

# Aviation News

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DECEMBER 20, 1943



**Senator Harry S. Truman:** *His fact-finding committee on progress of the war program, urges in a report on the nation's transportation system that the airlines be permitted to reclaim more airliners from the Army. The report lauds air transport's remarkable war record.*

## **Essair Rushes Plans on Test Feeder Route**

Operations expected to begin early in 1944; CAB's omission of "National defense" phrase may clear way for pickup line.....Page 31

## **Stanton Sees Lightplane as Production Stopgap**

Popularizing of flying will boost civil plane total to 500,000 by 1950, CAA chief tells contractors .....Page 36

## **Plant Area Boards to Hear Draft Appeals**

Files to be forwarded from local units for review by Jan. 9; summary of week's actions in U.S. and war agencies.....Page 12

## **United's Stock Proceeds to Set Industry Record**

Registration statement shows company will enter post-war era in formidable financial position, commentator says.....Page 29

## **Allies Shuffle Air Forces for Invasion Drive**

Lessons of Africa, Salerno and Rome Campaign result in new 15th Air Force under General Doolittle .....Page 16

## **Labor Turnover Mars Brightening Plane Picture**

About 20,000 workers monthly leave jobs in West Coast plants, AWPC reports; 11 months' labor loss 2035 "Forts".....Page 10





# Westinghouse Announces

## A NEW HIGH-FREQUENCY STABILIZED A-C WELDER FOR LIGHT GAUGE WORK

The Type WC-AC welder was designed especially for welding thin-wall tubular fuselage members, tubular clusters on engine mounts, landing gear and light sheet metal work—faster and better.

It meets the four major requirements for aircraft welding service:

1. Ability to strike and maintain an arc easily over the entire range of welding on light gauge work.
2. Easy stepless current adjustment.
3. Ability to weld all types of alloys as readily as carbon steel.
4. High efficiency and power factor.

The new Westinghouse Type WC-AC Welder eliminates the need for "adapting" welders intended for other types of service with their slower and less flexible performance. Superimposed high frequency makes the a-c arc practical on light materials at low currents and boosts welding output. Further, the price of the Type WC-AC welder is comparable with that of regular d-c welders.

For more information on the new Westinghouse High-Frequency Stabilized A-C Welder, call your nearest Westinghouse office, or write today to Westinghouse Electric & Mfg. Company, East Pittsburgh, Pa.

J-70413

Westinghouse model WC-AC Flexarc Welder—high-frequency stabilized—175 amperes (10-200 amperes).



### CHECK THESE FEATURES

1. High-frequency arc stabilization permits operator to strike the arc quickly and hold it steady at current settings as low as 10 amperes.
2. Movable core provides very fine stepless current adjustment.
3. Double range current adjustment for welding of special alloys—results in extremely fine current adjustment from 10 to 70 amperes.
4. Preset current indicator permits adjusting for desired welding current *before* starting.
5. Switch-in-handle electrode holder (included in accessories) provides pilot control of the high-frequency stabilizer.

# Westinghouse

PLANTS IN 25 CITIES... OFFICES EVERYWHERE



## A-C WELDERS

**SLOAN SPEAKS OUT**—At a time when most war industries are either insisting that their full attention is being given to war production or that their postwar plans, if any, are nebulous, it is significant that Alfred P. Sloan, Jr., chairman of the Board of General Motors, speaks out in public about GM's postwar master plan calling for an expenditure of \$500,000,000 for reconversion. Many industry leaders are extremely reluctant to mention or even hint that they have postwar plans for fear of incurring the wrath of the government upon whom they are dependent for their contracts.

★

**POSTWAR MARKETS**—Every thoughtful person knows there is still a war to be won and that the cost will be heavy in men and material, that there can be no slackening in the production effort, but at the same time, any manufacturer who is not giving serious consideration to reconversion and who does not have able executives assigned to this work, may find himself left behind in the competition for postwar markets.

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**AIRCRAFT COMPANIES HESITANT**—Aircraft manufacturers have been particularly reticent even to hint that they are making definite plans for reconversion, and questions along postwar lines directed to some industry leaders are received with a dignified silence. Observers in the capital—looking at the aircraft industry's rising production curve now nearing the peak—are inclined to believe that some aircraft companies are being over-cautious in the matter. True, there has been considerable discussion of the postwar aviation industry and estimates of its prospective volume and there have been some guarded statements on plans for the future, but no all-out public statement such as Sloan made to the National Association of Manufacturers.

★

**GM AND NAM**—As far as records of the National Association of Manufacturers show—and NAM members are said to be responsible for about 80 percent of America's war production—General Motors is the first big corporation to come out with a public announcement of its postwar spending program. While it is true that the aircraft industry is in a unique and perhaps dangerous position financially due to vast expansion, the aircraft names proven on battlefronts throughout the world undoubtedly will have great postwar market value if properly projected before the public.

**PLANES VERSUS POUNDS**—It has been frequently said in "AVIATION NEWS" that airplane weight is the only true production criterion. Now West Coast aircraft plants, to preserve their place in the aviation sun, are making overtures to have future warplane production figures publicized on the basis of output poundage rather than numbers of aircraft built. A year ago, West Coast factories could boast they built 60 percent of the nation's military planes. This fall they produced only 40 percent of total planes built, but 60 percent of the nation's plane tonnage. West Coast plane unit production is now 29 percent of planes built. Heavier aircraft is the answer, but the public thinks in numbers of airplanes and publicizing weight may take a bit of education to put over.

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**SANS "B.V.D."**—The Pacific Coast aircraft industry lost its "undershirt" Dec. 1 when the identity of Vega Aircraft Corp., Lockheed-owned,



Wright Brothers' Flight at Paris in 1908

was erased by the parent company. The action wiped out an amusing aspect of a serious business by ending the once official and later unofficial "B.V.D." identity of a noted *Flying Fortress* production group, the Boeing-Vega-Douglas pool. The B.V.D. designation was "official" until a year ago, when the manufacturers of B.V.D. underwear wrote a formal protest. With a grin, the *Fortress* builders obliged and shifted company initials to "B.D.V." From now on it will have to be "B.D.L."—the last for Lockheed.

★ ★ ★

**INCENTIVE WAGE PLANS**—There has been little said publicly about incentive wage plans



# This Mossman Heavy Duty Lever Switch Built to Withstand Jar and Vibration

This Mossman 4101 Heavy Duty Lever Switch is built to stand terrific punishment. It is so tough and sturdy that it can't be jolted out of place by jar and vibration. Such constant adjustment is made possible by a heavily constructed, rigidly braced, brass chassis frame. On this is supported a chromium plated latch plate and spring actuated piston in which a roller is mounted clevis fashion.

This is a three position switch with locking action in the center position, and locking or non-locking as may be required in the other two positions. The use of a no-throw stop in either of the two active positions converts the 4101 into a two-position switch.

Contact assemblies of 12 springs per pile-up, 24 springs per position, or 48 springs total, have been successfully built into this switch.

Special pile-up arrangements are made for higher voltages and creepage ratings.

## Features of the Mossman No. 4101 Lever Switch are:

1. Standard heavy duty contacts are of 3/16" diameter fine silver for 10 amperes, 110 volts A.C. (non-inductive). For extra heavy duty 5/16" silver alloy contacts can be provided for 20 amperes, 110 volts A.C. (non-inductive). Other contact materials are available to meet special conditions.

2. Contacts are spun into nickel plated phosphor bronze springs. Ample wiping action of the heavy duty contacts insures clean contact surfaces, and provides rapid liberation of heat and resultant efficiency with longer life.

3. Spring contact pile-up insulators are triple XXX Bakelite wafers assembled under pressure to insure against distortion. Edges

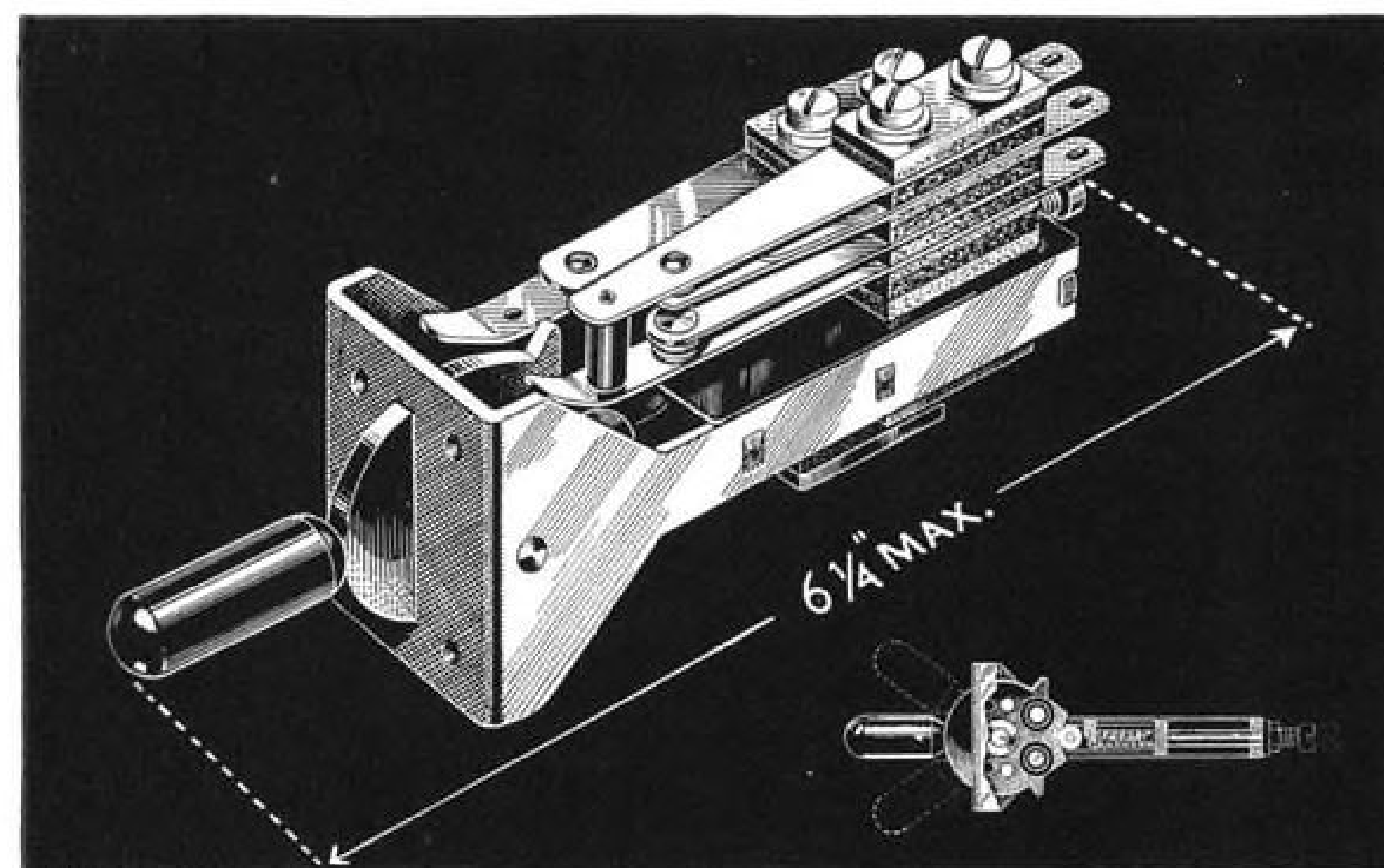
are coated with Bakelite varnish. All insulation specifications conform to the highest standards.

4. Stops are set into the latch plate to effect locking, non-locking and no-throw positions. Lever action can be supplied with change from two-position to three-position; also from locking to non-locking, and vice versa.

This Mossman No. 4101 Lever Switch is one of a line of precision electrical components which includes many types of heavy duty multiple circuit lever switches, turn switches, push switches, plug jacks and special switching components.

Donald P. Mossman, Inc.

6133 N. Northwest Highway, Chicago (31), Illinois



**MOSSMAN**  
*Electrical Components*

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December 20, 1943

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of late, but WPB officials regard as significant a trend toward development of plant-wide plans and say that the most interesting finding of a recent survey on the subject was the use of means other than time study to develop production standards. The survey showed that production increases have followed in the wake of recently installed wage incentive programs. WPB officials believe that all too few plants have wage incentive systems based on thoroughly engineered facts, and that such facts are not understood and applied with complete cooperation between management and representatives of labor.

THE MITCHELL'S CANNON—Disclosure that 75 mm. cannon were mounted on North American's B-25 Mitchell bomber, after a brief censored dispatch from Australia, apparently caught Army public relations napping. There was a feeling in some Army circles that North American, on top of the story, had copped most of the credit. Some time after the story broke, War Department Bureau of Public Relations issued a release saying the installation was but one of a constant stream of new and secret weapons developed by the Army Ordnance Department . . . "developed and produced under an effective and well established system based on cooperative action with private industry." The release did not mention the B-25, nor did it mention North American. It did rouse some speculation that 75's may be installed on other airplanes since it said "installation of 75 mm. cannon in Army Air Forces planes . . ." Note the plural.

NEW FIGHTERS—In connection with the development of new weapons, Assistant Secretary of War for Air Lovett discloses that familiar old names will drop out of the fighter classification picture as soon as two new and vastly superior types "join our present pair of unexcelled fighters—the P-38 and P-47." These new fighters are now in production but have not yet been tested in combat, so restrictions still keep them under wraps. Watch for them, perhaps in connection with Gen. Arnold's forecast of an intensified Allied air offensive which, if it fails to knock Germany out of the war, will at least leave her groggy.

TABOO AND ALSO FORBIDDEN—From time to time the Civil Aeronautics Board makes available reports for magazine, newspaper and public use on operating revenue and expense statistics of the domestic air carriers. The Office of War Information included some of these in their report on air line operations, or rather wanted to. The Army said "No." It was explained to the Army man that the reports are

available and are released for public use through the Economic Bureau, Rates and Audits Division of CAB. That didn't make any difference. The Army still said "No."

AIR ACCIDENT REPORT—The Office of War Information is working on an air accident rate report which should be ready within a few weeks, carrying up-to-the-minute figures from the Army's Flying Safety Command. It is understood that the aircraft manufacturers fare well in the conclusions and there is criticism of only a few types of planes and that names probably will not be mentioned in this connection. Engine failures also represent a cause of accidents. The report will point out that with more people flying and more planes in the air there are bound to be more accidents, but the rate generally is low. Uninformed critics of aviation, some of them on Capitol Hill, have been casting eyes at the accident rate as a possible target of investigation and those who understand the situation are hopeful the report may clear up some misunderstandings.

RECONVERSION STORY—The story of the reconversion of industry to peacetime production will be one of the big stories of the postwar era. WPB officials and others concerned with this job are fearful that the importance of this job may be overlooked in the torrent of words which will accompany the political campaign and what should be a climactic year in the European phase of the war. They are looking more and more to the business papers to carry the reconversion story to the public.

BEACON LIGHTS—West Coast airline executives believe no more beacon-lighted airways will be installed by the federal government. They hold that the costly beacon-dotted routes served their purpose admirably, saved lives, planes and schedules. The contention is that future airways marked by radio ranges, blind landing radio aids and probably emergency field border lights, will assure safe air travel. The United States now has approximately 35,000 miles of lighted airways.

SKYROOM—The need of dual runways at all major airports seeking postwar commerce was indicated the other day at Lockheed Air Terminal. For about 15 minutes, two Forts, a Ryan, three Venturas, an airliner and three P-38's sat stacked up at the head of the runway while inbound planes, one an emergency landing, came in. Postwar passengers will resent having to sit for a quarter-hour at the uninspiring head of a runway. The solution: one inbound and one outbound runway into prevailing winds.





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## Truman Committee Urges Release Of More Planes to Airlines

New report praises air transport industry, says record of airliners returned by Army so far is "not creditable."

By ROBERT H. WOOD

The Senate's Truman Committee in a report on the nation's wartime transportation system warns that sufficient new equipment must be given all media, including airlines, if they are to continue efficient operation.

The report discloses that the Committee has demanded from the Army and Navy data on "comparative efficiency in ton-miles and passenger miles and in average daily hours of flight time of the transport planes operated by them."

► **Result of Charges**—This is the result of several public accusations that the services have not used efficiently transports taken from the lines.

In contrast, the Committee points out that the lines have increased average daily scheduled flying hours per plane from 8.03 before 50 percent of their planes went to the Army, to 11.27 on Sept. 1, 1943. Revenue passenger load factor rose from 67 percent in the first half of 1942 to 86 percent in the first half of 1943.

► **Expects 100,000 Employees**—The airlines next July will have 100,000 employees, contrasting with 75,000 in July, 1943, and 20,000 a year earlier. Based on the capacity of the present airline fleet, and not on the demand, the Committee forecasts a "possible increase" of 5 or 6 percent in air passenger travel in 1944. It is assumed that most of this gain would be in off-peak seasons.

► **High Efficiency**—"The record to Dec. 1, 1943, of returning only 20 planes, six of which were replacements for destroyed planes, is not creditable," the report says. "The airlines . . . have established that they can utilize the transport planes furnished to them with a very high degree of efficiency. This factor . . . is very important and should be

given most careful consideration before transport planes are assigned to other uses where the efficiency factor will be substantially less."

Return of a "substantial" number of planes as soon as possible would enable the lines to multiply the service they have demonstrated they are capable of rendering, the report says.

► **High Value**—Although the domestic airlines carried in 1942 only about 0.1 percent of the freight and 1.8 percent of the passenger traffic carried by public transport agencies, their importance "is far greater than such percentages would indicate."

## Plane Output Near Peak, Says Nelson

WPB chairman cites steady rise in airframe weight as well as unit total.

The monthly report on munitions output issued by WPB Chairman Donald M. Nelson emphasizes that the nation is moving toward its peak production. And, as this peak is approached, even a modest monthly gain is an achievement.

The airplane unit production, as previously announced, was 8,789, exceeding October output by 427, despite the shorter month, but more significantly, plane production was up 5 percent in number, while airframe weight gain was 7 percent and dollar value increase 6 percent.

► **Bigger and Better**—Nelson emphasized that "we are getting bigger and better airplanes."

November average airframe weight per plane was 8,130 pounds, against 7,560 pounds for the first eleven months of the year, and compared with 5,790 pounds in 1942.

Average airframe weight per plane is scheduled to move even higher next year.

For the second consecutive month, neither manpower nor design-change problems constituted major obstacles to aircraft production. Nelson's report said production at West Coast plants demonstrated that the manpower plan, initiated about three months ago, is proving successful throughout the industry.

## World Notables Meet To Honor Wrights

Gen. Arnold wins Collier trophy and President announces that original Wright plane will be returned.

By BLAINE STUBBLEFIELD

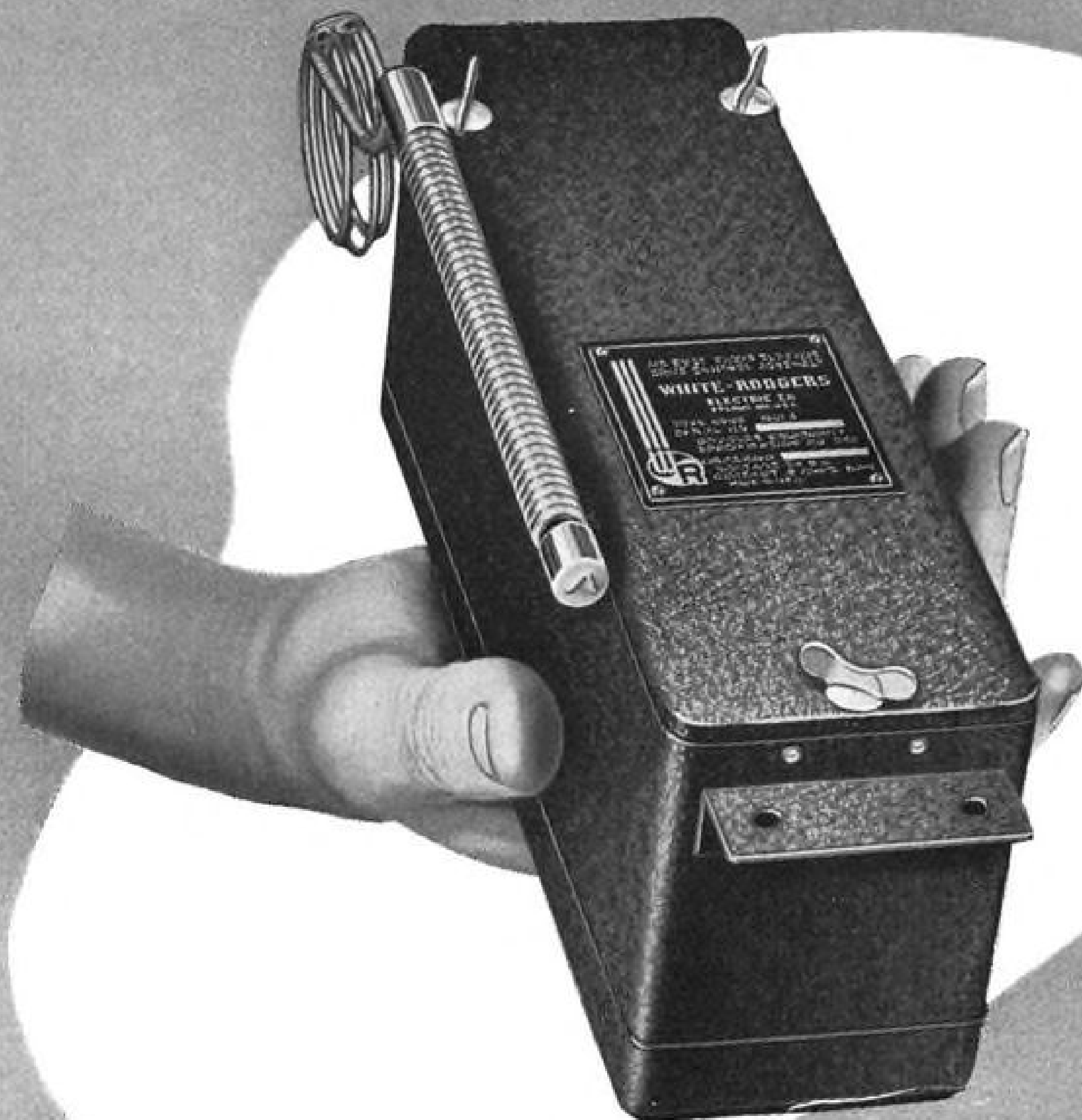
Leaders and peoples of all the world gathered in Washington to pay tribute to Orville and Wilbur Wright at a dinner Dec. 17, the fortieth anniversary of their first flight of a powered aircraft at Kitty Hawk, N. C., in 1903.

