PUBLISHING CORP., 220 West 42nd Street, New York City

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Single Copy 25c. Yearly Subscription $3; Canada $3.50; Foreign $4.

Art Goebel over Wheeler Field, Honolulu, after his Pacific flight

THE DOLE PACIFIC RACE

THE *Woolaroc* piloted by Arthur C. ("Art") Goebel, the famous West Coast stunt flier, and navigated by Lieutenant W. V. Davis of the U. S. Navy, won the first prize of $25,000 in the Dole air race across the Pacific from the mainland to Hawaii. Arriving at Wheeler Field, Honolulu, at 12:23:33 p. m. (6:53:33 p. m. Eastern daylight-saving time), his time in the air was 26 hours, 17 minutes and 33 seconds.

Art Goebel, winner of the Dole race.

At 2:20 p. m. (8:52 p. m. Eastern daylight-saving time) the *Aloha* piloted by Martin Jensen of Honolulu and navigated by Paul Schluter of San Francisco, landed at Wheeler Field, taking the second prize, $10,000. Jensen's flying time was 28 hours and 16 minutes.

The *Woolaroc's* average speed on the flight was computed as 92 miles an hour and the *Aloha's* 86.4 miles an hour.

The two other planes which left Oakland airport in the race—the *Golden Eagle* and the *Miss Doran*—are still unaccounted for. Jack Frost was the pilot of the *Golden Eagle* and Gordon Scott, its navigator. Auggie Pedlar was the pilot of the *Miss Doran,* Lieutenant V. R. Knope, the navigator, and Miss Mildred Doran, passenger.

Of the fifteen planes entered in the transpacific race, eight started, and two arrived safely. Death crossed one of the entrants from the starter's list when the Tremaine low-wing monoplane, piloted by Lieutenant George W. D. Covell, crashed into Point Loma August 10th on its trial flight, killing him and his navigator, Lieutenant Richard S. Waggener, both San Diego naval fliers.

On August 11th the *Spirit of Los Angeles,* a twin-motored triplane, nose-dived into San Francisco Bay and was wrecked. The three members of the crew, James L. Giffin, pilot, Ted Lundgren, navigator, and Lawrence Weill, passenger, were uninjured.

Another entrant was killed on August 12th when Captain Arthur V. Rogers, British war ace, crashed in his Bryant monoplane, the *Angel of Los Angeles,* on a test flight near Los Angeles.

Two entries, those of Robert Fowler and Frank Clark, withdrew as they were unable to obtain satisfactory planes, and one was unable to get away from his home hangar with his new plane.

Planes and pilots were required to pass examinations by Department of Commerce officials, Lieutenant B. H. Wyatt, U. S. N., conducted the navigation tests.

The subject of qualifications and competency of pilots, navigators and planes came up and a controversy arose between some of the pilots and the official inspectors regarding the decision to postpone the race. An agreement was reached and the start of the race was scheduled for noon of August 16th instead of August 12th.

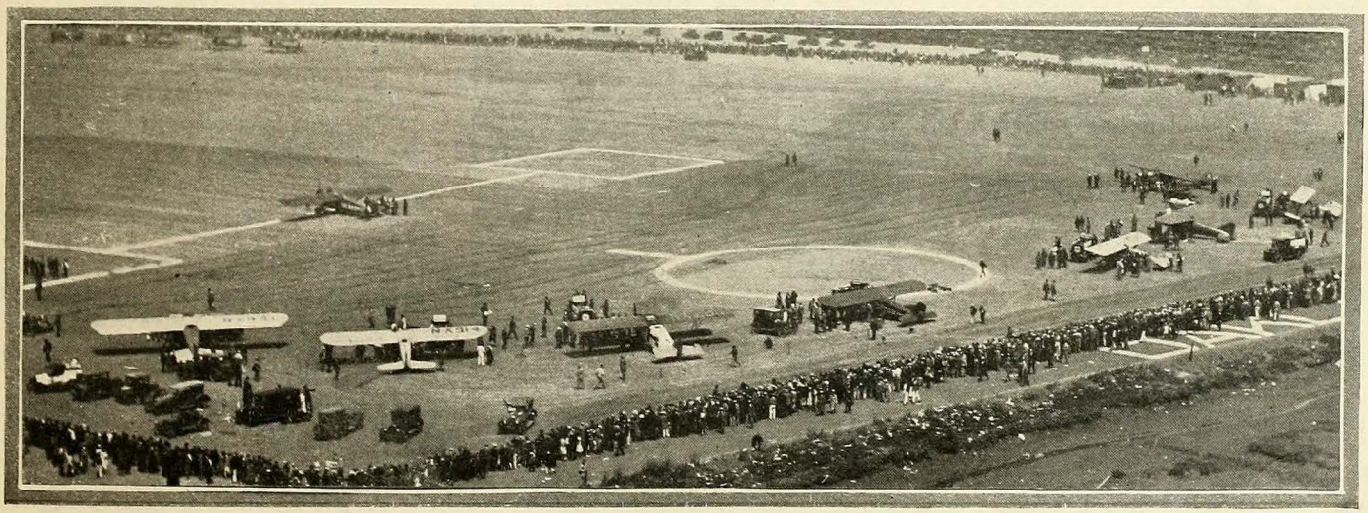
The night before the race Oakland airport was the scene of busy preparations—caterpillar tractors towing rollers were hard at work leveling and hardening the 7000 foot runway, water wagons were laying the dust, and fire engines and "crash equipment" were stationed on the field in case of need. At dawn nine planes were on the line, the center of interest of thousands of spectators who arrived at the airport long before sunrise.

The entrants in order of starting, which was decided by the drawing of lots, were:

1. *Oklahoma*—Travel Air monoplane. Pilot—Bennett H. Griffin, Oklahoma City. Navigator—Al Henley, Bartlesville, Okla. Entered by the Phillips Petroleum Company of Oklahoma City.

2. *El Encanto*—monoplane designed by Lieutenant Goddard and built under his supervision. Pilot—Lieutenant Norman Goddard, U. S. N. R., San Diego. Navigator—Lieutenant Kenneth Hawkins, U. S. N., Wilkesbarre, Pa. Fuel capacity of plane, 360 gallons, wing area, 283.5 square feet.

3. *Pabco Flyer*—Breese monoplane. Pilot—Major Livingston Irving, Berkeley, Calif., flying alone. Fuel capacity of plane 380 gallons; wing area, 260 square feet.



Nine of the Dole race airplanes lined up for the start at Oakland airport. *Underwood & Underwood.*

P. & A. Photo.

Captain Paul Schluter.

Entry backed by employees of the Berkeley paraffin companies.

4. *Golden Eagle*—Lockhead "Vega" monoplane. Pilot—John W. Frost, San Francisco. Navigator—Gordon Scott, Los Angeles. Fuel capacity of plane, 350 gallons; wing area, 260 square feet. Entered by the *San Francisco Examiner*.

5. *Miss Doran*—Buhl biplane. Pilot—John A. Pedlar, Flint, Mich. Navigator—Vilas R. Knope, U. S. N., San Francisco. Passenger — Miss Mildred Doran, Flint, Mich. Fuel capacity of plane, 400 gallons; wing area, 350 square feet. Flight backed by William F. Malloska, Flint, Mich.

6. *City of Peoria*—Air King biplane. Pilot—Charles W. Parkhurst, Lomax, Ill. Navigator—Ralph C. Lowes, Peoria, Ill. Fuel capacity of plane, 372 gallons; wing area, 342 square feet. Entered by the National Airways System of Lomax, Ill.

7. *Aloha*—Breese monoplane. Pilot—Martin Jensen, Honolulu. Navigator—Paul Schluter, San Francisco. Fuel capacity of plane, 400 gallons; wing area, 260 square feet; gross weight, 4985 pounds. Financed by popular subscription in Honolulu.

8. *Woolaroc*—Travel Air monoplane. Pilot—Arthur C. Goebel, Los Angeles. Navigator—Lieutenant W. C. Davis, U. S. N., San Diego. Fuel capacity of plane, 425 gallons; wing area, 310 square feet; maximum speed, 125 m. p. h. Financed by The Phillips Petroleum Co.

9. *Dallas Spirit*—Swallow monoplane. Pilot—Captain William P. Erwin, Dallas, Texas. Navigator—Alvin Eichwaldt. Fuel capacity of plane, 460 gallons; wing area, 330 square feet; estimated cruising speed, 105 m. p. h., over a radius of 4,500 miles; weight, fully loaded, 5,650 pounds.

All of the planes were equipped with Wright Whirlwind engines.

Before the start entry number 6. the *Spirit of Peoria*, was disqualified because the inspectors decided that the plane had insufficient fuel capacity.

Noon—The race is on!

The *Oklahoma* moves down the runway and leaves the ground just at noon. Goddard's *El Encanto* streaks over the starting line, veers off the path at the 4,500 foot mark and turns over, crumpling the left wing and ripping off the landing gear. Neither Goddard nor Hawkins are hurt.

Major Irving's *Pabco Flyer* roars down the line, but is unable to get more than a few feet off the ground. His plane is towed off the runway and takes its place at the end of the line for another trial.

The *Golden Eagle* takes the air at 2700 feet and is 200 feet up at the end of the runway.

The *Miss Doran* makes a fine run and takes off easily.

The *Aloha* gets off at 2,500 feet.

The *Woolaroc* crosses the line and is off at 3,000 feet.

Then the *Dallas Spirit* hops safely off.

At 12:43 the *Miss Doran* comes back with her motor missing and makes a good landing despite the load of fuel.

P. & A. Photo.

Lieutenant William J. Davis.

A few minutes later the *Oklahoma* circles back over the airport.

And yet another, the *Dallas Spirit*, returns, but with slight damage on landing. A window in the bottom of the fuselage, for the navigator to sight through, tore open during flight, the wind ripped the fuselage covering loose, and was the cause of Captain Erwin's return.

The *Oklahoma* lands safely.

Major Irving starts down the runway again in his *Pabco Flyer*. The plane gets up in the air at 2500 feet, but crashes at the end of the runway. Irving is uninjured.

After repairing the motor, at 2:03 the *Miss Doran* crosses the starting line again.

Erwin and Griffin give up hope of taking off that day and the Oakland airport's busiest day ends with four planes over the Pacific enroute over the great circle steamship lane to Honolulu—distance 2,407 miles.

The Dole flight log, as given by the Associated Press, was as follows (all times being Pacific Standard Time):

P. & A. Photo.

"Gassing up" the Woolaroc.

TUESDAY, AUGUST 16

12:31 p. m.—Monoplane *Golden Eagle* takes off at Oakland airport.

12:34 p. m.—Monoplane *Aloha* takes off.

1:05 p. m.—*Aloha* passes over Farallones.

2:03 p. m.—Biplane *Miss Doran* takes off on second attempt.

2:35 p. m.—Motorship *Silver Fir*, 185 miles out, reports *Aloha* overhead, north of direct course.

2:43 p. m.—*Miss Doran* reported passing Farallones.

2:50 p. m.—Steamer *Wilhelmina* reports *Aloha* putting south toward direct course.

2:55 p. m.—Destroyer *Meyer* reports *Aloha* 200 miles out, still 35 miles north of course.

4:00 p. m.—Destroyer *Hazelwood* reports *Woolaroc* 270 miles out.

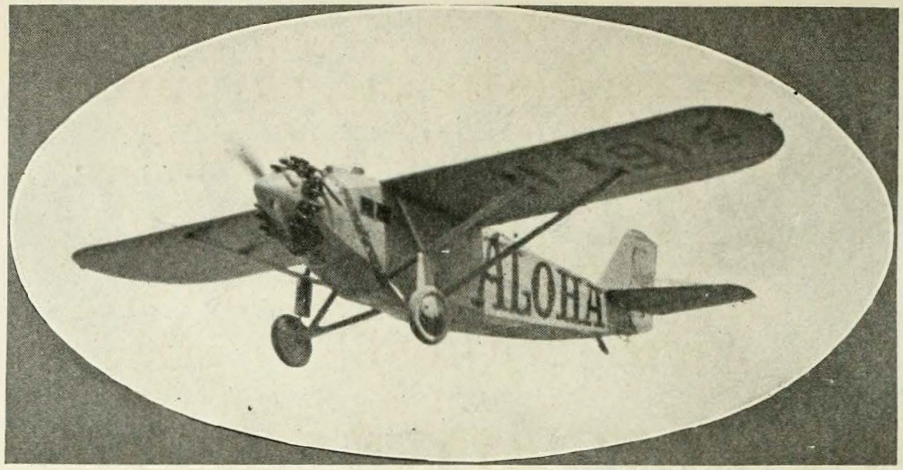
4:35 p. m.—Steamship *Wilhelmina*

reports message from *Woolaroc* 300 miles out.

8:00 p. m.—Destroyer *McDonough* reports *Woolaroc* 300 miles out.

8:50 p. m.—Destroyer *Corry* reports message from *Woolaroc* 517 miles out.

11:30 p. m.—A radio from the destroyer *Corry* reports message from *Woolaroc* 750 miles out.



The Breese monoplane Aloha taking off for Honolulu.

WEDNESDAY, AUGUST 17

2:00 a. m.—Steamship *Manulani* reports through the Army Signal Corps, two planes believed the *Woolaroc* and *Miss Doran*, on northern edge of course, to be approximately midway.

2:00 a. m.—Steamship *City of Los Angeles* reports in messages received by the Army Signal Corps, Honolulu, two planes, believed the *Golden Eagle* and *Aloha*, on the southern edge of the course, approximately midway.

4:00 a. m.—Steamship *Manukai* reports *Woolaroc* 1485 miles on her course.

9:30 a. m.—Steamship *City of Los Angeles* reported *Woolaroc* 450 miles from Honolulu.

11:05 a. m.—Mutual Telephone Company, Honolulu, received message from Pilot Goebel of *Woolaroc*, via, Wahiawa Radio Station, that plane was 250 miles from Honolulu.

12:00 noon—Army Signal Corps, Honolulu, intercepted radiogram from *Woolaroc* that the plane was nearing Island of Oahu.

12:00 noon—Radio Corporation received report from steamship *City of Los Angeles* that *Woolaroc* "all well," 206 miles from Honolulu.

2:39 p. m.—Army Signal Corps, Honolulu, reported *Woolaroc* passed over Fort Ruger, Island of Oahu.

2:53 p. m.—*Woolaroc* landed at Wheeler Field, Honolulu, winning first prize Dole flight.

4:50 p. m.—*Aloha* landed at Wheeler Field, Honolulu, winning second prize Dole flight.

The arrival of the *Woolaroc* at Wheeler Field was the signal for a tumultous ovation by the twenty thousand persons waiting at the field. Goebel was reported nearing the field a few minutes before he landed by an Army Air Corps squadron which had flown out to meet the fliers. He flew over Honolulu and circled the field several times, and upon landing stepped from his plane dressed in a plain business suit. Lieutenant Davis, in his navy uniform, followed him.

Governor Farrington, General Lewis, James Dole, the prize donor, and the officialdom of Honolulu, greeted the victor, who was surprised to learn that he was the first one there.

N. W. Ayer & Son.

Telephotograph of Martin Jensen.

They experienced no difficulty on the entire flight and were both in good shape after the trip. The fliers said they had not sighted water since leaving the Golden Gate, until that morning. They flew at an elevation of from 6,000 to 8,000 feet and had good weather all the way.

Following the welcome by the Governor, army and navy officials, and civilians, Goebel and Davis left for Honolulu, 25 miles away, for a "shave and a swim"—Goebel's first wish on landing, when told he could have anything he wanted.

Just as the crowds were leaving the field, the *Aloha* appeared over the field. Cheers and shouts went up again for the second prize winner! Leis were heaped on Jensen, Schluter and Mrs. Jensen who was there to greet her husband. They had been lost but after four hours wandering found their location and made for Wheeler Field.

Goebel, praising his navigator, said: "The course was aimed to hit Maui or Molokai about 9 o'clock this morning and that's just what we did. I saw the dim shore of Molokai in the distance and, boy, that was a joyful feeling!

" 'Twas but a moment later that Lieutenant Davis pointed out Maui. We were flying at an altitude of 9000 feet and in another hour we were over land. That settled it. I knew my calculations were correct. These were made months in advance. We had gasoline enough for five hours' flying when we landed at Wheeler Field. That would have taken us nearly 600 miles further without any trouble."

The *Woolaroc* was the only one of the four planes that carried radio transmitting apparatus, and so was the only one reporting its position. The *Woolaroc* and the *Golden Eagle* were equipped to receive messages and the army radio beacon signals.

Martin Jensen believes that if he had a radio set aboard they would have arrived first. He said: "This was demonstrated when we lost three hours Wednesday morning circling about waiting for high noon in order for Captain Paul Schluter, my navigator, to shoot the sun and get his position, before we could proceed. And when he got it, we gave her the gun and approximately two hours later hit the Island of Oahu right on the nose and ten minutes later had landed at Wheeler Field to the accompanying shouts and cheers of the crowd."

"The preliminary examination of the gas tanks showed that we had about five gallons of gas, or about half an hour of flying time left to us."

But all the celebrations over the successful flights of the *Woolaroc* and the *Aloha*.. (*Continued on page 366*)

MORE LONG-DISTANCE FLIGHTS

AROUND-THE-WORLD

EDWARD F. SCHLEE, president of the Wayco Oil Corporation, and William Brock, his pilot, are attempting to circle the globe by air in 15 days. They flew from Detroit to Curtiss Field, L. I., on August 22nd, to Old Orchard Beach, Maine, August 25th, and, on the 26th, to Harbor Grace, Newfoundland, their official starting point. A special runway had been built at Harbor Grace airport and arrangements had been made with the New York City weather bureau to have weather reports sent by radio to Cape Race and relayed by telephone to Harbor Grace.

At 5:14 a. m. Eastern Standard Time, August 27th, they hopped off from Harbor Grace for Croydon Airport, London, England. The weather conditions were ideal for the take-off. They had put aboard, the evening before, 350 gallons of gasoline, filling all their tanks and storing an extra supply in five-gallon tins in the fuselage. After seven hours' sleep, Schlee and Brock arrived at the Harbor Grace field about five o'clock and got away with little delay, flying straight into a rainbow.

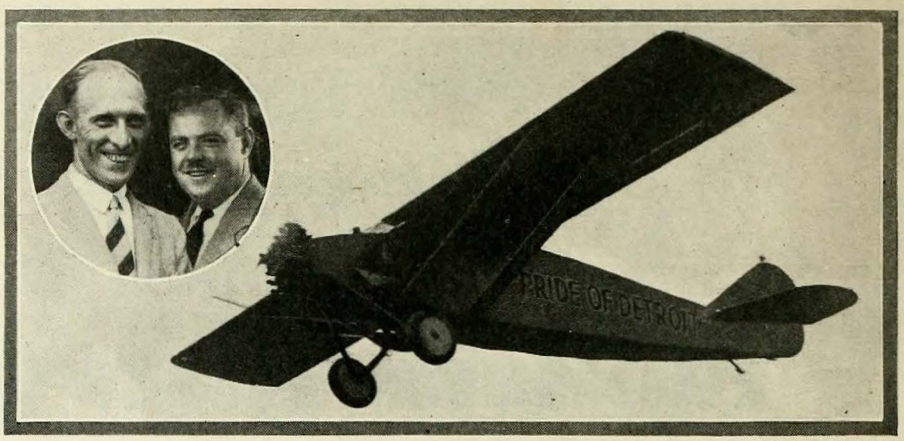
After covering about sixty miles, they ran into squalls. From then on they flew through storms, fog and high winds. During the night they battled through the most terrific storm of all and were lost for three hours in the fog over England. By dropping messages asking for their location, they attracted the attention of a life-saving station at Seaton, Devon, which wrote the name of the town in white letters on the sand and ran up the British flag. The flyers then certain that they were in England, got their bearing and headed straight for London.

At 4:23 a. m., Eastern Standard Time, they arrived at Croydon airport and made a perfect landing. Their flying time from Harbor Grace to Croydon was 23 hours 9 minutes. Their gasoline tanks contained 85 gallons after the transatlantic flight.

The next morning at 8:31 o'clock (3:31 a. m. Eastern Standard Time) Schlee and Brock took off for Munich, Germany. This second leg of their flight around the world was completed at 4 p. m. (10 a. m. Eastern Standard Time) when they landed at the flying field at Munich.

Another good night's rest and the globe hoppers soared away from Munich at 6:35 a. m., Berlin Time, for Belgrade, Jugoslavia.

Their Stinson-Detroiter monoplane christened "Pride of Detroit" won this year's



Wide World.

Edward Schlee and William Brock, round the world travelers, and their Stinson plane.

National Air Tour. It has since been equipped with a new Wright Whirlwind engine. A 200-gallon fuel tank on which the pilots will sit has been installed in the cabin. There are two 40-gallon wing tanks and twenty-six 5-gallon containers are to be carried in the plane on the longest leg of the flight, which will be nearly 2,500 miles. The plane has a total gas capacity of 410 gallons; 22 gallon oil tank. Its weight, empty, is 2,040 pounds; high speed, 128.5 m.p.h. at 1,960 r.p.m. A complete description of the Stinson-Detroiter monoplane was published in the August issue of AERO DIGEST.

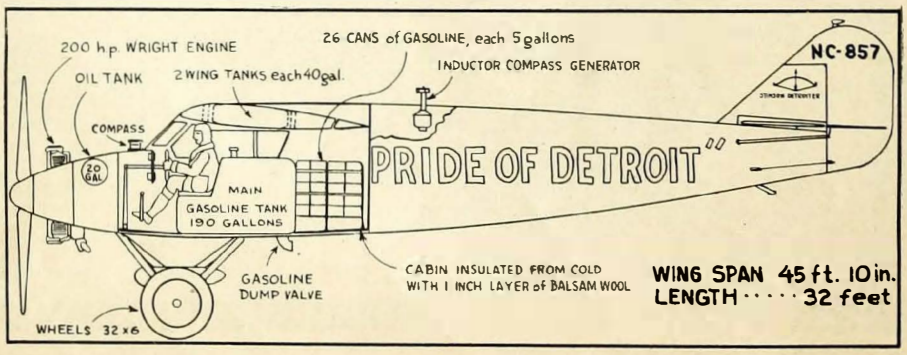
The plane will use wheels for the entire flight; the engine will be changed at Tokio. They have a radio receiving set for use as an aid to navigation on several legs of the flight over which radio beacons are operated.

In addition to the Pioneer earth inductor compass, the plane is carrying a magnetic compass and a British periodic compass. A rubber "airaft" and the 200-gallon fuselage tank, which can be emptied and sealed if the plane is forced down at sea, will act as flotation gear.

The route to be followed by the flyers and the length of the various legs of the flight is:

Harbor Grace, Newfoundland, to London, England, 2,350 miles; to Stuttgart, Germany, 460 miles; to Belgrade, Jugoslavia, 610 miles; to Constantinople, Turkey, 500 miles; to Aleppo, Syria, 590 miles; to Baghdad, Irak, 485 miles; to Bundar Abbas, Persia, 885 miles; to Karachi, India, 710 miles; to Allahabad, India, 925 miles; to Calcutta, India, 485 miles; to Rangoon, India, 665 miles; to Hue, French Indo China, 775 miles; to Manila, Philippine Islands, 890 miles; to Tokio, Japan (radio beacon), 1,820 miles; to Sand Island of Midway Islands (radio beacon), 2,480 miles; to Honolulu, Hawaiian Islands (radio beacon), 1,440 miles; to San Francisco, 2,400 miles; to Cheyenne, 925 miles; to Chicago, 865 miles; to Detroit, 257 miles; to Harbor Grace, 1,550 miles. Total mileage, 22,067 miles. Total estimated flying time, 240 hours.

Edward S. Evans and Linton Wells, by means of airplanes, boat and train, circumnavigated the globe in 28 days, 14 hours and 36 minutes. By using their plane over the entire course of 20,845 miles, Schlee and Brock hope to return to Harbor Grace in 15 days. Mr. Schlee is financing the flight.



GEORGIA-BRAZIL

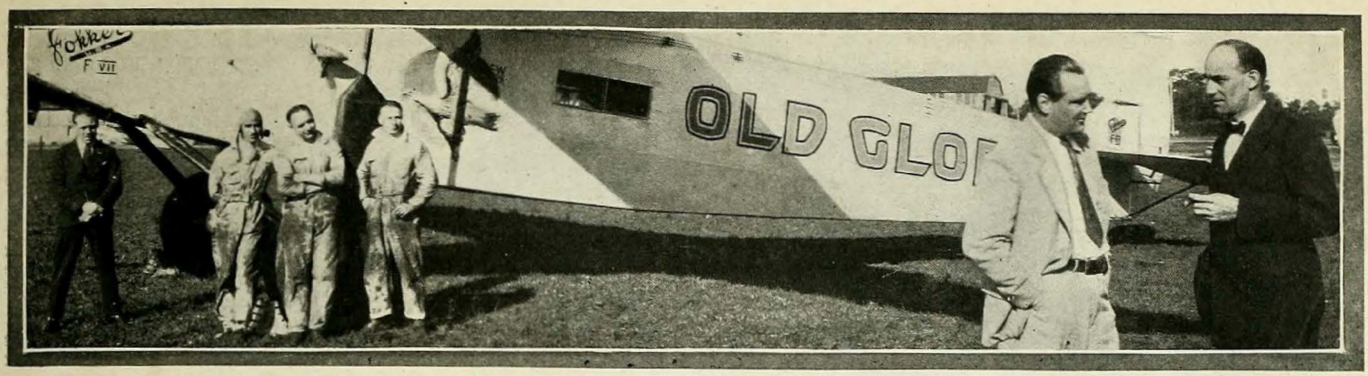
PAUL R. REDFERN took off alone in his Stinson-Detroiter monoplane, *The Port of Brunswick*, from Glynn Isle Beach, Brunswick, Georgia, at 12:46 p. m. Eastern Standard Time, August 25th, for a 4,600-mile flight to Rio de Janeiro, Brazil.

Except for a steamer's report that he had been sighted 300 miles east of the Bahama Islands on the afternoon of August 25th, no further news has been heard regarding him. His gasoline supply of 520 gallons was calculated to last about 52 hours. Therefore, it is certain that he was not in the air after 4:30 p. m. August 27th.

Gales were reported to have swept across Redfern's plotted course, which may have blown him off his course. If he was forced down in the wilds of South America, it may be weeks and even months before word is received from him

On the performance tests the gross weight of his plane was 4,790 pounds, with pilot and passenger, 400 gallons of gasoline and 5 gallons of oil; weight empty, 2,100 pounds. The wing loading was 16.4 pounds per square foot; power loading, 21.8 pounds per square foot; take-off, 2,100 feet in 32 seconds; high speed, 128 miles per hour. The plane maintained perfect balance with this load by use of the stabilizer.

The route of Mr. Redfern's flight, which was sponsored by a group of Brunswick, Ga., citizens, would take him over 2,800 miles of Brazilian jungles.



Captain E. W. Densham, three mechanics, Lloyd Bertaud and James Hill with their transatlantic monoplane "Old Glory."

NEW YORK-ROME

AT Roosevelt Field, Long Island, N. Y., Lloyd Bertaud, pilot, and James De Witt Hill, navigator, both well known air mail pilots, are waiting only for a west wind of approximately 15 miles per hour velocity to aid their take-off in *Old Glory* for Rome. Their flight is backed by William Randolph Hearst and is directed by Philip A. Payne, managing editor of the *Daily Mirror*.

Old Glory, their Fokker F7 monoplane, has a single Bristol Jupiter 450 h.p. engine. They plan to carry about 1100 gallons of gasoline, and about 85 gallons of oil, which with the equipment and two pilots, is calculated to make a total load of 12,600 pounds. The fuel, it is estimated, will keep the plane in the air for 56 hours at 90 miles an hour and carry her about 5040 miles. The motor has been using on the tests only 21½ gallons of gasoline an hour at a cruising speed of 95 miles an hour and a propeller speed of 1500 revolutions a minute.

There are five tanks for fuel; four of these, each holding 91 gallons, are located in the wings. The main tank, holding about 815 gallons, is provided with a dump valve by means of which the gasoline can be emptied in 57 seconds in case an emergency landing is made. The empty tanks will serve as buoys in case of a forced descent at sea. A rubber "airaft" is in the plane in case of emergency.

The wing of the plane measures 64 feet. On one side of the cockpit is painted a Roman eagle and on the other, an American eagle. From the cockpit a catwalk leads below and to one side of the main gasoline tank to the rear compartment. The rear cabin is spacious enough to permit standing or moving about. A mattress is provided for resting. In this compartment are the radio, provisions and equipment.

The fliers are to toss a coin to determine who will handle the controls at the start of the flight. They will alternate at the controls and at operating the radio during the flight. The call letters of their receiving and sending radio set are "WRHP"—William Randolph Hearst Plane.

Contrary to their famous transatlantic predecessors, Bertaud and Hill plan to start in the afternoon. This will give them two nights over the Atlantic and assure them of a day-time landing in Rome. They plan to follow a modified Great Circle course, flying first from New York to St. Johns, Newfoundland; then on a southerly line to the coast of France near Bordeaux. From there they will cross France, flying north of the Pyrenees and passing south of the Alps, then across the northern Mediterranean, where Colonel De Pinedo and his squadron of Italian aces are to meet them and escort them to Rome. This will take them approximately 4300 miles—the longest flight in history.

Lloyd Bertaud, who was a lieutenant in the air service during the World War, is 32 years old and was born in Alameda, California. At the age of 18 he became a licensed pilot. He has been flying the night air mail between New York and Cleveland.

James DeWitt Hill, who is past 42 years of age, was born in Scottdale, Pennsylvania. In point of service he is one of the oldest fliers in the country. He began in the old days back in 1912 under Glenn Curtiss in San Diego, California. He has spent more than 5000 hours in the air. For the last three years he has flown the air-mail between Cleveland and New Brunswick.

On the return trip the fliers plan to hop off from a point near Bristol, England, the home of the Jupiter motor.

UNITED STATES-EUROPE

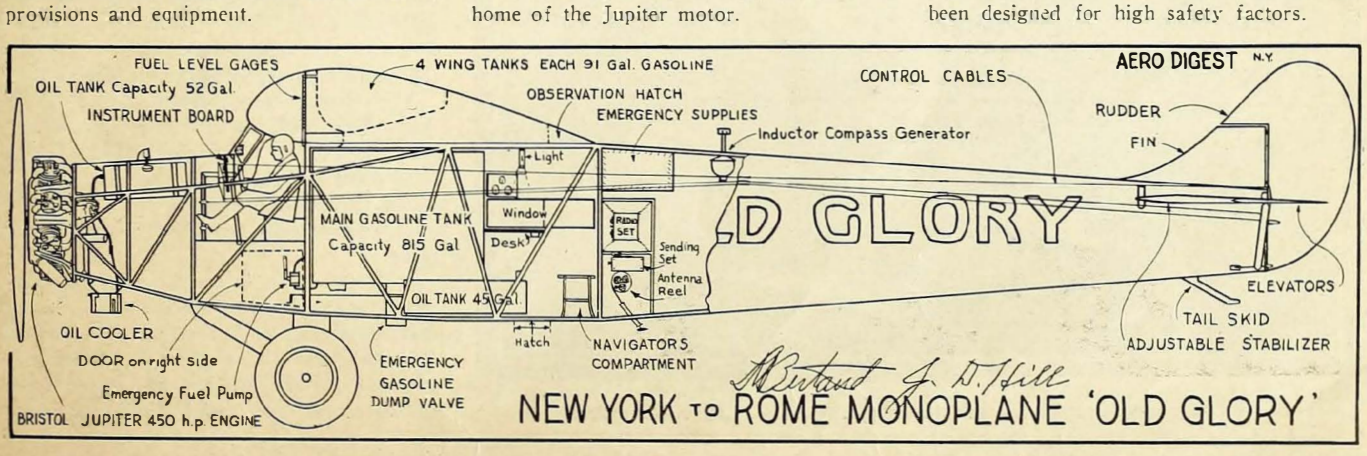
THE large Sikorsky biplane, S-37, in which Captain René Fonck plans to fly across the Atlantic is being tested at Curtiss Field, Long Island. "Ville de Paree" (City of Paris) is the name that will be given to the plane.

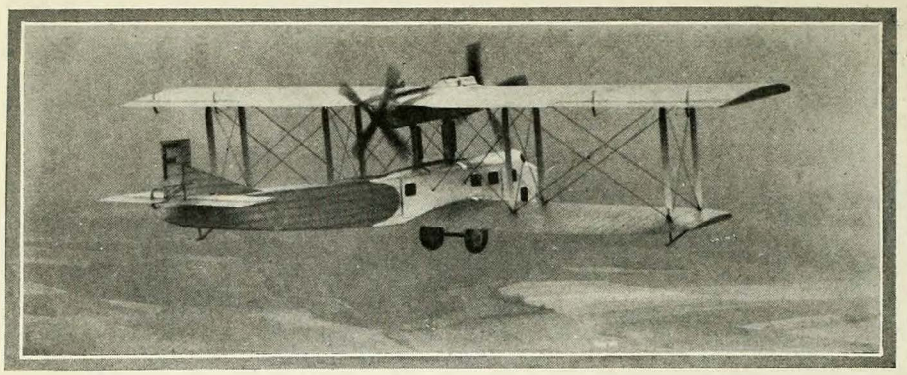
The strut channels, spars and ribs of the wings are built of duralumin, as is the frame of the fuselage. All are covered with treated fabric. A layer of Balsam Wool insulation, one inch thick, surrounds the body to protect the occupants from the noise of the engines and the cold temperatures encountered at high altitudes.

Twin Rhone-Gnome-Jupiter 500 h.p. motors will power the plane. It is estimated that the consumption of the two motors will be about thirty-eight gallons of gasoline an hour. Other specifications of the plane are as follows:

Upper wing span, 100 feet. Total length over all, 45 feet 6 inches. Height, 16 feet 3 inches. Tread of wheels, 17 feet. Wing area, 1075 square feet. Weight empty, 8000 pounds. Normal useful load, 7000 pounds. Normal distribution of load for commercial purposes: crew, 2 men; 16 passengers; baggage, express or mail, 1340 pounds.

The interior of the spacious cabin is practically free from obstructions and near the foward end steps lead to the pilot's compartment. At either side of these steps access is had to the baggage compartment at the nose of the ship. At the rear of the cabin is an elaborate radio set for transmitting and receiving messages during flight or while the plane is at rest. Continuous non-shatterable glass windows all along the sides of the cabin give wide vision and may be slid open for ventilation. The cabin structure has been designed for high safety factors.





The Farman twin-motored "Bluebird" to be flown across the Atlantic by Costes.

FRANCE-UNITED STATES

DIEUDONNE COSTES, French war ace and long distance flyer, and Lieutenant Le Brix, his navigator, are ready to start from Le Bourget or Villacoublay Field, Paris, for New York at the first sign of good weather.

Their Breguet 19 A2 Special biplane, named "Nungesser-Coli", is powered with a single 600 h.p. Hispano-Suiza engine, and has a maximum speed of about 125 miles an hour. It has a wing surface of 516.75 square feet, a length of 24 feet and a wing spread of 42'-7". It is the standard Breguet army plane modified for long distance flying. The range of the plane has been increased by adding a number of fuel tanks equipped with automatic drains.

It is the same plane in which Costes and Rignot flew 3514 miles from Paris to Djask last October, setting the non-stop distance record which was later broken by Lindbergh and Chamberlin.

Costes' plans were held up for a time by the refusal of the French Government to permit his army plane to undertake the over-sea flight unless structural alterations were made to permit it to float in the event of an accident. When these alterations were completed, permission was obtained for the attempt from M. Bokanowski, Minister of Air, and Minister of War Painlevé.

LEON GIVON and Pierre Corbu, who plan to fly the Farman "Bluebird" from Le Bourget, near Paris, to New York, are also ready to hop off as soon as the weather permits. Both Givon and Corbu had many hours in the air during the war, and each has added hundreds more in piloting regular commercial airplanes between European capitals.

Their Farman biplane has a wing spread of 118 ft. 2 in., total length 59 ft., height 16 ft. 5 in., total lifting surface 1937 sq. ft. Ailerons are fitted on upper wing only.

Two Farman, 12 cylinder, 500 h.p. engines are mounted on the upper wing en tandem. Each is equipped with a four-bladed propeller and propeller reduction gear which is geared at one to two.

The total weight of the machine empty is 8816 lbs. and the load carried for the transatlantic flight will be between 9918 and 11,020 lbs. The machine is capable of flying with either forward or rear engine stopped with a load not exceeding 5510 lbs. Equipped for the transatlantic flight the fuselage contains fuel tanks holding 2536 gals. of gasoline.

This machine is a new one specially adapted for the flight and is a slightly smaller model of the new Farman type which is being constructed for carrying passengers at night on the Farman Air Lines.

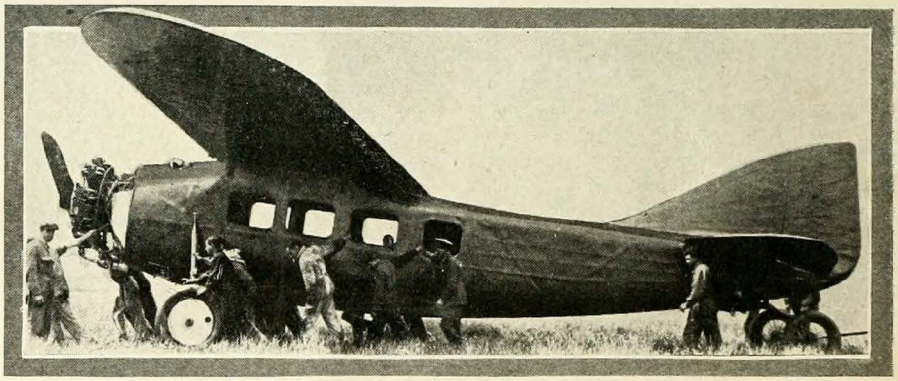
The first tests of this machine showed that it would be capable of flying at least 50 hours at an average speed of 90 miles per hour. With normal load the maximum speed is 125 miles per hour, cruising speed 100 miles per hour, minimum speed approximately 50 miles per hour.

It is of the standard wood construction used by Farnam, including box spars and struts.

PAUL TARASCON, former French Navy flyer, is another contender for Paris-New York flight laurels. His Bernard monoplane, the "Yellow Bird", is equipped with a single 420 h.p. Gnome-Rhone-Jupiter engine. It is estimated to have a speed of 115 m.p.h. and can carry more than 800 gallons of gasoline, sufficient for 42 flying hours. The wing spread is 53 ft. 1 in.; length, 37 ft. 9 in.; height, 11 ft. 2 in.

The plane's weight is 3746 pounds empty.

The length of the cabin is 37 ft. 9 in. It contains two pilots' seats behind which are the fuel tanks and a navigation post where the navigator will work standing. He is able to reach the pilot by a narrow passage between the gas tanks. These can be emptied quickly in case of necessity. The fuselage is covered with a special fiber.



Acme.

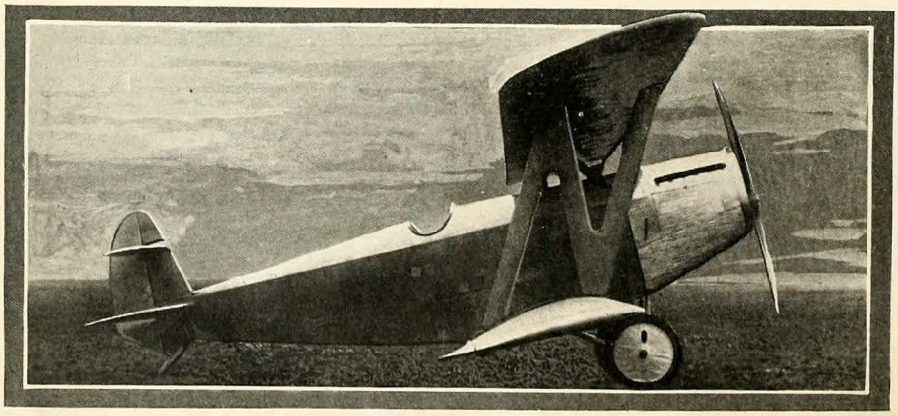
The Bernard monoplane in which Tarascon will fly from Paris to New York.

GERMANY-UNITED STATES

LIEUTENANT OTTO KOENNECKE has completed tests on his Caspar biplane, "Germania," for his flight from Cologne to San Francisco via New York. He will take Count Solms-Laubach as his passenger, and a radio man, but will operate the plane himself on the entire flight.

The Caspar plane, which has a wood framework with fabric covering, carries gasoline sufficient for 50 flying hours, bringing its total weight to 8,800 pounds. In addition to the main gasoline tank a number of auxiliary tanks have been placed in the plane.

It is stated that in the tests the plane attained a speed above 108⅝ miles an hour carrying almost its full weight of 8,375 lbs. It is equipped with a 310 h.p. Junkers engine, of the 6-cylinder water-cooled type, similar to the type used by Junkers.



Wide World.

The German Caspar transatlantic biplane of Lieut. Koennecke.

PILOTS Herman Koehl, Friedrich Loose, Johann Risticz and Cornelius Edzard who were forced by storms and fogs to return to Dessau, Germany, after starting for the United States on August 14th, are planning to make a new start as soon as the weather permits.

Koehl and Loose, pilots of the Junkers monoplane "Bremen", with their passenger, Baron Gunther von Huenfeld, had flown beyond the west coast of Ireland before deciding to return. They found their way back through the dense fog and landed at Dessau twenty-two hours after their take-off.

Edzard and Risticz, pilots of the Junkers monoplane "Europa", of the same model as the "Bremen", in which they recently broke the world's endurance flight record, were forced to land back at Dessau at night after five hours over the North Sea fogs. They were accompanied by Hubert R. Knickerbocker, one of the correspondents of the Universal Service in the Berlin Bureau. The plane was badly damaged in landing and another plane of the same type substituted for the original "Europa".

Both the "Bremen" and the "Europa" are all-metal low-wing monoplanes of the standard Junkers W-33 model, built for passenger and freight carrying. The planes have a wing spread of 58 ft. 3 in. from tip to tip, with an overall length of 34 ft. 5 in. and a height of 9 ft. 6 in.

They are single motored, powered with six-cylinder water-cooled Junkers L-5 engines which develop 310 horsepower.

Unloaded the W-33 type weighs 2640 pounds. Its normal useful load is 1990 pounds, and its normal full load is 4630 pounds. For the transatlantic flight both ships will carry a total load of 8140 pounds. The ships have a high speed of 115 miles per hour and a cruising speed of 97 miles per hour. The two pilots sit side by side in the dual control, glass-enclosed cockpit which is ahead of the cabin and freight compartment, separated from it by a fire-wall and directly behind the engine.

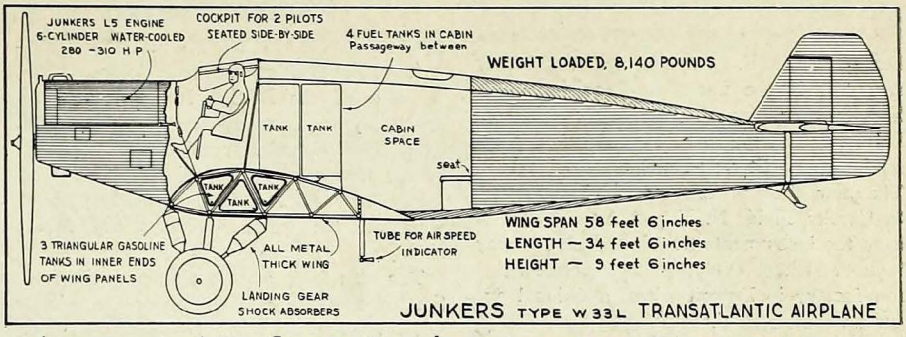
Reports from Dessau give the engines a gas consumption of 230 grams per horsepower hour. Taking the power of the engine at cruising speed to be between 280 and 290 horsepower an approximate gas consumption of between fifteen and seventeen gallons per hour is reached. This consumption will vary with the speed and load.

The "Bremen" when it took off on the unsuccessful attempt weighed 3800 kilograms or about 6600 pounds, of which 3000 kilograms consisted of gasoline.

The North German Lloyd Steamship Line, William Randolph Hearst and the Darmstaedter and National Bank are the backers of the flights.

A new pneumatic telecompass which is said to enable an airman to keep his course mechanically is to be used on both the German planes.

ERNST UDET, the famous war ace, with two companions, intends to hop off from Hamburg for New York and return to Germany this month, in a bimotored Rohrback monoplane of 1,400 h.p.



Arrangement of the German transatlantic type planes—Breman and Europa.

ENGLAND-UNITED STATES

CAPTAIN F. T. COURTNEY'S flight from Southampton, England to New York is still being delayed by bad weather and minor repairs. His original plans were to fly to Valencia, Ireland; refuel and hop to Newfoundland; refuel and fly to New York. He has now decided to fly over the southerly route to the Azores, refuel his tanks, fly from there to Newfoundland and New York. This change will increase his outward journey 1,800 miles. His return flight will be a non-stop from Newfoundland to Calshot, England.

Captain Courtney is making this flight to demonstrate the feasibility of an air service to America and back. Reliability has been placed before everything; all the preparations, which are now complete, have been carefully planned and it is hoped that information of great practical value will be obtained. He will use an all-metal Dornier-Napier "Whale", fitted with two Napier Lion engines, developing approximately a total of 1,000 h.p.

This machine, capable of riding out ocean storms, has a range of 2,400 to 2,800 miles in still air with a fuel capacity of 1,000 gallons contained in 15 tanks in the hull. Extra gasoline will be carried in loose cans in the event of more fuel being required to complete the journey. It has a cruising speed of 100 to 105 m.p.h., and a top speed of 128 m.p.h.; weight, empty, 3½ tons; weight, fully loaded, 7½ tons. Its wing area is 1,000 square feet; span, 72 feet; length, 55 feet and is 15 feet high.

The Napier Lion engine has twelve cylinders which are arranged in three blocks of four cylinders each, the angle between each two blocks being 60 degrees. With this arrangement a short crankshaft can be used which gives not only greater strength and compactness, but greater reliability.

Marconi directional wireless will be used for navigation so that it will be possible to take bearings from land stations and shipping along the route. In addition, compasses and a drift indicator have been fitted in the machine. Transmitting and receiving wireless with a range of approximately 600 miles will be carried, and messages will be transmitted from time to time.

Captain F. T. Courtney will have with him Flying Officer F. W. M. Downer, who was until recently navigation instructor at the Royal Air Force flying boat station at Calshot, and R. F. Little, who has been a ground engineer at Croydon Aerodrome for some years.

ROBERT H. McINTOSH, Imperial Airways pilot, accompanied by a navigator, plans to hop off from England to New York in a Fokker F-7A equipped with a 510 h.p. Jupiter air-cooled engine. He is being financed in the venture by William B. Leeds.

CANADA - ENGLAND

PHIL WOOD, brother of Gar Wood, famous motor boat racer, and C. A. Schiller, of the Canadian Government Aerial Patrol, intend to fly from Windsor, Ontario, landing as near as possible to Windsor Castle, London, England, in a Stinson monoplane.

Wood will carry most of the gasoline in 5 gallon containers which, when emptied, will be sealed and thrown overboard. Each can will have the names of the flyers painted on it and a message inside giving their position at the time it is dropped, thereby giving clues to the location of the plane in case they become lost. The plane is an exact duplicate of the "London to London" plane. On the test flight, the take-off was 32 seconds, with total load of 4,795 pounds.

The flight is being backed by Edmund T. Odette, M.P., from East Essex, Ont., and Windsor business men.

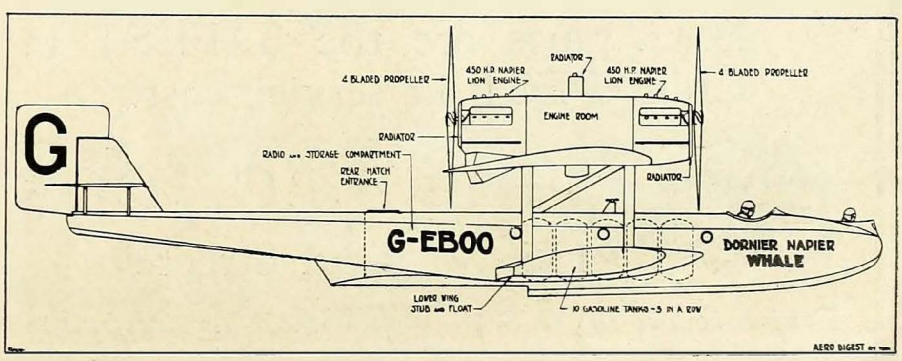


Diagram of Captain Courtney's twin-motored flying boat.

CAPTAIN TERRENCE TULLY and Lieutenant James Metcalf, both members of the R. F. C. during the World War and now in the Canadian Provisional Air Service, plan to make a non-stop flight from London, Ontario, Canada to London, England in a Stinson-Detroiter monoplane. They flew their plane from London, Ontario to Curtiss Field, N. Y., on August 21st to have the instruments tested, and on the way back to London, Ont., stopped at the Stinson factory in Detroit where additional gas tanks were installed.

The plane is equipped with a Wright Whirlwind motor and weighs 2,040 pounds unloaded. There are four wing tanks with 45 gallons in each, and one 785 gallon tank in the cabin, totalling 365 gallons. Extra 5-gallon containers of gasoline will be placed in the cabin. The take-off of the plane with pilot and passenger and 400 gallons of gasoline was 2,100 feet in 32 seconds.

They plan to fly across Lake Ontario and follow an "all water" route of 2,300 miles to England.

The flight is sponsored by Charles A. Burns, president of the Carling Brewery in London, Ont., and the plane has on each side in large script letters, on a bright green background, the name of the brewery's founder, Sir John Carling.

CAPTAIN E. L. JANNEY of Ottawa hopes to be the first to fly from Canada to London and is having a Fairchild monoplane built for the attempt. He is backed in his undertaking by an Ottawa syndicate known as the Janney Transatlantic Flights.

England-Canada

CAPTAIN LESLIE HAMILTON, British air taxi owner, and Colonel F. F. Minchin of the British Imperial Airways, are ready to start on their non-stop flight to Ottawa, Canada, from the Upavon Airdrome, forty miles from Bristol, England, instead of from Ireland as formerly planned, whenever the weather reports are favorable.

The plan to fly over Bath, across the Irish Sea, touching Ireland at Cahore Point, over Galway and then leave Ireland at Clifden, where they will be met by two Irish Free State planes, which will escort them out over the Atlantic. They then plan to take a direct line for St. John's, Newfoundland. They expect to be in the air for 37 or 38 hours, but have sufficient fuel for a flight of 44 hours. 750 gallons of gasoline have been loaded into their Fokker-Jupiter for the flight. They have no radio set and no floats.

Princess Lowenstein-Wertheim, 62 years of age, who is financing the flight, is to accompany Captain Hamilton and Colonel Minchin.

San Francisco-Australia

CAPTAIN KINGSFORD SMITH and Charles Ulm accompanied by Keith Anderson will endeavor to fly from San Francisco to Australia. They propose to use a land monoplane as far as Honolulu, where floats will be fitted to the plane for the remainder of the flight to Fanning Island, the Phoenix group, Samoa, Fiji, New Caledonia, Brisbane and Sydney, Australia.

United States-New Zealand

CAPTAIN FREDERICK GILES of Wellington, New Zealand, plans a 11,000-mile flight to New Zealand. He will fly from San Francisco to Honolulu, to Brisbane, to Sydney and thence to Wellington, New Zealand.

He has left Detroit in a Hess Bluebird biplane enroute to his starting point of line in San Francisco. William H. Rosewarne, Detroit contractor, is backing the flight.

Prizes Offered

THE following prizes have been offered for long-distance hops:

$25,000 offered by William K. Easterwood of Dallas, Texas, for the first flight from Dallas to Hongkong, China. 10,000 miles.

$25,000 offered by Cleveland sponsors for the first non-stop flight from Paris to Cleveland, Ohio, to be known as the Myron T. Herrick Paris-to-Cleveland flight.

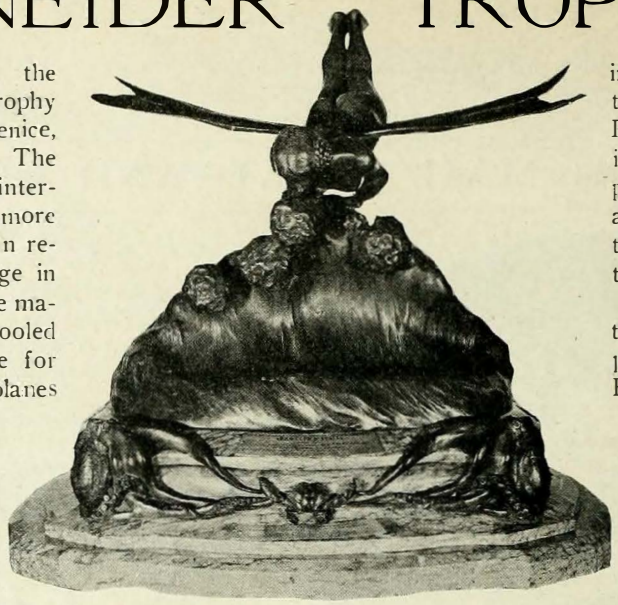
$25,000 offered by the Philadelphia *Evening Bulletin* for the first non-stop flight from Europe to Philadelphia, Pa., before August 4, 1928.

$25,000 by the Seattle-Tokyo Flight Fund Committee for the first non-stop flight from Seattle, Washington, to Japan.

$24,000 offered by the Aero Club of Germany for the first German pilot to fly across the Atlantic in a German-built plane.

$10,000 offered by the Bermuda Trade Development Board, to be known as the Bermuda Safety Prize, for the flight from New York to Bermuda, or Bermuda to New York, which exhibits the most safety factors.

The SCHNEIDER TROPHY RACE



THE tenth contest for the Jacques Schneider Trophy will take place at Venice, Italy, on September 25th. The event promises to be of great interest since the planes entered are more nearly matched in power than in recent contests, and a wide range in types will compete. One of the machines is a high powered, air-cooled engine monoplane, a new type for racing. Monoplanes and biplanes will have their chance to prove their comparative merits for racing purposes. Italy, Great Britain and the United States will have contestants in the race.

The Schneider Trophy was given by the late M. Jacques Schneider in 1913 to the Aero Club of France for an annual speed contest between seaplanes of any nationality. Each country can enter a maximum of three aircraft. The course must not be less than 150 nautical miles. The first race took place at Monaco in 1913 and since then contests are held in the country holding the trophy at the time. The trophy can be won outright by any country which wins the race three times within five years. Before machines take part in the race they must successfully pass a seaworthiness test which consists of a navigability trial and watertightness test.

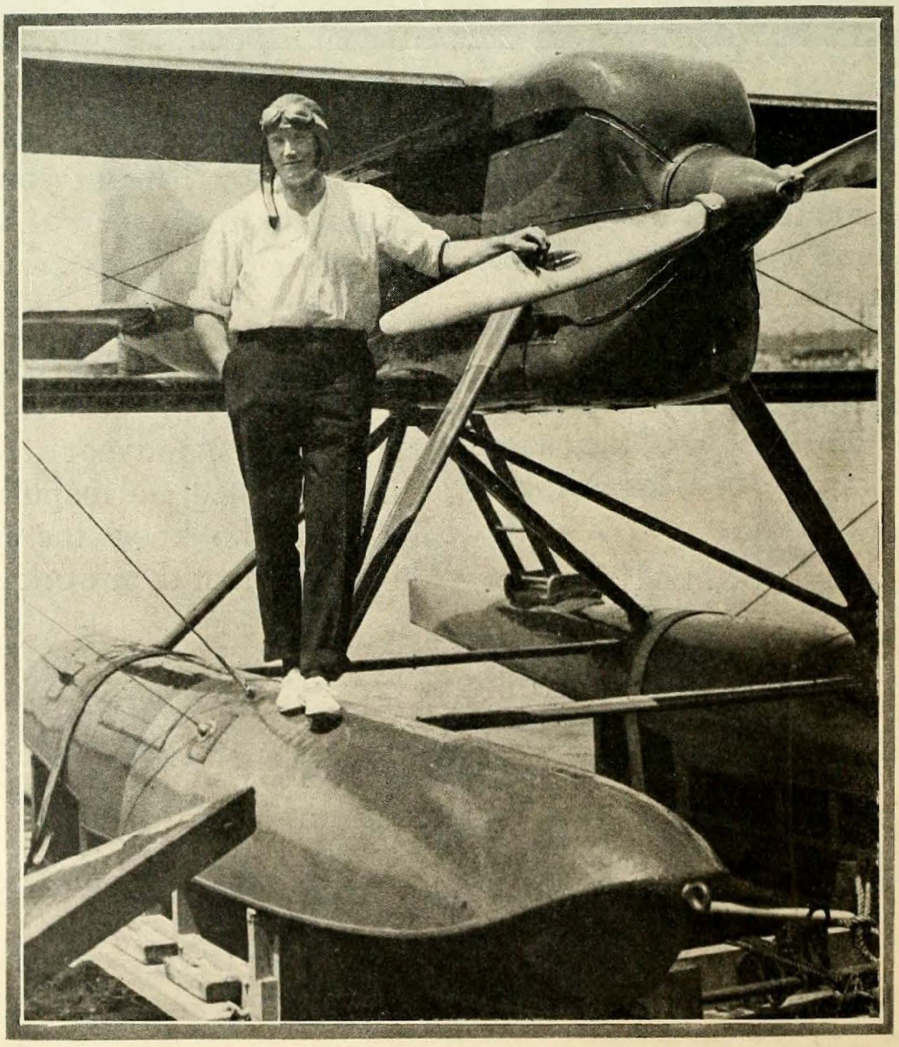
This year the contest will be over a distance of 350 kilometers (188.86 nautical miles.) The closed circuit will be about 50 kilometers (26.98 nautical miles).

The start of the race is near the seaplane station on the Lido. The competitors will fly anti-clockwise round the three-legged course of 50 kilometers. Seven circuits have to be flown, involving 20 turnings. The first leg is 11.4 kilometers and the first turning point is at Port de Malamocco. The second leg is 13.86 kilometers with a turning point opposite Chioggia. The last and long leg 24.74 kilometers runs to the starting point where the turning is also exceedingly sharp.

Great Britain will have three entries in the race, piloted by service pilots. In previous races, Great Britain was represented by civilian pilots. The British team will consist of six officers and twenty-seven mechanics of the Royal Air Force. Seven planes have been built and six will be taken to Venice. They were designed and constructed to Air Ministry order by the Supermarine Aviation Works (three Supermarine-Napier S5 monoplanes), Gloster Aviation Co. (two Gloster-Napier IV biplanes) and Short Bros. (one Short-Bristol "Crusader" monoplane.) After final tests have been made at Venice three planes will be chosen from the above six.

The Gloster-Napier IV biplane has a wing span of 22 feet 6 inches. The roots of its lower wings curve up into the fuselage and its upper wings curve down to the top of the fuselage. In this way the roots of the upper panels fair into the cowling around the outer banks of the engine cylinders, giving a fine streamline finish to the cylinders. The central vertical bank of cylinders is cowled with a fairing which carries down along the top of the body forming a windshield for the pilot.

Laminated spruce is used to cover the wings which, because of their thin sections, are of the multi-spar type. Wing struts are built up of duralumin. Cooling radiators are provided on



Lieut. Alford Williams, U. S. N. and his privately-built racing seaplane.

both of the upper and lower wing panels.

Controls have a variable movement action which gives a ratio of 2 to 3 for slight movements of the controls and gradually increasing to a 3 to 2 ratio for the maximum movements.

Monocoque construction is used in the streamlined fuselage. The engine mount is of steel tubing.

Removable fuel tanks are provided in the fuselage. The oil tank with a cooler is attached below the engine, built in as part of the fairing. A header tank carries the water as well as the gravity-fed fuel, located between the engine and the wind shield. Duralumin is used for the construction of the twin floats. The propeller is also of duralumin.

The Supermarine Napier S5 is a low-wing monoplane with wing surface radiators having a flat outer surface. The wing is built up of wood and covered with laminated spruce. Over this surface the radiators are placed.

Metal is used entirely for the fuselage. The skin is arranged to carry practically all of the stresses. Even the engine mount is carried by the skin which is provided with a cantilever extension forward of the fire wall.

