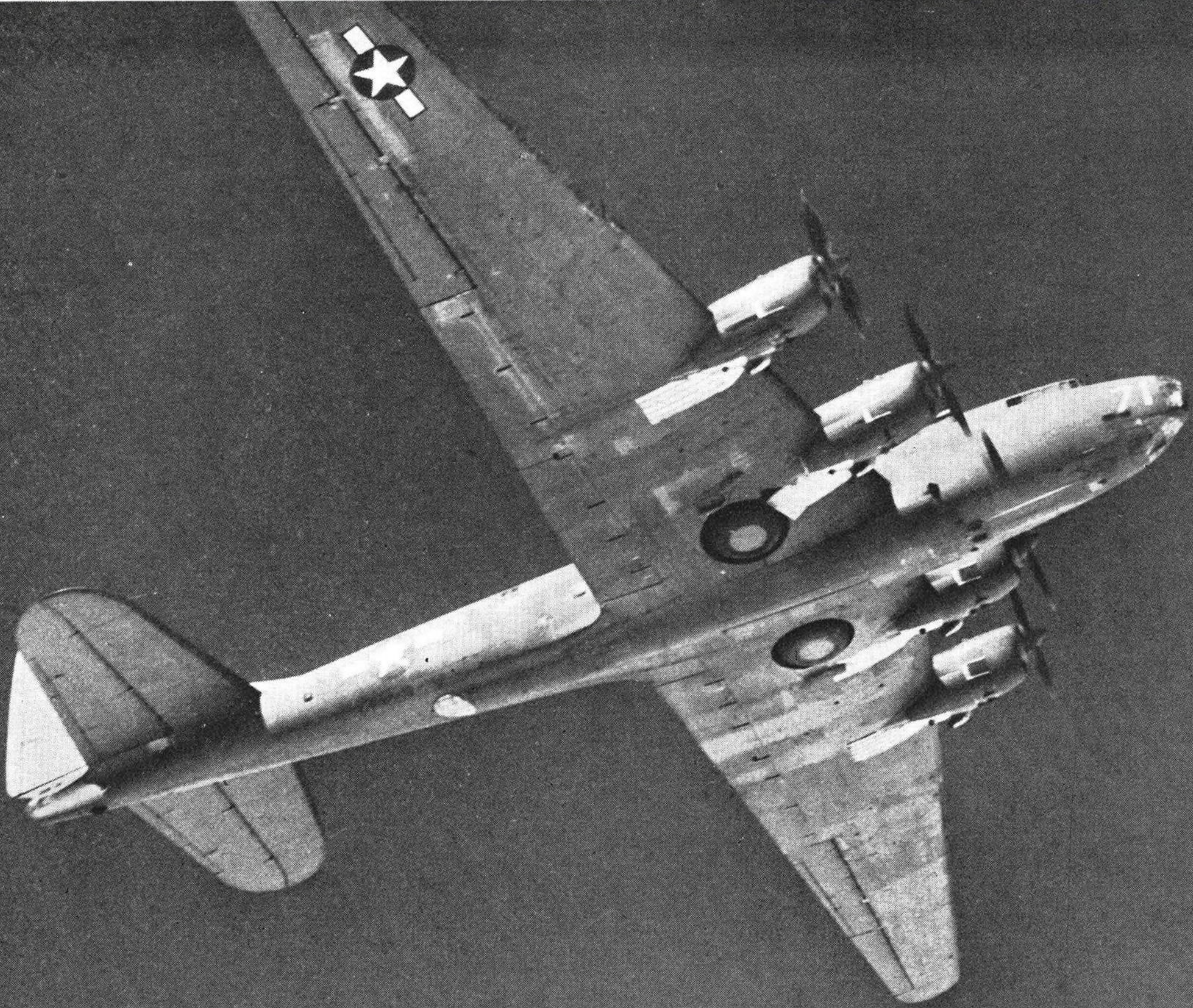


# Aviation News

McGRAW-HILL PUBLISHING COMPANY, INC.

DECEMBER 25, 1944



**Biggest Bomber Refitted with Allison Engines:** *First flight picture of the Douglas XB-19-A, huge flying laboratory of the Air Technical Service Command, Wright Field, now flying with 2600 hp. Allison engines and four-blade Curtiss 18 foot 2 inch diameter propellers. First flown as the B-19 in 1941, with smaller engines and propellers, the plane is still the largest known to be flying. It already has repaid its cost by providing the Army with data on big plane construction, ATSC spokesmen say.*

## **Harvard Analysis Stresses Reconversion Preparations**

New study declares post-war developments will be seriously impeded unless industry and government make coordinated plans.....Page 7

## **CAB Northwest Opinions Point to Merger, Interchange**

Decision makes airline fourth transcontinental carrier; PCA also gains entry into New York, but Pogue sees merger preferable.....Page 38

## **Purdue Maps Post-war Expansion as Aviation Center**

New program stresses instruction in aeronautical engineering and in air transportation as well as personal aviation.....Page 15

## **Mustang Dives Presage Comfortable 450 mph. Airliner**

Design characteristics of high speed fighters, engineered into air transports, assure smooth, fast operation with minimum discomfort.....Page 11

## **Sales Methods to be Vital Factors in Personal Market**

Survey predicts that about 30 out of 55 manufacturers will produce satisfactory plane at cost low enough to be competitive.....Page 21

## **Analysts' Consensus Gives Airlines High Rating**

Aircraft manufacturing issues estimated at "average to below"; Bendix, Douglas, Lockheed, Sperry and United listed as favorites.....Page 36

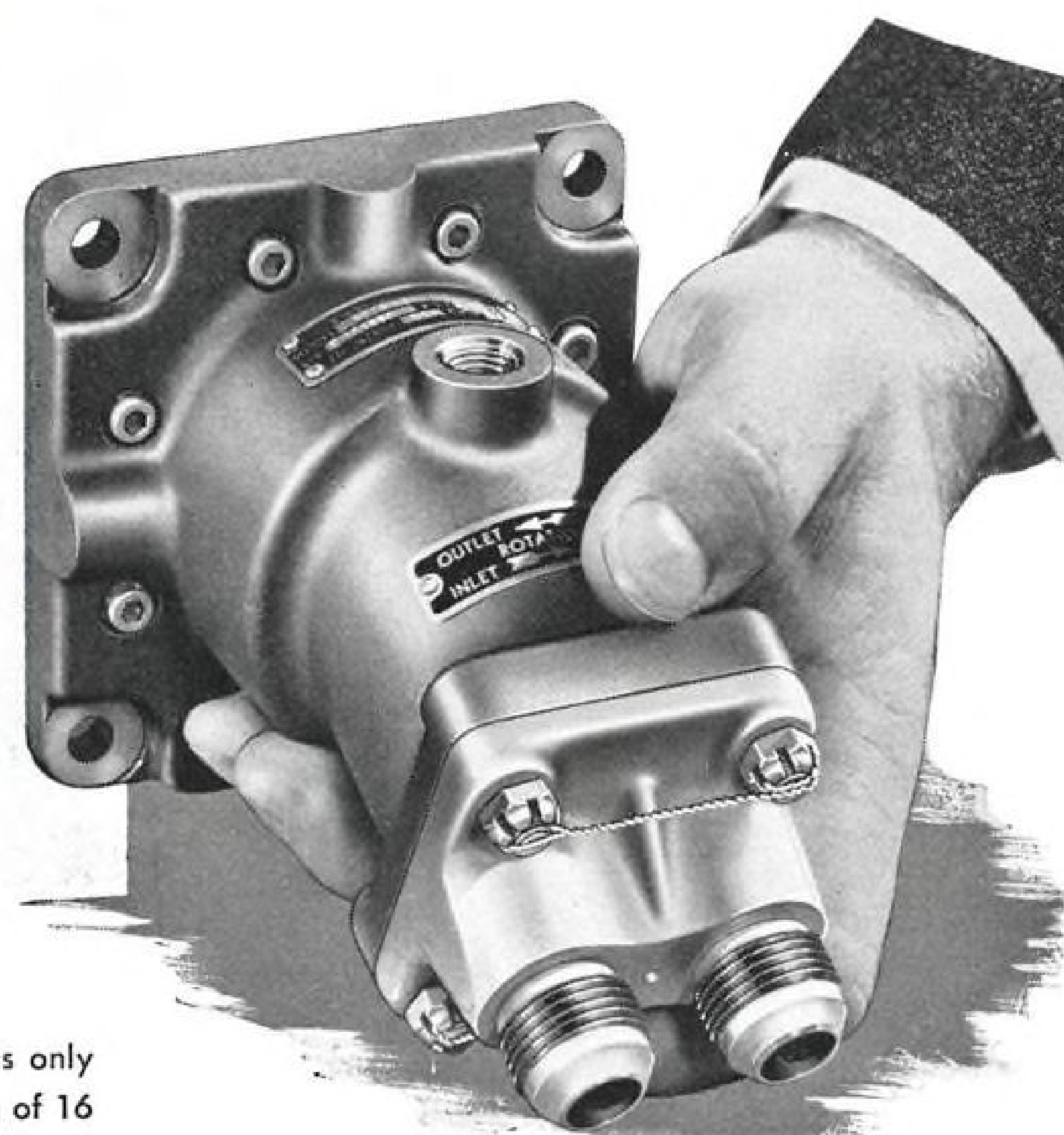


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### THE AVIATION NEWS

## Washington Observer

**INDUSTRY'S FINANCIAL PROBLEM**—The financial problems of the aircraft manufacturers are, in effect, the problems of all war contractors magnified to an extreme, as is clearly pointed out in the new Harvard Business School report discussed at length in this issue. The current campaign in Washington for increased production of critical war items, however, will even further complicate conversion problems because the leveling off process will tend to be eliminated in favor of full rate production. Thus, the impact of terminations and cutbacks may be considerably sharper.

\*\*\*

**MANPOWER REACTION**—The current campaign to swing public opinion away from an early end to the war and to channel manpower into war industries may well be reflected in some fields that are scarcely related. It may slow down the return of planes to airlines, despite the fact that this had appeared promising through the middle of December. It may still be promising, but the new attitude is reflected throughout the Army and is influencing the thinking of virtually every officer. The planes might be available, but still not be released because of the possible effect on public thinking.

\*

**MANPOWER**—Despite the statements of some Washington leaders on the manpower problem in connection with critical war items, one top leader has said that in the aircraft industry a "huge" saving of labor has been ef-

fectured. Here, he said, in the face of an overall decline in the number of workers, turnover and absenteeism in individual plants have been sharply reduced and labor productivity greatly increased.

\*\*\*

**CAA AIRPORT REPORT**—Some Washington officials are complaining that communities listed in the CAA airport report, scheduled for new airports chiefly in the Class 2 division for private flying and feederlines, are not making surveys of effective locales and submitting them for consideration. Sites for new airports, it is pointed out, have not been chosen by CAA, for fear of real estate booms. They are expecting communities to propose locations.

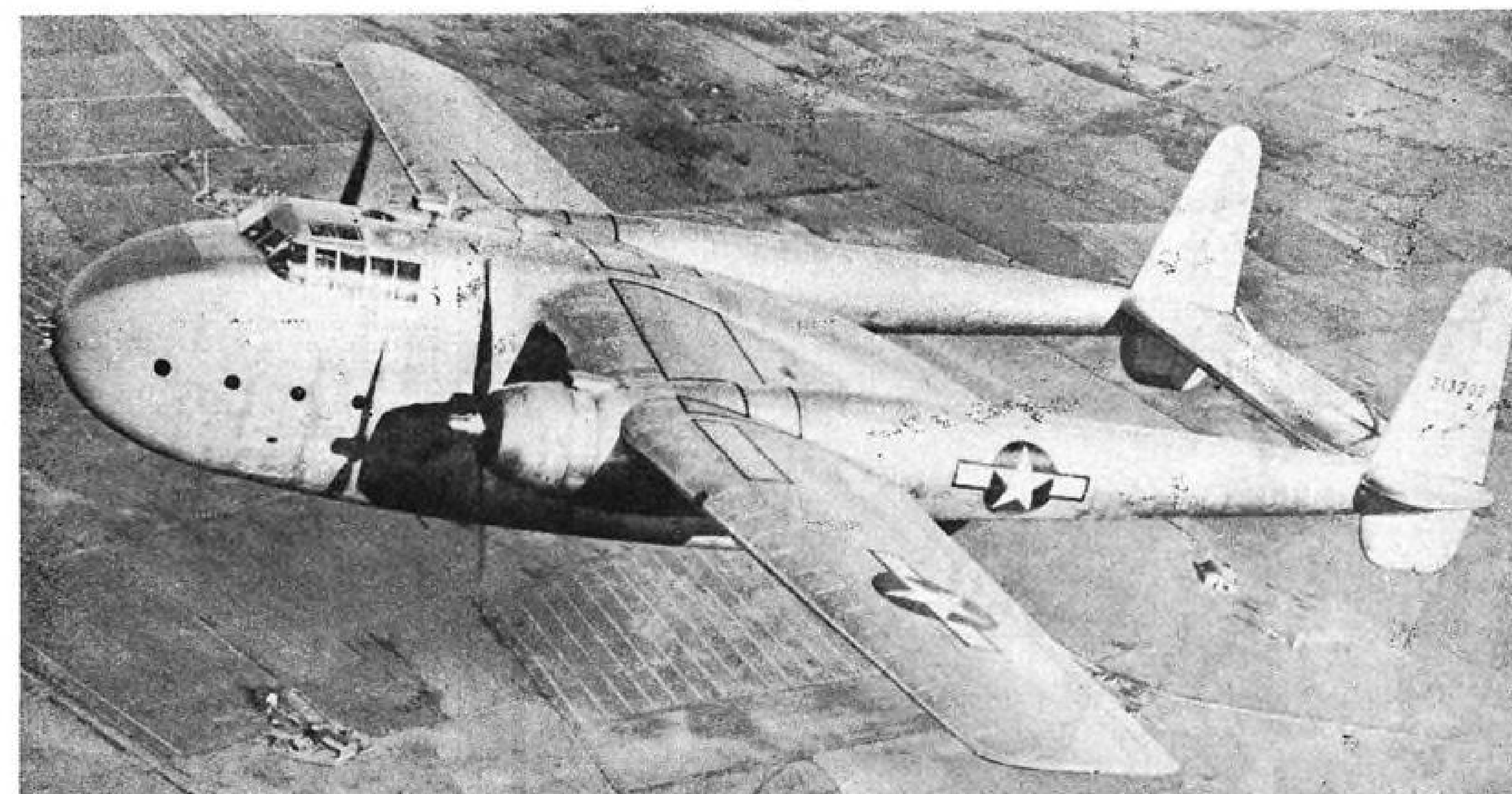
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**LATIN AMERICAN AIRPORTS**—Plans of United States airlines to use big planes on inter-American commercial air routes have increased interest among Latin-American diplomats in the availability of airports capable of handling these transport planes. Few such airports now exist in the other Americas.