President Franklin D. Roosevelt personally invited Orville Wright to the dinner. A message from the absent President, prepared for delivery at the dinner, said Mr. Wright had authorized him to announce that the original Wright plane will be brought back from England and placed in the Smithsonian Institution, from which it had been withheld for many years, due to a controversy which was resolved last year.

► **Arnold Wins Award**—The Collier Trophy was awarded to Gen. H. H. Arnold, chief of the United States Army Air Forces, for the highest achievement in aviation in 1942.

Congratulatory messages from England, Russia and China were received and the representatives of 19 United Nations were present to pay their respects. Scores of cabinet officers, Congressmen, and war officials likewise were present.

Addresses were prepared by Navy Secretary Frank Knox and by Undersecretary of War Robert Patterson. Mr. Wright has for years lived



## THIS HANDFUL OF AUTOMATIC POWER

### Protects plane and crew . . .

Capsules of high energy in compact form, White-Rodgers motorized temperature controls automatically prevent excessively high or low temperature conditions that spell danger to a plane and its busy crew.

Such assemblies can be adapted specifically to your design requirements for any application involving automatic temperature regulation, by local or remote control.

Engineering data will be furnished to manufacturers on request.

## WHITE-RODGERS ELECTRIC CO.



ST. LOUIS, MISSOURI



Plane Photos Courtesy U. S. Army



## SIGNAL CORPS SPECIFICATION, NO. 486.

### ADVERTISEMENT AND SPECIFICATION FOR A HEAVIER-THAN-AIR FLYING MACHINE.

#### TO THE PUBLIC:

Scaled proposals, in duplicate, will be received at this office until 12 o'clock noon on February 1, 1908, on behalf of the Board of Ordnance and Fortification for furnishing the Signal Corps with a heavier-than-air flying machine. All proposals received will be turned over to the Board of Ordnance and Fortification at its first meeting after February 1 for its official action.

Persons wishing to submit proposals under this specification can obtain the necessary forms and envelopes by application to the Chief Signal Officer, United States Army, War Department, Washington, D. C. The United States reserves the right to reject any and all proposals.

Unless the bidders are also the manufacturers of the flying machine they must state the name and place of the maker.

**Preliminary.**—This specification covers the construction of a flying machine supported entirely by the dynamic reaction of the atmosphere and having no gas bag.

**Acceptance.**—The flying machine will be accepted only after a successful trial flight, during which it will comply with all requirements of this specification. No payments on account will be made until after the trial flight and acceptance.

**Inspection.**—The Government reserves the right to inspect any and all processes of manufacture.

#### GENERAL REQUIREMENTS.

The general dimensions of the flying machine will be determined by the manufacturer, subject to the following conditions:

- Bidders must submit with their proposals the following:
  - Drawings to scale showing the general dimensions and shape of the flying machine which they propose to build under this specification.
  - Statement of the speed for which it is designed.
  - Statement of the total surface area of the supporting planes.
  - Statement of the total weight.
  - Description of the engine which will be used for motive power.
  - The material of which the frame, planes, and propellers will be constructed. Plans received will not be shown to other bidders.
- It is desirable that the flying machine should be designed so that it may be quickly and easily assembled and taken apart and packed for transportation in army wagons. It should be capable of being assembled and put in operating condition in about one hour.
- The flying machine must be designed to carry two persons having a combined weight of about 350 pounds, also sufficient fuel for a flight of 125 miles.
- The flying machine should be designed to have a speed of at least forty miles per hour in still air, but bidders must submit quotations in their proposals for cost depending upon the speed attained during the trial flight, according to the following scale:
 

40 miles per hour, 100 per cent.
39 miles per hour, 90 per cent.
38 miles per hour, 80 per cent.
37 miles per hour, 70 per cent.
36 miles per hour, 60 per cent.
Less than 36 miles per hour rejected.
41 miles per hour, 110 per cent.
42 miles per hour, 120 per cent.
43 miles per hour, 130 per cent.
44 miles per hour, 140 per cent.
- The speed accomplished during the trial flight will be determined by taking an average of the time over a measured course of more than five miles, against and with the wind. The time will be taken by a flying start, passing the starting point at full speed at both ends of the course. This test subject to such additional details as the Chief Signal Officer of the Army may prescribe at the time.
- Before acceptance a trial endurance flight will be required of at least one hour during which time the flying machine must remain continuously in the air without landing. It shall return to the starting point and land without any damage that would prevent it immediately starting upon another flight. During this trial flight of one hour it must be steered in all directions without difficulty and at all times under perfect control and equilibrium.
- Three trials will be allowed for speed as provided for in paragraphs 4 and 5. Three trials for endurance as provided for in paragraph 6, and both tests must be completed within a period of thirty days from the date of delivery. The expense of the tests to be borne by the manufacturer. The place of delivery to the Government and trial flights will be at Fort Myer, Virginia.
- It should be so designed as to ascend in any country which may be encountered in field service. The starting device must be simple and transportable. It should also land in a field without requiring a specially prepared spot and without damaging its structure.
- It should be provided with some device to permit of a safe descent in case of an accident to the propelling machinery.
- It should be sufficiently simple in its construction and operation to permit an intelligent man to become proficient in its use within a reasonable length of time.
- Bidders must furnish evidence that the Government of the United States has the lawful right to use all patented devices or appurtenances which may be a part of the flying machine, and that the manufacturers of the flying machine are authorized to convey the same to the Government. This refers to the unrestricted right to use the flying machine sold to the Government, but does not contemplate the exclusive purchase of patent rights for duplicating the flying machine.
- Bidders will be required to furnish with their proposal a certified check amounting to ten per cent of the price stated for the 40-mile speed. Upon making the award for this flying machine these certified checks will be returned to the bidders, and the successful bidder will be required to furnish a bond, according to Army Regulations, of the amount equal to the price stated for the 40-mile speed.
- The price quoted in proposals must be understood to include the instruction of two men in the handling and operation of this flying machine. No extra charge for this service will be allowed.
- Bidders must state the time which will be required for delivery after receipt of order.

JAMES ALLEN.

Brigadier General, Chief Signal Officer of the Army.

SIGNAL OFFICE,  
WASHINGTON, D. C., December 23, 1907.

by his own no-speech rule.

► **Tribute**—All civil and military aviation groups and organizations in this country, and some of those in other countries, were represented. Speakers, guests, and honor guests were of one mind with Mr. Wright's previous expressions: it is tragic that the airplane should have been turned to destructive purposes; every effort must be put forth by all nations to make it work for the good of the human race when this war is ended.

In connection with the fortieth anniversary of flight under power, *United States Air Services Magazine*, edited by Earl Findley, published a December special issue, containing hitherto unpublished original drawing of the first-flight plane, and a compilation of letters written by the Wright Brothers during their four summer sojourns at Kitty Hawk.

The issue contains numerous analyses and expressions on the first flights by authorities like Grover Loening, Dr. George Lewis, Gen. H. H. Arnold and others.

► **Scientific Procedure**—They show that the Wrights achieved flight by scientific procedure, including use of the first wind tunnel, and not by tinker methods.

Basic formulas of aerodynamics and the fundamentals of airplane control, as worked out by the Wrights, are in use, almost unchanged, today. Mr. Findley has made a lifelong study of the Wrights' work and achievements.

## TCA Sets Up New Reservation Control

To cope with greatly increased wartime passenger traffic, Trans-Canada Air Lines has established a new central reservation control office at Toronto. Facilities make it possible to ascertain name, address and destination of any passenger holding space or in flight on any TCA plane within about 30 seconds, officials report.

The office has 3,300 sq. ft. of floor space, and is staffed with 70 persons, of whom 66 are girls. It operates 24 hours a day. To reduce noise and increase efficiency, it is equipped with special color and lighting,

**Bid for Army's First Military Aircraft:** Photo on left is a reproduction of the Army's bid for production of military aircraft issued by the Signal Corps in 1908. This was the beginning of what later became the Army Air Corps.

soundproofed telephone and teletype rooms. All are air-conditioned.

► **Forecast Board**—The telephone room contains a forecast board, with details of every flight in progress over the entire TCA system in Canada and Newfoundland, and the hour of forthcoming flights. In the teletype room, seven circuits connect the entire system from Victoria, B. C., to St. John's, N.F., and provision is made for further expansion. The filing room is equipped with multi-channel conveyor belts to telephone and teletype positions.

When space is booked, the ticket clerk at the local traffic office calls a reservation control operator on a direct line, who channels the request to the chart clerk in charge of the desired flight. The control operator advises as to seating availability.

Increased use of the airways as shown by these figures was interpreted by CAA officials, including Thomas P. Bourne, director of federal airways, as an indication that pilots in growing numbers are recognizing the "protective service" afforded by the regular flight paths.

## Winter Oiling System

A new cold-weather lubricating system for aircraft engines that is adaptable to all types of internal combustion engines has been devised by Leslie T. Miller, Glenn L. Martin Co. engineer.

He said battlefront reports have established the success of the new system as used on Martin-built bombers and other planes. The new development consists of a series of basic improvements on the method of diluting oil with gasoline in order to produce quick starting of aircraft engines in cold weather.

► **New System Used**—Miller explained that under the new method, the diluent is introduced into the oil after the oil has passed through the motor which prevents the hot motor from distilling out the highly volatile diluent, and thus leaves the lines, motor and warm-up chamber full of thinned oil. Secondly, the new method sets up a by-pass which keeps cold and hard oil from getting into the air cooler and bursting it and in the third place the method permits the use of dual return lines to the oil reservoir—one leading into the warm-up chamber and the other into the reservoir as a whole.

A thermostat located at the point where the diluent enters the oil decides whether the oil shall by-pass the cooler and whether it shall return to the warm-up compartment or to the reservoir as a whole.

# Industry, Army Profit by Exchange Of Personnel, Boeing's Beall Says

Engineering vice-president tells of mutual advantages following talk in England with Gen. Eaker, of 8th Air Force.

By MARY PAULINE PERRY

Advantages to aircraft manufacturers and the Army of a greater exchange of skilled personnel figured in recent discussions in Britain between Gen. Ira Eaker, of the Eighth Air Force, and Wellwood E. Beall, vice-president in charge of engineering, Boeing Aircraft Co., recently returned from abroad.

Receipt of first hand information by aircraft manufacturers from the men who fly and data given airmen by manufacturing representatives all add up to better aircraft and better performance, it was pointed out.

► **U. S. Methods Used**—Beall said the British are now standardizing their production of aircraft and using the heavy machine tool and assembly technique of American manufacturers. As in this country, he said,

they are selecting their most successful designs and types and concentrating on their output.

Beall visited Britain to observe the *Flying Fortress* performance and to discuss it with airmen operating the aircraft.

While abroad, he studied latest British plane designs and investigated new enemy types and air tactics.

► **British Bombers**—He said the *Lancaster* bomber is now being produced by three British manufacturers and that the Stirling was out of production. Beall added he did not believe the British were doing as much on new plane development as the United States, although their engineers are working on several new versions of fighter types and on a new bomber.



## CAA EXHIBIT OPENS:

An exhibit "to assist the layman to orient himself in relation to the Air Age" has been opened in Washington by the Civil Aeronautics Administration, in collaboration with the New York Museum of Modern Art. Looking at one of the pieces are William A. M. Burden, special aviation assistant to the Secretary of Commerce Jesse Jones, and CAA Administrator Charles I. Stanton.



In addition to the new Avro York transport, the Bristol Company, he said, has been commissioned to do engineering on a large postwar transport.

► **Optimistic**—The Germans, as far as he could tell, are developing a new Messerschmitt 209, but it "won't be useful in this war," he said, because it takes too long to develop a new plane. He reflected the optimism he said is felt by the Eighth Air Force and the RAF over the report that two of Germany's three large fighter plane plants have been destroyed.

On postwar designs, Beall pointed out that the type of plane needed would depend on economics, legislation and international politics.

## AAF Orders Removal Of Planes' War Paint

The Army Air Forces have ordered the removal of war paint from almost all of its aircraft, a move which will give Army planes several miles an hour additional speed, will result in a substantial reduction in weight and cut down production man-hours.

AAF estimates removal of camouflage will yield a slight increase in top speed and that there will be a weight reduction in fighter types of approximately 15 to 20 pounds and in heavy bombardment types of from 70 to 80 pounds. Only specialized planes overseas will retain their camouflage where tactical considerations require it in combat zones.



### MEYERS MAKES WTS DELIVERIES:

War Training Service has received 15 of these Model OTW-160, manufactured by Meyers Aircraft Co., Tecumseh, Mich. It is equipped with the late Kinner R-56, 160-hp. engine and was developed especially for operation from airports in high altitudes. Its makers say it will climb to 10,000 feet, completely loaded in ten minutes. It weighs 1330 pounds empty, 1910 gross.

## Brightening Plane Picture Marred By Turnover on Production Line

About 20,000 workers monthly leave jobs in West Coast plants, AWPC reports; loss in man-hours in eleven months put at equivalent of 2,035 *Flying Fortresses*.

A few small clouds darken an otherwise generally brighter manpower picture in the aircraft industry, labor turnover casting the biggest shadow with some 20,000 workers leaving their jobs in West Coast plants every month and while the need for clerical and other indirect help is diminishing, all plants still need workers for production lines.

The Aircraft War Production Council, in a survey of West Coast plants, found that an average of 56 percent of those leaving gave "personal reasons," such as returning home, wanting a rest or vacation, marriage and similar reasons.

► **Situation Serious**—The seriousness of the situation is pointed up by the Council's estimate that man-hours lost in the past eleven months by turnover are equivalent to production of 2,035 *Flying Fortresses*. The Council insists that if turnover was cut by 50 percent, most of the aircraft industry's manpower problem would be solved.

Following up earlier figures on the monetary cost of turnover, the Council points out that since it costs an average of \$200 to hire and train each worker, the turnover loss this year at the present rate will equal

approximately \$48,000,000 or, based on an average cost per fighter plane of \$75,000, about 640 P-38's, *Mustangs* and *Thunderbolts* which failed to get at the enemy.

► **Type of Worker Is Problem**—In addition to the turnover problem, a steadily declining number of those who seek employment with aircraft companies is willing to accept plant jobs concerned with the physical fabricating and assembling of warplanes. The manpower problem of the industry is not numbers alone, but type of workers.

Approximately two-thirds of those who apply for jobs in the warplane plants want secretarial or other so-called indirect jobs. Within the plants, workers who have been offered transfers from indirect to assembly-line employment, in many instances, prefer to quit. A few of the firms have been able to release factory workers, because of greater labor utilization and work simplification, if they will not do direct production work.

► **Indirect Worker Reductions**—Lay-offs of indirect labor in some plants was said to have been urged by Brig. Gen. Donald F. Stace, western district supervisor, AAF, Materiel Command, and Maj. Gen. Charles E. Branshaw, Materiel Command, Wright Field.

Despite the complicating factors of turnover and those involved in direct and indirect labor problems, industry leaders believe the steadily rising curve of aircraft production can be continued as these headaches disappear or are eased by concerted Council attack.

► **Production Progress**—Evidence of production strides made is seen in the fact that in the month before Pearl Harbor the West Coast plants produced only 762 planes, many of which were trainers rather than combat types. Today these same plants complete nearly 100 planes every working day—and a vast number of them are big bombers.

On Dec. 7, 1941, the work of 70 skilled workmen was required for one year to turn out a four-engine bomber. Today, only 17 workers are needed for the same period to do the same job. Therein lies the bright aspect of the manpower picture.



### A. OGDEN PIERROT:

*Urges caution in preparing sales estimates in post-war Latin America. In the seven years he maintained an agency in Buenos Aires, he sold about 60 percent of all U. S. planes sold in South America. He represented Curtiss-Wright, Martin, Grumman, Fairchild and Stinson. Earlier he had been U. S. trade commissioner and commercial attache at the embassy in Rio Janeiro. He spent one year on a U. S. commission studying rubber production in the Amazon Valley. He went to McDonnell from WPB's aircraft production division.*

## Warns Overoptimists On Postwar Market

McDonnell representative urges caution in plans for sales in South America.

A word of caution against overestimating the South American postwar aircraft market has been sounded by an airman who has spent ten years in South America as commercial attaché, and seven as a representative of several leading American aircraft companies.

A. Ogden Pierrot, Washington representative of McDonnell Aircraft Corp., said he has been impressed with the seriousness with which aircraft people in this country, including important executives, look to export markets to help solve difficult problems that lie ahead for the industry.

► **Urges Realistic View**—"It is my belief," Pierrot says, "that we can go pretty far off the track by basing plans for the postwar era on false ideas of the volume of business obtainable."

Speaking of South America, Pierrot says he can state definitely "that the rosy pictures now being drawn

of markets that will open up in that territory after the war are certain to cause no end of false planning, needless losses of money, etc."

► **Cargo Equipment Sales**—Potential sale of cargo equipment in South America, in Pierrot's opinion, will be limited largely to those airlines established by existing American operators who may obtain permission to operate in Latin-American countries as well as through them. He believes a few Latin-American governments may decide to establish government-owned airlines similar to those operated by the Chilean government "but the total volume of sales probably would not exceed a dozen airplanes per year in all Latin America."

Pierrot pointed out that the bulk of our aviation trade in Latin America has been in military types of aircraft, including trainers and he believes sales to the governments for their military services will continue to represent by far the greater part of the dollar volume of aircraft business in Latin America.

► **Opposes Dumping of Surplus**—He says this business may not amount to much for the first few postwar years since many of the governments have obtained more equipment than they ever had before from our government during the past two years.

However, if dumping of surplus equipment by the United States and Great Britain is prevented, Pierrot believes a market for training and smaller tactical types of a gross weight under 30,000 pounds should be marketable for a total annual volume during the first five years after the war of from a minimum of \$5,000,000 to a maximum of \$20,000,000 per year.

► **Minimizes Sales Outlook**—Pierrot said it would be his guess that even if trade in military aircraft is unrestricted, and assuming that American manufacturers could obtain the greater portion of the business in military aircraft, the average annual sales in Latin America would not exceed \$10,000,000 for the first five postwar years. He pointed out that this takes in complete aircraft only and that spare engines, propellers, and other equipment and parts would account for about 10 percent.

Sales of personal airplanes in Latin America, Pierrot estimated, are not likely to average more than \$1,000,000 for several years to come. This would allow for annual exports of around 500 airplanes valued at \$2,000, which would take care of the light airplanes and the few heavier and more expensive 4-5-place planes.

## AA Asks Alternate N.Y.-Minneapolis Line

Only three applications filed with CAB during week.

Three applications for air service and one amendment to a previous application were filed with the Civil Aeronautics Board in Washington last week.

Most extensive was American Airlines' amendment to Dockets 932, 1119, 1143 and 1200, previously filed. The company's intention to file this amendment had been announced by their counsel at a pre-hearing conference on the application of Northwest Air Lines and others for service roughly following a route from the Twin Cities to New York.

► **Alternatives Proposed**—American proposes various alternatives to its previous applications in the event that CAB does not authorize consolidation of Routes 18, 23 and 4 into one route, or consolidation of Routes 7 and 21, which American has requested. Among the cities affected in the amendment are St. Louis, Detroit, Cleveland, Toledo and Columbus.

American also filed for a new route from St. Louis to the terminals Cleveland and Detroit, via Springfield, Ill., Indianapolis, Anderson-Muncie-New Castle, Fort Wayne and Toledo. This proposed

## Mass Producers

Grumman Aircraft Engineering Corp.'s facilities are currently producing more aircraft on a unit basis than any other plant in the country.