Specially constructed oil coolers are attached to the sides of the fuselage.

The cockpit has a fresh-air duct to guard against the accumulation of exhaust fumes.

Floats are built of sheet duralumin, treated to withstand salt water corrosion. Fuel is carried in the starboard float, being fed up to the gravity tank by an engine-driven pump.

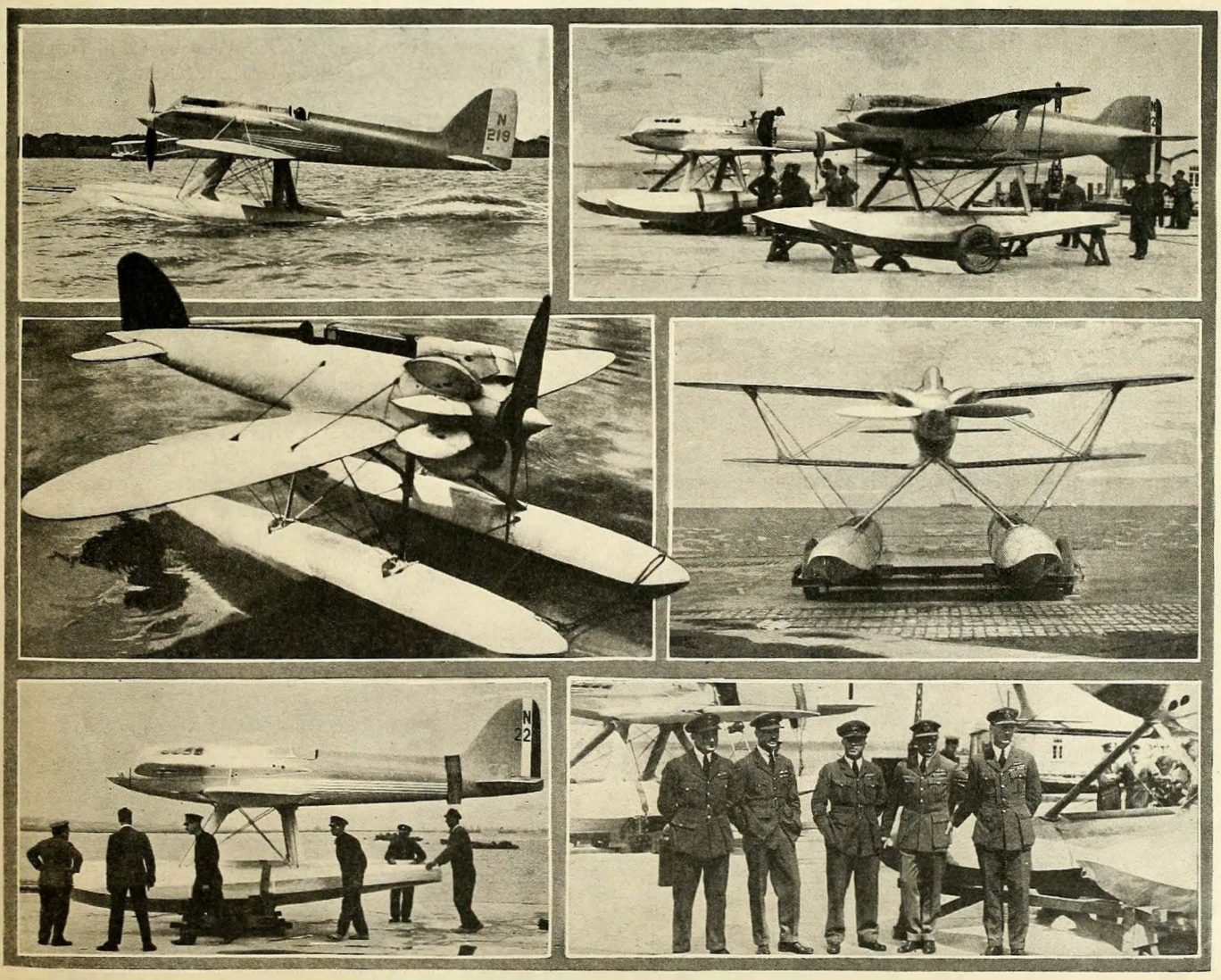
It is reported that the Supermarine S5 has unofficially exceeded the high speed record for land planes on a straight course.

The engines used to power the above planes are a development of the standard Napier "Lion" which is known for its dependable service. It is water-cooled and its twelve cylinders are arranged fan shape in blocks of four cylinders each. The frontal area is remarkably small for its power and its shape lends itself admirably for streamline cowling. The power is reported as being about 1000 h.p. although no figures have been given out officially. On account of the reduction gear, the propeller is run at a speed much reduced over the crankshaft speed. This results in better propeller efficiency than the direct drive.

The "Crusader" was built by Short Bros., Ltd., and provided with a Bristol air-cooled "Mercury" engine.

The "Crusader" was designed to test the possibilities of seaplanes of high speed racing type when fitted with radial air-cooled engines. It was an experiment not previously attempted elsewhere and it has proved to be of value.

Although it is known that owing to their large frontal area radial engines offer greater air resistance than the best water-cooled engines for racing purposes there are other compensating advantages of a practical nature which make the air-cooled engine particularly interesting when applied to high speed machines. *(Continued on next page.)*



Great Britain's challengers for the Schneider Trophy—Supermarine monoplanes. Gloster biplanes and (center left) the Short "Crusader" monoplane. The racing team (l. to r.) Fl. Off. H. M. Schofield; Fl. Lt. O. E. Worsley; Fl. Lt. S. N. Webster; Fl. Lt. Kinkhead and the officer in charge, Sqdn. Ldr. L. H. Slatter.

One such advantage is the very low weight per h.p. which affects the weight of the whole machine, and gives it an astounding climb and ceiling. In flight, the Short-Bristol "Crusader" is probably the lightest loaded machine per h.p. in existence. The weight of the whole structure with the engine fitted is less than what was considered a reasonable weight for the engines alone in the earlier days of aircraft development.

Great attention was paid to the position of the pilot in order that he might be as near as possible to the center of gravity and have a perfect view in all directions. The fuselage is monocoque in form, finely streamlined. It is constructed in the main of double plank mahogany but the forward part consists of steel tubing to take the engine mounting.

The "Mercury" engine is a development of the "Jupiter" air-cooled radial but the power developed is considerably greater than the output of the "Jupiter." The weight for h.p. developed is remarkably low. It is probably the lightest aircraft engine in the world in relation to the h.p. developed.

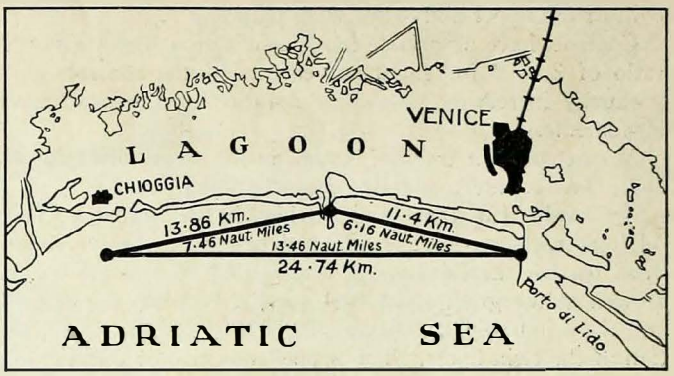
Considerable experiments have been conducted to reduce the resistance while at the same time maintaining efficient cooling for the cylinder heads. The result is a series of metal "hats" which have effectively reduced resistance, and which make the engine appear as if it were a crusader in armor.

No information is available at this time as to the Italian entries but it is known that no effort has been spared by the Italians in developing a racer which they expect will win the coveted trophy. It is reported, however, that twelve specially built Fiat engines have been produced for the Italian racers and six have been destroyed in tests of the new racing planes, an indication of the terrific strain they are being put to in getting the maximum power from them.

The United States will have a lone contender for the Schneider Trophy—Lieutenant "Al" Williams. No U. S. Army or Navy planes will compete and Lieutenant Williams will represent the United States as a personal civilian enterprise, the cost of the venture being defrayed by friends of Williams who believe he is able to bring the speed honors back to the United States. Lieutenant Williams' plane is described in detail elsewhere in this issue.

HISTORY OF PREVIOUS CONTESTS

1913. Monaco, France, April 16. Won by Maurice Prevost of France (Deperdussin monoplane-Gnome 160 h. p. engine). Speed, 45.25 m. p. h. Four contestants. American entrant, C. T. Weyman.



Course of the 1927 Schneider Trophy Seaplane Race.

1914. Monaco, France, April 20. Won by C. Howard Pixton of Great Britain (Sopwith airplane-Gnome 100 h.p. engine). Speed, 86 m. p. h. Nine contestants. C. T. Weyman and Wm. Thaw represented the United States.

1915-1918. No contests during the World War.

1919. Bournemouth, England, September 11. Won by Janello of Italy (Savoia airplane-Isotta engine). Speed, 124.89 m. p. h. America not represented. Victory disallowed on account of infraction of rules. Owing to fog competitors did not cover the exact course, accounting for high speed recorded.

1920. Venice, Italy, September 21. Won by Commander I. Bologna for Italy. (Savoia S19 airplane-Ansaldo 470 h. p. engine). Speed, 106.7 m. p. h.

1921. Venice, Italy, August 7. Won by G. di Briganti for Italy (Macchi 7 airplane-Isotta 260 h. p. engine). Speed, 110.9 m. p. h.

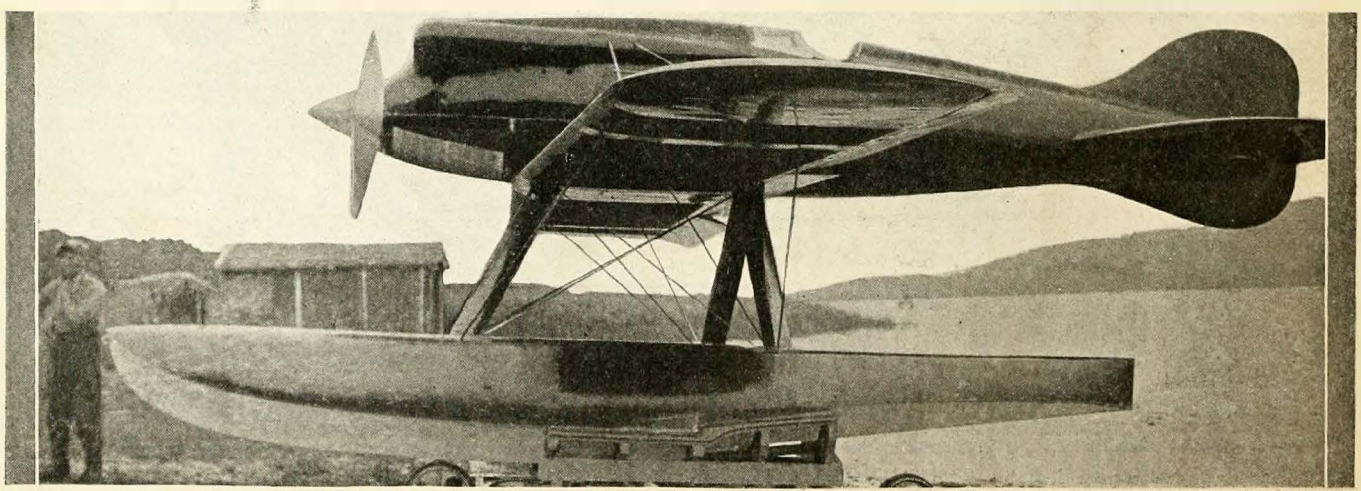
1922. Naples, Italy, August 12. Won by Captain H. C. Biard for Great Britain (Supermarine Sea Lion II-Napier Lion 450 h. p. engine). Speed, 145.7 m. p. h.

1923. Cowes, England, September 28. Won by Lieut. David Rittenhouse, U. S. N., for the United States (Curtiss CR3 biplane-Curtiss D12A h. p. engine). Speed, 177.38 m. p. h.

1924. No contest. British entry crashed in trials and American and Italian entries withdrew from the contest by mutual consent.

1925. Baltimore, Md., United States, October 26. Won by Lieut. James H. Doolittle for the United States (Curtiss R3-C2 biplane-619 h. p. Curtiss V1400 engine). Speed, 232.573 m. p. h.

1926. Norfolk, Virginia, United States, November 13. Won by Major Mario de Bernardi for Italy (Macchi monoplane-Fiat engine, 800 h. p.) Speed, 246.49 m. p. h.



Last year's winner of the Schneider race, the Italian Macchi monoplane; speed 246.49 m. p. h.

AIR—HOT AND OTHERWISE

Eagles and Woodchucks Say it with Music! S. O. S.'s and Such Critics versus Dreamers

By Frank A. Tichenor

THE Powers in Washington had a brief attack of sanity and foresight (Heaven save me from the men who call it "generosity" —it is not a generous act to buy cartridges which your gun may need to save you from the thief; it isn't for the gun you do it; it's for yourself). But like most attacks of Washington sanity it was short, if sweet, and therefore leaves much to be desired. We are grateful for small favors, but we're after what we're really entitled to. We're after it and going to get it because if we do not the future history of the United States will record unpleasant consequences.

The time is close at hand when the friends of aviation won't be begging Congress—they will be electing it. Presently the dodo with a wingless mind will be recognized as the sort of bird unqualified to roost beneath the Dome at Washington. The American eagle is our national bird. He flies. Congress seems often to mistake him for a woodchuck and this error percolates out of the capitol, floats down Pennsylvania Avenue as asphyxiating gas might and puts the "experts" in the various departments into an even sounder sleep than that habitual to them.

The five-year expansion program for the Air Services regarded in some quarters as a piece of generosity, really is precisely as generous an act as the purchase by an individual lawmaker of a new pair of pants after a neighbor's dog, recognizing him as a public peril, has deemed it good canine American citizenship to mutilate that portion of his original nether garments which would be nearest to a pursuing lion if worn by him whom he pursued.

Let the whole air brotherhood eliminate all silly thought of gratitude for the few things done. It will make it easier for us to load up and go gunning after individuals who are so incredibly shortsighted as to fail to realize the true importance of American air development.

Pat lawmakers upon their backs, and re-elect them only when a good job is well finished, not when it has been only rather indolently and tardily begun. The Five Year Program is a good job, of the sort to be demanded by the people of this nation. But it is incomplete. It needs some additions.

The Air Corps Reserve is the device which will make the Army Air Corps an effective thing when trouble comes. Without its full and skillful development, encouraged by the grave men on the hill under the leadership of the intelligent among them, the Army Air Corps will be left in a position guaranteeing virtual uselessness in time of need. It's fine to have an Army Air Corps; it would be madness to have one large enough in time of peace fully to protect us in a war; but it is every bit as silly not to provide that Air Corps with a competent, selected and to some extent trained reserve from which to draw if the sad day of grim need arrives.

The fact that when the great war broke England had no Army except a highly trained small body without even partly trained reserves cost the people of Great Britain not less than a million splendid lives. "The Old Contemptibles," as Kitchener's small and glorious band was called in almost idolatrous paraphrase of the mistaken Kaiser's foolish descriptive phrase, did, in real truth, save the day for England, giving the British Empire opportunity to begin its preparations in desperate haste. But ask any man who knows to-day what lack of a well trained and reasonably equipped reserve cost England in money, lives and prolongation of the agony of war. Billions of money, multitudes of lives, years of tragic, terrible fighting which would not have been necessary if behind the Kitchener army had been the right sort of reserve. If we merely equip, train and support the Army Air Corps and are forced suddenly into a war (which God forbid, but which He won't if history runs true to form) we shall be talking of that Army Air Corps in days to come with voices tremulous from deep regret. It will form America's sacrificial tribute to shortsightedness as Kitchener's Old Contemptibles formed England's.

The Army Air Corps Reserve is as important as the Army Air Corps itself. The fact is that neither rightly can exist without the other.

Reserve Corps officers and pilots each must have more than two weeks annual training. We must go much further than the present plan of selecting from the corps a chosen few for one or two year details.

Even more important is better treatment of non-rated officers. Under the present plan such men go to camp each year for a brief period, which gives them a vacation from their routine lives, but this is spoiled for the best of them by a sense of its futility. They do not learn to fly in the few weeks allotted—they cannot do more than learn to twiddle their thumbs. If war came suddenly even these men, blessed though they may be by a lick and a promise from the military regulars, still would require months of costly instruction before qualifying for any sort of useful service as specialists or pilots.

Every national interest—the interest of our national defense and at the same time that of our commercial aviation —would be served with high intelligence if those among these men who are physically and mentally qualified should be sent to the primary, and, if possible, the advanced military flying schools and made into actual pilots.

Some would not qualify. Willing spirits sometimes are held back by individual handicaps. Such men might be sent to specially organized schools for observers or ground officers. Exhibiting their possession of the patriotic impulse and the fighting man's initiative by their willingness to serve at all, under not very encouraging circumstances, they should be recognized with gratitude and trained to something, anyhow.

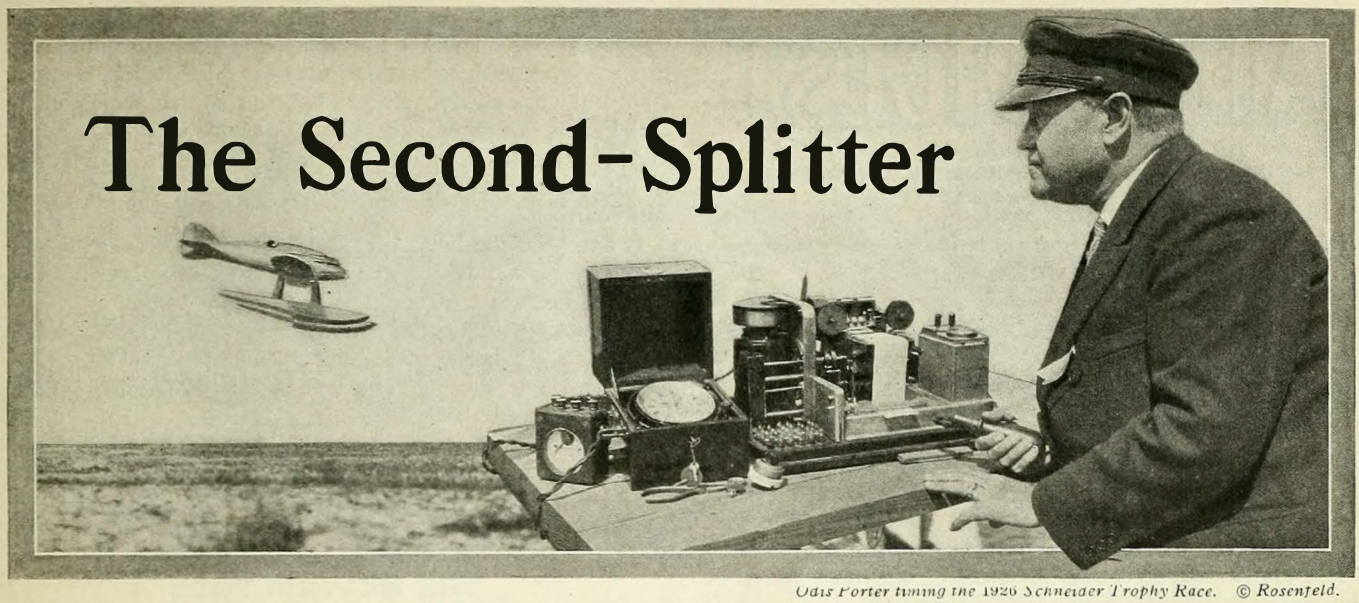
But two weeks! Eleanor Glyn proved to the world that three weeks can do wonders with a raw love affair. It would take a writer far more passionate and daring than I am to prove to anyone that two weeks can do wonders with a raw aviator.

The group of admirable and ambitious young patriots who at present form the vast bulk of the Army Air Corps Reserve are non-rated and non-trained. That means that they're non-useful. And that, in turn, means that the framers of the scheme produced non-sense.

If Congress should appropriate sufficient funds to give the primary course of training at least to such non-rated Reserve officers as can qualify mentally and physically, a step in the direction of real commonsense would be achieved. To compel the Corps continually to refuse the gift of training to aspiring defenders of the faith and potential saviors of the country because of "lack of funds" is to make a laughing stock of what

(Continued on page 354)

The Second-Splitter



Odis Porter timing the 1926 Schneider Trophy Race. © *Rosenfeld.*

By C. B. Allen

THE way of the timer is hard—and fast. Ask Odis Porter, he knows. Or, if you happen to hail from Missouri, worm your way into the judges' stand the next time a high speed event is being held and watch Odis do his stuff. It's almost worth being from Missouri to see him at work with his famous second-splitting machine.

Of course he's got it worked out now to a point where it's plain science with him but it's a mighty engrossing science and one that keeps Porter on his toes from the bang of the starter's gun to the dropping of the flag that heralds the birth of another record. It keeps a man so busy he hasn't time for anything else—not even the race itself.

"Never seen a race in my life," Mr. Porter declares with characteristic little wrinkles about his eyes and a keen twinkle in them. "Never get a chance to see what's going on; keeps me too busy timing 'em."

This from the man who has timed on an average of ten or a dozen major speed events a year since 1910 with his highly specialized electrical timing device which is capable of catching such minor nuances of speed as the one-four-hundredth part of a second. A fellow has to keep his mind on his fractions when they get as microscopic as all that. Hence Odis's lack of time for watching the fine points of the race or really knowing who's winning. He rebelled once, but it availed him nothing.

That was eight or nine years ago and it happened at Uniontown as a great many other things have that are chronicled in speed history. Mr. Porter has officiated at so many automobile races and been a witness to so much of the enthusiasm of the racing fans he was determined to sit quietly in some obscure spot for once and see for himself what all the shouting was about. So he turned up his overcoat collar and snuggled down into it until he was sure he was out of sight of everything except the speedway out front.

But it was no use. A speedway official spied him while the racing cars were making their preliminary runs and he was hauled into the judges' stand. After that all Odis saw was an occasional flash of wheels and painted numbers past the timing wires. His one consolation was that the Sunday papers had a good account of the race.

Mr. Porter has timed automobiles, boats, airplanes, seaplanes and even swimmers. About the only thing he hasn't clocked for a world record is the human race and the traditional one between the tortoise and the hare. One reason is that he's never been asked to officiate and the other is that neither of these events is strictly on the level!

He has calculated speeds in nautical miles, statute miles and kilometers and his findings have been so accurate, even on the distant side of the decimal point, that the French savants who formulate the rules of the Federation Aeronautique Internationale, after the customary waving of arms and wasting of adjectives, have accepted them as final and authentic. Even so the French scholars do not quite fully understand how Mr. Porter arrives at his results although they admit the correctness of his figures. His methods baffle them because they are rather simple and direct; their own belief is that complicated formulae and labyrinthian solutions lend more dignity to world records.

Mr. Porter's activities as the recognized official timer for the chief American speed events have taken him to all parts of the country. He has timed races at Los Angeles, Chicago, Detroit, New York, Havana, St. Louis, Dayton, Philadelphia, Miami, Cincinnati, Minneapolis, and a score of other places less well known. It was Odis A. Porter whose eagle eye and second splitting timing device spelled out the lap by lap defeat of the Navy's Schneider Trophy Race team last fall at Norfolk. It was he who caught the record-breaking circuit of the triangular course by Major Mario de Bernardi, captain of the "Flying Fascisti" team sent here from Italy with express instructions from Mussolini to bring the Schneider Cup back with them. Later it was Porter who timed de Bernardi over a three kilometer straightaway for a new official seaplane speed record.

He has timed every Pulitzer Trophy race except the first and he has timed all Government aircraft speed tests since 1923. He heard a high Air Service official predict in 1923 that 200 miles an hour was the "absolute limit" for airplanes and he has since seen the record shoved steadily up until it has covered more than three-fourth of the road to 300 miles an hour. Already he has charts worked out for use with his timing machine up to 350 miles an hour and if necessary he says he can shove them up to 500!

"The fastest thing I ever timed?" Mr. Porter repeated the question, "Why I guess it was Lieut. Maitland at Wilbur Wright Field. He had a strong wind and he made 281.39 miles an hour flying with it. The slowest airplane? About sixty miles an hour, I guess.

"Swimmers are the slowest racers I ever timed and I've kept the clock on Gertrude Ederle and Johnny Weismuller, too. The longest race I

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AERO DIGEST

Published Monthly
THE AERONAUTICAL DIGEST PUBLISHING CORPORATION
220 WEST 42nd STREET
NEW YORK

Vol. 11 SEPTEMBER, 1927 No. 3

IT'S HERE TO STAY

ARE we down-hearted? No! A friend has just crossed this great American continent. At five stations which he passed during the broad glare of daylight and when he happened to be looking from the car window, planes or other things suggestive of air-effort were in sight.

In the United States that thing is happening for which AERO DIGEST so earnestly has striven—air-mindedness of the general population: the businessman, the average citizen, the ambitious youth, the rich sportsman.

This will mean far more of American air development in years quickly to be lived than Government subsidies are giving to Europe. Our planes will take off from their own fields and not from Government department desks. They will fly on their own wings, not on paper pinions patched together with Government appropriations and sure to disintegrate the moment a political quarrel or official scandal holds up one of these appropriations. They will land on their own fields, so situated as to be convenient to the businessmen and constructive citizens of the United States.

That will mean a real air-effort, economically sound, certain to grow with unexampled speed because it will become a public utility and not a public charge.

Armies and Navies beg for what they get or go without. Business takes that which it wants and when it wants it. American commercial aviation is the businessman's and not the politician's—and for that thank God! It needs every ounce and detail of help the Government can give it. In general our Government is progressive, farsighted, admirable. But it is notably like the Lord in Heaven. It helps those who help themselves. In Europe Government dictates to commercial aviation. In the United States commercial aviation presently will be dictating to the Government.

OUR HAT IS STILL OFF

LATELY in this magazine we took off our hat to Brigadier-General "Jim" Fechet. The weather has been warm, the General has continued active and so we have not since returned it to our head. Which now saves the work of once more doffing it. When we last wrote our pleasant thoughts about this splendid soldier who has been appointed head of the Army Air Corps to succeed Major-General Mason M. Patrick on the thirteenth of December, when the age-limit retires the latter gallant officer at sixty-four, we did not know that General Fechet had in advance declared that he would serve one term, only, refusing re-appointment if it should be offered.

At his request Secretary of War Davis now has made his determination to retire at the end of his first four-year term a matter of record, and, also at General Fechet's request, has approved a similar policy with regard to re-appointment of the three assistants to the Chief of the Air Corps. This naturally peps up the whole Air Corps, assuring, as it does, a full field and a free one for ambition and promotion.

General Patrick served one full four-year term and was re-appointed for another in 1925. We all are grateful for this working of the situation in his case, for he has been an able and constructive officer, but the course which General Fechet has taken is a splendid gesture by an admirable and public-spirited officer whose first thought, obviously, is for the good of the service rather than his own gain and comfort.

It has been the habit of all Army officers to dig in and stick as long as possible when a fine trench has been found, as it has been that of our naval notables to surround themselves with precautionary extra hooks and cables when they have got berth in a good anchorage. As Secretary of War Davis says: "The principle of rotation in office in peace time will be of benefit to the service." Everything that General Fechet ever has done has been of benefit to the service. Never having been a politician, perhaps because he did not have West Point training, he has ever been an admirable patriot.

THE MELTING POT

HAVE you ever stopped to think that aviation supplies the only means of transportation and cheap communication which possibly can destroy the last vestige of sectionalism in America? That is the fact. The work magnificently begun by the railways, the telegraphs and postal service in the years immediately following the Civil War and prior to the World War, had been effective. But even railway speed is not now fast enough in passenger and commodity delivery, the telegraph and telephone are not sufficiently comprehensive in communication-service to supply all that we have needed to make us absolutely one in the true sense of the word, to render us forever and completely indivisible in thought and psychology as well as in political union.

An approximately forty-hour mail, express and passenger service between coast and coast, a comparably fast service between extreme north and extreme south, with intervening areas all served from and to all other areas at similar speed and high efficiency, will be the final influence necessary to make our union perfectly compact, to eliminate not only sectional prejudices but pernicious sectional rivalries.

When the founders of this nation planned its future they did not foresee the airplane. But the things they did hope for and foresee, fight for, bleed for and in some cases die for, never will be realized in their entirety until the plane has an opportunity to completely do its service.

WHO IS TO BLAME?

THE Dole Pacific Flight has passed and has left with us many sorrowful memories. Our sympathy, in unlimited measure, is extended to the families of these courageous and heroic pioneers who gave their lives for the love of aviation.

Mr. Dole made his generous offer to encourage aeronautics. It was the $35,000 purse that enabled the contestants to secure sufficient capital to design and build the planes flown in the contest, and it was made before the Pacific had been crossed by airplane.

The "I-told-you-so's" are now trying to find someone to blame for the disasters that occurred. There is no one at fault. Everyone did his best. We have learned much and will profit by it. Experience is always costly.

To blame either Mr. Dole or the officials connected with the flight is poor sportsmanship. The Orteig prize purse gave us Colonel Lindbergh.

There is no one to blame.

A NOD AND A WINK

At Fog, the General Staff, the N. A. A., Mr. Levine and Other Aerial Handicaps

By

by Caldwell

ONCE upon a time—this was years and years ago, when I was a very young man—I used to be a farmer who specialized in one crop—wild oats. I used to sow these oats regularly, every Saturday night, and with such skill that I sometimes reaped a bountiful harvest on Sunday morning, due to the extreme care I took in properly irrigating the crop. Upon one occasion, after a more than usually moist agricultural evening, during which I had labored to such an extent that my mind was utterly exhausted and blank, I awakened in the morning to find myself snugly ensconced in the local hoose-gow. The warden, a genial soul whose red and bulbous nose bore mute witness to his own enjoyment of many, many evenings like mine, looked me over with a very quizzical light in his eye, and remarked, "Well, me bhoy! Ye've gone an' got yersilf in—now, who th' divvle's goin' t'get ye out?"

I was reminded of that question in Newfoundland, upon the conclusion of our search for Nungesser and Coli in the seaplane *Jeanne d'Arc* of the Daniel Guggenheim Expedition. We got ourselves into Newfoundland—and the devil himself didn't seem able to get us out. For two solid, sickly, dreary weeks we were stuck at St. Georges in a fog. And when I say fog, I mean FOG—miles and miles of dull, leaden-colored vapor that came drifting in on a gentle southerly wind from the Gulf Stream until the Straits between Newfoundland and Nova Scotia were packed full. Every day we received weather reports from various places, until the telegraph operators were as fed up as we were. And still there was no change in the weather. Sometimes it was clear at St. Georges, and we took off for a try. But each time we hit Cape Ray, sixty miles south, we encountered a heavy blanket of fog, and returned to the only harbor on that coast.

The natives declared that it was the worst season for continuous fog they had seen, and attributed it to the fact that some girl in town, loath to see St. Georges' only interest depart, must be keeping a black cat under a tub. For it is a well-known fact—at least to the more superstitious natives—that if you want foggy weather all you have to do is to put a black cat under a tub. The brides of fishermen frequently use this method to keep their new husbands in port, though it has been remarked that black cats belonging to the older married women are invariably at liberty.

Whatever the reason for the fog, the result was that we were steadily building up a reputation as the world's slowest pilots. I don't think anyone ever waited so long to go 1,300 miles. We're putting in our claim as absolutely the world's slowest pilots with the National Aeronautic Association—the world's slowest aeronautic association—and hope to receive wrist watches from dear Porter Adams, in person. If that association has a wrist watch they might as well present it to someone. They don't need to know the time—they're not going anywhere. Except possibly from their social office in H Street to their business office in the Navy Building—for orders and a sweet smile from an admiral.

After two weeks' wear and tear on the seat of our pants, for all we did was to sit, a Sunday dawned clear and beautiful. And on that day, as the Newfoundland telegraph offices were closed for prayers, we couldn't get a weather report from Cape Ray or Nova Scotia. But we figured that if we waited for a good report we'd be feeble old men before it came—and we weren't any too vigorous even then—so we decided to hop off and take a look.

Down the coast we flew under brilliant blue skies, though just off shore lay the same familiar bank of fog. When we got to Cape Ray we had climbed to 7,000 feet. Right ahead of us, as far as we could see, was a solid mass of fog and cloud, sitting right on the water and extending up to our level. As we couldn't see the Nova Scotia coast we couldn't tell if there was a clear strip near shore, or if the entire North coast, and the Bay of Fundy as well, was wrapped in fog. And if we flew over there and found the North coast and Fundy full of fog, we wouldn't have enough gas to take us back to Newfoundland. Besides, if we had been forced to land in that fog-covered sea, either through motor failure or through running out of gas, it would possibly mean good-night. Even if we had landed all right we might have drifted for days before we were picked up or blown ashore.

We talked it over—and we didn't like the look of it all—but we decided that our annoyance at going back and waiting some more was exactly equal to our fear of going forward—perhaps to find fog all over the coasts and be forced eventually to land blind in it. So forward we went. We were at about 7,500 feet then, with the tops of the clouds right beneath us. Very beautiful, too. But I was sort of soured on clouds and got no pleasure from them. All I was doing was to peer ahead for the first sign of Nova Scotia. I never wanted to see Nova Scotia so much in my life before—especially when we lost sight of Newfoundland.

When we got about half way across the straits, which are 75 miles wide, the clouds seemed higher and thicker than ever over on the Nova Scotia side, and more vindicative looking, if you know what I mean. But, as Chamberlin so aptly remarked of a much more dangerous situation, it was just as far back as it was ahead, so on we went, wondering idly if the fog had closed in back in Newfoundland and hidden the only harbor we could return to—if we had to return.

Then we saw the mountains of Cape Breton sticking up on the horizon—and very, very nice they looked. Then, after twenty minutes more, we saw Cape North. It was clear as a bell there, with the fog lying off-shore a quarter of a mile. I never thought I'd be especially delighted to see a mere cape, but I was. Prettiest cape I've seen. And even the fog and clouds, banked up solidly behind us, looked absolutely beautiful. Funny I hadn't noticed the beauty of them before. I guess I hadn't been in the mood for them, that's all.

We flew along to Pictou, refueled, and stayed the night. Next morning we got going before the weather reports did—and landed at Pugwash soon afterwards, because we had found the Bay of Fundy packed with the old familiar fog which flowed inland for several miles. I wired Mrs. Cy, "World's slowest pilots are parked at Pugwash. Who's president down in that country of yours now?" I signed it "Lord Pugg, of Pugwash." I really felt I'd been long enough in Newfoundland to be made a member of the

codfish aristocracy, so I gave myself a title.

Next day we started about noon—heavy fog all morning—and landed for gas at St. John, where I wired my boss, "Slowly but surely I am about to discover America—Christopher Columbus." But she told me later that I flattered myself, and that Chris had made better time in the *Santa Maria* than I had made in the Jonah's Ark. However, we pushed along and landed for the night at Rockland, putting up, appropriately enough, at The Samoset—accent on the "set" for about all we'd been doing for three weeks was to set. And I'm hanged if next morning wasn't foggy, too, right until noon. It was discouraging. Here we'd been four days coming from Newfoundland to New York—and we were only at Rockland. We finally sneaked down that coast, with a visibility of nearly nothing all the way, went slap through one of the heaviest rain-storms that ever hit Long Island Sound, and landed at last in Port Washington, with the world's record for slow air travel clutched firmly in our mitts.

So with all this frantic flying of everybody, here and there, breaking long-distance records, endurance records, and publicity records, we broke the sitting still record for all time. We took it away from Sitting Bull. And we won it against keen competition. There was Wilkins up North—he was runner-up for the title we now hold. But he'll have to be content with the world's long-distance walking record for pilots. He flies out and walks back. What's happened to him, anyhow? I wonder if he's still up there—he's walked right out of the papers. And then there's Captain Courtney—another gent who's been waiting to go some place for a long, long time. And—why, shucks! I forgot the General Staff! They've been waiting *ten years* to hop off and do something in flying, and they haven't even started yet. Why, hang it all! They've got the world's slow-motion championship away from me.

NOW that I've got back to my little apartment in New Hokum on the Hudson I'm able to read back numbers of AERO DIGEST and see what's happened in the aeronautical world since I've been away in Newfoundland—you can find it easy enough but you can't lose it. The fog won't let you.

Well, I guess the funniest thing that's happened is Clarence Chamberlin's handicap flight to Berlin. After that flight I'd say Chamberlin could fly across oceans carrying a full-grown white elephant as passenger—look at the practice he's had. I don't think he'd even notice the difference, except that the elephant wouldn't argue with him. And the elephant wouldn't carry parts of the magneto around in his pocket so his pilot wouldn't fly off and leave him. You know, Charles Levine has got his suit all out of shape on one side, carrying motor parts; and Doc Kincaid is at work designing a suit for Levine's next flight—it's going to have special pockets so Levine can carry the whole motor and one of the wheels. And if that won't do the trick he'll just take the plane apart and let his family carry it around with them until Charlie is ready to fly in it again.

They say that Levine only flew across there to make sure of getting the airplane back; but Elliott White Springs, writing in *Liberty* about Levine, says, "After he forgot to kiss his wife good-bye, he was so scared he kept going for 3,800 miles before he dared to stop." And I suppose, Elliott, he only got into all those arguments so he'd feel at home over there. He's the world's champion arguer—if he can't argue in his own language he'll hire an interpreter and keep right on going.

Levine got the cream of the publicity—and then it went sour on him. And that shows the advantage of the official ambassador over the "unofficial" ambassador—you can *recall* the official ambassador.

The United States sent a battleship to France to bring back Lindbergh. The government should send the whole fleet over to bring back Levine. And if he won't come, they should send Peggy Joyce after him—she always gets her man.

After all, Will Hays, the Czar of the Movies, has the right idea. He keeps the originals in Hollywood and just sends over moving pictures. Because pictures can't talk. That's where Levine would have made a hit—Silent Drama.

There wasn't any need of Levine going, in the first place. We could have sent Chamberlin by air, and then simply cabled Levine's picture. And if they didn't like it, they could have torn it up. Or if they'd really wanted Levine we would have been glad to export him.

If Levine ever offered me a job flying for him I'd say, "Charlie, I know you mean well—I know you do. But you've got to pay me $25,000 advance damages—because I know you're going to stir me up so I'll feel damaged to at least that amount."

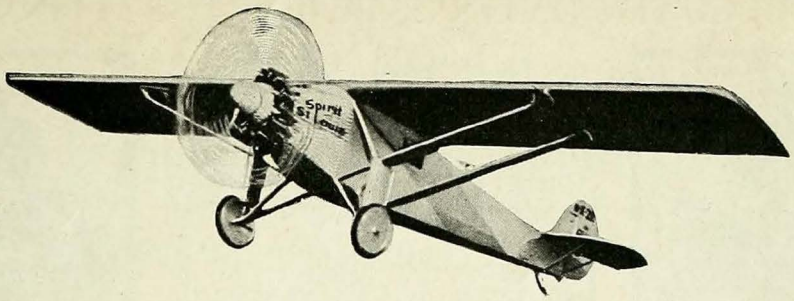
What he really needs is some sensible, reasonable man who will say to him, "Look here, Charlie, you let me do your thinking and talking for you; and you just sit there and ride—silently and unobtrusively. When you argue and squabble you are the worst advertisement America has ever sent to France. You do all you can to foster that unfortunate impression that Europeans generally have of Americans—that they have too much money and are looking for vulgarly ostentatious ways of displaying it. The noise you make about your exploits is not tending to promote either aviation or the friendly relationship between Europe and America—and, after all, you were merely a passenger, indebted to another man's skill for your flight to Germany. You are a brave man—everybody respects you for that—but the only way for you to be popular is for you to keep on flying all the time. Just keep sitting up in the air, constantly, and never land—never. That's where you queer yourself—landing."

IF you have any doubts about commercial aviation's needs for large multi-motored ships, such as those which Mr. Ford is building for transport work, just park yourself in a single motored plane, above 7,000 feet of fog and clouds piled solidly down on a sea that few steamships traverse—and then tell me how you feel while flying behind one motor. You may have the most reliable engine in the world—such as the Wright Whirlwind that we had in the *Jeanne d'Arc*—but it's no more reliable than one engine can be. No matter how you add it, or subtract it, or divide it, the answer to all your figuring is still the humble figure 1. And that's at least two too little—and perhaps five too little.

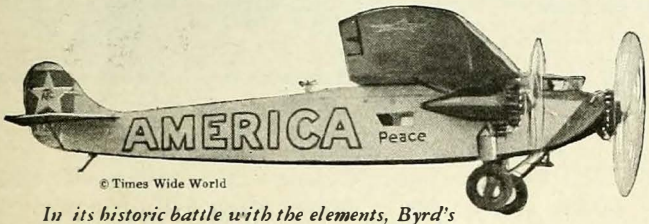
I know that gentlemen have crossed oceans behind one motor. They're very brave gentlemen, and I doff my hat to them, and bow respectfully. Crossing oceans behind one motor is very glorious—but it is not commercial aviation. It is no more than a feather showing how the wind is blowing—and the wind is blowing trans-ocean airlines our way, eventually, but not just now.

In fact, crossing oceans on any such craft as we have today—even those with three engines—is a stunt, precisely as Monsieur Bleriot's first crossing of the English Channel by airplane was a stunt when he did it in 1909. His airplane was no more fitted to undertake the present London-

(Continued on page 350)

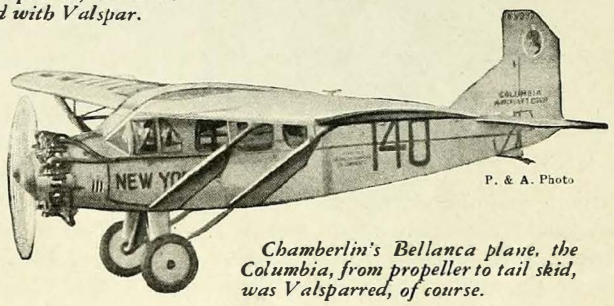


All metal surfaces of Col. Lindbergh's Ryan monoplane were Nitro-Valsparred, while its wood surfaces were finished with Valspar.



© Times Wide World

In its historic battle with the elements, Byrd's giant Fokker contributed immeasurably to the science of air navigation. Wherever varnish was required Valspar was used on this ship.



P. & A. Photo

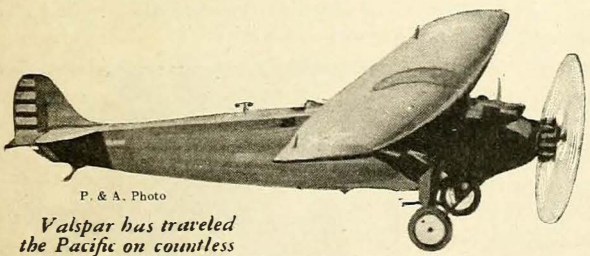
Chamberlin's Bellanca plane, the Columbia, from propeller to tail skid, was Valsparred, of course.

—and they all flew Valsparred planes, of course!

THAT Lindbergh, Chamberlin, Byrd, Maitland and Stinson should all make astounding records in planes finished with Valspar and Nitro-Valspar is not a mere coincidence; it is a verdict. It confirms what every aircraft maker knows, namely, that, when a plane must yield the utmost in dependable service, the materials used in constructing and finishing it must have *demonstrated* their ability to withstand the severest flying conditions.

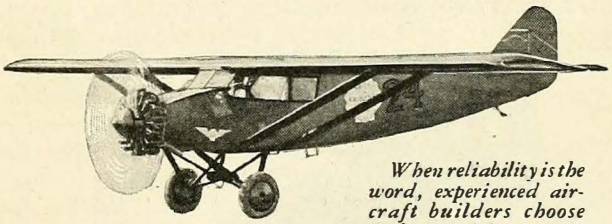
VALENTINE'S VALSPAR
The Varnish That Won't Turn White

Valentine's Valspar finishes have done exactly that since the earliest days of aviation and continue to do so on a large majority of the high-grade airplanes built today.



P. & A. Photo

Valspar has traveled the Pacific on countless occasions, but it never made the jump to Honolulu so quickly as on Maitland's Fokker.



When reliability is the word, experienced aircraft builders choose Valspar. Of course it was used on the Stinson-Detroiter plane which won the Ford Reliability Tour, Stinson himself piloting.

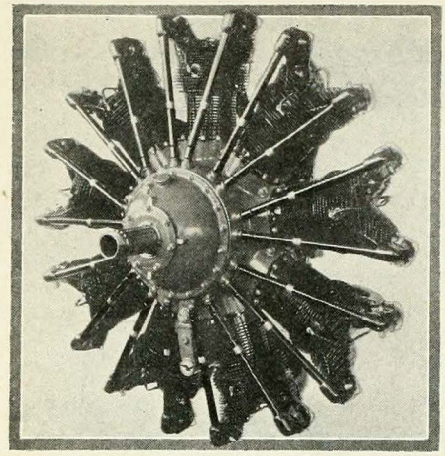
NITRO-VALSPAR

The all-lacquer system

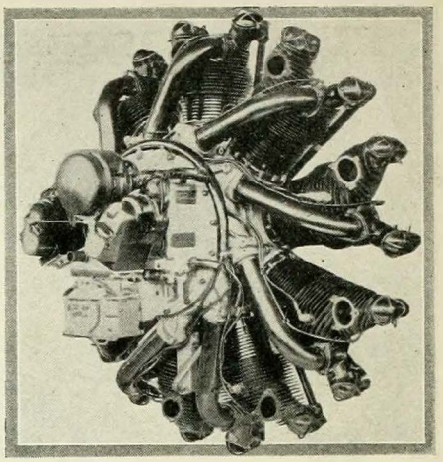
VALENTINE & COMPANY, 456 Fourth Avenue, New York, N. Y.

AMERICAN AIRCOOLED AIRCRAFT ENGINES

By
Commander E. E. Wilson
U. S. Navy



Pratt and Whitney "Hornet".

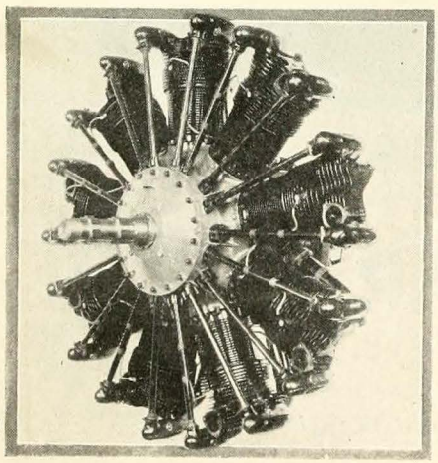


Pratt and Whitney "Wasp".

FROM the very beginning of aeronautics, flight in heavier than air craft has been dependent upon the development of an engine. The ancients had surprisingly wide knowledge of the fundamentals of flight, but they could not apply them because there was no suitable engine. The Wright Brothers succeeded largely because they went out and built their own engines. Mr. Charles M. Manly, who was associated with Langley in his researches, was, in the light of present knowledge, far in advance of his time in his engine design, and was well on the way to success when the work was terminated.

Progress in aeronautics has been largely a matter of progress in power plants. While developments in aircraft have been largely a matter of refinement in design, involving comparatively simple improvements, the advance in aircraft engines has been marked. Between the 400 horsepower Liberty, a marvelous engine in its time, and the 400 horsepower "Wasp", our modern aircooled engine, the weight of the powerplant has been cut in half. The striking transoceanic flights which will make the year 1927 an important one in the history of aeronautics, are to a large degree indicative of powerplant developments. American initiative, American courage, and American skill have ridden to fame behind American aircooled aircraft engines.

There are six fundamental requirements for aircraft powerplants. These requirements are mutually antagonistic, and the final result is a balance. One is reminded here of that famous little book, "The Airplane Speaks", in which all the factors in aircraft performance are given personalities and gather about to emphasize their importance in the matter of airplane design. The fascinating discussion is finally closed when "Miss Efficiency" flaunts herself out of the room complaining bitterly that she has been "compromised". The modern aircraft engine accepts comparatively few compromises. The six fundamental requirements are met now to a surprising degree.



Wright "Cyclone".

Without any attempt to list the factors in the order of their importance, we may put them down as follows:

1. The power plant must be as light as it is possible to make it. The weight per horsepower must be low.

2. The engine must get along on the least possible amount of fuel because fuel is an important item of weight. Our economy must be high.

3. The engine, in spite of the hard work to which it is subjected, must run as long as the gasoline lasts. It must be dependable.

4. Our engine must be durable; that is, it must continue to put forth its best work over long periods of service.

5. The engine must be easily maintained. It must be simple to get in to make the tests and adjustments which are so necessary to its functioning.

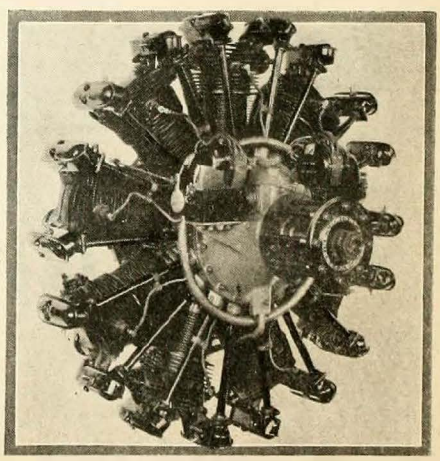
6. The cost of our engine must be low. If aircraft are to come into wide use, their cost must come within the limits of people's pocketbooks.

This last requirement of low cost is the one which is so difficult to reconcile with the five that go before. The necessity for light weight is one that runs up the costs. Now if engines are to be cheap, they must be used in quantities. If they are to be used in quantities, they must be cheap. A very careful analysis shows that the reduction in cost resulting from a complete redesign intended to reduce cost is but a drop in the bucket compared to the reduction which is possible through quantity production.

One of the real hopeful results of all these sensational flights is the great increase of public interest in flying. Once this interest takes the practical form of buying engines, costs will come down just as they have come down in the automobile field. At present an order for two hundred engines is a real order. If automobiles were built in lots of two hundred, only the rich could afford to use them.

Now that we have listed the engine requirements, we must look farther and see how nearly we have met them.

(Cont. on p. 358)



Wright J5 "Whirlwind".

AVIATION PROGRESS IN THE RECENT TRANSOCEAN FLIGHTS

IN analyzing the results of transatlantic flights and their effect upon aviation there are different viewpoints from which the problem can be approached. *L'Ala D' Italia,* an Italian aeronautical monthly, presents the following views of Engineer Garuffa, editor of the technical section of that publication, on this subject:

Is the final success worth the sacrifice made and are the efforts crowned by results? The brilliant outcome of the flight made by Lindbergh, Chamberlin and Byrd and the tragic fate of St. Romain, Nungesser, Coli, Davis and other heroes fill our hearts with unreserved admiration, natural for any noble human act yet it is opportune to ask to what degree they are serving the future of aviation. Non-stop transatlantic flying presents different problems, the solution of which means real progress in aviation. These points of importance are: the duration of flight, direction, meteorological conditions, safety and finally, the commercial interest.

Duration in a Non-stop Flight

A non-stop flight of about 3700 miles (Chamberlin's flight was 3923 miles and the *America's* probably longer) would require from 40 to 45 hours at an average speed of about 95 miles per hour. Not considering the danger of the unknown but merely a flight in the vicinity of landing fields, it was technically possible from past experiences to accomplish such flights. For a technician, a choice between the dangers of the Atlantic and the security of flying fields with the element of personal safety, is naturally in favor of the latter. The long duration of flight necessitates carrying an enormous quantity of fuel which results not only in high wing loading and consequent difficulty in taking off but also in making the piloting more difficult in view of the considerable travel of the center of gravity due to the consumption of fuel. Continuous duration of such a flight increases the strain on both materiel and personnel.

Fifty hours constitutes one-third of the normal time which an airplane engine can be run without major overhaul. So the effort required of an engine in such a flight is great and the probability of a failure very likely. Fouled spark plugs may cause cylinders to miss fire and cause vibration which may become dangerous for the engine operating for many hours. The planes which crossed the ocean were not provided with motors accessible in flight; and failure, dangerous even in a multi-motored plane, is catastrophical for a single-motored craft.

The problem of safety in flight cannot be solved with a single-engined plane. A tri-motored plane, if two of the engines are sufficient for level flight, is in a much better condition and the proof of this is in Byrd's flight. As regards the personnel, their endurance depends to a great extent on the type of the plane. In a plane with a cabin where the personnel can rest, find shelter from cold and snow or at least can stretch themselves, conditions are much better. But in planes similar to Nungesser's Levasseur and Lindbergh's Ryan the crew must remain for many hours cramped in a small seat without being able to rest properly, not to speak of other difficulties which tend to diminish the physical endurance of the crew.

Direction of Flight

In an overland flight it is easy to estimate the drift caused by strong side wind and which cannot be detected by the compass. The numerous points of reference on the ground can be used in connection with information supplied by various instruments in order to establish with certainty the trajectory of the plane. Over the sea these reference points are lacking and the resulting danger is increased by the fact that an error in direction may result in a lack of fuel and fatal consequences. The only possible way to follow the route is by the usual methods of naval navigation. The system used in airplanes is, however, rather delicate as regards precision. In any case the system can be only applied when the sun or stars are visible to the navigator.

It is true that under certain conditions navigation over land is also difficult and the experience of the *America* travelling in the dark, foggy night is good proof of that. The problem of importance to be solved is navigation at night or in fog and until its solution the growth of commercial aviation will have its limitations.

Meteorology

Everyone acquainted with aerial navigation knows how rapid are the changes in meteorological conditions even for flights of short distances and how bad weather makes navigation in the air a difficult matter. For short distances, the pilot easily overcomes the difficulty of flying in rain, snow, etc., but he cannot combat these conditions if they should continue for nearly 50 hours. In a normal condition of dense fog a pilot usually makes a landing anywhere until the weather changes, or returns to his point to departure. This could not be done by a pilot on a transatlantic flight if the plane should encounter a gale or meet banks of dense fog; for instance such as Byrd and his crew met in the north of France. Meteorological forecast is indispensable but it is not sufficient for a flight of this duration. It is not logical to blame the unsuccessful outcome of a flight of this type because of the deficiency of meteorological information which has been favorable when the flight was started.

Meteorological knowledge in aviation is simply a certain probability which is less dependable the longer the flight continues and cannot be predicted accurately as to conditions many hours ahead of time. In appreciating the value of possible changes, the experience of the pilot and his ability are of prime importance. This is the natural knowledge gained only after considerable experience in long flights and courage and daring cannot take the place of knowledge. In any case, the errors cannot be blamed on meteorology. Under conditions of this sort we see the present attempts, whether successful or not, are not independent of chance, and may easily be unsuccessful.

It is on account of these conditions that a safe solution of transatlantic flight is possible only with a large seaplane having a powerful radio and having at least three or preferably four motors capable of being repaired in flight. This solution is only partly given in the seaplane of De Pinedo and in Byrd's *America.* At any rate we are rather far from a satisfactory solution of this problem. Many of the present attempts were made without providing all the elementary precautions and were made in planes designed for entirely different purposes.

Of all the planes specially fitted for a long flight only the Levasseur of Nungesser presented a certain probability of being able to float until help arrived and even this precaution proved to be futile. During the first half of the flight with full fuel tanks, *(Continued on page 359)*

NATURALINE

A SUPER AVIATION MOTOR FUEL

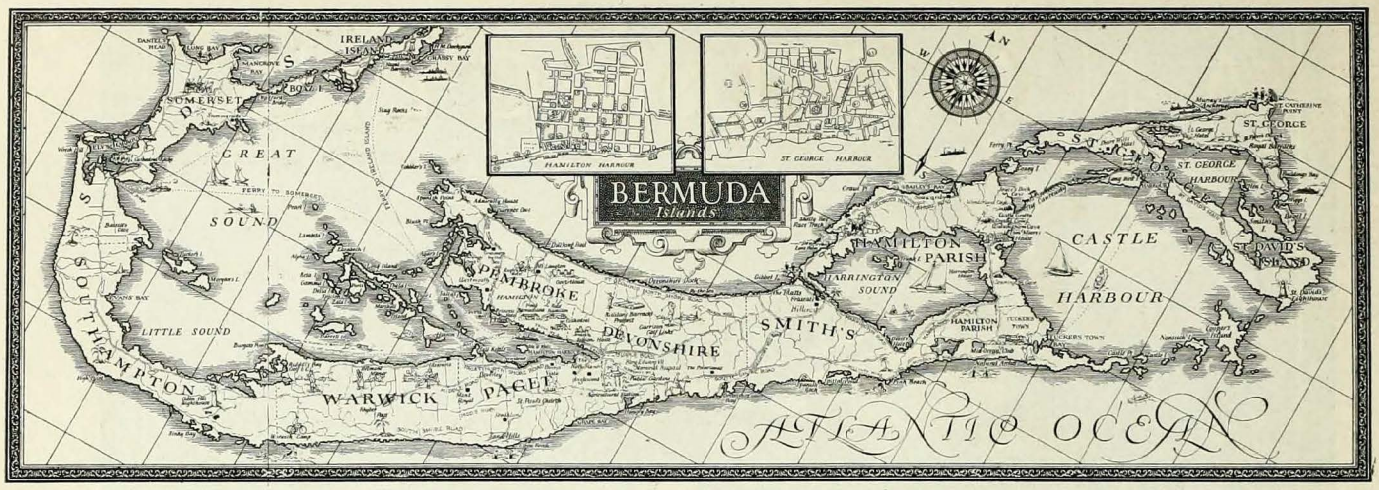
Modern airplane motors demand a fuel that will meet the demands of modern engineering.

"Naturaline" . . . the new, highly volatile, non-corrosive, anti-detonating aviation fuel . . . is a real achievement of science.

It weighs forty-six pounds per hundred gallons less than U. S. Fighting Grade Aviation gasoline . . . a tremendous factor in itself . . . and its unusual power and the elimination of "gas look" makes it an ideal fuel for the finest aviation motors.

It has undergone exhaustive tests in all types of modern aviation motors for the past eight months and every user is enthusiastic over it. It is a fuel we will be glad to tell you more about.

CHESTNUT & SMITH
CORPORATION
Tulsa, Oklahoma



BERMUDA SAFETY FLIGHT CONTEST

$10,000 Prize offered by the Bermuda Government for Flight between New York and the Bermuda Islands

THE New York office of the Bermuda Trade Development Board announces that the Bermuda Legislature has appropriated £2,000 or approximately $10,000 to be known as "The Bermuda Safety Prize."

This prize offered by the Bermuda Government is to be awarded to the aviator who, during the period of three months beginning September 1st, makes the best flight between New York and Bermuda, in either direction. The award is to be given for the highest number of points scored upon a basis of the safety factors employed.

The Bermuda Safety Prize is not to be awarded for speed and it will make no difference in the judging of a contestant flight whether he arrives September, October or November.

It will be seen that one result of the contest will be to hasten the inauguration of regular passenger air service between the American mainland and the Bermuda Islands in mid-ocean.

Aviators flying to and from New York, or anywhere else, who include the New York and Bermuda trip in either direction as a "leg" of their longer flight, can qualify to compete for the Bermuda Safety Prize as far as their voyage between New York and Bermuda in either direction is concerned.

Frank A. Tichenor of AERO DIGEST has consented to act in an advisory capacity and has selected a committee composed of Clarence Chamberlin, Lieut. George Noville, Dr. Michael Watter, Major George Robertson and Commodore J. G. Ericson to supervise the rules and regulations now being drawn up to govern the contest.

Three independent judges will be selected to act in technical matters and to render decisions, while facilities will also be available in Bermuda for the compiling and checking of data relating to the arrivals and departure of contestants.

The committee will award more points for a flight from New York to Bermuda than from Bermuda to New York because, obviously, it will be more difficult to pick up a group of islands barely twelve miles across at their longest dimension than to find the American mainland and be guided by it into New York.

Copies of the rules and regulations may be obtained at the AERO DIGEST offices, 220 West 42nd Street, New York City.

THE SECOND SPLITTER

(Continued from page 267)

ever timed was at Wilbur Wright Field when Kelly and Macready went up for an endurance test just before their transcontinenal flight. They flew round a 50 kilometer triangular course and I kept tab on them till they ran out of gas and had to come down. I was on the job that time 36 hours and five minutes."

By profession Mr. Porter is an electrical engineer who lives and labors in Indianapolis. Among other things he is the official timer of the Indianapolis Speedway and is responsible for the installation of all the myriad electrical equipment with which that mecca of motordom is fitted. His timing machine had its origin in a request by the Indianapolis Speedway officials for an electrical scoring device. Mr. Porter bought a machine, the forerunner of his present timer, and proceeded to tear it down and add improvements to his own notion.