\*\*\*

**AIRLINE INSURANCE**—Washington sources expect early entry of at least two new groups in the field of insurance for airlines. Three groups have held control of the bulk of the hull, property and public liability market for many years, are given credit for their pioneering. But both government and airline circles feel it is time

*New view of Fairchild's C-82 Packet to be built by Fairchild and North American for AAF*





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## Washington Observer

for the carriers to be given some relief in the matter of rates. Expansion of the field is attracting new interest and investigation by companies that heretofore have regarded aviation insurance with a jaundiced eye.

★

**INSURANCE TRENDS**—The action of Connecticut General in reducing rates and extending normal coverage is regarded in Washington as the first break in the log-jam that has been holding back general revision of the market. Progressive Connecticut General has led the field in airline group insurance and life insurance with aviation clauses. Other companies are following, and more may be expected.

★

**AIR FORCE LEAGUE**—The new Air Force

League announced last week, headed by respected Charles E. Wilson, former WPB vice chairman, represents a second attempt by General Arnold to assure a powerful public group to impress the nation constantly with the necessity for an adequate post-war air force. The first attempt established the ill-fated Civil Air Patrol League which sought and obtained contributions from the public membership. Initial appeal will be to the public, but increasing effort will be made to enlist all Army Air Forces veterans as they are mustered out. Because of the unity of purpose and interest of its members, some Washington observers are convinced that the new League, once under way successfully, may rival the powerful American Legion. Potency of such a veterans-public organization with several million members would be enormous.

★ ★ ★

## Industry Observer

Best informed Washington officials believe that three to five certificates for experimental feeder airline services, probably for five year periods, will be granted by CAB in the last half of 1945. Scores of applicants will be eliminated from the running during hearings in the first six months.

An indication of the degree to which the Pacific War is increasing West Coast air travel is found in a new report on San Francisco municipal airport business. Airline trips in and out, including 69 extra sections, numbered 2009 in October, up 57 percent over year ago. Revenue passengers in and out totaled 33,104, up 58 percent; mail pounds loaded gained 125 percent, and on loaded express was up 96 percent over October, 1943.

Lockheed officials remain mum on their experimental single-place executives' plane prototype which is already flying, and which they believe might be sold at slightly under \$1,000 if labor and other costs are more favorable after the war. The metal monoplane utilizes either two or three controls, as desired by the pilot, has generous-sized flaps to cut speed in unfavorable weather, has an unusually high tail for controllability, and is powered by a two-cycle engine cut down from a conventional four-cycle lightplane power unit. Its cruising speed is over 100 mph.

Odds are against the Civil Aeronautics Board's granting United Air Lines' petition for a rehearing on the Los Angeles-Denver decision which was given to Western.

Rheem Manufacturing Co., of Los Angeles, will design and develop an all-metal rotor blade for helicopters under a new contract signed with Air Technical Service Command. Blades now manu-

factured by the company are fabric covered.

Although airline people feel that a 24-hour timetable would have public advantages if adopted by all carriers, the idea has been shelved, at least temporarily, because of the need for further education of both airline passenger service staffs and the public.

Navy will declare as surplus the 14 or 15 twin-engined RB-1 Budd stainless steel transports which remain of the 17 originally built.

L. Welch Pogue's separate opinion in the Northwest-PCA decision last week, brought into the open for the first time likelihood of a merger of the two companies, and such discussions are believed still underway. Such a combined system would immediately take its place among the top airlines in the country.

In a move to bring air express tariffs in closer conformity with CAB authorizations since 1941 of shorter routings between points, Railway Express Agency's air express division has filed with the Board a new tariff schedule which in some cases will bring reductions, although in most instances no changes are made.

A special committee has been appointed by Air Traffic Conference to study changes suggested by United Air Lines in the post-war air travel plan. The conference has just turned down a recommendation by its Air Travel Plan Subcommittee, reported in this column last week, for a scrip discount of 5 percent instead of the pre-war 15 percent on one way fares.

The government's removal of the West Coast ban on American-born Japanese, worries aircraft plant personnel managers who expect applications from such citizens for jobs. The plants need labor, but do not relish friction with present employees, some of whom are discharged or partially disabled veterans of the Pacific war.



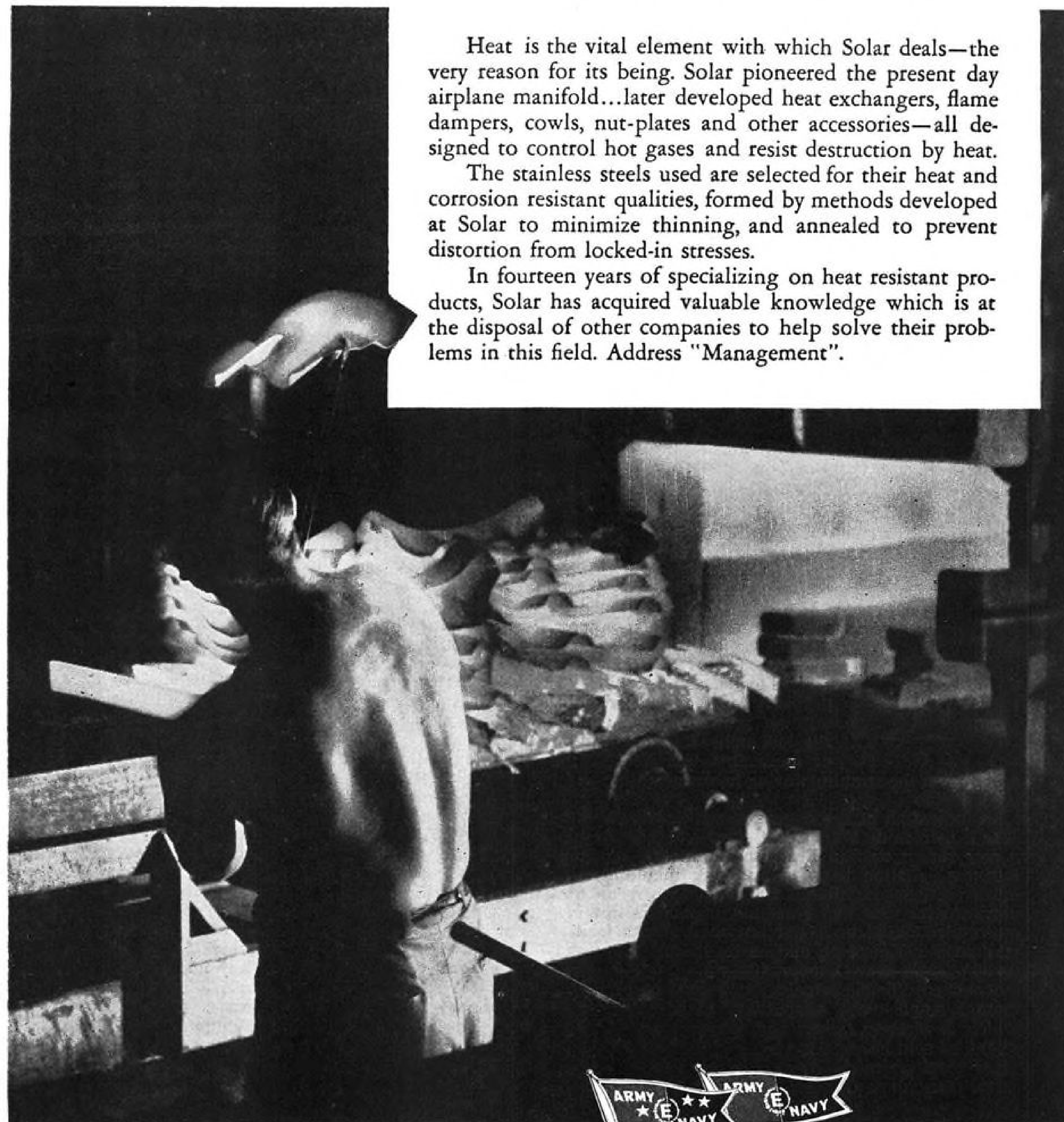
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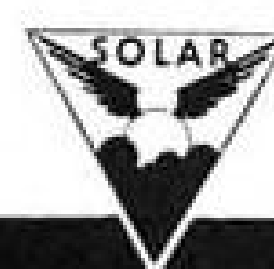
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VOLUME 2 • NUMBER 22

# Aviation News

MCGRAW-HILL PUBLISHING CO., INC.

December 25, 1944

## New Harvard Analysis Stresses Need of Reconversion Preparations

Study declares post-war developments and employment in aviation plants will be seriously impeded unless industry and government make coordinated plans for orderly and prompt conversion to peacetime production.

By SCOTT HERSHEY

The economic and military importance of an orderly conversion of the aircraft industry is being increasingly recognized and a new study of the situation from the Harvard Business School points this up in an analysis which industry leaders generally believe penetrates to the crux of the problem and deserves widespread consideration both within the industry and without.

There probably is no group of manufacturers more in the spot-

light of discussions on post-war conversion and contract termination than the aircraft manufacturing industry. Prof. Tom Lilley and Instructor L. La Verne Horton have gone into this thoroughly, using projected financial statements of leading airframe manufacturers for 1945 and 1946 and assume for purposes of the study that large-scale aircraft production will end by December, 1945.

► **Urge Conversion Preparations—** It is their opinion that post-war de-

velopment and employment in the aircraft industry will be seriously impeded unless industry and government make coordinated preparations for orderly and prompt conversion to peacetime output.

Leading aircraft executives have repeatedly urged programs which will meet the industry's first problem, that of survival, and the Harvard study comes to the conclusion that the average airframe manufacturer will be able to survive the immediate post-war adjustment period with a reasonably satisfactory financial position:

► If contract terminations are administered with a reasonableness consistent with the broad policies as set forth in the Contract Termination Act of 1944;

► If the company sets up its own administrative organization to handle termination properly, concentrating prior to the end of the war on effective inventory management;

► If the management curtails ex-



### PLAN WEST'S AIR FUTURE:

Proposals which may become the backbone of California's post-war aviation program are coming from this committee. At this session, drafting recommendations for a state aircraft commission and its functions were: (Seated, left to right) A. Y. Preble, Imperial County board of supervisors; Dudley Steele, manager, Lockheed Air Terminal; R. W. F. Schmidt, C.A.A., Sixth Region; Loyd Wright, chairman; Lyman Mantz, California State Reconstruction and Reemployment Commission; Robert F. Craig, commercial aviation department, University of Southern California; Dr. Baldwin M. Woods, University of California, Berkeley; Lieut. Col. Bertrand Rhine, California Wing Commander, Civil Air Patrol; (standing,

left to right) Jack Charleville, assistant to the president, Western Air Lines; Howard G. Freas, California Railroad Commission; Col. William Carroll, CAA, Sixth Region; Col. Clarence M. Young, Pan American Airways System; A. Anderson, San Francisco Bay Area Aviation Committee; R. I. Hess, CAA, Sixth Region; B. M. Doolin, manager, San Francisco Municipal Airport; James G. Ray, vice-president, Southwest Airways; Lew Goss, Transcontinental & Western Air, Inc.; Harvey Hancock, United Air Lines; William A. Bles, Young and Rubican; A. L. Bone, American Airlines; William Fleet, Consolidated Vultee Aircraft Corp.; Perry H. Taft, San Francisco, Council of State Governments; Thomas Wolfe, Western Air Lines.



penses realistically and rapidly.

In this connection, the study comments that "probably the most important single difficulty of the conversion period will be the curtailment of expenditures from wartime levels to drastically reduced peacetime levels.

"The magnitude of unreimbursed 'momentum' expenses which the average airframe company must absorb during the immediate post-war period will depend on three variables: (a) the ability or willingness of the company's management to curtail expenses; (b) the extent of advance notice of contract terminations given by the government; (c) the extent to which post-termination expenses are reimbursed by the government."

**►Progress Reported**—Industry leaders who have been concerned most directly with questions of terminations and conversion agree with the statement made in the report that the progress made during the last year in planning for contract terminations and conversion affords some grounds for optimism that these conditions may be fulfilled.

The study points out that the risk is great, however, that uncertainties and delays during the conversion period will unnecessarily impede the constructive development work required to promote maximum peace-time production.

Lilley and Horton, studying this situation believe that confusion and unnecessary curtailment during conversion, make the suggestions that:

**►Uncertainties regarding contract**

termination procedures can be reduced by a concerted effort on the part of industry and government organizations to pre-plan the methods, standards, and bases for making quick termination settlements well in advance of large-scale terminations.

**►Uncertainties regarding the loss carry-back provisions of the tax law** can be reduced by adoption of a Treasury proposal to accelerate payments of loss carry-back refunds.

**►Uncertainties regarding future aircraft production and development** can be reduced by making every effort to determine future national air-power policies in advance of the end of the war.

While the study concedes that industry and government are giving increasing attention to conversion, much of the detailed planning necessary for an orderly transition remains to be done.

Recent demands for increased production of critical war materials and indications from some government and military leaders of shortages or approaching shortages in vital items have, of course, put a damper on on conversion talk in Washington and throughout the industry.