Grumman is closely paced by the Buffalo plant of Curtiss-Wright Corp., which is running in second place.

Other leaders are Bell Aircraft, Lockheed, North American's Inglewood plant, Consolidated-Vultee at Downey, Consolidated-Vultee at San Diego, Republic Aviation Corp. at Farmingdale, and Douglas' El Segundo plant, in that order.

Washington officials and executives of the aircraft industry, meanwhile, continue to emphasize that airframe weight is the fairest standard for production, and it is anticipated that few more government announcements of the industry's accomplishments will be issued in units of aircraft.



route is similar to those presently under discussion at a hearing before Examiner Thomas L. Wrenn.

► **Ferrying Service Asked**—A "fly-away," or ferrying service was proposed by Eldon H. Countryman and William B. MacDonald, Jr., of Chicago, engaged in surface transportation of bungalow, cabin and house trailers, with the Trailer Transport Co., and Mid-States Trailer Transport, respectively. They ask to be allowed to transport new or used aircraft by flight, or crated as freight, over an irregular route to any or all points in the United States and Alaska.

Another application which was not concerned with the transportation of passengers was that filed by Transamerica Freight Lines of Detroit. This company operates a fleet of 750 motor vehicles in 12 eastern and middle western states. It proposes to carry property, mail and express by air over substantially the same routes in both scheduled and non-scheduled operations. Twenty-nine routes suggested by the company extend roughly from New York to Kansas City, and from Buffalo to Louisville.

► **Helicopter Route Proposed**—From New Hampshire came an application from another common carrier, F. S. Willey Co., Laconia. Proposed service would take passengers, property and mail by helicopter from Laconia over nine routes to New York, Boston, Newport, Vt., and Colebrook, N. H., via various intermediate points. Applicant declares this territory is not now being adequately served and proposes to coordinate its present trucking operations with air cargo and passenger service.

► **UAL Plans Five Applications**—Also covering many of the towns under discussion at this hearing were five further applications which United Air Lines announced it was about to file. These would add 32 cities and 3,000 route miles to their present system. The applications called for a new route from Chicago to Pittsburgh to New York with two operations—non-stop from Chicago to Pittsburgh, and from Pittsburgh to New York, and the other via various intermediate cities on this route.

Other service proposed included a route from Chicago to Pittsburgh via Indianapolis, Cincinnati and Columbus; an extension to New York of United's present route to Washington; a new Toledo-Washington route via Pittsburgh and other intermediate cities; and a route from Chicago to New York via various cities in Indiana, Ohio and Pennsylvania.

## Appeal Boards in Employment Area To Hear Aircraft Workers' Cases

Files to be forwarded from local units for review by Jan. 9; Summary of week's activities in federal and war agencies.

By BARBARA FREDERICK

Selective service registrants who have been granted occupational deferment and whose principal place of employment is in a different appeal board area from that of their local board, will have their files forwarded to the appeal board in their employment area for review before Jan. 9.

This new regulation was issued last week from National Headquarters of Selective Service. The review of all registrants who have received an occupational deferment is required by the recent amendments to the Selective Service law.

► **NWL**—Subject to the approval of the National Stabilization director, a new schedule of job classification rates for plants of the airplane division, Curtiss-Wright Corp., was established by the National War Labor Board. Plants affected are in St. Louis, Louisville and Columbus, where employees are represented by the International Assn. of Machinists-AFL, at the former two plants, and by UAW-CIO as the bargaining agent at the Columbus plant.

While there is no general wage increase involved, the new schedule will raise the maximum rates in eight of the ten labor grades and will increase the hiring-in rate five cents an hour for all grades, bringing the rate to 65 cents an hour.

► **Not a Precedent**—In permitting the increases in some of the job classification rates, the Board majority specified that the rates are not to be used as a precedent in establishing rates for plants outside the aircraft industry in the same area.

Labor members dissented from the refusal of the Board to extend the rates of Curtiss-Wright's Buffalo plant to the other three plants, but they otherwise concurred in the decision.

► **Retroactive Payment**—In the order for the St. Louis and Columbus plants, a lump sum retroactive payment of \$2 was provided for each full week in which the employee has been on the company's payroll from the payroll period closest to Nov. 25, 1942, to the date of the order. This retroactive payment does not apply to the Louisville plant, as it went into production only in recent

months and was not part of the original dispute case certified to the NWLB.

Top rates in eight of the labor grades are increased in the order, affecting only those employees eligible for the top rate because of length of employment in the grade. No increase is provided for grades 9 and 10, which remain 80 and 75 cents an hour, respectively.

► **Maximum Rates Up**—Five-cent increases in the maximum rates for labor grades 8, 7 and 6 bring the maximums to 90, 95 cents and \$1.05 an hour, respectively. Grades 5, 4, and 3 are increased by 10 cents, bringing maximums to \$1.15, \$1.25 and \$1.35 an hour. Fifteen-cent increases are provided for grades 2 and 1, bringing the new maximum rates to \$1.45 and \$1.50, respectively.

► **Arbitration Policy Modified**—Included in a document, "National War Labor Board Rules of Organization and Procedure," released last week, is a modification of the NWLB's arbitration policy. In cases where arbitrators' awards are found not to conform to the Board's economic stabilization policy, the case now may be referred to the arbitrator for his reconsideration in light of all issues involved. Formerly the Board modified the wage or salary issue to conform with its policy. This it may still do, but it has the additional choice of returning the case to the arbitrator.

► **Both Sides Get Rulings**—Preliminary rulings on whether approval is required for contemplated wage or salary adjustments, will now be given both to the party requesting the ruling and to the other party involved. Formerly an employer or union might apply to the Wage and Hour Division and might receive a ruling without the knowledge of the other party to a collective bargaining agreement. This new procedure is included in amendments to "Jurisdiction and Procedure of Regional War Labor Boards," recently issued by the NWLB. A further change in procedure has to do with rules for handling appeals, and deals with the reconsideration of directive orders and rulings by regional boards.

► **UAW-CIO** was certified as bargaining agent for production and

maintenance employees of Fisher Cleveland Aircraft division, General Motors Corp., Plant No. 2. At the same plant, AFL unions were certified for maintenance painters, carpenters and electricians, majority of whom voted, respectively, for Brotherhood of Painters, Decorators & Paperhangers, District Council 6; Cuyahoga County Carpenters District Council; and International Brotherhood of Electrical Workers, Local 38.

► **United Steelworkers of America-CIO** was certified for production and maintenance employees of Rheem Manufacturing Co., Birmingham, Ala., following an election held Nov. 18. Production and maintenance employees of the Friez Instrument division, Bendix Aviation Corp., Baltimore and Towson, Md., will be represented by United Electrical, Radio & Machine Workers of America-CIO, as the result of an election held Nov. 12.

► **Clerical Employees to Vote**—NWLB directed that hourly rated clerical employees of the Chevrolet Motor division, General Motors Corp., Flint, vote for or against representation by UAW-CIO within 30 days of Dec. 4.

As the result of hearings held in October at Fort Worth and Dallas, Trial Examiner James R. Hemingway recommended that North American Aviation, Inc., cease and desist from discouraging membership in UAW-CIO, or in any other way restraining or coercing employees in their self-organizational rights; void a warning issued one



**Shatters Aerial Records:** On her first war mission, the giant Mars, Naval Air Transport Service's new cargo flying boat, shattered four world's records on the Patuxent River, Md., to Natal, Brazil, non-stop flight of 4,375 miles and the return journey by stages. The Mars took off from Patuxent weighing 148,500 pounds gross, the heaviest weight ever lifted by a plane.

employee last March and offer him reinstatement with back pay.

► **DPC Contracts**—Contracts with two companies involved in aircraft production were increased by Defense Plant Corp. by \$180,000. For further facilities at a plant in Union County, N. J., Lawrance Engineering & Research Corp., got an additional \$100,000, bringing the overall commitment to approximately \$1,700,000. Clarke Aero-Hydraulics, Inc., Pasadena, was authorized to provide additional equipment at a plant in Los Angeles County at a cost of about \$80,000. The overall commitment to Clarke now amounts to about \$9,750,000. In both instances, the company will operate the facilities, DPC retaining title.

► **OPA** announced a modification of the aircraft veneer rule. Effective Dec. 15, in sales to U. S. Treasury Procurement Division of birch and maple airscrew, aircraft and airframe veneer, produced in accordance with British Standard Specifications 5V3 or 6V3, ceiling prices for Grade A material may be charged under contracts specifying inclusion of up to 30 percent Grade B veneer. If more than 30 percent of Grade B material is furnished, however, the quantity in excess of this amount must be sold at Grade B ceiling price, which is 10 percent less than the corresponding price for the same thickness and class of Grade A veneer.

► **Army-Navy "E" award** has been presented to the Glenn L. Martin-Nebraska plant, which recently started work on a new-type bomber. The Oldsmobile division of General Motors Corp., Janesville, Wis., also received this production award.

► **WPB**—Action to promote establishment of suitable in-plant feeding facilities for war industry workers was announced by Donald M. Nel-

son, chairman of WPB. A general administrative order placed specific responsibilities in the Office of Civilian Requirements and the Office of Labor Production to maintain the highest productive efficiency of civilian employees of industrial plants by making available sufficient supplies, facilities and services, and, in cooperation with the War Food Administration and the OPA, sufficient food for industrial feeding.

► **OWI Report**—This request of Nelson's was interesting in the light of a report from the OWI issued later in the week. From a survey of data from six communities reporting greatest decrease in turnover and six communities with greatest increase, it was indicated that improved community facilities reduce the number of workers quitting only if in-plant conditions are good.

Unsatisfactory in-plant conditions created a high turnover even when good, or at least adequate, community facilities were reported to the War Manpower Commission and the President's Committee on Congested Production Areas. Highest quitting areas reported were Las Vegas, Nev.; Stockton, Calif.; Portland, Ore.; Vancouver, Wash.; Columbus, Ga.; Panama City, Fla.; and Pascagoula, Miss.

► **Airfield Contracts**—Approximately \$4,500,000 worth of engineering contracts were awarded by the Chief of Engineers, War Department, for construction at municipal and army airfields, at airdromes and AAF depots.

Largest single contract, \$632,420, was for extension of runways at Robins Field, Ga. Runway extensions at Tinker Army Airfield, Oklahoma City, will cost \$322,065 and additional construction at Westover Field, Chicopee, Mass., is estimated at \$351,123.

### Davis Tests Wing

David R. Davis, inventor of the famed Davis wing, is not resting on the laurels and royalties of the wing that has made the *Liberator* the bomber it is. Independent, he has become something of a mystery man in the aircraft industry.

Few know that he is busy with new experiments and is using the "outdoor wind tunnel" with which he evolved the original Davis wing—a heavy sedan with a flat deck attached to the top. On the deck are holding devices for experimental airfoil sections fitted with performance recording instruments. When the weather man promises still air, Davis drives to a Mojave Desert dry lake and, skimming along over its glass-smooth surface at high speed, conducts tests without time limit — or wind tunnel fees.



## Ward Testimony Ends Fairchild Hearings

Aircraft firm's president convinces Congressmen of difficulties of plane building.

An investigation into production at Fairchild's plant at Burlington, N. C., died aborning after J. Carlton Ward, Jr., Fairchild president, appeared before a House Military Affairs subcommittee and explained to the committee's entire satisfaction and education some of the difficulties attendant upon building a new airplane.

Ward's clear, concise and candid testimony was a revelation to some committee members who were impressed with his presentation and that of Lee H. Smith, plant manager.

► **Service**—Aviation-minded Members of Congress said privately that Ward had performed a service for the entire aircraft industry in making clear the problems which aircraft manufacturers are daily facing and solving.

Rep. John M. Costello, California, Chairman of the subcommittee, after hearing the testimony and conferring with members, said no further hearings would be held and that the proposed probe would be dropped.

► **Called "Marvelous Job"**—After hearing Ward explain in detail the

problems the company had to overcome in getting the Burlington plant into production, committee members complimented him for doing "a marvelous job of clearing up a picture which looked bad."

An investigator for the committee, Wendell R. Blackburn, had reported that more than \$13,000,000 had been spent on the Burlington plant, but that only one airplane had been produced since the plant received its first contract on Oct. 31, 1941. He also testified that the Burlington plant had received three contracts totaling more than \$63,000,000, that 2,350 workers had been employed and that 475 gunnery training planes were ordered.

► **Charges**—Blackburn charged general wastage, inefficiency and extravagance. Later, Ralph Burton, committee counsel, told the committee that the Burlington schedule called for 170 planes up to Nov. 30, 1943, and that only four had been delivered.

Ward explained that the plane being built at the Burlington plant was a brand new development in material, engineering and power and that it was presently in advance of normal at this stage.

► **Delivery Schedules**—Smith pointed out that production schedules call for the delivery of ten planes in January, with an increase of five monthly until output reaches 45 a month. He added that he was rea-

## Ratings Revoked

Preference ratings were revoked by the War Production Board on alterations being undertaken by two aircraft firms. The orders affected a building of Lockheed Aircraft Corp. in Burbank, and part of a project to make alterations to a plant of Goodyear Aircraft Corp. at Litchfield Park, Ariz.

A revocation order issued last June to Cleveland Pneumatic Aerol, Inc., concerning facilities to manufacture aircraft landing gear struts, was amended to except certain necessary machine tools.

sonably sure the schedule would be met.

Ward said his company has been engaged in much experimentation in advance trainer planes and that a large share of the money charged to Burlington was for experiments in developing a new type of plane and to prepare for production when experimentation was complete. Conceding failure to meet original schedules, he said the schedules were unrealistic because "we really did not know what kind of airplane we were going to build."

► **Defends Plant's Outlay**—While the company has committed or spent approximately \$13,000,000, this covers experimentation, plant tooling and training of workers. He explained that, as a consequence, original costs, part of which should be charged against succeeding production, are not excessive.

Ward emphasized and Smith confirmed difficulties in the problem Fairchild had in training a complete force of workers at Burlington and said that, of the approximately 2,500 employees, about 90 per cent had had no previous experience in the type of work required and that a program of in-plant training was necessary. He said labor turnover and absenteeism at Burlington were below average for the industry.

► **Expansion Costs**—Ward declared the vast expansion of the aircraft manufacturing industry within a comparatively short time of necessity involved large expenditures of money which could not be justified in normal peacetime production, but which were a part of the cost of a wartime production with constantly accelerated schedules. This is a point which the aircraft industry has put forward before and which has been difficult for persons unacquainted with the aircraft industry to understand.

## Civil Air Patrol Forms Plant Units

Civil Air Patrol has an activity even less publicized than the regular program: the organization of industrial squadrons, composed of aircraft workers.

The project is rapidly taking hold in a number of areas and company executives are showing interest in view of the effect of CAP training in improvement of employee relations, because a man or woman engaged in a specific job in an aircraft plant gets an entirely new and valuable viewpoint of the work if taught some of the fundamentals of aviation through CAP courses.

► **100 Bell Workers in Group**—A recent report from Georgia says about 100 employees of the Bell Aircraft plant near Atlanta are attending CAP classes and that many others have indicated interest and a desire to join the program.

In Michigan, one squadron is composed entirely of civilian employees at the Romulus Army air field. Prior to employment there, at least 90 percent of them had little knowledge of aviation. They are now taking CAP training in all basic courses. Several Army officers have volunteered to teach various classes.

► **Industrial Squadron**—Michigan's Technical Service Squadron, in Detroit, formed to assure expert maintenance of CAP aircraft, is composed of plant workers. This squadron has the facilities of the Aero Mechanics school available for training in aircraft engines and aircraft.

One of the new industrial squadrons which various wings have formed to give aircraft workers an opportunity to round out their knowledge of aviation is at the Curtiss-Wright plant at Louisville, Ky.

## Sperry "V" Credit

A Regulation V credit for \$125,000,000, running to Dec. 31, 1946, has been obtained by Sperry Corp. from a group of 57 banks headed by Bankers Trust Co., New York.

Thomas A. Morgan, Sperry president, said the company's expansion program had been completed and production was at a high rate. It was believed the new credit, a percentage of which is guaranteed by the Navy, will finance all of the company's war production as well as eventual termination of contracts.



**New Piper PT Experimental Plane:** This new low-wing model, shown in flight and on the ground, is designed for multi-purpose duty, with excellent vision for both instructor and student. Non-strategic materials are used wherever possible. It is powered by a six-cylinder, 130-hp. Franklin engine.



## New Piper Built for Multi-Purpose Job

Low wing primary trainer has twin panels, retractable landing gear.

A new Piper experimental PT low-wing, designed to perform multi-purpose duties, is powered by a six-cylinder 130-hp. Franklin engine, and cruises at better than 135 mph., flies at more than 150 mph., and yet lands at less than 50.

With wheels retracted, the Piper PT in flight has a definite pursuit appearance and provides excellent vision for both instructor and student.

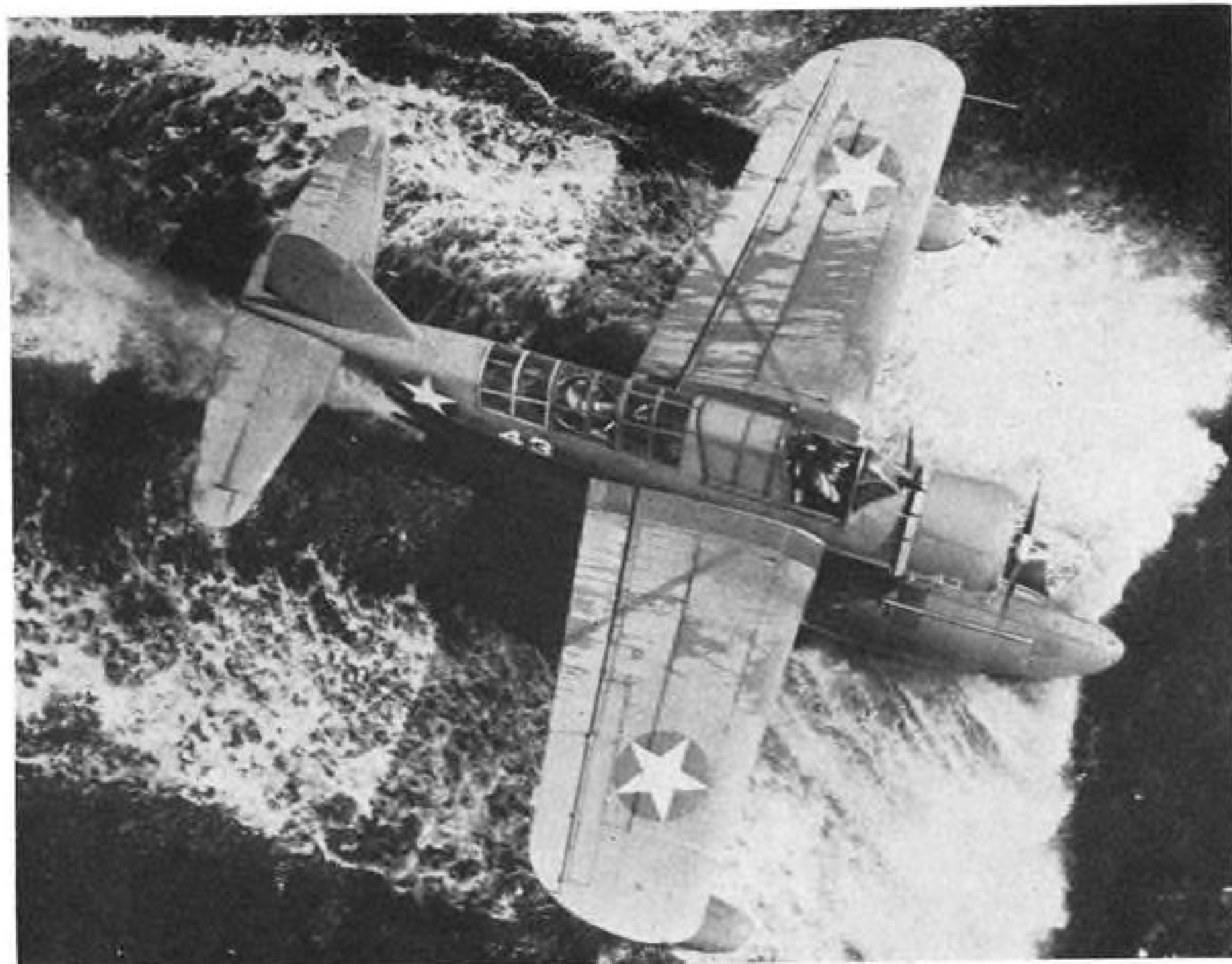
► **Twin Instrument Panels**—Instruments are identically placed on panels in each cockpit to prevent confusion over location or absence of any instrument. Non-strategic material has been used wherever possible, and special care given in design to assure ease of maintenance.

The cockpit cover has a top section hinging on the right side with sliding windows on each side and, with top section secured, the plane can be flown with windows up or down.

► **Fuselage**—The fuselage is of conventional steel tubular Warren truss construction, with turnover structure an integral unit between front and rear cockpits. Wood stringers are used and the turtle deck is of plywood. The fuselage is fabric covered, with the exception of removable inspection panels.