He's been doing that ever since until now the paraphernalia just about suits him. The intricacies of the device (Odis says it's "simplicity itself") baffled detailed description but in general the timing machinery, with which Mr. Porter turns up wherever there's a speed event worthy of the name, consists of a clock, an electrical motor, batteries for same (lest some sudden failure or fluctuation in local current upset the friendship of nations) a series of wheels with figures on their rims representing hours, minutes, seconds and hundredths of seconds, a paper tape on which these figures print and a hand "trap" which is pressed when the racer, be it plane, boat, car or what-not, passes the timing wires. This trap actuates the timing machine and records the fractional instant at which the racer passed. Whatever "human lag" there is remains the same for each lap and so does not affect the final results. For auto races a road trap, tripped by the car itself, makes matters easier for Odis. "Fifty seconds after the last lap is run the results of the race are ready to go on the wires," Mr. Porter says proudly. "That is, of course, if the calculating machines are on the job and they usually are."

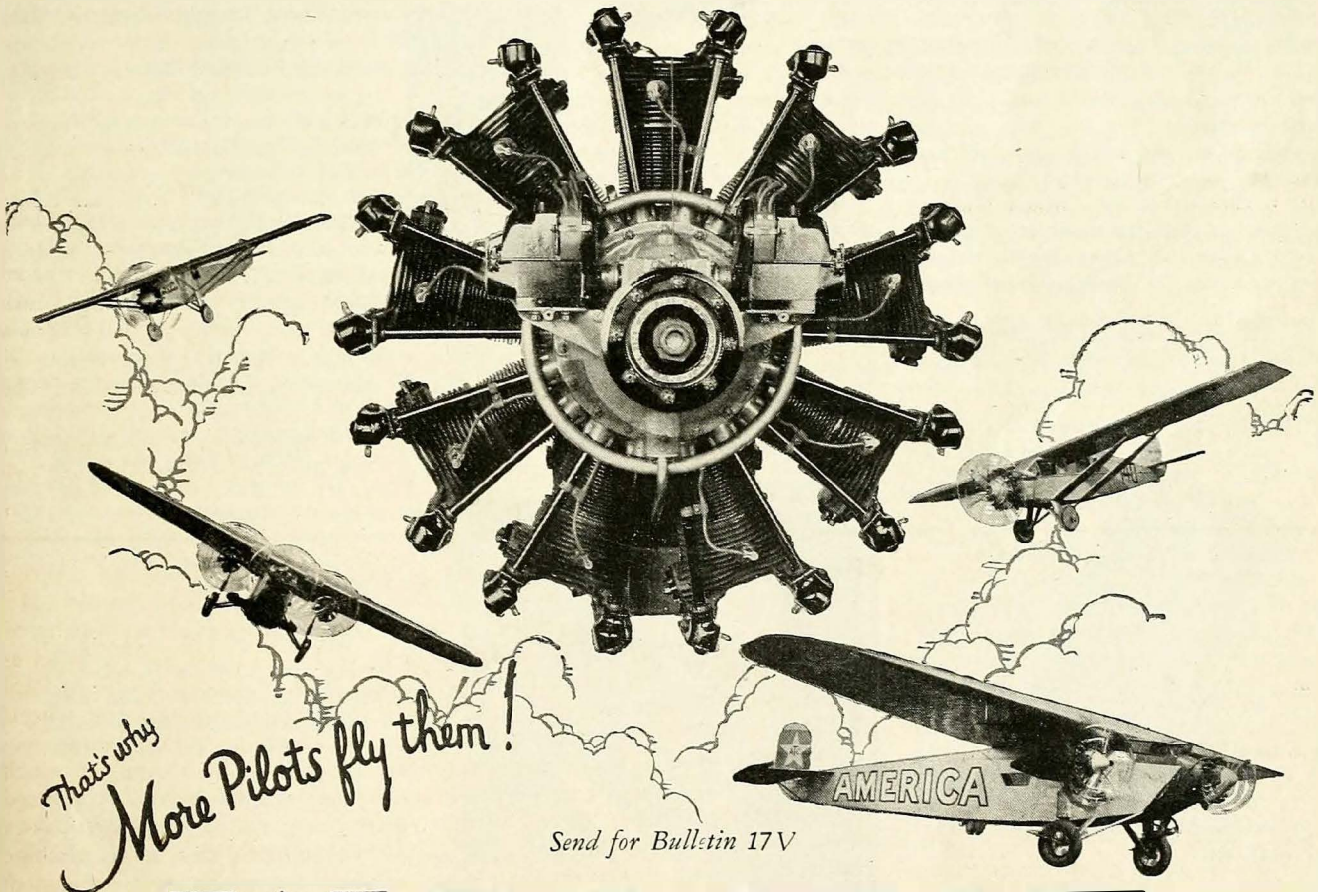
Small wonder Odis A. Porter never has had time to see a race.

CONFIDENCE!

Lindbergh, Chamberlin, Maitland, Byrd, Smith, Goebel and Jensen placed their confidence in the Wright Whirlwind engine—and astounded the world by their achievements.

Less spectactular, but equally significant, is the selection of this same engine by twelve out of fourteen entries in the Third National Air Tour for the Ford Trophy, in which Wright Whirlwind engines again won first and second places.

Public confidence in modern American aircraft powered with this proven engine is founded on a long record of unfailing service.



That's why More Pilots fly them!

Send for Bulletin 17V

WRIGHT

AERONAUTICAL CORPORATION *Paterson, N. J., U. S. A.*

"THE DRIFT INDICATOR"

Bits of news picked up here and there

By William A. Rogers

THE development and marketing of night electric advertising from airplanes offers such broad possibilities that Mr. C. G. Peterson has announced his resignation from Wright Aeronautical Corporation in order to devote his time to this project.

The experimental work on this method of an electric flying signboard with Neon lights has been carried on by Roland Rohlfs and G. S. Ireland, with whom Mr. Peterson will be associated, with offices located in New York City.

In the seven years that Mr. Peterson has been with the Wright Company as assistant to the president, he has taken a very active part in the development of commercial aeronautics in the United States.

THE agitation for a New York airport is greater now than it ever has been before. A year ago it was hard to find one place suitable for a New York airport, now there seem to be seven or eight.

Reynolds Airways has bought Curtiss Field, which is good news, for the real estate men have been threatening to break it up into building lots for the last few months. It will be improved with new buildings and a great deal of work will be done on leveling off the field.

The Eaglerock Airport, New Rochelle, operated by the Atlantic Airways is reported to be doing a big business in passenger carrying.

Teterboro Airport and Hadley field have also been running to capacity.

R. J. Gibbons of the Gibbons Company has layed out plans for an airport at the site of old Dreamland, Coney Island, and another one in the Red Hook section of Brooklyn.

Congressman Cohen is actively working on a bill to make Governor's Island a municipal airport.

THE non-stop race from New York to Seattle to be run in addition to the New York-Seattle Air Derby is creating a great deal of interest among pilots and plane owners. Charlie Collier of sky writing fame and president of the newly formed Aviation Service Corporation, has been asked to take care of the details. All those who want to enter ships in the New York-Seattle non-stop race will get the complete information from Collier at his office at 12 West 40th Street, New York City.

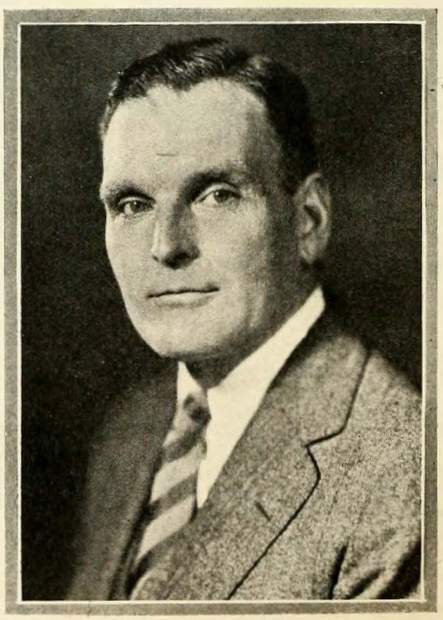
AL BURROW, formerly of the U. S. Air Corps, is now parachute demonstrator for the Thompson Brothers Balloon Company, Aurora, Ill., manufacturers of balloons and parachutes.

A. W. SHAW COMPANY, publishers, announce in their September issue of *The Magazine of Business*, a practical business test of the airplane. This test of commercial aviation is the first endeavor to specifically determine what a typical medium priced practical commercial ship, operated by a typical business in every day activities can do. Their purpose is to develop facts and information that can be made available to other business enterprises and their executives in deciding what aviation offers them in facilitating their work.

The test plane is a Stinson-Detroiter cabin monoplane which will be in charge of R. L. Putnam, vice-president of the A. W. Shaw Company, who was an Army flyer during the world war. The use of the test plane will be strictly in the line of duty—no trick flying or publicity stunts will be indulged in. Logs will be kept in which facts which business men will want to know will be recorded—cost of operation, repairs, available landing fields in cities where business is to be done, time gained or lost in transit and so on. In connection with this announcement appears a story by Colonel Paul Henderson the title of which is "The Airplane—A New Tool of Business."

THOMAS COOK AND SON are organizing the first big airplane tour to be operated in America. It will mark the beginning of regular airplane passenger traffic under their direction between the principal cities of the United States. Arrangements have been made for 20 passenger flying planes to carry a special party of air tourists bound from Eastern cities to Chicago to see the Dempsey-Tunney fight on September 21st. The tourists will be served luncheon in the air, will be provided with quarters at one of Chicago's principal hotels, a ringside seat at the fight, and will return on the morning of September 22nd.

H. L. BROWNBACK, distributotr of Anzani engines in America, is again on his way to Europe. He cannot meet the demand for engines and while abroad will arrange for much larger quantities for the coming year.



Mr. C. G. Peterson.

PARACHUTES are becoming more and more widely used in the commercial field. Commercial pilots have found some difficulty in getting passengers to wear parachutes. To many it is an admission of possible accident which the uninitiated cannot understand. These same people would not think of going to sea on a ship that was not provided with life-boats and would not think of driving a car without bumpers. It is interesting to note that the Boeing Air Transport, Inc., is equiping all ships with parachutes.

The Russell Parachute Company has done a great deal of work in "selling" the parachute idea to commercial operators.

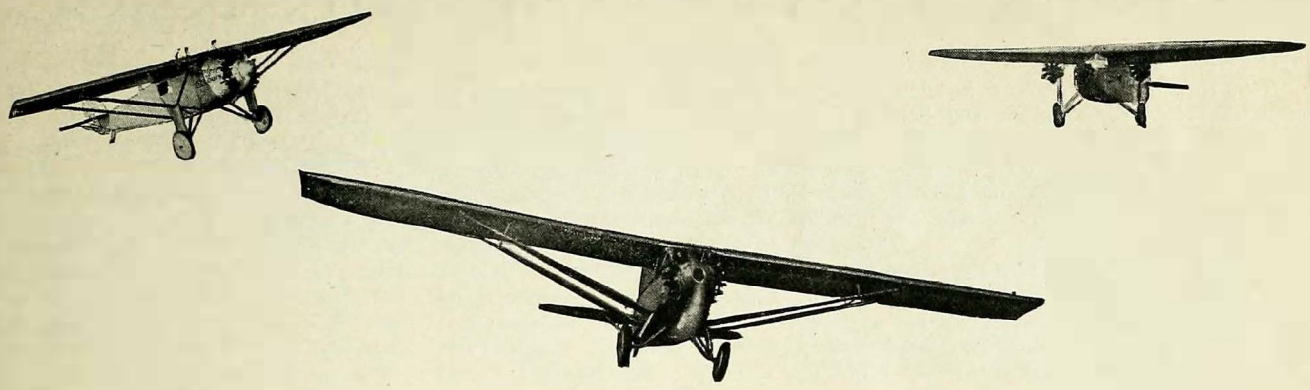
The Royal Typewriter Company is distributing typewriters from their tri-motored plane by means of parachutes. The ship is on an extended tour throughout the country and has delivered typewriters via parachutes at most of the important airports throughout the Eastern and Southern states and Cuba.

F. M. YOUNG, who served as an aeronautical engineer and pilot in the U. S. Air Corps, has been made president of the newly formed Young Radiator Company, Racine, Wis. Mr. Young was formerly vice-president of the Racine Radiator Company.

JACK TWEED has announced the Second Annual Seaplane Convention which will be held at New Haven, Connecticut, on September 17th and 18th. Last year the convention was a big success. Navy machines are expected to attend from Squantum, Rockaway and Washington. The 118th Observation will fly down from Hartford. There are cash prizes, cups and many other awards to be won by the contestants. Motor boat races will fill in the gaps between the events. Everything is in readiness for the reception of visitors and their planes. There are plenty of buoys and anchors available. The runway is capable to take care of practically any type of plane that will be there. Entry blanks and lists of events can be obtained from Jack Tweed, P. O. Box 919, New Haven, Conn.

A. W. SULLIVAN, formerly advertising manager of the Douglas Company, Santa Monica, California, just dropped in with the news that he has joined the organization of the Guggenheim Fund for the Promotion of Aeronautics.

THE American Express Company has published the first air express tariff schedule. Through contracts with C. A. M. operators, it offers air express service reaching from coast to coast and from Boston to Texas. The lowest charge on the tariff schedule is 25c per quarter pound, between New York and Chicago with a $1.00 minimum charge for shipments. The highest tariff is 75c per quarter pound, for shipment between Boston and San Francisco, California.



Now you can learn Aviation

And Make Big Money

At home—in your spare time—grasp all the fundamentals. You can do it. You can fit yourself for one of the many real opportunities—in the air and on the ground. Begin at once, under direction of Lieut. Walter Hinton, while the men who know Aviation are comparatively few.

Aviation is the great, new industry of the age. The time to get into it is now, when it is young. Think of the fortunes that men made by starting early in the Automobile business—the Telephone, Railroading, the Moving Pictures and Radio. Men who grounded themselves in the fundamentals of these businesses, in their practical everyday workings and processes, made good earnings and rapid progress as the industries grew.

Capt. "Eddie" Rickenbacker, America's Premier "Ace."

The recent growth of Aviation is prophetic. It is the kind of expansion that means health, solidity and permanence—it is commercial expansion. Mail, express and passenger lines are in operation; great factories are building planes by hundreds for both pleasure and business use. Every city and town is planning an airport. Over 4000 in operation now—6000 privately owned planes.

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Aviation Institute can give you the necessary knowledge. It is easily acquired in spare time, at home. All you need is a desire to learn. Lieut. Hinton who blazed the air trail across the Atlantic, and his staff of experts will guide your instruction from beginning to end. There are many positions open as mail pilots, commercial flyers, instructors, as well as plenty of well paid jobs as inspectors, riggers and mechanics on the field—to say nothing of any amount of openings in the different factories. But aircraft manufacturers must have trained men. There must be no mistake in the construction of a plane.

Lieut. Walter Hinton
First Trans-Atlantic Pilot, N.C.4.

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SPOKANE NATIONAL AIR RACES

THERE will be a non-stop airplane race from New York to Spokane in addition to the New York-Spokane and San Francisco-Spokane air derbies, with $10,000 for the first prize and $5,000 for the second. These are in addition to the $48,250 in prizes offered for winners of the air derbies and air races.

Five entries have practically been assured in this first non-stop race across the United States. Among those who have given assurance of entering are: Wm. A. Mara of the Stinson Aircraft Corporation which won the Ford Reliability Tour with a Stinson-Detroiter; Lieut. Goddard, pilot of the "El Encanto", which met with a minor crash in taking off for the Dole flight, but which will be ready for the New York-Spokane race; Earl T. Vance of Missoula, Mont., in his Stinson-Detroiter; Bennett Giffin, an entrant in the Dole race, and Arthur Goebel, winner of the flight.

Contestants in the non-stop race will take off from Roosevelt Field between 2 and 4 p. m. on September 21st. Any type of plane and any type of motor can enter, but all planes must conform with the requirements of the Department of Commerce regulations. If in the opinion of contest committee weather conditions are such as to make the start dangerous, the start can be postponed, but no later than September 24th.

On September 19th the B class entrants in the National Air Derby Race from New York to Spokane will leave Roosevelt Field and on September 21st the entrants in the Pacific Coast Air Derby Race will start from Mills Field, San Francisco to Spokane.

Entries in the events will close September 10th. Those who have entered the National Air Derby include:

C. B. McMahan, Miles City, Mont.; J. G. Rankin, Portland, Ore.; Floyd M. Showalter, Fort Wayne, Ind.; Harold Danne, New York, N. Y.; R. H. Hoffman, Moline, Ill.; E. K. Campbell, Moline, Ill.; R. E. Drake, Pittsburgh, Pa.; L. B. Colby, Detroit, Mich.; Mohme Engineering Corporation, New Brunswick, N. J.; Breese Aircraft Company, San Francisco, Calif.; A. W. Stephenson, Dillon, Mont.; Howard M. Rinehart, Dayton, Ohio; Langar Gormal, New York, N. Y.; James S. Charles, Richmond, Va.; S. T. Kaufman, New Brunswick, N. J.; American Eagle Aircraft Corporation, Kansas City, Mo.; Robert S. Fogg, Concord, N. H.; Don S. Phillips, Portland, Ore.; G. L. Smith, Tacoma, Wash.; Capt. Jack Bruce Gorey, Long Island, N. Y.; B. L. Whelan, Dayton, Ohio; Yackey Aircraft Company, Forest Park, Ill.; Capt. Earl W. Fleet, Hartford, Conn.; Emil H. Burgin, Mineola, L. I., N. Y.; Pitcairn Aviation Company, Philadelphia, Pa.; Thomas Colby, Detroit, Mich.; Edward G. Knapp, Ypsilanti, Mich.; Lloyd O. Yost, Pinehurst, N. Car.; L. Royal, Detroit, Mich.; John Paul Riddle, Cincinnati, Ohio; and N. B. Mamer, Spokane, Wash.

In order that practical commercial flying conditions may be approached as nearly as possible, the list of control stations has been revised. The larger planes, with a seating capacity of two passengers besides their pilots, will cover the distance in seven hops, divided between two days. Spending the night of the first day at St. Paul, the big machines are scheduled to make five-minute calls at Cleveland and Chicago the first day, and at Aberdeen, S. D., Miles City, Mont., and Butte the second day.

Smaller machines, capable of carrying one passenger besides the pilot, will take a more deliberate pace, requiring three days for the journey, and making overnight stops at Chicago and Glendive, Mont. Five-minute stops will be made at Bellefonte, Pa., and Cleveland and Bryan, O. Calls will be made the second day at St. Paul and Fargo and Bismarck, N. D., and the third day at Billings and Missoula, Mont.

In the National Air Races, which will be held at Spokane Municipal Airport, Spokane, Washington, on September 23rd and 24th, the Army will have entries in the three military events.

For the Free-for-All Military Pursuit Race the following officers have been selected: Lieuts. F. C. Batten, Wright Field, Ohio; H. H. George, Kelly Field, Texas; A. J. Lyon, Wright Field, Ohio, alternate; N. Longfellow, Mitchel Field, N. Y.; Y. A. Pitts, Kelly Field, Tex., and E. Eubank, Wright Field, Ohio, alternate. In addition to these, the Commanding Officer of the First Pursuit Group will detail three officers from Selfridge Field, Mich., for entry in this race. Seven pursuit planes will be entered by the Army in the Free-for-All Race: three P-1Bs, two P-1s, and two PW-9s.

For the Liberty Engine Builders' Trophy, the Army has selected: Lieuts. H. A. Johnson, Wright Field, Ohio; J. T. Kerry, jr., Fort Crockett, Tex.; and R. Boas, jr., Chanute Field, Ill., alternate. In addition to these, the Commanding General of the Ninth Corps Area will designate such pilots as he desires from that Corps Area as entries. The Army will enter two O-1s and the pilots from the Ninth Corps Area will fly O-2 airplanes.

For the Race for Large Capacity Airplanes, the Army has entered: Lieuts. O. Moon, Kelly Field, Tex.; H. W. Beaton, Langley Field, Va.; and H. A. Dinger, Bolling Field, D. C., alternate. In this race two C-2 transport planes are entered, the type used by Maitland and Hegenberger in their Hawaiian flight.

Major H. B. Claggett, Commanding the Ninth Corps Area, has been designated to have charge of all Army planes in the races.

Commercial entries in the National Air Races follow: N. B. Mamer, Spokane, Wash.; Wyoming Airways Corporation, Casper, Wyo.; James Rinehart, Portland, Ore.; G. J. Smith, Tacoma, Wash.; Robert S. Fogg, Concord, N. H.; Aero Corporation of California, Los Angeles, Calif.; S. T. Kaufman, New Brunswick, N. J.; Langar Gormal, New York, N. Y.; Heath Airplane Company, Chicago, Ill.; Wallace Aircraft Company, Chicago, Ill.; Howard M. Rinehart, Dayton, Ohio; A. W. Stephenson, Dillon, Mont.; Irwin Aircraft Company, Sacramento, Calif.; John R. Stiles, Chicago, Ill.; Breese Aircraft Company,

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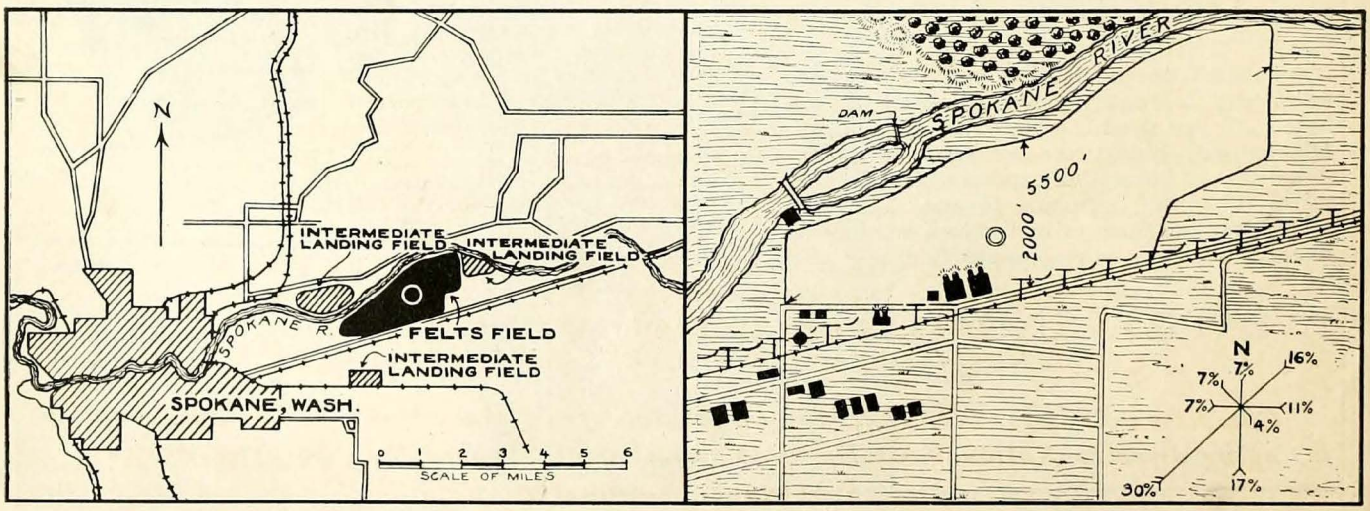
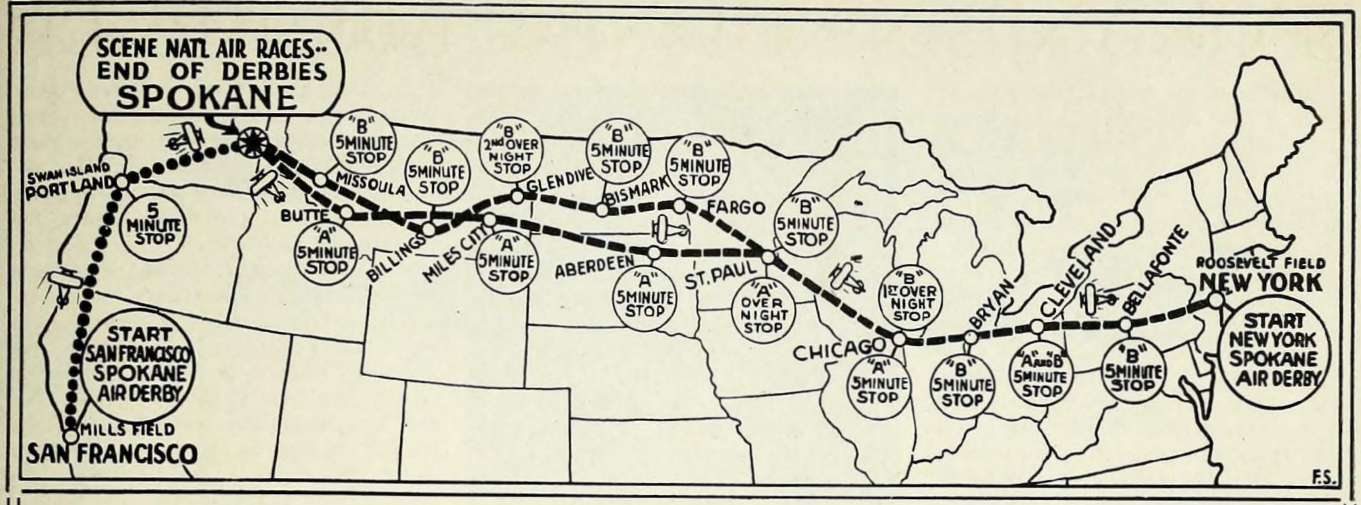


Spokane municipal airport, the scene of the 1927 National Air Races and the goal of the National Air Derbies.



Sanctioned by the National Aeronautic Association

SEVENTH ANNUAL

NATIONAL AIR RACES

SEPTEMBER 23 AND 24

and National Air Derby Race

New York to Spokane

SEPTEMBER 19 to 21

and Pacific Coast Air Derby Race

San Francisco to Spokane

SEPTEMBER 21

"The great importance of this race can be judged by the first prize money, $10,000"

States PORTER ADAMS
President of the National Aeronautic Association of the United States

—greater than the prize money of any Pulitzer race I can recollect. Private owners and commercial pilots who enter this race stand an excellent chance of winning enough money to almost pay for a new modern airplane."

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See the biggest aviation show ever held in the west. Contests for all types of military and commercial airplanes. Manufacturers will appreciate the exceptional opportunities to secure publicity for their particular type of plane. Thousands of people will greet the flyers enroute.

$50,000 CASH PRIZES

and valuable trophies will be awarded winners in these premier aviation classics at the Spokane, Washington, Municipal Air Port.

NON STOP RACE — NEW YORK TO SPOKANE. FIRST PRIZE $10,000, SECOND $5,000, TOTAL $15,000. OPEN TO ALL PLANES CAPABLE OF MAKING THE FLIGHT. CONTESTANTS LEAVE ROOSEVELT FIELD, SEPTEMBER 21.

Complete details for the events can be obtained from Major John T. Fancher, managing director National Air Derby Association of Spokane, 818 Sprague Avenue, Spokane, Washington

GORDON BENNETT BALLOON RACE

IN addition to the United States, the nations to be represented at the Gordon Bennett International Balloon Race at Detroit are Belgium, England, France, Germany, Italy, Switzerland and Spain. There are sixteen entries, three each representing America, Germany and France; Italy and Belgium will each have two and the remaining countries one each.

The Gordon Bennett race is the oldest and most prominent event of its kind in the world. It was first held in 1906 and has been an annual event since that time with the exception of the World War period. Four times the trophy has been won by America, the last being the 1926 contest held at Antwerp when Wade T. Van Orman of Akron, Ohio, captured the race and trophy.

The start of the race is scheduled for the afternoon of September 10th from the Ford Airport at Detroit. The first balloon will take off at 4 o'clock and will be followed at five-minute intervals by the remaining 15. The contest goes to the pilot that shall cover the greatest distance before coming to earth again.

America will be represented by Ward T. Van Orman, the winner of the 1926 race, and W. W. Morton, Goodyear pilots of Akron, Ohio; Edward J. Hill and A. G. Schlosser of the Flying Club of Detroit; and Captain W. E. Kepner and Lieutenant W. O. Eareckson of the United States Army.

These three teams finished in the order named in the National Elimination Races in Akron, Ohio, on May 30th, 1927.

A new 80,000 cubic foot racing balloon, replacing the famous "Goodyear III," winner of the 1924 and 1925 National Races and the 1926 International, will be used by Ward T. Van Orman and W. W. Morton. The "Goodyear VI," as the newly-completed racing bag has been named, will incorporate all the improvements in the art of balloon construction learned by the Goodyear aeronautical organization in more than 15 years experience. Of single-ply construction, it will probably be the lightest balloon ever to represent America in an International event. Van Orman and Morton, winners of the 1927 National Race from Akron, Ohio, May 30th, will again use the radio compass and the mariners' sextant as navigation devices. They maintain that the run to first place in the last National Race was largely possible through the use of these means of position finding.

The Gordon Bennett Balloon Trophy.

The Aero Club of France, headquarters of the F. A. I., is sending to Detroit its two principal aeronauts, Messrs. Georges Blanchet and Maurice Bienaimé.

Georges Blanchet is the oldest aeronaut in France and has to his credit more than 400 ascensions, most of them night trips. He is also a heavier-than-air pilot of note. He won the Grand-Prix of the Aero Club of France 1908, 1909, 1910 and 1922. In 1922, in an international race organized in Switzerland, he crossed the Alps from Geneva to Vinovo-Turin.

In April of this year, at the Alfred Leblanc Race, he ranked first. In a small balloon of 600 cubic meters he started from Paris, landing in Spain at Villanova-de-Meya, province of Lerida, having crossed the Pyrenees Mountains at their highest part (Maladetta)—the first time that a balloon starting from Paris has crossed these high mountains. The flight covered 800 kilometers in 23 hours.

Maurice Bienaimé is the only Frenchman holding both civil and military licenses for piloting and navigating free balloons, dirigibles, and airplanes. He has broken the following records: In 1913 he made a trip of 48 hours from Paris to the Black Sea, 2020 km., which was the French duration record. In 1912, he rose to the altitude of 30,600 feet, which is still the French altitude record. The same year he won the Gordon Bennett race in Stuttgart, Germany, by breaking the world's distance record, 2200 km., in 46 hours. This record is still the longest distance recorded in the Gordon Bennett race. He served in the Aviation Service during the war, was in command of two navy dirigible balloons in the latter part of the war and was in the first of the only two recorded fights between a dirigible and a submarine. He is a member of the Board of Directors of the French Aero Club, also a broker at the Paris Stock Exchange.

The five members of the Italian Army and Navy team which will compete for the trophy in two Italian balloons are: Lieut. Col. Domenico L. Leone and Lieut. Col. Hugo Madori, pilot and aide of the "Dux"; Major Eraldo Ilari and Captain Giuseppe Paonessa, of the "Rex." The reserve pilots are Lieut. Gelato and Lieut. Col. Beghi.

Lieut. Col. Leone and Lieut. Col. Madori placed third and fourth in the Gordon Bennett race at Birmingham, Alabama, in 1922.

Lieut. Col. Leone, first pilot of the "Dux", was with the balloon service in the Italian-Turkish war. In 1915 he was made a commander of the Aerostatical Section of Campagna and in 1917 was placed in first command of dirigibles of large displacement. During the World War he took part in many bombardments, service patrols and submarine scouting with dirigibles. For four years he was aeronautical instructor of spherical dirigibles and kite balloons in the Naval Aeronautical School of Barcelona, Spain, and he holds the Generale Moris 1926 cup and Verona 1927 cup for spherical balloon races.

Lieut. Col. Cavalier Hugo Medori, second pilot of the "Dux", was commander of the Observation section during the war and afterwards of the group of the 3rd Army. At present he is commander of the balloon battalion in the Royal Italian Army and has taken part in numerous balloon races.

Lieut. Col. Beghi, reserve pilot of "Dux," is an observer in the engineers, Balloon Observers Service. He took part in the Italian-Turkish and Italian-Austrian wars as observer; and is commander of balloon observers.

The pilots for Germany are Fritz Eimermacher, in private life an oil merchant of Muenster; Dr. R. Halben, an eye specialist

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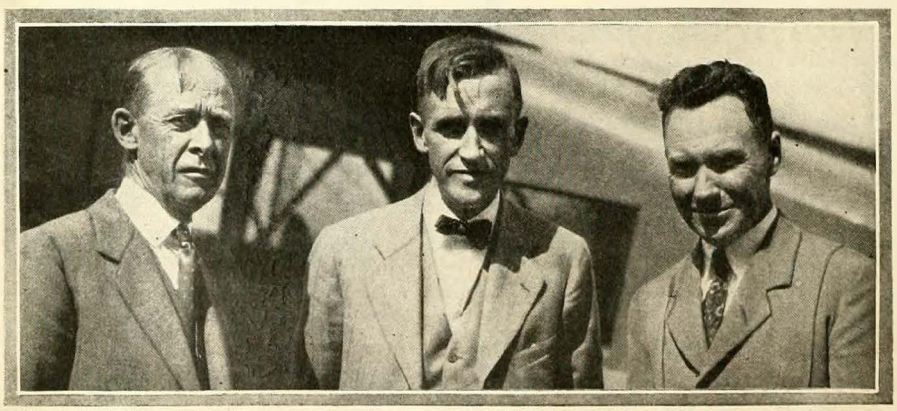


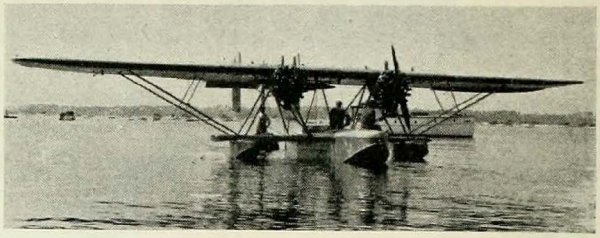
Hon. Henry S. Hulbert, chairman of the 1927 Gordon Bennett Race Committee; Wade T. Van Orman, winner of the 1926 trophy; and Ray Cooper, manager of the 1927 Gordon Bennett race from Ford Airport at Detroit, September 10th.

TECHNICAL

THE SIKORSKY TYPE S-36-B TWIN ENGINED AMPHIBIAN

By

Igor I. Sikorsky



A. Black.

IN the past several years practically no flying boats or seaplanes of a new design suitable for commercial work were built in this country. Some very fine modern float jobs and amphibians were designed and built but these types had mainly in view military duty and therefore were not entirely adaptable for commercial work. However, it seems that the commercial market is in great need of a good flying boat or amphibian, especially in the east of the United States where the landing facilities on land are rather scarce and where many important cities are located near or on a lake, river or seashore. The waterways of the country also offer emergency landing facilities and the possibility to use them when flying across country naturally increases the safety of flying.

Our Engineering Department has designed an amphibian plane, one of the features of the design being that the amphibian landing gear can be easily dismounted and the plane used as a straight flying boat if desired.

We designed this plane around two Wright Whirlwind engines and incorporated in this design the ability of all our twin engined planes to fly with normal load, on one engine only. The general design of this plane is characterized by a very rigid and seaworthy boat and an entirely separate light fuselage-outrigger connected at the center of the upper wing and supported by two struts mounted on the end of the boat and also braced by two cables running from the end of this outrigger to the base of the engine mountings. The tail surfaces are mounted to the end of this outrigger and are entirely independent of the boat and being placed high are well protected from damage on landings or take-offs even in rough weather. This position of the tail surfaces is also advantageous in flight as they are situated well in line of the propeller thrust. The rudders are very efficient and practically no effort is needed to fly the plane on one motor.

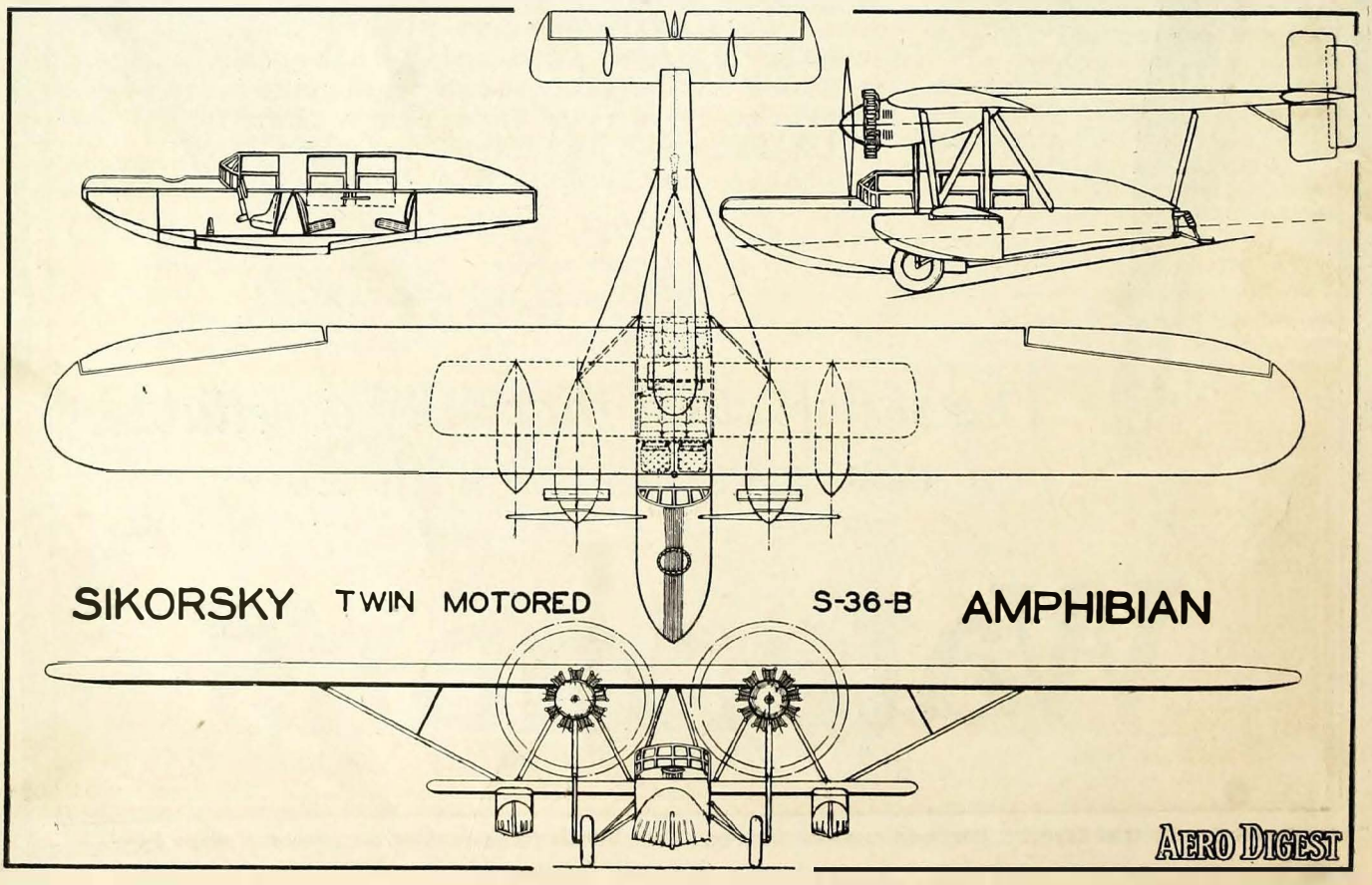
The lower wing is of a rudimentary character and is used mainly for structural purposes. The side floats are attached to the lower wing and are closer to the center line of the plane than in the conventional design of flying boats. Motors are placed below the upper wing on both sides of the center line.

The wings are of medium thick sections, the airfoil being developed by our corporation after a number of tests of models and actually built airplanes.

The spars are built of duralumin "I" beams and ribs as structural work out of duralumin channels. Spars and ribs are assembled with duralumin rivets and chrome nickel bolts and no welding is used whatsoever. The wing structure is covered with fabric.

The hull is a boat 26 feet long, 51 inches wide and accommodates eight persons in one roomy cabin or three open cockpits. The hull has a V-shaped bottom with one step and consists of several water-tight sections and is built of duralumin sheets mounted on a hardwood frame.

The pilot's cockpit with two seats side-by-side is located in the front of the boat and is equipped with a control wheel mounted on a single column located in the center of the cockpit. The wheel, by means of a pivot,



can be switched from one side to the other so either pilot can control the plane.

In the very front of the hull an opening is provided through which the pilot can drop the anchor or effect the mooring when the ship is afloat. The compartment in front of the pilot's cockpit can also be used for baggage, freight or mail.

In the closed type, the pilot and passengers being located in the same cabin, have direct communication. The cabin has an efficient system of ventilation and is electrically lighted.

The control surfaces are efficient and rigid, the ailerons being of mitered type and sensitive under all conditions. The stabilizer is adjustable in the air. The tail surfaces as well as the outrigger are built entirely of duralumin sections, fabric covered. The power plants located below the upper wing are quickly dismountable for overhauling or replacement. Engines are equipped with hand inertia starters or electrical starters if desired.

Four gasoline tanks are located in the upper wing and therefore the fuel system is of the direct gravity type.

The amphibian landing gear is operated by a hydraulic device which at the same time is a very efficient hydraulic shock absorber. This landing gear is easily attached or dismounted by means of several bolts.

This plane is designed in two types, the service type and the long distance type. General data and estimated performances of these planes are as follows:

SERVICE TYPE

Span	62 feet
Length overall	34 feet
Height on wheels	12 feet
Wing area	585 square feet
Weight empty	3950 pounds
Disposable load	2000 pounds
Water displacement of boat	17,670 pounds
Displacement of side floats	2,800 pounds
Power (2 Wright Whirlwind J5)	200 h.p.
Load per sq. ft.	10.25 pounds
Load per h.p.	13 pounds
Load factors: High incidence	5.2
Low incidence	3.6
Inverted flight	2.0
Nose dive	2.0

Distribution of Load

As a passenger carrier

One pilot and 7 passengers	1360 pounds
Gas and oil for 4 hours	600 pounds
Baggage and extras	40 pounds
Total normal useful load	2000 pounds
Weight empty	3940 pounds
Extra	60 pounds
Gross weight	6000 pounds

With normal useful load of 2000 pounds the plane will fly without losing altitude on one out of the two motors. The plane has a considerable overload capacity.

Performances with Normal Useful Load

High speed on two motors	120 m.p.h.
Cruising speed	100 m.p.h.
Stalling speed	49 m.p.h.
Speed on one motor	84 m.p.h.
Climb at ground (two motors)	600 ft.p.m.
Ceiling	15,000 feet
Gliding angle	one to ten

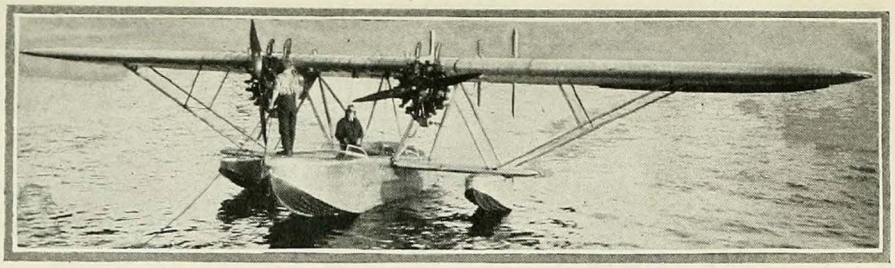
LONG DISTANCE TYPE

Span	72 feet
Length overall	34 feet
Height on wheels	12 feet
Wing area	668 square feet
Weight empty	4400 pounds
Disposable load	3000 pounds
Power	2 Wright J5 200 h.p. motors
Total water displacement of boat	17,670 pounds
Wing tip floats	2800 pounds
Load per h.p.	16.1 pounds
Load per sq. ft.	11.1 pounds

Estimated Performances on Two Engines With Normal Load of 3000 Pounds

High speed	118 miles per hour
Cruising speed	100 miles per hour
Stalling speed	52 miles per hour
Climb	400 feet per minute
Ceiling	14,000 feet

Horizontal flight on one engine will be possible with a load of 2500 pounds.



Lieut. George Pond made the test flights of the Sikorsky flying boat.

The long distance type of amphibian can be loaded with safety up to a gross weight of 8500 pounds. The load factors given below as well as the stress analysis were made for total gross weight of 8500 pounds.

Load factors: High incidence	4.8
Low incidence	3.3
Inverted flight	1.8
Nose dive	1.8

Estimated Performances on Two Engines With Normal Load of 8500 Pounds

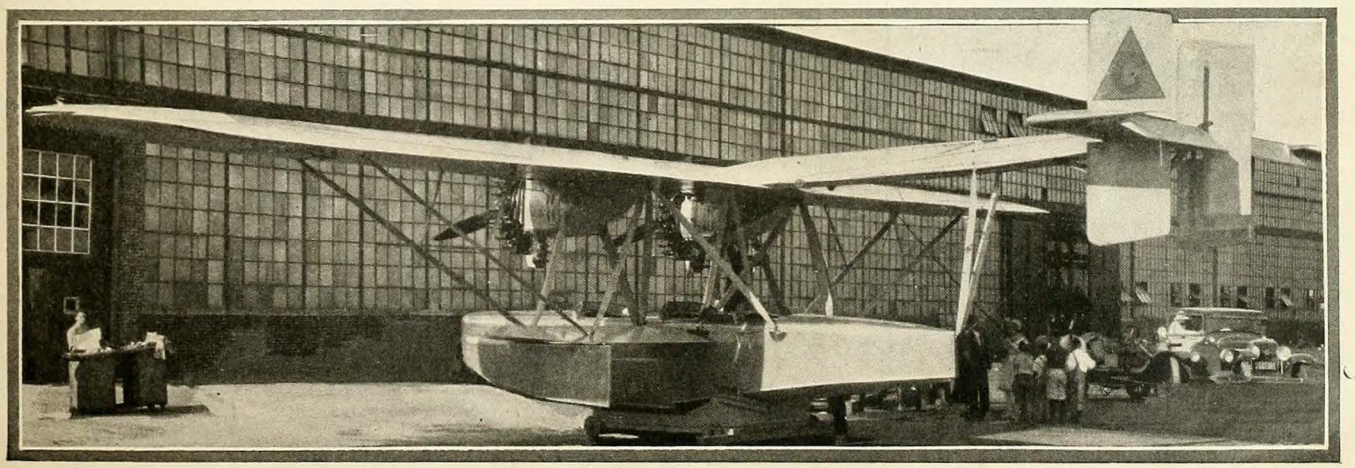
Cruising speed	96 to 100 miles per hour
Climb	400 feet per minute
Ceiling	11,000 feet
Load per sq. ft.	12.75 pounds
Load per h.p.	16.5 pounds

With 1500 pounds of crew and equipment the plane will have a range of 1800 to 2000 miles.

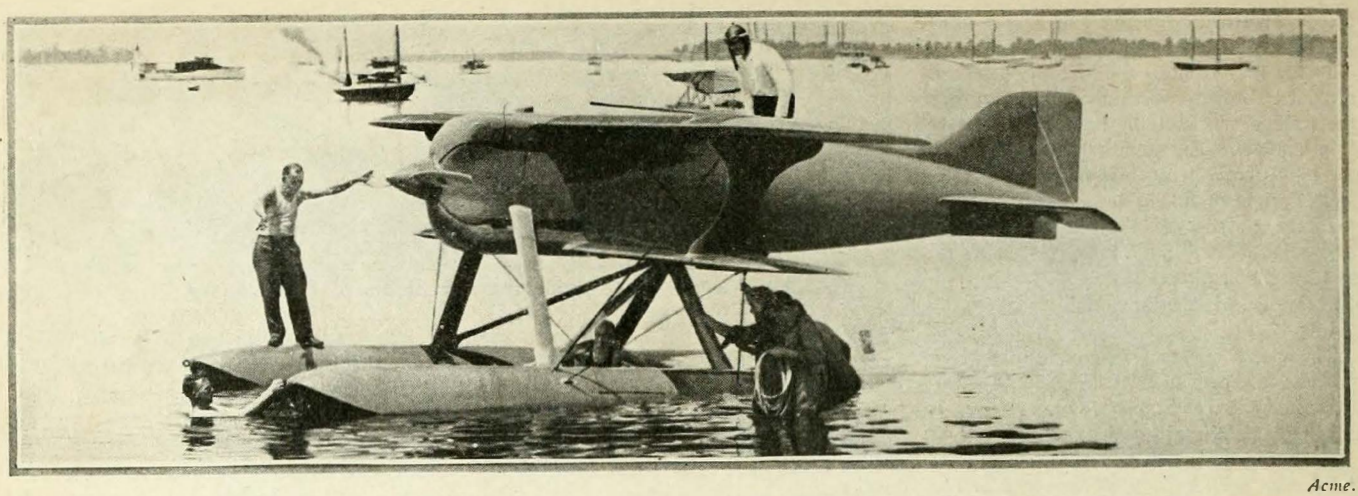
The first plane of this type was recently delivered to the Andian National Corporation, Ltd., a Canadian concern operating an oil pipe line in Colombia, South America.

The Andian National Corporation, Ltd., use their planes mainly for inspection of their pipe lines which run along the Magdalena River and as no landing fields are available in this territory they did not require the amphibian landing gear and ordered a straight flying boat.

Many test flights were made on Long Island Sound and the performances of the boat proved to be well in accord with our estimates. The controllability and maneuverability on water and in the air was excellent. The take-off was very fine and the plane could be easily controlled when flying on one motor only. It was a great satisfaction to note the utmost rigidity of the plane structure including the tail surfaces and the absence of vibration while flying at different speed or while taxiing on water.



Ready for its trial flights. The twin-motored Sikorsky Type S-36-B flying boat at the factory, College Point, L. I.



Acme.

LIEUT. WILLIAMS' RACING SEAPLANE

By George F. McLaughlin

POWERED with the new X type Packard water-cooled 24-cylinder engine, the racing seaplane built for Lieutenant Alford Williams, U. S. N., by the Kirkham Products Corporation was designed primarily to bring the speed record back to the United States. Designed under Lieutenant Williams' personal supervision this little racer incorporates features which make it a worthy contender for the world's highest speed honors.

The fuselage is of laminated spruce monocoque construction with wings and float struts faired into it and with a built-in fin. The divided stabilizer has an over-all span of 8 feet and it is located in line with the center of thrust of the propeller. It is braced to the upper and lower fin surfaces with streamline wires.

The power plant, with its odd shape and inverted cylinders, presented a difficult problem in installation and bracing. The cowling is arranged for complete accessibility and the symmetrical streamline of the nose is accomplished in a neat manner.

For the engine cooling system, the water is run through surface radiators built on as a covering for the wings. The oil is also cooled in a wing surface radiator extending for three feet on the lower right wing. The radiator system is composed of a distributor along the leading edge and a series of brass tubes of hollow T section running parallel to the wing curve through which the water is led to a collector at the trailing edge which in turn leads to the engine pump. 690 square feet of water and oil cooling is provided due to the section of tube employed and the fact that there are cooling areas above and below both wing surfaces. 12,000 feet of brass radiator tubes are employed in the wing radiators and the engine circulates the water through them at the rate of 120 gallons a minute. The walls of the radiator T section have a thickness of .0055 inch.

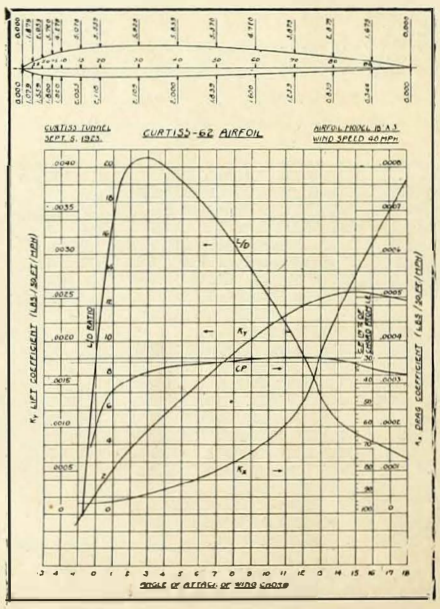
A standard steel adjustable pitch duralumin propeller is driven directly from the engine crankshaft.

Ailerons on both upper and lower wings are operated by means of torque tubes and pull and push rods. Cables are used for operating the elevators and rudders, the latter by means of foot pedals. There are no control cables visible on the outside of the ship, all operating horns being arranged inside the body.

Wing struts are built up with spruce and duralumin, covered with plywood. The struts to the floats are of steel tube, the upright and diagonal struts of chrome molybdenum and the spacer struts between the floats of 2330 steel which contains 3½ per cent nickel. Anchor fittings are of 3135 steel.

The plywood floats are of the conventional concave V bottom single-step type, the step located about 10 feet 6 inches aft of the nose. Besides the steel tube float brace struts, streamlined with sheet duralumin fairing, streamline tie rods are used in transverse riging system of the wings and between the floats and the under sides of the wings for lift and drift stresses.

The finish of the plane is in two tones —gold and flag blue. The body, floats, struts, fin and stabilizer are blue while the wings, elevators and rudder are in gold. The wing radiators, of brass, blend in tone with the remaining portions of the wing and aileron surfaces.



Characteristics of the Curtiss C-62 airfoil used on Lt. Williams' seaplane.

The following instruments are installed: oil pressure gage; oil temperature indicator; water temperature indicator; air speed indicator which indicates up to 350 miles an hour; altimeter indicating to 5,000 feet; and a tachometer arranged to indicate engine speeds up to 3,000 revolutions per minute.

Specifications

Span, upper wing	29 feet 10 inches
Span, lower wing	24 feet 3 inches
Length over all (at body)	22 feet 9 inches
Length over all (including floats)	26 feet 9 inches
Height over all	10 feet 9 inches
Chord, upper wing	65 inches
Chord, lower wing	44 inches
Gap between wings	41.5 inches
Stagger	10⅝ inches
Area, upper wing	142 square feet
Area, lower wing	75 square feet
Aileron area, upper (each)	5 square feet
Aileron area, lower (each)	3 square feet
Fin area	8 square feet
Rudder area	7 square feet
Stabilizer area	16 square feet
Elevator area	10.2 square feet
Cooling water capacity	35 gallons
Fuel capacity	60 gallons
Oil capacity	15 gallons
Length of floats	21 feet 3 inches
Beam of floats	40 inches
Tread of floats	8 feet
Weight of each float	280 pounds
Propeller diameter	8 feet 6 inches
Engine, Packard X type	1,250 horsepower
Weight of engine (dry)	1,400 pounds
Weight of engine in lbs. per h.p.	1.12 pounds
Rate of fuel consumption,	.53 pounds per h.p. hour
Weight of complete plane, light	4 000 lbs.
Weight of plane fully loaded	4,600 lbs.

The X type Packard engine is a new development whereby two of the 12-cylinder type V 1500 engines, one inverted and one upright, are joined to a common crankshaft. This results in an X arrangement of the 24 cylinders. The bore is 5.375 inches and the stroke 5 inches; cubic displacement 2,775 inches. At 2,700 revolutions per minute the

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Exclusive features make them different. Made with optical precision — you are assured of vision first. Improved design provides perfect fit and unusual comfort.

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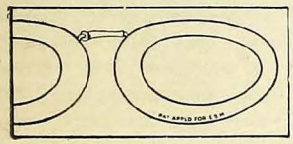
U. S. Air Service Model

With ground polished and cylindrical bent white lenses	$10.75
With ground polished and cylindrical bent Amber or Euphos (green) tinted lenses	12.75
With hand ground Meniscus white lenses	15.00
With hand ground Meniscus Amber or Euphos (green) tinted lenses	16.50 per pair
Ground, polished and cylindrical bent white lenses	4.00
Ground, polished and cylindrical bent Amber or Euphos (green) tinted lenses	5.00
Hand ground Meniscus white lenses	8.00
Hand ground Meniscus Amber or Euphos (green) tinted lenses	9.50
Continuous head band, 1⅛" wide, each	1.50
Sponge rubber cushions, per pair	2.50



The small cut shows the asymmetrical shape of the Meyrowitz Patented Sponge Rubber Cushion. These cushions prevent air seepage.

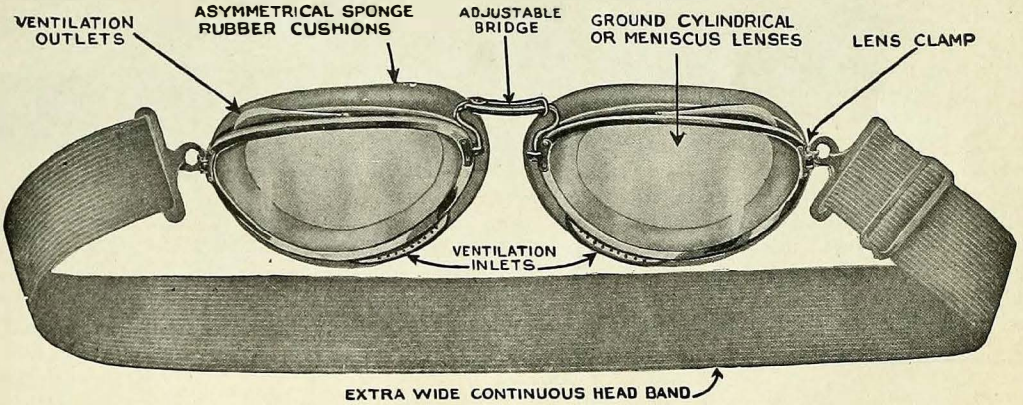
LUXOR GOGGLES No. 6

Luxor Goggles No. 6 with first quality white lenses	$9.75
Luxor Goggles No. 6 with first quality tinted Amber or Euphos (green)	10.50
Luxor Goggles No. 6 with hand ground Meniscus white lenses	15.00
Luxor Goggles No. 6 with hand ground Meniscus tinted Amber or Euphos (green)	16.50 per pair
White lenses	$1.50
Tinted Amber or Euphos (green) lenses	2.00
Pneumatic Cushions	2.00 each
Two-piece Head Band	1.00

LUXOR GOGGLES No. 5

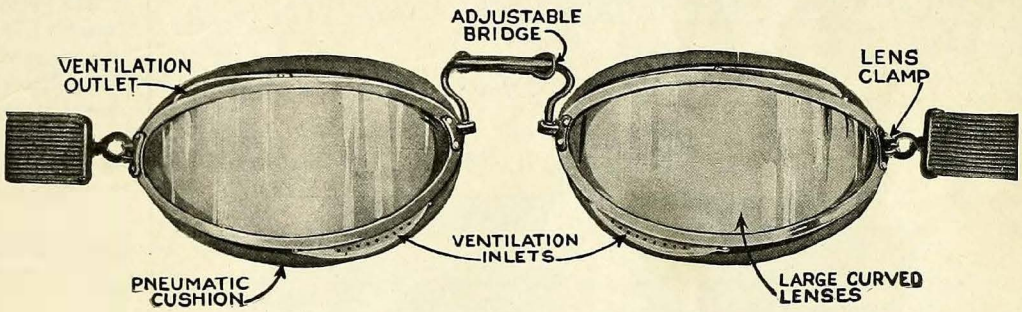
Luxor Goggles No. 5 with first quality white lenses	$6.75
Luxor Goggles No. 5 first quality tinted Amber or Euphos (green)	7.50 per pair
White lenses	1.50
Amber tinted or Euphos (green) lenses	2.00
Pneumatic Cushions	2.00 each
Two-piece Head Band	1.00

Worn by all leading aviators: Commander Byrd, Col. Lindbergh, Clarence Chamberlin, Lieuts. Maitland, Hegenberger, Noville, Hinton and many others.

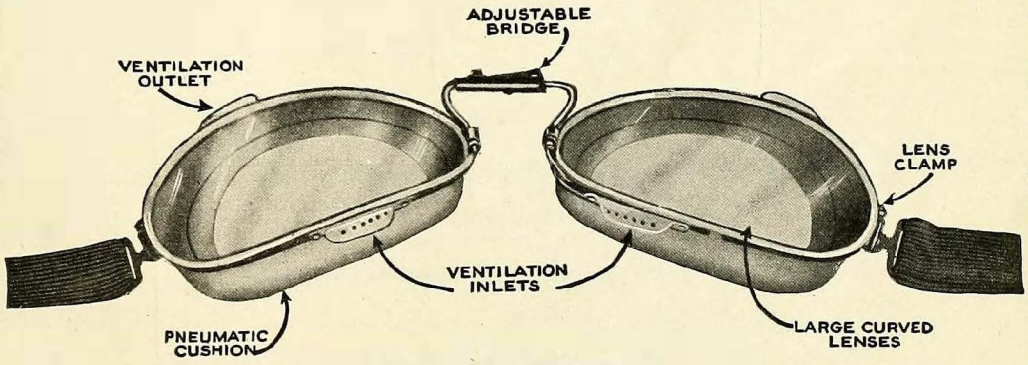


MEYROWITZ LUXOR GOGGLES No. 6—U. S. Air Service Model

This model has been used on practically every important air expedition. The accepted goggles of the air fraternity.