The Harvard study pointedly comments on a situation which is receiving serious consideration in the industry.

"Entirely apart from termination and tax problems" it says, "the basic question facing every aircraft manufacturer is: conversion into what? The answer will be vitally affected by the post-war aviation policies adopted by the government, including policies for Army-Navy procurement, plant and equipment disposal, surplus aircraft disposal and Civil Aeronautics Board certification of new transport routes."

## Buyers Organize

An Aircraft Industry Buyers Group has been organized within the National Association of Purchasing Agents. The group is comprised of purchasing officers of airframe manufacturers.

E. P. Scully, director of purchases for Engineering & Research Corp., Riverdale, Md., and a vice-president of the National Association of Purchasing Agents, will be chairman of the new group.

The airframe group is the first aviation unit in the NAPA, according to members, although the purchasing agents of airlines have had

a committee organization within the framework of the Air Transport Association.

## Rota Wings Designs New 8-Place 'Copter

Agnew E. Larsen, president, expects to start production on all-metal twin engine craft within year.

Design details of a twin-engined, eight-place helicopter were outlined by Agnew E. Larsen, aeronautical engineer and president of Rota Wings, Inc., during the New England Civil Aeronautics Board hearing at Boston.

Larsen, who said he hoped to be able to start production of the first model within a year, described the helicopter as all-metal with two Jacobs L-6MB engines of 300 hp. mounted side-by-side close to the center of gravity.

**►56-Foot Rotor Diameter**—The diameter of the three-bladed rotor would be 56 feet, Larsen said, pointing out that "successfully flown helicopters have not involved rotor diameters in excess of 45 feet," with indications that "the 56-foot rotor diameter represents engineering which has virtually been perfected at the present time."

The landing gear is tricycle and retractable through a hydraulic system. The anti-torque propeller is three-bladed, with variable pitch and a 7½-foot diameter.

The control system includes a single control of the main rotor and engine speed, with the main control a conventional type of column surmounted by a control wheel. Foot pedals govern the pitch of the anti-torque propeller which provides directional control. Cost would be about \$37,000, without engines or radio.

**►Power Loading**—Larsen said a power loading of 18 to 19 pounds per horsepower would be possible as far as mechanical strength was concerned, but recommended 12 for best performance. He declared a climb of 1400 feet per minute would be possible, and that altitude could be maintained on one engine with a power output of 220 to 240 hp, achieving 55 mph. Engines are to be inclined backward at an angle of 6 degrees.

Larsen disclosed that he is negotiating with two manufacturers who have expressed interest in sharing development costs, and that four transport clients are considering subscribing.

# Data on XB-19 Installations Aid Army's Big Plane Program

World's largest land aircraft, now known as XB-19-A because of extensive alterations, mounts four 2600 hp. Allison engines, each turning an 18 foot, two inch Curtiss Electric propeller.

By ALEXANDER MCSURELY

Flight test data on experimental installations in the world's largest landplane, the one and only Douglas XB-19, now rechristened the XB-19-A because of extensive alterations, are proving a valuable addition to the AAF's store of knowledge about big airplanes.

Today at Wright Field, big experimental and testing center of the Air Technical Service Command, the XB-19-A mounts four liquid-cooled Allison 3420 engines, in its wings, and each of the big supercharged engines, rated at 2600 hp., turns a four-blade 18 foot two inch Curtiss Electric propeller. Thus the big airplane is actually a flying test stand for the new liquid-cooled engines, and the propellers, believed to be the largest in blade area to have been flown.

**►First Flight**—Skeptics scoffed back on June 27, 1941 when Col. Stanley Umstead, then chief Wright Field test pilot, made the initial flight out at Santa Monica, Calif., from the Douglas plant to the March Field runways, 62 miles away. The plane was underpowered, they said, although it was equipped with four Wright engines then limited to 1800 hp., and turning three-bladed 17 foot propellers.

Actually the brand-new B-19 was already providing flight test

data in that and subsequent flights on performance of the 3350 Duplex Cyclones which later stepped up their horsepower rating to 2200 and powered the Boeing Superfortress B-29's.

In some ways the critics were right. The B-19's basic design dated back to 1935. It was an old plane before it flew. It had a top speed of about 205 mph. and cruised at around 186. Its service ceiling was only 22,000 feet, with the unsupercharged engines; and its best performance was at 12,000 feet.

**►Flight Data Collected**—But Brig. Gen. Franklin O. Carroll, engineering division chief, and other Wright Field experts wanted to know the answers to a lot of flight test questions about big airplanes. The proof of the plane is in the flying. And the ponderous B-19, called by men who fly in her "the sweetest flying plane you ever saw," has answered a lot of those questions, and may answer a lot more.

Soon after the plane came to Wright Field, in January, 1942, to begin its testing program, the Army's flight engineers prepared a library of reports on the plane, a file which has been growing steadily ever since. The file has been

## 43 More Transports

Forty-three additional C-53's have been declared surplus by the Army and will be allocated to domestic and foreign airlines sometime this week.

In addition, 19 Lodestars have been turned over for allocation, and four already have been assigned to National Airlines, one to the Chicago, Black Hills and Western and one to Yankee Skylines. Both of the latter are understood to be war plant cargo operations.

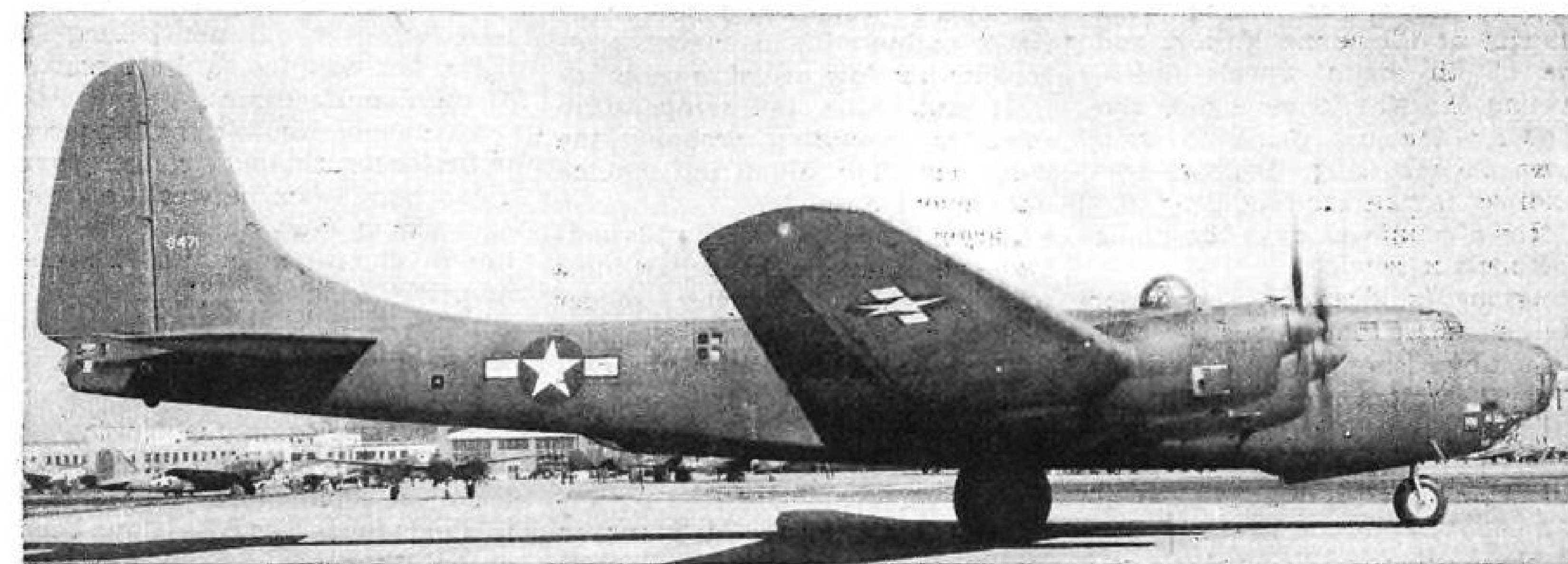
Domestic airlines will get more than half of the new allocations, which were being delayed last week until the Civil Aeronautics Board could complete its recommendations for distribution of a number of planes larger than anticipated. All will be assigned at one time, it is expected.

Meanwhile, the State Department is understood to be requesting applications from foreign airlines for planes badly needed in these countries.

made available to American aircraft manufacturers of large planes, providing them with concrete facts about large plane performance with which to bolster or correct their theoretical design studies of future big planes.

Neither security nor space permits the detailing of the B-19 reports, but a few general conclusions drawn from the mass of facts may be listed:

**►Fabrication**—Much was learned about the problems involved in putting the huge craft, which has



**XB-19-A Warms Up Big Engines:** Powerful Allison V-3420 engines, restricted to 2600 hp., and turning 18 foot 2 inch four-blade Curtiss propellers, are service testing on the XB-19-A, modification of the

Douglas B-19, still the largest warplane known to be flying. Nacelles are regarded as so satisfactory they are being used on another unnamed plane, without material change.



a 212-foot wingspan, a fuselage 132 feet long, and a tail 42 feet tall, together. Stress analysis problems, the making of joints and attachments, the relationship of skin and stringers and many other details of fabrication were compiled for the first time on a plane of this size, to serve as a guide to other big-plane builders.

► **Wind Tunnel Data**—By comparing flight test data with data obtained from wind tunnel tests of the B-19's scale models, engineers were able to correct their theoretical curves of scale effect on big airplanes.

► **Accessories and Equipment**—Besides the major changes of engines and propellers, many modifications in accessories and other equipment have been made with performances calibrated. Items such as radio equipment, electrical system, auxiliary power plants, hydraulic system, brakes, have been materially modified as a result of flight test experience.

► **Landing Gear**—The B-19 has single wheel landing gear, with its main wheels having a 96-inch diameter, and the nose wheel 54-inch diameter. While landing gear performance generally has been satisfactory, preference is expressed for the dual wheel landing gear as found on the earlier Boeing B-15, the B-29, the Douglas C-54, and the Lockheed C-69, mainly because the two wheels spread the load of first impact when landing. It was found that additional beefing up of the main landing gear was necessary to prevent deflection when the gear was extended.

Only mishap logged in more than 200 hours of flight came when the big plane was taxiing on a runway at Cleveland airport and one of the main wheels failed, causing the tire to blow out, and allowing the big plane to drop down on one wing. Damage was confined to the landing gear and within a couple of days the plane was back in service.

► **Engine Modification**—The major engine modification was accomplished by Fisher Aircraft division, General Motors Corp., with the assistance and direction of AAF experts, at Wayne County Airport, Detroit, and at the Fisher plant at Municipal Airport, Cleveland. The problem involved complete replacement of the engine nacelles, and addition of considerable weight mainly divided between the turbo superchargers and the larger propellers. The XB-19-A

## XB-19-A vs. B-29

Many people believe the B-29 *Superfortress* to be the largest bomber of this country. They do not realize that the experimental XB-19-A while much older, and in many ways less efficient, is still considerably larger. A glance at previous U.S. Army bomber developments, indicates that the Army has consistently followed the practice of developing for mass production, smaller four-engine bombers than the prototypes it experiments with. Many have forgotten that back in 1937 the Army was test flying a bomber as large as the B-29, the XB-15, which was shelved as a mass production development in favor of the smaller B-17 and B-24's, until more powerful engines came along. Some specifications of the XB-19-A and B-29, as released by the War Department offer an interesting comparison:

XB-19-A	Data	B-29
212	Wingspan ft.	141.2
132	length ft.	98
42	height ft.	27
18 ft. 2 in.	propeller diameter	16 ft. 6 in.
2,600	engine hp	2,200
18 tons	bomb capacity	restricted
above 250	top speed	above 300
7,750	range miles	restricted

nacelle arrangement is considered so satisfactory that virtually the same nacelle is incorporated in another airplane not yet announced.

Despite the additional weight, the additional horsepower and supercharging give the revised plane considerably improved performance with speeds above 250 mph., and with good performance at altitudes above 30,000 feet.

The Allison engine installation includes a special test panel for the No. 2 engine with instruments recording air flow pressure differentials and some 140 temperature readings, providing probably the most complete flight test engine data ever obtained.

► **Larger Props Used**—The 18-foot-two-inch diameter propellers now installed replaced earlier 16-foot diameter four-bladed first used with the Allison. All four propellers are automatically synchronized to maintain the same speed. Inboard propellers are equipped with reverse pitch, used very effectively in braking the plane, in landings. Use of reverse pitch alone, is almost as effective as use of the wheel brakes, the engineers report.

About a dozen Army pilots have checked out at the controls of the

B-19. The bulk of the flying, however, has been done by Col. Umstead, Col. Howard Bunker, who was project engineer on the big plane; Col. Ernest Warburton, flight test section chief, at Wright Field, and Col. Donald Putt, big bomber expert and project engineer on the B-29.

Originally the plane was designed for a 7,750 mile range with extra fuel tanks giving a total capacity of 11,000 gallons. It is probable that the same range could be attained today, with additional tanks installed. The longest flight yet made with the plane was its delivery flight from California to Dayton.

## Wright Gives Enemy Credit for Robots

Orville Wright, 73-year-old co-inventor of the airplane and first man to fly it, came to Washington for the 41st anniversary of his first flight, from his Dayton home, and received a certificate along with several other previous Robert J. Collier Trophy winners, at the presentation of the 1943 Trophy award Sunday, Dec. 17. The following day he attended a meeting of the National Advisory Committee for Aeronautics before returning home.

► **Criticizes U. S. Agencies**—In an interview with James Piersol of the *Washington Post*, the white-haired scientist declared he believed the enemy had made the greatest single contribution to aviation of the year—meaning presumably the jet-propelled robot bomb. He criticized government agencies for taking major credit for technical developments in aviation, when it did not belong to them, but was due to the research of the manufacturers.

Physically, Mr. Wright appeared in better health, and stronger, than a year ago, when he was the guest of honor in Washington at the National celebration of the 40th anniversary of his first flight.