The full cantilever wing has built-up, box-type monospar and wood ribs, comprised of center section and two outer panels joining outboard of the landing gear attachment. Flap brackets and aileron are mounted on an auxiliary rear spar.

► **40-Gallon Fuel Tanks**—The center section carries two stainless steel fuel tanks with total capacity of 40 gallons, in addition to the landing gear and retracting mechanism. The wings are covered with mahogany plywood, which in turn is fabric covered.



## KINGFISHER PRODUCTION COMPLETED:

Deliveries of one of the best known Naval aircraft, the Chance-Vought Kingfisher (OS2U-3), observation scout, have been completed and production at the Stratford plant has terminated. It was built both in landplane and seaplane versions.



## THE AIR WAR

### COMMENTARY

## Allies Shuffling Air Forces For Big Invasion Campaign

Lessons of North Africa, Salerno, and road to Rome result in new 15th Air Force (strategic) under Doolittle, while 12th becomes tactical force; Brereton may lead U. S. air tactics.

When one of the war's outstanding ground commanders writes a book on the use of air power it's news—even if the book is largely devoted to the prime importance of air power in combination with ground forces.

Not so long ago military leaders almost without exception were accustomed to think of the airplane as a battle weapon, to be used in "support" of ground operations. The sheer weight of facts as shown in the campaigns in the Mediterranean during 1943 has changed all that. The principles underlying these campaigns and blueprinting those that lie ahead are embodied in a recently announced book by General Sir Bernard L. ("Monty") Montgomery, which is being privately circulated among senior officers of the British Army and Royal Air

Force and also American ground and air generals.

► **The Air-Ground Team**—Dispatches indicate that as the textbook for the new invasion of Europe it is high up on the required reading list of many an officer at this time. It is not likely that the rest of us will get even a peek at it "until the duration is over," but a general indication of its contents may be gained by a careful analysis of past events. A good place to start would be at an important official ceremony in Tripoli on February 18, 1943, when the Northwest African Air Forces were established under the command of Lieut. General Carl A. ("Tooe") Spaatz. General Montgomery had just made a few remarks expressing in highest terms the value of the powerful air operations of the RAF and U. S. Ninth Air Force in the

break-through at El Alamein and the spectacular pursuit of the Afrika Korps across Libya. Air Vice-Marshal Sir Arthur ("Maori") Coningham, who with General Brereton was largely responsible for the tactical air offensive, responded in the following words: "You will notice that the Army Commander does not use the word 'Cooperation'. I submit that we in the Eighth Army are beyond the cooperation stage, and that work is so close that we are, in effect, one unit. . . . There has been as much air cooperation by the Army as Army cooperation by the air, and the natural result is that we have now passed beyond that stage into a unit or team in which one part automatically helps the other."

► **Tactical Air Triumph in Tunisia**—Coningham was thus the logical commander of the newly organized Northwest African Tactical Air Force, and Brig. General Laurence S. Kuter became his deputy. The tactical air doctrines hammered out in the earlier desert fighting by General Montgomery, Air Marshal Tedder, Coningham, Brereton and Strickland, correcting initial RAF mistakes and profiting by fatal errors of the Italian and German air forces, were brought to a new peak in the Tunisian campaign as the rich experience of General Spaatz was thrown into the pot.

► **New Air Set-Up in England**—The revolutionary nature of this new application of tactical air power is seen in two important steps taken early last summer, only a few weeks after the triumphant conclusion of the Tunisian campaign. The Royal



## Reunion on the Field of Battle



These are Fairchild alumni—fighting men from Norway, Canada, the U. S. A.

Though they come from different parts of the world, these skillful warriors of the United Nations Air Forces have much in common.

Typical of thousands of fliers on every fighting front, each was given an intensive course in a Fairchild Primary Trainer as one important step on the road to winning his wings. Their meeting upon some distant airfield is virtually a reunion of "old grads" of the same Alma Mater.

It is easy to understand why the Air Forces choose Fairchild for primary training.

There is the element of added safety. For example: quick take-offs and steep climbs can be performed by novices in a Fairchild Trainer without danger of stall-

ing, which caused so many fatalities in the last war. The trainee, behind a 175 or a 200 horsepower Ranger engine, just "pours on the coal" and he's quickly in the air with a lot of runway to spare.

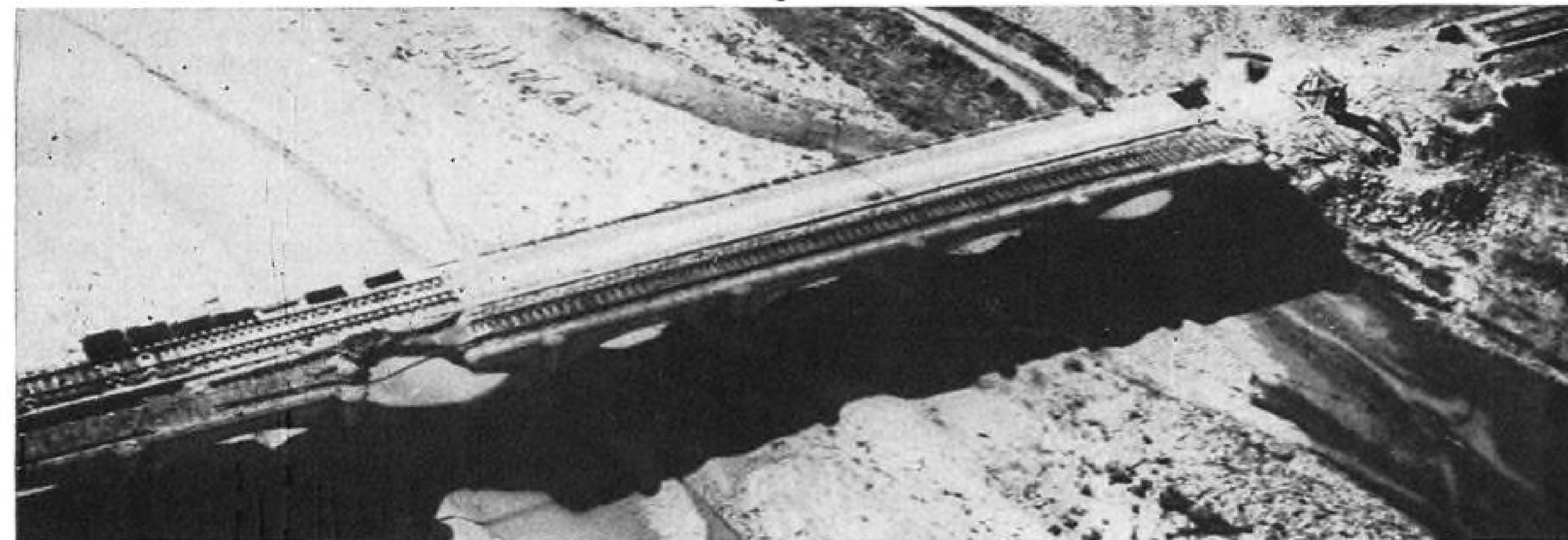
And when it comes to acrobatics, which give a trainee an intimate feel of the controls and teach him instinctive flying, a Fairchild is the answer to an instructor's prayer. No need to crush the student's confidence by telling him not to dive at high speeds. Just teach him all the tricks in the bag, with the full knowledge that safety has been built into every inch of every Fairchild Trainer.

*Maneuverability with great safety, and rugged landing characteristics*—for which *all* Fairchild trainers are famous—provide the foundation stone of Fairchild's "touch of tomorrow in the planes of today."

BUY U. S. WAR BONDS AND STAMPS

**Fairchild Aircraft**

Division of Fairchild Engine & Airplane Corporation, Hagerstown, Maryland.....Burlington, North Carolina



### "ALMOST PERFECT BOMBING"

This photograph released by the AAF shows what the big air force forming in England hopes to do on an unprecedented scale in Western Europe to sever German communications. Described by the AAF as "al-

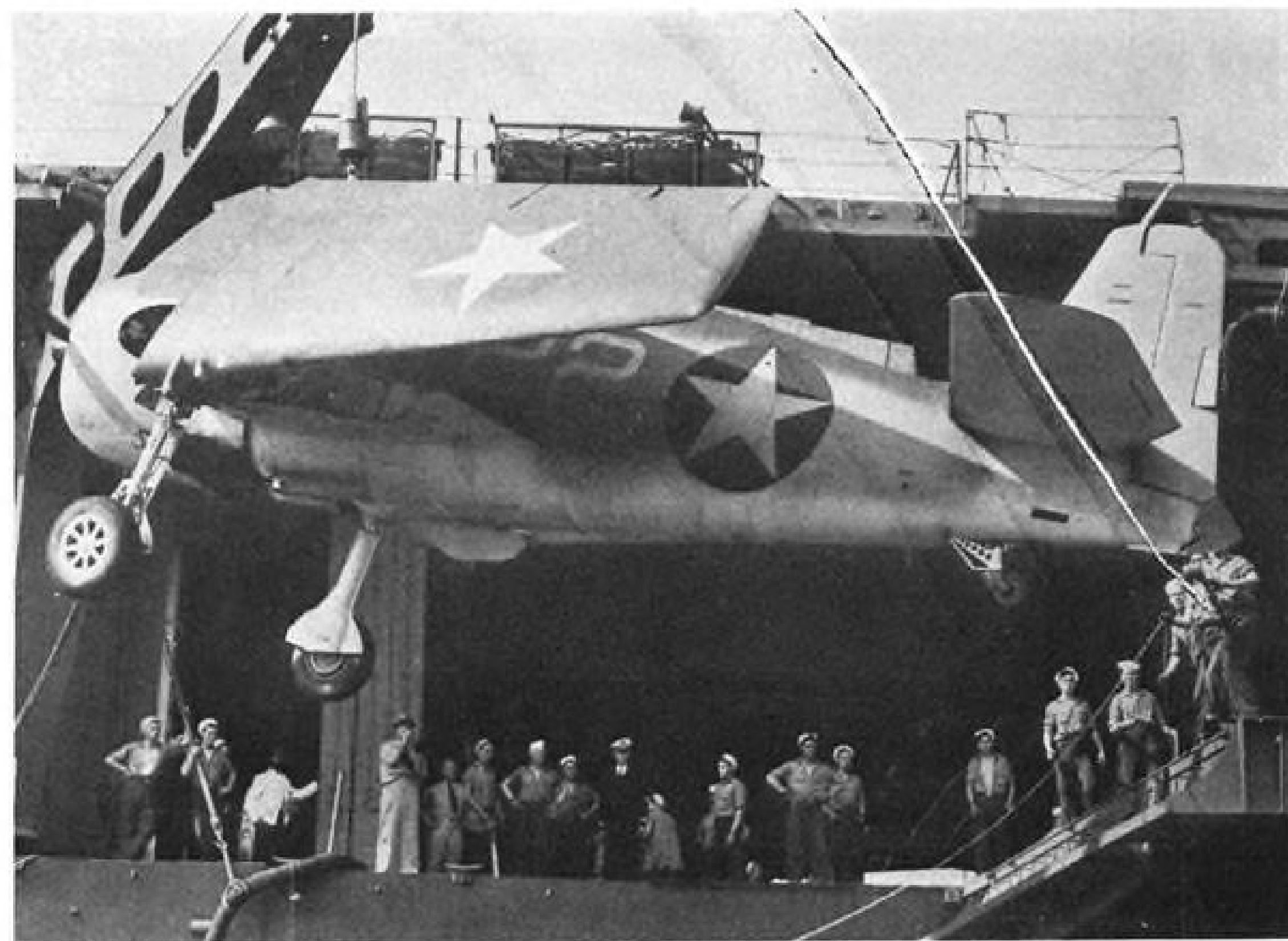
most perfect bombing," the direct hits on this Italian bridge made it impossible to move traffic but did not destroy the entire length. Allied engineers will be able to repair the damage when they move up.



Air Force announced the winding up of its Air Support Command and the formation of a Tactical Air Force in England. This was quickly followed by an announcement by General Eaker that the U. S. Army Air Forces based in England would be reorganized into a Strategic Air Force and a Tactical Air Force. The lessons of Africa, and more recently of Salerno and on the road to Rome, will be turned to powerful account in the coming invasion of the continent. Reports have persisted that General Brereton, who was in on the early developments, may head up the American air tactical program, and that Air Marshal Coningham will head up the British, bringing this team together again for a tougher job than ever.

► **American Army Doctrine**—The second result of the African victory was the official acceptance by the U. S. Army of the air doctrines that were so happily vindicated in that campaign. July saw the advent of a 22-page booklet, FM 100-20, "Command and Employment of Air Power," crystallizing under General Staff authority the air doctrines of the war to date and setting the pattern for the future.

► **Air Power at Salerno**—According to FM 100-20, there are three phases of air operations to be carried out. (1) Attainment of air superiority. (2) Isolation of the battlefield. (3) Attack of ground objectives on the battlefield. In the three weeks preceding the invasion our air forces flew over 17,000 sorties, dropping more than 15,000 tons of bombs in operations against the enemy air force and his communications. Airfields and installations were wrecked, hundreds of planes were destroyed or damaged, bridges and rail junctions bombed with heavy, medium, and light bombers and fighter-bombers taking part. While this activity continued, the next main at-



#### HELLCAT GOES ABOARD A CARRIER:

One of the Navy's newest fighters, a Grumman Hellcat, is hoisted aboard a big first line aircraft carrier. Officer with megaphone is directing operations, while sailors hold line to the plane's tail.

tention was given to isolating the battlefield, and the big all-out drive to knock out strategic bridges, rail centers, to destroy supplies, trucks, goods trains, etc., in order to cut off reinforcements was begun. The third stage was the actual landing, and owing to the lack of suitable fields near enough for land-based fighter planes to keep off enemy dive-bombers, it was nip and tuck for a day or two, but by throwing in the entire strategic air force, the tide was turned and the victory won.

► **New Springboard**—As air bases in southern Italy became available, fighters and medium bombers were transferred from Africa, and the heavies are expected to be in operation shortly from such strategic

bases as Foggia, with its command of the Aegian Sea and the Balkans, as well as important targets in northern Italy, southern France, eastern Germany, Austria, Hungary and Slovakia. The newly formed Fifteenth, under Maj. General Doolittle, has become the Strategic Air Force for this area, and the Twelfth continues as the Tactical Air Force, possibly to be commanded by Maj. General House who led the Salerno air operations, or Maj. General Cannon, who succeeded General Kuter last May as deputy commander of the Northwest African Tactical Air Force.

These sea-air-ground teams appear to be set for the big doings.

—NAVIGATOR



#### RETIRED FORTRESS VETERANS:

The Signal Corps photographed these two battle-pocked Flying Fortresses, "Little Eva," and "Special Delivery," on a field somewhere in North Africa. Con-

demned for further combat activities, they are being dismantled and stripped of parts to be used for making repairs on other damaged planes.

## AIRCRAFT PRODUCTION

### Army's Cold-Pressure Chamber Aids Design of Plane Armament

Special chamber at Wright Field put into operation after a year of construction and cost of \$70,000; research to prevent gun failure at high altitude.

By ALEXANDER MCSURELY

Army Air Forces Materiel Command Armament Laboratory at Wright Field has started use of its huge new cold-and-pressure test chamber, largest of several such test rooms there, and one of the largest in the world. The room is 20 feet in diameter, 16 feet high, with walls of three-quarter-inch steel lined with 12 inches of insulation. A ten-ton roof, also of steel, can be lifted off by a crane to permit entry of large pieces of armament equipment into the chamber.

► **Quick Changes**—Two large vacuum pumps suck air from the chamber, to get the lower pressures found at high altitudes, and their capacity is such that the chamber can simulate an air pressure change from sea level to 40,000 feet in 15 minutes, and to 10 miles in 21 minutes.

Four electric fans in front of 40 kilowatt electric heaters can produce heat in the chamber up to 175 degrees above zero, while a two-stage refrigerator unit sends a refrigerant through coils in the walls of the chamber to cool it, if necessary, to 75 degrees below zero.

► **Test All Conditions**—"We can find out exactly how guns, turrets, and other mechanical armament equipment work under every condition—heat, cold, and altitudes even higher than those at which our present planes can fly," says E. M. Ehlers, civilian engineer in charge.

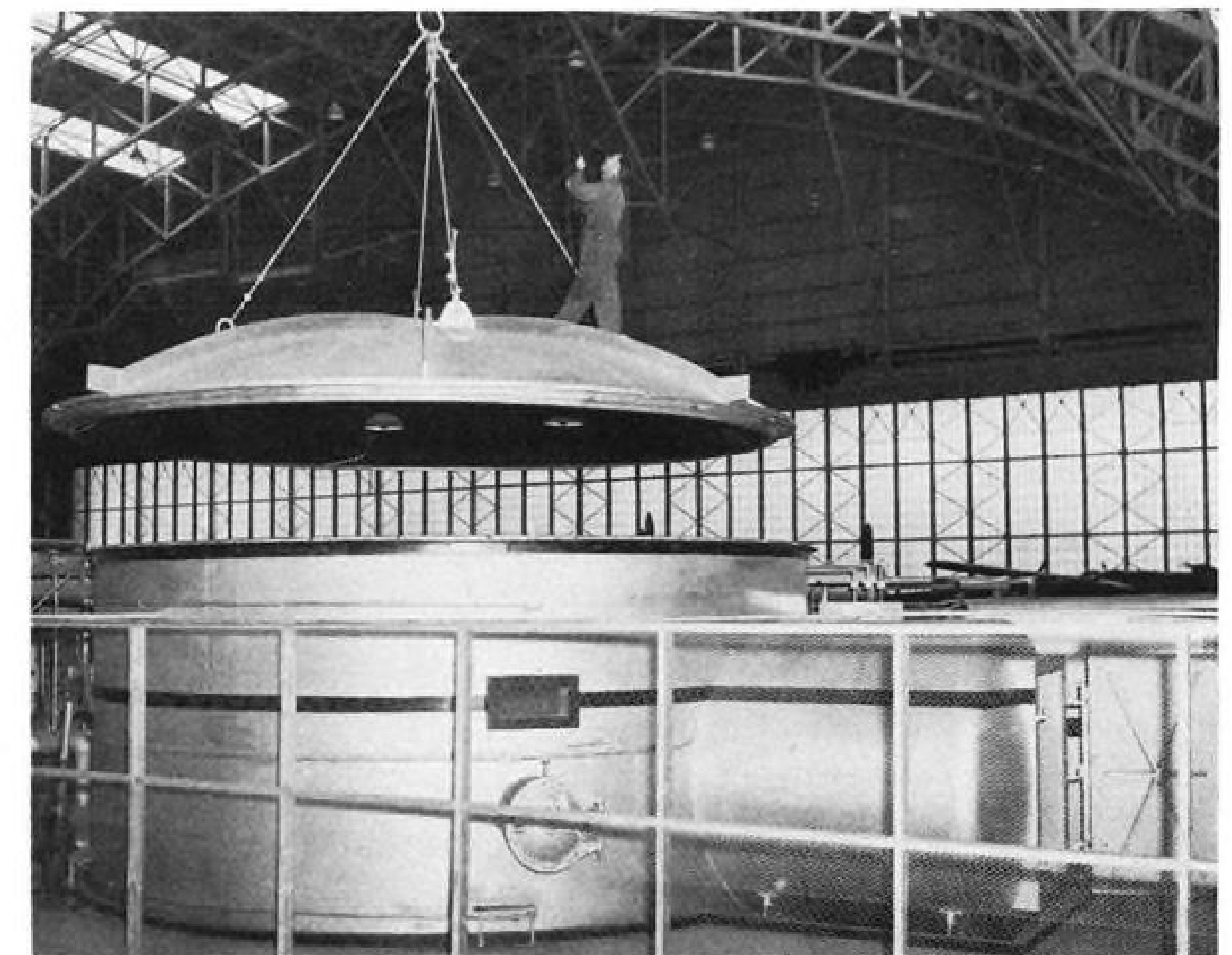
Technicians using the chamber enter it through an airlock if the apparatus is already simulating high altitude. This enables them to accustom their bodies to the change in pressure more gradually, so that they do not suffer from aeroembolism, the high altitude disease similar to deep-sea diver's bends.

► **Oxygen Equipment**—Inside the big chamber they attach oxygen masks to tubes hanging from the walls, and plug in their electrically-heated fly-

ing suits if a cold test is in progress.

Controls of the chamber are manipulated by an engineer outside the walls, who is in constant communication with the men inside by interphone, and who watches through a glass port, ready to turn air back into the chamber and "bring it down to earth" at the first sign of trouble.

► **Cost \$70,000**—The apparatus was constructed at a cost of \$70,000 and took more than a year to build. Colonel Franklin C. Wolfe, armament laboratory chief, explains that because of the size of armament units such as turrets and guns, none of the other chambers at the field had



#### WRIGHT FIELD'S COLD AND PRESSURE CHAMBER:

Size of the new cold and pressure chamber in Wright Field's armament laboratory is indicated in the above photo. The engineers enter the chamber through the airlock door at the right. The ten-ton roof can be lifted to permit entrance of large piece of armament equipment for sub-zero testing.

been large enough to accommodate them and the technicians operating the tests.