LUXOR GOGGLES No. 6—Regular Model



LUXOR GOGGLES No. 5

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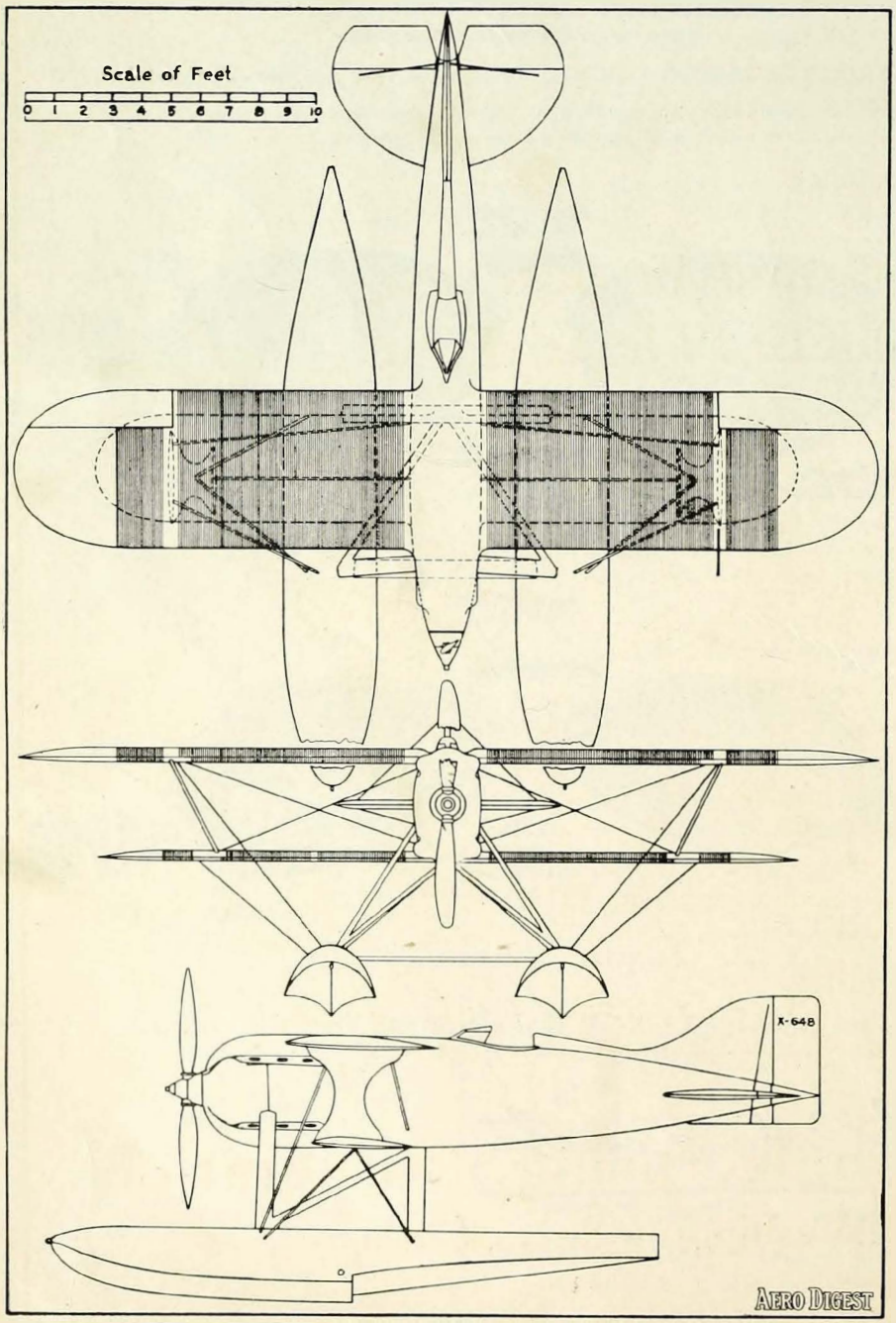
rated output is 1,250 horsepower.

In order to save weight, no self-starter is provided in the plane. For starting the engine before the plane is put afloat, a portable auxiliary cranking device is used. This consists of an electric motor run with storage batteries and supported on a tripod. Connection is made between the electric motor and a dog projecting forward of the propeller hub; disconnection is made automatically when the engine starts.

As we go to press, tests are being quietly conducted at Port Washington, L. I., where the plane is housed at the hangar of Caleb Bragg. Unofficial reports indicate that a speed of over 275 miles an hour has been made over a carefully checked course and it is probable that Lieutenant Williams will attempt a new world's record before the Schneider race. Arrangement is made to equip the plane with landing wheels to replace the twin floats and it is probable that Lieutenant Williams will attempt to establish a new speed record for land planes with the same machine.



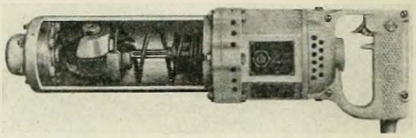
3-view outline scale drawing of Lieut. Williams' 1250 h.p. racing seaplane.

PORTABLE ELECTRIC HAMMER

THE accompanying sectional view shows the internal mechanism of the Black & Decker electric hammer. The motor in this hammer is the same type as used in the Black & Decker portable electric drills with the exception of a few minor refinements, making it more applicable for this type of work. It is a universal motor operating on direct current or alternating current from 25 to 60 cycles and operates efficiently on voltages 10 per cent above or below voltage shown on the name plate.

The armature of this motor turns at approximately 10,500 r.p.m. and is equipped with an aluminum centrifugal fan which draws air in at the commutator end of the motor, passes it around the motor, and expels it through several ventilating holes in the field case opposite the fan.

The armature shaft is hollow to accommodate the spline shaft upon which the reciprocating hammer mechanism is mounted. This reciprocating mechanism, which actually strikes the blow, is made



up of a special drop forging upon which are mounted the two beveled gears heavily weighted on one-half of their area. These gears are driven by a beveled pinion of the spline shaft, and, consequently, they rotate in opposite directions; the two weights being together each half of complete revolution. When the two weights are together at the bottom, the whole reciprocating mechanism mounted on the spline shaft moves downward, striking a heavy blow on the oil-tight piston which transmits the blow to the drill or cutting tool being used.

The piston in the nose of the hammer which receives the blow from the ram on the reciprocating mechanism is a "suck-fit" which prevents any oil from passing. This piston is supported by a heavy coil spring which absorbs the hammer blow when it is running idle. It strikes 2,300 blows per minute.

PRELIMINARY FLIGHT TESTS OF THE N. A. C. A. ROOTS TYPE AIRCRAFT ENGINE SUPERCHARGER

By ARTHUR W. GARDINER AND ELLIOTT G. REID

Synopsis of N. A. C. A. Report No. 263

AN investigation of the suitability of the N. A. C. A. Roots type aircraft engine supercharger to flight-operating conditions, as determined by the effects of the use of the supercharger upon engine operation and airplane performance, is described in this report.

The supercharger has been previously described in N. A. C. A. Technical Report No. 230; the results of laboratory tests are also given there. The compressor has a displacement of 0.51 cubic foot per revolution and weighs 88 pounds.

The selection of a suitable propeller and the provision of satisfactory intake ducts and adequate engine cooling were preliminary problems. The supercharger was first tested in a modified DH-4 airplane with a 5.4 compression ratio Liberty-12 engine. Two sets of drive gears which enabled the maintenance of sea-level pressure at the carburetor intake up to 12,000 and 20,000 feet were provided. The higher gear ratio supercharger was next tested in a DT-2 landplane which was later converted to a twin-float seaplane; the DT-2 also had a Liberty engine. Loads up to 2,000 pounds were carried in the seaplane with normal and supercharged engines.

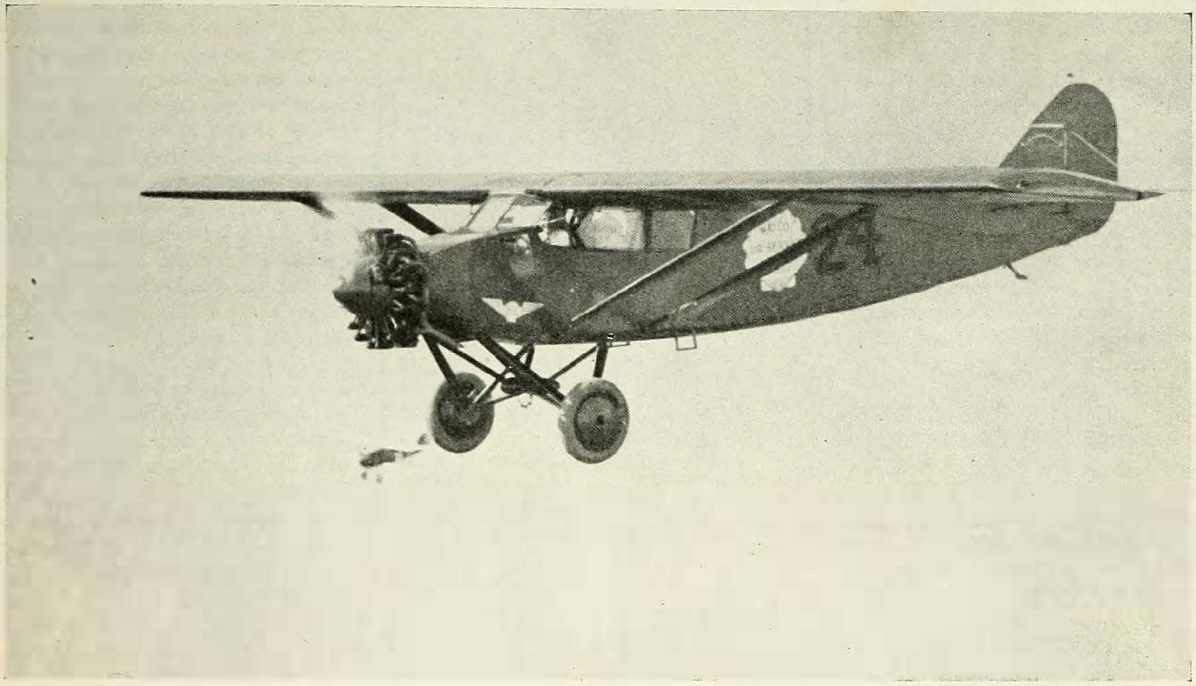
Attention was concentrated on the operation of the engine-supercharger unit and on the improvement of climbing ability; some information concerning high speeds at altitude was obtained.

The supercharger was found to be satisfactory under flight-operating conditions. Although two failures occurred during the tests, the causes of both were minor and have been eliminated. Careful examination of the engines revealed no detrimental effects which could be attributed to supercharging.

Marked improvements in climbing ability and high speeds at altitude were effected. It was also found that the load which could be carried to a given moderate or high altitude in a fixed time was considerably augmented. A slight sacrifice of low-altitude performance was necessitated, however, by the use of a fixed pitch propeller.

From a consideration of the very satisfactory flight performance of the Roots supercharger and of its inherent advantages, it is concluded that this type is particularly attractive for use in certain classes of commercial airplanes and in a number of military types.

Report No. 263 may be obtained upon request from the National Advisory Committee for Aeronautics, Washington, D. C.



Over land or over sea HASKELITE is First

IN flights over land or over sea, planes built with HASKELITE plywood are first. The use of HASKELITE in the winner and nine of the ten planes to complete the Ford Reliability Tour and in all four of the planes in the Dole race to Hawaii is added evidence of this. Added — because the list already includes such record-breaking planes as Lindbergh's, Maitland's, Byrd's, the Douglas World Cruisers, the NC-4 trans-Atlantic flying boats, and countless others.

The Stinson-Detroiter monoplane which finished far ahead in the Reliability Tour had rib construction, false ribs, under-finish, and cabin flooring of HASKELITE. Uses in the other planes completing the tour also include turtle decks, aileron beams and covering, leading edges, instrument boards, seats, etc.

HASKELITE in these planes is not chance. This plywood is chosen by careful builders whose planes get there first — chosen because it is stronger than steel, weight for weight; because it is the lightest structural material obtainable; because it is weatherproof and absolutely dependable.

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THE MARK VI BRISTOL JUPITER ENGINE

THE Mark VI. Jupiter engine is of the static radial air-cooled type and represents the latest aero engine practice of the Bristol Aeroplane Co., Ltd., England. Though very robust of construction it is compact and convenient for installation, the grouping on the rear cover of the auxiliary drives and accessories, such as the magnetos, carburetor, controls, oil pump, oil filters, gas distributor, gun gear and tachometer drive, ensuring the necessary protection for these components, and allowing of the use of a simple form of cowling, with a detachable rear panel, which gives ready access to all components likely to require routine attention in service.

Three standard types of the engine are produced:—

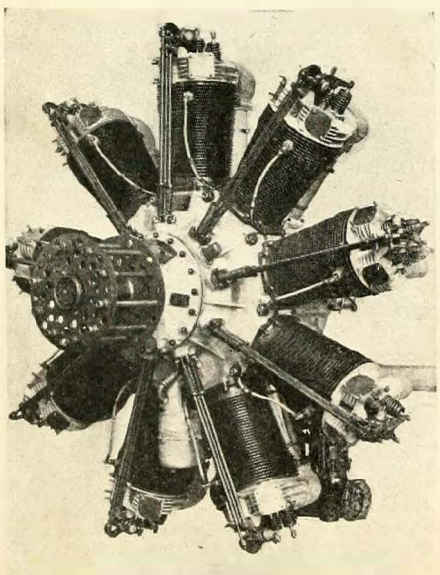
High compression service engine 6.3 to 1 compression ratio. This engine is especially suitable for machines normally operating at altitudes of 15,000 feet upwards. In order to allow of standard service fuel being used without detonation occurring, the machine throttle control is of the gate type, full throttle only being used at altitudes above 5,000 feet. At altitudes above this the engine will show a considerable gain in power and fuel economy over the normal service engine, giving the machine a proportionately higher ceiling.

Standard service engine 5.3 to 1 compression ratio. Suitable for machines normally operating at medium altitudes and requiring the maximum power available at ground level when using standard fuel.

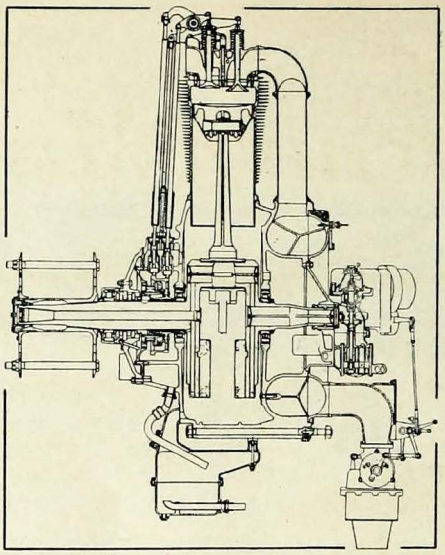
Standard commercial engine 5 to 1 compression ratio. Suitable for commercial machines, the lower rating ensuring a longer life between overhauls, and satisfactory running under a wide range of conditions and fuels.

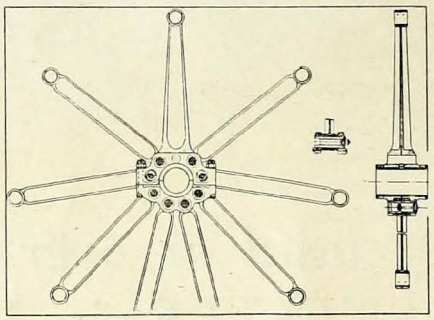
The two main portions of the crankcase (the front and rear half), are of stout, well-ribbed section and machined from duralumin stampings, a face joint being made on the center line of cylinders by nine collar bolts, the rearward projections of which are used for attaching the engine to the airplane mounting.

The crankshaft is of the built-up type and



Propeller end, Bristol Jupiter engine.





A cross-section and details of the piston rod assembly. Jupiter engine.

manufactured from hardened and tempered 60 ton nickel chrome steel stampings. The crankshaft spigots in the maneton are registered by a stout taper key formed integral with the eye of the maneton, which is split on the crankpin center line and nipped up by a large diameter bolt and nut. The joint obtained is entirely free from any play or working, even under full throttle excess speed conditions. The crank cheeks have been slotted out and the balance masses pushed out in order to obtain the maximum effect for the minimum gross weight. The complete shaft is carried on two main roller bearings, located immediately behind each crank web, with a special double purpose spherical roller bearing at the propeller end, and a small white metal steady bearing at the tail end. The shaft is drilled throughout for lightness, communicating holes and blanking plugs allowing of the resulting chambers being utilized for oil circulation and distribution.

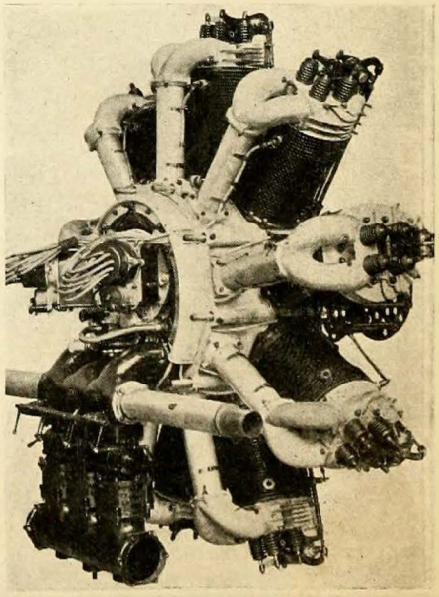
The master rod and the eight articulated rods are machined from 65 ton nickel chrome steel stampings. The built-up crankshaft allows the use of a solid big end for the master rod, which is lined with a hardened steel sleeve, bearing directly upon the bronze backed white metal lined bush floating on the crankpin. Pistons are of cast aluminum alloy, and are of the slipper type, carrying two gas rings and one oil scraper ring of special design. The gudgeon pin floats in both piston and connecting rod and is secured against end motion by a circlip.

The cylinders are of composite construction. The barrels, machined from alloy steel forgings, have an integral combustion head upon which the overhead valves (two inlet and two exhaust), seat direct. The head, which embodies the valve ports and carries the valves, valve guides and rocker mechanism, is of cast aluminum alloy of high heat conductivity, and is secured to the steel barrel by studs and set screws, a faced joint being made with the cylinder barrel to ensure the maximum heat conductivity. To compensate for the difference in expansion between the aluminum head and the steel securing studs, packing sleeves are fitted under the nuts, ensuring good contact between the head and the barrel throughout the range of working temperatures. Double concentric valve springs are fitted, and the valves are of cobalt chrome steel, with special hardened steel caps to take the thrust of the rocker screws.

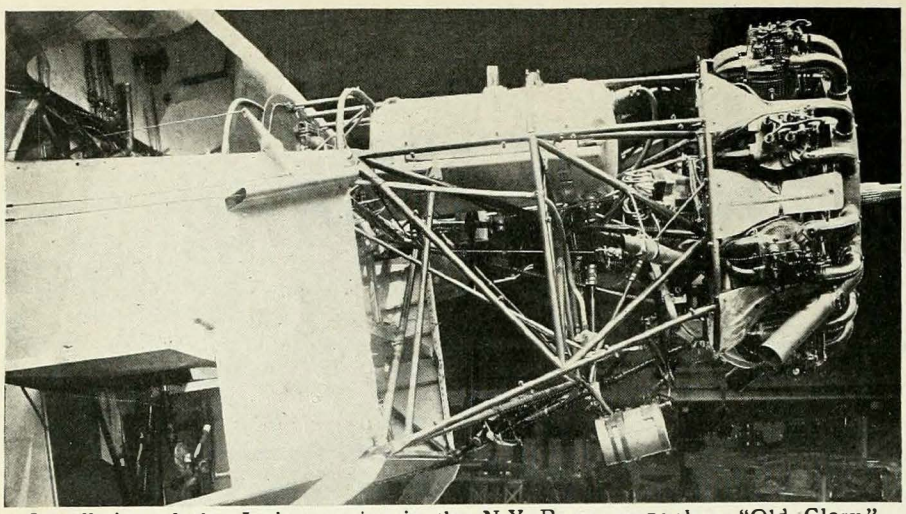
The two row large diameter four-lobed cam, runs concentric with the crankshaft front end and is driven from it by eccentric epicyclic gearing at ⅛ engine speed in an anti-crank direction, operating by tappets and push rods the overhead rocker gear. The rocker gear is a special feature of the engine. The rockers are mounted on a bracket, which is secured at one end to the cylinder head and at the other end by a tie rod to the crankcase. This arrangement compensates for the radial expansion of the cylinders when hot and automatically maintains the desired valve clearances under all running conditions.

The carburetor specially designed and supplied for this engine consists of three variable jet type carburetors formed in one body and operated by one set of controls. This gives a very compact instrument which, while mounted low enough to allow of a good gravity feed, can be tucked up inside the cowling. The variable jet facilitates tuning and gives an exceptional range of altitude control.

An additional quality is the fuel economy obtained under throttled or cruising conditions. This carburetor was fitted to the



Rear view, Bristol Jupiter engine.



Installation of the Jupiter engine in the N.Y.-Rome monoplane "Old Glory."

Jupiter-engined Farman machine, winner of the French Coupe Zenith in 1926, which is essentially a flight fuel economy competition.

A special air intake elbow, heated by the hot oil drawn from the engine by the scavenge pump, prevents the freezing up of the carburetor, and to ensure thorough atomization of the mixture the induction elbow is exhaust heated. For machines of high altitude scout class, generally operating under very low temperature conditions, additional heat is provided by a special scuttle type air intake, drawing warm air off the lower cylinders.

The latest Jupiter exhaust ring has been developed particularly for the Series VI engine; the diameter of the ring has been reduced and the down pipes kept within the cylinder outlines, in order to cut down head resistance and afford the maximum possible fairway for gun fire.

Particular attention has been paid to the design and manufacture of these rings, to ensure their being an interchangeable and mechanical job, and special non-corrosive alloys have been used, making the life of these rings indefinite.

To simplify the installation, the rings are entirely supported from the engine, and lugs for the attachment of the cowling are provided on the periphery of the ring.

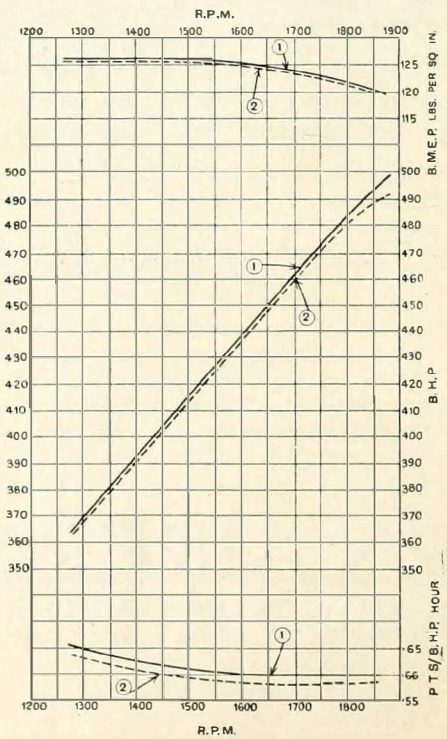
The Bristol Jupiter was the first engine embodying air-cooling principles to pass the official tests of the Air Ministry. This was accomplished in September, 1921, and it was some time before any other air-cooled engine was similarly successful. However, the success that was originally achieved with the Jupiter engine has been periodically repeated under official test, and its efficiency as a power unit is well established.

In the autumn of 1925 one of the latest Mark VI. engines passed the full Air Ministry 100-hours test with such remarkable success that it was submitted to a 25,000 miles cross country flight test under sealed conditions. The test was carried out under the supervision of the Air Ministry and the Imperial Airways, Ltd., and involved 225 hours actual flying time.

A more powerful development of Bristol type engine is to be used in one of the British Schneider Trophy races at Venice this year.

Specifications of the Mark VI Standard Commercial Bristol "Jupiter" Engine

Type	9 cylinder aircooled radial
Bore and stroke	5.75 in. by 7.5 in.
Total stroke volume	1,753 cubic inches
Compression ratio	5 to 1
Engine speed, normal	1,700 r.p.m.
Engine speed, maximum	1,870 r.p.m.
H.p. at sea level	420 b.h.p. at 1,700 r.p.m.
H.p. at sea level	460 b.h.p at 1,870 rp.m.
Propeller	direct drive, left hand tractor
Carburetor	"Bristol" triplex
Mixture control	variable jet
Ignition	fixed
Oil system	pressure 40 lbs. per sq. inch
Oil pump	duplex gear, 1 scavenge, 1 feed
Tachometer drive	¼ engine r.p.m.
Weight dry	730 pounds
Fuel consumption, (max.)	.27 gals. per hr.
Oil consumption, (max.)	1.25 gals. per hr.
Fuel consumption, cruising	.22 gals. per hr.
Oil consumption, cruising	1 gal. per hr.



Power curves, Bristol Jupiter engine. 1—Readings taken before 100 hour test. 2—Readings taken after 100 hour test.

CARBURETORS ON RECENT RECORD FLIGHTS

IT is a notable fact that Stromberg carburetors were used on all of the recent transoceanic and record breaking flights. The adaptation of the standard Stromberg principles of carburetion to aircraft was started before the time of the World War. Constant research and development has been carried on since then. The Stromberg Company freely acknowledges its debt to the United States Army and Navy Air Services and to the engine manufacturers. Their laboratories have been constantly at the disposal of the company.

The basic principle has thoroughly proved itself and has never been varied from. The NA-T4 carburetor on the Wright Whirlwind engine is one of the latest models. This carburetor is the one used in the epochal flights made by Colonel Lindbergh, Chamberlin and Levine, Maitland and Hegenberger and Commander Byrd. With this same carburetor Chamberlin and Acosta set the world's endurance record of 51 hours and 20 minutes.

The development of this carburetor has been carried along with the development of the J engine. Originally this engine had three small single barrel carburetors, each carburetor separately feeding three cylinders of the nine cylinder engine. The general performance of this arrangement was very good, but in service it was quite difficult to keep the three carburetors properly synchronized over any long period of operation. Also, the use of three carburetors made a rather bulky installation and complicated the fuel piping. The next step on the J-3 and J-4 engines was the application of a single carburetor. A double barrel Model NA-U5 with various modifications was used. This arrangement gave good distribution and power.

With the development of the J-5 engine, it was decided to use a three barrel carburetor, thus combining the distinct advantages of the two previous types of installations. This is the present Model NA-T4 carburetor.

The carburetor is of the simple plain tube type with the three throttles all on one shaft. The float mechanism is of the efficient "Y" type which maintains the same level in the carburetor regardless of the angle assumed by the airplane in flight.

New seaplane records have recently been established—for speed over a 500-kilometer course carrying a useful load of over 1500 pounds, (136.023 m.p.h.); speed for 100 kilometers under the same conditions (147.263 m.p.h.); and for altitude carrying the same weight (22,178 ft.). In addition to this, the seaplane record for absolute altitude has been broken and rebroken, being finally set at 37,995 feet. These records were made by Lieuts. Barner, Callaway, Henderson and Champion of the United States Navy respectively.

The engine used in all cases was the new Pratt & Whitney Wasp 9 cylinder, air cooled radial, rated at 425 horsepower. The standard carburetor equipment for this engine is the Stromberg Model NA-Y7A.

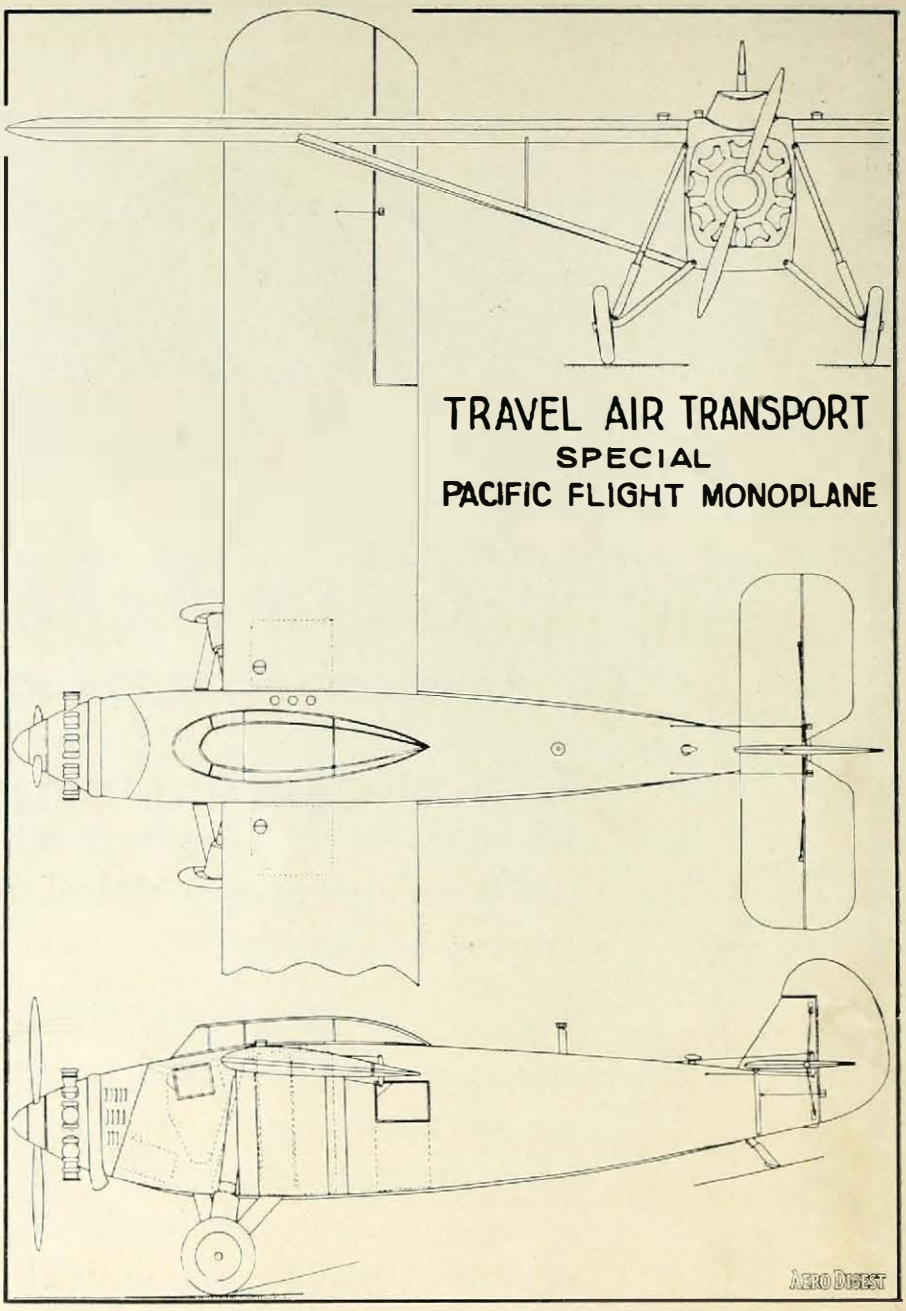
PACIFIC FLIGHT TRAVEL AIR MONOPLANE

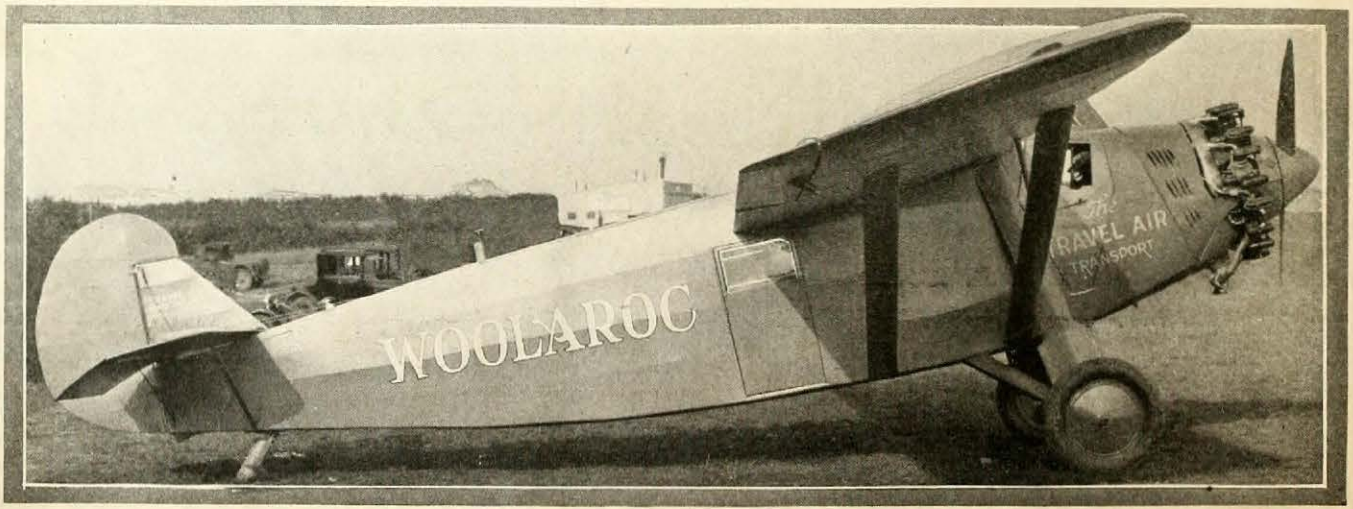
THE two special monoplanes built by Travel Air for the Pacific flight, one of which, the "Woolaroc," won the Dole Prize, are about the same basic design as the standard model Travel Air Transport Monoplane. The cabin woodwork, upholstering and windows were omitted, of course, and the large fuel tanks which were built in three units were slung in the cabin section directly under the wings. These tanks did not completely fill the cabin and a compartment about four feet long is available for the navigator. For his use, an airspeed meter, altimeter, inductor compass dials and regulator, magnetic compass and speed and drift indicator were installed. The inductor compass generator is mounted about six feet to the rear of this section and can be easily reached inside the fuselage.

The main fuel supply is carried in the three aluminum tanks and their outlets lead to a wobble pump in the cockpit. Either or all these may be turned on at will thus affording means of balancing the airplane as desired. All the fuel from these tanks passes through the wobble pump and thence to an engine-driven gear pump where it is pumped to either the right or the left wing tank. A bi-pass valve at the hand wobble pump allows the fuel to be pumped around the gear pump should it cease functioning. In this manner the two gravity wing tanks are constantly left full, the overflow from one going into the rear main tank while the other is a pure reserve tank. Each wing tank has a capacity of 38 gallons and either can be used at will.

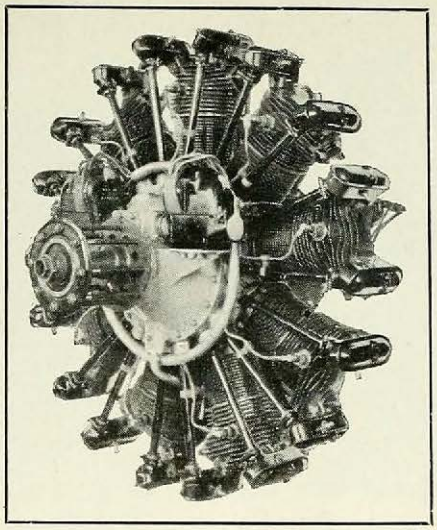
The two airplanes, which bear the names of "Oklahoma" and "Woolaroc" are practically identical except for the cupalo arrangement. In the former, this runs from the pilot's cockpit back to the rear of the navigator's compartment, while the latter encloses the pilot only.

Instruments carried in the cockpit of each plane consisted of the normal engine units, airspeed meter, altimeter, bank and turn indicator, rate-of-climb indicator, inductor compass regulator and indicator, and a magnetic compass. In addition, each carried radio equipment for receiving radio beacon signals, an air raft and oars, one-and-one-half inch Very pistol and fifty rounds of various colored flares, seventy-five smoke and flare pots and miscellaneous equipment such as food, personal equipment and the like. Each airplane had drift angle lines





Side view of Art Goebel's Travel Air Transport "Woolaroc", winner of the Dole prize.



Again the Wright Whirlwind Motor with Bohn Ring True Bearings Scores a Triumph

THE Woolaroc piloted by Arthur C. Goebel, winner of the $25,000 Dole air race from Oakland to Hawaii, and the Aloha piloted by Martin Jensen, winner of second place, were both equipped with Wright Whirlwind Motors in which Ring True Bearings were used for both the Master Rod Bearings and the Crankshaft Rear Bearings.

In every major air feat of recent months Bohn Ring True Bearings have played their part in bringing the flight to a successful conclusion and placing America in the forefront of aviation progress and achievement.

BOHN ALUMINUM & BRASS CORP.

DETROIT, MICHIGAN

Also makers of Bohnalite Castings and Nelson Bohnalite Pistons

BOHNALITE

painted across the fuselage, stabilizer and elevator in addition to the speed and drift indicators mounted on the window sides. The wings and fuselage, etc., were completely bonded and metallized with copper braid while the engine ignition system had special shielding.

Several members of the fuselage were revised to accommodate the concentrated loads imposed by the main fuel tanks. Heat treated chrome molybdenum tubing was used throughout the chassis structure. Multiple cross wraps of rubber shock cord in tension were employed in the compression strut of the landing gear. 30 x 5 wire wheels with 32 x 6 tires were used, completely streamlined with fabric at the final take off.

The fuel used was supplied by the Phillips Petroleum Company of Bartlesville, Oklahoma and weighed only 5.68 pounds per gallon with a higher heat value per pound than normal aviation fuel. Mobiloil was used for lubrication.

Preliminary tests of these airplanes at the Travel Air Field carrying part loads proved very satisfactory. With 300 gallons of gasoline, 10 gallons of oil, pilot and all equipment installations, the "Oklahoma" took off after a run of 21 seconds with practically no wind. The airplane was then maneuvered violently and handled so well that this load was left in and several flights made to check the instrument installations, take off and landing times and fuel system operation.

Specifications

Engine	Wright Whirlwind J-5 CA
Propeller	Standard Steel
Wing area	308 square feet
Wing span	50 feet 5 inches
Wing chord	81 inches
Average high speed	125 miles per hour
Length overall	30 feet 8 inches

Estimated Weights in Pounds

Weight empty (including complete installations, tanks, shielding, special instruments)	2250
Fuel (425 gal. at 5.68 lbs.)	2420
Oil (18 gal. at 8 lbs.)	144
Raft, smoke bombs, signal equipment, etc.	35
Radio equipment	45
Miscellaneous	35
Pilot	165
Navigator	156
Gross weight fully loaded (estimated)	5,375
Wing loading per square foot	17.4
Power loading per h.p. (assuming 230 h.p. at 1900 r.p.m.)	22.9

FRICTION OF AVIATION ENGINES

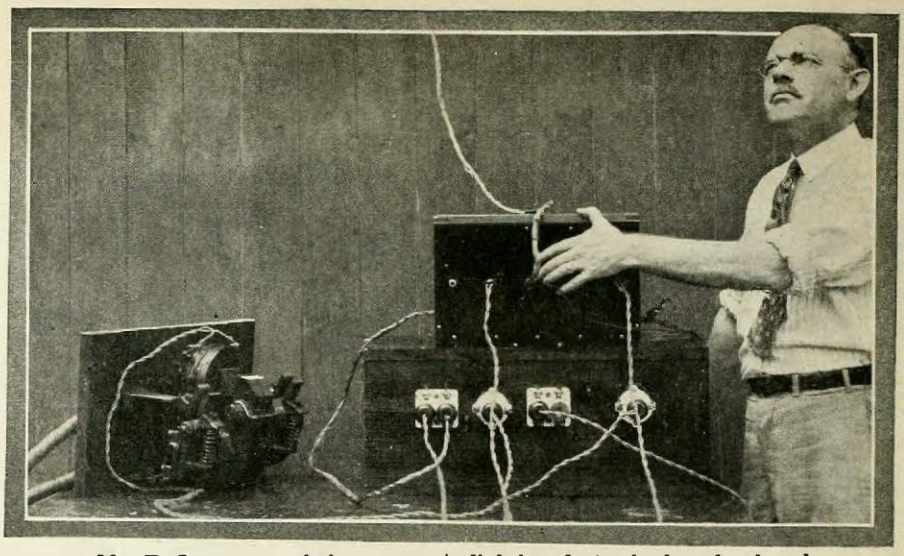
By S. W. Sparrow and M. A. Thoine

Synopsis of N. A. C. A Report No. 262

THE first portion of this report discusses measurements of friction made in the altitude laboratory of the Bureau of Standards between 1920 and 1926 under research authorization of the National Advisory Committee for Aeronautics. These are discussed with reference to the influence of speed, barometric pressure, jacket-water temperature, and throttle opening upon the friction of aviation engines.

The second section of the report deals with measurements of the friction of a group of pistons differing from each other in a single respect, such as length, clearance, area of thrust face, location of thrust face, etc.

Report No. 262 may be obtained upon request from the National Advisory Committee for Aeronautics, Washington, D. C.



Mr. T. Spooner, and the automatic lighting device he has developed.

AUTOMATIC AIRPORT LIGHTING DEVICE

THE successful automatic lighting of an airport was demonstrated on August 23d at Bettis Field, McKeesport, Pa., when the hum of the motor of an air mail plane, 1500 feet above the field, switched on a bank of floodlights and Merle Moltrup, chief of the air mail pilots at Bettis Field, brought his plane to the ground in the path of light turned on his plane's engine. The sound-sensitive agency which automatically closes the lighting circuit was developed by Mr. T. Spooner, Research Engineer, of the Westinghouse Electric and Manufacturing Company.

The device consists of a microphone, resonant and amplifying circuits, a time element relay and contactors. The hum of the motor is picked up by the microphone which is mounted in a vertical position in order that it will best catch sound waves from the air above. The current thus induced in the microphone circuit is transmitted to a resonant circuit tuned to the frequency of the hum of the motor, which not only amplifies it, but eliminates all currents which might be induced by other sounds such as voices, automobile horns, etc. Further insurance that the device will only be actuated by the motor hum is provided by the time element relay which is so adjusted as to function only after the sound has persisted for an unbroken period of ten seconds. This prevents the functioning of the apparatus through the reception of sporadic sounds, even though they have the same frequency as the tuned circuit. The actual closing of the circuit is effected by contactors.

The floodlights installed at Bettis Field are a new type of airport projector developed by the Westinghouse Company. They are designed to furnish sufficient illumination over an uneven field, at the same time keeping the source of light low and eliminating objectional glare in the eyes of the aviator. Each projector consists essentially of a steel drum 25 inches in diameter and 19 inches deep, mounted on a 2½ inch pipe standard.

Mounted within the drum are a lamp socket with vertical, lateral and in-and-out focusing adjustments, a 23 inch parabolic metal reflector of such focal length that all reflected rays come approximately within a 3 degree divergence, and a system of louvers to absorb all those rays of direct light the upward tilt of which exceeds 1½ degrees. A spread lens mounted in front of the shell gives a horizontal spread of 45 degrees to the beam.

The unit is so mounted on the pipe standard that it may be rotated horizontally, or tilted vertically two degrees above and six degrees below the horizontal. It is dust and rain proof.

When equipped with a 1500 watt projection lamp and spread lens, the unit gives a maximum intensity of 250,000 C. P., with an estimated intensity with plain lens of 3,000,000 C. P. The projector may be accurately focused by the use of a daylight lampsetter developed for the purpose.

FACTORS IN THE DESIGN OF CENTRIFUGAL TYPE INJECTION VALVES FOR OIL ENGINES

By W. F. Joachim and E. G. Beardsley

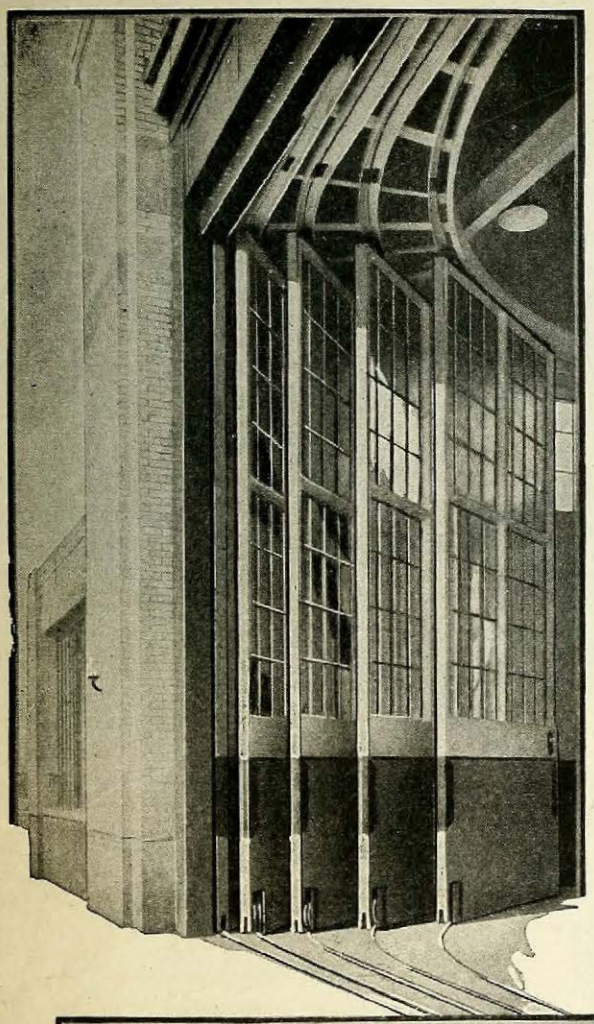
Synopsis N. A. C. A. Report No. 268

THIS research was undertaken at the Langley Memorial Aeronautical Laboratory, in connection with a general study of the application of the fuel injection engine to aircraft. The purpose of the investigation was to determine the effect of four important factors in the design of a centrifugal type automatic injection valve on the penetration, general shape, and distribution of oil sprays.

The general method employed was to record the development of single sprays by means of special high-speed photographic apparatus capable of taking 25 consecutive pictures of the moving spray at a rate of 4,000 per second. Investigations were made concerning the effects on spray characteristics, of the helix angle of helical grooves, the ratio of the cross-sectional area of the orifice to that of the grooves, the ratio of orifice length to diameter, and the position of the seat. The sprays were injected at 6,000, 8,000, and 10,000 pounds per square-inch pressure into air at atmospheric pressure and into nitrogen at 200, 400, and 600 pounds per square-inch pressure. Orifice diameters from 0.012 to 0.040 inch were investigated.

It was found that decreasing the pitch of the helical grooves and thus increasing the centrifugal force applied to the spray increased the spray cone angle considerably, although the percentage increase was much less in dense air than in the atmosphere. On the other hand, the spray penetration decreased with increase in the amount of centrifugal force applied. About twice as much spray volume per unit oil volume was obtained with a high centrifugal spray as with a noncentrifugal spray.

Report No. 268 may be obtained upon request from the National Advisory Committee for Aeronautics, Washington, D. C.



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That Coast Open

Truscon Hangar Doors coast open! Roller bearings and correctly designed tracks and pulleys make it possible to open or close them with one arm! They are rigid, perfectly aligned, will not warp or stick and are of rust resisting copper-steel. They give fire protection and freedom from the danger of high winds, yet their ample window space admits plenty of daylight when closed. They roll back into small space for the free and unobstructed passage of planes. The nation-wide organization of Truscon will give you suggestions, estimates and complete information.

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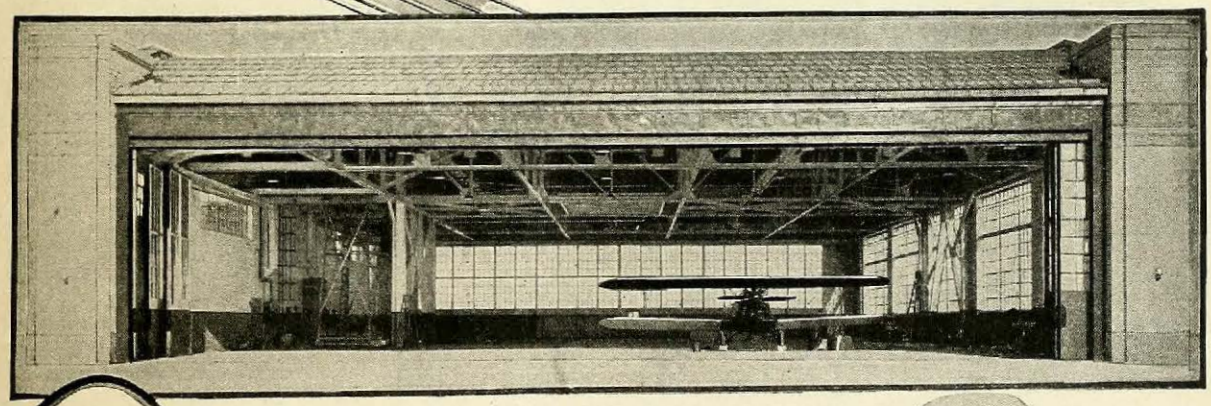
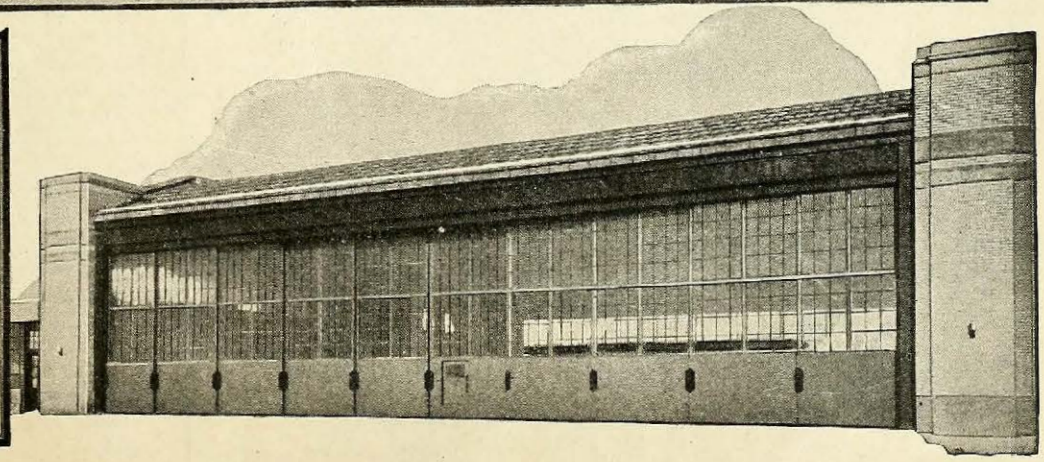
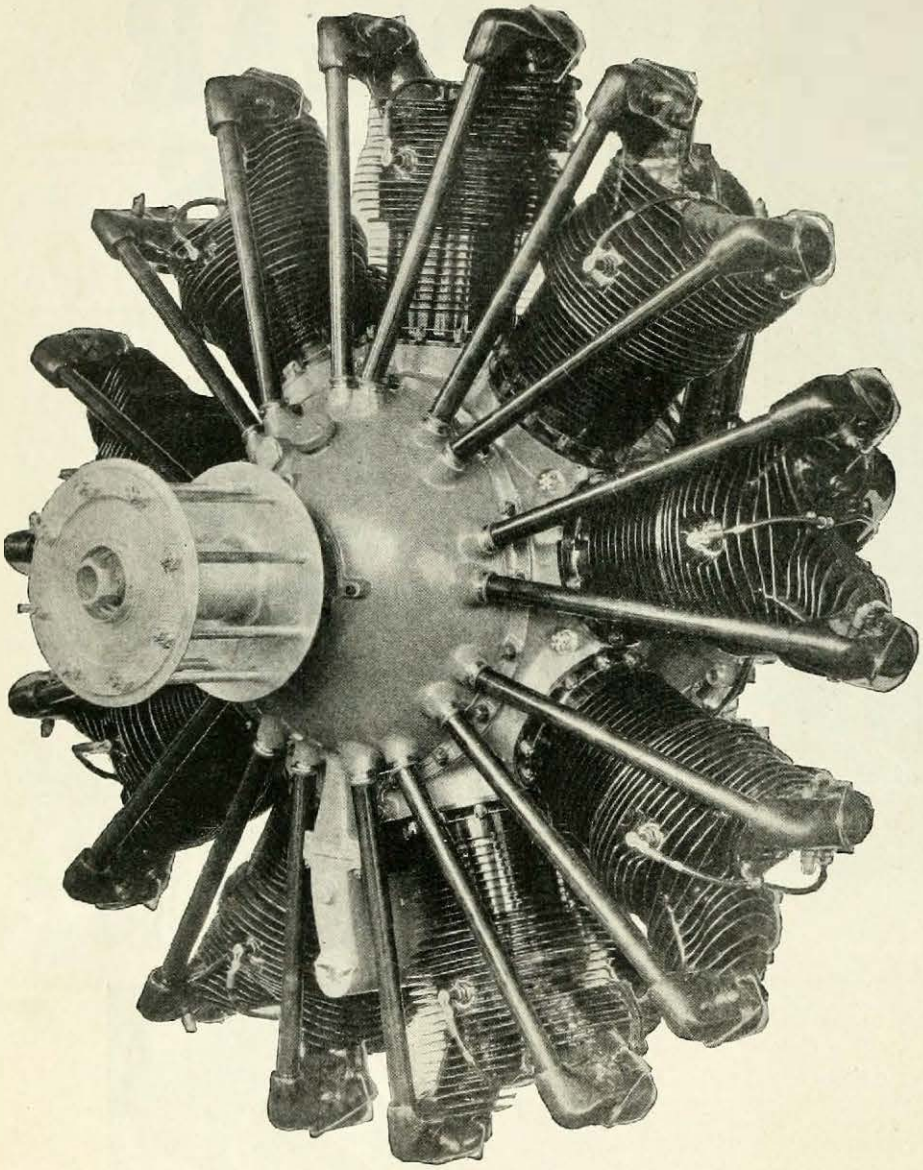


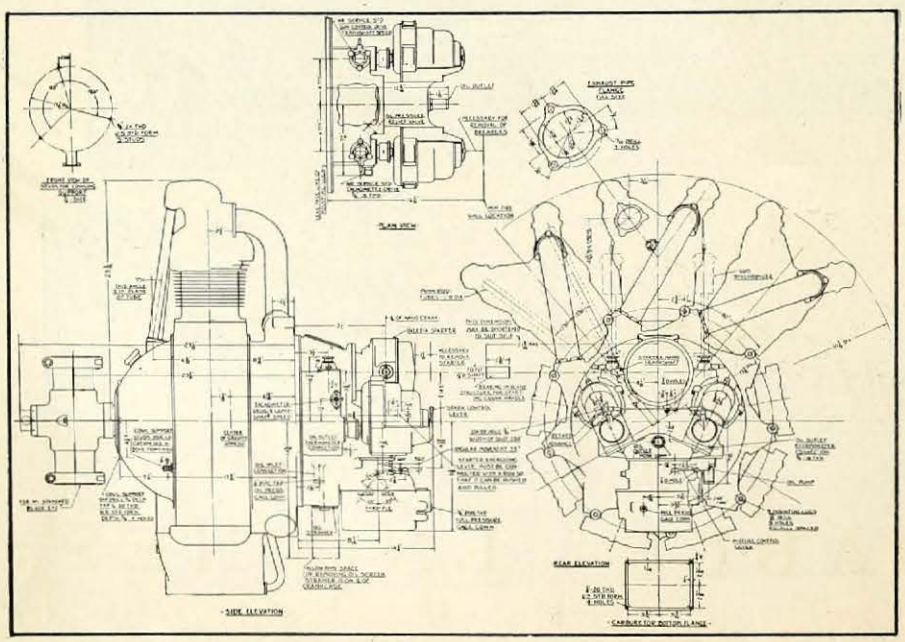
Airport, Lansing, Illinois.

Albert Kahn, Inc. Architects and Engineers.



THE 425 h.p. PRATT AND WHITNEY WASP ENGINE





INSTALLATION DRAWING PRATT & WHITNEY "WASP" ENGINE

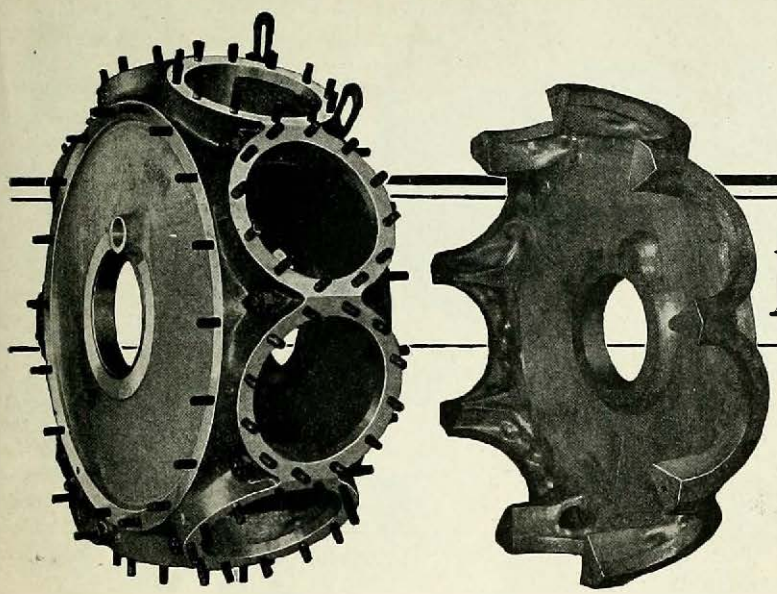
THE design of the "Wasp" engine incorporates a number of fundamentally new and different characteristics. To provide for high crank speeds a solid big end is used for the master rod, together with a built-up crankshaft. The split master rod has long been the limiting factor for high crank speeds on the larger radial types. Rigid crankshaft support is absolutely necessary and for this purpose a forged instead of cast aluminum crankcase is used. The crankcase consists of two identical pieces facing each other and held together by nine through bolts, one between each two cylinders. This construction is both strong and light. As the load is equally divided between the two main bearings, no working takes place between the crankcase sections. By means of the solid master rod, large diameter crankshaft, unique crankcase, and method of engine support, high crank speeds have been provided for.

The rear sections, of which there are two, the blower and rear, form an assembly by themselves. This makes it possible to divide the engine into two units for assembly as well as service work, the power end consisting of the main case and nose, the shaft, rod, pistons, cylinders, and valve gear, and the accessory end including the mounting supercharger and gearing, and all accessories and their drives. Should occasion arise, the "power end" can be removed from an airplane and another substituted without disturbing the "accessory end." This is possible because the engine is supported on the blower section, and the support is arranged as nearly on the center of gravity of the engine, and as far removed from the crankshaft as possible.

The cylinder disposition of the radial type provides uniform and maximum cooling for each cylinder. The cylinder is built up with an aluminum head screwed and shrunk on a steel barrel with integral fins. Valve seats are bronze shrunk into the aluminum head, while the spark plugs screw directly into the aluminum. It has been found possible to operate "Wasp" engines on straight aviation gasoline at rated power with .48 fuel consumption, an excellent measure of good cylinder cooling. On standard straight fuel 130 pounds mean effective pressure is obtained with zero pressure in the intake system, while 140 pounds has been consistently developed with 30 per cent benzol or its equivalent.

The rocker boxes are formed as a part of the cylinder head castings, and are provided with a quickly detachable cover completely enclosing both the rocker arm and the valve spring. In conjunction with the telescopic push rod enclosure tube, the whole valve gear is thus enclosed, but quickly accessible for inspection. The rocker arms are mounted on small ball bearings which obviate the need for daily lubrication. Timing compensation for the elongation of the cylinders is provided in the cam and tappet.

Grouping all the accessories in the rear has resulted in an engine very easy to cowl, and provides for unusually symmetrical fuselage lines. Equally as important as these aero-



Wasp & Hornet

Leadership

One piece Master Connecting Rod and Built-up Crankshaft

✦

Divided and Forged Aluminum Main Crankcase

✦

Grouping of all accessories at the rear of the engine

✦

Complete enclosure of all working parts

Forged and Divided Aluminum Main Crankcase

The Wasp
425 H.P.
at 1900 R.P.M.
Weight 650 lbs.