## Surplus Fields

Four airfields in the Northwest used by the Spokane, Wash., air technical command as supplemental fields for larger bases have been declared surplus property and have been taken over by the Seattle district, Army Engineers. The fields are at Cutbank, Glasgow and Lewiston, Mont., and Felts Field, Spokane.

## WEST COAST REPORT

# 560 mph. Dives in *Mustang* Presage Comfortable 450 mph. Liner Speed

Design characteristics of high speed fighters, engineered into air transports, assure smooth, fast operation with minimum of physical discomfort or nervousness.

By SCHOLER BANGS

Diving at 560 mph. in a *Mustang* fighter gives clinching proof that airline passengers should experience neither physical discomfort nor nervousness in post-war airliners that are expected to cruise at over 450 mph.

Airline operators may expect confidently that big plane builders will engineer into their high-speed transports all of the "baby buggy" smoothness of flight that is in the wings of North American Aviation's spectacular little fighter.

Eight thousand feet above Southern California farmlands, Robert C. Chilton, North American's top experimental test pilot, had the needle of his air speed indicator squarely on 450, the indicated speed converting to 560 mph. in the dive.

► **No Evidence of Strain**—There was no evidence of straining on the wings. There was no compressibility reaction; no buffeting. There was not even a tremor in the airplane in the few seconds before he pulled up and reached for the sky.

There was no "speed" sensation. No appreciable increase in the fighter's noise level beyond a quickening rise of engine tone. No visual sensation of "rushing" that might have been induced had the approach of ground objects been combined with airplane tremor.

Rather, with the sudden absence of horizontal forward motion, there was a decided sensation of motionless suspension in a cockpit tilted downward at 45 degrees.

► **No Discomfort**—Suggestive of future fast airline travel, the *Mustang* ride aroused optimistic anticipation that passengers will suffer no discomfort from high speed normal turns, and no more than slight, momentary discomfort from unexpected and sharp emergency changes of direction.

Twenty-five feet above ground, and sometimes lower, at 350 mph., we "sneaked" up and down hill-

sides, sliced through ravines, humped over power lines, and skimmed over grazing lands for ten rapid miles.

► **Good Piloting Factor**—That neither the dive pull-out nor the vertical bank unduly uncomfortable probably may be credited jointly to good piloting and the evident tendency of the *Mustang*'s wing to accept sudden loads smoothly, without "slamming" effect.

Such *Mustang* smoothness undoubtedly will be coincident with the performance of post-war high-speed airliner wings, and will provide engineered assurance of passenger comfort in maneuvers that should never reach the violence of fighter plane turns.

One particular observation gained from the ride may be of interest to airline executives and big plane builders who today are thinking in terms of future fast jet-propelled transports:

► The notable comfort of sharp maneuvers in the *Mustang* flight was augmented by a comfortable although firm seat, enforced upright position through sharp turns by the wearing, throughout the flight, of a Sutton safety harness in which shoulder straps of broad webbing hold the upper portion of the body firmly to the back of the seat.

► A loosely slumped or bent-forward body position at the moment

of entering a sudden and even moderate turn at high speed would have resulted in decided discomfort.

Conceivably, the sudden imposition of less than 5-g. upon an unprepared airliner passenger, even with a lap belt hooked, might force the body into a position that could induce muscular strain and even more serious injury.

## League for Strong Post-War AAF Begun

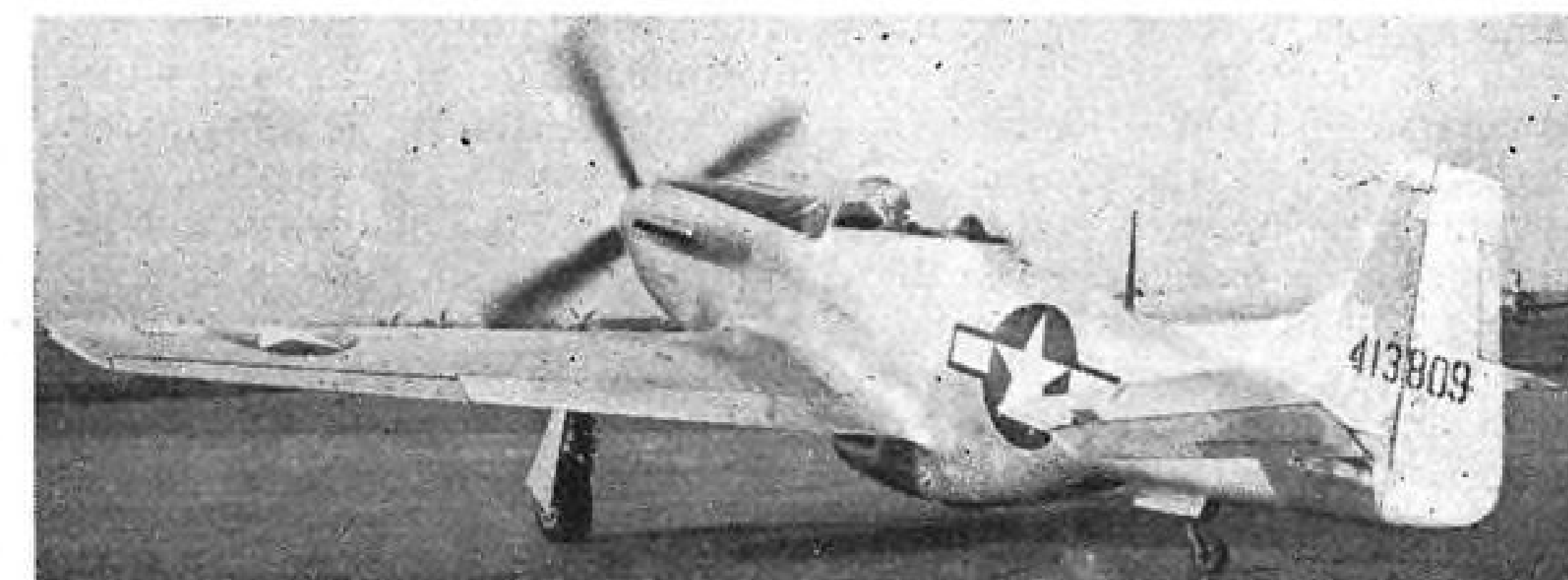
Charles E. Wilson heads group organized to initiate and support move for maintenance of powerful peacetime air force.

Organization of an Air Force League to support maintenance of powerful air arms by the United States is now under way with Charles E. Wilson, president of General Electric Co., and former chairman of the Aircraft Production Board, as its first president. The league would be similar to the Navy League, which for years has supported the building up of the Navy.

It proposes the founding of scholarships for youth in aviation; establishment of an annual Air Force Day; an annual award for the greatest contribution to military aviation; and publication of a monthly magazine.

It is being organized by a group of nationally-known leaders in aviation, in publishing and in related industries. Executive vice-president of the League will be Lieut. Col. Howard W. Angus, until recently assigned to the AAF Air Technical Service Command. The treasurer is John E. Bierwith, president of the New York Trust Co. Offices will be maintained in the Empire State Building in New York.

► **Program**—Officers of the League disclosed that the first year will



**Take-Off on "Plus 500" Flight:** A writer for AVIATION NEWS experiences a plus 500 mph. flight in North American Aviation's P-51 Mustang fighter, piloted by Robert C. Chilton.



be devoted to organizing chapters in each state. Memberships will be graduated in cost from \$500 for a charter member; \$100 for senior members; \$25 for sustaining members; \$10 for contributing members, and \$3 for regular members. It is hoped to obtain a minimum of 2,000,000 members in the last classification, although activity at the moment is concentrated on obtaining charter member subscriptions.

► **Backers**—In addition to Wilson and Bierwith the following participated in the League's organization: Capt. Eddie V. Rickenbacker, Larry Bell, president of Bell Aircraft Corp.; Philip A. Carroll, of Shearman & Stirling, New York; Amon C. Carter, Fort Worth, Tex., publisher; Gardner Cowles, publisher of the *Des Moines Register & Tribune* and *Look Magazine*; Ralph S. Damon, vice-president and general manager of American Airlines; Donald Davis, former vice-chairman of the War Production Board; Donald W. Douglas, president of Douglas Aircraft Co.; Clark Gable, M-G-M star who served in the AAF; Casey S. Jones, president of Casey Jones School of Aeronautics; Charles F. Kettering, vice-president of General Motors Corp.; Oliver L. Parks, president of Parks Air College; Frank F. Russell, retiring president of the National Aircraft War Production Council and president of Cerro de Pasco Copper Corp.; Sumner Sewall, retiring governor of Maine; Elliott White Springs, World War I ace, cotton mill owner and until recently on active duty with the AAF; and Theodore P. Wright, Civil Aeronautics Administrator.

## Sperry Test Field

Sperry Gyroscope Co. has obtained an airfield at Islip on Long Island to carry out field tests for the company's flight instruments as well as to provide facilities for sales demonstrations and flight training for certain specialized personnel.

► **MacArthur Field**—Known as MacArthur Field, the project will provide three runways, each a mile long, and each so constructed that landing and take-off will be possible in both directions. At present, a single hangar, built of proportions sufficiently large to accommodate planes of all sizes, houses the fleet of Sperry test planes.

Five small, steel structures, located near the big hangar, are being used as ground laboratories.



Dr. Edgar Fuller

## Dr. Fuller Awarded F. G. Brewer Trophy

Award of the Frank G. Brewer trophy to Dr. Edgar Fuller, assistant director of CAA aviation education program, as the person making the greatest contribution to the education of American youth in aviation in 1944, was made by Vice-President Henry Wallace, at a dinner given by the Aero Club of Washington, local NAA affiliate, last week. The trophy was endowed a year ago by Brewer, a Birmingham, Ala., businessman, honoring his two sons serving in the armed forces overseas.

The dinner also gave recognition to Igor Sikorsky, presenting him with a certificate recognizing his helicopter achievements, and to Col. Clair A. Peterson, and Lieut. Col. Jack H. Carter, AAF pilots who hold West-East transcontinental speed records, established last fall with P-51 *Mustang* fighters.

► **Wilson Toastmaster**—Gill Robb Wilson, aviation editor of the *New York Herald Tribune*, and former NAA president, was principal speaker and Congressman Jennings Randolph of Virginia was toastmaster for the dinner, which was attended by approximately 350 persons representing all branches of the industry and including many of the top government figures in aviation.

Eleven other persons and organizations were given honorable mention for previous achievements in aviation education. The 1943 trophy was won by the CAA for its pre-flight, CPT and WTS programs.

Dr. George W. Lewis, director of research for the NACA, served

as chairman of the committee on awards.

Dr. Fuller joined CAA in March, 1942, and since that time has worked with each of the 48 states in developing aviation education in elementary and secondary schools and colleges. Previously he was a lecturer at the Harvard Graduate School of Education and was for seven years president of Gila Junior College in Arizona. He holds doctors' degrees from Harvard and the University of Chicago.

## Convair Dividend

Common and preferred dividends payable February 15 and March 1 respectively were voted by Consolidated Vultee Aircraft Corp. directors in San Diego last week.

Fifty cents a share will go to common stockholders of record February 2 and 31¼ cents per share to preferred stock holders of record February 15.

## Recall Planes

The Army Air Forces, official circles have disclosed, are reviewing releases of combat-type planes to surplus and already have re-surveyed between 50 and 54 Consolidated B-24 *Liberators* for recall. They will be used for training.

Slightly more than 100 *Liberators* had been turned over to the Surplus Property Board and had been maintained so that it was possible for the AAF to recall them for the training program.

A War Department spokesman explained that, because of the changing war situation, the AAF is reviewing the releases to surplus. He said it was not anticipated that many more would be recalled, since the bulk of combat types placed in service are obsolete and war-weary models.

Fifty-seven *Liberators* remain in the surplus classification. There are also 73 Boeing B-17 *Flying Fortresses*, but their recall is not expected to be necessary. Other combat types in surplus that might conceivably be useful again are 54 Republic P-47 *Thunderbolts*, 28 Lockheed P-38 *Lightnings* and possibly 690 Bell P-39 *Airacobras*.

The planes are being maintained by SPB so that they are in condition for recall in the event of serious changes in the war situation.

# U. S. Forest Service Explains Need Of New Plane Type for Operations

Convinced that manufacturer of ship comparable to Ford tri-motor will have access to good market in their class of work; has pioneered in air field.

The United States Forest Service, pioneers in the use of aircraft for a variety of uses in connection with forest management, fire control and rescue work, is convinced that an aircraft manufacturer who will design and offer an airplane of the same general size and operating characteristics as the old Ford tri-motor will find a ready and substantial market.

The Ford and the Stinson *Travelair* have been the two planes most in use in Forest Service activities, and later types of higher performance planes are poor substitutes for the work in the woodlands of the west.

► **Aerial System Built Up**—The Forest Service, while experimenting with various methods of plane operation and use, has built its aerial system around charter operators who work under contract. David Godwin, Forest Service equipment coordinator, believes that this system will be continued as long as possible because it has proved economical, but he also believes that the percentage of Forest Service planes in relation to charter planes will increase after the war because of new and war-developed operations, and because charter operators more and more are interested in other fields.

By itself, the Forest Service cannot economically use planes in quantity sufficient to interest plane manufacturers in development of a modern plane comparable to the Ford or Stinson. But it points to the 43 state forest departments, to the foreign field, particularly in South America and Canada, and to the mining, feeder line and other operations in the mountainous sections of this country. The need, in the eyes of the Forest Service, is for a medium capacity, moderate speed high-wing, high-visibility plane with large wing area and rugged construction able to take off and land in rough and small fields.

► **"Norsemán" Favored**—At the moment, the best of the newer type planes for Forest Service use is the Noorduyt *Norsemán*, of which one is being used in the lake forest area of Minnesota. It is

equipped with floats. The Stinson L-5 *Flying Jeep* and the Fairchild *Forwarder* also have been found satisfactory within limitations. It now uses some *Cub* type planes for reconnaissance work.