#### Device Saves Tires

Goodrich idea starts landing wheels turning as plane nears ground.

Pre-landing rotation of airplane wheels to ease wear and tear of landing impact, long an objective for aeronautical engineers, is attained by Henry F. Schippel, tire engineer of B. F. Goodrich Company, who discloses invention of a self-starting airplane tire that will attain high rolling speed before it touches ground.

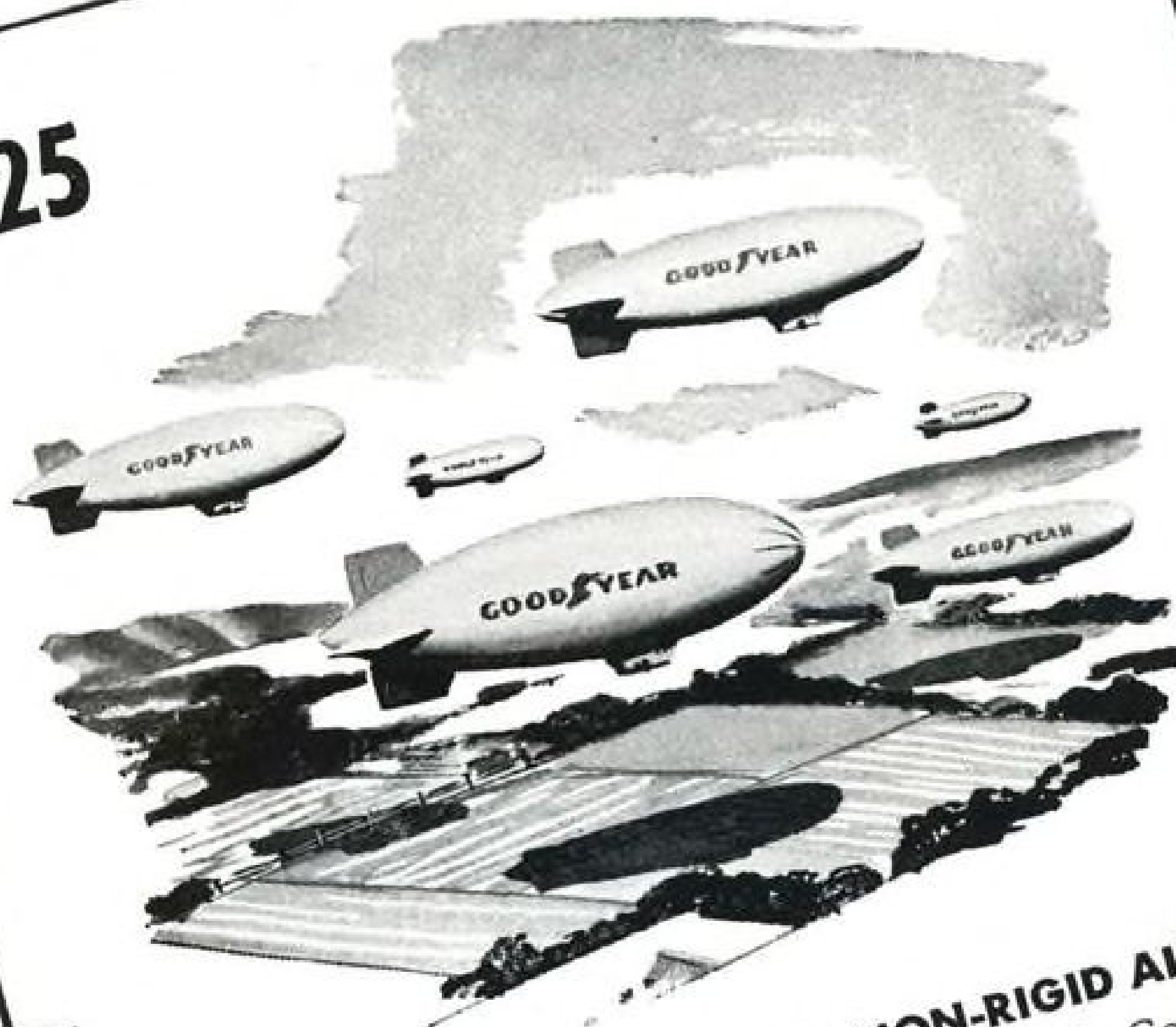
► **Fins Used**—This pre-landing rotation, he explained, requires no motor, being achieved simply by a unique arrangement of vanes, or fins, built into the sidewall of the tire so that when the landing gear is lowered they catch the air and thus set the wheel spinning. The fins, made of rubber and fabric, are so constructed and placed that they spring back into position flush with the tire's side, on the "upper half" of each rotation of the wheel.

James S. Pedler, manager of Goodrich's aeronautical division, said the effectiveness of this mode of pre-landing rotation in lessening airplane tire wear has been convinc-



# Trail Blazing in the Skies

1925



**THE LARGEST COMMERCIAL NON-RIGID AIRSHIP FLEET** in the world was built and flown by Goodyear in the interval between World Wars I and II. Beginning with the launching of the airship Pilgrim in 1925, no less than twelve airships have flown the Goodyear flag from eight operational bases, located from coast to coast. These ships flew a total of 4,000,000 miles without a single mishap, providing a great increase of knowledge regarding air structure, meteorology and airship engineering that has been of inestimable value to the nation in wartime lighter-than-air operations.

## HOW GOODYEAR AIRCRAFT CORPORATION SERVES THE AIRCRAFT INDUSTRY

1. By constructing subassemblies to manufacturers' specifications.
2. By designing parts for all types of airplanes.
3. By re-engineering parts for mass production.
4. By extending our research facilities to aid the solution of any design or engineering problem.
5. By building complete airplanes and airships.

1943



**THE LARGEST NON-RIGID AIRSHIP EVER BUILT** is the new M-1, recently completed by Goodyear Aircraft for the United States Navy. Approximately 50% larger than the Goodyear-built airships now so effectively protecting America's coastal sea lanes, the M-1's wider cruising range and greater bomb-load capacity make it a more effective member of the anti-submarine team. Distinctive feature of the M-1 is its three-unit, articulated control cabin that distributes its weight over a larger area of the envelope — a novel application developed by Goodyear Aircraft out of its long experience in lighter-than-air design.

Back  
the attack  
with  
WAR BONDS

**GOOD YEAR**  
AIRCRAFT



ingly demonstrated in tests. He said special tires of the 17.00 by 16 size that the company had furnished to a commercial airline had "successfully made more than twice as many landings as the average delivered by conventional tires of the same size in similar service."

► **Smoother Landings**—Pedler added that, although reduction in landing-impact wear was the primary reason for the new device, the already-spinning wheels make possible noticeably smoother landings. Landing-shock wear has been an increasingly critical problem to the aviation and tire industries in recent years, as a result of tremendous increases in plane size and weight, demanding larger tires and higher landing speeds. Pre-rotation should contribute to lessening the strain on landing-gear assemblies.

## Fairchild Steps Up PT-26 Production

Output of PT-19 interrupted at Hagerstown plant for new model.

Production of an undisclosed number of PT-26 Cornell trainers, which are used by the Royal Canadian Air Force and by the Royal Norwegian Air Force at "Little Norway" in Canada, is now under way at Fairchild Aircraft in Hagerstown, Md.

Fairchild interrupted its PT-19 production schedule for the new line.

The Fairchild PT-26, a refinement of the better known PT-19, is powered by a 200-hp. Ranger inline six cylinder engine. It has a sliding cockpit enclosure, cabin



"Cornell" on the Wing: Fairchild Aircraft in Hagerstown, Md., has interrupted production of the PT-19, shown above, to concentrate on the PT-26, a refinement, for the Royal Canadian Air Force and the Royal Norwegian Air Force at "Little Norway" in Canada. Fleet Aircraft, Ltd., also produces PT-26's in Canada.

heater, lights, blind flying instruments and hood. It is used for secondary training. Gross weight is 2,739 lbs., and cruising speed is 110 mph.

► **PT-26 Output Increased**—By discontinuing production of the PT-19 for a brief period, Fairchild has stepped up its PT-26 production schedule by 300 percent over the previous months during which this model was manufactured at Hagerstown.

Continuation of PT-26 production at Fleet Aircraft, Ltd., in Canada, combined with the increased production at Fairchild, will provide a substantial portion of training aircraft required by the Canadians and Norwegians through the winter months.

## Diesel Units Studied For Non-Power Uses

Airesearch Corp. developing system for pre-cooling and pressurizing of cabins.

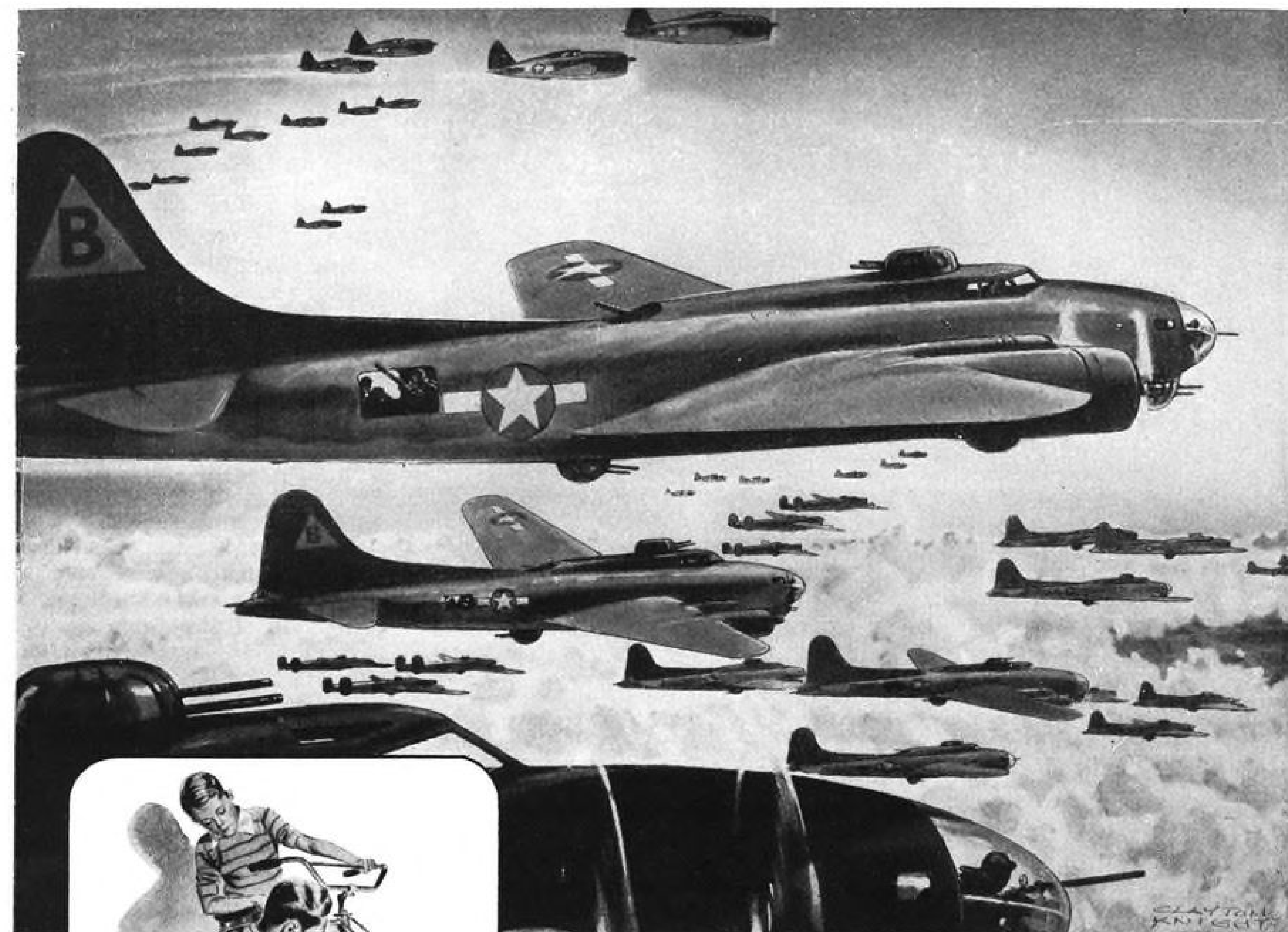
Application of diesel units to aircraft for other than power uses is under study by Airesearch Manufacturing Co., of Los Angeles, which believes diesel development may be part of the answer to more comfortable air travel in the future.

Expanded use of diesels, always a topic of interest in the aviation in-

## Canada Aids U.S.

Six Canadian aircraft producers are participating in the U. S. plane program, according to Washington officials. Details have not been released on all types encompassed in the schedules, and the total number of Canadian planes sent to this country does not represent a sizeable proportion of our monthly deliveries.

The companies are Boeing Aircraft of Canada, producing Catalinas; Canadian Vickers, Ltd., with a twin-engine craft; Noorduyn Aviation, Ltd., with the UC-64 single-engined transport, and the AT-16 or AT-6 advanced trainers; Fairchild Aircraft, Ltd., with a single engined Navy type; Canadian Car & Foundry, a single engined Navy type, and Fleet Aircraft, Ltd., largest producer, with the Fairchild Cornell primary trainer.



## Boots Will Eliminate This Chore After Victory

Often Bill's bike shakes and shimmys so badly that he can't ride it safely. Normal vibration loosens wheelnuts—probably every other nut too—so Dad has to get a wrench and tighten up the whole bike. But after the war, Bill will ride safer and Dad will be spared many a tightening-up session, because well-made bikes will wear Boots Self-Locking Nuts. Even severe vibration can't shake Boots Nuts loose. For safety's sake and to eliminate repairs caused by vibration-loosed connections, you will insist on products protected with Boots Self-Locking Nuts.

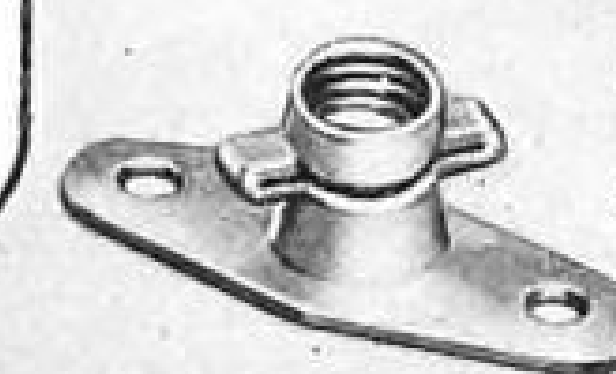
## They Fly With Their Boots On—Farther

Boots All-Metal Self-Locking Nuts are lighter than any other similar fastenings. On a single Liberator or Flying Fortress they save up to 80 pounds. That's enough to enable one of these 4-engine giants to take along extra gallons of gasoline—or 200 additional rounds of .50 caliber machine gun ammunition. A little extra range or a few more bullets may be just what's needed to get a bomber home from a 2,000 mile raid over enemy territory.

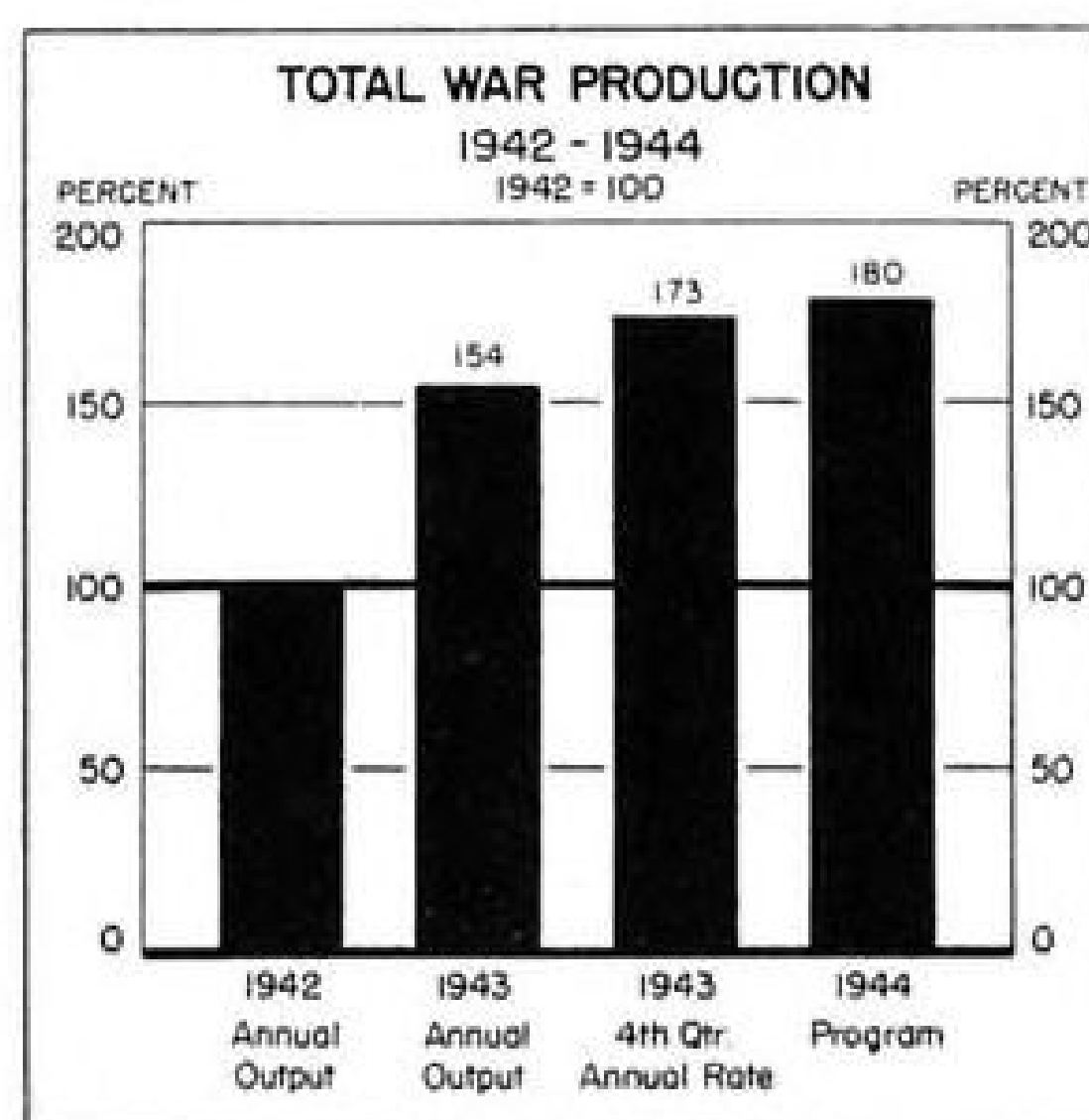
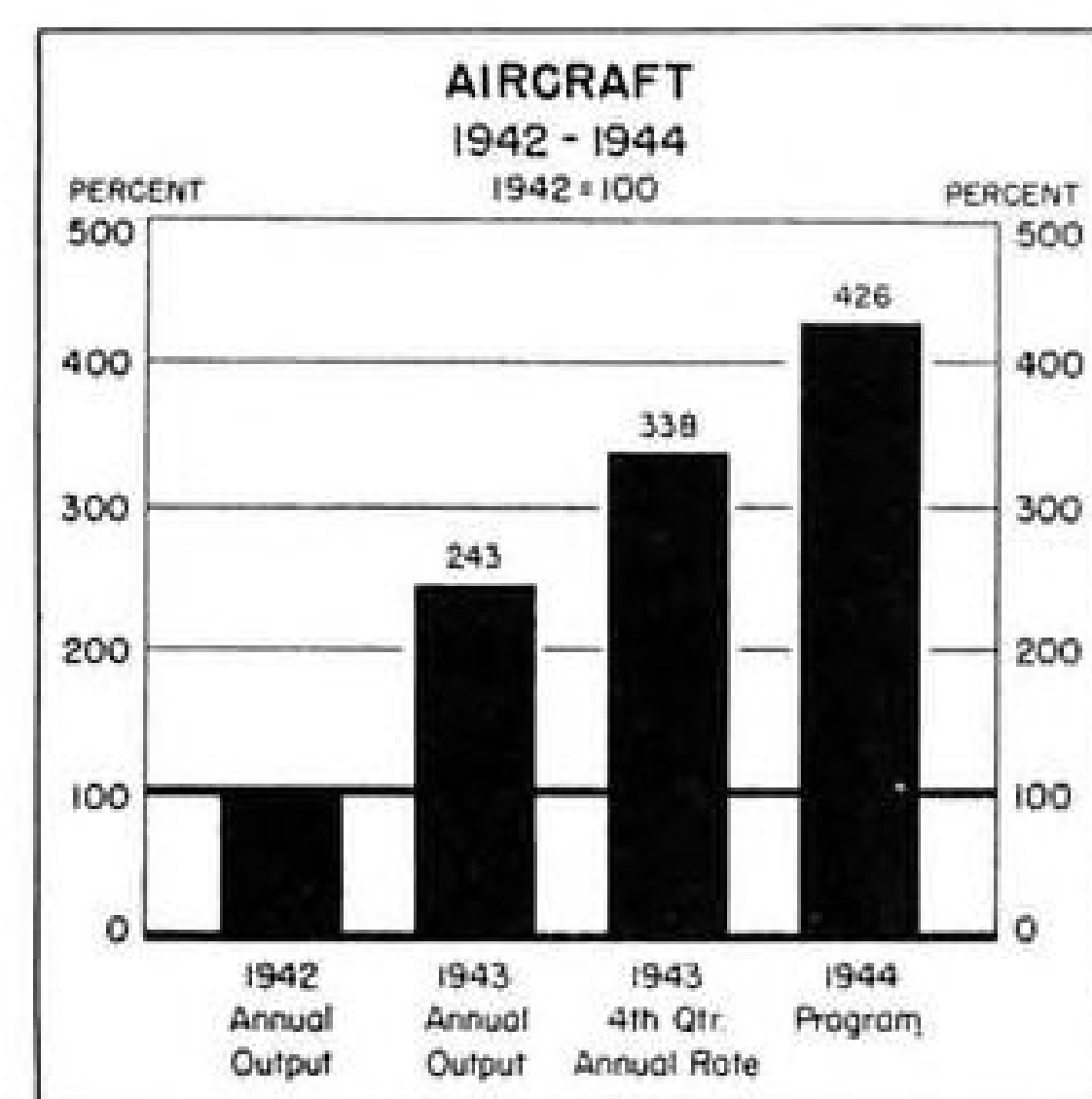
In case you're wondering whether nuts as light as Boots can "take it," there is plenty of evidence to prove just how tough they really are. They withstand the corrosive action of oil, salt water and chemicals. No amount of plane vibration can loosen their grip. Boots Nuts can be used over and over again—literally "outlast the plane." In fact, today these nuts are worn by every type of U.S. aircraft. Yes, Boots Nuts meet the exacting specifications of all government aviation agencies.