The Hornet
525 H.P.
at 1900 R.P.M.
Weight 750 lbs.

Pratt & Whitney engines feature a forged instead of cast aluminum main crankcase, consisting of two identical pieces facing each other and held together by nine through bolts, one between each two cylinders.

The forging increases the strength two-fold and eliminates the danger of casting defects. The design divides the load equally between the two main bearings and provides rigid crankshaft support.

This basic feature in both the "Wasp" and the "Hornet" has paved the way for high powered, big displacement air-cooled radials and is making possible the broad application of this type of engine.

THE
PRATT & WHITNEY AIRCRAFT CO.
HARTFORD CONNECTICUT

DEPENDABLE ENGINES

dynamic features is the complete protection from the elements of all accessories. Ready access may be provided to all the accessories through inspection doors in the fuselage. In the one group provision is made for the two magnetos, starter, two synchronizer heads, tachometer, generator, oil pump, and fuel pump, as well as a step-up gear for the supercharger.

The "Wasp" engine is standardly equipped with a General Electric type of rotary distributor and supercharger. This type lends itself extremely well to radial design, and with little addition to the weight.

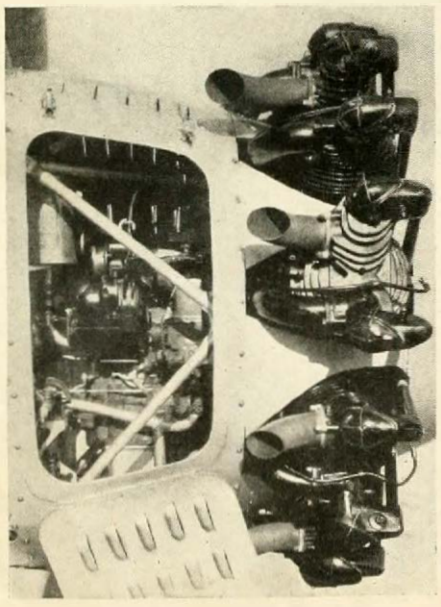
Specifications

Average h.p. at sea level	425 h.p.
R.p.m. at sea level	1900
Weight	650 pounds
Bore	5.75 inches
Stroke	5.75 inches
Displacement	1344 cubic inches
Length over all	43⅜ inches
Diameter over all	50⅝ inches
Fuel consumption (per h.p. hr.)	.52 lbs.
Oil consumption (per h.p. hr.)	.025 lbs.

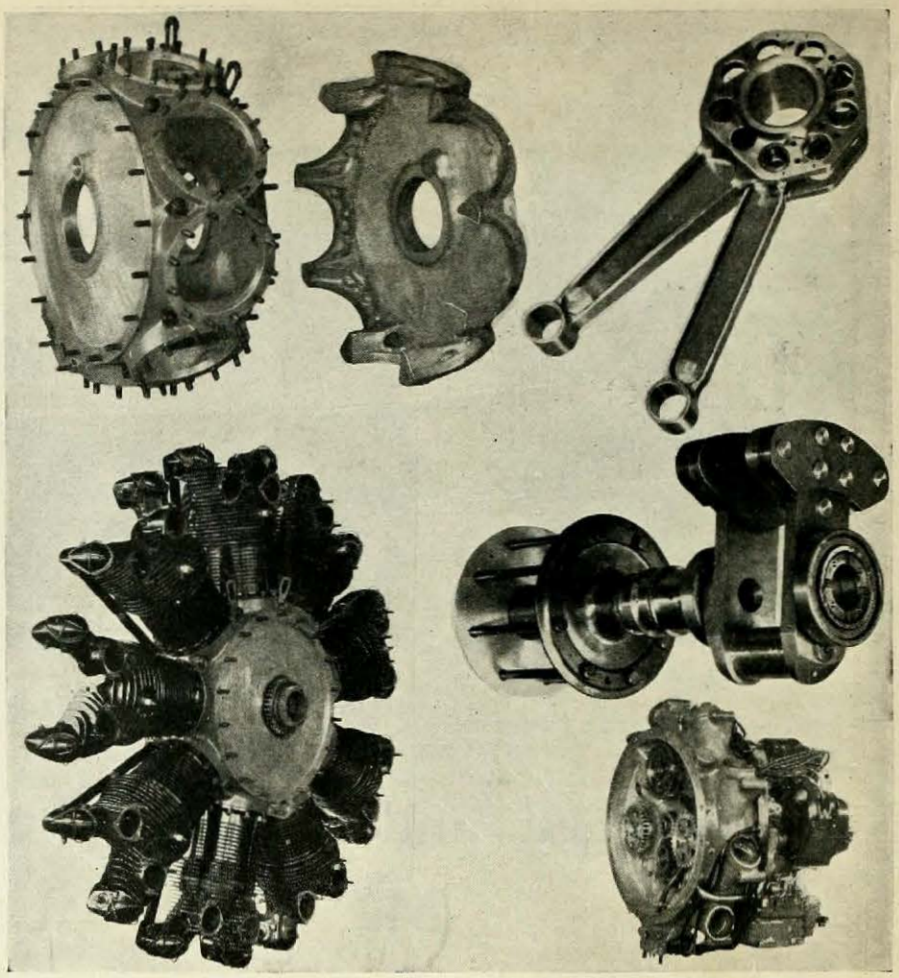
After careful analysis and exhaustive, comparative tests, the Navy Department announced last summer the adoption of the air-cooled radial in the 400 horsepower size, which includes powerplants for the fast single and two-place fighting ships.

While the "Wasp" has been specifically designed for a definite requirement in the Naval program, it is just as applicable for many types of commercial craft. A general comparison with the well known Liberty water-cooled powerplant discloses approximately the same horsepower with a weight saving in the engine of about 250 pounds, and installed weight saving of approximately 500 pounds, which includes the cooling system for the Liberty. This large saving in weight may be used for additional pay load for commercial ships.

The first installation of the "Wasp" in a commercial airplane has been made by the Ford Motor Company. This plane is being placed in the regular commercial service on their lines.



P. & W. engine in a Vought plane.



Details of units and parts of the Pratt & Whitney Wasp engine.

PYRALIN USED ON SPIRIT OF ST. LOUIS

ACCORDING to a representative of Ryan Airlines, Inc., Pyralin sheet, 60/100 in. thickness, was used for the windows at each side of the cockpit, also in the overhead window of the Spirit of St. Louis on Colonel Lindbergh's flight from New York to Paris.

The adaptability and desirability of Pyralin for glazing in airplanes are apparent when it is considered that it cannot be shattered and, besides, is transparent, thereby providing the required visibility. It is less susceptible than glass to the adherence of moisture and is also less affected by pressures which are met in high altitudes.

Commander Richard E. Byrd's plane, "America," also was fitted with Pyralin windows. Several types of commercial planes use Pyralin for glazing, while a majority of the standard planes used by the Government service are similarly equipped.

STANDARD ATMOSPHERE CHART AVAILABLE

THE accompanying Standard Atmosphere Chart has been officially adopted by all interested U. S. Government organizations for aeronautics and related purposes. The values of the temperature, pressure, and density at all altitudes agree closely with the yearly average of U. S. meteorological data at 40 degrees North latitude. Formulas and complete tables are published in the National Advisory Committee for Aeronautics' Technical Reports Numbers 147, 218 and 246. Copies of the Standard Atmosphere Chart, size 7½ in. by 11 in., may be obtained from the Department of Commerce, Bureau of Standards, at a cost of 5 cents.

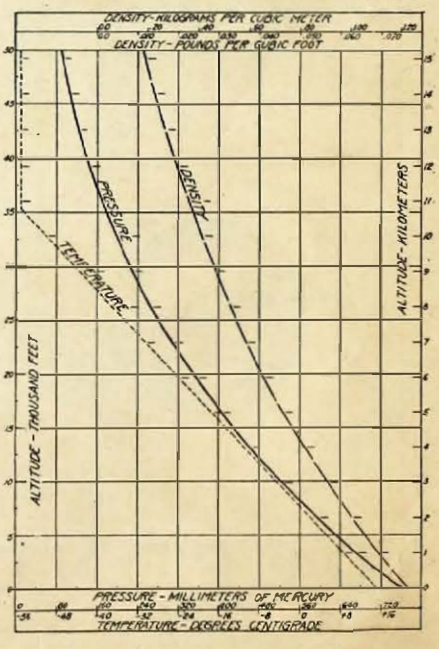
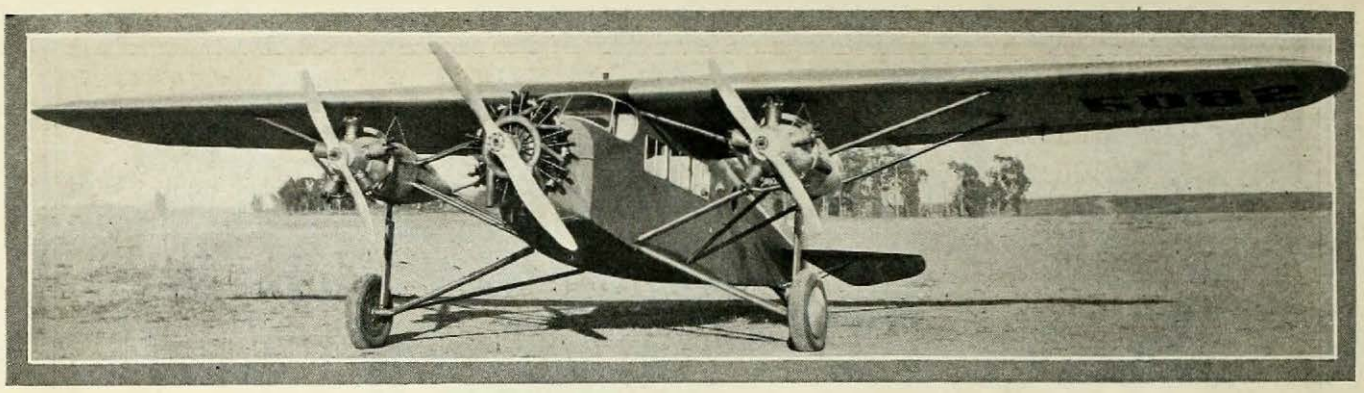


Chart of standard atmosphere.



THE BACH AIR YACHT

A DECIDEDLY new note in American aircraft design has been embodied in the new ten-place tri-motored Bach Air Yacht, which was flight tested August 17th at Clover Field, California. An actual speed of 135 m.p.h. was attained with motors turning at less than full throttle, seven passengers aboard and sand bags equivalent in weight to two more passengers.

Several characteristics of the Bach Air Yacht forcibly impress one conversant with the practical necessities of the multi-place ship now in demand by airways. The landing gear tread is 17 feet in width, greatly facilitating take-off and set-down on uneven ground. The tapered wing, semi cantilever, strongly braced is another feature emphasizing the structural safety factor, and the rigid construction of the fuselage built in the form of a stout shell completely surfaced with plywood affords all the protection of a closed motor car.

Inspection of this Bach creation reveals an airplane admirably adapted to the demands of airways passenger service. The whole purpose of the design centers around this one idea. The ship has demonstrated that flight can be maintained on the center engine alone or any combination of the smaller wing engines. The center engine is a 250 h.p. Waterman, nine-cylinder, air-cooled radial. The two wing engines are five-cylinder Kinners of 100 h.p. each and are mounted several feet behind the center engine.

The wing engine mounts are suspended in such a manner as to absorb most of the vibration within the mounts. Streamline cowling encloses these engine mounts reducing resistance to a minimum. Drag has been eliminated to a great degree, exposed surfaces being faired or streamlined.

The landing gear has proved highly efficient in tests. Landing shock is taken up by a hydraulic absorber permitting a vertical displacement of 14 inches. Lesser taxiing shocks are absorbed by conventional rubber shocks enclosed within the wing motor mounts. Sauzedde wheels and brakes mounting 35 x 8 inch tires are controlled in unison by a hand brake lever within the cockpit or operated independently for taxiing by the rudder bar.

The pilots' cockpit is located in the nose of the fuselage immediately behind the center engine. A curved windshield conforming to the general outline extends up to the entering edge of the wing affording the pilots nearly 100 per cent visibility. Dual Dep controls are used and pilot's seats are arranged on either side of a large door giving easy access to the passenger cabin.

Fuel tanks are located in the wing center section. They carry sufficient gasoline for seven hours' flight. Oil reservoirs are built in the engine mounts within the cowling.

The luxurious passenger cabin has a displacement of 228 cubic feet. The walls and arched ceiling are finished in matched grain gumwood. Deep comfortable chairs; satin finish silver fixtures; wide non-shatterable glass windows, adjustable from within; electric cigar lighters; card tables; concealed ice water tank; hot water and wash stand, and a toilet are some of the conveniences incorporated in the cabin appointments. In addition to the passengers compartment there is a luggage space of 40 cubic feet.

The whole ship may be converted into a freight transport in ten minutes. Control surfaces are operated without exertion by the pilot although only the rudder is of the balanced type.

The Air Yacht is a development of the earlier Bach Aircraft Company cabin type planes. The C-S 1, a small three-place completely enclosed cabin type biplane, was the first of this line. The C-S 2 a four-place hiplane of the cabin type with the characteristic all Haskelite fuselage, followed as a later development.

These three types comprise the present Bach line and in each case the ships have demonstrated a remarkably high degree of air-worthiness.

Official tests have not yet been made of the ceiling or angle of glide.

The specifications and dimensions of the Bach Air Yacht are as follows:

General

Span	52 feet
Length	36 feet

Areas

Wing area incl. ailerons	412 square feet
Area of ailerons	36 square feet
Area of control surfaces	63 square feet

Weights

Weight empty	2650 pounds
Weight, full load	5500 pounds

Performances

Landing speed	40 miles per hour
Cruising speed	over 100 miles per hour
Full throttle speed	over 120 miles per hour
Fuel capacity	150 gallons

MacWHYTE WIRES ON BOEING MAIL PLANES

ALL of the tierod stock, streamline interplane and empennage brace wires used on the twenty-five Boeing mail planes which are being used on Boeing Air Transport's western division of the transcontinental air mail route were supplied by the MacWhyte Company of Kenosha, Wisconsin. That satisfaction has been rendered is attested to by the letter received by the MacWhyte Company from Mr. Gardner Carr, purchasing agent for the Boeing Airplane Company, in which he states: "We have used MacWhyte products for the past several years and are very much pleased with the service and co-operation received."

THE Macwhyte Company recently published a catalog and hand book on aircraft wires, cables, cords, tie rods, etc., that fills a long felt want. It contains full information on measurements of wires, terminals and fittings, also instructions on how to order.

A safety feature is introduced that will mean much to flyers who have had trouble with wires breaking—a new terminal that eliminates the cause of much of the trouble.

The Macwhyte Company will supply copies of the catalog on request and full information on the new terminal.

U. S. CIVIL SERVICE EXAMINATION

ASSOCIATE STRUCTURAL ENGINEER (AIRCRAFT)

THE United States Civil Service Commission announces an open competitive examination for Associate Structural Engineer (Aircraft). A vacancy in this position in the Air Corps, Materiel Division, Wright Field, Dayton, Ohio, at a salary of $3,000 to $3,600 a year, and vacancies in positions requiring similar qualifications, will be filled from this examination, unless it is found in the interest of the service to fill any vacancy by reinstatement, transfer, or promotion.

Applications must be on file at Cincinnati, Ohio, not later than September 10, 1927.

Applicants should at once apply for Form 2600, stating the title of the examination desired, to the Secretary of the Sixth Civil Service District, Government Building, Cincinnati, Ohio; to the Secretary, Board of U. S. Civil Service Examiners, Post Office, Dayton, Ohio, or to the Secretary of such Board at Wright Field, Dayton, Ohio.

THEN CHOOSE AVIATION!

Think what Aviation offers you. Thrills such as you never had before! The praise and plaudits of the multitude. And a chance to get in on the ground floor where rewards will be unlimited!

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ARE YOU a red-blooded, daring he-man? Are you eager for a life of constant thrills, constant excitement and fascinating events? Do you crave adventure, popularity, admiration, and the applause of great crowds? Then why not get into the Aviation Industry — the greatest adventure since time began—the greatest thrill ever offered to man?

Aviation is growing so swiftly that one can hardly keep track of all the astonishing new developments. Air-mail routes have just been extended to form a vast aerial network over the entire U. S. Airlines and airplane factories are springing up all over the country. Men like Henry Ford are investing millions in the future of commercial Aeronautics in America! The possibilities are so tremendous that they stagger imagination!

PICK YOUR JOB

- Airplane Instructor
- Airplane Engineer
- Airplane Repairman
- Airplane Assembler
- Airplane Mechanician
- Airplane Inspector
- Airplane Builder
- Airplane Salesman
- Exhibition Manager
- Airplane Contractor
- Airplane Motor Expert
- Airplane Designer

Big Future

Everything is set for the greatest boom in history. The fortunes that came out of the automobile industry and out of motion pictures will be nothing compared to the fortunes that will come out of aviation! There is just one thing holding it up — lack of trained men! Even in the beginning thousands will be needed—and generously paid. The opportunities open to them cannot be overestimated. Those who qualify quickly will find themselves on the road to undreamed of money—success—popularity—and prominence!

Get into this thrilling profession at once while the field is new and uncrowded. Now—by a unique new plan—you ran quickly secure the basic training for one of these wonderful high salaried jobs, at home, in spare time. Experts will teach you the secrets—give you all the inside facts that are essential to your success. And, the study of Aviation is almost as fascinating as the actual work itself. Every lesson is chock-full of interest—and so absorbing that you actually forget you are studying. But best of all are the ultimate rewards you are fitting yourself to gain!

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Send the coupon for our new, free book, just out—"Opportunities in the Airplane Industry." It is vitally interesting, reads like a romance and tells you things about this astonishing profession you never even dreamed of. This book is so fascinating it could easily sell for a dollar. We offer a limited number FREE. Write for yours today.

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THE BREESE MONOPLANE "ALOHA"

THE "Aloha" was built by the Breese Aircraft Co., of San Francisco. Mr. Vance Breese, president of the company, will be remembered as the pilot of the Ryan M-1 during the 1926 Reliability Tour. He is credited with over eight hundred hours in this type monoplane, including several hundred hours of night flying with the Pacific Coast Air Mail.

The detail design and stress analysis was handled by Mr. J. K. Northrop of Santa Monica. The "Aloha" is a standard cabin with gas tanks installed in the space usually occupied by passengers. The navigator's compartment is aft of the normal cabin and fitted with a special floor chair and chart table.

Mr. Jensen ordered the plane on August 5th when it was about 80 per cent finished as a cabin plane. The plane was test flown on August 8th and was ready for the start on August 12th. Because of this rush it was necessary to install four 85-gallon tanks in the ship after it reached the field. These tanks, with the two 40-gallon wing tanks, gave him a capacity of 400 gallons. Oil was carried in two tanks.

The fuselage is of the rigid welded steel tube type and the wings are conventional truss rib, I beam and tie rod construction. The ailerons and entire empennage are of welded steel tubing. The chassis is made of chrome molybdenum steel tubing and is of the split axle type, equipped with Sauzedde wheels and brakes.

The adjustable lift struts are made of duralumin formed to a streamline shape.

The cabin is fitted to accommodate four or six passengers.

Specifications

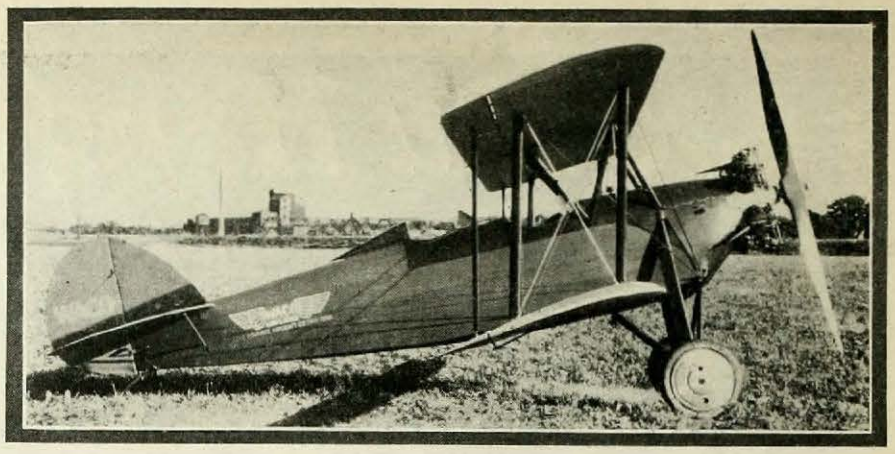
Span	41 feet
Chord	81 inches
Overall height	10 feet 6 inches
Overall length	27 feet
Aerofoil	Clark Y
Engine	Wright J-5-C-A
Gas capacity	400 gallons
Oil capacity	15 gallons
High speed	135 miles per hour
Cruising speed	100 to 115 miles per hour
Service ceiling	15,500 feet

Areas (in square feet)

Wing (including ailerons)	260
Stabilizer	22.5
Elevators	19
Fin	5.5
Rudder	11

Weights (in pounds)

Weight empty	1550
Pilot	165
Navigator	150
Navigating instruments	50
Signal equipment	20
Gasoline tanks	300
Oil tanks and supports	25
Special fuel lines	12
Wabble pump	3
Special floors and tank supports	80
Fresh food	5
Emergency rations	15
Drinking water (5 gallons)	42
Gasoline (400 gallons @ 6.14)	2455
Oil (15 gallons @ 7.50)	113
Gross flying weight	4985
Disposable load	3435
Weight per square foot	19.17
Weight per h.p.	22.65



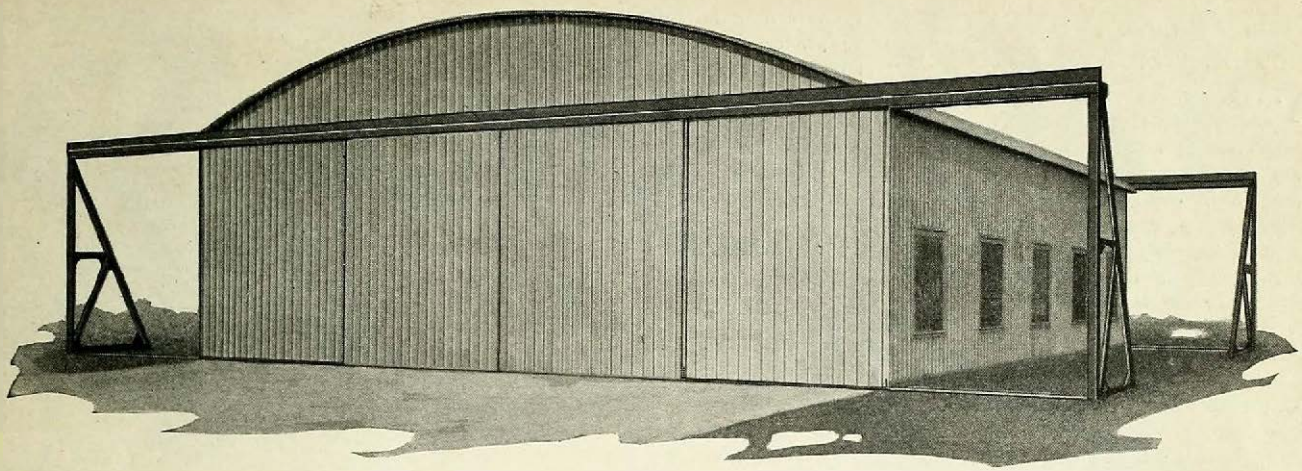
The Caminez engine installed in the Waco Ten commercial plane.

CAM ENGINED "WACO TEN" DEMONSTRATED

MAJOR TIPTON and John Hambleton of Baltimore flew to the factory of the Fairchild Caminez Engine Corporation at Farmingdale, Long Island, on July 27th, to witness a demonstration of the cam engine. Mr. Hambleton first took off the Waco Ten with the Fairchild Caminez cam engine, after which Major Tipton flew it. Tipton startled the onlookers by putting the Waco through a series of maneuvers rarely done with a commercial plane. He then took off and climbed at a very steep angle. After a sharp bank, he "looped" the Waco three times, following this with some left and right hand spirals. The Major dived the ship with the throttle wide open on four or five occasions and then zoomed, climbing practically vertically. The improved performance made possible with the cam engine, as compared with the OX-5 installation, makes the Waco perform almost like a pursuit ship.

A detailed description of the Caminez engine appeared in the August issue of AERO DIGEST; drawings of the production type Waco Ten appeared in the May issue.

The Breese monoplane which won second place in the Dole race from California to Hawaii.



MASON CITY'S *Choice!*

—*this type of* FIRE-RESISTANT *hangar*

THE American Legion-Chamber of Commerce Airport at Mason City, Iowa has a Butler *Ready-Made* Steel Building for its hangar.

The type selected by Mason City and which is shown above is used not only for individual hangar but also as large hangars for airports.

Butler *Ready-Made* Steel Hangars are noncombustible. They are made entirely of steel. The walls and roof sheets are 24 gage tight-coated galvanized steel. All sheets have deeply drawn paneled corrugations. These corrugations add strength and stiffness to all sheets.

The doors operate on rails that open and close without special effort.

There is plenty of light in Butler Hangars! This is a most desirable feature when working on machines.

Wall and roof sheets are bolted together and to the steel frame by means of galvanized bolts. This provides a secure fastening for the sheets and avoids the noise of a loose rattling sheet. In addition the tight fit of the bolted sheets makes an unlined Butler Building practically as tight as a lined building where wall and roof sheets are fastened together by nails bent around purlins and girts.

At any time Butler *Ready-Made* Steel Buildings may be economically enlarged or if desired they may be taken down, moved and re-erected with practically 100% salvage.

Send for interesting prices

Prices are attractive and are quoted f.o.b. plant or erected. Send for more details today.

TRADE STEEL BUTLER PRODUCTS MARK

Butler Manufacturing Company

Kansas City, Mo. Minneapolis, Minn.

New York Office: *Room 701*, 44 Whitehall St.

Say you saw it in AERO DIGEST

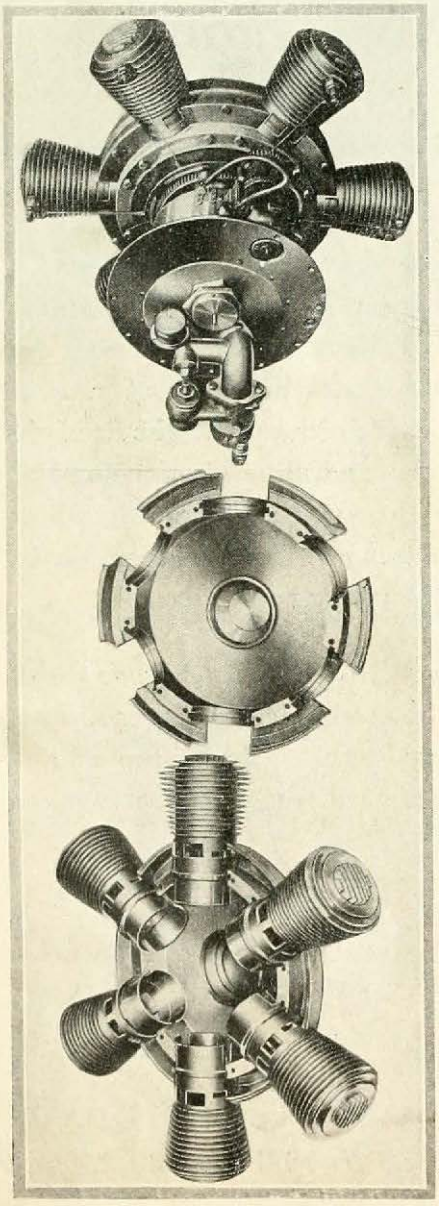
THE ATLAS VALVELESS 120 H.P. AIRCRAFT MOTOR

AFTER several years of research and practical tests, the Aircraft Holding Corporation of Los Angeles, Calif., is producing a new type of radial air-cooled aircraft motor.

The 120 h.p. size known as the "Atlas" is a stationary radial having eight cylinders and weighs with its supercharger 260 lbs. Work is already in progress on the second size to be known as the "Ajax". This motor is a six cylinder 80 h.p. size.

These engines operate on the two-stroke principle, each cylinder firing a power stroke to the propeller shaft every time the piston rises to the head of the cylinder. This makes a total of eight power strokes per revolution in the 120 h.p. size as against half this number for a valve motor having the same number of cylinders and working on the four-stroke principle. In other words, a motor of this type having eight cylinders will give a firing regularity and flow of power equal to a four-stroke motor having sixteen cylinders.

Due to the absence of valves and extensive cylinder head mechanisms the motor has a 15 per cent smaller overall diameter than any equivalent radial motor having valves. This decrease in overall diameter accounts for a decrease in head resistance while the absence of valves increases both the reliability and running life of the motor. Top overhauls are never necessary, the only necessity for taking the motor down being for the replacement of pistons or rings. There are no cams in the motor and the only gear used is the one which operates the accessory drives.



Crankcase and cylinder assembly.

The entire absence of openings in the cylinder heads eliminates the possibility of oil escaping. The cylinder head is machined integral with the barrel, the only openings being the spark plug holes.

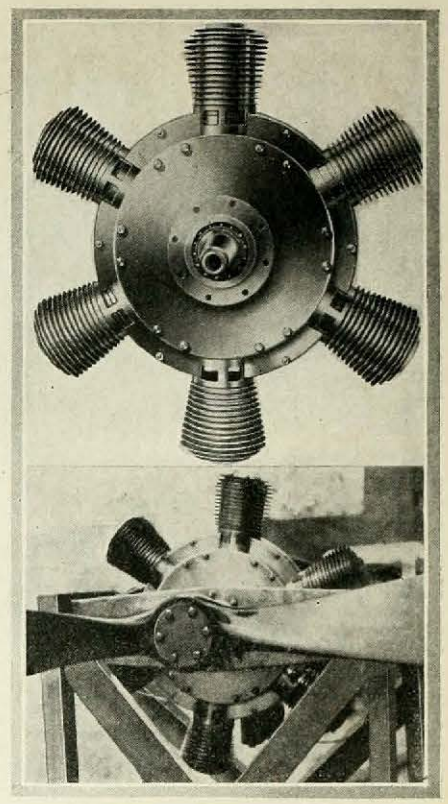
Cylinders are turned with heads and fins integral from solid alloy steel forging. The crank case is of forged duralumin. Mixture is supplied to the crank case under a variable pressure of from 1.5 lbs. to 10 lbs. per sq. in., generated by a compact supercharger. Pressure can be varied at the will of the operator to compensate for decrease in atmospheric pressure and loss of power at altitudes.

The supercharger is of the positive pressure built in type, running at engine speed and forcing mixture to the engine even at starting speeds rather than requiring a considerable lapse of time to build up its pressure as in the high speed turbine systems. Instead of supercharged air being blown through the carburetor as in existing types, this supercharger sucks mixture from the carburetor and acts as a powerful agent in further breaking up the particles of gasoline before passing the mixture on to the cylinders. The rotor is driven directly from the crankshaft.

Improved scavenging of the burned mixture in the cylinders is obtained by the placing of large exhaust ports at the bottom of the stroke on diametrically opposite sides of the cylinder while the incoming charge is also well distributed by entering the cylinder at the bottom of the stroke on diametrically opposite sides under pressure and being prevented from escaping through the exhaust ports by two deflectors on the piston head. This double system of intake and exhaust creates a high turbulence effect with consequent better flame propagation during the explosion. It further eliminates the "starvation characteristic" of previous two-stroke motors with only one intake position and one deflector which usually left the opposite side of the cylinder with a pocket of inert burned gas. The exhaust ports can be designed to permit of exhaust areas much larger than could be obtained through the largest possible valve opening in the cylinder head of a four-stroke type motor.

Oiling is by force feed from a triple outlet pump, one outlet forcing oil to the main and connecting rod bearings another to a spray in the crank case while the third forces an oil spray into the supercharger.

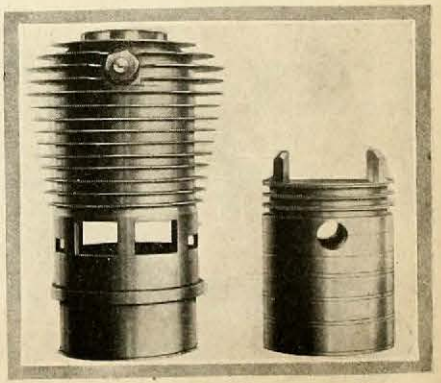
For development purposes two 25 h.p. engines were first built which immediately proved the two-stroke principle with a supercharger to be feasible. The supercharger was built of two large gears and operated as a separate accessory. Later a 70 h.p. size was constructed containing all improvements suggested by the first two engines, and having a four-vane eccentric rotary supercharger built right into the crankcase. Experiments with this engine led to the design of a 30 h.p. size which was considerably refined and embodying further improvements in the supercharger. Design and construction of these power plants is under the supervision of engineer J. J. Murray.



80 h. p. Ajax engine on testing bench.

To submit them to rigid running conditions they have been operated in the snows of Canada and the tropical heat of Florida and California. For several months the 70 h.p. size has been in use to determine the effects of various new features and changes before incorporating them in the design of the 120 h.p. "Atlas".

Specifications on the "Atlas" are as follows: Bore 125 mm (4⅞"); effective stroke 120 mm (4¾"); full stroke 152 mm (6") compression ratio 5.2 to 1; r.p.m. 1,250; weight 260 lbs. Gasoline consumption averages .52 pints per horsepower hour.



120 h. p. "Atlas" cylinder and piston.

THE "RYAN BROUGHAM"

THE "Ryan Brougham", manufactured by B. F. Mahoney Aircraft Corporation, has wings of conventional I beam construction with built-up wood ribs. The beams are constructed of three laminations of spruce. The ribs are of spruce truss with veneer gussets at all joints. These ribs are specially designed for extreme loads.

The wing is built in one continuous panel attached at each upper longeron joint with a steel fitting and further braced to the fuselage with out-board lift tubes of No. 1025 steel tubing front tube 2½" diameter, rear tube 2" diameter. These tubes are a streamlined design airfoil that creates lift. The internal bracing of the wing is with wires. There are two systems of internal wires throughout the wing. Ailerons are built of No. 1025 steel tubing especially prepared inside against rust and corrosion. Ailerons are pinned on with one hollow pin, which has alemite connection on the end for greasing. Two gas tanks of 41½ gallons each are placed in wing on either side of the fuselage.

The fuselage is constructed entirely of steel tubing welded at all joints with bays suitably braced against strain with diagonal members.

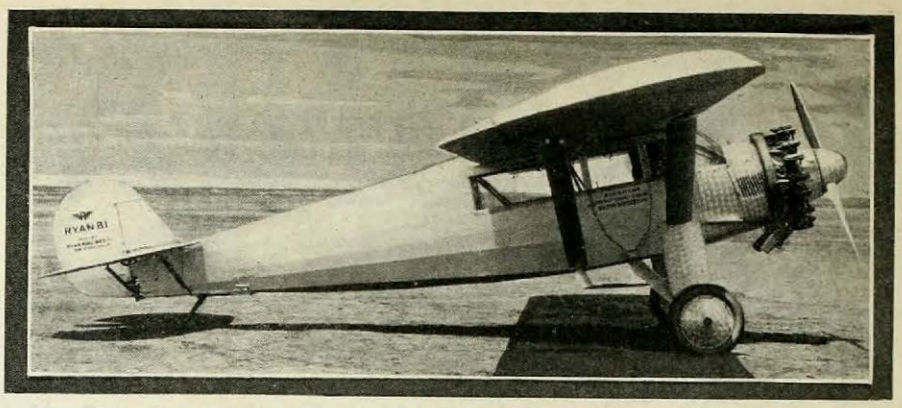
The chassis is of split type construction. The axle is heat treated chrome molybdenum steel tubing. The shock absorbing gear is trombone style also of chrome molybdenum, and is pivoted at upper end with junction with the front wing lift strut, and also braced forward to the fuselage and up to the top fuselage and wing joint in suitable manner. Shock absorption is taken on rubber shock absorbing cord.

The tail skid is pivot type chrome molybdenum steel tubing heat treated held at the upper end by shock absorber cord and emergency cable. The tail skid is swivel type but not steerable.

Tail surfaces are constructed of No. 1025 steel tubing throughout and welded in an approved manner, and also prepared internally. The stabilizer is so constructed as to allow nine degrees adjustment in the air from the pilot's seat for variable loads in ship.

The cabin is located under the wing with provision for four passengers and pilot. The cabin is entirely upholstered with blue velour laid over a packing of Balsam Wool. Windows are of sliding type fore and aft. One large door is located on the right side of the fuselage. The pilot's seat is forward of passengers and commands an excellent view through the forward windows. One window on each side of pilot's compartment is adjustable up and down to allow good vision for landing in bad weather. To the rear of the cabin is a baggage compartment constructed for the accommodation of four suitcases.

Two gas tanks are provided of 41½ gallons each which are made of terneplate especially prepared externally against rust and corrosion; also, provisions are made for internal bracing wires passing through the tanks. The oil tank is made of copper, set just inside the cowling on top of the motor mount where it is accessible for inspection.



The Ryan Brougham now produced by the B. F. Mahoney Aircraft Corporation.

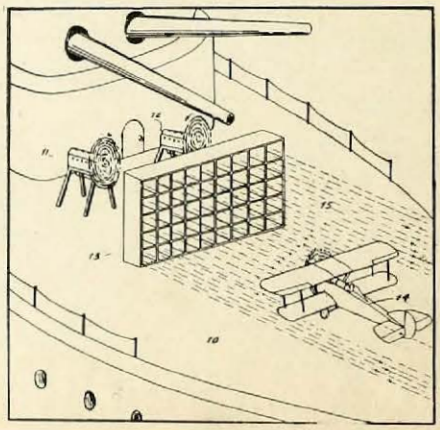
Specifications

Wing span	42 feet
Chord	7 feet
Overall length	30 feet
Overall height	9 feet 10 inches
Tread of wheels	10 feet
Gasoline capacity	83 gallons
Oil capacity	5.2 gallons
Power plant, Wright J-5-C	223 h.p.
Wing area incl. ailerons:	294 square feet
Fin area	2.5 square feet
Rudder area	9 square feet
Stabilizer area	22 square feet
Elevator area	15.6 square feet
Weight empty	1750 pounds
Gross weight	3100 pounds
Useful load	1350 pounds
Maximum speed	126 miles per hour
Landing speed (full load)	49 m. p. h.
Climb (full load; still air; sea level)	900-1200 feet
Take-off (full load; still air; sea level)	610-660 feet

THE BRUNNER LANDING DEVICE FOR AIRCRAFT

BY the use of a landing device for aircraft invented by Frederick Brunner, a Swiss engineer of long aeronautical experience, it is possible that airplanes or seaplanes may be landed upon a few feet of the rear deck of battleships, cruisers, or passenger liners, from which they could be catapulted into the air again by means of the standard catapult now in use.

The basic problem that Mr. Brunner believes has been solved is that of supplying brakework to consume the inertia of the moving mass of a plane in order to bring it to a standstill in a small space. The amount of brakework may vary from 100,000 to 500,000 foot pounds or more. Needless to say, the braking of such a momentum by mechanical means, as used at present on aircraft carriers, transmits considerable stress to the parts of the plane to which the braking force is applied; and this stress increases tremendously if the brake-distance is lessened—that is, when the available landing is short, as it is on the deck of a ship.



Proposed aircraft landing device.

The Brunner system provides means for using air, the medium in which the plane is flying, as a braking element, in such a way that an artificial current of air is hurled above and parallel to the landing space, thus providing the air speed which is necessary to keep the plane aloft—even though only a fraction of the airplane's own propelling power is applied, as is done when an airplane is landed against a heavy head wind. This has the advantage of securing an absolutely elastic way of braking, and avoids unusually increased stresses to any part of the plane. It also provides an automatically progressive braking action.

To secure straight air currents that will not disturb the equilibrium of a plane floating in it, a number of parallel flat surfaces, running horizontally and vertically, are placed in front of the blowers or propellers, so that the air will follow a straight path similar to an air current in a wind tunnel. The current of air must have a speed at least equal to the speed of the plane in slowest flight, and it must be of ample height and width to equal the height and wingspread of the landing plane.

If these conditions are fulfilled by the device when it is built, the system of landing on vessels will be revolutionized. Aerodynamically and mathematically the invention is feasible, but only tests with a full-sized model will demonstrate the practical application of the system. The cost of producing an artificial air current in an open space may be prohibitive. That such a current could be produced, there is no doubt. But if too much horsepower is consumed in that production, then the system will not be practical, at least for commercial use, though there is no doubt that items of cost play but a small part in matters of naval or military necessity.

WESTERN NEWS

CONTACTS

By Frank E. Samuels

FRANK L. ODENBREIT has just purchased a Thunderbird airplane to demonstrate the new Bailey radial motor. After extensive tests on several representative commercial airplanes Mr. Odenbreit chose the Thunderbird for a demonstrating plane. Before entering the Spokane races he is planning to tour the Rocky Mountain and Middle Western states. Delivery will be made to him before the first of September.

I HAD the pleasure of making one of the trial flights of the new Bach Air Yacht De Luxe which is considered by everyone who has inspected it and seen it fly as one of the most beautiful airplanes ever turned out. It is powered by three engines, a Waterman air-cooled 200 h.p. in front and, under each wing, two Kinner 100 h.p. radial engines. The interior of the cabin is finished in a natural gum Haskelite.

LIEUT. JACK FRYE has just returned from a trip east, piloting a new Universal Fokker from the factory in New Jersey which is the first of the ships for the proposed Los Angeles-Fort Worth, Texas, passenger and express route. With him as passengers were Harry Tucker of Santa Monica and B. E. Devere. Mr. Tucker was so impressed with the trip and is such an aviation enthusiast that on his arrival he put in his order with the Aero Corporation of California for a Universal and an Eaglerock. The next day after his arrival here he started in as a pupil of Jack Frye and can be found at the field daily taking flying lessons.

THE Warren School of Aeronautics is enlarging its personnel. Carl S. Clark, for the past seven years civilian head of the Naval Air Station Supply Department of San Diego, has become associated as general manager. Richard D. Hardin, former instructor in aviation for the U. S. Army, designing engineer with the Douglas Company, Ordinance Engineering Corporation and the Packard Motor Car Company, is now director of instruction. O. R. McNeel, T. C. Ayars and H. W. Hunold, all formerly with the Ryan Aircraft Corporation, are now connected with the school as associated instructors. Mr. Clark reports business as greatly improved, students signing up daily for the courses.

IT certainly is a pleasure to visit the Rogers Airport any afternoon and all day on Sundays since the big Ford all-metal plane is making its flights from there. Automobiles are parked three deep the entire length of the field and the passenger planes of the field are flying continuously. Eddie Bellani, Sandy Sandy and Ace Bragunier scarcely know the feeling of ground under their feet and miss lunch many days.

Frank Samuels' 84-year-old aunt goes for for a flight with Lieut. Paul Richter.

I TOOK my 84-year old aunt for a "hop" in an Eaglerock the other day with Lieut. Paul Richter of the Aero Corporation of California at the "stick". She had been anxious for some time to experience the thrill of the air and was not disappointed after flying over Los Angeles and the surrounding beaches. "It was a real thrill!" she exclaimed upon landing. "Now I know why our aviators have accomplished so much in the way of distance flights—it is just like mixing business with pleasure."

IN my Contacts of the August issue I believe that I said that Art Goebel was out for the "bacon". Well, he brought it home, and there will be some doings on his return to Clover Field. We all hope that Art don't get sea-sick coming home by boat as that is more of an experience for him than flying up-side-down for five or ten miles.

CAPTAIN WILKINSON, head of the Universal School of Aeronautics, is surprised at the number of replies he has received within ten days from the day his advertisement appeared in Aero Digest. One mail brought in sixteen letters and every delivery has brought one or more inquiries. He is satisfied that the young men of the country are anxious to get in the aviation industry and are willing to study to reach their goal.

CAPTAIN MAURICE GRAHAM, one of the many good pilots of the Western Air Express, has become affiliated with the Thunderbird Aircraft Company as a member of the advisory board. Maury has no intention of leaving Western Air Express but has always been anxious to become connected with the Thunderbird Company. Theodore Woolley informs me that the outlook for the sale of Thunderbird planes is so encouraging that he is obliged to enlarge his quarters and is now on the lookout for a larger factory building.

W. A. HAMILTON, one of the directors of the Aero Corporation of California and one of our best motor mechanics, informs me that he is just about to install complete facilities for servicing Wright Whirlwind motors and carry a full line of parts. This will be the first and only Wright Whirlwind service shop on the West Coast. Already a number of pilots from the Naval Base at North Island have stopped in to have minor repairs and adjustments made by Ham, who knows his eggs.

A RUMOR is going around which, if true, will cause the flying field owners lots of jealous thoughts. Frederick (Doc) Whitney and J. B. Alexander, "Waco" live wires, have secured a flying field with a thousand-foot frontage on one of our principal boulevards, where others have tried in vain. Who did it?

THE Miller flying service report a continued increase of business. Sixteen students are now taking instruction from Mr. Miller, three of whom are almost ready to solo and one to take his first cross-country flight to San Diego this week.

WHILE writing this, Mr. Kinner of the Kinner Airplane and Motor Corporation is just taking off in his latest four-place job for Boston to deliver the second plane of his contract to his New England agent. The ship is motored with the latest 100 h.p. 5-cylinder radial air-cooled motor from his shops. His test pilot-mechanic is making the trip with him, checking up the motor for long run trips.

STANLEY SHORT of the Short's School of Aviation has put his new Bach four-place cabin plane in service for long cross-country flights and is so pleased with it that it is almost impossible to get him up in one of his Standards now. The little ship is a beauty and flies far ahead of all expectations.

GEORGE IRVIN, who recently purchased a Thunderbird airplane, has hangar space at the Burdett Airport and is doing all of his flying from that field.

WILLIAM D. WARREN, son of Charles A., is still in the East in the interests of the Warren School. He made quite a visit at the Bureau of Acronautics, Washington, D. C., and is now visiting the different aircraft manufacturers along his route to the Pacific Coast. By the way I met Edward De Marino, formerly of the Eastman Kodak Co., and he informs me that he is associated with the Warren School as aerial photographer.

Paul Richter, Lt. Dinger, Maj. Hammond, Sgt. Fowler, Frank Samuels, Congressman James, Maj. Claggett, A. A. Clark, Buddy Clark, Sgt. Ritter, Monte Edwards. Congressman James is making an inspection of our military aviation bases.

AERO DIGEST DINNER TO HON. FRANK JAMES

THE arrival of Congressman W. Frank James, ranking member of the House Military Affairs Committee, in Los Angeles on what is perhaps the most comprehensive inspection of our military aviation bases by an individual member of Congress, was celebrated by a dinner at the Ambassador Hotel, given in his honor by the publishers of AERO DIGEST and attended by the leaders of the industry on the West Coast.

Dr. Ford A. Carpenter of the Los Angeles Chamber of Commerce presided as toastmaster in his usual inimitable manner. Short talks were made by Major Henry B. Claggett, Commandant of the 9th Corps Area, H. H. Wetzell, vice-president of The Douglas Company, Captain William A. Frye, president of the Long Beach Chapter of the N. A. A., Councilman Hall Hanshue, Lieutenant John Temple, Commanding Officer of Ross Field, Ben Frank, manager of the Ambassador Hotel, and others.

Congressman James' speech on "National Defense" was received with much applause and frequent cheers. He told of his visit to Panama, Hawaii and the northwest coast and stated that in each of the territories visited the number of aircraft available to make the territory safe from invasion was far below what he had expected to find. He laid great stress on the shortage of equipment for the Reserves and complimented the officers of the Air Services for the wonderful work done with the limited material given them to work with.

The Congressman explained that the object of the present congressional visit is to see what are the immediate needs for national defense, in order to draft an intelligent program for the proposed developments.

"I have received information that several foreign planes will land on the shores of America before Congress meets in December," said the Congressman.

"If this is true the average American will realize that the United States is no longer a detached nation, but one which may be attacked by airplanes in the next war.

"I believe this situation is sufficient to warrant the next Congress in formulating plans which will go even further than the so-called five-year program for the development of aeronautics. I say this not because I am an alarmist or a great army man, because I am neither.

"I have never favored a regular army of more than 125,000 men. I do not think the time will come within a few years, if ever, when the United States will have a greater standing army in time of peace than that number.

"Airplanes and more airplanes are needed for national defense," he declared. "The defense of the Pacific Coast, of Hawaii, of the Panama Canal, of every other section of our seaboard depends upon them, in my opinion. I believe that our requirements in this direction exceed the five-year aircraft building program already adopted by Congress."

The Congressman had high praise for the western airports and said that interest in, and enthusiasm for, flying is greater in the West than in the East.

Others who attended the dinner were: H. K. Brasheer, traffic manager, Chamber of Commerce; Donald Douglas, The Douglas Company; Captain Charles Babb, secretary, Southern California Chapter of the N.A.A.; Lieutenant Walter K. Burgess, Commander, Clover Field; Captain P. D. Moulton, medical examiner, Clover Field; Major C. C. Mosely, manager, Western Air Express; Lieutenant Victor Bertranis, government inspector; Lieutenant Leslie P. Arnold, round-the-world flier; S. H. R. Doyle, Commanding Officer, San Diego Naval Air Station; Dr. T. C. Young, representative, California Development Association; D. E. McDaneld, president, Professional Pilots' Association; Paul Richter, treasurer, Aero Corporation of California; Major Harmon, Commander, March Field; Major Carlyle, March Field; Captain Walter Parkin, Department of Commerce; Major Charles F. Willard; Hon. Wm. G. Bonelli, president, City Council; Hon. Pierson Hall, City Council; Boyd Shelton, Professional Pilots' Association; Walter A. Ham, lighter-than-air pilot; Major Houghten, Commanding Officer, Rockwell Field; Earl S. Daugherty, veteran pilot; B. E. Mortland, Commander, Santa Ana Air Club; Robert J. Pritchard, Western Flying; John Maddux; James Musheete, manager, Pacific AirTransport; Vernon C. Gorst, president, Pacific Air Transport; Lieutenant D. W. Tomlinson, Naval Air Station; Joseph Skidmore; Eddie Belanni, Rogers Airport; Lieutenant Esten B. Koger, Commanding Naval Reserve Air Corps; James Webster, Rogers Airport; A. J. Edwards, Mahoney Aircraft; and F. E. Samuels, western representative, AERO DIGEST.

Congressman James arrived in Los Angeles on August 23rd, landing at Griffith Field where a detailed inspection was made and later flying to Clover Field for the same purpose. He was escorted down San Fernando Valley by a squadron of civilian and military planes headed by a Ford three-motored transport and the Aero Corporation of California's plane piloted by Lieutenant Jack Frye. The congressman's party consisted of Majors Hammond and Claggett, Lieutenant Dinger and Sergeants Fowler and Ritter, A. A. Clark, president of the Visalia Chamber of Commerce and his ten-year old son, Buddy.

Congressman James was elected from the 12th district in Michigan. His home is in Hancock, Michigan. He served two terms as state senator in the Michigan Legislature and, in 1926, was elected to Congress without opposition at the primary or general election. Prior to the 1926 election he had been elected to the 64th and each succeeding Congress.

At the outbreak of the Spanish-American war, he enlisted in the 24th Michigan reserves and saw service in Cuba. Here he became acquainted at first hand with the man in the ranks and in Congress he has championed the cause of the enlisted men. Congressman James piloted through the last Congress the important five-year aviation program appropriating $150,000,000 for the Army Air Corps. As ranking republican member of the military committee and chairman of the subcommittee on real estate and military housing he will have a large share in guiding the expenditure of this sum.

Answering the Question that Thousands Have Asked.....

How do International Planes "Fly Themselves"

- Oleo Landing Gear
- Double Ailerons, set in type
- Motor Completely Cowled
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- Radiator Streamlined in Leading Edge of Upper Wing
- 40-Inch Passenger Cockpit, Upholstered
- Oversized Windshields
- N Struts thruout
- Octagon Shaped Haskelite Plywood Fuselage
- Box Beams
- Steel and Duralumin Fittings

IN every plane manufactured by the International Aircraft Corporation is embodied a principle of automatic balance that was perfected and proved early in 1926 by Edwin M. Fisk, chief engineer and designer of the firm.

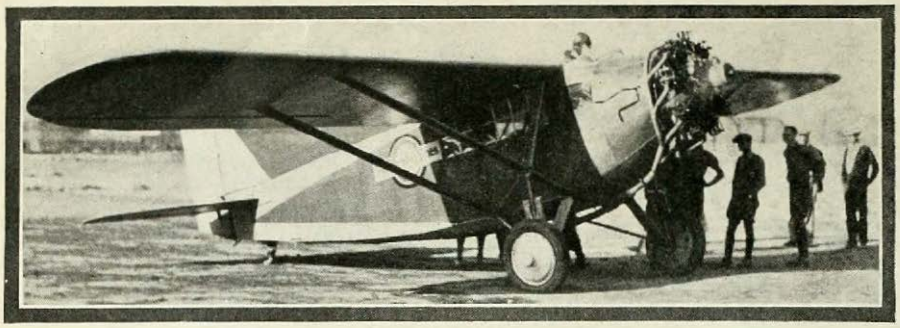
This principle is not a patented device of any kind. It is simply a combination of skillful engineering, perfection of line and delicacy of balance that makes the plane right itself under any flying conditions *without the aid of the control stick.*

Many pilots, frankly skeptical of our claims, have become enthusiastic International Aircraft boosters after a demonstration flight in "The plane that flies itself."

DEALERS: *International Aircraft manufactures a complete line of aircraft for both sport and commercial purposes. We believe that our product is the best obtainable both in design and workmanship. We solicit your investigation.*

"BUILT TO A STANDARD—NOT TO A PRICE"

INTERNATIONAL *Aircraft* CORPORATION
LONG BEACH, CALIFORNIA



The Breese-Wilde monoplane of the Varney fleet at Boise Airport.

NORTHWEST AIR NEWS

By F. K. HASKELL

THE "City of Portland," a Waco plane, has been entered by the Rankin Flying School, Portland, Ore., and will be piloted by Tex Rankin, the well known commercial flyer, in the New York to Spokane race.

THE air mail route from Burley, Idaho, 200 miles south of Boise to Pasco, Wash., a distance of 450 miles, will shortly be lighted for night flying according to Frank P. Bell, manager of the northwest division of the Varney air mail line. Revolving beacons of 750,000,000 candle power are to be used and erected at 50-mile intervals. Smaller lights will be alternated with the larger beacons. In addition, an emergency field will be established at each beacon with telephone connections.

JAMES RINEHART, the youthful aviator who recently made a successful flight across the country, has established a beach passenger service between Portland and Clatsop, Ore., Tillamook or Washington beaches. Rinehart is a student at Reed college and has been flying for three years.

VALENTINE GEPHART of Seattle, Wash., will pilot the "City of Olympia" in the transcontinental air derby, New York to Spokane. This ship is a Woodson M6 two-passenger monoplane with a Detroit Air Cat radial air-cooled engine.

DISTRIBUTION of the first complete directory of airports of the Pacific Coast has recently been made by the Standard Oil Company of California.

JUNKING of the present airplanes at Sand Point field and replacing those obsolete types with modern standard planes now in use by the U. S. Air Corps is advocated by Maj. H. C. K. Muhlenberg, who will shortly take charge of the Air Corps Reserve here. First Lieut. Theo. J. Koenig, formerly in charge of the Sand Point field, has been transferred to Crissy Field, San Francisco

NICK MAMER, Spokane commercial flyer, has been employed by the United States forestry service to map the surrounding country near Sullivan Lake and the Clearwater country. These sections of country are little known and are hard to map, but it is highly desirable that maps be made to aid in fire prevention, and it is agreed that the only way to procure the accurate information is from the air. Howard Flint is the photographer.

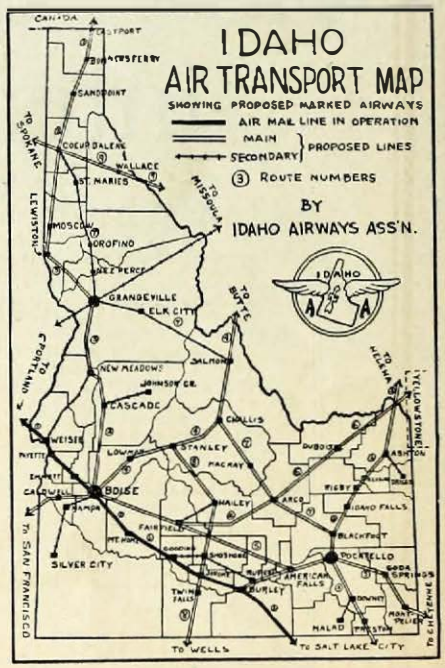
A 425-ACRE tract south of Georgetown has been selected for the new Seattle air field. Cost of buying the property and establishment of a Class A field will be $660,000. A number of sites have been considered by the committee as the Sand Point field has been found entirely inadequate for commercial needs.

THE Bell Line Air Service which will make Portland the hub of an airplane service that will radiate to all sections of the Pacific Northwest will enter an Eagle-rock plane in the San Francisco to Spokane Air derby, September 18th-19th. Headquarters of this company will be located on the new Swan Island field according to President A. T. Shere.

C. M. GRANGER, district forester has announced the creation of an airplane patrol of the forests of Oregon and Washington. Two army planes will be used and the cost will be borne by the United States forest service, the States and the private land owners cooperatively. The work will be directed by United States forest service. During several years four or five planes have been used. Capt. W. J. Chamberlain will operate one plane and be stationed at Eugene, Ore., while the other plane will be stationed at Sand Point air field, Seattle. Lieut. L. C. Goldsmith will be the pilot.

WATCH IDAHO!

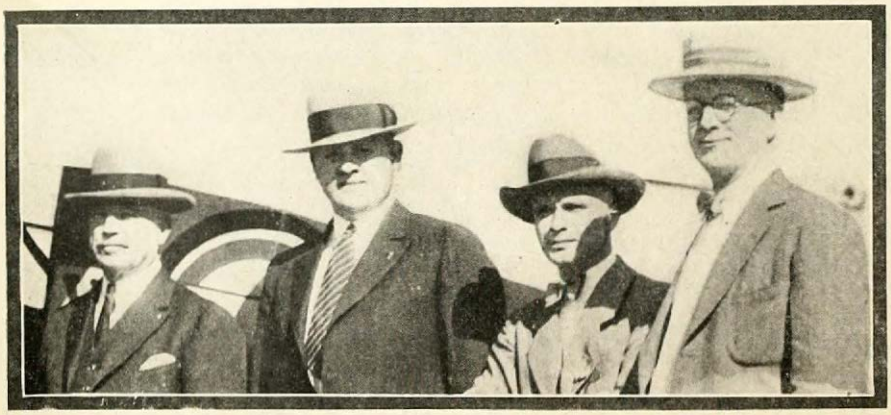
HIGHWAYS are costly in Idaho, hence an added incentive to encourage airways. The Idaho Airways Association, which was organized a little over a year ago to provide airports for air mail throughout the State, are awake to the importance of air transport and have planned a three-year



program of airway development in Idaho.

The immediate objective is the construction, marking and mapping of airports and emergency landing fields, the marking of roofs at frequent intervals for several miles on each side of proposed airlines, and to provide a clearing house for dependable information on all questions relating to air navigation in Idaho. The actual construction of airports and emergency landing fields will be done by the state highway bureau and communities along the routes.

In the accompanying map, the heavy black line, route (1), is the route over which the Varney air mail planes operate daily. Route (2) is a part of a nationally proposed route passing through Idaho and connecting Medicine Hat, Canada, with the present transcontinental line at Salt Lake City. Route (9) is on the nationally proposed airway connecting St. Paul with Spokane and Seattle and will be followed by the New York-Spokane Air Derby flyers in September. Numbers given other Idaho routes indicate the probable order of their development.



Members of the Idaho Airways Association who flew in the Breese-Wilde monoplane.

Left to right—Governor H. C. Baldridge; Cyril C. Thompson, president, Idaho Airways Association; Victor Shawe, secretary, Idaho State Publicity Board; Ralph E. Thomas, secretary, Idaho State Chamber of Commerce.