The Forest Service first began its work with airplanes in 1921, when Major (now General) H. H. Arnold commanded a group of 34 Army planes assigned under a co-operative agreement with the Army Air Corps to regular fire detection patrols in the Pacific Coast area. This work continued during a period in which the Forest Service was building up its ground detection posts and communications system. It was found that the ground detection posts were more satisfactory because of their 24-hour, all-weather service and the Army patrols gradually were discontinued.

It was after this that the Forest Service began its policy of building up charter operators through the western country for their work, and it was not until 1937 that the Service bought its first plane, a specially-built job. For three years, experiments were carried out with a group of Forest Service planes in attacking woods fires from the air. This work did not prove completely satisfactory, and is now being held in abeyance until further work can be done after the war. Experiments were made with all types of bombs, impact-exploding types, time and various chemical types.

► **Helicopters**—The Forest Service is hopeful that helicopters will provide a means of fighting fires from the air, and, although it is little known, it was instrumental in support of the first appropriations, in 1938, for experiments with rotary-wing planes and has been following their development with great interest.

In 1939, the Forest Service began the first real development program in parachuting in this country at a time when only the Russians and Germans had been active in this type of work. It experimented with the landing of men in rugged areas for fire fighting and rescue work, and since the

outbreak of war has conducted a program of training for Army, Coast Guard, and Canadian units, particularly for rescue work. Some of this story is only now being revealed in the popular press. The Forest Service program itself is larger now than it has ever been, and an even greater expansion is probable after the war.

► **Carries Fire-Fighting Crews**—As generally operated now, the Forest Service uses planes to take crews as close as possible to the scene of fires, and to bring supervisory personnel from other sections to reinforce those in the general area. With more than 90 of its own fields throughout the western forest regions, it is often possible for the Service, using its own and charter planes, to save hours and days of truck and foot travel in reaching inaccessible fire areas. Supplies and other material can be flown in or dropped by parachute to fire-fighting crews.

Charter contracts for next year have been signed, but there is a feeling that eventually this system will have to be replaced by a Forest Service Air Force. However, the Service says it intends keeping charter operators in the picture as long as possible.—W. G. K.

## AVIATION CALENDAR

- Jan. 5—National Aircraft Standards Committee, ACCA, Western Division meeting, Hollywood Knickerbocker Hotel, Hollywood, Calif.
- Jan. 5-6—Industry Flight Testing Technique meeting, Knickerbocker Hotel, Los Angeles.
- Jan. 8-9—National Aircraft Standards Committee, ACCA, Executive Board Meeting, Hollywood Knickerbocker Hotel, Hollywood, Calif.
- Jan. 8-12—SAE War Engineering Annual Meeting, Book-Cadillac Hotel, Detroit, Mich.
- Jan. 15-17—National Aircraft Standards Committee, ACCA, Electric Circuit Breaker Meeting, Stevens Hotel, Chicago, Ill.
- Jan. 16-17—National Aircraft Standards Committee, Society of Automotive Engineers, Hydraulics meeting, Stevens Hotel, Chicago, Ill.
- Jan. 17-18—Engine Technical Committee meeting, Hotel Lexington, New York.
- Jan. 18-19—National Aircraft Standards Committee, ACCA, Society of Automotive Engineers Circuit Breaker meeting, Stevens Hotel, Chicago, Ill.
- Jan. 24-26—American Meteorological Society, annual meeting, Kansas City, Mo.
- Jan. 30-31—National Aeronautic Association, annual meeting, Brown Palace Hotel, Denver, Colo.
- Jan. 30-Feb. 1—13th Annual Meeting, Institute of Aeronautical Sciences, New York.
- Feb. 2-3—Air Carrier Performance Subcommittee, ARC and ATA, Hotel Lexington, New York.
- Feb. 5-6—ARC-CAA-CAB Air Carrier Performance meeting, Statler Hotel, Washington.
- April 4-6—National Aeronautical Meeting, Society of Automotive Engineers, Hotel New Yorker, New York City.
- Apr. 10-11—Airplane Technical Committee, ACCA, New Orleans.
- Apr. 13-14—National Airworthiness Requirements Committee, ACCA, New Orleans.
- May 6-9—International Aviation Fraternity, first annual convention, Miami Beach, Fla.
- May 20-27—Pan-American Aircraft Exposition, Dallas.



## CROSS-SECTION OF FIRST CALIFORNIA AVIATION CONFERENCE



Hall L. Hibbard, vice-president and chief engineer of Lockheed Aircraft Corp. (seated, wearing glasses), who predicted airline cruising speeds of more than 450 mph. and told airport planners they'll not need runways longer than 5,750 feet. Introducing him is Edward V. Mills, San Francisco, chairman of the San Francisco Bay Area Aviation Committee.



James Quick, North American Aviation, Inc., tablecloths an idea for "Tex" Rankin, head of Rankin Aeronautical Academy, Tulare. Spokesman for the Aeronautical Training Society, Rankin told the conference that the Federal Government should make funds available for the post-war training of "every American boy who wants to fly."



John R. West, Los Angeles, California councilor, National Aeronautic Association, who demanded nation-wide uniformity of aviation taxes, catches the ear of Glen Eastburn, NAA vice-president and head of the Los Angeles Chamber of Commerce transportation committee. Eastburn, who organized the conference, was elected permanent chairman.

## Heavy Trainers Top Surplus Plane List

Combat aircraft in service declarations are mostly obsolete types and experimental models.

More than half of service surplus declarations of planes are heavy trainers in various categories, the bulk of which will be stored for future use. For the most part, combat types declared surplus are obsolete types and experimental models. There are 111 utility cargo planes remaining unsold of 121 thus far declared surplus. These UC planes are in the light class that can be sold without allocation, and should be available to interested purchasers.

More than 400 light planes of the liaison type remain in surplus, the bulk of them Taylorcraft, Aerona and Interstate ships. Offering of these planes for bids chiefly has been in the western states, although some additional are expected to be offered in the east, mid-west and south.

► **Types**—The combat ships disclose the types that the Army has been clearing from its books. Seven are Republic P-35's, an early forerunner of the P-47, but powered only with a 900 hp. engine and with a top speed of 320 mph. Twenty-seven are Republic P-43 Lancers, another step in the development of the P-47. Fifty-four early P-47's, war weary, are on the list. Fifteen are Curtiss P-36 Mohawks. Six hundred ninety are Bell P-39 Airacobras, now obsolete. Eighty-seven are early series P-40's. Four are North American P-64's. Others are largely experimental planes, of which only a few were built.

Single engine bombers are generally obsolete types, although there are several hundred each of Douglas A-24's, Army versions of the Navy SBD, and Curtiss A-25's. In the two engine bomber category are quantities of ships like the Douglas XB7 forerunner of the Boston, Martin B-10's, Douglas B-18's and B-23's, early clipped wing versions of the B-26, and Vega Venturas. There are 73 war-weary B-17's and 57 Consolidated B-24's.

► **Light Transports**—The bulk of two-engine light transports in surplus consists of Cessna UC-78's—858—of which none has been sold because of Civil Aeronautics Administration certification requirements.

## PRIVATE FLYING

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## Purdue Maps Post-War Expansion As Aviation Education Center

New program stresses instruction in aeronautical engineering and in air transportation as well as personal aviation; leads to B.S. and M.S. degrees.

By ALEXANDER MCSURELY

Development of an enlarged aviation education center at Purdue University, Lafayette, Ind., emphasizing instruction in the fields of aeronautical engineering and air transportation, but not overlooking personal aviation, is a major post-war project of the state-owned school which has long pioneered in aviation training and has operated its own airport since the early 1930's.

Currently operated by Purdue Aeronautical Corp., a non-profit organization affiliated with the university, the airport is being used to train pilots from eight Latin American countries in airline and fixed-base operations, under leadership of Grove Webster, former head of the CPT program, now general manager of the corporation. In February, 1939, the CPT program was initiated at the Purdue airport, and by June, 1942, more than 500 students had been graduated from flight-training programs. Since that time, the corporation has graduated 28 Army pilots, 534 Navy V-5 pilots, 166 Navy flight instructors, and 34 pilots in the Inter-American pilot training course.

► **Main Expansion Projects**—Major units in expansion of the school's aviation equipment physically, will be a large engineering building attached to the present aircraft shops and power plant laboratory, an airport terminal building, and a number of hangars of various types for private planes, and a four-runway layout of 4,000 foot concrete runways, two being 200 feet wide and two being 150 feet wide each, connected by taxiways. Currently, the airport of 360 acres has a completed NE-SW runway 3,500 feet long, and a portion of its NW-SE runway completed. The land was provided in 1930 by a gift of a large portion of it from David Ross, president of the board of trustees, with a recommendation that it and

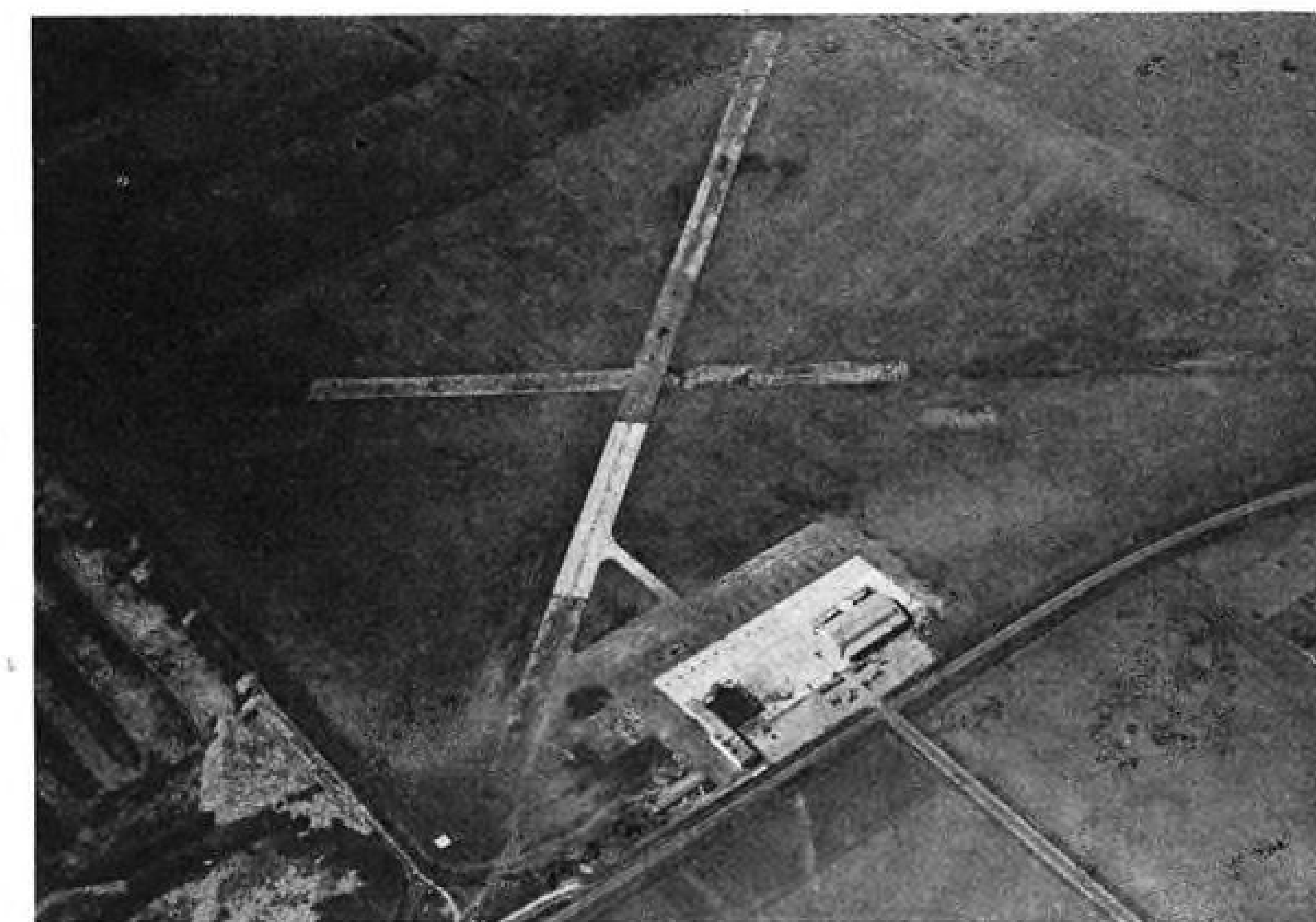
an adjoining University-owned farm be set aside for development as a university airport.

Besides its airport facilities the university conducts much of its aviation work in the aeronautics building on the main campus, where the aerodynamics, propeller, aircraft instrument and airplane structures laboratories are located. The new engineering building will provide a main lecture room for the aviation center, a flight test and instrumentation laboratory, facilities for airplane drafting and product design, and more space and equipment for aerodynamics, static-test, dynamic-test, physical test, vibration, plastics, high altitude research, cold chamber research and super-sonic speed wind tunnel.

► **Curriculum**—Post-war plans call

for an aeronautical engineering course leading to a bachelor of science degree in aeronautical engineering, and a post-graduate course leading to an MS degree, specializing in aerodynamics, structures or powerplants, and an air transportation course, with optional specialization in operations and maintenance, or flight administration. The operations and maintenance course as well as the engineering course, call for summer terms of shop training. Flight instruction is recommended as an elective for the aeronautical engineering course, and is required for the operations and maintenance and flight administration courses.

Included in flight administration courses are such subjects as airway communications, weather forecasting, airline and fixed base operations, control tower operation, aviation law, besides electives and a grounding in fundamentals of aeronautical engineering. At completion of flight administration, curriculum students will be qualified to receive a commercial pilot's certificate with instructor and instrument ratings, as well as their degree of Bachelor of Science in Flight Administration. The courses are so planned that a student will not have to choose between flight administration and engineering until the beginning of his third year, and if he selects engineering, he does not have to choose one of the three special options until the be-



Purdue Airport Seen From Air: Present runways at Purdue University airport will be replaced by an expanded runway system with four runways, NE-SW and NW-SE 200 feet wide each and 4,000 feet long, and N-S and E-W 150 feet wide and 4,000 feet long, and connected by paved taxi strips, as soon as post-war conditions permit. Plans also call for a new modern terminal building, a large engineering building, and a group of small hangars for private planes.



ginning of the sixth term or midpoint of his junior year.