# BOOTS

Self-Locking Nuts For Application In All Industries



BOOTS AIRCRAFT NUT CORPORATION ★ GENERAL OFFICES, NEW CANAAN, CONNECTICUT  
AVIATION NEWS • December 20, 1943



## AIRCRAFT COMPARED WITH TOTAL WAR PRODUCTION:

These charts, recently issued by the War Production Board, show graphically the vast expansion of the aircraft production program and how next year's schedules compare with this year's record-breaking output. The second chart shows total war production for the last three years and the schedule for 1944.





#### CANADIAN ASSEMBLY LINE:

Aircraft workers in Canada, as in the United States, are setting production records. This new view at Fleet Aircraft, Ltd., plant at Fort Erie, Ont., shows sleek Fleets under construction. In the foreground is the second assembly line, with final assembly in the rear.

dustry, has a stimulant in the expressed view of J. C. Garrett, president of Airesearch's parent, Garrett Corp., that he possesses a basic diesel engine design (two opposed pis-

tons per horizontal cylinder—no cylinder heads or gaskets—single fuel injector—low center of gravity) that has great possibilities.

► **Uses**—Uses for Airesearch diesels,

still in the experimental stage of development, are envisioned to include: airplane passenger cabin and cargo pre-cooling, airport power and light, as well as train and bus air conditioning, railway quick-freeze refrigerator cars, service power for small industries and business, oil industry power and pleasure boat and automotive power.

Airesearch officials believe a diesel for small planes may be evolved.

► **Pressurized Cabins**—Their engineers envision pressurized airliner cabins which will keep the passengers at sea-level comfort. They have been perfecting controls to hold pressure constant during climbs and descents, to adjust pressure gradually during airliner flight from low to higher altitude airports.

Source of Airesearch diesel interest is the company's purchase of the Covic diesel patents and the engineering skill of diesel experts associated with a Garrett subsidiary, Northill Co. Northill success in manufacture of pre-war diesels was only casual and its diesel program, now being given new life by Airesearch, came to a halt with the successful manufacture and sale of the lightweight Northrop Seaplane Anchor, invented by Jack Northrop, president of Northrop Aircraft. Pre-war use of the Northrop anchor for flying boats spread to world-wide distribution as standard equipment for small yachts and motor boats.

► **Sea-Level Comfort**—Airesearch has been little before the public because most of its work is under military restrictions, but the firm is intent upon staying in business after the war and has keyed national advertising to the suggestion that "while your postwar airliner flies at 14,000 feet, its Airesearch-pressurized cabin will keep you at sea-level comfort." That the company should issue to employees "Postwar Questionnaire No. 1" based entirely on determining their reaction to a post-war diesel program was of definite interest to the industry.

#### New Navy Prop Order

A new contract for a large number of hollow steel propeller blades has been received by American Propeller Corp., Toledo.

William F. Wise, president of the propeller company and executive vice-president of AVCO said the blades will be used by the Navy. Other combat type planes for which American Propeller blades have been made include the Thunderbolt P-47, the Airacobra P-39, and the Mitchell B-26 medium bomber.

## Joint Meeting With Councils Considered for Chamber Planning

Changes in by-laws, election of new Board of Governors, and important decisions on reorganization are deferred indefinitely.

Results of the recent membership meeting of the Aeronautical Chamber of Commerce, while forecasting active participation of chief executives of leading aircraft companies in the Chamber, also indicated definite steps would not be taken immediately.

There remains little doubt that industry leaders are desirous of having a strong national trade association which can speak with authority on matters affecting the industry generally. At the same time, prime concern of all these men now is to meet accelerated production schedules. Once aircraft output reaches desired goals and no longer needs the full attention of chief executives, then they undoubtedly will turn their attention to their national trade association.

► **Name Change Likely**—A possible change in name and limitation of membership to manufacturers was indicated by the comment of those attending the Washington meeting. One tentative suggestion for a new name was "Aircraft Industries Association," designed to identify it more clearly as a trade association representing the aircraft manufacturing industry.

Pending by-law changes, the election of a new Board of Governors and decisions on other questions were deferred until after a special meeting of members. It was considered likely that this meeting might be held in conjunction with the next meeting of the National Aircraft War Production Council, whose members also are members of the Chamber, in order to assure the largest possible attendance of industry leaders.

► **Board of Governors**—The new Board of Governors is expected to include the heads of six West Coast and six East Coast manufacturers of airframes and/or engines, two manufacturers of aircraft parts and accessories and one representing other members.

Proposed nominations for officers, to be acted on by the new Board were: Donald W. Douglas, chairman of the board; J. Carlton Ward, Jr., of Fairchild, president; vice-presidents, LaMotte T. Cohu, of Northrop; L. D. Bell, of Bell Aircraft; treasurer, H. W. Cohu, Northrop; secretary, I. H. Taylor, of Douglas.

► **Murray Reports**—James P. Murray, vice-president of Boeing Aircraft, and Chamber president, consented to continue in office until the Board can act on the new nominations. Murray submitted his report to the members, reviewing the industry's production achievements, activities of the various Chamber Departments—Technical, Traffic, Economic Development and Information—as well as various moves made with regard to a program for reorganization of the association.

#### Tunnel Tests Fuzes

Westinghouse's baby model simulates 800 mph. gale.

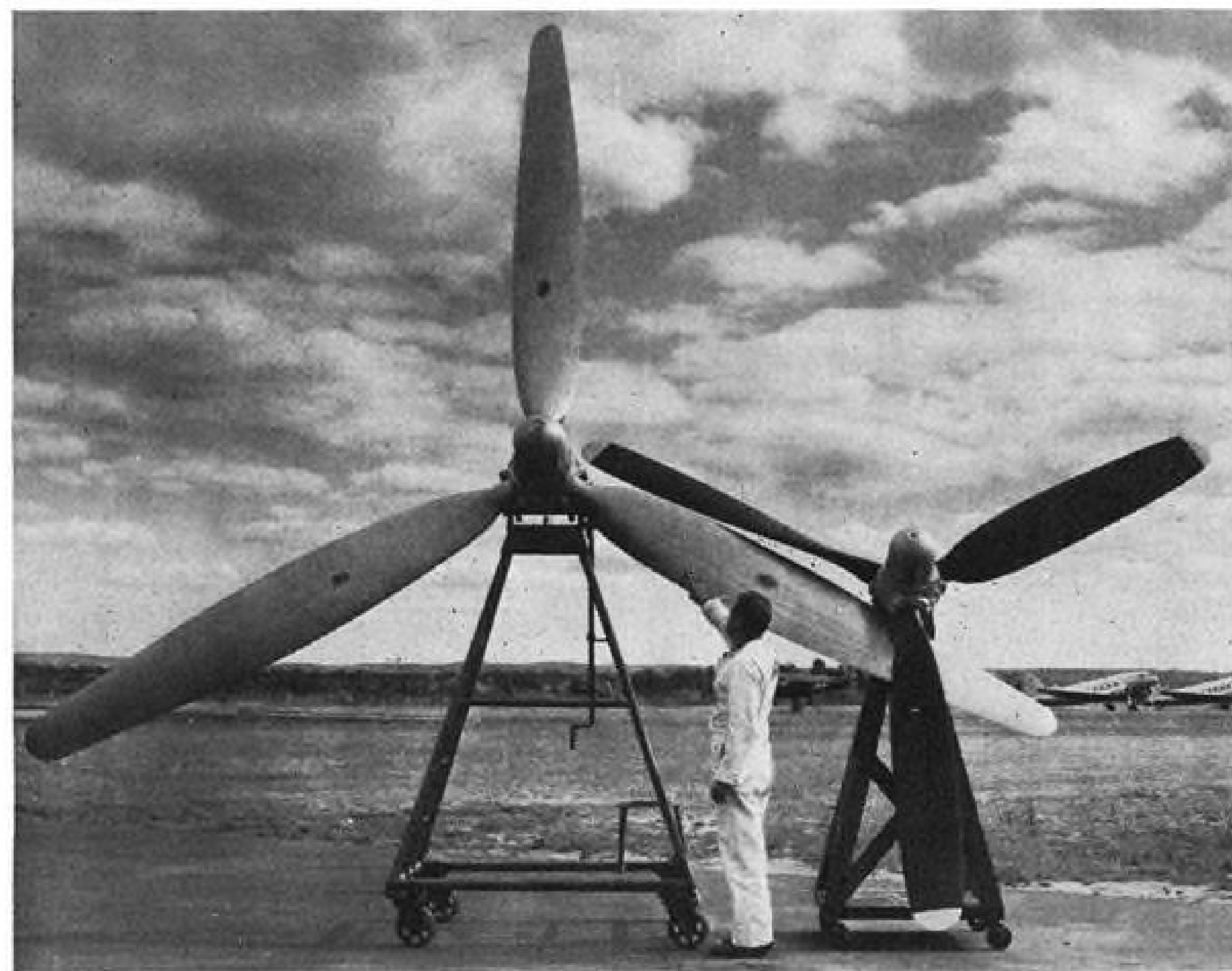
A three-foot-long wind tunnel which creates 300 to 800 mile gales to simulate wind currents encoun-

tered by falling bombs has been developed by Westinghouse engineers at East Springfield, Mass., to test fuzes for 20-lb. fragmentation bombs.

A. L. Atherton, manager of quality control, first applied the wind tunnel test to these fuzes, which are installed on the bomb's nose as a safety device to protect aircraft which drop fragmentation bombs.

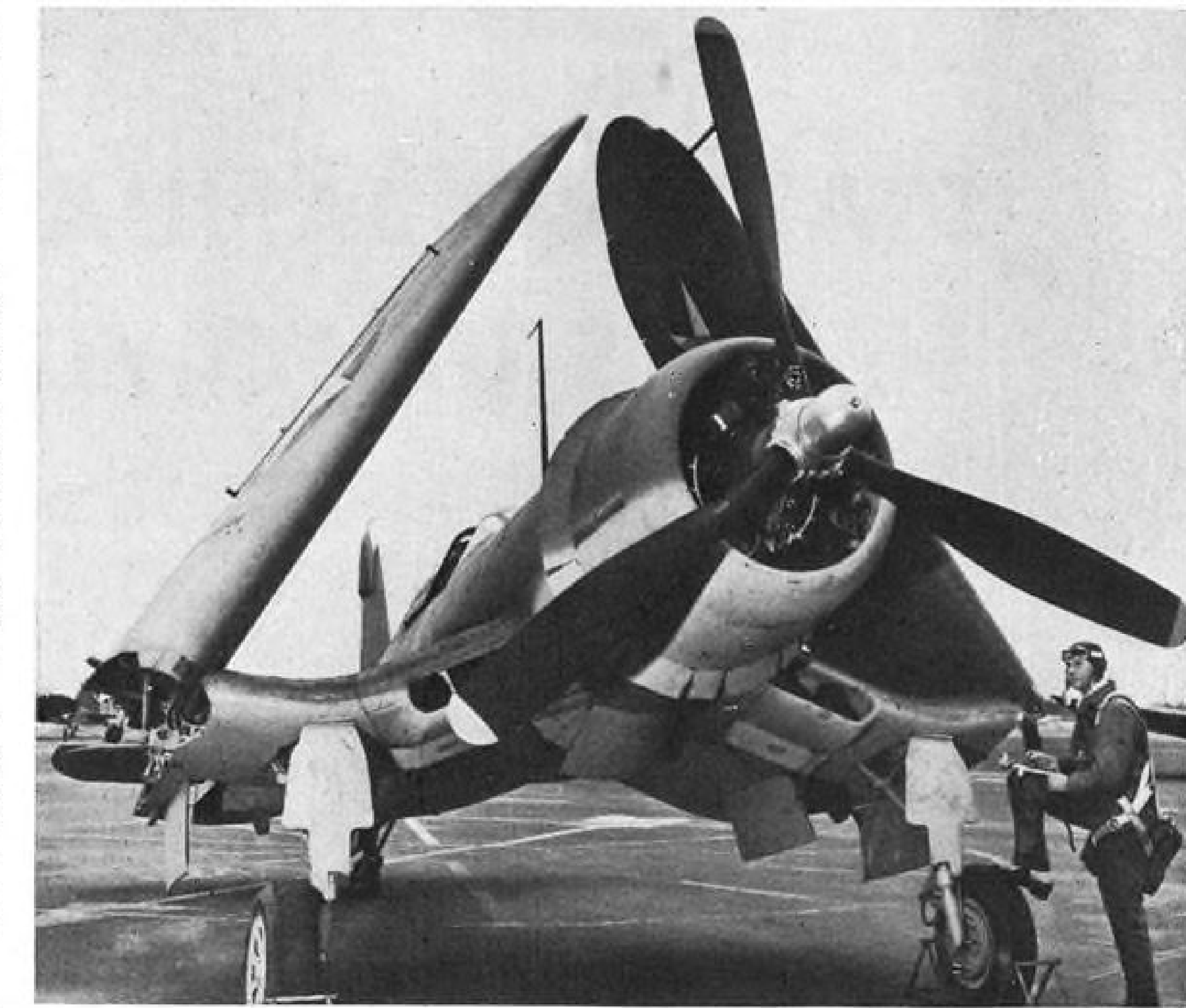
► **Prevents Explosion Prematurely**—The safety fuze on the bomb prevents detonation until the bomb is safely away from the plane. To pass the wind tunnel test, a fuze is "dropped" synthetically at 250 miles an hour, 500 miles an hour and 800 miles an hour.

To test a fuze, a technician places it inside the tunnel in the path of compressed air to be fired from a cylindrical tank. A switch starts an automatic timer and opens a magnetic valve. As the valve opens, a burst of air rushes from the tank through a reducing nozzle to the fuze, whirls its vane and releases the safety device. As the safety device flies off, it permits a beam of light to strike a photoelectric cell. This causes the cell electronically to close the valve and stop the timer.



#### HAMILTON DISPLAYS BIGGEST BLADE:

This 20-foot-diameter propeller recently was constructed by Hamilton Standard Propeller Division of United Aircraft Corp., and is believed to be the world's largest. It was built for test purposes and is not scheduled for any specific plane. The huge blades are shown beside the "large" prop of a Flying Fortress or ordinary commercial airliner, 11½ feet in diameter.



#### UNITED BREAKS PRODUCTION RECORD:

Chance Vought Aircraft Division of United Aircraft Corp. has topped its delivery quotas during eight of the last nine months, according to Rex B. Beisel, general manager, who said November output of the Navy's Corsair fighter, shown in the new picture above, with wings folded, exceeded substantially the quota set for the period. Beisel said increased schedules for December will be met.





**STARTING JANUARY 18<sup>TH</sup>**  
***IT'S UP TO YOU!***

**S**TARTING January 18th, it's up to you to lead the men and women working in your plant to do themselves proud by helping to put over the 4th War Loan.

Your Government picks you for this job because you are better fitted than anyone else to know what your employees can and should do—and you're their natural leader. This time, your Government asks your plant to meet a definite quota—and to break it, *plenty!*

*If your plant quota has not yet been set, get in touch now with your State Chairman of the War Finance Committee.*

To meet your plant quota, will mean that you will have to hold your present Pay-Roll Deduction Plan payments at their peak figure—and then get at least an average of one *EXTRA \$100 bond from every worker!*

That's where your leadership comes in—and the lead-

ership of every one of your associates, from plant superintendent to foreman! It's your job to see that your fellow workers are sold the finest investment in the world. To see that they buy their share of tomorrow—of Victory!

That won't prove difficult, if you organize for it. Set up your own campaign right now—and don't aim for anything less than a 100% record in those *extra* \$100 bonds!

And here's one last thought. Forget you ever heard of "10%" as a measure of a reasonable investment in War Bonds under the Pay-Roll Deduction Plan. Today, thousands of families that formerly depended upon a single wage earner now enjoy the earnings of several. In such cases, 10% or 15% represents but a paltry fraction of an investment which should reach 25%, 50%, or more!

Now then—Up and At Them!

## Keep Backing the Attack!—WITH WAR BONDS

*This space contributed to Victory by* **AVIATION NEWS**

*This advertisement prepared under the auspices of the United States Treasury Department and the War Advertising Council*

## PERSONNEL

Harold G. Hynd, (left) has been named manager of the Oklahoma City modification center of Douglas Aircraft Co., where he will have charge of all modifications on C-47 cargo transports. He was formerly assistant su-

William J. Wuerth, for two years accident investigator and safety lecturer for Goodyear Engineering Corp., has been appointed safety engineer for the Louisville division of Consolidated Vultee Aircraft Corp. Before joining Goodyear, Wuerth was with the Berheim Distillery for eight years.



**Kenneth Leaman**, former assistant superintendent of Vultee Field, has assumed his new duties as works manager of the Louisville division of Consolidated Vultee Aircraft Corp. Before going to Vultee Field, three years ago, Leaman worked for Vought-Sikorsky for 11 years. Starting in the experimental department, he was sectional superintendent when he left. Prior to this, he served a five-year apprenticeship in tool and die work with Remington Arms.

Dr. Sanford A. Moss, General Electric engineer, will receive the Sylvanus



Brig. Gen. Field Harris, a veteran of 20 years with Marine aviation, has been awarded the Legion of Merit for outstanding services while in charge of all Marine Corps, Army, Navy, and New Zealand Air Force planes, in the early stages of the New Georgia campaign.

G. W. Stratton, board chairman of Raymond De-Icer Co., Inc., Los Angeles, has been elected to the executive committee of Aircraft Parts Manufacturers Assn.

Henry Beeken, until recently chief statistician and investment counselor for Ladenburg, Thalmann & Co., New York, has been appointed to the position of research assistant to the president of Pennsylvania-Central Airlines. Beeken has a background of more than 15



years' experience in analysis and statistics for a number of Wall Street firms.



Glasgow



Berto

C. S. Glasgow, (left) has been appointed assistant chief engineer of the mechanical section of Douglas Aircraft's engineering division. For the last two years he has been in this section, designing landing gear. He was formerly a stress analyst for the company. C. W. Berto, (right) formerly general supervisor of structural assembly on the C-54, has been promoted to shift superintendent. For over a year he has been assisting in the organization and layout of Douglas Aircraft Corporation's new Chicago plant.

H. V. Schwalenberg will direct inspection activities in all divisions of North American Aviation, Inc., as a result of his appointment as director of quality control at the company's Inglewood, Cal., headquarters. He was formerly North American's factory manager at Kansas City, where he is succeeded by Harold R. Raynor, assistant manufacturing manager. Robert McCulloch, former quality control director, has been made general manufacturing manager on the General Offices staff.

Brig. Gen. Frederick L. Anderson, commander of the Eighth Air Force Bomber Command, has been promoted to a major general. At 38, he is one of the youngest major generals in the American Army. He recently was awarded the Congressional Medal of Honor for leading the American bombing attack on the Ploesti oil fields in Rumania.

Stuart H. Betsinger, with Kinney Aluminum Co. for over a year as sales en-





R. Douglas Maw (right), resident manager of the Hemet, Cal., division of Ryan School of Aeronautics since July, 1940, has been transferred to the



School's Tucson base as manager. He is succeeded at Hemet by Paul Wilcox (left), civilian director of flying, who has been with Ryan for more than 10 years. Wilcox's place is taken by C. W. (Bill) Evans, Ryan's "flying cowboy," a civilian group commander and formerly a student with Ryan in San Diego.