THE FALCON FLYERS

THE "Falcon Flyers," a California organization for the encouragement of civil aviation, was recently formed with Edward H. Sharpe, president. R. E. Fisher, vice-president of the Pacific Gas and Electric Company of San Francisco, was elected vice-president; L. G. Peterson of Los Angeles, secretary; Fred T. Beaty; H. Allan Sullivan of the Douglas Company, Santa Monica, Wm. Henry and H. B. Klingensmith, members of the executive committee of the board of governors.

The advisory council members are: William May Garland, chairman; A. G. Arnoll, E. A. Dickson, Superior Judge W. C. Doran, G. G. Young, Lt. Gov. Buron Fitts, Harry Chandler, Donald W. Douglas, H. C. Eller, U. S. District Attorney S. W. McNabb, Louis B. Mayer, Tracy Miller of Brawley, Maj. C. C. Mosely, D. W. Pontius, Fred S. Shoup, State Senator Ralph Swing, George E. Buxton, of Douglas, Ariz., H. B. Watkins, of Phoenix, Ariz., and Louis B. Whitney of Phoenix.

The board of governors and founders is composed of L. W. Brown, L. J. Burrud, Paul W. Clark, Chief of Police James Davis, George E. Gaylord, R. E. Kelley, H. B. Klingensmith, Ralph M. Kern, Albert K. Lucas, George W. Rochester, Ben H. Read, U. S. Marshal A. Sittel, Norman H. Sloan of San Francisco, U. S. Land Office Registrar B. B. Smith, R. E. Wedeking, Charles Dillon, R. T. Leonards, William Henry and John M. Lyle.

The organization plans to establish flying fields throughout the Southwest. They also plan to establish the first flying country club and have taken an option on 2,600 acres of land in the San Joaquin valley for this purpose.

A. J. Edwards, sales mgr. of Mahoney Co.

EDWARDS SALES MGR. OF MAHONEY AIRCRAFT

THE story is being told that A. J. Edwards, now sales director of the B. F. Mahoney Aircraft Corporation, builders of the "Spirit of St. Louis", took off from the Muskogee, Oklahoma, air field one morning in 1925 intent upon eating lunch in Oklahoma City with a prominent air officer. After flying steadily for over an hour he happened to glance back and was astonished to see Muskogee still just a few miles behind him.

Hurriedly checking his bearings he discovered to his consternation that he was not only getting nowheres but was actually losing ground even though the motor was running nearly full throttle. Needless to say the lunch was postponed—but the moral of the story stayed with him. "It depends upon how you are headed whether you go anywhere."

Everything about A. J. Edwards indicates that he is "going somewhere". This time the "blow" is all in his favor for he has finally given up the automobile industry for aviation. The many successful automobile enterprises he built up in the West and Midwest will no doubt continue but the enthusiasm and determination of the man himself is now definitely allied with aviation after following it as a hobby since the days of Lincoln Beechey.

At one time Edwards held every dirt track and road race record out of Portland, Oregon, then the center of automobile racing in the Northwest. He was also one of the first to establish a non-stop automobile record by driving a popular light four, seven days and nights on the highways of the Pacific.

Speaking of aviation, Mr. Edwards is confident that this newest industry will not only parallel the automobile industry but even now exceeds its possibilities.

UNIVERSAL SCHOOL OF AERONAUTICS

THE Universal correspondence course of instruction has been specially prepared under the supervision of Captain T. Cameron Wilkinson, R. A. F. Naval instructor in aerial navigation, meteorology and other branches of aviation, and graded to meet the scholastic status of each student. Bearing in mind that some students have not had the advantage of even a high school education, problems that require for their solution a knowledge of higher mathematics have been treated in such a manner that a student with an ordinary school education will understand.

The complete course in aeronautics is divided into three: Courses 1 and 2, designed to give the beginner a thorough fundamental ground work upon which to build his experience, and Course 3 covering the more advanced subjects.

Students enrolled with the Universal School of Aeronautics are given a Special Service Certificate which entitles them to free information covering any branch of aeronautics, landing field data, airways, etc.

PHILLIPS PETROLEUM USED IN "WOOLAROC"

THE Phillips Petroleum used in the "Woolaroc" plane in which Art Goebel won the Dole Hawaiian Flight prize, is a light weight fuel, weighing only 5.66 pounds per gallon. Some of the outstanding features of this gasoline are: high anti-knock value, low vapor pressure, freedom from vapor lock at high altitudes and reduced pressures, great power output (35 to 50 more r.p.m. than in most compression engines).

It is not a doped or blended fuel, but is a scientific product which has been in the process of development for some years and has been under actual flight test in all types of engines under many conditions. It starts and accelerates readily without choking at temperatures considerably below zero.

Captain T. Cameron Wilkinson

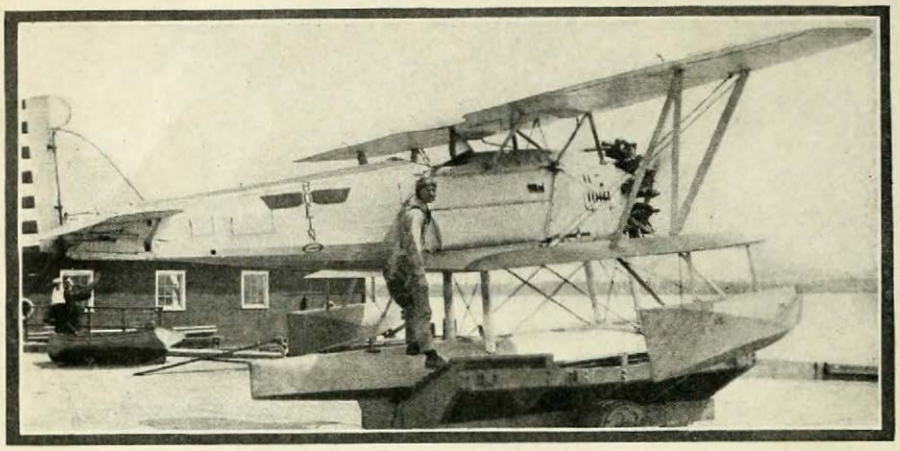
SUPER RHONE ENGINE DEALERSHIPS

IN announcing their new model Z-2 now in production in their Houston, Texas, shops, Tips & Smith, Inc., manufacturers of this static radial air-cooled engine, also announce a change in their selling policy whereby the exclusive sales rights heretofore held by the Super Rhone Engine & Flying Corp. are cancelled except for the South Texas territory.

A system of dealerships with restricted territory is being formulated. These dealerships are now being established and a list of same will be available shortly. In this manner it is hoped that purchasers and operators of engines can be better cared for in the matter of service and repair, as well as being afforded more prompt deliveries than has been possible in the past.

The present production contemplates a schedule of 100 engines for the current season. Changes have been made increasing the life of the engine, giving a smoother and more satisfactory performance for the average operator. Major among the changes was the installation of a Zenith carburetor, which eliminated the double lever control previously necessary. The original bronzed-faced steel thrust junction running on two annular bearings on the crankshaft throw has been replaced by a thrust junction of duralumin which is forged and heat-treated and aged before machining. This change reduced the weight of the engine by eleven pounds.

NEWS OF THE AIR SERVICES



Wide World.

Lt. Comdr. Gavin tests latest type Boeing navy pursuit plane with P & W Wasp engine.

NAVY PILOTS BREAK SEAPLANE RECORDS

LIEUTENANTS BRYON J. CONNELL and Herbert C. Rodd, Navy airmen stationed at North Island Naval Air Station, San Diego, Calif., on August 16th broke the world's seaplane records for distance and duration. In a PN-10, weighing at the time of take-off about 11 tons, Connell and Rodd, with aviation machinist mate Comar Vincent, circled a 25 kilometer course 101 times, or about 1,568 miles, in 20 hours, 45 minutes, 40 seconds. The former duration record for Class C2 (seaplanes) carrying 500 kilograms useful load was established by Fritz Loose, Germany, on March 29, 1927, when he flew 1,057.6 miles in 14 hours, 8 minutes, 2 seconds.

Lieutenant Connell set another world's record in the PN-10 seaplane on August 18th, carrying the greatest pay load by a seaplane to an altitude of 2,000 meters (6,561.7 ft.). Carrying a sand load of 7,726 pounds, Lieutenant Connell went to a height of 6,975 feet, breaking the record held by A. Passalova of Italy who carried 6,614 pounds to 2,000 meters on December 8th, 1926.

NEW GAS CELLS FOR THE "LOS ANGELES"

THE first of seven new gas cells for the naval airship *Los Angeles*, now being manufactured by the Goodyear Tire & Rubber Company at Akron, Ohio, were completed and delivered to Lakehurst Air Station in August. The other cells will be ready for installation before January, 1928.

An experimental airplane landing and releasing device for the *Los Angeles* is now under construction at Goodyear for the Navy Bureau of Aeronautics, and tests may be made during the early fall.

Two "TC" type airship envelopes, and an all-metal airship car for a small experimental dirigible, are now under way in the Goodyear factories for the U. S. Army Air Corps, and will be shipped to Scott Field, Belleville, Ill., when completed.

PARIS AIR PROGRAM FOR AMERICAN LEGION

L'ASSOCIATION des Officiers de Reserve Aeronautique, composed largely of French Officers who served in the Air Service during the World War, have invited the American Legion to attend an aeronautical review and exhibition at Villacoublay, the French experimental aviation center, on September 21st.

On September 23rd, the Legion are to visit Le Bourget Airport as guests of the commercial aviation companies.

They are also invited to inspect the Breguet factory, adjoining Villacoublay Field, and the French aviation school at Versailles.

Transportation will be furnished at 2 p. m. on September 21st and 23rd at the Convention headquarters of Paris Post No. 1 of the American Legion in the Cours-la-Reine.

MacNIDER COMPLETES 11,905-MILE AIR TOUR

ASSISTANT Secretary of War, Hanford MacNider, has just concluded a 11,905-mile air tour of inspection of summer camps. With Captain R. G. Ervin of the Army Air Corps as pilot, MacNider left Washington on July 4th and finished his trip on August 6th, during which time they spent 103 hours, 35 minutes in the air.

CHAMPION REACHED 38,559 FT. ALTITUDE

LIEUTENANT CARLETON C. CHAMPION, U.S.N., reached an official altitude of 38,559 feet on July 25th in his attempt to surpass the world's altitude record, although instruments that were smashed indicated a height of 47,000 feet, over 7,000 feet above the record.

His barograph, although slightly damaged by fire and jars when he was forced to descend after two cylinder heads of the motor were blown, was turned over to the Bureau of Standards for calibration. The bureau, after tests, announced that the instrument had recorded a height of 38,559 feet, and it could not be ascertained whether it had stopped functioning at that height from vibration of the plane.

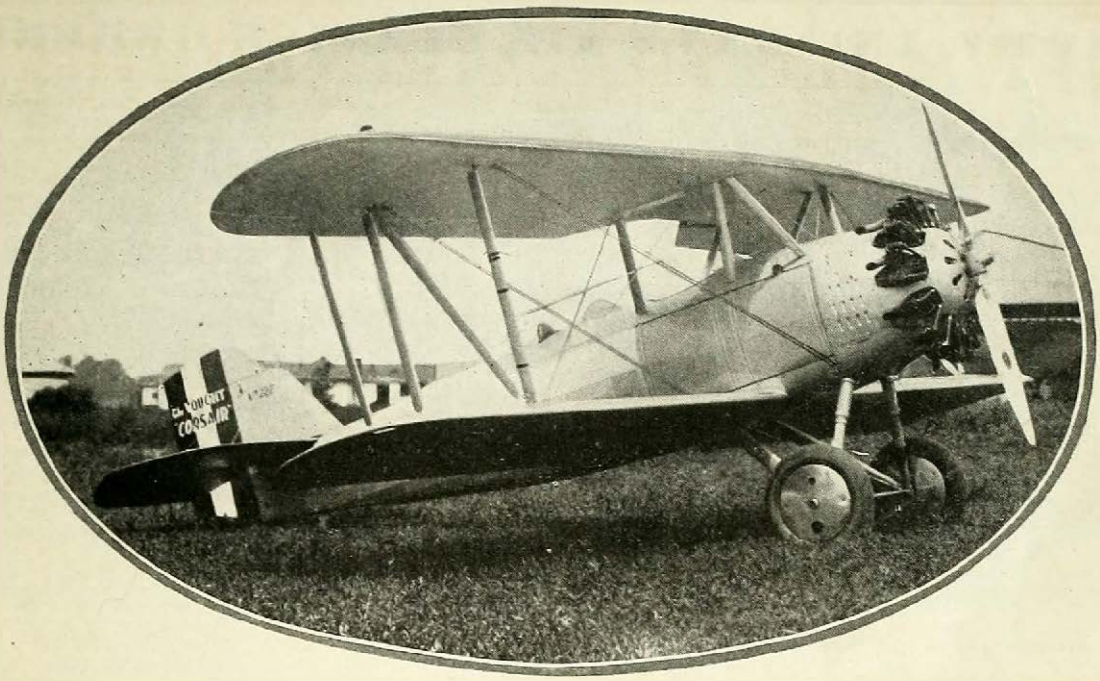
29th DIVISION, MD. N.G. TRAINING CAMP

THE 29th Division, Air Corps, Maryland National Guard, whose headquarters are at Logan Field, Baltimore, Md., held their annual summer training camp at Shepherd Field, Martinsburg, W. Va., during the last two weeks of August.

In addition to the regular training flights, combat maneuvers, reconnaissance, artillery and photographic missions, an aerial pageant was put on. Over ten thousand spectators viewed the formation and stunt flying, speed races and parachute jumping. Major General Anton Stephan, commander of the 29th Division, reviewed the exhibition and was enthusiastic over the work of the Guardsmen. The Berkeley Aviation Club, sponsors of the camp, arranged many entertainments for the airmen during their stay.

The official personnel of the squadron follows: Major W. D. Tipton, commanding officer, Captain Black, senior instructor, Army Air Corps; Major Burwell; Captain Townsend Scott, adjutant; Captains Masson, Cobb, Hooper, Hardman; Lieutenants Bohlman, Bourne, Stewart, Snyder, Whitescarcer, McAvoy, Melant, Rogers, Gorman, Patterson, Erdwan, Travers, Dice, McCauley, Lieut. R. L. Brookings and Sergeant Charles Langhammer of Bolling Field were instructors.

Officers of the 29th Division, Md. Nat'l Guard at Shepherd Field, Martinsburg, W. Va.



The "CORSAIR"

THIS new Vought creation is an outstanding achievement in the development of high performance military aircraft. Throughout it evidences a high order of aero-dynamic and mechanical merit.

The "CORSAIR" meets the latest demands of the U. S. Navy for high performance Naval Aircraft.

It will out-fly and out-maneuver, at high altitudes, all other standard service type Single-Seater Fighters, and Two-Seater, Landplanes and Seaplanes.

The "CORSAIR" is now in production and deliveries will shortly be made to the U. S. Naval Air Service for UO replacement.

The "Corsair" is designed around the P. & W. "Wasp" engine

CHANCE VOUGHT CORPORATION

LONG ISLAND CITY, NEW YORK

ARMY AND NAVY AIR SERVICE ORDERS

ARMY AIR CORPS ORDERS

THE following Army Air Corps orders have been issued as of the date indicated in brackets:

Andrew, 2d Lt. James W., relieved from duty as student in Advanced Flying School, Kelly Field, Texas; ordered to report to commandant for duty. (Aug. 3)

Andrews, 1st Lt. William V., relieved from detail as instructor of Tennessee National Guard, Nashville, ordered to Langley Field, Va. (July 29)

Annis, 2d Lt. Jerome Carlock, Reserve, ordered to active duty for training, reporting at San Antonio Air Intermediate Depot, Texas. (July 27)

Barker, 2d Lt. Fowler Wesley, Reserve, ordered to duty for training at Detroit, Mich. (July 27)

Barcus, 2d Lt. Glenn O., Selfridge Field, Mt. Clemens, Mich., to Advanced Flying School, Kelly Field, Texas. (Aug. 3)

Baxter, 2d Lt. Henry R., relieved from duty as student in Advanced Flying School, Kelly Field, Tex., to Langley Field, Va. (Aug. 3)

Baxter, 2d Lt. Thurston H., Selfridge Field, Mt. Clemens, Mich., to Advanced Flying School, Kelly Field, Texas. (Aug. 3)

Benson, 1st Lt. Joseph W., relieved from assignment and duty at Scott Field, Ill.; ordered to duty at Brooks Field, Tex. (Aug. 7)

Berman, 2d Lt. Sydney David, Reserve, relieved from further active duty at Brooks Field, Tex. (July 29)

Berry, 2d Lt. John Clayton, Reserve, Honolulu, ordered to active duty in Hawaiian Department for training. (Aug. 15)

Blessley, 1st Lt. Rowland C., W., relieved from 11th School Group, Brooks Field, Tex., and will proceed to March Field, Riverside, Calif., for duty. (Aug. 17)

Bolgiano, 2d Lt. John Frank, Reserve, ordered to active duty, reporting at Scott Field, Ill., for training. (Aug. 10)

Bone, 2d Lt. Norfleet Giddings, Reserve, ordered to active duty, reporting at Fort Sam Houston, Tex., for training. (Aug. 5)

Borden, 2d Lt. David Mering, Reserve, ordered to active duty, Langley Field, Va. (Aug. 10)

Boyden, 2d Lt. Harvey L. (Cavalry), relieved from duty as student in Advanced Flying School, Kelly Field, Texas; ordered to report to commandant for duty. (Aug. 3)

Boyle, 2d Lt., Conrad L. (Field Artillery), relieved from present duties at Fort Sam Houston, Tex.; assigned to 15th Field Artillery, same post. (Aug. 12)

Bowman, 2d Lt. Edward Hastings, Reserve, ordered to active duty for training at Wright Field, Dayton, Ohio. (July 29)

Bowman, 2d Lt. John W., Mitchell Field, L. I., N. Y., to Advanced Flying School, Kelly Field, Texas. (Aug. 3)

Brant, Maj. Gerald C., relieved from assignment in office of Assistant Secretary of War; ordered to Crissy Field, Presidio of San Francisco. (Aug. 11)

Buie, 1st Lt. Walter D., relieved from duty at Balloon and Airship School, Scott Field, Ill; ordered to report to commanding officer, same post, for duty. (Aug. 2)

Burwell, 2d Lt. James B., relieved from duty as student in Advanced Flying School, Kelly Field, Tex., ordered to report to commandant for duty. (Aug. 3)

Carlson, 2d Lt., Oscar F., relieved from duty as student in Advanced Flying School, Kelly Field, Tex., ordered to report to commandant for duty. (Aug. 3)

Cartier, 2d Lt. Lionel Rosario, Reserve, ordered to active duty for training, reporting at Wright Field, Dayton, Ohio. (July 27)

Cerruti, Capt. Frank Anthony, Reserve, ordered to duty for training at Detroit, Mich. (July 27)

Clark, 1st Lt. Harold L., relieved from duty at Fairfield, Ohio; ordered to Kelly Field, Tex. (July 26)

Clarke, 1st Lt. William B., relieved from assignment at Kelly Field, Tex., ordered to March Field, Calif. (Aug. 16)

Cook, Maj. Philip Page, Reserve, ordered to active duty for training, reporting at San Antonio Air Intermediate Depot, Texas. (July 27)

Cook, 2d Lt. Warren Stewart, Reserve, relieved from further active duty at Brooks Field, Tex. (July 29)

Covington, 2d Lt. Duane Monroe, Reserve, ordered relieved from further active duty at Brooks Field Texas. (July 29)

Craig, Capt. Roy E., relieved from duty with Second Division, Fort Sam Houston Tex., assigned to First Cavalry Division, Fort Bliss, Tex. (Aug. 3)

Craw, 2d Lt. Demas T. (Infantry), Selfridge Field Mt. Clemens, Mich., to Advanced Flying School, Kelly Field, Texas. (Aug. 3)

Cresswell, 2nd Lt. William, Reserve, relieved from further active duty at Brooks Field, Tex. (July 29)

Cummings, 1st Lt. Charles M., relieved from assignment at Kelly Field, Tex., detailed as instructor, Ohio National Guard; station at Cleveland, Ohio. (Aug. 2)

Danforth, Col. Charles H., detailed as member of court of inquiry appointed to meet at Fourth Corps Aera. (July 29)

Davies, 2d Lt. Ward L., Langley Field, Hampton, Va., to Advanced Flying School, Kelly Field, Texas. (Aug. 3)

Davidson, 1st Lt. Howard G., relieved from duty at Balloon and Airship School, Scott Field, Ill.; ordered to report to commanding officer, same post, for duty. (Aug. 2)

Dean, 2d Lt. Richard H., relieved from duty as student in Advanced Flying School, Kelly Field, Tex., ordered to report to commandant for duty. (Aug. 3)

Diamond, 1st Lt. Aubrey Fred, Reserve, ordered to active duty for training, reporting to Middletown Air Intermediate Depot, Pa (Aug. 10)

Dixon, 2d Lt. George Martin, Reserve, ordered relieved from further active duty at Brooks Field, Texas. (July 29)

DuVall, 2d Lt. Donald William, Reserve, ordered to active duty for training, reporting at San Antonio Air Intermediate Depot, Texas. (July 27)

Ent, 2d Lt. Uzal, relieved from assignment at Scott Field, Ill.; ordered to Langley Field, Hampton, Va. (Aug. 2)

Eppright, 2d Lt. George J., relieved from duty as student in Advanced Flying School, Kelly Field, Tex., ordered to report to commandant for duty. (Aug. 3)

Etheridge, 1st Lt. Asa J., promoted to captain. (Aug. 10)

Finch, 1st Lt. George Griffin Finch, Reserve, relieved from assignment at Selfridge Field, Mich.; relieved from further active duty. (Aug. 10)

Fisher, 2d Lt. Henry G., relieved from duty at Balloon and Airship School, Scott Field, Ill.; ordered to report to commanding officer, same post, for duty. (Aug. 2)

Forsyth, 1st Lt. Andrew E. (Cavalry), relieved from detail in Air Corps, assigned to 4th Cavalry, Fort Meade, South Dakota. (Aug. 7)

Gayton, 2d Lt. Frederick Leon, Reserve, ordered to duty for training at Detroit, Mich. (July 27)

George, 1st Lt. Harold H., promoted to Captain. (Aug. 16)

Gilley, 2d Lt. Richard H., Third Attack Group, Fort Crockett, Texas, to Advanced Flying School, Kelly Field, Texas. (Aug. 3)

Glascock, 1st Lt. John R., relieved from Advanced Flying School, Kelly Field, Tex., and will proceed to March Field, Riverside, Calif., for duty. (Aug. 17)

Gieulich, Capt. Frank Constantine, Spec. Reserve, ordered to report to Chief of Air Corps for training. (Aug. 10)

Griffin, 2d Lt. Townsend, promoted to 1st Lt. (Aug. 10)

Griswold, Maj. Clifford Burnham, Reserve, ordered to active duty for training, reporting at Mitchel Field, L. I., N. Y. (July 27)

Haddon, 2d Lt. Floyd Grier, ordered to active duty, reporting to Chief of Air Corps for training. (July 27)

Harmet, Capt. Falk, Reserve, ordered to active duty at Wright Field, Dayton, Ohio, for training. (July 26)

Harms, Maj. Henry W., detailed as representative of Air Corps on War Department technical committee, vice Capt. Walter F. Kraus. (Aug. 9)

Harris, 2d Lt. Samuel R., Jr. Third Attack Group, Fort Crockett, Texas, to Advanced Flying School, Kelly Field, Texas (Aug. 3)

Haydon, 2d Lt. Frank Pratt, Reserve, ordered to active duty for training, reporting at Fairfield Air Intermediate Depot. (July 27)

Hayes, 2d Lt. Wilbur Mead, Reserve, ordered relieved from further active duty at Brooks Field, Texas. (July 29)

Hazen, 2d Lt. Ronald McKean, Reserve, ordered to active duty for training, reporting at Wright Field, Dayton, Ohio. (July 27)

Holterman, 1st Lt., Edward Henry, Reserve ordered to active duty, reporting at Langley Field, Va., for training. (Aug. 13)

Holcomb, 2d Lt. Leslie P., relieved from duty at Scott Field, Ill.; ordered to Langley Field, Va. (Aug. 2)

Holterman, 1st. Lt. Henry, Reserve, relieved from further duty. (Aug. 16)

Huffman, 1st Lt. William Edward, Reserve, ordered to active duty, reporting at Scott Field Ill., for training. (Aug. 10)

Hunter, 1st Lt., Frank O'D., promoted to Captain. (Aug 16)

Inskeep, 2d Lt. Harry Vincent, Reserve, relieved from further active duty at Brooks Field Tex. (July 29)

Irvin, 2d Lt. Frank G. (Infantry), Selfridge Field, Mt. Clemens, Mich., to Advanced Flying School, Kelly Field, Texas. (Aug. 3)

Johnson, 2d Lt. Alfred H., Langley Field Hampton, Va., to Advanced Flying School, Kelly Field, Texas. (Aug. 3)

Jones, Capt. Bradley, Spec. Reserve ordered to active duty, reporting to Chief of Air Corps for training. (July 27)

Kennedy, 1st Lt. Emile T., assigned to duty at Langley Field, Va., upon completion of present tour of foreign service. (Aug. 3)

Kidwell, 2d Lt John P., relieved from duty at Balloon and Airship School, Scott Field, Ill.; ordered to report to commanding officer, same post, for duty. (Aug. 2)

Klein, 2d Lt. Frank D., Selfridge Field, Mt. Clemens, Mich., to Advanced Flying School, Kelly Field, Texas. (Aug. 3)

Kyle, 2d Lt. Reuben, Jr., Maxwell Field, Montgomery, Ala., to Advanced Flying School, Kelly Field Texas (Aug. 3)

Landsberg 2d Lt. Julius Theodore, Reserve, relieved from further active duty at Brooks Field, Tex. (July 29)

Larkin, 1st Lt. George Reece, Reserve, ordered to active duty for training at Fairfield Air Intermediate Depot, Ohio. (Aug. 10)

Lawrence, 2d Lt. Guy Eastman, ordered to active duty, reporting at Chanute Field, Rantoul, Ill., for training. (July 27)

Lewis, 2d Lt. Wofford Eugene, Reserve, ordered to active duty, reporting at Marshall Field, Fort Riley, Kans. (July 25)

Lichtenberger, 2d Lt. Herbert C., Langley Field, Hampton, Va., to Advanced Flying School, Kelly Field, Texas. (Aug. 3)

Lynch 1st Lt. Edmund C., relieved from assignment as student, Advanced Flying School, Kelly Field, Tex.; ordered to Brooks Field, Tex. (July 29)

Lyons, 2d Lt. Paul Morris, Reserve, ordered to active duty reporting at Wright Field, Dayton, Ohio, for training. (Aug. 9)

McCollister, Capt. Earl Hamilton, Reserve, ordered to active duty for training at Rockwell Air Intermediate Depot, Coronada, Calif. (July 27)

McCullough, Capt. Charles Edmund, Reserve, ordered to active duty, reporting to Langley Field, Va. (Aug. 10)

McEntire, 1st Lt. George W., promoted to Captain. (Aug. 8)

McKinnon, 1st Lt. Morton H., relieved from Brooks Field, Tex., and will proceed to March Field, Riverside, Calif. for duty. (Aug. 17)

Magee, 1st Lt. Richard H., orders assigning him to duty at Chanute Field, Ill.; revoked. (Aug. 9)

Mallory, 2d Lt. Halsey LeDue, Reserve, relieved from further active duty at Brooks Field, Tex. (July 29)

Martin, 2d Lt. William Stanton, Reserve, relieved from further active duty at Brooks Field, Tex. (July 29)

Milling, Maj. Thomas DeW., now on duty in office of Chief of Air Corps, detailed as member of the Aeronautical Board, vice Capt. Robert Oldys, relieved (Aug. 13)

Minter, 1st Lt. Hugh C., relieved from 46th School Squadron, Brooks Field, Tex., and will Proceed to March Field, Riverside, Calif., for duty. (Aug. 17)

Morris, 1st Lt William C.; relieved from assignment at Love Field, Dallas, Tex.; ordered to duty at Langley Field, Va. (Aug. 2)

Morrow, Capt. George L. (Infantry), relieved from detail to Air Corps and further station at Fort Sam Houston, Tex., assigned to 2d Division, Fort D. A. Russell, Wyo. (Aug. 5)

Muhlenberg, Maj. H. C. Kress, Seattle, Wash., ordered to Sand Point airdrome. (July 29)

Murphy, Capt. Robert T. Lee, Reserve, ordered to active duty at Wright Field, Dayton, Ohio, for training. (July 26)

Nelson, 2d Lt. Morris R., Selfridge Field, Mt. Clemens, Mich., to Advanced Flying School, Kelly Field, Texas. (Aug. 3)

Norwood, 1st Lt. Donald W., relieved from 88th Observation Squadron, Brooks Field, Texas, and will proceed to March Field, Riverside, Calif., for duty. (Aug. 17)

Olsen, 2d Lt. Raymond Charles, Reserve, ordered relieved from further active duty at Brooks Field, Texas. (July 29)

Pitts, 1st Lt. Younger A., relieved from 40th School Squadron, Kelly Field, Tex., and will proceed to March Field, Riverside, Calif., for duty. (Aug. 17)

Platt, 2d Lt. James C. (Cavalry), Pope Field, Fort Bragg, N. C., to Advanced Flying School, Kelly Field, Texas. (Aug. 3)

Prudhomme, 2d Lt. Shelton E., relieved from duty as student in Advanced Flying School, Kelly Field, Tex., ordered to report to commandant for duty. (Aug. 3)

Quinn, Capt. Orlo H., relieved from Advanced Flying School, Kelly Field, Tex., and will proceed to March Field, Riverside, Calif., for duty. (Aug. 17)

Rich, 2d Lt. Benjamin Harrison, Reserve, ordered to active duty for training, reporting at Fairfield Air Intermediate Depot, Fairfield, Ohio. (July 27)

Rouch, 2d Lt. Lester M., relieved from duty at Balloon and Airship School, Scott Field, Ill.; ordered to report to commanding officer, same post, for duty. (Aug. 2)

Ross, 2d Lt. Charles A., relieved from duty as student in Advanced Flying School, Kelly Field, Tex., ordered to report to commandant for duty. (Aug. 3)

Rubner, 1st Lt. Michael Maxime, Reserve, orders revoked. (Aug. 7)

Sauer, 2d Lt Howard Augustus, Reserve, ordered to Buffalo, N. Y., for training. (Aug. 10)

Schartle, 2d Lt. Ronald Newman, Reserve, relieved from further active duty at Brooks Field, Tex. (July 29)

Scheirer, 1st Lt. James Emory, Reserve, ordered to active duty for training, reporting to Fairfield Air Intermediate Depot, Fairfield, Ohio. (July 27)

Schellhardt, 2d Lt. Morris Adams, Reserve, ordered to active duty at Duncan Field, San Antonio, Tex., for training. (Aug. 10)

Schofield, 1st Lt. Earl S., promoted to captain. (Aug. 10)

(Continued on page 324)

(*Continued from page 322*)

Schramm, 1st Lt. Ned., relieved from Advanced Flying School, Kelly Field, Tex., and will proceed to March Field, Riverside, Calif., for duty. (Aug. 17)

Schwobeda, 2d Lt. Leslie Harry, Reserve, relieved from further active duty at Brooks Field, Tex. (July 29)

Scott, 2d Lt. Kirk Hamilton, Reserve, relieved from further active duty at Brooks Field, Tex. (July 29)

Selway, 2d Lt. Robert R., Jr., relieved from duty at Balloon and Airship School, Scott Field, Ill.; ordered to report to commanding officer, same post, for duty. (Aug. 2)

Shea, 1st Lt. Augustine F., relieved from duty as student in Advance Flying School, Kelly Field, Texas; ordered to report to commandant for duty. (Aug. 3)

Shelley, 2d Lt. Perry Louis, Reserve, relieved from further active duty at Brooks Field, Tex. (July 29)

Simonin, 1st Lt. Arthur P., promoted to Captain. (Aug. 16)

Sims, 2d Lt. Turner A., Jr., relieved from duty as student in Advanced Flying School, Kelly Field, Tex., ordered to report to commandant for duty. (Aug. 3)

Sneed, Maj. Albert L., relieved from duty at Kelly Field, Tex., assigned to Rockwell Air Intermediate Depot, Crissy Field, Presidio of San Francisco. (July 25)

Straker, 1st Lt. George Varley, Reserve, ordered to active duty for training at Mitchel Field, L. I., N. Y. (Aug. 2)

Templeton, 2d Lt., Frederic Eastland, Reserve, relieved from further active duty at Brooks Field, Tex. (July 29)

Tillery, 2d Lt. Manning E., Third Attack Group, Fort Crockett, Texas, to Advanced Flying School, Kelly Field, Texas. (Aug. 3)

Tooher, 1st Lt. Bernard J., relieved from Brooks Field, Texas, and will proceed to March Field, Riverside, Calif., for duty. (Aug. 17)

Twining, 1st Lt. Nathan F., relieved from Brook Field, Texas, and will proceed to March Field, Riverside, Calif., for duty. (Aug. 17)

Waller, 2d Lt. Ivan Raymond, Reserve, relieved from further active duty at Brooks Field, Tex. (July 29)

Warner, Capt. David Morton, Spec. Reserve, ordered to active duty, reporting at Chanute Field, Rantoul, Ill., for training. (July 27)

Whatley, 2d Lt. Ben Jett, Reserve, relieved from further active duty at Brooks Field, Tex. (July 29)

Wheeler, Capt. Chilion F., relieved from assignment at Bolling Field, D. C., ordered to report for duty in office of Chief of Air Corps.

Wheeler, 2d Lt. Clarence D., relieved from duty as student in Advanced Flying School, Kelly Field, Tex., ordered to report to commandant for duty. (Aug. 3)

Whitson, 2d Lt. Wallace E., relieved from Brooks Field, Texas, and will proceed to March Field, Riverside, Calif., for duty. (Aug. 17)

Williams, 2d Lt. William Pearce, Reserve, ordered to active duty for training, reporting at Clover Field, Santa Monica, Calif. (July 27)

Wilson, Capt. Arthur, Reserve, ordered to active duty for training, reporting at Mitchel Field, L. I., N. Y. (July 27)

Wittcop, 2d Lt. Hilbert M., promoted to 1st Lt. (Aug. 3)

Wood, 1st Lt. Charles Chesney, Reserve, ordered to active duty, reporting at Langley Field, Va., for training. (Aug. 10)

Wright, Capt. Frank W., now on duty in office of Chief of Air Corps, assigned to additional duties at Bolling Field. (July 26)

NAVY AIR SERVICE ORDERS

THE following Navy air orders have been issued as of the dates indicated in brackets:

Arnold, Lt. (j.g.) Ralph I., detached U. S. Brazos, to c.f.o. *U. S. S. Lexington.* (July 25)

Black, Lt. (j.g.) Max I., detached Nav. Air Sta., Pensacola, Fla.; to VT Sqdn. 2B, Aircraft Sqdns., Battle Flt. (July 29)

Brown, Ens. John G., detached *U. S. S. Nevada;* to c.f.o. *U. S. S. Saratoga.* (Aug. 3)

Burnside, Ens. John L., jr., detached *U. S. S. Oklahoma;* to c.f.o. *U. S. S. Saratoga.* (July 25)

Busey, Ens. Francis L., detached *U. S. S. Nevada;* to c.f.o. *U. S. S. Lexington.* (Aug. 2)

Conley, Lt. Delbert L., detached Nav. Air Sta., San Diego, Calif., to c.f.o. *U. S. S. Lexington* (Aug. 3)

Cruise, Lt. (j.g.) Edgar A., detached VS Sqdn. 1S, Aircraft Sqdns., Sctg. Flt., to VF Sqdn. 3S, Aircraft Sqdns., Sctg. Flt. (Aug. 3)

Cuddihy, Lt. George T., detached Nav. Air Sta., Anacostia, D. C.; to VF Sqdn., 3S, Aircraft Sqdns., Sctg. Flt. Orders Mar. 30, 1927, to VF Sqdn. 5S, Aircraft Sqdns., Sctg. Flt., revoked. (Aug. 3)

Davis, Lt. (j.g.) William P., detached *U. S. S. Oklahoma;* to Nav. Air Sta., Pensacola, Fla. (Aug. 2)

Farnsworth, Lt. Comdr. John S., detached VO Sqdn., 6S, Aircraft Sqdns., Sctg. Flt.; to Rec. Bks., Hampton Roads, Va. (Aug. 2)

Ferguson, Lt. Comdr. Rufus A. (DC), detached Nav. Air Sta., Pensacola, Fla., to *U. S. S. Maintares.* (July 27)

Fitzsimmons, Ens. John P., detached *U. S. S. Nevada;* to c.f.o. *U. S. S. Saratoga.* (Aug. 2)

Gillon, Lt. John F., detached VS Sqdn. 1S; to VT Sqdn. 3S, Aircraft Sqdns., Sctg. Flt. (Aug. 4)

Goldthwaite, Lt. (j.g.) Robert, detached Nav. Air Sta., Pensacola, Fla.; to VT Sqdn. 2B, Aircraft Sqdns., Battle Flt. (Aug. 9)

Grisier, Lt. Comdr. Otto W. (M.C.), detached Nav. Air Sta., San Diego, Calif.; to temp. duty Nav. Med. School, Washington, D. C. (July 25)

Halland, Lt. Herman E., detached Naval Sta., Nav. Oper. Base, Hampton Roads, Va., to VO Sqdns. 6S, Aircraft Sqdns., Sctg. Flt. (July 25)

Halpine, Lt. Charles G., to duty Aeronautical Engineering Laboratory, Naval Aircraft Factory, Phila., Pa. (Aug. 11)

Hardison, Lt. Comdr. Osborne B., detached Naval Academy; to command VF Sqdn. 5S, Aircraft Sqdns., Sctg. Flt. (Aug. 4)

Hede, Ens. Adolph, detached *U. S. S. Oklahoma;* to c.f.o. *U. S. S. Lexington.* (July 25)

Hoover, Lt. Guy B., detached *U. S. S. Lawrence;* to c.f.o. *U. S. S. Saratoga.* (Aug. 2)

Johnson, Lt. Jesse G., detached VS Sqdn. 1S; to VT Sqdn. 3S, Aircraft Sqdns., Sctg. Flt. (Aug. 4)

Kauffman, Lt. Frederick B., detached Nav. Air Sta., Pensacola, Fla.; to VT Sqdn. 2B, Aircraft Sqdns., Battle Flt. (July 29)

Kauffman, Lt. (j.g.) Roland P., detached VS Sqdn. 1S, Aircraft Sqdns., Sctg. Flt.; to Nav. Air Sta., Pearl Harbor, T. H. (July 25)

Kernodle, Lt. (j.g.) Michael H., detached VS Sqdns. 1S, Aircraft Sqdns., Sctg. Flt.; to Nav. Air Sta., Pearl Harbor, T. H. (July 25)

Klimas, Ens. Bernard D., detached *U. S. S. Nevada;* to c.f.o. *U. S. S. Lexington.* (Aug. 2)

Larson, Ens. Charles O., detached *U. S. S. Nevada;* to c.f.o. *U. S. S. Saratoga.* (Aug. 2)

Lee, Lt. (j.g.) Charles L., detached Nav. Air Sta., Pensacola, Fla.; to VT Sqdn. 1S, Aircraft Sqdns., Sctg. Flt. (Aug. 19)

Lee, Ens. Fitzhugh 2d, detached *U. S. S. Oklahoma;* to c.f.o. *U. S. S. Saratoga.* (July 25)

Loftus, Lt. Stephen A., detached Wright Aeronautical Corp., Paterson, N. J.; to Asst. Inspr. of Nav. Mat'l, New York (Aug. 5)

Lyon, Lt. John B., detached VS Sqdn. 1S; to VT Sqdn. 3S, Aircraft Sqdns., Sctg. Flt. (Aug. 4)

Miller, Lt. (j.g.) Louis N., detached Subm. Base, New London, Conn., to c.f.o. *U. S. S. Saratoga.* (Aug. 10)

Moss, Lt. (j.g.) Richard S., detached Nav. Air Sta., Pensacola, Fla.; to VT Sqdn. 2B, Aircraft Sqdns., Battle Flt. (Aug. 9)

Mumma, Ens. Albert G., detached Curtis Guild Rifle Range, Wakefield, Mass.; to temp. duty Navy Rifle Team, Camp Perry, O. Upon completion, to duty c.f.o. *U. S. S. Lexington.* (Aug. 18)

Mumma, Ens. Morton C., Jr., detached Curtis Guild Rifle Range, Wakefield, Mass.; to temp. duty Navy Rifle Team, Camp Perry, O. Upon completion, to duty c.f.o., *U. S. S. Lexington.* (Aug. 18)

McDonald, Lt. (j.g.) Charles C., detached Naval Air Sta., Pensacola, Fla.; to VT Sqdn., 2B, Aircraft Sqdns., Battle Flt. (Aug. 9)

McDonough, Ens. James F., detached Nav. Air Sta., Pensacola, Fla.; to VT Sqdn. 2B, Aircraft Sqdns., Battle Flt. (Aug. 9)

McDowell, Lt. (j.g.) Percival E., detached *U. S. S. Oklahoma;* to c.f.o. *U. S. S. Lexington.* (July 25)

McKenna, Lt. Francis J., detached VS Sqdn. 1S, Aircraft Sqdns., Sctg. Flt.; to VF Sqdn. 3S; Aircraft Sqdns., Sctg. Flt. (Aug. 3)

McLean, Lt. (j.g.) Ephraim R., jr., detached Nav. Air Sta. Pensacola, Fla.; to VT Sqdn. 2B, Aircraft Sqdns., Battle Flt. (Aug. 9)

Nicol, Ens. Bromfield B., detached VS Sqdn. 1S; to VT Sqdn. 3S, Aircraft Sqdns., Sctg. Fleet. (Aug. 4)

O'Berine, Ens. Frank, detached *U. S. S. Nevada;* to c.f.o. *U. S. S. Lexington.* (Aug. 2)

Orville, Ens. Howard T., detached Curtis Guild Rifle Range, Wakefield, Mass.; to temp. duty Navy Rifle Team, Camp Perry, O. Upon completion, to duty c.f.o. *U. S. S. Lexington.* (Aug. 18)

Porter, Lt. (j.g.) Joseph L., (M.C.) detached *U. S. S. New Mexico;* to Nav. Air Sta., San Diego, Calif. (July 25)

Pound, Ens. Harold C., detached *U. S. S. Oklahoma;* to c.f.o., *U. S. S. Saratoga.* (Aug. 9)

Parker, Lt. (j.g.) Elton C., detached Nav. Air Sta., Pensacola, Fla.; to VT Sqdn. 1S, Aircraft Sqdns., Sctg. Flt. (Aug. 9)

Pyne, Ens. Chas. C., detached Curtis Guild Rifle Range, Wakefield, Mass.; to temp. duty Navy Rifle Team, Camp Perry, O. Upon completion, to duty c.f.o. *U. S. S. Lexington.* (Aug. 18)

Redfield, Ens. Morgan, detached *U. S. S. Nevada;* to c.f.o. *U. S. S. Saratoga.* (Aug. 2)

Rhea, Lt. (j.g.) Fitzhugh L., detached Nav. Air Sta., Pensacola, Fla.; to VT Sqdn. 1S, Aircraft Sqdns., Battle Flt. (Aug. 9)

Richardson, Capt. Holden C., (C.C.) orders April 18, 1927 revoked; to continue duty Bu. Aero. (Aug. 11)

Roberts, Ens. David G., detached *U. S. S. Oklahoma,* to c.f.o. *U. S. S. Lexington.* (July 25)

Rooney, Lt. (j.g.) Joseph J., detached VS Sqdns. 1S, Aircraft Sqdns., Sctg. Flt.; to VF Sqdn. 3S, Aircraft Sqdns., Sctg. Flt. (Aug. 3)

Schoeffel, Lt. Malcolm F., detached Bu. Aero.; to connection organization of VT Sqdn., 4B (*U. S. S. Langley*). Orders June 16, 1927, to Experimental Unit, Aircraft Sqdns., Sctg. Flt., revoked. (July 29)

Schlosbach, Lt. Comdr. Isaac, detached command VF Sqdn., 5S, Aircraft Sqdns., Sctg. Flt.; to Naval Academy. (Aug. 3)

Sease, Lt. Hugh St. C., detached VS Sqdn. 1S; to VT Sqdn. 3S, Aircraft Sqdns., Sctg. Flt. (Aug. 4)

Short, Lt. Gilas E., detached VS Sqdn. 1S; to VT Sqdn. 3S, Air. Sqdns., Sctg. Flt. (Aug. 4)

Simrell, Lt. (j.g.) Warren F., Jr., detached Nav. Air Sta., Pensacola, Fla.; to VT Sqdn., 1S, Aircraft Sqdns., Sctg. Flt. (Aug. 9)

Slattery, Lt. William J., detached Nav. Air Sta., Pensacola, Fla.; to VT Sqdn. 2B, Aircraft Sqdns., Battle Flt. (July 29)

Smith, Lt. (j.g.) Donald F., detached Nav. Air Sta., Pensacola, Fla.; to VT Sqdn. 2B, Aircraft Sqdns., Battle Flt. (Aug. 9)

Spriggs, Lt. Alva J., detached c.f.o. *U. S. S. Saratoga;* to Battleship Divs., Battle Flt., as aide on staff of Vice Adm. William V. Pratt, U. S. N., Comdr. Battleship Divs., Battle Flt., on Sept. 22. (July 25)

Sullivan, Lt. (j.g.) Frank K., (DC), detached Nav. Trng. Sta., Great Lakes, Ill.; to Nav. Air Sta., Pensacola, Fla. (July 27)

Sykes, Lt. James N., detached VS. Sqdn. 1S, Aircraft Sqdns., Sctg. Flt.; to Bu. Aero. (Aug. 3)

Taylor, Lt. Duane L., detached Navy Yard, N. Y.; to c.f.o. *U. S. S. Saratoga.* (Aug. 13)

Thompson, Lt. Paul N., Jr., detached Nav. Air Sta., Pensacola, Fla.; to VT Sqdn. 2B, Aircraft Sqdns., Battle Flt. (July 29)

Townsen, Lt. Guy D., detached Nav. Aircraft Factory, Navy Yard, Phila., Pa.; to connection organization VT Sqdn. 3S, Aircraft Sqdns., Sctg. Flt. Orders May 6, 1927, to VT Sqdn. 1, Aircraft Sqdns., Sctg. Flt., revoked. (July 29)

Trapnell, Lt. (j.g.) Frederick M., detached Nav. Air Sta., Pensacola, Fla.; to VT Sqdn. 1S, Aircraft Sqdns., Sctg. Flt. (Aug. 9)

Treadwell, Lt. (j.g.) Paul C., detached VS Sqdn. 1S, Aircraft Sqdns., Sctg. Flt.; to VF Sqdns., 3S, Aircraft Sqdns., Sctg. Flt. (Aug. 3)

Vroom, Lt. Comdr. Guysbert B., detached *U. S. S. Maryland;* to c.f.o. *U. S. S. Lexington.* (Aug. 11)

Wagner, Lt. Comdr. Frank D., detached command VF Sqdn. 6B, Aircraft Sqdns., Battle Flt.; to Tactical and Gunnery Officer, Aircraft Sqdns., Battle Flt. (Aug. 2)

Waldron, Lt. (j.g.) John C., detached Nav. Air Sta., Pensacola, Fla.; to VT Sqdn. 1S, Aircraft Sqdns., Sctg. Flt. (Aug. 9)

Waller, Ens. Raymond R., detached VF Sqdn. 2B, Aircraft Sqdns., Battle Flt. (Aug. 15)

White, Ens. John W., detached Nav. Academy; to *U. S. S. Arizona;* orders July 2, 1927, to c.f.o. *U. S. S. Saratoga,* revoked. (Aug. 9)

Whitehead, Lt. Richard F., detached VJ Sqdn. 1B, Aircraft Sqdns., Battle Fleet; to c.f.o. *U. S. S. Saratoga.* (Aug. 19)

Yanquell, Lt. (j.g.) Charles C. (M.C.), detached Nav. Hospital, Boston, Mass.; to c.f.o. *U. S. S. Lexington.* (Aug. 11)

MARINE CORPS AIR ORDERS

THE following Marine Corps Air orders have been issued as of the dates indicated in brackets:

Archibald, Capt. R. J., detached M. B. Quantico, Va.; to Observation Squadron 7, Nicaragua. (July 30)

Dawson, 2d Lt. M. L., Jr., relieved from special temporary aviation duty at Naval Academy, Annapolis, Md.; ordered to M. B., Navy Yard, Phila., Pa. Authorized to delay en route until Aug. 31. (Aug. 12)

Dreyspring, 2d Lt. J. G., relieved from special temporary aviation duty at Naval Academy, Annapolis, Md.; ordered to M. B., Navy Yard, Norfolk, Va. (Aug. 12)

Harmon, 2d Lt. J. C., detached M. B., Quantico, Va.; to Observation Squadron 7, Nicaragua. (July 30)

Henkle, 1st Lt. C. W., detached M. B., Quantico, Va.; to Observation Squadron 7, Nicaragua. (July 30)

McCullough, 1st Lt. C. H., detached M. B., Quantico, Va.; to Observation Squadron 7, Nicaragua. (July 30)

Mucahy, Capt. F. P., detached M. B., Quantico, Va.; to Air Corps Tactical School, Langley Field, Hampton, Va.; authorized delay en route until Sept. 5. (Aug. 8)

O'Neill, 2d Lt. D. F., relieved from special temporary aviation duty at Naval Academy, Annapolis, Md.; ordered to M. B., Quantico, Va. (Aug. 12)

Pierce, Capt. F. E., detached M. B., Quantico Va.; to Observation Squadron 7, Nicaragua. (July 30)

Ross, 2d Lt. R. P., Jr., relieved from special temporary aviation duty at Naval Academy, Annapolis, Md.; ordered to M. B., N. O. B., Hampton Roads, Va. (Aug. 12)

Rowell, Maj. R. E., detached M. B., Quantico, Va.; to Observation Squadron 7, Nicaragua. (July 30)

Sabater, 2d Lt. J., relieved from special temporary aviation duty at Naval Academy, Annapolis, Md.; ordered to M. B., N. O. B., Washington, D. C. (Aug. 12)

Smith, 1st Lt. J. N., to special temporary aviation duty beyond the seas with Aircraft Sqdns., 3d Brigade, China. (Aug. 12)

Thomas, 2d Lt. E. A., detached M. B., Quantico, Va.; to Observation Squadron 7, Nicaragua. (July 30)

Weir, 2d Lt. E. W., detached M. B., Quantico, Va.; to Observation Squadron 7, Nicaragua. (July 30)

Wodarczyk, Maj. Gnr. M., detached M. B., Quantico, Va.; to Observation Squadron 7, Nicaragua. (July 30)

Zuber, 2d Lt. A., detached M. B., N. A. S., Lakehurst, N. J.; to M. B. Quantico, Va. Authorized delay en route until Sept. 15. (Aug. 15)

THE AERONAUTICAL INDUSTRY

ST. LOUIS AIR NOTES

By THOMAS W. PARRY, JR.

IMMEDIATE purchase by the city of Lambert-St. Louis Flying Field at Bridgeton, St. Louis County, and erection of a downtown airport is recommended by the Aeronautics Committee of the St. Louis Chamber of Commerce in a special report submitted recently.

Lambert-St. Louis Field, consisting of 169 acres, is owned by Major Albert Bond Lambert, dean of aviation in St. Louis, and chairman of the Aeronautics Committee of the Chamber of Commerce. The field has been in operation since 1920, and on it are located the Air Mail, Missouri National Guard Air Unit, two commercial companies, many privately owned companies, machine shops, hangars and other buildings. The committee urges acquisition of 250 acres of available land adjoining the field. It is the intention to erect an administration building and depot for contemplated transcontinental airlines on this space.

Two prospective locations are recommended for the downtown airport. They are: (1) Property immediately north of the Merchants Bridge and (2) property in St. Clair County, Ill.

PHIL DEC. BALL, owner of the St. Louis Browns' baseball club, has bought a Mahoney B-1 brougham, formerly called the Ryan brougham, which he intends to use for business and pleasure trips. Ball intends to go to San Diego, home of the B. F. Mahoney Aircraft Company, and with his pilot, Lieut. Frank Dunn, fly the plane back to St. Louis.

ROBERTSON TO MANUFACTURE PLANES

THE Robertson Aircraft Corporation, holder of the St. Louis-Chicago air mail contract, will soon erect an airplane factory in St. Louis.

As a step in that direction, the corporation has purchased from the Curtiss Aeroplane & Motor Corporation of Garden City, N. Y., 1,150 OX5 Curtiss motors and a large stock of parts—the largest strictly commercial deal ever made on aircraft motors.

"We have surveyed the commercial airplane manufacturing situation throughout the country and we find that the time is right for the expansion of this branch of aviation," Major William B. Robertson said. "Of some 40 factories throughout the country we find it impossible to get delivery of an airplane for three to four months, and some are virtually sold out for the rest of the year."

Increasing interest in aviation is indicated by an enrollment of 94 students at the Robertson flying school at Lambert-St. Louis field so far this year. In the same period 70 have been graduated from the school.

FORD FLIES WITH COLONEL LINDBERGH

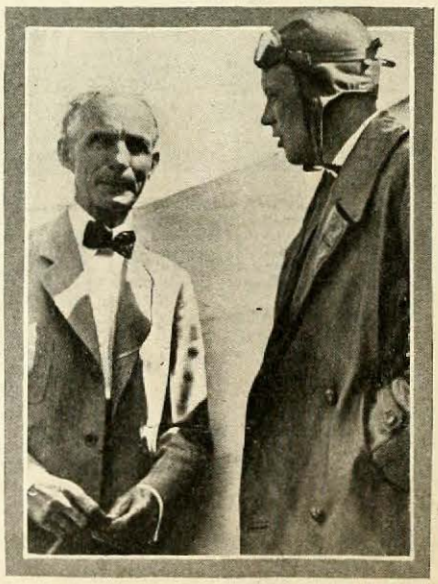
ON his visit to Ford Airport on August 11th, Colonel Lindbergh invited Henry Ford to be a passenger in the *Spirit of St. Louis*—the first time that the Colonel has taken any one up in his famous plane for a pleasure ride. The invitation was accepted immediately by Mr. Ford. An extra seat was placed in the cabin and Mr. Ford was soon enjoying the thrill of his first ride in an airplane.

"Fine! That was simply great and I certainly enjoyed it. I wouldn't mind taking a little spin every day," Ford said when he climbed out after being in the air about fifteen minutes.

Then Edsel Ford, who had been watching the flight with great interest, was asked to be Colonel Lindbergh's next passenger over the Ford industrial plants. It was also his first ride and he experienced the same enjoyment of flying as did his distinguished father.

Meanwhile, Henry Ford had arranged for a flight in his three-motored transport. The party consisted of Henry and Edsel Ford, Colonel Lindbergh, P. E. Martin, vice president of the Ford Motor Company, William B. Mayo, William B. Stout, Major Thomas G. Lanphier, Mrs. Ray Dallinger, wife of the manager of Ford's Farm Properties, Charles E. Sorensen, superintendent of the Fordson Plant and Harry Brooks, the pilot. The Colonel piloted the ship for awhile and then turned the controls over to Harry Brooks.

Henry Ford remarked, "Flying is still 90 per cent man, but we are now building planes—and I am devoting a large part of my time and energy to building them — which the younger generation will be able to fly just as they drive automobiles now."



Wide World Photo.

Henry Ford and Col. Charles Lindbergh.

DETROIT AIR NEWS

By FRANK BOGART

DETROIT aviation supporters have despatched three aspirants for long distance flight honors this past month, in addition to the Buhl sesqui-plane which left Detroit late in July for the Pacific Coast, and, at this writing, has been lost five days in the Pacific. This was the "Miss Doran," named after Mildred Doran, Flint, Michigan, school teacher.

Two of the planes which have just left are Stinson-Detroiter monoplanes. Edward F. Schlee, president of the Wayco Oil Corporation and also of the Wayco Air Service, Inc., which has made a surprising success of the aerial taxi trade hereabouts since May 1, keeping three ships busy constantly, is the owner of one of these.

With William S. "Billy" Brock as his pilot-navigator, Schlee is going after a new round the world record. The present figure is 28 days and a fraction, held by E. S. Evans, also of Detroit, but not made entirely by airplane. Brock is a veteran airman, having had close to 5,000 hours in the air and experience under all possible conditions while flying the air mail. Schlee and Brock are at Old Orchard, Me., for their Atlantic take-off.

The other Stinson monoplane is now at Brunswick, Ga., whence it will fly 4,500 miles, mostly over water, to Rio de Janeiro, as soon as weather permits. Paul R. Redfern, 25-year old pilot, a native of Rochester, N. Y., lately employed as pilot for the Coast Guard on the South Atlantic Coast against the rum smuggling fleets, is going on this flight alone. Among his backers are a number of wealthy Detroiters who have winter estates in Georgia.

The third machine to depart recently is a Hess Bluebird biplane. It was built for Captain Frederic Giles, British aviator, lately of Wellington, New Zealand, who obtained the financial support of William H. Rosewarne, Detroit contractor. Giles plans five hops for his 11,000-mile return flight to New Zealand, by way of San Francisco, Honolulu, Brisbane, Sydney and thence to Wellington. He has been dogged by ill luck for several weeks, with delays in the construction of his plane, and was forced to leave here without proper motor and flight tests. At this writing he is stuck in an Indiana cornfield, with hopes of getting out in time to reach San Francisco to be of some aid in the search for the missing Dole flight ships. He sent back word that he would not allow their fate to deter him from his chief purpose.

Two other Stinson monoplanes are being constructed for flights to England.

OF course one of the greatest single aviation stories in all history was the personal flight given Henry Ford by Colonel Charles A. Lindbergh, it being the first time the billionaire had ever taken to the air. So

enthused was he that after he and Edsel had ridden in the "Spirit of St. Louis," Henry Ford ordered out one of his tri-motored monoplanes and organized a large party for a long flight all over Detroit and environs.

WILLIAM B. STOUT will also launch his new line to Cleveland next month. Since August 1 the Grand Rapids line has been discontinued and the Stout machines have been devoting themselves to 30-minute, five dollar sight-seeing trips around Detroit. They carried 2,600 persons in July and Stanley E. Knauss, general manager, says the number for August will exceed 3,000.

Incidentally the Stout machines have been making night flights with great success lately. Mrs. Evangeline Lindbergh was flown to Grand Rapids to see her son and returned at night, and a few days later she was again a member of a party of society folk who flew to Cleveland for dinner at the home of E. E. Allyne, returning after midnight.

PREPARATIONS are being rushed for the start of de luxe air service between Detroit and Florida, using Ford-Stout transports, November 1. The Stout Air Services, Inc., will operate the line for a group of Detroit capitalists. The experimental path-finding trip will be held September 12. Weekly trips will be made from November 1 till January 1, when a second Ford machine will be placed in service. Advance reservations warrant placing this order, company officials of the Dixie and Northern Air Line, the holding concern, state. Cincinnati, Nashville and Atlanta will be stopping points.

KANSAS CITY - DENVER AIRLINE OPEN

THE Chicago and Southwestern Airlines, for passengers and express, opened their Kansas City to Denver Division on August 15th. The remainder of the route connecting Chicago, St. Louis, Kansas City, Denver, Dallas and Los Angeles will be put in operation as soon as ships can be obtained and traffic warrants. Ryan and Air King planes will be used.

The passenger fare from Denver to Kansas City is $36 with 20 pounds of baggage allowed free. Ships leave the airport at Denver at 5 a. m., arriving at Kansas City at 11:30 a. m. The west bound ship leaves Kansas City at 1 p. m., arriving at Denver at 7:30. Both ships stop 20 minutes at Topeka. Free transportation is furnished to and from the airport to the center of Denver and Kansas City.

"BY AIR TRUCK"

THE air delivery truck of the Royal Typewriter Company which demonstrated the dropping of typewriters from the air by means of parachutes at Curtiss Field on August 4th, has completed its first business trip. The plane flew last month from Hartford, Conn., to Havana, Cuba, with a load of typewriters consigned to the Havana agency of the company. En route, it made deliveries at Baltimore, Richmond, Savannah, Raleigh, Norfolk, Miami and other cities along the coast. In some cases these deliveries were made without landing by means of the plane's parachute attachment. This new development in commercial flying was used only at points at which it was impossible or impractical for the plane to land and served to speed up the journey and enabled the "flying truck" to make a large number of small deliveries without losing time in landing and taking off.