In addition to the four-year courses, Purdue is planning to offer a short summer course, beginning next summer, for high school teachers, preparing them to teach high school aviation courses.

## Plane Sales Firm Takes Cars in Trade

Aviation Center of Pittsburgh, a recently opened sales agency for personal planes, is taking automobiles in trade for airplanes. In its showroom, the organization displays a small monoplane, with an auto parked under one wing, as indication of the trade-in plan. The

company appraises used cars offered as trade-ins, and later resells them through retail and wholesale channels, but emphasizes that its main business is selling airplanes, not cars.

► **Good Response Reported**—Guy M. Miller, veteran airport operator in the Pittsburgh area, who heads the center, reports that response has been good to "Planes for Sale" classified advertising in Pittsburgh newspapers, and in trade publications, with inquiries coming in from many parts of the country.

Planes sold are necessarily used planes, since new ones are not now available, but all have been overhauled and relicensed with no time on them since relicensing.

Margaret Dobie, office manager, is a qualified ground school in-

structor and a flyer. The center plans a complete service of selling planes, training the buyers to fly, and selling them plane accessories later. Second and third floors of the Center are used for stocking parts and accessories.

## Plane Parts Trade Expansion Predicted

New head of Aviation Distributors and Manufacturers forecasts possible 2,000 percent gain within ten years after war.

Expansion of aircraft replacement parts and servicing which may reach twenty times its present size within 10 years after the war is predicted by Tom O. Duggan, newly elected president of the Aviation Distributors and Manufacturers Association, providing the development of personal aviation is not seriously handicapped by excessive government regulation.

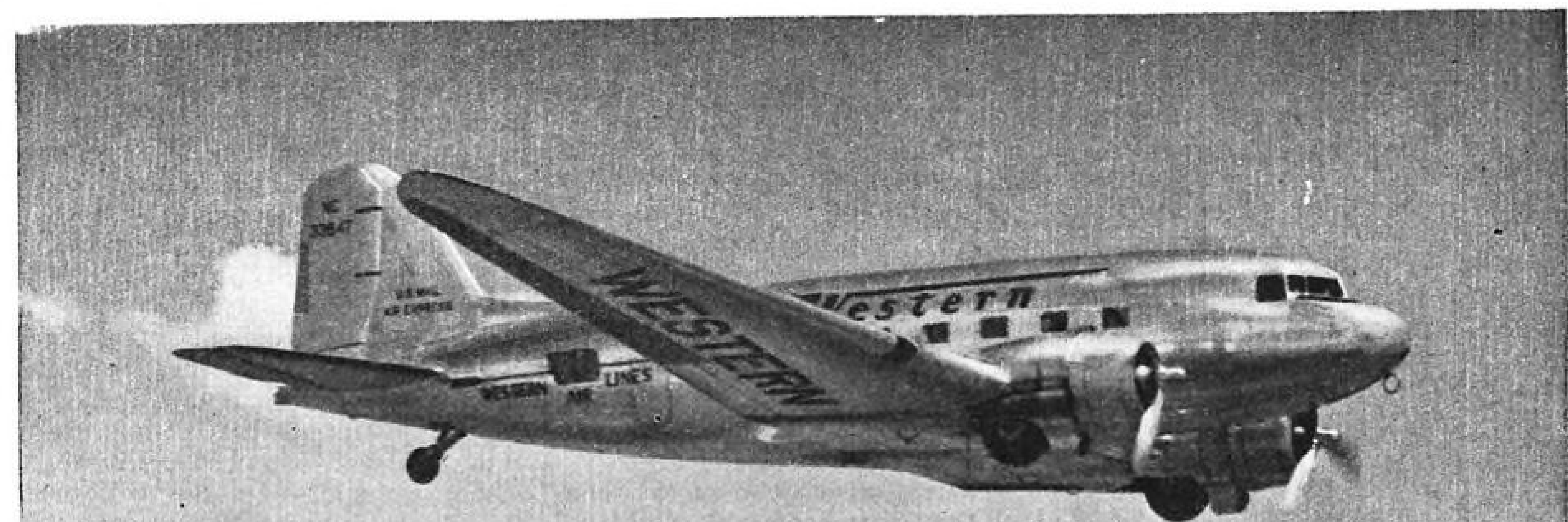
Duggan, who is also vice-president of Thompson Products, Inc., was a test pilot at Langley Field, Va., during the First World War, and has worked at various times as a shop man, auto race driver, carburetor engineer, automobile manufacturing superintendent, and replacement parts distributor, before joining Thompson in 1931.

► **Port Program**—He bases his prediction on the proposed federal-state airport development program, wartime progress with aircraft materials, engineering and production methods and improved plane and engine designs, and the effect of the return of 2,500,000 air-minded young men from the armed forces after the war.

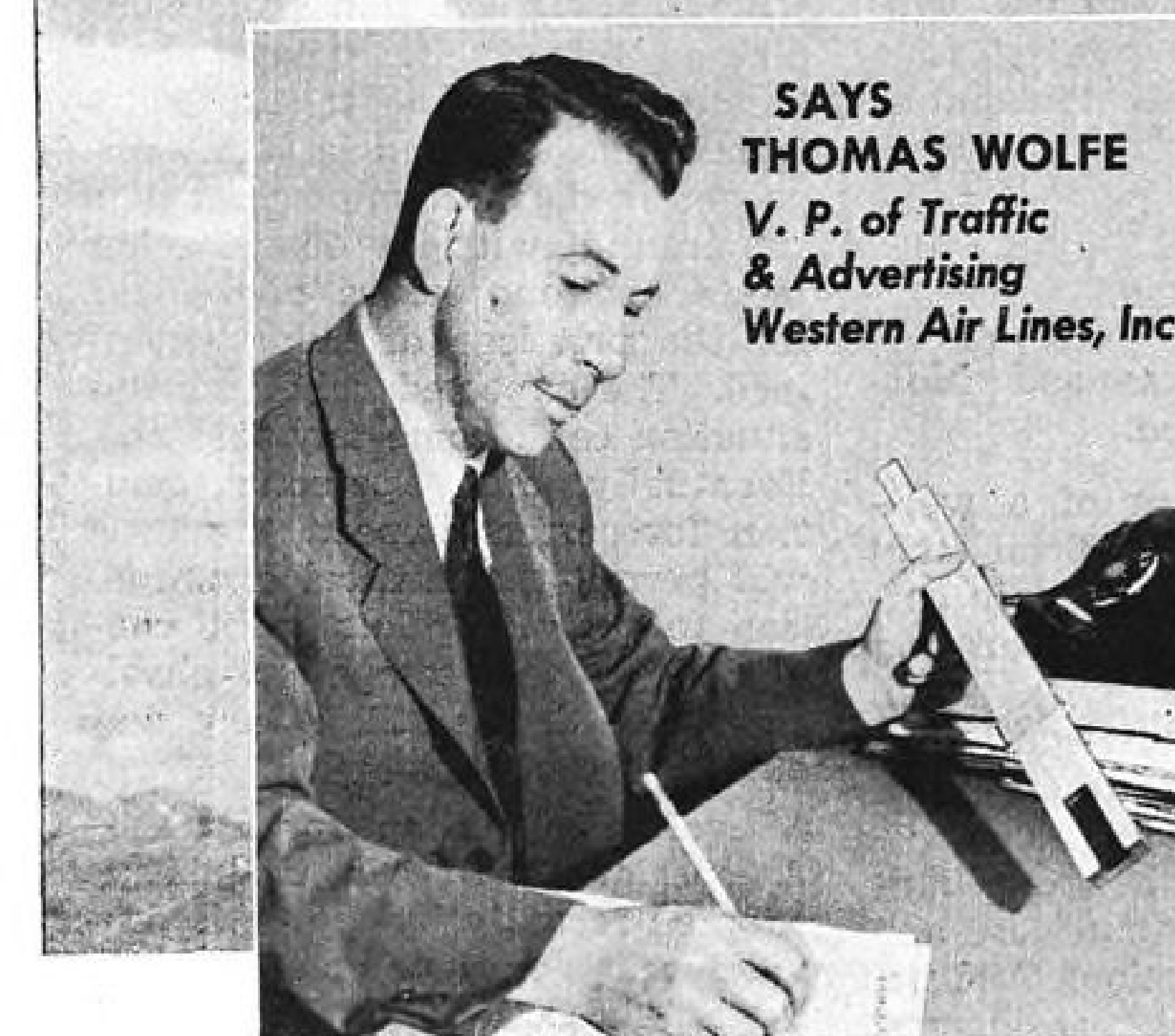
Excluding the military plane sales after the war, Duggan estimates that two-thirds of the aviation industry's post-war volume will be in maintenance, service and supplies.

## Cites Airport Need

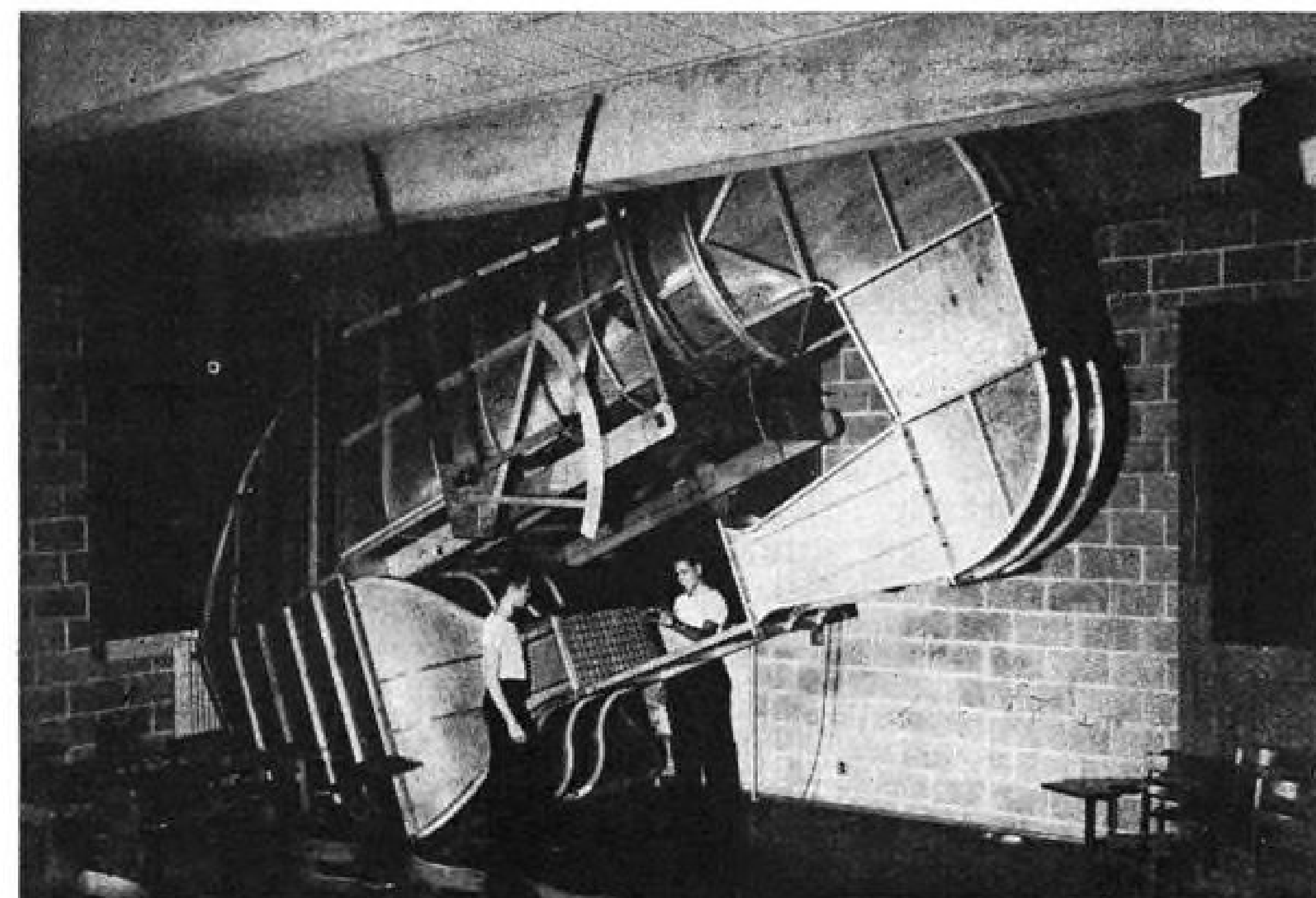
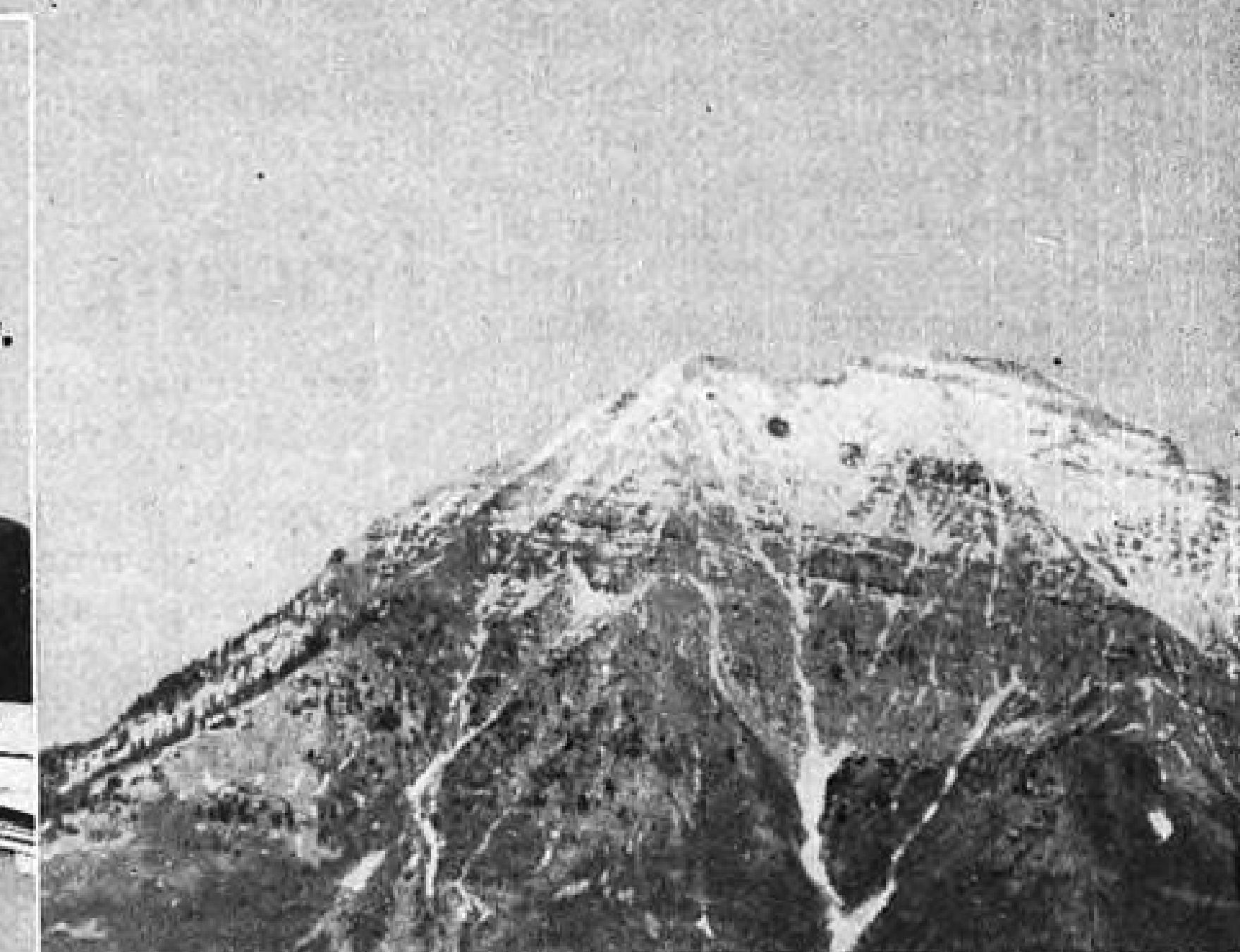
William A. Mara, veteran personal aircraft specialist, believes America will require at least 20,000 airparks, for an adequate development of post-war private flying. Expressing his views at a recent NAA forum in Cleveland, Mara, a staff executive of Bendix Aviation Corp., in charge of that organization's developments relating to personal aircraft, said any American should have the right to obtain a pilot's license with no