Arthur Smith, Jr., will be transferred from the Chicago office of Dow Chemical Co., where he



was in the magnesium division, to head magnesium sales in the Southwest territory. Assuming his new duties about the first of the year, Smith's territory will include Wichita, Kansas City,

Tulsa, Dallas, Oklahoma City and Fort Worth. He has been with the Dow Chemical Company for the past six years. His headquarters will be in St. Louis.

Walter S. McLucas, chairman of the Board of the National Bank of Detroit, was elected a director of Bendix Aviation Corp.

New supervisor of field operations at Douglas Aircraft's Santa Monica plant is Earl T. Bush, (left) supervisor of the engine department for the last two



years with Douglas since 1934. He will be responsible for final test checks and flights on all C-54 *Skymasters* and A-20 *Havocs*. Concurrently, G. M. McKenzie, (right) was named coor-

ordinator of Douglas' feeder plant system now being extended to facilitate production at the company's Santa Monica plant. Feeder plants are designed to tap new labor supplies by taking aircraft work into outlying southern California cities. Douglas trucks carry parts to feeder plants and pick up completed assemblies ready for installation. McKenzie, who holds a pilot's license and occasionally acts as co-pilot on company test flights, has been supervisor of final installation on the C-54. Previously, as supervisor of the experimental department, he had charge of construction on the B-19.

## TELLING THE WORLD

▶ "Reunion in America" will be the theme of North American Aviation's advertisement in January issues of national magazines. Illustrating and describing a soldier's homecoming, the ad will run in *Look*, *Collier's*, *Life*, *Liberty*, *American*, *Good Housekeeping*, *Newsweek* and *Saturday Evening Post*.

▶ WPB has ordered 6,000 copies of *The Depictor*, house organ of Edward Stern & Co., Philadelphia printing establishment, for distribution to its key personnel and to industry. Current issue is devoted entirely to labor-management committees, explaining the idea and showing what they accomplish and why more are needed. Bridgeport Brass and Packard Motor Car Co. are cited as examples of the advantages of good labor-management committees. The book shows why ideas flow most freely where labor-management cooperation is active and points out the part plant magazines play in helping to establish good relations on both sides.

▶ A booklet entitled *How Industrial Advertisers Can Help Reduce Our War Production Casualties*, has been issued by the National Committee for the Conservation of Manpower in War Industries of the U. S. Dept. of Labor. Prepared by the War Advertising Council, the bulletin urges industrial advertisers to utilize trade magazines and direct-mail to remind wartime management that it must take the time to reduce the accident toll.

▶ The Sacramento Chamber of Commerce has issued a direct-mail brochure entitled "America's International Air Terminal." It plugs the city as the "West's strategic, the logical air terminal," and points out that it already has facilities for the heaviest cargo ships to land.

▶ A new process manual of industrial "recipes" for manufacturing airplanes and airplane parts will make its debut in the production departments of Fleetwings, division of Kaiser Cargo,

within the next few months. Designed to establish a stronger link between engineering and shop, the handbook will be an interpretation and compilation of data from applicable Army and Navy specifications, technical reports and publications.

▶ *Minneapolis Daily Times* ran a special section recently to commemorate Northwest Airline's progress through its seven-year existence. The 24-page section carried stories of Northwest's accomplishments, and predictions of future air services. Ads from numerous well-wishers also ran.

▶ A 78-page brochure entitled *The Airline and Your Community*, promotion piece for Transcontinental & Western Air, appeared recently. It tells of TWA's plans for the future; outlines the intensive development of its airway trunk-line territories; uses three-color maps illustrating TWA's present routes and pending applications before CAB. It is a "pattern of rational airline development," Jack Frye, president, says in the introduction. The plan would bring trunk-line transcontinental service to 99 additional communities along the TWA route, he points out, and would follow TWA's basic principle of expansion.

▶ Canadian Car and Foundry Co., Ltd., Montreal, has issued the first edition of a new illustrated house organ *Canadian Car Journal*. Published in both English and French, the first issue, of 16 pages, was printed on coated paper using two colors.

## Oldest Aero Club

William Carroll Hill, retiring secretary of the Aero Club of New England, claims his organization is the oldest aeronautical club in the world, having been established in 1902.

Hill, speaking at the annual meeting of the organization in Boston recently, said the club was formed Jan. 2, 1902, when eleven well known Bostonians, meeting socially at the Massachusetts Automobile Club, signed a paper of agreement to associate as a club and to indulge in the sport of ballooning.

Prof. A. Lawrence Rotch, of Harvard University, founder and director of the Blue Hill Observatory, became the first president of the club on its incorporation in 1907, the club existing without formal organization or election of officers up to that time. Similar clubs were formed shortly afterward in North Adams, Pittsfield, Springfield, Worcester and other cities and at Williams, Amherst, Harvard, Dartmouth and other colleges in New England.

## FINANCIAL

# Proceeds from United's Stock To Set Record for U.S. Airlines

Registration statement filed with SEC shows company will enter postwar era in formidable financial position, Commentator says.

By ROGER WILCO

A milestone in airline financing will be established by United Air Lines in its proposed sale of preferred stock. Approximately \$10,000,000 is expected to be realized and will represent the largest amount ever raised by an air carrier. The proceeds will be applied for future expansion requirements—if and when needed.

▶ **Releases Data**—United, in filing its preliminary registration statement with the Securities and Exchange Commission, has made available many items of considerable interest to its stockholders and those interested in the air transport industry.

Assuming stockholder approval, a class of 200,000 shares of 4½ percent cumulative convertible preferred stock of \$100 par value will be created. It is proposed to sell immediately 105,032 shares of the new stock. The common stockholders will be given the right to subscribe to the preferred at the rate of seven shares of preferred for each 100 shares of common owned as of record on December 29, 1943. In this manner, the present equity holders may be able to protect their interests from dilution. It also means that the stockholder will be required to add more money to his original investment if subscription is made to the new stock.

▶ **"Rights" Marketable**—However, these "rights" will be marketable and can be sold if desired. Their value is dependent upon the market acceptance of the new preferred. This in turn will be evaluated after the issue has been "priced" and the conversion rate made known. Thus far, the indications are that the offering price will not exceed \$100 per share. The rate at which the preferred will be convertible into common is not now known but will be supplied by amendment. It is this element which will provide the speculative attraction.

In view of United's 20,573 stock-

holders owning an aggregate of 1,500,451 shares, a lively market for the "rights" may be anticipated. These "rights" will be exercisable starting December 30, 1943, and expire on Jan. 10, 1944. A tangible loss will occur to those stockholders who fail either to sell or exercise their "rights" during this period. By purchasing them, other investors can acquire a position in the new preferred.

▶ **Unsubscribed Shares Salable**—Harriman, Ripley & Co. appear as the principal underwriter. However, the bankers will be faced with marketing only those shares which are unsubscribed by the common stockholders.

Further, pending approval by stockholders, and slated for future issuance—with no specific date indicated—is a series of 100,000 shares of management stock. These shares will be sold to selected officials and employees at not less than book value (\$12.48 on Sept. 30, 1943) at time of sale, or in no event less than par, \$10. The market price for the common is around \$25 per share.

▶ **Convertible to Common**—After a period of five years from their original acquisition, these management shares will be convertible, share for share, into the common stock. No one person will be entitled to acquire more than an aggregate of 5,000 shares of management stock. About 200 persons are reported as presently eligible to participate. The purpose of this management stock is to give selected officials and employees an added bonus and to promote greater interest in the company through ownership.

▶ **Adds to Mexican Interest**—United, in its registration statement, also reports that its original 75 percent stock interest in LAMSA, Mexican airline, has recently been increased to 80 percent. As is known, the company paid \$395,750 for its initial investment in this property. It is

now revealed that at Sept. 30, 1943, a reserve of \$145,750 was provided against this investment by a charge to earned surplus in order to cover the excess of the cost of the investment over the estimated underlying net assets at date of acquisition. In substance, United has already started to amortize the cost of its Mexican airline investment.

Also interesting is the revelation that during 1942 United was actively considering acquiring "operating airlines or the securities thereof." This is indicated by legal fees of \$51,420 paid to Mayer, Meyer, Austrian & Platt, and \$26,000 to Harriman, Ripley & Co. for services in this activity.

▶ **More Competition Possible**—The United management also advances the observation that the CAB, acting pursuant to the Civil Aeronautics Act, may create additional competition by issuing new certificates to . . . "new air carriers, including railroads, bus lines and other surface carriers. . . ." Considerable opinion, including statements attributed to members of the Board itself, has taken the position that surface carriers are, under the terms of the act, barred from air transportation operations.

▶ **Working Capital Announced**—As of September 30, 1943, United had about \$10,000,000 in net working capital. In addition, \$2,912,859 was earmarked in cash and U. S. Government securities for the replacement of flying equipment sold to the United States Army. With the proceeds from the preferred stock financing, the company will have another \$10,000,000 at its disposal. All in all, United should enter the postwar period in a very formidable position.

## DIVIDENDS

▶ **United States Plywood Corp.** has declared dividends of 30 cents a common share, payable Jan. 20, 1944, to stock of record Jan. 10, 1944, and \$1.1875 per share on preferred, payable Jan. 3, 1944, to stock of record Dec. 20, 1943.

▶ **Bellanca Aircraft** has declared 50 cents on common, payable Feb. 1, 1944, to stock of record Jan. 10. Disbursement will be the first since a 40-cent payment was made in December, 1938.

▶ **Air Associates, Inc.**, 20 cents on common, bringing payments for year to \$1, compared with 12½ cents in 1942.

▶ **Bendix Aviation Corp.**, 75 cents a share, payable Dec. 31, to stock of record Dec. 17.



► **Lockheed Aircraft Corp.** has voted a dividend of 50 cents per share payable Dec. 28 to stock of record Dec. 18. The action was in line with Lockheed policy of voting dividends from time to time as conditions warrant, without regard to specific purpose or dates. Robert E. Gross, president, pointed out that the dividend was not to be construed as a regular quarterly declaration, or as payment which established any schedule or policy for future payments.

## No Martin Refund

**Renegotiation Board finds no excess profits in 1942 business.**

Finding no excessive profits in 1942 business of Glenn L. Martin Co., the Army Renegotiation Board has arrived at an agreement with the aircraft company under which no refunds will be required.

Glenn L. Martin, president, commented that it would be unnecessary, therefore, for his firm to make any adjustment in the annual statement issued last March. No provisions for refunds had been made in that statement.

► **1943 Rate Double**—Martin said the operations of his company during 1943 were at approximately double the 1942 rate. At the same time, he said the company's efforts will be

intensified greatly during next year under the war production program which heavily emphasizes aircraft.

## Canadian Car's Plant Tests 1,000th Plane

Amherst, N. S., works averages one a day over 1,000-day period.

The 1,000th aircraft built, assembled or overhauled at the Amherst, N. S., plant of Canadian Car & Foundry Co., Ltd., in 1,000 days recently was test flown at the plant.

The plane was a new *Anson Mark V* twin-engine bomber, one of several types made or assembled by the company at its various plants throughout Canada. The *Anson Mark V* is made under supervision of Federal Aircraft, Ltd. a government company, which has set up various component manufacturers throughout the Dominion.

► **Made of Plywood**—As a result of wartime experience, the aircraft is largely wooden, built of plywood construction as described in a previous issue of AVIATION NEWS. It is assembled at a number of plants, of which the Amherst factory is one. Another is MacDonald Bros. Aircraft Ltd., Winnipeg. Canadian Car & Foundry makes part of the components, the wing sections at the Montreal Turcot Aircraft plant, pro-

pellors at the Montreal Propeller plant.

Canadian Car & Foundry has been building aircraft since before the war, designing its own fighter, the *Gregor*, and building Grumman fighters for Turkey at its Fort William, Ont., plant which is now devoted to construction of Curtiss *Helldivers* for the United States Navy. Parts for the *Helldiver* also are made at the Montreal Longue Point plant of the company and the propeller plant at Montreal.

► **Improved Model**—The *Anson V* is an improved version of the *Anson I*, which was a discarded bomber with *Cheetah IX* 330-hp. engines. The *Anson V* has the same wing as the earlier version, but has a fuselage of plywood designed for navigation and bombing instruction. It has a hydraulic system for automatic operation of flaps and undercarriage, is powered with two 450-hp. Pratt & Whitney *Wasp Junior* engines, and cruises at about 145 mph. Top speed is about 190.

► **Carries Gas for Four Hours**—It can cruise for four hours, carries 140 gallons of gasoline in four tanks. The wing span is 56½ feet, length is 42½ feet. It weighs 3½ tons empty and slightly over 4½ tons loaded. Behind the pilot's seat along the port wall are three desks for first navigator, wireless-air gunner and second navigator. Special fittings include an astro dome in the roof and a camera hatch in the floor.

## New High-Speed Electric Motor

An industrial motor, claimed as the world's fastest, has been designed by Robert M. Baker, of the Westinghouse Research Laboratories to speed production of airplane engines and other precision-built war equipment.

The motor is 20,000 rpm faster than any electric motor now being built for industrial use. There are several devices that turn faster, but they are almost all laboratory curiosities.

► **Operates at 60,000 RPM.**—Baker's motor revolves 1,000 times a second and could be used to drive high speed grinders that put a mirror-like finish on hard-to-reach internal surfaces of plane and tank engines.

Such grinders are now powered by larger, slower motors connected to the grinding wheel shaft by belts and pulleys. The new high-speed motor would drive the grinder directly, increasing grinding accuracy.

## TRANSPORT

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## Essair Pushes Plans To Start New Feeder Route Early in 1944

CAB's omission of usual "national defense" phrase believed to clear way for establishment of Texas aerial service.

Encouraged by the Civil Aeronautics Board's omission of the usual "national defense" phrase in its new certificate, Essair, Inc., officials foresee an early opening of the test feeder line in Texas authorized by the Board.

E. Y. Holt, vice-president of the Dallas firm, now building prefabricated huts for the Army and Navy, plans to make arrangements for personnel, facilities and equipment soon after the first of the year. While making no prediction when service will start, he comments that "if we can get into operation in three months, we ought to strike a fertile field," an indication that Essair is counting to some extent on travel among the numerous army camps in Texas.

► **Expires in 1946**—The temporary certificate granted Essair expires at

the end of 1946. First to authorize a true "feeder," it calls for service between Houston and Amarillo via Austin, San Angelo, Abilene and Lubbock, on condition that all intermediate points be served on each scheduled trip and traffic reports be submitted periodically.

In the same action, CAB gave Continental a three-year approval of service from Hobbs, N. M., to San Antonio, and amended Braniff's AM 50 certificate to include Austin. It denied Braniff's application to provide service between El Paso and San Antonio. Applications of Essair and Continental for further routes under consideration in the same proceeding also were denied.

► **Delayed by Defense Needs**—In amending Braniff and Continental certificates, the Board ordered that service shall not be started until the

holder is notified that the national defense no longer requires delay. This qualification was omitted from Essair's certificate, a circumstance interpreted by that company's officials as in effect granting priorities to Essair, although the qualification is the usual thing and often is followed soon by the permissive notice.

Holt anticipates no difficulty in obtaining twin-engine equipment, probably *Lodestars*. His company has knowledge, he says, of at least 18 suitable planes, now owned by individuals, of which some might be available. A manufacturer of twin-engine five-passenger planes has communicated with him, and Essair recently had opportunity to purchase two other ships.

► **Pilots Available**—Essair does not expect to encounter a pilot shortage, says this official, adding that he already has had offers from pilots interested in the prospective feeder operation. As further evidence of interest in the Board's decision, he cites long-distance calls from civic leaders in Texas cities not named in the new certificate, asking that Essair include their municipalities in its feeder routes.

## New Haven Ad Urges Rail-Air Coordination

Full page advertisements run in eastern newspapers.

By MERLIN MICKEL

The railroad aroused interest in aviation circles last week when it advertised in eastern newspapers for "a coordination of interest between an established airline and our rail and highway systems."

By some, the advertisement was interpreted as an invitation by the New Haven to the air carriers to participate in its New England Airlines, Inc., formerly TWA-New England, from which TWA withdrew last summer. Had the advertisement not mentioned an "established airline," it was suggested, it could have meant that the railroad desired to operate New England Airlines itself as a unit with its ground system.

► **Filed for Five Routes**—This prospective air carrier, in which the railroad was to hold a minority interest, has filed for five routes, two of them between Newark-New York and Boston, totaling 813 miles among various intermediate points in the New England area.

Others noted that the seven-column display appeared on the day the House Rules Committee was to



### PLANT MOVIES HELP CUT ABSENTEEISM:

At least four West Coast plane plants (Douglas, Lockheed, North American, Northrop) are showing recreational movies to employees at night during swing and graveyard shift changes. Both 16-mm. and 35-mm. projectors are used, and films are usually brief to fit lunch periods—news, comedy, musical and animated "shorts," *March of Time*, and *Army combat productions*. At Lockheed and at General Electric's Erie plant (pictured) full length features are sliced into six parts and shown as serials. This means workers may miss the crucial installment if they skip a shift. Largest company distributing midshift movies is Films, Inc., New York City.



### SIX AIRLINES LOOKING TO DC-4:

This specially posed picture shows "passengers" near an unpainted Douglas C-54, military version of the DC-4, which six airlines have disclosed officially that they plan to fly in transcontinental service after the war. AVIATION NEWS last October, reported the lines' agreement with Douglas. Participating in the announcement were American, Eastern, Pan American, Pan American-Grace, United and Western Air Lines. TWA, which is basing post-war hopes on the Lockheed Constellation, was not included.









## CAL TURNS OUT 1,000th FORTRESS:

Continental Air Lines has rolled the 1,000th B-17 off the production line at its Denver modification plant.

Picture shows personnel who worked on it before it was taken to a dispersal point.

## Warner Sees Slash In Air Cargo Costs

Predicts sharp rise in traffic volume with reduction in charges.

Edward P. Warner, vice-chairman of the Civil Aeronautics Board, has "every hope" that within three or four years after the war operating costs on mixed loads of passengers and cargo in air transportation will have come down from the 27 cents per ton-mile prewar figure to "something around 18," with the figure for cargo operation alone as low as 10 or 11 cents.

Even a rate of 15 cents per ton-mile on cargo, from airport to airport, would multiply by 10 or 15 and perhaps more the prewar volume of air express, in Warner's opinion. This figure, allowing for pickup and delivery cost, would be about a third of the present rate.

► **Other Factors Involved**—Warner told the Engineering Society of Detroit that cost is not the only factor in determining air cargo's future. The "gentleness" of air transportation, he asserted, will permit lighter and more economical packing. Transshipment costs and hazards often can be escaped. Air cargo will permit rapid renewal of stocks from factories, permitting distributors and retailers to reduce inventories, especially abroad.

He sees gains coming in efficiency of postwar cargo operations, in a period unrestricted by shortage of equipment, and trained men, although "costs will need to undergo a substantial further reduction before really heavy inroads into the present freight loads of truck, railway or vessel can be expected."

► **Unit Cost Reduced**—From 1929 to 1933, unit cost was reduced from about 45 cents per payload-capacity ton-mile to about 36 cents, and came down another fourth in the next four years up to time of general introduction of the DC-3. With some reduction of unit cost following increase in size, Warner sees a substantial part of the drop between 1933 and 1937 due to increase in gross transport weight from the 13,000 lbs. of the 10-passenger Boeing to the 25,000 lbs. of the Douglas DC-3. "Doubling of the weight of the DC-3 ought to reduce its operating cost per ton-mile by about 10 percent," he says.

He expects improvement in aerodynamic efficiency—citing flush riveting and better wing forms—and believes that if technical problems of

the so-called "flying wing" can be solved total cost reduction through aerodynamic improvement may be raised to 20 percent or more, instead of 10 or 12. Such machines, however, will have to be limited to heavy traffic routes, since they could hardly be built to operate economically at less than 20 tons payload capacity.

► **Savings in Weight**—Other improvements may develop through savings in weight, a matter Warner went into extensively. There is a possibility, he says, of reducing operating overhead, and improvement in takeoff characteristics.

He concluded that "allowing for the impossibility of maintaining such load factors in peace as have been built up in war, and for a normal operating profit, the estimates would correspond to passenger fares of about 3 cents a mile, and air cargo rates, exclusive of pickup and delivery charges, of about 16 cents a ton-mile.

"Let me emphasize," he added, "that I am not presenting these figures as probabilities for the month after fighting stops, but as likely to be attainable after operating conditions have been reasonably stabilized, and after some additional operating experience has been secured under peaceful conditions, and after the manufacturing industry has had time to market new aircraft of postwar design."

► **Traffic Rate Maintained**—In a tribute to the war operations of the domestic airlines, he disclosed that during August and September each plane owned by the domestic lines flew an average of 1,700 miles a day. Despite lack of equipment and drop in total mileage, the latter about 25 percent, total traffic handled by the

airlines has not decreased. In August, passenger movement bettered 1941's best month by 5 percent, mail traffic was two and a half times that for the summer of 1941, and the proportionate increase in express traffic was even higher.