This newest commercial plane is a Stout all metal monoplane, powered with three Wright Whirlwind motors. It is especially designed to carry a cargo of typewriters; its cabin contains rows of racks in which 210 portable typewriters can be stowed. In the after part of the fuselage is located a trap door through which cases of typewriters attached to especially built parachutes are projected. These cases contain three portable typewriters and in demonstrations at Curtiss Field, as well as enroute to Havana, parachute deliveries were made without damage either to the wooden cases or to their contents. The establishment of this air delivery service by the Royal Typewriter Company came after a thorough study of the practicality of such an enterprise and was only undertaken when it was proven to be economically sound, according to an announcement made by George Edward Smith, president of the company.

"I am absolutely convinced of the future of this phase of commercial aviation," Mr. Smith said. "And, before long, I prophesy that the phrase 'by air truck' will be as significant and familiar as 'by air mail' is now.

"We inaugurated this air delivery service only after assuring ourselves that it would be a profitable investment. We feel certain this service will be a dividend paying proposition. This service, at any rate, is our contribution to the practical use of the airplane in the service of commerce."

The air delivery truck is piloted by John A. Collings, a former pilot on the freight routes of the Ford Company.

SPRINGFIELD NEWS

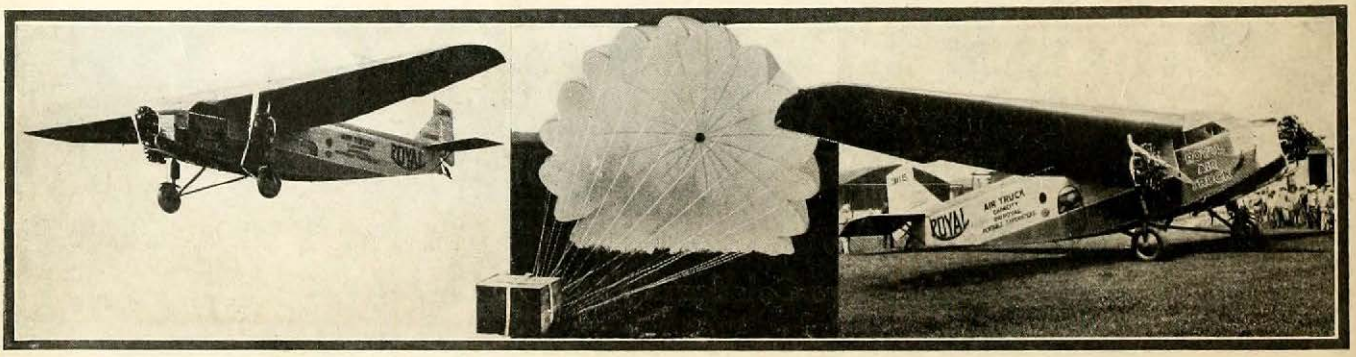
By HENRY P. LEWIS

THE magic of Colonel Charles A. Lindbergh has touched Springfield, Mass., and a State Law is the only deterrant to the city's establishment of a municipal airport immediately. Two hundred acres of level land, free of obstructions bordering the Connecticut River and situated in the town of Longmeadow has been selected as a site for the airport, but a legislative enabling act is necessary before Springfield can purchase land beyond its legal boundary. The field is now being used under lease by the Springfield Airlines, Inc., one of two airplane operators in Springfield, and a class of 22 students is being given flight instruction by Harry Hermann, pilot and president of the company.

THE other company, the Massachusetts Airways, Inc., is flying two Alexander Eaglerocks from a tract in the town of Agawam and both companies are doing a brisk passenger carrying business. Both look forward to the establishment of the municipal airport as the move which will inaugurate aerial transportation on a sound basis. The Colonial Air Transport Company is endeavoring to secure sufficient air mail in Springfield, Westfield and Holyoke to warrant regular service to the three cities to connect with the Boston-New York line which it operates under contract.

FURTHER stimulation to the airmindedness of the city is given by the approach of an air pageant in which between 40 and 50 planes are expected to participate. Intercity races and altitude contests have been arranged with silver trophies for the winners. Lieut. Harlan F. Banks will be field manager and he has received definite assurance of attendance from 20 pilots, including Thea Rasche, German aviatrix. Between 75,000 and 100,00 persons are expected to attend the three-day exhibition which begins September 3rd.

A DOZEN student aviators are nearing their solo flights and have formed a club and purchased a Swallow biplane from the instructing company. The plane is used at present for instruction, the instructor making a nominal charge for service while using the club plane. As fast as students are ready for solo they will be sent up in their own plane and will get in the 50 to 200 hours of solo flying necessary before qualifying for a license.



The Royal Typewriter Co.'s Stout-Ford air truck which delivers typewriters by parachute.

"It's a SHAME

—that all of the prospective buyers can't go through your factory and see the workmanship and care used in producing each EAGLEROCK. I had no idea of its strength and the quality of material used until I visited the different departments." . . . . . Basil Russell, 1106 Park Ave., Alameda, California.

ALEXANDER EAGLEROCK

CASH $2475 DENVER

Or may be purchased on Time Payments

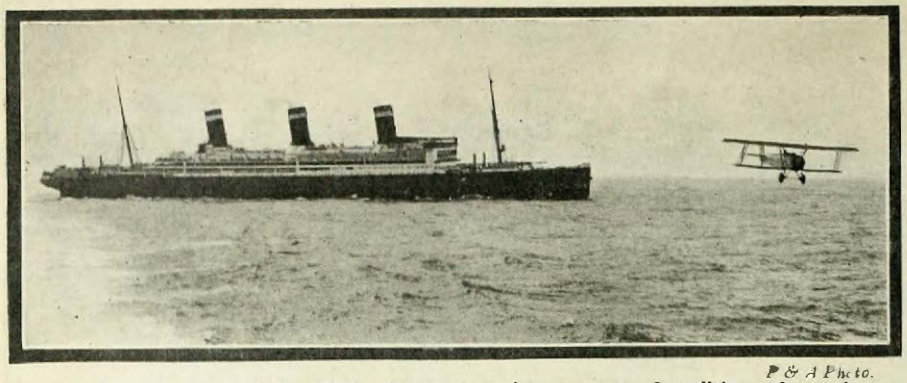
29 DISTRIBUTORS

Florida—Wesley N. Raymond, Puntagorda, Fla.
Georgia—Georgia Airways, Inc., Candler Field, Atlanta, Ga.
Ky. and Tenn.—Dunn Eaglerock Sales Co., 2051 Central, Memphis
N. C. & Va.—Charles Flying Service, 3100 Garland, Richmond, Va.
Northern Iowa—Pioneer Flyers, Inc., Mason City, Iowa
Ind.—Ray Kuhl, 217 No. Main St., Mishawaka, Ind.
Michigan—Niles Airways, Niles, Michigan
N. Y., N. J. and Conn.—Atlantic Airways, New Rochelle, N. Y.
Wisconsin—Hall Aircraft Co., 101 Scott St., Wausau, Wisconsin
W. Penn. and N. E. Ohio—Lt. J. P. Morris, Pittsburgh Airport, Aspinwall, Pittsburgh, Pa.
E. Mo., Ark. and S. Ill.—Bridgeton Aircraft Corp., 223 Pierce Bldg., St. Louis
W. Mo. and E. Kan.—Bennett Eaglerock Sales Co., 225 W. 12th St., Kansas City, Mo.
Okla. and Tex. Pan.—Southwest Airplane Sales Corp., Britton, Okla.
N. M. and Cen. Texas—Browning Airplane Sales, Wichita Falls, Tex.
Southern Texas—Marion P. Hair, P. O. Box 420, San Antonio, Tex.
So. Cal. and Ariz.—Aero Corp. of California, Western Ave., at 99th St., Los Angeles
Northern California—Jas. L. Mayberry, 1210 Broadway, Fresno
W. Wash. and W. Ore.—Story Eaglerock Sales, Mueller-Harkins Airport, Tacoma, Wash.
Wyo., Mont. and W. Neb.—Wyoming Airways, Inc., Casper, Wyoming
S. Dak. and N. Dak.—Rapid City Air Lines, Inc., Rapid City, S. D.
W. Kansas and E. Nebraska—C. E. Steele, Dodge City, Kansas
La.—Louisiana Airways, 1712 Pere Marquette Bldg., New Orleans
W. Va. and E. Ohio—Lyle H. Scott, 328 2nd St., Marietta, Ohio
Utah, Nevada, S. Idaho—Rocky Mountain Airways, Salt Lake City
Mississippi—Tri-States Airways, Bry Block, Memphis, Tenn.
Maryland and E. Pennsylvania—Hybla Valley Aviation Co., Alexandria, Va.
So. Carolina—Errett Williams, Greenwood, S. C.
Me., N. H., Vt., R. I., Mass.—Massachusetts Airways Corp., 1597 Main St., Springfield, Mass.
N. E. Ind. and W. Ohio—Jes. W. Dye, 203 Carroll Bldg., Ft. Wayne, Ind.

ALEXANDER AIRCRAFT CO.

ASSOCIATED WITH ALEXANDER INDUSTRIES
Room 403, Alexander Industries Bldg., Denver, Colo.

SHIP-TO-SHORE FLYING



P & A Photo.

Chamberlin just after taking off the Leviathan with a pouch of mail bound for shore.

CLARENCE D. CHAMBERLIN took off from the specially built runway on the *Leviathan* at 8:14 a. m. August 1st, on a demonstration flight to show the feasibility of mail delivery from ship to shore. Steamship officials believe that if a regular service of this kind can be maintained it will result in saving two days time in the delivery of important mail between Europe and the United States. Chamberlin's demonstration flight was made when the liner was bound for England and had reached a distance about 100 miles from New York. The ship was headed so that the runway faced the wind, to aid taking off quickly. Chamberlin took off with the utmost ease and headed for the shore flying at a low altitude. Curtiss Field was reached at 9:30 a. m.. After greeting his friends at the field he took off again and landed at Teterboro, N. J., where he delivered a sack of mail which he brought from the ship to the postmaster. This was the first ship-to-shore flight from the deck of a passenger vessel.

Chamberlin flew from a platform 114 feet long and 108 feet above the waterline at the lower end. The runway descends at an angle of 45 degrees from a point to the starboard side and just in front of the forward funnel diagonally over to the front side of the ship's bridge. A slight rise at the end of the track is designed to give the plane a final upward thrust.

His plane, weighing a little over 2,000 pounds including 40 gallons of fuel, rose into the air before three-quarters of the runway had been used. There was a 15-mile wind and the ship was going about 15 miles per hour.

Chamberlin believes that regular ship-to-shore service is practicable, but favors catapults rather than runways as a safer and surer means of taking off.

The first flight from the deck of a ship took place on November 14th, 1910, when Eugene Ely flew from the deck of the cruiser *Birmingham* stationed at Hampton Roads, Virginia, landing 5 minutes later at Willoughby Spit, near Norfolk, a distance of about 3 miles. The platform from which Ely took off was 25 feet wide and 85 feet long, built with a 5-degree angle incline. The ship was not moving when Ely took off in his Curtiss pontoon-equipped pusher, which would have aided him greatly. When he landed on the water at Willoughby Spit the impact damaged his propeller, but he proved that it was possible to fly from a ship in safety.

In January, 1911, Ely flew in a Curtiss biplane from a field near San Francisco and landed on a platform built on the deck of the U. S. S. *Pennsylvania* anchored in the bay. He then took off from the platform on the ship and landed back on the shore.

The Post Office Department has been operating a mail service to ships for seven years between Seattle, Washington, and Victoria, B. C., and for four years between New Orleans, and Pilottown, La. The Department plans to establish the same sort of service for expediting transatlantic mail, both in-coming and out-going.

ELY — THE FATHER OF SHIP-SHORE FLYING

By John Collins

THE "jimmylegs" on the U. S. S. *Birmingham* lets his eyes rove over the fantastic thing sprawled from the for'ard turrent to the bow and swears softly. He had labored a week setting up the damn contraption and now they had him out on a cold, foggy day to fool with it!

Pointing a contemptuous finger at it, undulating there like a Chinese dragon, he roars:

"Hey, you guys, yank the tarpaulin off it and one of you go tell that nut she's all ready for 'im."

Ten or twelve gobs move forward and begin tugging away at the canvas. One steps over to a hatchway, thrusts his head into it, and shouts:

"Hey, Mr. Ely, the runway's ready."

In reply a football helmet thrusts itself above the deck, followed by a long, slim face, a badly smudged linen collar of the "choker" variety, and a shiny norfolk suit. The face veers in the direction of the jimmylegs, nods, and melts into a smile. But the jimmylegs continues to scowl.

By now the gobs have skinned the dragon of its canvas. What had been the hump stands revealed as a large canvas box-kite freighted in the middle with an engine and propeller. Before it stretches a runway of new lumber which as it terminates over the ship's bow curls upward into a kind of grim smile.

Mr. Ely, who meanwhile has added a touch of comedy to the performance by turning the football helmet about so that its back drapes down over his forehead, is depositing himself into the "flying machine." He does this as carefully as if he were sitting into the lap of the gods. He is.

"All ready", pipes Mr. Ely above the tiny tattoo of the little engine. The gobs retreat a few paces. The voice of the engine rises to a shrill scream. The thing flounders off down the runway taking Mr. Ely with it. Its bumpy progress smoothens into a glide. It bounds off the end of the runway and disappears below the bow as if struck down with a sledge hammer.

Surging to the rail the gobs are confronted, not with a tangle of bamboo and canvas bobbing about in the water, but with the spectacle of Mr. Ely soaring triumphantly away like a bird. They watch until he is blotted out by the fog.

"A great stunt," is the first remark to break the silence.

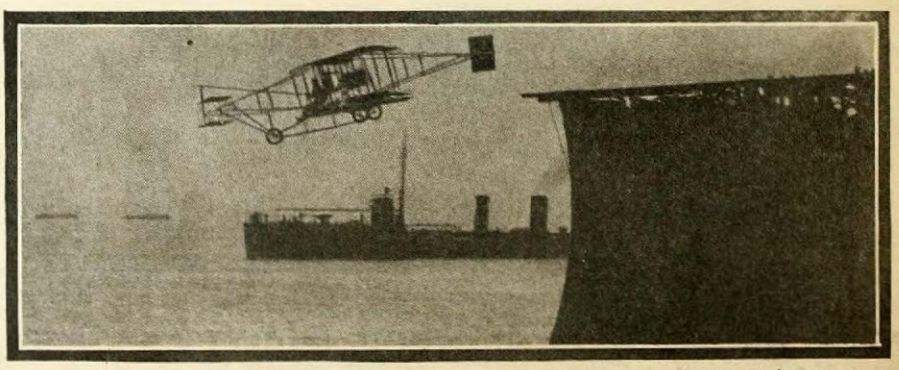
"Yah," retorts the jimmylegs, "but what use is it?"

Seventeen years later—it was in November, 1910 that Eugene Ely made this first flight from ship to shore—that question, "What use is it?" was echoed by scoffers on the deck of the *Leviathan*, as another lowan, Clarence Chamberlin, took off from an improvised runway, and headed for Long Island. But this time an answer came promptly and in a way that even the most hard-headed business man could appreciate.

The Postal authorities announced that they considered ship-to-shore flights practical for expedited handling of the mails and would install such service at the earliest opportunity. A crazy stunt had become a matter of dollars and cents.

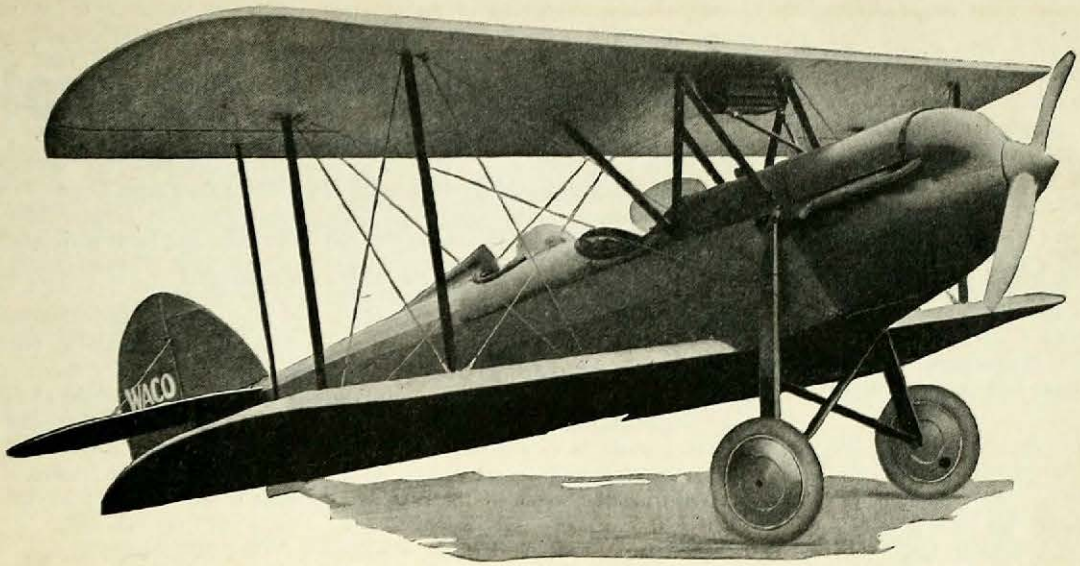
Back in 1909 the youth destined to be the father of this innovation was roaming Cali-

(*Continued on page 332*)



Underwood & Underwood.

Eugene Ely flying in 1910 from the deck of the U. S. S. Birmingham in a Curtiss pusher.



WACO TEN—OX5 MOTOR

Learn as other pilots have

— the value of buying a WACO airplane

Airplane pilots are today covering innumerable miles, in both commercial and pleasure pursuits, in WACO airplanes.

They chose the WACO because it gave them more performance and safety features. Because production at WACO plants assures them of immediate service on replacements.

The New WACO Ten surpasses all previous models in style, performance and safety.

Its quick take-off, fast climb, high top speed and ease with which it does all that you ask of it in the air makes it the talk of Pilots everywhere.

Its split-type, hydraulic shock absorbing, landing gear takes all the unpleasantness out of landings.

Its sturdy fuselage and wing sections, engineered to withstand motors from 90 to 250 horse power, give you more safety than ever before.

Ask pilots flying WACO or for the name of our nearest distributor and he will prove WACO superiority to you.

WACO
AIRPLANES
MANUFACTURED BY ADVANCE AIRCRAFT CO., TROY, OHIO

SHIP-TO-SHORE FLYING

(*Continued from page 330*)

fornia looking for a job. He had left the security of a comfortable home in Davenport, Iowa. Perhaps it is more correct to say that Ely was looking for a job that suited him. Being aggressive and friendly, he found jobs in general easy to get.

His instinct for the apparently useless soon pulled him into automobile racing. While dallying with this art he heard of a wealthy sportsman who had bought a flying machine. The sportsman, it seems, couldn't fly the thing himself. Within an hour young Ely was offering his services.

"I suppose you know all about flying," he was asked.

His reply may be inferred from the fact that next day he essayed an exhibition flight for his new employer. A few hours after the exhibition opened he had bought the wreck from his former boss for fifty dollars. With such parts as he was able to salvage he put together another machine. A miraculous period of self-tuition and necks were craning to the sputter of his engine at circuses and fairs all along the Pacific Coast.

He now invades the East. An aviation "meet" is scheduled for the spring of 1910 at Sheepshead Bay. Unlike another aerial Lochinvar who was to hurtle in out of the West on his way to Paris years later, young Ely spanned the continent in a passenger train. Considering his finances. Ely's trip was an achievement also.

The meet opens and 10,000 spectators gap at the suicidal antics of the new aviator from the Coast. His "dip of death" electrifies them with a new thrill. It wasn't much as stunts are rated now. He merely went into a steep glide and then zoomed sharply. But with an engine which turned as temperamentally as a roulette wheel, the stunt merited its title.

Tingling from the wine of applause this youth seeks more crowds to stupefy. Gimbel Brothers, he hears are offering $5,000 to the first man who will fly from New York to Philadelphia. It is to be a straightaway flight with no thrills and so does not draw him so strongly. But the newspapers rouse public interest in it and Ely enters. He fails to finish. Engine trouble brings him down soon after he takes off.

Failure could have but one effect on a youth who soared victorious without an instructor from the wreck of the first flying machine he ever saw. He hastens to enter the Chicago to New York flight arranged by the *New York Times*. Nearly every aviator in the country is scheduled to compete. But all drop out for one reason and another just before the appointed date. Ely starts alone. Twenty minutes after he takes off his engine starts to miss. He noses her over hurriedly and makes a bad landing, bruising himself and damaging the machine. Feverishly he makes repairs and tries to locate his engine trouble because as the papers of that day put it—"some hours of the precious 168 allowed by the judges for the trip had already elapsed."

He takes off again but once more is forced down, landing this time in a ditch. In a frenzy he takes off for the third time but fate and a piece of chewing gum discovered later in his feed line have decreed that he shall not finish. Reluctantly he abandons the flight, having travelled 22 miles out of Chicago in 25 hours.

Early in 1911, his fateful year, Ely is back on the Pacific Coast. Stunts still fascinates him. On January 18th he flies from the shore and lands successfully on the deck of the *U. S. S. Pennsylvania* anchored off San Francisco.

The summer finds him performing the "dip of death" again at fairs and circuses and in September he moves on to Ohio for a small meet to be held at Canton. On the opening day he is gliding down to a landing as Harry Atwood is taking off. Their wingtips brush and Ely crashes. Though badly bruised and shaken up he continues his daily flight until the fair ends.

Two weeks later he is to make his last flight. At Macon, Georgia, 10,000 people see the "dip of death" suddenly become literal.

Ely's flying career was, to use the hackneyed term, meteoric. It ended when he was only twenty-six years old. Less than three years measure the time between his first flight in California and his last in Georgia. Few of his contemporaries would admit that those three years were anything but futile. Time, however, has a disconcerting trick of snatching the mask of futility from a man's work and revealing underneath something of lasting benefit to the race.

SUCCESS OF CONTRACT AIR MAIL ROUTES

THE tremendous success of the operation of twelve contract air mail routes throughout the United States during the months of May, June and July, 1927, in comparison to the subsidized routes of Europe, is shown in statistics made public recently by Postmaster General New. These figures show that for the month of May there were 46,133 pounds of mail carried on these routes, for which the contractors received $133,738.10. For the month of June there were 55,026 pounds of mail carried, for which the contractors received $159,201.84, while for July there were 53,521 pounds of mail carried and the contractors were paid $155,183.95. While the amount of mail carried was less for July than for June, there were but 25 business days in the month of July as against 26 for the month of June, which accounts for the apparent falling off in postal business.

There was an increase of 16.3 per cent in the business of the twelve contract air mail routes for the month of July, 1927, over that for the month of May, while the month of June showed an increase of 19.3 per cent in business on these routes over that of May, 1927.

Six of the twelve routes in the United States, Nos. 3, 5, 6, 8, 9 and 12 performed 100 per cent service during the month of July, according to the figures made public by the Postmaster General.

Figures made public by Second Assistant Postmaster General Glover show that the total postal matter handled by seven air mail routes operating from Bourget field, Paris, France, for the month of March, 1927, amounted to less than 800 pounds. For the month of April, there were but 1,282.60 pounds of mail matter handled through this field.

For the month of July, 1927, there were 10 routes in the United States that handled over 1,000 pounds of mail matter, while for the month of June there were 9 routes operated showing more than a thousand pounds of mail matter carried by the contract air mail lines.

Comparative Statement of Contact Air Mail Routes, May, June and July, 1927

Route number, termini and name of contractor	May		June		July	
	Pounds Carried	Pay of Contractor	Pounds Carried	Pay of Contractor	Pounds Carried	Pay of Contractor
CAM— 1 Boston, Mass.-New York, N. Y. Colonial Air Transport, Inc.	1,590	$ 4,770.19	2,603	$ 7,809.37	2,222	$ 6,667.50
CAM— 2 Chicago, Ill.-St. Louis, Mo., Robertson Aircraft Corp.	2,363	5,980.24	3,856	9,760.03	2,940	7,441.87
CAM— 3 Chicago, Ill.-Dallas, Tex., National Air Transport, Inc.	9,460	28,381.12	10,542	31,626.37	9,499	28,497.94
CAM— 4 Salt Lake City, Utah-Los Angeles, Cal., Western Air Express, Inc.	15,213	45,639.00	17,120	51.360.56	17,390	52,171.12
CAM— 5 Elko, Nev.-Pasco, Wash., Walter T. Varney	4,304	12.912.94	5,392	16,176.94	5,503	16,508.62
CAM— 6 Detroit, Mich.-Cleveland, O., Ford Motor Co.	172	186.16	235	254.27	128	138.31
CAM— 7 Detroit, Mich.-Chicago, Ill., Ford Motor Co.	913	985.57	982	1,060.76	1,063	1,148.17
CAM— 8 Seattle, Wash.-Los Angeles, Cal., Pacific Air Transport, Inc.	5,325	15,042.63	6,131	17,342.88	6,708	19,033.82
CAM— 9 Chicago, Ill.-Minneapolis, Minn., Northwest Airways, Inc.	2,157	5,931.23	2,730	7,506.98	2,505	6,887.89
CAM—11 Cleveland, O.-Pittsburg, Pa., Clifford Ball	1,763	5,289.37	1,992	5.975.06	2,025	6,078.84
CAM—12 Cheyenne, Wyo.-Pueblo, Col. The Colorado Airways, Inc.	2,873	8,619.75	3,443	10,328.62	3,537	10,609.87
	46,133	$133.738.10	55,026	$159,201.84	53,521	$155,183.95

AIR TRAFFIC LEADERS FORM ASSOCIATION

ORGANIZATION of the American Air Transport Association, comprised of all operators of commercial air lines in the United States, was effected at a conference in Chicago, August 5th.

Every individual or corporation engaged in the operation of commercial airplanes for the transport of either mail, passengers or express, is eligible to membership.

Harris M. Hanshue, president and general manager of Western Air Express, Inc., was the unanimous choice of the airline operators as first president of this organization. T. Clifford Ball, operator of the Cleveland-Youngstown-Pittsburgh air route, was named vice-president and Willard G. Herron, vice-president and traffic manager of the Boeing Air Transport, Inc., was chosen secretary-treasurer.

These officers hail respectively from Los Angeles, Pittsburgh and San Francisco. Directors of the newly organized body include Colonel Paul Henderson, vice-president and general manager of National Air Transport, Inc., Chicago; George Tidmarsh of Washington, D. C., vice-president of Boeing Air Transport; Major William B. Robertson, St. Louis, head of Robertson Aircraft Corporation; G. S. Childs, vice-president and general manager of Pitcairn Aviation, Inc., Philadelphia; General John F. O'Ryan of New York, president and general manager of Colonial Air Transport, Inc., and Walter T. Varney of San Francisco, operator of the Salt Lake City, Utah, to Pasco, Washington, air route.

BIDS FOR AIR MAIL

THE following eight bidders contested for three new air mail routes, bids for which were opened in the office of Postmaster General New on August 18th:

Atlanta, Ga. to New Orleans, La., Via Birmingham and Mobile, Ala.

Bidder	Amount	No. & Type of Plane
Embry - Riddle Co., Cincinnati	$2.91	5 (Whirlwind Waco); 3 in reserve.
Pitcairn Aviation Co., Phila.	2.47	5 (Pitcairn); 3 in reserve.
La. Airways, Inc., New Orleans	2.00	4 (Ryan & Hisso); 2 in reserve.
St. Tammany Gulf Coast Airways, New Orleans	1.75	5 (Waco & Fokker); 3 in reserve.
Arthur E. Cambas, New Orleans	2.95	4 (Douglas & 1 Seaplane); 2 in reserve.

Chicago, Illinois to Cincinnati, Ohio Via Indianapolis, Ind.

Central Airways, Inc., Indianapolis	$2.48	3 (Stinson); 1 in reserve.
Embry - Riddle Co., Cincinnati	1.47	4 (Whirlwind Waco); 2 in reserve.

St. Louis, Missouri to Memphis, Tennessee

Robertson Aircraft Corp'n, St. Louis	$3.00	8 (D. H. 4); 4 in reserve.

N.A.T. TAKES OVER N. Y. - CHICAGO ROUTE

THE National Air Transport Company will take over the running of the New York to Chicago air mail service, now operated by the Government, beginning September 1st. The route will be known as Number C. A. M. 17. Express will also be carried on this route.

BOSTON AIR NEWS

By G. W. Hamblin

COMBINING forces with the annual New England Radio Exposition, the second aviation show in Boston since the World War will be held in the Mechanics Building September 26 to October 1st inclusive. Approved by the Aeronautical Chamber of Commerce of America, Inc., an impressive list of commercial airplane and parts manufacturers have taken exhibition space.

Planes to be shown will include the Hess, Waco, Travel Air, Driggs Dart, Swallow, Ryan, Consolidated, Vought, Stinson, Kinner and Douglas Accessories include the famous "airafts" used by Byrd and the crew of the "America", parachutes, airport floodlights, boundary lights, propellers, flying equipment, etc. Pratt and Whitney have taken space for their latest model "Wasp" and "Hornet" motors and Wright is expected to show a record-breaking "Whirlwind". Fairchild Aerial Surveys will be represented in the booth of Air Service of New England, Inc., their Boston agents. AERO DIGEST will have an attractive display and will have men on hand to assist exhibitors in any way possible.

Attendance at the annual radio show has averaged from 80,000 to 100,000 during each of the six annual shows since the war. With the addition of a whole exposition hall devoted to aviation it is expected to set a new attendance figure. Army searchlights will play into the sky from the hall by night. Daily demonstration flights will be made over the city from the Boston Airport. September 30th Assistant Secretary of Commerce William MacCracken will address an aviation banquet at the Hotel Statler to which, among others, will be invited the delegates to the aviation conference being held that day by the New England Council.

On Saturday before the aviation exposition a model airplane contest will be held on Boston Common, winning planes to be displayed at the show. A "flown cover contest" for air mail cancellation collectors will also feature the show.

Commander Richard E. Byrd has agreed to place a number of trophies of his North Pole and transatlantic flights in a booth at the exposition. Lieutenant Albert Hegenberger hopes to fly to Boston to personally direct the Army's display of aircraft and aircraft instruments.

The United States Navy has agreed to send two service planes and fifteen models of naval aircraft with photographs illustrating the development of flying in the Navy.

THE Boston Chamber of Commerce has begun to raise a prize of $25,000 for the first flyer to land in Boston from Europe. Various dignitaries of Boston have been appointed trustees. Lieut. Comdr. Byrd and Lieut. Albert Hegenberger are among those appointed. To date, the fund is half raised, and will be completed before any of the boys overseas take off to fly westward for America.

A. L. MacClain, Boston Airport Corp.

THE Boston Airport Corporation, New England photographers for Fairchild, have done a lot of work around Eastern Massachusetts, making trips to Col. Green's new airdrome at South Dartmouth, Worcester, Lowell, where the proposed flying field is to be built, and North Chelmsford, to say nothing about innumerable photographic trips in the vicinity of Boston. Operations Manager Billings has added ten new members to the school roster again this month.

THE Boston Airport Corp. is called on for various uses of the airplanes it owns, but the first time one of the ships was used on an errand of mercy was August 5th, when Dr. Charles Sziklas, noted surgeon of Boston, came into the field with the request that he be flown to Nantucket on an emergency case. There was a four-year-old boy down there whose appendix had burst, and the only thing that would save him was the speedy arrival of Dr. Sziklas.

A. L. MacClain, instructor in the Corporation's school of flying, was detailed to take the doctor down in an OXX-6 Travel Air. At 6.15 p.m. the ship left, and an hour and forty minutes later was landing at Siasconsett, where the Airport Corp. operates a field.

The operation was performed, and was successful, the doctor claiming that if it hadn't been for the use of the plane, the boy would have died. MacClain flew Sziklas back the next morning.

A STINSON-DETROITER biplane was sold to the Pioneer Instrument Co., of Brooklyn, N. Y., and Pioneer's Whirlwind Travel Air was taken in exchange. This Travel Air has a sort of national flavor, having won the Ford Reliability Tour in 1926, and having taken several prizes in the National Air Races at Philadelphia last Fall. The Corporation is using it for passenger hops and cross-country work, and may enter it in the New York to Spokane Air Derby.

THE persistence of fog at Nantucket during the past six weeks caused the discontinuance of the Boston-Nantucket Air line operated by the corporation.

TULSA AIR NEWS

By P. H. Dixon

PLANS for a $500,000 aerial navigation company with headquarters in Tulsa and with the entire southwest included in its potential field of operation have been announced by Frank Matchett of the Exchange National bank of Tulsa. While organization of the new firm has not been completed, it is understood in Tulsa that ample financial backing is available for the venture.

The plan of operation of the new firm, according to Matchett, will be to inaugurate aerial transportation lines with planes running on regular schedule betwen Tulsa and St. Louis, Tulsa and Amarillo, Texas, and possibly lines to Dallas and Fort Worth, Texas, and Kansas City. Spur lines to oil production centers in the mid-continent field and special freight and passenger service out of Tulsa also will be included in the operation plan, Matchett said: Tulsa at the present time has no direct air mail connection with any of the large air mail lines.

The establishment of the aerial navigation company is expected to write an unusual page in the financial history of Tulsa. Closely associated with Matchett in the project is Col. P. J. Hurley, vice-president of the First Trust and Savings Bank of Tulsa, a subsidiary company of the First National Bank of Tulsa. The Exchange National Bank represented by Matchett and the First National Bank represented by Hurley long have been bitter rivals in southwestern financial circles.

ORGANIZATION of the Southwest Ryan Airlines, Inc., with a capital stock of $25,000, has been completed in Tulsa, Okla. The firm has the Oklahoma agency for Ryan monoplanes. Delivery on the first plane is expected about September 15th.

R. F. Garland, Tulsa oil man and discoverer of the great Seminole oil pool, is president and main stockholder in the new company. John Wheeler, Tulsa attorney, is secretary. William T. Campbell, Tulsa, is vice-president and general manager.

PLANS for an international air meet in Bartlesville, Okla., some time in October are being worked out by Frank Phillips, Bartlesville oil man. Phillips was the financial backer of Art Goebel whose Travel Air plane "Woolaroc" won the Dole Hawaiian flight prize.

Phillips has announced that he personally will offer $25,000 in cash prizes for contesting aviators and that cups and other trophies will be provided.

TESTS of aviation gasoline will be made in Tulsa at the International Petroleum Exposition, September 24 to October 1. The various fuels developed by natural gasoline manufacturers and refiners will be tried out on a calibrated test motor mounted on a block and by actual flying. The formula for the most efficient gasoline found after the tests have been completed will be made public in order that other refiners may develop similar fuels.

DALLAS AIR NEWS

By Mont Hurst

CONTRACTS for the new air mail lines between Dallas and Galveston and Dallas and Laredo have been secured by Seth Barwise of Ft. Worth. Mr. Barwise bid $2.98 a pound for each line. The Dallas-Galveston line will include service to Houston, and the Dallas-Laredo line will include service to Waco, Austin, and San Antonio. It was first thought that Ft. Worth would be the northern terminus of the new lines but as Dallas is the southern terminus of the Chicago line it was thought best to avoid confusion and have the terminus here. It is planned to begin service in about three months. After the Dallas-Chicago line begins its night flying the two lines will be connected. It is expected that Mexican officials will soon start an air mail line from Laredo to Mexico City and the new line will give service in connection with that one.

A CROWD of 10,000 persons witnessed the unveiling on August 7th of the *Dallas Spirit*, Captain Bill Erwin's Swallow—Wright-motored monoplane in which he intended to fly from Dallas to Hong Kong for the Easterwood $25,000 prize, and around the world.

Governor Dan Moody, who flew from Ft. Worth to Dallas for the event delivered the dedicatory address and Fred F. Florence was spokesman for the group of Dallas sponsors. Headed by Karl Hoblitzelle as president of the incorporated group, the sponsors associated with *The Dallas News* and *The Dallas Journal* are: Arthur L. Kramer, John W. Carpenter, Julius Schepps, C. R. Miller, Fred F. Florence, J. Perry Burrus, Phil T. Prather, W. H. L. McCourtie, Otto Herold, E. Gordon Perry and R. A. Crawford.

Colonel W. E. Easterwood, jr., donor of the Dallas-Hong Kong prize, Captain Erwin and his wife took part in the program.

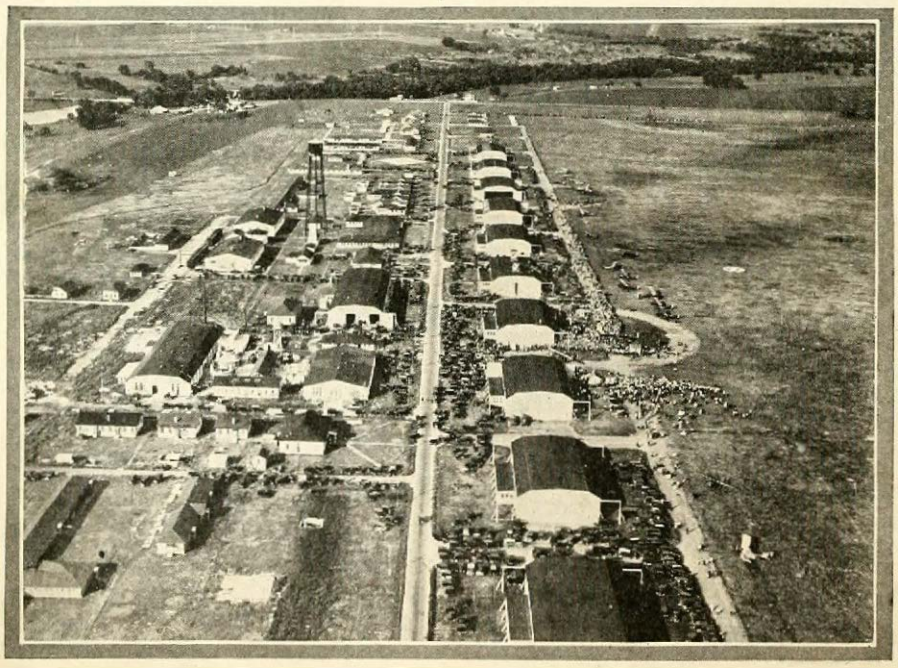
BY early fall it is expected that three passenger-carrying airlines will be operating through the Southwest with Dallas the terminus of two of them. It has already been announced that the National Air Transport will put in operation a passenger service between Dallas and Chicago in September. Stops will be made at intervening points. Dallas will be on the Denver-New Orleans Line which will be put in operation within a couple of months. The latest announcement made by Jack Frye of the Aero Corporation of California upon his recent visit to Ft. Worth, is that Dallas will be the terminus of the Los Angeles-Dallas Line. Planes will run from Los Angeles to El Paso and other planes will be used on the El Paso-Dallas run. Stops will probably be made at El Paso, Breckenridge, Abilene, Sweetwater, Big Springs, Ft. Worth and Dallas.

DALLAS is to have an airplane factory. Organization is now being effected and a factory site will be chosen in the near future. Ernest R. Tennant, vice-president of the Dallas Trust and Savings bank, Col. William E. Easterwood, jr., donor of the $25,000 Dallas-Hong-Kong flight prize, and others are behind the new company which will have a capitalization of at least a million dollars. An aviation engineer from Detroit is planning the new plane.

AIR EXPRESS SERVICE

BEGINNING September 1st, the following air mail routes in addition to carrying the mail will become express freight carriers for the American Railway Express Company:

Colonial Air Transport, New York-Boston route; National Air Transport, New York-Chicago and Chicago-Dallas routes. Boeing Air Transport, Chicago-San Francisco, and Western Air Express, Los Angeles-Salt Lake City, will carry express soon after the first of the month.



Love Field, Dallas, Texas, now the municipal airport.

MIAMI AIR NEWS

By Norma A. Davis

FORMAL possession of the site for a seaplane port on Causeway Island has been given to the city of Miami with the signing of a $1 a year lease. The strip contains about three and one-half acres of land now being filled in. It is the first island east of the Miami mainland on the Venetian way.

GREATER Miami Airport association is now working toward the goal of municipal ownership of an international airport. The association, temporary officers of which were elected for two months at a meeting of city officials, aviation authorities and club leaders, has as its honorary president, Glenn H. Curtiss, pioneer aviator and inventor, and a resident of Miami. B. B. Freeland, member of the city aviation board, is president.

Directors include the mayors of the important cities of Dade county, presidents of the Chambers of Commerce, bankers, editors and prominent business men.

Gar Wood, nationally known speed boat racer and a winter president of Miami Beach whose brother is to attempt a transatlantic flight from London, Canada, to London, England, is one of the members.

FORMER service pilots in Miami are organizing the Miami Aviation club, a non-profit organization which has as its aims the instruction of prospective fliers and the promotion of the city's aeronautical interests. According to plans of K. W. Pratt and Lieut. Donald Davis, former naval fliers, Paul Latham, former marine corps pilot, and Captain Willingham, formerly of the army air corps, the aviation courses will lead to a club diploma and subsequently a pilot's license from the aviation branch, Department of Commerce. Small initiation fees will be charged. The club will begin its activities with seaplanes, later extending the instructions to land planes.

THE Miami Flying Club was organized recently at a meeting, directed by Ewing Easter, temporary chairman, and attended by former pilots of commercial, army and naval planes. The gathering included B. B. Freeland, president of the Greater Miami Airport association, and J. E. Yonge, chairman of the Miami air board.

OCALA FLYING FIELD

OCALA FLYING FIELD was established the first of the year by H. J. Chiddix and Freddie Lund. The field lies just one mile due west of the water tank in the city. This tank has OCALA set forth on a huge electric sign on three sides and is easily located. The Ocala Motor Company, local Ford dealer, has painted the word OCALA in large letters with an arrow pointing to the north on the roof of their building. The flying field is very popular with commercial pilots as it is the midway point between Jacksonville and Tampa. Gas, oil, and water can be secured at the field and expert repair service is available from town.

MILWAUKEE AIR NEWS

By H. H. Steeley

"JUNK the flying crates."

That's the plan Milwaukee has under way to curb further accidents in which faulty planes have been to blame. Carl Herzfeld, chairman of the air service committee of the city, and Thomas F. Hamilton, airplane manufacturer, have plans completed whereby every aviator will cooperate with the city and county in doing away with unworthy planes. All pilots will be expected to be licensed before carrying passengers. Aviators here have agreed on the plan and about a dozen planes will be affected by the plan.

There is no law here to ban risky flying, but it is expected that every pilot will abide by an agreement with the city to take no risks. If this plan does not carry however, then officials will proceed to obtain county legislation forcing planes and pilots to be licensed.

FRED PABST, wealthy Milwaukeean, has offered an $80,000 tract of land at Oconomowoc to the government as an emergency landing field for air mail purposes at a rental of $1 a year. Mr. Pabst also has offered to defray the expenses in the erection of a giant air beacon on the field.

SO rapid has been the growth of aviation in Milwaukee in the last few months, and especially since the reception of Lieut. Lester Maitland and Lieut. Albert Hegenberger, of Pacific flight fame, that the city has decided on the organization of an air board. This board will be composed of men actively interested in aeronautics and experienced as flyers to pass on air regulations the city and county proposes for the future and to supervise the operations of the county and municipal airport.

Milwaukee has formally opened its lake front airport and it has been named Maitland Field in honor of the Pacific flight hero, who was born and reared here. The field is on the lake front seven blocks from the heart of the city and within four blocks of the post-office. It has two runways, one running east and west and the other north and south. More land will be added when the shore line is filled in by the first of next year. It is expected that Dan Kiser, former air mail pilot and airplane manufacturer, will be in charge of the airport. Steel hangars are now under construction.

SEVERAL flying organizations have sprung up here in the last two months, some formed for the purpose of teaching flying and providing aerial taxis while others permit former flyers, through a contribution or assessment, to keep their hand in at the stick. The Phoenix Aircraft Corp. has purchased a Hess Bluebird and has engaged Frank Kohaust as pilot. This organization will do air taxi work and instruct student flyers. The Milwaukee Air Transit operates a Canuck and Swallow planes with C. C. Chamberlain and Lester Holubeck as pilots. This outfit also instructs in flying and carries on aerial photographic work as well as passenger service to any point in the state. The Milwaukee Fliers, Inc., has been organized with an exclusive membership of ten, each of the members being flyers or former flyers. With a Canuck plane these men fly for their own enjoyment only.

F. W. Dalrymple, pres. Atlantic Airways.

THE Alonzo Cudworth post of the American Legion is sponsoring a statewide air tour for the first of September, which will take a flight of twelve planes to the leading cities and towns of Wisconsin to promote aerial education. Each of the planes will represent an industry of Milwaukee. The tour will last about three weeks. Lieut. Lester J. Maitland and Maj. Herbert A. Dargue, Pan-American flight commander, have endorsed the tour and commended its object.

SO successful has the Hamilton all-metal monoplane proven itself, having placed second in the Ford Reliability tour, that Thomas F. Hamilton, its manufacturer and president of the Hamilton Metalplane Company, is now laying the path to manufacture these planes at a selling price of about $15,000. At the same time it is expected he will move his factory to Detroit, having failed to gain financial support here. Removal of this factory necessarily will force removal of the Hamilton propeller factory also. The metal plane "Maiden Milwaukee," which took part in the Ford tour, has been equipped with pontoons for experiments on the lake here. Randolph Page, veteran air-mail pilot, is chief pilot for Hamilton.

THE Northwest Airways, Inc., of St. Paul, operating the Twin Cities-Chicago air mail route, has inaugurated passenger service in conjunction with its mail flights and Col. L. H. Brittin, general manager, has announced that the number of passengers carried so far have far exceeded expectations. The fare from Minneapolis to Chicago is $40, with proportionate fares to St. Paul, La Crosse and Milwaukee. The company expects to open up a passenger service between St. Paul and Duluth this fall. Charles "Speed" Holman is chief pilot. The company is using Stinson-Detroiter planes.

ATLANTIC AIRWAYS FLYING COURSE

THE flying course offered by the Atlantic Airways, New Rochelle, N. Y. is thorough and comprehensive. It is patterned primarily after the Navy Course at Pensacola, but, in its adaption to civilian needs, the purely military subjects have been omitted. Flight instruction is worked out on a schedule based on the assumption that the average student will be ready for "solo" flight after eight hours of dual instruction. The plan is elastic, however, and every student is treated individually.

At first the lessons are of 30-minute periods. As the student becomes accustomed to the air the time is increased—but never for longer than 60 minutes. The student always has the same instructor who is constantly on the watch for signs of fatigue and who immediately will end the lesson for the day should the student become dull and unresponsive. After each lesson the student enters his time in his individual log book which is certified by the instructor.

The school operates only equipment licensed by the Department of Commerce and all of the instructors hold transport licenses according to law. Therefore, before enrolling, a student must pass a physical examination before a surgeon designated by the Department of Commerce and file an application for a student pilot's license.

A ground course is run in conjunction with the flying course so that the prospective pilot will know not only the necessary field routine but also have the necessary knowledge of planes and engines to pass the theoretical part of his pilot's license examination.

A course also is provided for the business man, which is arranged so that instruction can be given outside of business hours.

The equipment of the Atlantic Airways consists of new Alexander Eaglerock planes.

VAN LEAR BLACK'S EAST INDIAN TOUR

MR. VAN LEAR BLACK, proprietor of *The Baltimore Sun*, ended his tour of Dutch East India on his arrival at Amsterdam on July 25th.

Leaving Amsterdam on June 15th in a K.L.M. airliner, piloted by the Dutch airmen Geysendorfer and Scholte and accompanied by his valet, Mr. Black flew via Constantinople, Aleppo, Baghdad, the Persian Gulf, Karachi, Allahabad, Calcutta, Rangoon and Singapore and arrived at Batavia after 86 hours of flying on June 30th.

He flew only thirteen of the sixteen elapsed days, being held up by Turkish officials at Constantinople one day, because the Turks don't allow flying on their Sunday, and delayed two days at Baghdad by dust storms.

The whole tour of 18,600 miles was completed in 200 flying hours. At Amsterdam he was greeted by a crowd of 15,000, and later Mr. Black was made a Knight of the Order of Orange and Nassau.

An illustration showing Mr. Black and his pilots on their arrival in Amsterdam is on page 363 of this issue.

(*Continued from page 282*)

from Bremen. Kaulen holds the world's long from Bremen. Kaulen holds the world's long distance flight record, made in 1913, when he with two passengers covered 1,865 miles.

Great Britain will have three pilots in the basket of the single entry. They are Squadron Leader R. S. Booth, Captain G. F. Meager and Reserve Flight Lieutenant M. H. Steff. The balloon that will represent Great Britain is known as "The Bee." It is of 80,000 cubic feet capacity and was piloted in the 1926 contest by Captain Meager. Lieutenant Steff was second pilot representing England in that event and Flight Leader Booth was the officer responsible for the return of the R-33 when it broke loose and drifted over the North Sea.

Majors Molas and Maldonado will represent Spain in a German made balloon, the property of the Aero Club of Madrid. This is the first contest sponsored by the Aero Club of Madrid, the Spanish Government being the official sponsor in the other races.

Maldonado is well known in the United States, having studied for two years in an American army dirigible training school. He is an engineer in the army. Molas is a licensed balloon pilot attached to the artillery service of the army and an expert airplane observer. He has taken part in many contests in Spain and abroad.

De Muyter, four times a winner of the Gordon Bennett Cup and permanent possessor of the first Gordon Bennett trophy, will represent Belgium.

Hon. Henry S. Hulbert, presiding judge of the Probate Court, is chairman of the Gordon Bennett Committee of 1927. Other members of this body include Hon. Charles B. Warren, ex-Ambassador to Japan, Edsel B. Ford, Hayward Murphy, Phelps Newberry, Thomas S. Merrill, Colonel Sidney D. Waldon, William B. Mayo, Carl B. Fritsche, Charles A. Parcells, William P. Harris, Harold H. Emmons, William B. Stout, J. W. Batton, Charles R. Talbot, John M. Stalker, A. C. Vose, L. K. Marshall, Ralph H. Upson, Norman B. Conger, Harvey Campbell, Alfred C. Verville, Charles D. Williams and Karl S. Betts. Ray Cooper, manager of the 1927 National Air Tour, is the general manager.

Assistant Secretary William P. MacCracken of the Department of Commerce, Assistant Secretary Trubee Davison of the War Department and Assistant Secretary Edward Warner of the Navy Department have been selected as judges for this year's race.

NEW DISTRIBUTORS FOR AMERICAN EAGLE CO.

THE American Eagle Aircraft Corporation are rapidly adding to their list of distributors throughout the country. Six months ago this company ranked seventeenth in production—they report that to-day they rank third. The following distributors have been appointed to handle the American Eagle: Fred E. Pereira, Chelsea, Mass., for Maine and Massachusetts; American Eagle Aircraft Distributors, Inc., Brooklyn, N. Y., for New York, New Jersey, Connecticut, and Pennsylvania; J. D. Winstead, Rocky Mount, N. C., for North Carolina; Chicago Aeronautical Service, Inc., Chicago, Ill., for Northern Illinois and Southeastern Wisconsin; Mason City Airways, Inc., Mason City, Iowa, for Eastern Iowa and Southeastern Minnesota; Minnesota Air Service, St. Paul, Minn., for Western Minnesota and part of North and South Dakota; Adolph Johnson, Freemand, S. Dak., for part of South Dakota; L. M. Tucker, Detroit, Mich., for part of Michigan; Ralph S. Seney, Buffalo, Wyo., for Northeastern Wyoming; Geo. L. Swank, St. Mary's, Kan., for part of Kansas; Hancock and Fleming, San Mateo, Calif., for California.

ELMIRA AIRPORT

EXTENSIVE dedication ceremonies will mark the official opening of the Elmira Airport, which will include many aeronautical features during the two-day program on September 11th and 12th.

Thea Rasche, German aviatrix, now visiting America in the interests of flying progress, will take an important part in the program. Bert Acosta, pioneer pilot, and joint holder with Clarence Chamberlin of the American endurance record in air, is also scheduled to participate.

The Elmira Airport, which already has been used for landing and take-off purposes, is 120 acres in extent and includes two 3500 feet runways of modern construction. A sixteen plane hangar provides ample facilities for storage and housing. The field was designed and constructed by William E. Arthur & Co., Inc. of New York City.

AIR MAIL CONFERENCE

A DEFINITE program outlining America's position in regard to the handling and treatment of international air mail has been mapped out and will be presented to the Air Mail Conference called by the International Bureau of the Universal Postal Union when it convenes at The Hague on September 1.

America will be represented at the conference by W. Irving Glover, Second Assistant Postmaster General, and R. Eugene White, Superintendent of Foreign Mails of the Post Office Department.

The United States will advocate, among other things, uniform postage and transit rates and transportation charges with all countries having air mail service, the transit rates to be based on a zoning system using units of one thousand miles or less.

Until such time as aircrait is able to make regular and dependable trips across the ocean, it will propose shore-to-ship and ship-to-shore service based on the service now in operation in the United States out of Seattle and New Orleans.

The American delegates also will propose a combination of the special delivery and airplane services by which all air mail letters would be given special delivery service, and will ask for the adoption by all countries of a uniform color or distinguishing mark for air mail stamps.

The questions to be considered at the conference relate to postage rates, transportation charges, and transit rates across intervening countries, conditions of mailability such as size, weight, packing, etc., responsibility in the case of loss, damage, etc., the simplification of accounting, and possibilities for the improvement of service.

IMPROVED GOGGLES

DEVELOPMENT of new eye protection devices designed to keep pace with improvements in aviation, increased speeds, and optical refinements to precision requirements have been reported by Strauss & Buegeleisen.

Their new RAV goggles, sponge rubber bound replacing chenilles in fabric types, have met with big success and are now in use in aviation fields as far away as Japan, Australia and India.

Another new development is the Commander type, a recent refinement embodying features based on the experiences of naval aviators, the precision requiremeuts of naval engineers and laboratory officials. The lenses are decentered, compensated curve meniscus optically ground and polished to a definite curve affording complete vision. The ventilation is by a French system, invented in 1921 by a leading French aviator in collaboration with Mr. Buegeleisen.

The meniscus lense of the same weight, thickness and the identical optical precision, used in the Commander goggles is also supplied in Nonshatterable Resistal. Aero is another type of metal frame with curved bent optically ground or Resistal optically ground lenses. Pilot is another very satisfactory goggle, furnished at present with bent lenses only.

COLBY IN AIR DERBY

THOMAS B. COLBY, manager of Berry Brothers' aviation and marine department, will fly in his new Waco-10 biplane in the New York-Spokane Air Derby.

Young Colby is a son of F. L. Colby, president of Berry Brothers, and a grandson of Thomas Berry, one of the founders.

So far as is known, he is the first Detroit sales manager to purchase an airplane for business transportation purposes. The craft will be used by him in covering his sales territory.

"We believe in the future of aviation," he said. "The demand for high-grade aircraft finishes is increasing rapidly. My department is now selling 95% of the commercial aircraft manufacturers in America.

"Flying is far more than a sport. It is fast becoming an economic necessity. An airplane enables one salesman to do the work of four or five.

"The United States is my territory. With an airplane I can easily cover it alone. Otherwise several men would be needed.

"I am entering the National Air Derby merely for the sport of it. Charles W. Meyers, chief test pilot of the Advance Aircraft Company, will fly the plane and I shall go along as a passenger. After we reach Spokane we will cover the Pacific Coast, calling on customers."

NATIONAL AIR RACES

(*Continued from page 280*)

San Francisco, Calif.; Mohme Aero Engineering Corporation, New Brunswick, N. J.; L. B. Colby, Detroit, Mich.; R. E. Dake, Pittsburgh, Pa.; R. H. Hoffman, Moline, Ill.; E. K. Campbell, Moline, Ill.; Harold A. Danne, New York, N. Y.; C. B. McMahan, Miles City, Mont.; B. L. Whelan, Dayton, Ohio; Emil H. Burgin, Mineola, N. Y.; Pitcairn Aviation, Philadelphia, Pa.; A. E. Fannin, Clayton, N. Y.; Thomas Colby, Detroit, Mich.; Edward G. Knapp, Ypsilanti, Mich.; L. Royal, Detroit, Mich.; John Paul Riddle, Cincinnati, Ohio.

Negotiations for an "On to Portland, Oakland and San Francisco" race at the conclusion of the National Air Races on September 24th, have been started by Major John T. Fancher, managing director of the National Air Derby Association of Spokane, as these cities are anxious to have the races as part of their programs for the dedication of their ports. Walter Evans is president of the National Air Derby Association and Ellsworth C. French, publicity director.

TELLING THE WORLD

No Congressional honors, medals or banquets. Still they are playing an important part in advancing aeronautics. They are educating the reading public to the values of aviation. We want you to know them—a few of the aviation representatives of our daily press!

Russell Owen
New York Times

RUSSELL OWEN went on the old *Sun*, in 1906, when he was 17. He covered every district, police court and department in the city in the next thirteen years, the usual busy routine of a cub reporter learning the ropes. In 1919 he was bitten with the desire to live in the country and took charge of a country daily for three disillusioning months. Then back to New York, and after a year at publicity, went to work on *The New York Times*. After three years the city again palled, and he went to Schenectady to edit a magazine for the General Electric Company. A year and a half spent at that, and the desire to be a reporter was again too much, so he returned to the *Times*. Since then he has covered the Shepherd murder trial in Chicago the famous evolution trial at Dayton, Tenn., the Byrd and Amundsen polar expeditions at Spitzbergen, ten degrees from the North Pole, and most of the aviation events in the east. He writes a regular Sunday column on aviation in the *Times*.

Some record and some writer!

Francis D. Walton
New York Herald Tribune

FRANCIS D. WALTON was born at Manila, P. I., July 12, 1902. Educated public schools of California and Boston, Mass., and finished off with the utmost rapidity in two years at Harvard. First newspaper work on old *Tribune*, 1919; later with the Associated Press, New York office, where he bore as well as possible the ignominy of being the youngest wire editor which that service ever tolerated. Later with Eastman at Rochester, where, it might be said, he was mildly interested in the problems of aerial photography. Returned to *Herald Tribune* 1924. First important air assignment National Air Races, 1925, and has covered 'em all ever since for the *Tribune*. In fact it took Walton's efforts to convince the "Trib" that air news was news.

James V. Piersol
Detroit News

JAMES PIERSOL, following war service, operated his own commercial planes at Minneapolis in 1919. He also lectured and wrote on aviation, contributing features to magazines and news syndicates. As a pilot, he has flown fourteen different types of land and water craft for a total of more than 1,000 hours. He was instrumental in the establishment of the air port at Kalamazoo, Mich., the first municipal port in the State, in 1925. He was on the *Kalamazoo Gazette* a year before coming to the *News* last January as aviation editor. In the Sunday editions of the *News* his columns are headed "Propeller Tips." Talks like a pilot and writes—like a "vet."

Carl B. Allen
New York World

C. B. ALLEN quit West Virginia University to enlist in Aviation Section, Signal Corps, December, 1917, advanced flying courses at Taliaferro Field, Hicks, Tex., and Langley Field, Va., ending war at the Siege

Russell Owen, N. Y. Times; Francis Walton, N. Y. Herald Tribune; Jas. Piersol, Detroit News; C. B. Allen, N. Y. World Chas. McLean, N. Y. American; Bruce Gould, N. Y. Evening Post; Hugh White, Detroit Free Press; Frank Bogart, Detroit Times.

of New York on overseas orders. He is now First Lieutenant in the Air Reserve on flying status and what-not. Took up newspaper work after war on *Cincinnati Commercial Tribune*, resigning as assistant city editor three or four years ago to join the *World* although the latter newspaper was in blissful ignorance of the scheme. Began to be tolerated reluctantly by the higher-ups when Al Williams and Hal Brow battled for the speed championship of the world one memorable Sunday afternoon when the subject of this sketch was covering for the regular reporter and nothing was expected to happen. This story later picked for Joseph Anthony's collection of Best News Stories of 1923. Covered arrival of World Flyers in Pictou, Nova Scotia, being the only correspondent to meet planes in a flying boat far up the Gulf of St. Lawrence; this story included in the Anthony collection for 1924. Covered first Ford Tour in the plane Byrd later flew to the North Pole; handled 1925 and 1926 National Air Races and Schneider Cup Races, and Lindbergh's take-off, and is still optimistic over the "infant industry." He knows his stuff.