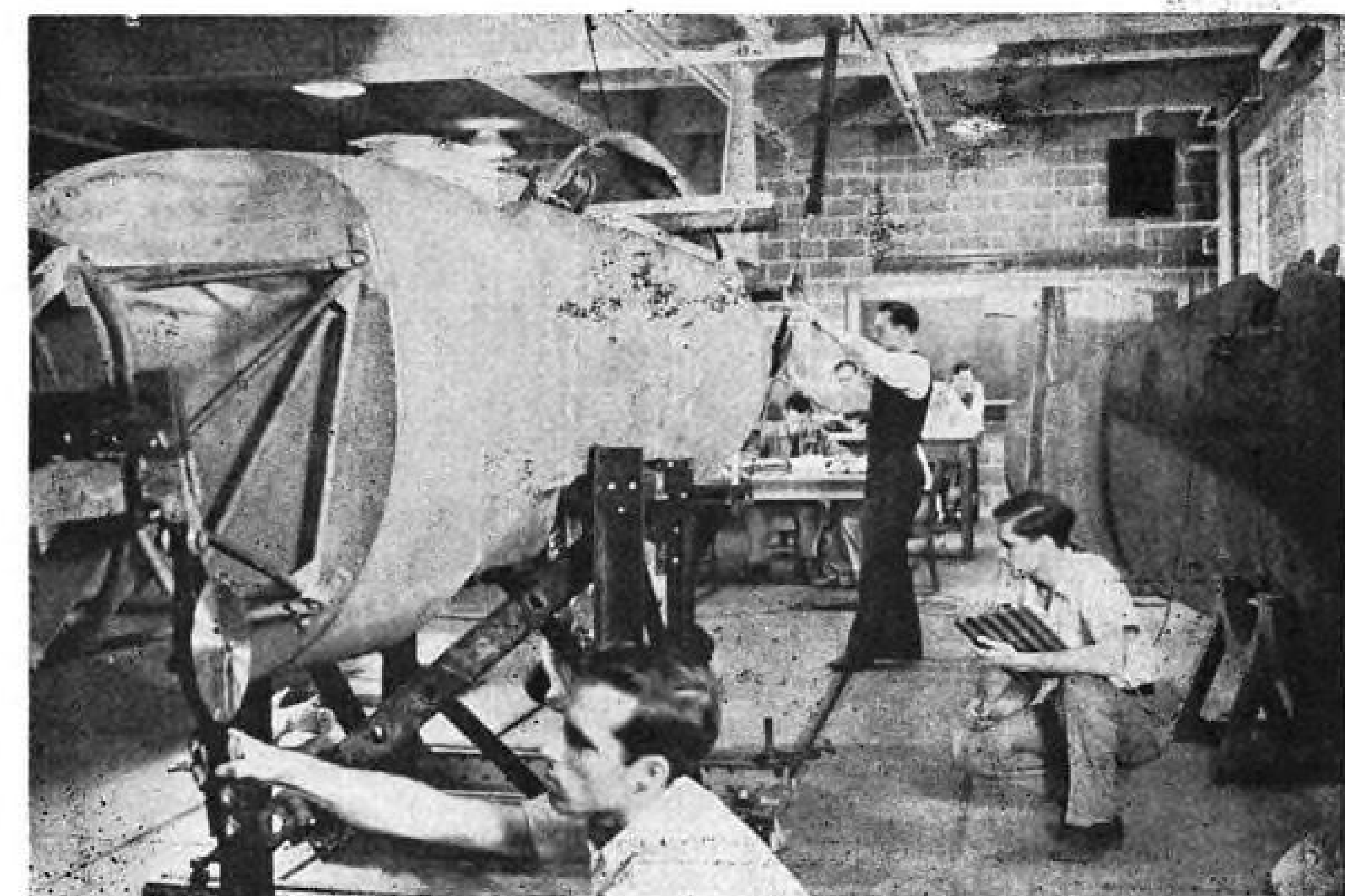
## Western Nets \$120 More a Year With Every Pound Saved



**SAYS  
THOMAS WOLFE**  
V. P. of Traffic  
& Advertising  
Western Air Lines, Inc.



**Purdue Students Use Wind Tunnel:** Above: smaller of two wind tunnels at Purdue University's aerodynamics laboratory is a quiet, inclinable free-flight tunnel used for classroom demonstration. Below: other students set up plywood fuselage for static test.



"A pound on the ground at the right time and place is worth its weight in gold in the air. Reduced to an economic equation, a useless airplane pound turned into a productive pound today means \$120 annually to Western Air Lines. Tomorrow it may mean more as air transportation technique improves. The consumer is the ultimate benefactor of this constant battle of the airplane to deliver the maximum weight in the minimum of time."

### Boots Nuts Save Up to 60 Lbs. Per Plane

- Tougher, safer, lighter . . . and all metal!
- Vibration-proof. Won't shake loose no matter how many times re-used.
- "Outlast the plane."
- Meets specifications of every government aviation agency.
- Every type of military aircraft equipped with the Boots Nut.
- Standard fastenings on commercial planes in post-war commerce.

Motion Picture—"All Work and No Play"—16 mm. sound—30 minutes. Write for information.

## BOOTS SELF-LOCKING NUTS

*"They Fly With Their Boots On—Lighter"*

Boots Aircraft Nut Corporation, General Offices, New Canaan, Conn., Dept. L

Representatives in New York • Chicago • Detroit • Indianapolis • Los Angeles • Kansas City • Dallas • Toronto • Montreal • Vancouver

### BOOTS STEEL ANCHOR NUT

(W25 #8-32) The comparable fibre nut is 151.2% heavier than this all-metal, steel self-locking nut.



### Send for Free Weight-Saving Booklet

Actual weights of over 250 different self-locking nuts used in aircraft, comprehensively reviewed for the convenience of aircraft designers, engineers, operating and maintenance personnel. Copy will be sent you, free, on request.



greater relative difficulty than an automobile driver's license.

He voiced again the widespread complaint of personal aviation against stringency of current federal regulations on pilots, and declared it was the responsibility of manufacturers to bring about safety through design and production practice, in the interest of future advancement of aviation.

## Ease Civil Flight Training on W. Coast

Fourth Air Force to announce extent of relaxation of rules about Jan. 15.

Fourth Air Force on or about Jan. 15 will announce conditions under which civil flight training will be allowed up and down the West Coast.

The terms probably will not be all that civilian flying schools and personal aircraft owners desire, but are a notable concession to civil aviation enterprises that have been grounded since Pearl Harbor.

School operators should not look for any realignment of the Western Defense Zone boundary which extends approximately 150 miles inland from the Coast and establishes the area in which only military, airline, and "war effort" civil flights now are permitted. Neither Fourth Air nor Western Defense Command will be willing to budge the boundary.

► **Prohibited Areas**—Thus, the only and still unannounced alternative will be the drawing of circles around prohibited areas within the zone and the announcement that civil school operations will be permitted in all areas outside the circles.

This assumption is supported by an announcement in San Francisco by Maj. Gen. Henry C. Pratt, temporarily relieving Maj. Gen. Charles H. Bonesteel as commanding officer of the Western Defense Command.

He said limited flight training will be permitted at such sites and within such areas as are approved by the inter-departmental air traffic control board, the sites to be in locations that will not affect adversely the air defense of the Pacific Coast, interfere with military operations, or jeopardize military security.

► **Hook Leads Fight**—H. A. Hook, regional manager, sixth region, civil aeronautics administration, should be credited with a leading role in influencing a relaxation of

western civilian flying restrictions. In a recent trip to Washington, D. C., and in numerous conferences with military authorities at San Francisco he has pleaded the cause of civilian flying.

It was in the fear that all the work by Hook might be jeopardized that Harold Bromley, Chief, General Inspection Branch, CAA Sixth Region, recently cracked down on a group of Southern California airport operators and ordered them to halt unauthorized student flight instruction.

Personal aircraft owners hope that the Army soon will relax the ruling that their West Coast point-to-point flights can be authorized only if they can establish that the flights are in connection with the war effort, such as the flight of a Los Angeles plane owner to San Francisco on business with a war industry office on the northern city. They would like to see the "war effort" requirement relaxed to a designation of flights "in public interest."

—S. B.

## Briefing

For Private Flyers and Non-Scheduled Aviation.

A recent statement of a well-known government official that there are only about a dozen colleges in the country operating their own airports with flight training programs, is regarded as an extremely low estimate. One state, Tennessee, alone, has five colleges which own their own airports and 10 others that lease airports for their operation. Another estimate is that there are at least 30 colleges owning or in process of acquiring their own airports, besides others operating flight training programs in conjunction with local airports.

► **New Opportunity** — While the college airports may take some flight training away from other nearby fixed base operators, they offer at the same time an opportunity for additional employment of instructors, operators and mechanics, and in a number of cases provide good landing facilities for communities which otherwise might not have them.

► **Natural Tieup**—The airport operator in the vicinity of a college which has not yet taken up flight training probably would gain more by selling the college on establishing a flight training program at his airport, than by attempting to buck the college program, as some

are expected to do. Then if the college wants its own port later, he is in a natural position to move in as manager of it, still continuing his own operation, as several operators already have done. Even if he does not succeed in getting the college contract, he still stands to benefit indirectly from the increased number of pilots and planes that the college program will bring into his local area. Whether these benefits will offset the disadvantage of competing with a well-endowed private, church or state-operated college for flight students is something else.

► **More Examiners** — Steps to alleviate the old complaint of the pilot about the insufficient number of approved medical examiners are reported under way. Announcement of appointment of additional examiners is expected soon from CAA. Pilots have complained bitterly for years about having to travel 50 to 100 miles from home to find a CAA-approved medical examiner and then sit around with a dozen other pilots for long hours of waiting for the privilege of being examined. The expected relief for this situation can't come any too soon. Eventually, many personal aviation forecasters expect, the CAA will permit the medical examination for private pilots to be conducted by any competent physician. But this is still a long way off.

► **Special Regulation for Parks**—A special Civil Air Regulation adopted recently by the CAB provides that every person listed by Parks Air College as a trainee in an experimental flight training course may be authorized to solo while holding a medical certificate, without other credential. Permission is given only for one solo, after which it is assumed the student will provide birth certificate and fulfill other requirements when he continues flight training. The regulation was enacted for a limited time, from Dec. 8 to Jan. 15.

► **Public Relations Course** — The young but outspoken United Pilots and Mechanics Association, in its latest news letter reports: "A change is coming in General Inspection (of CAA). . . . The latest information is that the CAA is going to give its inspectors a course in 'courtesy and public relations.' Removal of a few cobwebs and old foggy ideas will help a lot, too."

—A. McS.