Where load factor until the spring of 1942 was never over 69 percent for the airlines as a whole, in a single month, it went up to 82 in the summer of 1942, and for four consecutive months of this year was above 90 percent. He described the operation of priorities, for which about 2,700 certificates are issued daily.

Warner also complimented the airlines on their "remarkable" records for safety and regularity of service. No increase has occurred, he said, in the hazards of flight, and regularity of service has been rising in the face of tightened schedules for individual aircraft. Where before 1942 the percentage of trip completion did not rise above 92½, last year it was just over 94, and indications are that 1943 will be even higher.

## CAB Cuts Mail Rate For Delta, Northwest

Delta Air Corp. and Northwest Airlines became the seventh and eighth air carriers, respectively, in the past 13 months to have their rate of mail compensation set at 0.3 mill per pound mile by the Civil Aeronautics Board.

These two cases were similar in

most respects to those previous, even to the dissension of Board Member Harilee Branch from the majority opinion. He has dissented in all but one of the 0.3 mill mail rate decisions. Branch reiterated his former stand that in these cases, also, from estimates of future operations of the companies, the 0.3 mill per pound mile rate "contains an element of government subsidy."

► **Mail Pay Reduction**—Delta formerly received 24 cents per airplane mile and Northwest's compensation was 25 and 37 cents for various segments of its system. The new rate of 0.3 mill per pound mile, computed on airport to airport mileage, will result in an annual mail pay reduction of \$422,324 for Delta and \$890,000 for Northwest.

The Board concluded from operating statements and other data submitted by Delta that the company might be expected to realize a profit of \$342,086 per annum before mail pay and federal income taxes. The new rate is estimated to yield annual mail revenues in the amount of \$422,837 which, added to profits from passenger and property operations, comes to \$764,923 before federal taxes. After taxes, a 46.46 percent over-all net operating profit might reasonably be expected, according to the Board.

► **Operate at Profit**—In Northwest's case, although the mail pay reduction is greater, and statistics of the company would indicate they may be expected to operate at a loss of \$486,943 with present passenger and express rates, even with the new

rate of 0.3 mill the carrier's annual mail revenue is estimated at \$1,140,140. This would result in a net estimated profit after federal and state taxes of \$415,589.

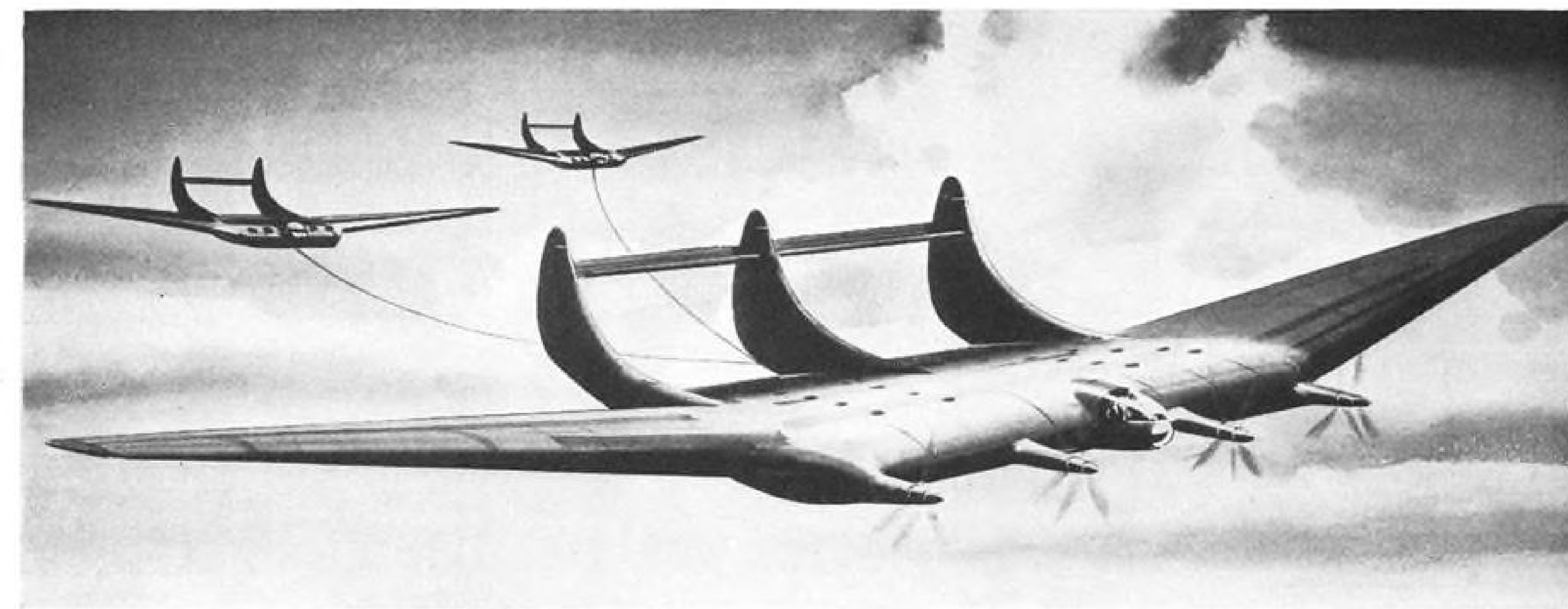
The new rate for Delta was made effective Feb. 1, 1943, and for Northwest it is effective one month later.

## Bender Maps Hearings On Aviation Dept. Bill

Rep. George Bender, Ohio Republican, is hopeful that hearings may be held soon after the first of the year on his measure (H. J. Res. 203) to establish a new Department of Aviation in the government, with a Secretary of Aviation.

Bender is a member of the House Committee on Expenditures in Government Departments, to which the joint resolution was referred, and says "I don't intend to let this one sleep."

► **Wants Secretary of Aviation**—Explaining he has been interested in aviation for years, the Ohioan said aviation is being administered on a "piecemeal" basis. The legislation he proposed recently would transfer to a Secretary of Aviation all the powers and functions of any officer, department or independent agency of the government relating to military or civil aviation, to be exercised by the secretary—who would be appointed by the President with the consent of the Senate at the same salary as other cabinet officers—to develop and expand aviation.



## COLONIAL'S IDEA FOR FUTURE:

Colonial Airlines has released this illustration of a futuristic design by V. T. Burnelli for a 120-ton refrigerated fruit express plane with an announcement that it plans to use such a ship after the war. Claimed for the planes a 40-ton payload at 8 cents a ton air mile. Laterally loaded cargo, 5,200 h.p. duplex gasoline or

Diesel engines with counter rotating propellers, fuel capacity to haul perishables non-stop from Miami to Montreal in nine hours at consumption of about 750 gallons an hour, average cruising speed 180 mph. and average altitude 10,000 ft., wing span 210 ft. and length 71 ft., excess space for mail and freight, 1,950 cu. ft.



# Stanton Sees Lightplane Field As Key to Postwar Air Production

Popularizing of flying will run civil aircraft total up to 500,000 by 1950, CAA chief tells contractors.

Private flying holds a major key to the problem of keeping aviation production from tumbling from its 20 billion dollar level, says Charles I. Stanton, Civil Aeronautics administrator.

That means mass flying, and Stanton points out that "with the right kind of airplanes and the right kind of ground facilities, by 1950 we can run our civil aircraft up to a half million from our present total of about 25,000."

► **Addresses Contractors** — Stanton made these observations before a postwar planning conference of Associated Pennsylvania Contractors at Philadelphia. Much of his talk was devoted to description of airport development, types of airports,

and probable postwar needs, matters the administrator has discussed at length on previous occasions.

He also declared, however, that if the states desire to aid in the promotion of aviation, there is no riper field for their endeavor than that of airport development. While there are additional ways they can participate, regulation of aircraft airworthiness, airman competency and airplane operating and traffic should be left to the federal government. At CAA, "our only interest is uniformity of regulation, without which aviation development would be seriously retarded."

► **Sales Appeal**—Of private flying, he termed it essential that planes with "sales appeal" appear on the mar-

ket, in particular, "armchair" airplanes to "appeal to the family folks who can't spend too much time practicing the art of flying but want to take to the air on weekends or vacations." Stanton sees increasing popularity for this type of plane, already developed and tested before the war.

Of 3,000 new fields needed in the first five years after the war—which will double the present number of airports—if aviation is to be available to all communities of 1,000 and over, about 1,900 would be of the Class 1 type, suitable for the private flyer.

► **Long Range Planning Urged**—Stressing the need for long range planning, the administrator says state initiative on airports will be welcome in a field offering "a splendid chance for the federal government to work in partnership with the State authorities." He explained his formula for federal aid, based on state area, population, number of registered aircraft, and number of existing airports.

Far less than the majority of the 6,000 airports he visualizes would need to be of Class 4 type suitable for transport aircraft. Stanton feels that "very shortly" after the war, scheduled air transportation service with airplanes requiring Class 3 airports and upward may be in operation at about 1,000 cities. (There are now 865 fields with runways of 3,500 feet or more, suitable for commercial air transport operations—a gain of almost 800 percent in two years.)

► **Residential Airports**—He suggested that cities of 3,000 or larger not near bigger centers should begin with sites capable of development to Class 4, but starting perhaps as Class 1 or 2, for "airports beyond Class 2 in size are hardly ever required for miscellaneous local commercial and private flying which we expect to be the vast majority of all flying within the next decade." In fact, he says, airports to serve residential areas of large cities or suburbs can be planned on sites not suitable for more than a Class 2 port.

► **Small Towns New Field**—New business for the airplane, he says, lies in the extension of air service to the smaller communities—the almost entirely undeveloped local, feeder and pickup services for smaller towns. He favors carriage of all first-class mail by air without extra charge, when it means faster service, and believes rates on air freight and express can be brought to a point where, when speed is a factor, they can compete with other transportation.

"I believe," Stanton said, "it is entirely practical to reduce rates within a few years after the war from the present level of 70 or 80 cents a ton-mile to between 10 and 15 cents." Development of planes with greater payloads and lower operating costs, plus new methods of packaging, he sees as contributing to make such a reduction possible.

## Feeder Line Delay Gives Time for Study

CAB examiner sees advantage in lack of available planes.

C. Edward Leasure, chief examiner for Civil Aeronautics Board, feels after closely watching the board's investigation of local, feeder and pickup possibilities that an indicated delay in availability of planes for this type of service will give needed time for study and planning.

He stakes high hopes for the airlines on the early postwar period, and feels it is reasonable to expect that whatever the quality of commercial surface transportation and the extent of use of the private automobile, the airlines, which in the past have carried less than one percent of total surface passenger traffic, will enter the postwar period with a large upsurge in their volume of traffic, and that a large part of this increase will come from small communities.

► **Helicopters**—Leasure, summarizing the presentations at the local service hearings, says his own check shows that new type airplanes suitable for such operation, including combination passenger and pickup equipment, will not be ready before a year after Germany's collapse, and commercial helicopters are "at least another year off." Observing that this would give time for study and careful planning, he

• CAB dismissed the motion of Public Counsel to consolidate, for hearing with Northeast Airlines' request for approval of the purchase of Mayflower Airlines, the application of E. W. Wiggins Airways for service to Nantucket and Martha's Vineyard, Mass., and Northeast's application for helicopter service in New England. Petition of Wiggins to intervene in the Northeast-Mayflower case was simultaneously denied. According to arrangements made by Examiner Frank A. Law, Jr., at a pre-hearing conference, Northeast will present its case 15 days after this order, with hearing scheduled approximately five days later.

• Economic data being prepared by Public Counsel to cover the Caribbean, Central and South American areas, which was expected to be collected by the middle of this month, will now not be ready until the middle or end of January.

• Applications for service in the territory adjacent to a route between Kansas City and Tulsa on the one hand and New Orleans on the other have been consolidated for hearing. Mid-Continent Airlines, Dockets 536 and 651; Delta Air Corp., Docket 1100; National Airlines, Dockets 1134 and 1135; and Kansas City Southern Transport Co., and/or Kansas City Southern Railway Co., Docket 659, were affected. The CAB order also granted leave to intervene in this proceeding to Braniff Airways, Chicago & Southern Air Lines, Eastern Air Lines, TWA, American Airlines and the Department of Justice.

• CAB denied Mid-Continent Airlines' petition for reconsideration of a consolidation order in the proceeding involving Braniff, American, Chicago & Southern, Continental, Delta and Eastern, for service involving Tulsa, Oklahoma City, Fort Smith, Little Rock, Memphis, Birmingham, and other cities. Objections to this consolidation previously filed by Braniff, Chicago & Southern and TWA were denied in a previous order.

• The Board gave Colonial Airlines an

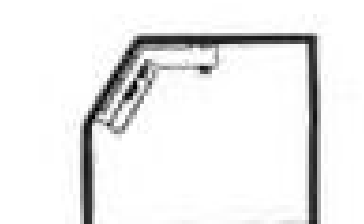
extension of time in which to file its answer to a show cause order on mail compensation issued early last month. CAB concluded that the present rates of compensation to Colonial of 21.61 cents per airplane mile were fair and reasonable. Colonial filed an objection to this decision Nov. 26, and has been given until Jan. 11 to file answer.

• TWA's application (Docket 413) to serve Joplin, Mo., Tulsa and Oklahoma City as intermediate points on AM 2 between St. Louis and Amarillo, has been assigned to Trial Examiner Lawrence J. Kosters for hearing Jan. 4.

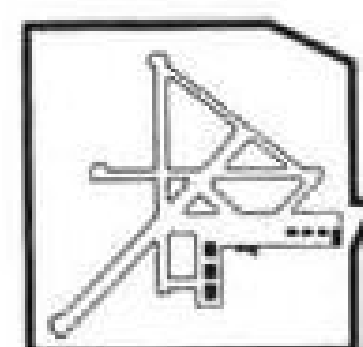
• Parties to a hearing on applications for routes from Detroit to Memphis, still in session before Examiner Thomas L. Wrenn at "AVIATION NEWS" press time, are TWA, Eastern Air Lines, Chicago & Southern, American, Mid-Continent and United. Intervenor in the case are Braniff, Pennsylvania-Central, City of Detroit and State of Indiana. Among witnesses from Chambers of Commerce of some of the cities proposed to be served were representatives from Anderson, Muncie, Terre Haute, New Castle, Fort Wayne and Evansville, Ind.

• A pre-hearing conference on Colonial Airlines' application for a route from New York City to Massena, N. Y., and from Washington to Massena, was held before Examiner William J. Madden in Washington. The question of whether these proposed routes could be considered separately from Colonial's application to provide air service from Massena to Ottawa, Canada, was raised by counsel for Eastern, Pennsylvania-Central, United and American. Public counsel also contended that proposed service was, in effect, Canadian-U. S. Service. An opinion from the Board as to whether it wants to go ahead on Canadian cases, or hear Colonial strictly on service to domestic points, as Colonial has asked, will be necessary, before further conferences on these applications. Page Airways, Rochester, expressed a desire to be a party to the hearing, if domestic points only are to be considered.

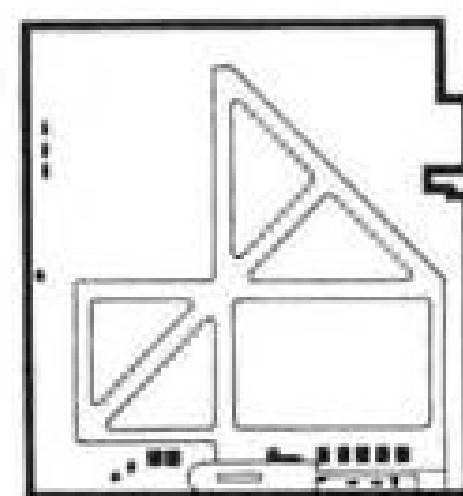
## SIZE OF TYPICAL CLASS 1 - 2 - 3 - 4 - 5 AIRPORTS



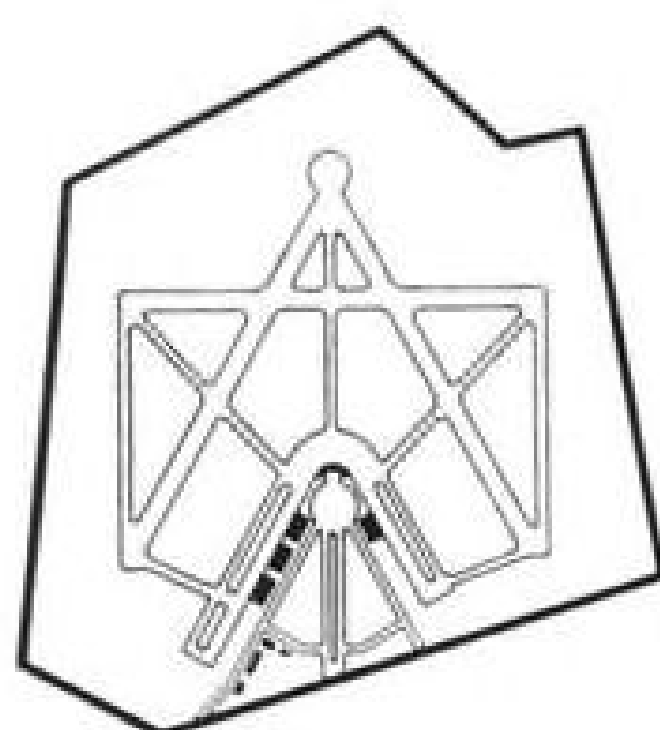
**CLASS 1**  
EFFECTIVE LANDING  
STRIP LENGTHS  
1800'-2500'



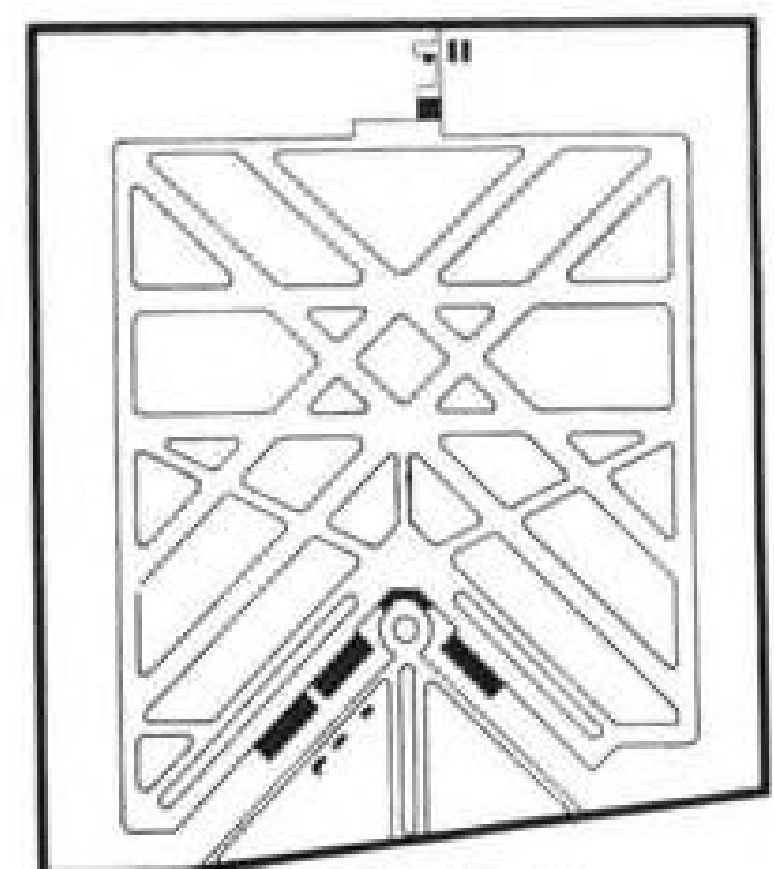
**CLASS 2**  
EFFECTIVE RUNWAY  
LENGTHS 2500'-3500'



**CLASS 3**  
EFFECTIVE RUNWAY  
LENGTHS 3500'-4500'



**CLASS 4**  
EFFECTIVE RUNWAY  
LENGTHS 4500'-5500'



**CLASS 5**  
EFFECTIVE RUNWAY  
LENGTHS 5500'-6500'

0 2000 4000 6000  
FEET

0 1 2 3 4 5  
MILES

**Airport Uses Described:** Charles I. Stanton, Civil Aeronautics administrator, described the best uses and development of the five classes of airports to Pennsylvania contractors at a Philadelphia meeting.

emphasizes that he means "continuous, detailed attention to this problem and not a period for procrastination or unnecessary delay."

Leasure says a miscellaneous assortment of single-engine cabin craft could be available for common carrier service if released from their present essential work, but concludes that small payloads, restriction to day contract operations, and necessarily high rates would make the service little better than charter operation.

## Women Test Pilots

Grumman Aircraft Engineering Corp.'s plant at Bethpage, L. I., employs three women as test pilots. Originally hired to fly parts from one plant to another, the women have been assigned to the job of testing such planes as the new Hellcat and the Avenger torpedo craft.

They make as many as eight flights a day and also assist in training additional test pilots. As far as is now known, they are the only female test pilots in this country.

They are Elizabeth Hooker, Mrs. Teddy Kenyon and Mrs. Barbara Jayne, first woman instructor in the Civil Pilot Training Program.



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