Charles McLean
New York American

CHARLES McLEAN, aviation writer for the New York *American*—though Mac insists it is reporter—has been interested in aeronautics since the days of the old "pushers" types. His first experience, however, was during the war. He is a graduate of S. M. A., Austin, Texas, Squadron 57, and finished his training at Kelly Field in 1918.

He has been with the Richmond, Virginia, *Times Dispatch*, and Hearst's *Atlanta Georgian*. The *American*, however, was the first paper on which he has been assigned exclusively to aviation.

"Mac" believes that aviation in future will surpass the greatest dreams of designers, and for that reason expects to continue writing aeronautical news for the Hearst papers. The romance, he says, will always be "in the air," although the business now is purely commercial.

Bruce Gould
New York Evening Post

BRUCE GOULD became an Ensign in the U. S. Naval Reserve Force in the late war, acquiring his pilot's license during that period. After that he returned to college long enough to obtain a sheepskin and then fell in with a wandering band of newspapermen. In New York he has worked on the *Sun* and the *Post* for the last five years. While covering all the important aviation events for the *Post*, he has never permitted anyone to call him either the aviation editor, nor the aviation expert, nor does he answer to either title. By dint of much striving he has gotten the *Post* to only infrequently blame an airplane accident on an "air pocket." He can write a dramatic criticism, book review, color story, murder mystery, Wall Street story and half a dozen other kind of stories almost as well as an aviation yarn, and does a bit of flying himself. His chief support most of the time is a cane.

Hugh White
Detroit Free Press

HUGH C. WHITE, of the *Detroit Free Press*, handles aviation news for Detroit's morning newspaper. White, who is 25 years old, hails from Pennsylvania and had his first flying experience over the Allegheny mountains several years ago. His interest in aviation, continued through newspaper work, finally gained him an assignment to the "aerial beat" on the *Free Press*. In addition to writing the daily happenings he also conducts a Sunday column under the heading of "Sky Traffic." He is Detroit's "cub" aeronautic writer but with barrels of experience.

Frank Bogart
Detroit Times

FRANK BOGART has been writing aviation news on the *Detroit Times* since January, 1925, when, in the ordinary newspaper office routine he received his first "air assignment" quite by chance. It was to accompany the First Pursuit Group, U. S. A. C., from Selfridge Field, Mich., to Oscoda, Mich., for their annual winter encampment and maneuvers. In 1925 and 1926 he flew both the pathfinder and main tours in the Ford reliability competitions, and covered the 4,300-mile route of this year's tour, bringing his total air miles traveled to more than 20,000 miles. He conducts a Sunday department of aviation under the heading "Aerograms" and says his hardest work now is getting his monthly AERO DIGEST news in New York on time.

Picked from the Air

AERO DIGEST will award a prize of $5 each month for the best humorous contribution published. Only those pertaining to the aircraft field will be considered. Address the "Picked From The Air" Department, Aero Digest, 220 West 42nd Street, New York, N. Y.

Kenneth D. Stern, St. Louis, Missouri, won the prize for August.

A flying drunk is hailed into air traffic court.

Judge: "What are the charges against this man?"

Officer: "Reckless flying, piloting a plane while intoxicated, loitering about the sky, and creating a public nuisance iby bad landing, sor."

Judge: "And what have you to say about all this, my man?"

Culprit (swaying uneasily in the breeze): "'Salladamnlie, yurhonner. Jush skywritin'."

"We," an Interpretative Composition

(*"James Philip Dunn, composer, has written an orchestral composition interpreting the Lindbergh flight."—News item.*)

The opening movement, largely by wind instruments, indicates the gathering of noted aviators on Long Island for the Paris flight. There is a violent outburst by the kettledrums, denoting quarrels, arguments, threats, injunctions, resignations and delays. The piccolo players render "Clap Hands, Here Comes Charlie," portraying the arrival of Slim Lindbergh at the Long Island field unheralded and alone.

* * *

A lone violinist saws away on one string, indicating in a highly effective manner the slicing of three ham sandwiches, which disposes of the rumor Levine is to fly with him. The entire orchestra breaks into a crescendo movement, signifying that Lindy has hopped off. There follows a confused medley, interpretative of the difference of opinion as to whether Slim will make it or not.

* * *

The droning of a miniature motor operated by the snare drummer portrays the flight across the seas, and there is a violent movement among the harps as indicating the incident where Lindy, flying over the unmistakably beautiful hills of Erin, asked the two fishermen: "Is this Ireland?"

* * *

A medley of national airs indicates the arrival of Lindy in Paris, and the sharp snapping of several violin strings registers the fact he has already been kissed by six French Generals.

* * *

There is a wholly insane and incomprehensible movement by the entire orchestra, indicating that the news of Lindy's arrival has reached the United States and that the nation has gone goofy. Here occurs a wild outbreak by the bull fiddles portraying the removal of 456 American newspaper editors in straitjackets.

* * *

The oboes play "Yes, We Have No Pajamas" as indicating that incident in Lindy's life, and there is a rather swift movement by the reed instruments, showing the frenzied search for a pair. This interlude ends with "Sleep, Little One, Sleep," and "Three Cheers for the Red, White and Blue."

* * *

Here the snare drummer fires five shots from a revolver, turns a handspring, rings a cowbell and imitates the call of the cuckoo. This portrays as nothing else could increasing irresponsibility throughout America, the arrest of 300 poets as public nuisances and the running amuck of several thousand public speakers, reception committee members, mayors, cabinet officers, editorial writers, etc. Here occur a tooting of steam whistles and a deafening jingling of old metal, indicating quite neatly the opening of 188 new medal casting factories between the Mississippi and the Atlantic seaboard alone.

* * *

At this point the use of several naval numbers indicates the return of Lindy by warship. Then, abruptly, each member of the orchestra goes berserk, playing anything that comes to his mind and playing it without any regard for tonal qualities. A saxophone player assaults a violinist, three cornet players attack the leader with chairs, the bull fiddlers jump head first through the kettledrums and the rest of the orchestra romp around the stage shouting "Block that punt!" This indicates Lindy's reception back home, the collapse of 256 women in the mob, the dumping of 5,670 tons of confetti, the revolt of the street cleaners and the release of about four dozen pretty terrible speeches.

* * *

The composition closes with a rather chaotic movement interpreting as nearly as possible Lindy's refusal of a million dollars in picture contracts and the collapse of the movie magnates from shock.

—H. I. Phillips.
Courtesy of the New York Sun.

"You're fulla hops."
"So's your old Atlantic Ocean!"
—Goblin.

It is funny none of the ocean flyers has shaved en route, considering the splendid facilities to get rid of the used blade.

—Detroit News.

Europe seems to be willing to let America take the lead in transatlantic flying. That's one way we get more tourists over.

—Florida Times-Union.

If it keeps on, the parking of American airplanes will become another of Europe's troubles. *—Columbus Dispatch.*

There's one nice thing about airplane travel. The roar of the motor drowns any comment from the back seat.

—Publishers Syndicate.

A NOD AND A WINK

(*Continued from page 270*)

Paris air service than any aircraft we have to-day is fitted to undertake the New York-Paris service. Bleriot's plane had to evolve into the present types before a real airline between London and Paris was practicable; and the present types will have to evolve into something much superior to anything we have to-day before a New York-Paris line will be a reality.

The trans-ocean airline is yet in the engineering laboratory—unless Mr. Rumpler has dug it out. I'm very hopeful about Herr Rumpler. I think he's on the right track with that flying-wing idea. And I shall continue to think so, even if his first giant plane is a failure. He is to be congratulated for digging in to something different. Which is precisely what the designer of the future must do; he must find out something that hasn't been found out yet before aircraft will cross oceans in all sorts of weather as steamships do now.

But, I hear you growl, why is this bozo handing out his nit-witted opinions on trans-ocean airlines? He hasn't flown across an ocean. I know I haven't; and I don't intend to—on one engine. I haven't laid an egg, either. But I don't have to be able to lay an egg in order to analyze it. As I see it, these various great flights are no more than eggs containing the fertile germ of an idea. They've got to be hatched out in the engineering and financial laboratories of the world—don't overlook the financial end of it—and from these eggs will come chicks which will develop, eventually, into long-distance flying birds—birds that will tuck their feet up under them and just go sailing over anything and through all sorts of weather, and only alight when and where they want to. They won't crash taking off, or get lost and land in the sea, or have to wait weeks for favorable weather, or be front page news when they get anywhere; in short, they'll be a vastly different sort of bird to those we have with us to-day.

FOR the benefit of anyone who purposes starting a transatlantic airline with stop-over privileges in Newfoundland, I rise to remark in a hoarse, fog-roughened whisper that Newfoundland offers no privileges to an airplane, and mighty few to a seaplane. The prospective airline operator is solemnly advised to park himself aboard a seaplane and spend a year flying around Newfoundland—when the weather will let him fly, which will be possibly one third of the time. I think he'll save himself a lot of money on his airline. All he'll be out will be his time—and possibly one seaplane.

Newfoundland may be used as an intermediate stop for a line between New York and Paris and London. But the country must be studied; and no airline must depend upon one or two bases. Newfoundland is invariably suffering from a dose of fog. But when the South and East coasts are foggy, the West is clear. When the South is hidden in fog, the North is clear. There must be three or four bases where airplanes or boats may stop to refuel—and all must be equipped with directional wireless and lights. Even when all of that is done, the airline is up against the North Atlantic winter weather—to say nothing of the summer weather—when there are days and even weeks at a time when attempting to fly the Atlantic in any such aircraft as we know to-day would be a hopelessly hazardous and fool-hardy proceeding.

CONGRATULATIONS to the German transatlantic pilots for their display of sound judgment in turning back in the face of impossible weather conditions.

They can always take off and try it again from Dessau. And it's practically impossible to take off from mid-Atlantic in a land plane. The German people were worried for fear other nations would be laughing at their failure; but nobody laughed. The failure of man to overcome insurmountable obstacles placed in his path by Nature is never funny. Frenchmen or Englishmen or Americans, facing the conditions that confronted the Germans, also would have turned back—or landed in the Atlantic. Friends, to your better fortune—*Prosit!*

A SUIT of fluted Maximilian armor dating A.D.1515 was sold in New York for $4,750. The purchaser is unknown, but it is surmised that he was a General Staff officer providing himself with what he deemed to be the latest air-raid protective clothing.

DR. ROCHS, formerly one of the chiefs of the German war-time army's medical corps, states that hardening of the arteries and other maladies of high officers caused Germany to lose the battle of the Marne. Von Moltke, Chief of Operations on the General Staff, was suffering from such an acute form of hardening of the arteries that he couldn't get nearer the front than 200 miles; he died six months later from the malady. Von Buelow suffered from the same trouble, and failed to show the good judgment he had displayed in his younger years. General von Lauenstein, another important officer in the Marne battle, suffered from heart cramps, while Lieut. Col. Hentsch was afflicted with gall-stones. These four men all died from maladies from which they were suffering when trying to direct the armies on the Marne. Had they been healthy, or had they been replaced by younger men, the history of that battle might have been different.

Hardening of the arteries and other maladies of old age is probably what has paralyzed the thinking powers of our own General Staff. Something has paralyzed them, and there isn't a doubt of that. And it's more charitable to blame it on physical decay, due to advancing age, than it is to blame it on natural pig-headedness, which it very possibly may be. But there's a limit to our charity. We can't keep on indefinitely blaming hardening of the arteries for their stubborn reluctance to accept the airplane as the world's most powerful weapon for use in warfare, either defensive or offensive. That would be playing it too low-down on a disease that may, after all, prove of benefit to America by removing these fossils. But we will blame hardening of the arteries if it doesn't get a move on itself and petrify those arteries completely, and thus clear the field for a younger crew of General Staff officers whose arteries may be more pliable—especially those arteries which carry nourishment to the brain.

THE Fascisti have renamed Mont Blanc for Mussolini. That mountain will have to get a hustle on itself now, and erupt, or something, in order to live up to its name. Vesuvius had been quiet for some time, until Mussolini visited it; it became active at once. And the Italian Air Force was a force only in name until the "Duce" took it in hand. He's a wonderful man—he might even be able to shake some life into the N. A. A. Still, I suppose there's a limit even to what Mussolini can do.

I SEE where Colonel Lindbergh's flight has been set to music in a symphony called "We." The composition, says the composer, is "an utterance in music of the courage, preseverance and will power of Colonel Lindbergh."

This gives me an idea. I am starting work at once on a musical composition called "Bumpitty-Bump-Bump-Bang!" It is an utterance in music of the marvelous stupidity, lack of adaptability, and general bone-headedness of the average pupil of a flying school. It is dedicated, in all sympathy, to the flying instructors of America. It's just full of crash notes.

THAT Doleful Air Derby across the Pacific has ended in success for two of the entries, and in disappointment, disaster, or death for the other eleven entries. True, it advertised aviation—and a can of pineapples. But was it worth it? I do not think so. And with the quotation that "any advertising is good advertising—even bad advertising," I do not agree.

Fortunately for aviation, the human mind remembers success and forgets failure, a most merciful dispensation. That Goebel and Jensen reached Honolulu will be remembered; that others crashed and were killed, or died in the ocean, will be forgotten. And aviation will forge ahead in the future as it has forged ahead in the past, profiting, let us hope, from the lessons taught by this Dolorous Derby.

The lessons are plain to see. No experimental airplane should be allowed to enter any event until its plans and specifications have been approved by the Department of Commerce, and until the plane has been properly and thoroughly tested—and not before a crowd numbering thousands of people who are waiting to see that plane take off on a long-distance flight. It should be tested on the builder's home field, without advance publicity, for a new type of plane is an experiment and much may be the matter with it—just as much may be the matter with a new type of automobile. You do not see a motor car company testing a new car before thousands—until they have first tested it very thoroughly themselves, privately. If this sensible course is followed by airplane builders a crowd of thousands of people, including newspaper men who are there to flash to the world everything that happens, will not be given the spectacle of planes uncontrollable in the air, so that they have to be crashed into the sea; of planes from which the wings fall off; of planes whose fuel systems fail to function and whose motors develop installation faults; of planes which fail to carry their contest load successfully, and crash on the take-off.

Major Clarence M. Young, of the Department of Commerce, is to be congratulated on his capable handling of an almost hopeless situation—the frantic rushing to the starting-line for a 2,400-mile flight of planes, some of which never should have left the builders' hands until after they had flown hours past the experimental stage.

And finally, we come to the wisdom or folly—take your choice of words—of allowing single-engined land planes to fly across hundreds of miles of sea. Lindbergh, Chamberlin, Goebel, Jensen, and others have done it. And other brave men also will do it—with much favorable publicity resulting to aviation—if they get there. But is it sensible? Is it of any advantage to the further growth of aviation? Does it in any way promote the reality of trans-ocean airlines?

I do not think so. The only practical good resulting from these long flights in planes not suited to ocean flying has been the advertising of aviation to the public—and if our future advertising is to consist of such pathetic displays as were afforded the public by this over-rushed flight, then it is not impossible that the good done by the successful

flights will be wiped out. It seems to me that while we have spent years telling the public that aviation was something that could be made part of the national transport system, and that it was not in any sense a dare-devil stunt, that we are now eagerly engaged in demonstrating that aviation *is* a stunt—and a very daring and fool-hardy stunt, at that.

As a fitting climax to this pathetic parade to advertise pineapples, it might not be inappropriate for Mr. William Wrigley, Junior, to offer a prize to the survivors, to swim back and advertise Mr. Wrigley's chewing gum.

WHEN the Department of Commerce called a conference to discuss landing-fields for New York City, William P. MacCracken, Jr., a capable and very busy executive, took time to come to New York and call a meeting at the Hotel Belmont. And he wasted his time. For what he found confronting him were the Amalgamated Real Estate Dealers of all counties in New York and New Jersey. And every dealer had his own airport to sell. There were men there with all kinds of property to dispose of—from bits of marshland that nothing drier than a fish had ever been over, and that nothing but a mosquito could ever fly from, to back yards so small that a canary bird would have felt cramped for room in which to take off.

The meeting started with a committee of twenty-five and an audience of hundreds; but by the time the horde of real estaters had said their little piece there were only five of the committee left, and only seven of the audience. And five of that audience were newspaper men who had to stay, one old tramp who fell asleep in a corner, and myself—I was trying to sell a lot I own in Windsor, Ontario. And it's nearer New York than some of the proposed fields the other salesmen were offering, and bigger than some of them. The only people with real estate which they should dispose of, and who didn't come around to offer it, were the Federal Government. They didn't come there and offer Governor's Island—the only logical place for an airport in New York. They are keeping it as a polo ground and tea parade for army officers—who will have to swim away from it, anyhow, if an enemy nation ever flies over and bombs it.

Bill MacCracken listened patiently for a while to old women with chicken yards to sell, and then he went back to Washington. And I guess he's had enough of us, and is going to stay there. If New York wants an airport, the people of New York—not the salesmen—must get together and get it. And the way to get it is to pry loose Governor's Island from the clutches of the army—and shove the army out in the woods some place where it will be safe in the next war. That Island is of inestimable value to New York as an airport—and it's no more use to the Federal Government than is another leg on a centipede.

The only bright spot in that deadly meeting of buy low and sell high addicts was the presence among the Great and Near Great fiasco of a gentleman who vaguely resembles Willie Stevens of the Hall, Mister Grover Whalen, the official welcomer of the City of New York, who has welcomed everybody who ever landed here, from Hendrick Hudson and Queen Marie to Abie's Irish Rose. But now a vexing problem presents itself. Grover is going over to Europe, and will return shortly. But when he returns, how the devil is he also going to be here to welcome himself back?

AIR—HOT AND OTHERWISE

(*Continued from page 266*)

started as a good and worthy impulse.

And why not weed out of the Air Corps Reserve such officers as are really unfit to qualify for training? That would not cost enough to endanger any pet plan of the Member from Squeedunk who is saving Uncle Samuel's pennies so that there may be plenty of them for Pork Barrel Appropriations which will include cash for deepening Cow Creek till it will be navigable by canoes. A very small sum would enable these men to do at least something for that country which most of them love with far more than the intensity with which Pennsylvania Avenue patriotism usually burns.

There are many members from Podunk, Squeedunk and Yaphank who could put themselves upon the map and become real figures in our national life if they but looked around and found that in the field of air development a man might specialize most easily, usefully and notably as a real Congressional entity. None offers finer opportunities than the well-being and progression of our national aviation.

The problem I have mentioned gets bigger every year. An avalanche of justified complaints pours in continually from officers of the Reserve who rightly feel themselves aggrieved. Why not straighten this thing out? It would cost little, either of cash or mental vigor—and we know we have a surplus of the former. Let some member of our national legislature startle us and all the world by indicating that we have a mental as well as a financial reserve!

WHILE on the Reserve subject a word about the Naval Reserve may not be amiss. There is real desire among the young men of America to join the Naval Reserve Squadron, also, but the Navy itself, characteristically holding itself sufficient as things are, does what it can to make the procedure difficult. Join, if you like, but get a plane if you can! That seems to be the Naval attitude. Civilians must not break in where those wearing uniforms habitually tread. It is almost impossible for a member of the Naval Reserve Flying Squadron to get a ship to fly in after he has joined the force because he loves his country and this wonderful new art and learned to fly. A shipless aviator is as useful as a fireless furnace.

The Navy has no use whatever for untrained civilian would-be fliers. Only after they have gained splendor through great achievements as civilians does the Navy feel that they are good enough to wear its brazen buttons even as reservists. Then, doubtless, it assumes that the brass may strike in and make them purely Naval.

Now and then it slips as it attempts to climb this rope. Secretary Wilbur, for example, one of the world's greatest grabbers, lost his grip on it and crashed plump on the hard deck of fact when he endeavored to annex the Lindbergh glory and pin it on the Navy's chest, which has as much right to it as is possessed by the Ancient and Honorable Order of Chinese Pigtail Plumbers.

The effort to make the public think "Lindy" part and parcel of the Navy by sending after him a Naval ship for the official greeting after his flight from Europe was full of genius of the press agent type.

Secretary Wilbur is a man of excellent judgment as well as of great personal beauty (wait till after he leaves office and his portraits join those of the histrionic stars, the movie idols and great pugilists in Lucky Strike ads) possessing, besides these indispensable requisites for the post of naval chief that further quality of grab-and-gettish-

ness so useful in a fighting man in wartime and so natural to the politician in the days of peace. We have small doubt that when his troublous cabinet term is over he will achieve a mighty reputation in the pictures. Chaplin, I have learned from California, needs a sidekick for his forthcoming film, "Splicing the Main Brace," a fierce maritime companionpiece to "Shoulder Arms," that placid epic of our dry land fighting men. So, later on, we may discover in some handsome image flashed brightly on the screen as we spend an idle evening in the Flimflam Picture Palace the incomparable features of our Secretary of the Navy.

The film, as the advance notices have indicated, will teach that sweet, sad story of the Navy's great achievement in construction of the Roosevelt Dam. It is also to show clearly why the Navy should be given credit for the Federal Reserve Act and that masterly eclipse of the sun which recently was visible in northern England.

GENTLEMEN who have been sent to Washington by their fellow-citizens in various sections of this nation, permit AERO DIGEST to direct your distinguished notice to the fact that the Atlantic has been crossed by our own fliers (not one but several) in far less than two days and that the Pacific has been shrunk to the Great Lakes size by the California to Hawaii flight of 2400 miles in 26 hours.

Other nations will fly West over the Atlantic as we have flown Eastward over it. Other nations will fly East along the Pacific lane which we have mapped to Westward.

And honorable members of the Senate and House, Cabinet Ministers and chiefs of our Government Defense Departments, what may interest you more (for we have no illusions about those who sit serene in our seats of the mighty) permit us to suggest that all these various activities form proof that interest in aviation really stirs the nation which honors and supports you. If such matters wholly fail to stir you, therefore, you may find yourself without a job when another election comes 'round.

NOW that the voters are beginning to see the importance of aircraft in our national defense, the propaganda mills of our rocking-chair sailors are working overtime grinding out their customary bunk. Not a word about Admiral Moffett or the Bureau of Aeronautics and the good work they are doing. No, no, not a word—just the Navy and Secretary Wilbur. They would have you believe that the Navy under Secretary Wilbur's guidance had taught Orville and Wilbur Wright the rudiments of flying. Yep—and this is the same Secretary Wilbur who early this year told an audience in Chicago that we had nothing to fear from invasion by enemy aircraft or some such rot to that effect.

These, like any other comic opera lyrics, will sound well if the music's good. Mr. Wilbur should employ a very competent composer to set such various great thoughts to tunes. Merely spoken and not sung many of them seem unworthy of so great a dignitary as the Secretary of our Navy, but this with characteristic wisdom, Mr. Wilbur (we have not been creditably told), intends to carefully provide for when Congress authorizes the appointment of one more assistant secretary. The man whom he has chosen for the job will meet (it is not said) with the approval of all jazz constituencies and black bottom experts. Mr. Irving Berlin, the gentleman in question, will be very handsome in a naval uniform.

When Mr. Wilbur gets the musical department of the Navy really going under forced draught with anchors up and the shapeliest comic opera chorus crew to be recruited

on Broadway on deck, we doubtless shall get on our radios from far out at sea (to leeward) some lovely numbers explaining to the people that the Navy is all for a national air development and that it is, 100 per cent, in favor of the scrapping of all useless surface craft and the immediate construction of vast air escadrilles. Escadrille suggests quadrille. Quadrille suggests the ballet. There is a mysterious sympathetic tie between the Navy as it stands now in its air effort and any other comic shows.

THE Secretary, urged on by the appreciative cheers of old line Naval officers heard plainly, although their voices are a little muffled by the clenching of their teeth and the presence between these fearsomely set molars of large knives which it is a fond secret hope some glad day may be used for carving up all energetic friends of aviation, has shown publicly his tremendous love for fliers and the art they follow. It is clearly just that sort of love that when mixed up with matrimony sends men to the dock for wife-beating.

Secretary Wilbur, "delighted and enthusiastic" because Smith and Bronte, civilian fliers, landed safely in Hawaii, still finds it necessary to very roundly scold them because, in a moment of quite comprehensible worry, they radioed a message indicating that they feared it would be necessary to make a forced landing in the sea. Mr. Wilbur is outraged, apparently, because they managed to avoid so dangerous an adventure.

If civilian fliers find themselves so situated that they seem likely to smash up and drown in an endeavor to accomplish air feats at which Navy men have failed, it is an insult to the Secretary of the Navy, the flag of the United States, the great horn spoon of the Mare Island Navy Yard, the accepted tenets of all naval law and the he-goat mascot of the great ship *Idaho*, for said fliers not to need the aid they feared might be essential.

Civilian fliers who once give serious consideration to the thought of drowning, therefore, in future forthwith must proceed to drown. The Secretary of the Navy will be very cross with all civilians, hereafter, who dare to send out calls for aid which, subsequently, by the discovery of said civilians alive, are proved to have been unnecessary.

AERO DIGEST is endeavoring to get the original manuscript of the New Naval Regulation for Civilian Fliers as Prepared by Hizexcellency Curtis D. Wilbur, Secretary of the Navy and Aviation Expert. In literary style, beauty of penmanship, nautical effect and brevity, it is already called unparalleled by all speciaists whom Wilbur could court-martial if they thought otherwise.

It says (AERO DIGEST exclusive as the Associated Press would say):

"Civilian fliers in trouble over the sea must not send out S.O.S. emergency signals until after they have drowned. To find a live civilian who can do stunts at which it fails quite naturally annoys the Navy. Drown first. Then signal. Obedience to this rule by all civilian pilots is imperative. Penalty for violation: ten strokes of the cat-o'nine tails or a careful reading (subject to examination afterwards) of the Hon. Curtis D. Wilbur's latest speech on aviation, which shows the world how utterly impossible it would have been to fit wings to "Old Ironsides," and, therefore, how silly all this air stuff for civilians is, anyway. A subtitle is 'If Everybody Flies What Can the Poor Steel Trust Do.'"

A FEW ideas that later have made fame and fortune have been at first rejected by short-sighted capitalists, and that the genius of the Wrights and Zeppelin is

supposed to have been thus handicapped is a favorable pride-salve among aeronautical inventors who can't get their notions over.

How many wild announcements have been made by innocent-minded journalists whose technical ignorance has been greater even than their personal innocence when strange, impossible devices have been rumored! Flying is being daily revolutionized in print, although the art progresses with an orderly deliberation at draughting board, factory and flying field. Such ridiculous articles detailing technical bunk do general harm, and this is sometimes manifested through the fact that they supply material for fly-by-night promotion schemes.

The general public rapidly is developing a special type of easy mark, particularly interested in a wild, bizarre, fantastic amateur conception of the possibilities of mechanical flight. The layman known to be considering investment never is informed by the glib-tongue promoter or fancy advertiser that for every worthy air invention that is overlooked are 999 "ideas" which are not workable and might be better overlooked. The really good things usually are snapped up quickly by some argus-eyed commercial manufacturer who searches for good new things.

But the situation is quite different when new ideas are advanced as worthy as established experts. Upon the efforts of such men and the support the public gives them depends the future of the art and business. An impressive example of this sort is the Remington-Burnelli airplane designed by Vincent J. Burnelli and first demonstrated as long ago as 1921, being then the world's largest commercial airplane.

At the very start the new breed of cargo-carrying bird obviously embodied valuable innovations, although there were so many of them and they were so novel that they shocked conservative minds. Elaborate charges were made against the plane by the skeptical who said it would not fly.

These statements were in straight line with orthodox conclusions and would not be impressive were it not for the mere fact that the machine was flown successfully with unprecedented loads of passengers, that its occasional forced landings were made without mishap, and that 800 total h.p. was found quite sufficient motive force though two 600 h.p. engines had been the original plan.

A year later followed stories of a Staten Island crash of what old-liners had begun to call "The Crate" and naturally, when a few months had passed, the experiment was quite forgotten.

But not forever. An improved RB2 presently appeared at Mitchel Field and took off carrying a motorcar as inside cargo and a nice passenger list. The new idea took its place among the old as being worthy of quite practical consideration. RB2 was actual, not a crazy dream.

The unusual ship remains in perfect shape, easy to fly and despite the early critics astonishingly easy to land, of great carrying capacity (25 passengers on many test occasions) of good speed.

If our newspapers and word-of-mouth dreamers could but get the accurate information and the impulse which would lead and help them to discuss the real among the innovations and avoid the fanciful and foolish it would be wonderful—but a condition not of this world. Burnelli built his plane under difficulties and to the amusement of the unthinking crowd. While he was handicapped by lack of funds which made it difficult for him to get a pair of engines and was being smiled at by the "experts," he was building just the sort of plane that is being built to-day and so necessary to air transportation.

AMERICAN AIR-COOLED AIRCRAFT ENGINES

(Continued from page 272)

Our modern aircooled engines meet all of the requirements listed above. They may be criticized from the standpoint of cost and yet they are very cheap in the quantities at present demanded. We have three sizes of aircooled engines in this country. The first of these is the famous Wright "Whirlwind" of 200 horsepower. The second is the rapidly becoming famous Pratt & Whitney "Wasp" of 400 horsepower. In the 500 horsepower field, there are two new engines, the Pratt & Whitney "Hornet" and the Wright "Cyclone."

The aircooled engines are lighter in weight than the watercooled engines because the cumbersome cooling system, including the radiator, piping, shutters, etc., is completely eliminated. This takes away from the powerplant weight about .6 pounds per horsepower. The aircooled engines are more dependable than the watercooled engines, other things being equal, because of the elimination of the cooling system. The records show that at least one-third, and perhaps one-half of the engine failures in the air, result from a failure of the cooling system. The new aircooled engines are durable because they are well built. They are economical because they are well designed and because they do not have to carry around the cumbersome cooling system. They are much easier to take care of because they are built in the single-row radial form which gives ready access to all the working parts. You can change cylinders, pistons, and connecting rods without disturbing the other cylinders, a thing which cannot be done with the watercooled engines. The engines are cheaper because they have fewer parts, are much simpler in design, require less material, and lend themselves better to quantity production. Aircooled engines have, then, a marked superiority in all of the six requirements.

Aircooled engines did not come to the United States of their own volition. They had to fight their way. A comparatively small group of engineers analyzed the possibilities of the type some seven years ago. Ever since, they have fought against inertia, indifference, and even active opposition. The triumphs of the intrepid transoceanic flyers have also been triumphs for the engineers, many of whom are pilots themselves.

During the World War, and for many years thereafter, watercooled engines were developed, proved, and refined to a high degree. The Navy Department, believing in the possibilities of the aircooled fixed radial type, purchased experimental engines, and as soon as these had proved satisfactory, ordered a limited production quantity. These experiments were first made in the 200 horsepower size.

The engines went out to the vessels of the fleet. Hundreds of officers and mechanics worked with them suggesting and making improvements. The changes were incorporated as rapidly as could be in new production engines until finally the "Whirlwind" became the standard 200 horsepower engine of the Fleet.

As soon as the engine had proved itself, inquiries came in from commercial activities. One of the first of these was for some airplanes designed to dust cotton crops. Soon the engine attracted attention abroad with the result that orders came in from Canada and South America. The success of these engines established the "Whirlwind" in the hearts of the commercial operators. The United States Army has now adopted it and is purchasing quantities.

The aircraft which must operate from vessels of the fleet must meet certain restrictions which commercial and

military airplanes do not need to encounter. Seaplanes to land and take off in rough water must have low landing speeds. Landplanes to land on the decks of carriers must also have low landing speeds. At the same time, Naval airplanes must be reinforced and stiffened to take the shocks of catapulting, deck arresting and hard landings at sea. In spite of these, restrictions which also include that very difficult complication of having to be as small as possible, forced us to go the limit in powerplant weight reduction. A survey of the field showed the possibilities along this line of the aircooled engine. It would have been simpler, perhaps, to have continued along in the development of the highly developed watercooled engine, but the results would never have been attained. We therefore attacked the new problem with vigor and the final result is that to-day we not only have wonderful engines in 200, 400, and 500 horsepower classes, but we have some wonderful airplanes around them.

It has been the history of aeronautics that even the most skillful designers have not been able to do a highly satisfactory design job around the very best of the watercooled engines. The new aircooled engines have so simplified the problem that numerous compromises have been eliminated and now even the comparatively inexperienced designers of airplanes can build real machines. When, however, a very skillful designer works around the new aircooled engine, the final and inevitable result is the type of aircraft the Navy now has in use,—ordinary service airplanes which go out in the course of a day's work and bring back world's records.

As a result of this development, our design problems have fallen apart. The Navy uses five classes of airplanes ranging from the small Fighter through the Observation airplane, Training plane, and Scout-Torpedo-Bombing plane up to the great twin-engined flying boats. To-day we are in production in quantity or are ready to go into production in quantity in all of these classes. If war were to be declared to-morrow, we could set the wheels of industry humming in the manufacture of airplanes which we are certain excel those of any possible competitor. We are certain of this because our service types hold world's records.

To summarize briefly, the American aircooled engines have placed America in the forefront of aeronautics. American aircraft have crossed oceans and dropped in for friendly visits to the airports of Europe. These results are not just flashes in the pan, but are indications of a steady progress and sound foundation.

AVIATION PROGRESS

(*Continued from page 274*)

landing could not have been made safely until the tanks were emptied by means of a small hand pump which meant at least three hours' work. If this could not be done, the bottom of the boat would break up under the impact of the weight or, being too submerged, would quickly fill up with water. It would have been possible to use a dump valve to empty the tank but an early take-off prevented the installation of this precaution which they had planned to install. The design was such that as soon as the tanks were emptied the valves could be closed again and the buoyancy of the tanks would sustain the plane in the water.

The first American project to cross the Pacific ocean, although unsuccessful, was made under much better conditions. A three-motored flying boat (the PN-9) with a crew of five men, was used for this flight and, after a forced landing on the ocean, was navigated for eleven days,

of which eight were under bad weather conditions.

As regards other planes landing in the sea, their many deficiencies are innumerable. They could stay afloat on the water for only a few hours even with the tanks empty and used as a means of flotation. This was the case with the *America*, the safety of the crew being due to the fact that the forced landing was made close to the shore in shallow water. This permitted them also to salvage the plane although it was badly damaged.

Safety

The question of safety is naturally dependent upon radio communication with a shore station or ships on the sea. The radio apparatus used to-day is still very delicate and not always infallible in operation. The practical radius is rather limited. The radio telephone range is 300 to 500 kilometers; radio telegraphy 500 to 1000 kilometers. This means that in good weather the plane could be in communication with shore stations only during one-third or one-quarter of the flight. But what would be the result in conditions of gale and dense fog? This is a problem which must be studied and shown by experience.

We do not intend to consider at this time the commercial possibilities of similar flights where it is possible to carry some pay load, because at present pay loads cannot be carried on account of the enormous fuel loadings. The present flights are made counting more on the courage and personal ability of the crew. The technical interest is rather limited because, so far, no new designs were used and calculations would indicate that the probability of just avoiding catastrophe without any assurance of final success, is but 13 to 20 per cent. An enterprise of this nature to-day must be considered as a sporting event in which one admires the courage of the pilots and the chances taken by

the promotors.

Are the deaths of those who failed justified in view of the success or information gained by those who survived? Opinions differ. Mr. Lauflang believes the flights have no direct technical interest and the ones that are in project crossing the sea, Asia, Europe and America, only hide the real value of the present aeronautical technique. Failures may have detrimental effect on public opinion and consequently on the progress of commercial aviation.

We do not agree with such pessimistic conclusions, however. In the history of the automobile industry there were similar happenings. Ordinary types of automobiles are not used in races and yet they have had a great influence on the progress and development of commercial automobile designs. Similar results will be achieved from these extraordinary flights. If they inspire study and experiments with a view to obtaining more efficient wing profiles, to adding a sure means of communication with shore or better means of navigation in fog and gales, the results obtained would be of inestimable benefit to commercial aviation.

In concluding this partial translation of Mr. Garuffa's article, we feel that there is a point of justification for such flights as Lindbergh's, Chamberlin's and Byrd's that he has not considered. The results of these flights cannot be merely gauged by the technical progress or lessons learned from them. History shows that sacrifices are necessary in the advance of civilization. Heroism can always find a justification of its own but because the goal of progress in transportation is so vastly important, heroism in this case must be accepted as unavoidable in the struggle for progress and comfort.

FOREIGN AERONAUTICAL NEWS IN BRIEF

Compiled from the foreign aeronautical press, the Automotive Division and the Transportation Division, Bureau of Foreign and Domestic Commerce

ENGLAND

UNDER the new subsidy plan, £50 is to be paid to the approved clubs for each pilot qualifying for the "A" or "B" Aviator's Certificate. In addition to this, £10 will be paid to each club for each active member on a club's list who holds a current certificate. Also a grant of 30 s. per hour of flying time up to a maximum of 20 hours per annum will be paid to the club for the flying done by each individual pilot. The total amount of the subsidy will not exceed £2,000 to any one club in any one year.

Before August 1st, when the new plan came into force, each approved club was given a grant of £2,000 on its formation with a further grant of £5.000 a year for the first two years, plus £10 for each members taking his certificate.

The new subsidies for Light Aeroplane Clubs are to operate for three years at the end of which time the Air Ministry hopes that the clubs will have become self-supporting.

FLIGHT LIEUT. C. R. CARR and Flying Officer Dearth were forced down in the Danube, 110 miles west of Vienna, on August 2nd, on their third attempt to set a non-stop distance record in a Hawker-Horsley bomber with Rolls-Royce Condor engine. Neither flyer was seriously hurt. The failure is said to have been due to an overheated engine.

THE HON. LADY BAILEY, accompanied by Mrs. Geoffrey de Havilland, on July 5th ascended in her DH Moth at Stag Lane aerodrome to an altitude of 18,000 feet, thus beating Mrs. Elliott Lynn's recent flight of 16,000 feet in an Avro Avian. This is believed to set up a new altitude record for light airplanes.

THE photograph below was taken at Stag Lane Aerodrome during lunch time on Friday, June 3rd, and it shows a typical collection of Moths. With the exception of lining the machines up, no advance arrangement was made for the taking of the picture. In the front row are, nearest the camera, Lady Bailey's Moth, prepared for the Bournemouth Meeting; Mr. David Kittel's, finished in black and silver; Captain W. R. Bailey's, in the colors of his regiment; Captain Eric Hayes', a visitor from Shropshire; Lord Ossulston's, from Northumberland; the Hon. Geoffrey Cunliffe's, just returned from the tour of Spain and North Africa, carrying the Duchess of Bedford as passenger. Farthest from the camera in the front row is a Moth used by the American Naval and Air Attachés. The second row is composed of six de Havilland School machines. Nearest the camera in the back row is the Norwich Club Moth ready for delivery; the next one is owned by Mr. Merton, one of the latest private-owners. Beyond that is one of the fleet owned by Air Taxis, Ltd. Then three of the London Aeroplane Club machines; and farthest from the camera, G-EBOI of the Hampshire Aeroplane Club, about to return to Hamble.

CAPTAIN HUBERT BROAD flew in a Tiger Moth monoplane from Stag Lane aerodrome, Edgware, to Reading and back, 62.14 miles, in 19 minutes 59-3/5 seconds at an average speed of 186.47 m. p. h. This establishes a new speed record for light airplanes.

The Tiger Moth has a span of 22 feet; is fitted with a 32 h.p. four-cylinder Cirrus air-cooled engine and will fly 30 miles on a gallon of gasoline.

THE King's Cup race at Northingham on July 30th, was won by Lawrence Hope, piloting a DH60 Moth. He completed three circuits of 180 miles each, at an average speed of 92.9 m. p. h. Capt. W. J. McDonough in a Westland Widgeon made second place.

CANADA

THE Royal Canadian Air Force will undertake the following 1927 program of Civil Aviation for the various Government Departments:

DEPARTMENT OF THE INTERIOR

Forest Service—Aircraft fire detection patrols in southwestern Alberta, the Rocky Mountains forest reserve from near the international boundary to the Saskatchewan river. In Manitoba and Saskatchewan, aircraft fire detection patrols and suppression of fires over the forested areas to the east and north of Lake Winnipeg and westerly across northern Saskatchewan to Alberta.

Topographical Survey—Vertical aerial photography in connection with mapping the Rouyn mineral area in the Gatineau, Batiscan, and Ste. Anne de Beaupre districts in Quebec. Vertical photography in western Nova Scotia and in the Muskoka, Sudbury, and Temiskaming districts of Ontario. Oblique aerial photography for mapping the Quetico, Lake of the Woods, and Lake Nipigon districts in Ontario. In Manitoba vertical photography in the Riding Mountain district and oblique photography in the Lac la Ronde and Lac Mironde areas. Vertical photography in the vicinity of Red Deer, Alberta, and on Vancouver island, British Columbia. Oblique photographs of the Wood Buffalo park in the Northwest Territories.

Canadian National Parks—Fire detection patrols in the Waterton Lakes park and Rocky Mountains park. Pictorial views of sites of historic interest when circumstances permit.

Dominion Water Power and Reclamation Service—Vertical and oblique photographs in connection with the development of power projects in Ontario and Quebec. Vertical photography of Rainy Lake, Ontario, and the Nelson and Churchill rivers in Manitoba and Saskatchewan.

International Boundary Commission—Vertical and oblique photography over the international boundary from Lake of the Woods to Emerson, Manitoba.

OTHER DEPARTMENTS

Department of Indian Affairs—Transportation of treaty-paying parties in northern Manitoba.

Department of National Revenue—Transportation of officers of the preventive service.

Department of Marine and Fisheries—Aerial patrol of Hudson straits to determine ice conditions in connection with navigation of Hudson Bay. Patrols for the prevention of illegal fishing on the Pacific coast.

Department of Agriculture—Experimental dusting for the prevention of wheat rust in Prairie Provinces and for the control of the spruce bud worm in Cape Breton Island.

Department of Mines—(In coöperation with the Topographical Survey.) Vertical photographs in mineralized areas in Ontario and Quebec.

Department of Public Works—Vertical and oblique photography of harbors and harbor works.

Department of Railways and Canals—Vertical photography of Welland Canal.

THE site for a dirigible mooring mast, to be erected at St. Lambert, Quebec, has been chosen at the end of Victoria Bridge (Montreal District).

This was decided after competition with Ottawa and Halifax.

A line-up of De Havilland "Moths" at Stag Lane Aerodrome.

FRANCE

THE Federation Aeronautique Internationale has awarded its gold medal for the greatest air achievement of 1925 to Commander Francesco de Pinedo for his flight from Rome to Tokyo.

Sir Alan Cobham was awarded the 1926 medal for his round trip flight from London to Melbourne, Australia.

The transatlantic flights of Col. Charles A. Lindbergh and Commander Richard E. Byrd and the San Francisco-Honolulu flight of Lieuts. Maitland and Hegenberger were given special mention as air achievements of 1927. Medals for 1927, however, will not be awarded until 1928.

LIEUT. PARIS made a new altitude record for seaplanes on August 19th carrying 2,000 kgs. (4,409.24 lbs.). He ascended 4,500 meters, or slightly over 14,763 feet, surpassing the previous record held by A. Passalova, of Italy, of 3,261 meters or 10,699 feet.

THE Lafayette Escadrille monument, one of the greatest war memorials, is near completion in the Parc de Villeneuve l'Etang, near Paris. Sufficient funds to complete the structure have been raised by the memorial association, of which U. S. Ambassador Myron T. Herrick is president and Marshal Foch, honorary president.

Frederick Prince of Boston, father of Lieut. Norman Prince, who died with the Escadrille in France, was a principal contributor to the final sum of $40,000 raised for the monument itself. William Nelson Cromwell, vice-president of the association, has endowed the monument with funds for its perpetual upkeep.

GERMANY

JOHANN RISTICZ and Cornelius Edzard broke the world's endurance record on August 5th by flying for 52 hours, 23 minutes, 11 seconds. The former world's record, 51 hours, 11 minutes, 25 seconds was set by Clarence Chamberlin and Bert Acosta on April 13-15, 1927.

In the *Europa*, a Junkers W-33 plane with a Junkers L-5 engine, the same one in which they are planning to fly across the Atlantic, Risticz and Edzard hopped off from Dessau on August 3rd, flew back and forth from Dessau to Leipsic, and landed at Dessau at 10:13 a. m., August 5th, having been up in the air 1 hour and 12 minutes longer than Chamberlin and Acosta. The distance covered in the flight was 3,753 miles.

Two Junkers planes started out to break the endurance record on August 3rd. The second one, the *Bremen*, piloted by Friedrich Loose, was forced to land, however, after several hours' flight on account of the failure of one of the magnetos.

FIVE new world's records were broken on July 27th when Hermann Steindorff piloted a "Rohrbach-Roland," fitted with three B M W engines, carrying a pay-load of 2,000 kg. over a distance of 100 km. (Nedlitz-Marwitz). The records are:

1. Speed over 100 km., with useful load of 2,000 kg.—214.5 k. p. h.

2. Speed over 500 km., with useful load of 2,000 kg.—215.4 k. p. h.

3. Speed over 500 km., with a useful load of 1,000 kg.—215.4 k. p. h.

4. Speed over 1,000 km., with a useful load of 2,000 kg.—214.9 k. p. h.

5. Speed over 1,000 km., with a useful load of 1,000 kg.—214.9 k. p. h.

On July 31st, Steindorff attained three more records. 1. Speed over 2,000 km., with a useful load of 2,000 kg.—205.3 k. p. h. 2. Speed over 2,000 km., with a useful load of 500 kg.—205.3 k. p. h. 3. Distance with a useful load of 2,000 kg.—2,316 km.

On the morning of August 3rd, the "Rohrback-Roland," piloted by Steindorff, took off with a gross weight of 7,800 kg. in 18 seconds and again broke a distance record. They landed in the evening after flying 1,750 km. over a triangular course, Nikolassee-Wittenberg-Ruthnick with a pay-load of 2,000 kg.

On August 12th, an altitude record was made: With a useful load of 1,000 kg. he attained the height of 6,850 meters.

AT the recent gliding competitions in the Rhoen Mountains, Central Germany, Herr Nehring maneuvered his motorless plane to an altitude of 600 feet and flew a distance of 32 miles.

THE Lufthansa has made an agreement with the German railroads whereby the latter will deliver packages to the nearest flying field, at a charge of 25 cents extra. Planes will then transport the express to its destination, or to the nearest point reached by the airline and from there the railroads will complete the job.

A PRIZE of 100,000 marks (about $24,000) will be given by the German Aero Club to the first German pilot who flies across the Atlantic in a German built plane. The engines may be foreign models but they must be constructed in Germany. The prize will be awarded only if the flight is concluded inside 84 hours.

P & A Photo

Van Lear Black and his Dutch pilots, Geysendorfer and Scholte, being greeted at Amsterdam, Holland, on their return from a 18,600-mile air tour of Dutch East India.

RUSSIA

AIR service between Berlin and Moscow via Danzig, Konigsberg and Riga was started on July 15, 1927, by the Deruluft Company. This service is to supersede the old route between Berlin and Moscow which went via Kovno and Smolensk. The latter service was discontinued in 1925, and the linking up of Riga by air with Moscow and Berlin is an event of considerable importance to Latvia. The service will be maintained with single motor Dornier-Merkur monoplanes each equipped with a 600 h. p. B. M. W. VI. engine.

Accommodations will be provided for 6 passengers, one pilot and one mechanic. Four planes will be in permanent operation and two will be held in reserve at each terminal. Daily flights are scheduled, Sundays excepted, and passengers, freight, luggage and mail will be carried. The distance between Berlin and Moscow will be covered in approximately 15 hours including the time required for landing at intermediary stations. In the direction Berlin-Moscow passengers will be required to change planes at Konigsberg, but in the direction Moscow-Berlin no change will be required. Travelers intending to use this service must comply with the usual passport regulations and must secure visés before commencing their journey.

The Deruluft Company is negotiating with the Estonian Government regarding the possibility of extending this service to include Tallinn (Reval). The Estonian authorities have opposed the use of the Estonian military aerodrome for commercial flying, but should this project go through as planned, it will be possible to fly from Berlin to Riga, Tallinn, Helsingfors and Stockholm.

The service just started permits travelers to fly from Berlin to Moscow and there connect with Russian planes leaving for Orel, Charkov, Poltava, Kiev, Odessa, Baku, Tiflis, and Mineralnya Vodi, which are connected by the planes of the Russian Ukrovosduchput Company. Further connections can be made with the planes of the Dobrolet Company which are operated to Turkstan and the Far East.

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THE DOLE PACIFIC FLIGHT

(Continued from page 254)

were soon ended—and anxiety, fear and despair gripped the world.

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Despite all the resources of the navy, the army, the scores of steamships scouring the sea and the hopes and prayers of relatives, friends and the world, there was no word or trace of the two planes.

"Lone Star Bill" Erwin, piloting the *Dallas Spirit* which had had to return to the starting point shortly after the take-off in the race, hopped off from Oakland Field at 2:15 p. m. on August 19th to zigzag over the Pacific to Honolulu in search of the two missing planes. With the radio sending set taken from the wreck of Major Irving's *Pabco Flyer,* and fuel supply enough for 36 hours' flight, the *Dallas* Spirit lifted its load of 5,650 pounds in the air.

Captain Erwin was also trying for the Easterwood $25,000 prize for a four-stop flight from Dallas, Texas to Hongkong. His plane was not equipped with a radio receiving set.

At 6:45 p. m. the plane was speeding ahead 459 miles at sea. The fliers reported having changed their course at 6:40 p. m., and their position at that time was latitude 35 degrees, 30 minutes North; 130 degrees West. Everything was said to be O. K., but no trace of planes or wreckage had been sighted. At 9:02 p. m. an S O S call said the plane was in a tail spin. The radio then discontinued operation. That was the last heard from one of America's foremost war aces, Erwin, and Eichwaldt, his young navigator.

Ships still continue to comb the Pacific at the date of this writing, hoping to find a clue to the fate of the fliers.

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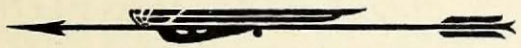

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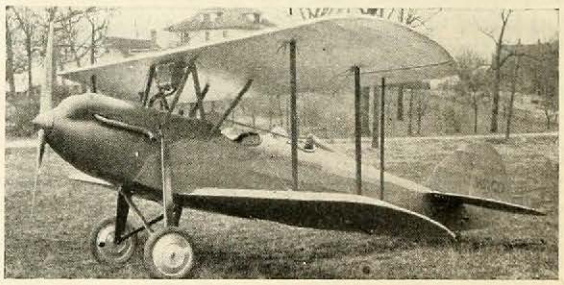

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DURALUMIN sheets, 2' x 6' x 1/16", heat treated, Navy stamped, save 2/3 fittings weight, $7.50 per sheet. AIR TRANSPORT, Carle Place, N. Y.

LONG WING EAGLEROCK streamlined and remodeled for National Air Tour. Has all equipment and passed Department of Commerce for Transport License. New OX5 motor just installed, $1800. PAUL R. BRANIFF, Braniff Building, Oklahoma City.

WANTED—Good three place ship to operate this winter in Manitoba Gold Fields on percentage by Canadian licensed commercial pilot, five thousand hours experience. Good proposition with future. Box 563, AERO DIGEST.

FOR SALE: One Aeromarine 39 B seaplane set up, 100 h.p. OXX6, motored, with new pontoon and two propellers. Price $700. A. D. COOPER, 113 Pequot Avenue, New London, Conn.

FOR SALE: Hisso Standard, practically new, $1200. F. H. GAST, Grandview, Iowa.

WANTED: Two passenger biplane, good used condition, dual controls. State delivered price and complete description in first letter. Seller must demonstrate over Hampden, Mass. ROLAND PRICKETT, Hampden, Mass.

WANTED: Good used three-place ship. Prefer Standard. Must be a bargain. NORVAL HINDS, c/o 404 Logan Street, Wayne, Nebraska.

PARACHUTES, new and used, for ships of all types, rope ladders for stunt men, etc. Specify weight. Established 1903. THOMPSON BROS. BALLOON CO., Aurora, Ill.

WANTED to buy used Jenny or Canuck for cash or will trade car. Box 557, AERO DIGEST.

FOR SALE: All new covers, Dept. of Commerce licenses, two OX5 Standards, $1050 and $950; two Curtiss JN4Ds OX5 motors, $950 each. Two seated sport plane, very fast, OXX6 motor, new, $1485. All set up in Cleveland, ready to fly away. THE WILLARD PARKER AIRCRAFT CORPORATION, 2400 Euclid Avenue, Cleveland, Ohio.

WANTED — Three-cylinder Lawrance Air Cooled 60 h.p. Aviation Motor. State lowest cash price. M. MICKELSON, Callaway, Minn.

YOUNG MAN, twenty-five, desires position around airplane shop or hangar. Willing to do any kind of work to learn to fly. Possesses no previous experience. Box 560, AERO DIGEST.

WANTED: Pilots with Department of Commerce Transport License for cross country work. Also two first class aircraft designers. Give name of last place employed and experience. Also will buy ten planes. Must be in good flying condition. State price and make full details. For sale large lot of motors. J. F. REICHARD, York, Pa.

FOR SALE: Hisso Motor, 150 h.p. model A; new piston assembly; main bearings need replacing; motor less spark plugs $150. W. C. Lemon, 1303 Third Avenue, N. W. Roanoke, Va.

WANTED (2) Ex-Army pilots. Preferably officers with over seas experience, for large Eastern industrial concern on test flights, etc. Salary $100 up. UNIVERSITY PLACEMENT BUREAU, 225 Broadway, New York City.

EMPLOYMENT WANTED: Graduate, American School of Aviation, handy with tools, taking course in mechanical drafting. Ordinary wages temporarily. J. T. WILSON, Kinderbrook, Ill.

YOUNG MAN, Nineteen years of age, graduate of American School of Aviation, desires work with aircraft corporation. Best references. A. D. VANN, 36 S.W. 6th Street, Miami, Florida.

YOUNG MAN, eight years practical experience in mechanical engineering, designing and production, desires position in aviation research or engineering and production with airplane manufacturer. Box No. 558, AERO DIGEST.

YOUNG MAN 29; married; mechanical draftsman; technical education; would like to connect with firm manufacturing aero motors, preferably radials. References. Box 559, AERO DIGEST.

MAN with thorough knowledge of aviation wanted as Staff Instructor for home study course in aeronautics. Must have good aeronautical background, qualified to handle correspondence, write text material and other editorial work. Position permanent with good salary. Give complete details of experience in your letter. Box No. 565, AERO DIGEST.

SITUATION WANTED—Mechanic, German, single, with seven years experience with temperature measuring and recording instruments is looking for advancement and permanent position in aviation line. Prefer laboratory of recording devices connected with research work for aviation. Box 566, AERO DIGEST.

FOR SALE: Mail and Express planes, Airmobiles and one five-passenger twin Le Rhone plane. For full description and prices, write: G. ELIAS & BRO. INC., Aircraft Department, Buffalo, N. Y.

Index of Advertisers in this issue

The Pacific surrenders to a second Mobiloil-lubricated plane

Goebel, Dole Prize Winner, uses Gargoyle Mobiloil "B"

MOBILOIL'S 1927 Record

Mobiloil flew from San Diego to New York and then from New York to Paris with Col. Lindbergh. And Mobiloil is being used in all his flights in this country.

Mobiloil flew from San Francisco to Honolulu with the U. S. Army fliers.

Mobiloil flew around Japan with the Japanese fliers.

Mobiloil flew again from San Francisco to Honolulu with Pilot Goebel.

Mobiloil flew around Australia with Captain R. Williams.

Mobiloil flew around the Union of South Africa with Major Miller.

In each case regular stock Gargoyle Mobiloil was used.

1927, the year of great aeronautical events, sees another great air triumph.

Flying a T[redacted] monoplane "Woolaroc" powered with a Wright Whirlwind engine, Arthur Goebel wins the first trans-oceanic air derby.

This is the second successful flight from San Francisco to Honolulu by a Mobiloil-lubricated plane.

The U. S. Army Fliers used Mobiloil when they pioneered the air route across the Pacific to the Hawaiian capital a few weeks ago.

This year Gargoyle Mobiloil has demonstrated its dependability in flights over both the Atlantic and the Pacific.

FIRST:—In Col. Lindbergh's plane, when he flew from New York to Paris.

NEXT:—In the U. S. Army plane that first flew from San Francisco to Honolulu.

And now:—In Arthur Goebel's plane which has won the Dole prize.

The Gargoyle Mobiloil used in all these flights was our regular stock Mobiloil "B." You can buy this same Mobiloil at, or within reasonable distance of every flying field in the United States.

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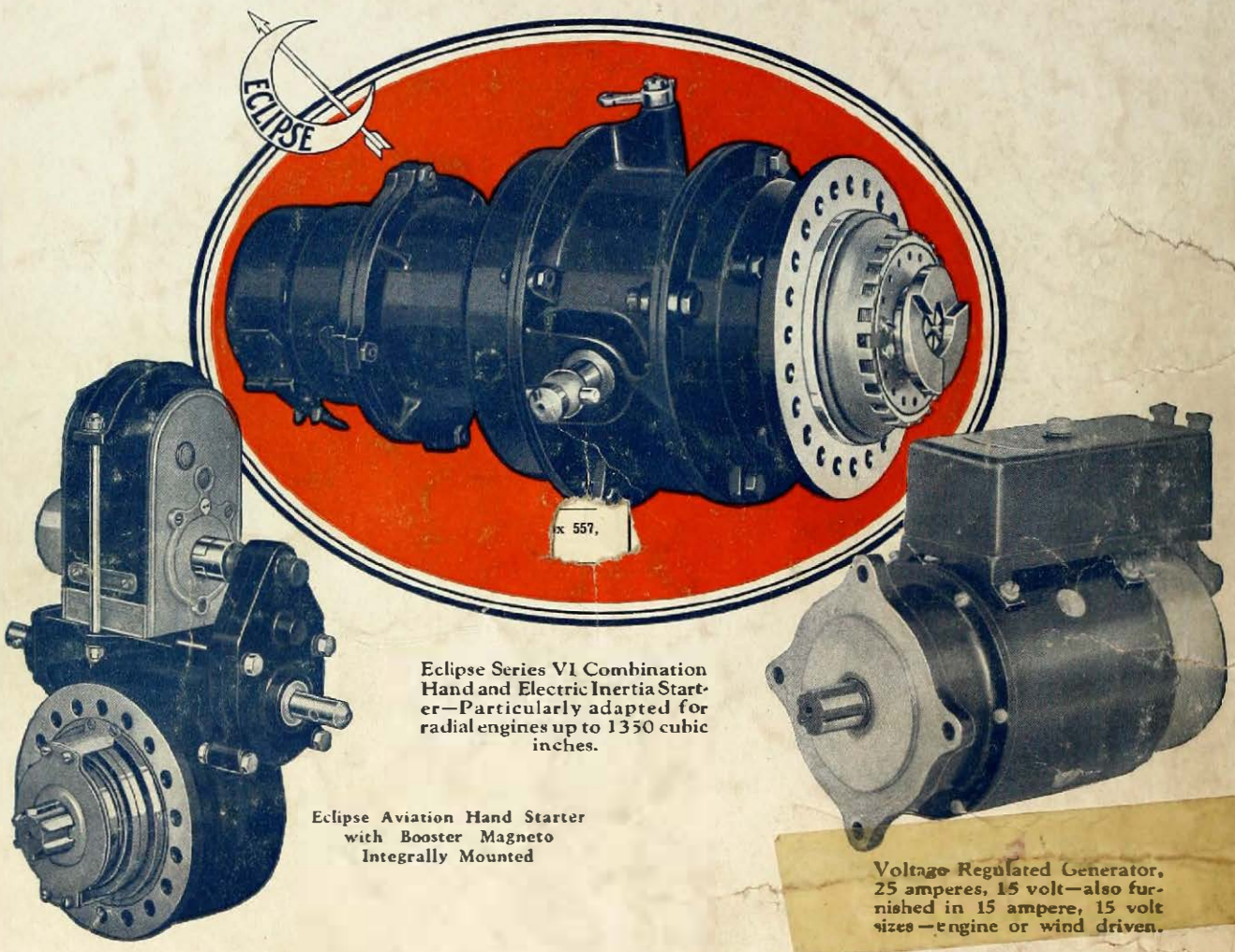

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