# Phillips ---

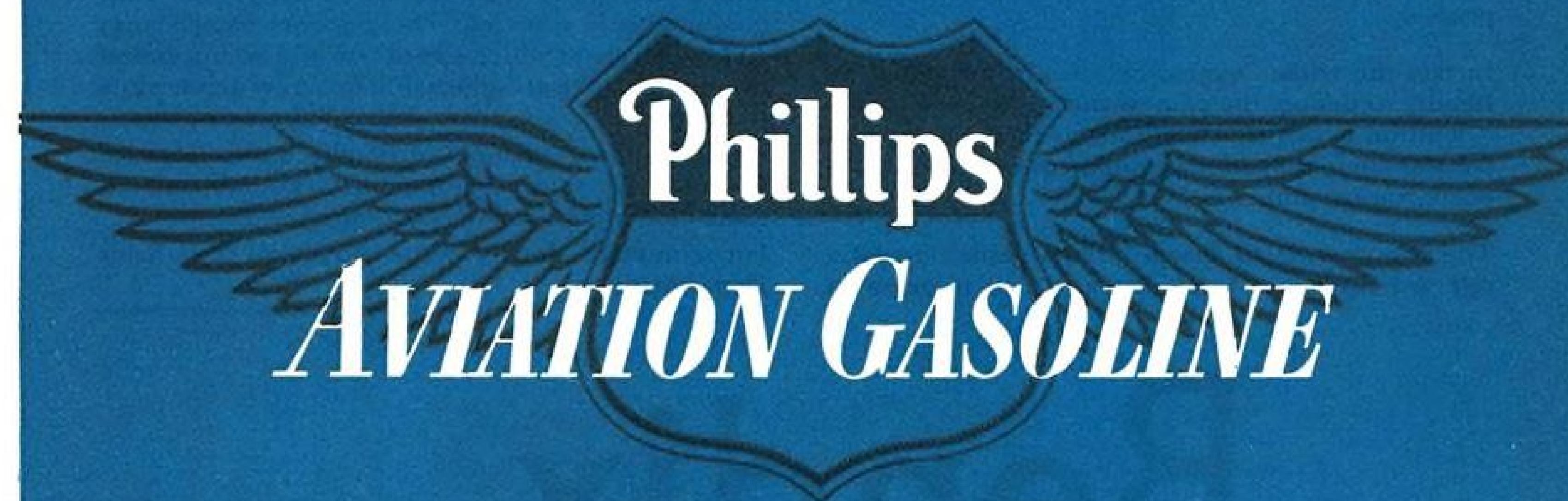
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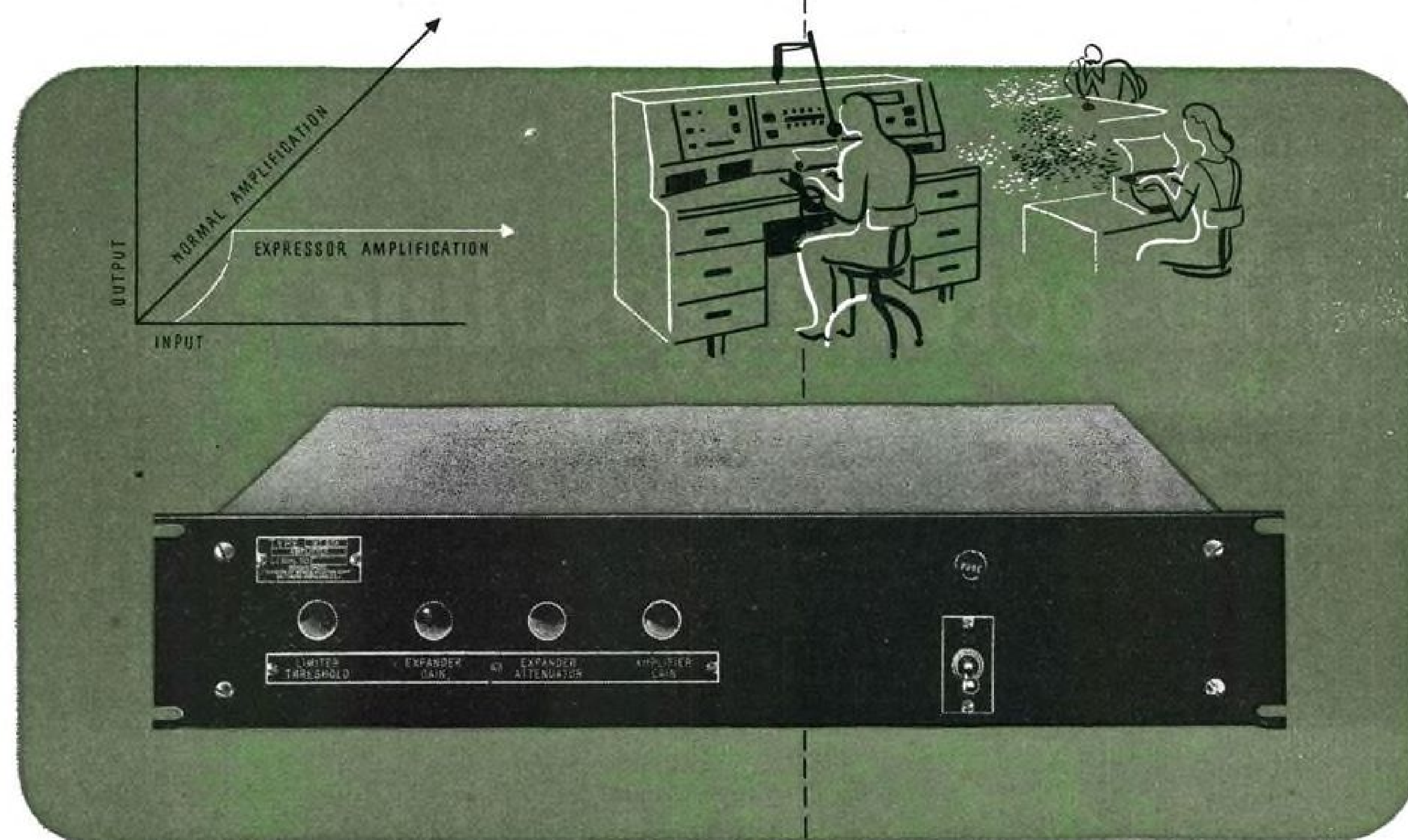
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# BENDIX EXPRESSOR AMPLIFIER

Maintains selected threshold level      Attenuates background noise



Designed to fit standard 19-inch relay racks, this unique amplifier occupying only 3½ inches of panel space provides definite advantages—for it unites in one compact unit both an expander and a compressor.

In fact the name "expressor" has been coined by Bendix to denote the combination of these features—a union which effectively solves two major problems of communications equipment operation from noisy control points.

The compressor so sharply limits gains beyond a selected threshold level that a 20 db increase in

input level above threshold selected results in no more than a 1.5 db increase in output level.

The expander effectively attenuates background noise and other undesirable interference until modulation is supplied. The amount of expansion and the levels at which expansion and compression become effective are adjustable by screw driver slots in the panel.

An outstanding example of Bendix Radio Creative Engineering, this development is available to all users of communications equipment.

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# Bendix

**RADIO DIVISION**

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STANDARD FOR THE AVIATION INDUSTRY

## Sales Methods to be Vital Factors In Personal Plane Market Fight

Survey by Harvard aviation research director predicts that about 30 out of 55 manufacturers will produce satisfactory plane at cost low enough to be competitive; sees only few of these operating at profitable volume in early post-war years.

Of approximately 55 manufacturers who have indicated intention to enter the post-war personal plane market, Lynn L. Bollinger, Harvard University aviation research director, expects approximately 30 to produce satisfactory planes at a cost sufficiently low to be competitive but warns that only a few of the 30 will be able to attain a profitable volume in the early post-war years.

Basing his conclusions on a personal survey which included visits and off-record discussions at most of the prospective personal plane manufacturers' plants, Bollinger emphasizes that the only companies that have "a fair chance of succeeding" are those who combine progressive design with effective merchandising. He anticipates a high mortality rate, among personal plane builders, comparable to that among early automobile companies. A large proportion of failures will be due to poor merchandising, while other companies will drop out because of inadequate design.

► **Merchandising Factor**—Companies concentrating on engineering and production to the exclusion of sound merchandising plans are making a serious mistake, he warns, for often progressiveness in styling and merchandising may outweigh the mechanical advantages of a competing plane, and lower production cost, too, may result more from sales volume than from engineering innovations.

► **Errors in Timing** — Designing planes too far in the future will probably cause more failures than adhering to obsolete designs, but Bollinger expects "errors in timing" of designs to eliminate about 10 of the 30 companies, leaving a total of 20 with salable planes. He emphasizes the importance of proven features, particularly in the first five post-war years. Untried innovations no matter how promising, face time-consuming factors of obtaining CAA approval, and of convincing dealers and public that the new features are safe and practical. By the

time these are conquered, other companies will have copied the innovations with small net gain to the originator.

The Harvard researcher presented his views in a recent paper before the American Marketing Association in Chicago. Other salient points of his personal plane market analysis are:

► Designers must present improved and progressive models, and must continue research on future planes, but the successful company must have a model improved and distinctive but adhering to conventional and accepted design ready

for sale at the end of the war, to take advantage of the immediate market.

► Utility flying eventually will dwarf sport or pleasure flying, but personal aircraft can't be sold immediately after the war on a basis of low-cost transportation to any large customer group. Suggested is an interim design to meet the immediate post-war market, with emphasis on sport and pleasure flying.

► Most companies indicate immediate emphasis on a two-ship line, one easy to fly, the other a sporty retractable landing gear plane with higher performance, both two-passenger types. Many manufacturers have "a four-place prototype in the back room which they hope to sell some day." A few three-passenger designs are being prepared.

► Exception to general rule is the market, relatively small, for planes which will carry four or more passengers, cruise at 150

## Requirements for Personal Plane Selling

Digest of requirements for effective selling of personal planes "at least for a number of years after the war" as listed by Lynn L. Bollinger, Harvard aviation research director:

► Specialized salesmen with technical aviation knowledge are preferred over airplane-automobile salesmen.

► Airports will continue to be best sales location, with demonstration flights and flight instruction before and after purchase useful sales techniques.

► Supplemental activities to help carry overhead will be necessary except for few dealers in areas with unusually high sales potential. Among activities: flight instruction, repair, storage, aircraft rentals, charter service, other functions of fixed-base operator. There may be tendency for these to interfere with major business of aggressive sales promotion.

► Efforts of dealers to compete out of their own immediate sales areas will be unprofitable. There will be more planes to sell than good dealers, resulting in a strong bargaining position for the few good dealers in each area. Some dealers may demand and get larger territories than they can service effectively, in an effort to support their sales organization. Result will be excessive cost or inadequate sales coverage.

► Major warplane builders are most vulnerable to post-war failure in merchandising because of their concentration on technical fine points of operational difference in previous sales to government or airline technical engineers, and a resulting tendency to overlook importance of distribution and marketing techniques for popular volume sales.

► Experienced private plane builders are placing major emphasis on distribution. Should the helicopter, roadable plane or other development suddenly mature, expanding personal aviation markets, companies with superior sales organization would have invaluable asset in succeeding period.

► Major determinant of which few companies succeed in attaining profitable sales volume may be found in the measure of men to whom merchandising responsibility is assigned, and in the answer to the question of whether they are able to start work soon enough.

► To solve his own sales problem, the manufacturer must solve his dealers' problem. More intensive exploitation of each effective sales area, perhaps through development of substantial sales volume in associated products appealing to air-minded individuals visiting the dealers' airport, is suggested.



► Post-war personal planes will

► Merchandisers appealing to pleasure and sport motives of plane buyers in years immediately ahead may be far more realistic and successful than those basing appeal on utility and practical transportation. On points of time-saving, comfort, safety, economy, in competition with auto, railroad and airliner, today's private plane is not ready to compete.

National Aeronautic Association's campaign for drastic simplification of private pilot regulations was carried from Washington to

Delegate airplane owners, however, indicated satisfaction with present steps being taken by the CAA and CAB to simplify personal aircraft ownership and operation while still maintaining essential safety restrictions.

► Data—ATS mass training was accomplished with only one fatality per 63,230 hours of primary flight training, Rankin said. He added that California ATS schools have trained 85,000 cadets in training flights covering 425,000,000 miles.

The belief was given first public expression by Edgar N. Smith, CAA urban planning consultant at the California Aviation Conference in Hollywood last week. He estimated that three years after the war the potential of personal aircraft ownership will be 200 planes per 100,000 population and proposed that cities consider the building of comparatively inexpensive 160-acre airports according to their needs and located to serve segments of their population.

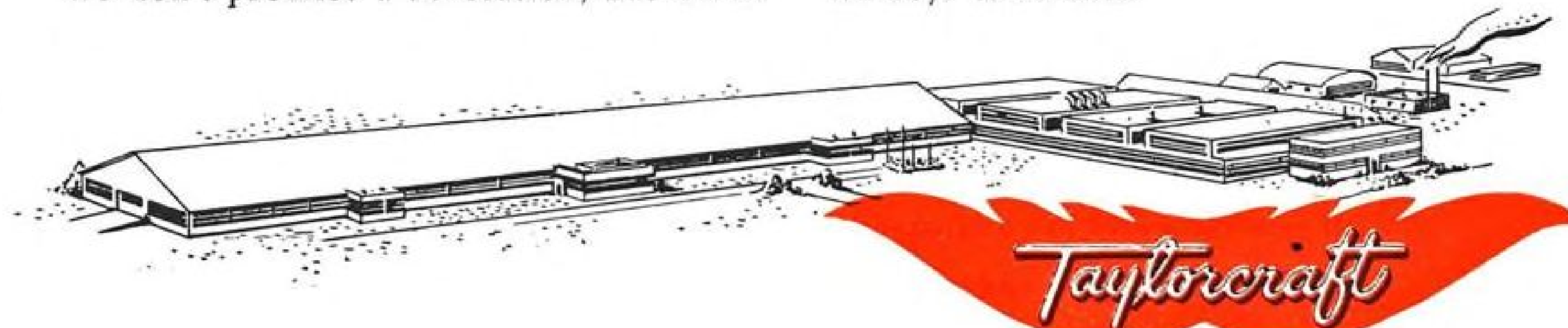


Wesley Price, whose recent Saturday Evening Post story about the difficulties of personal plane flying caused more than considerable stir in the aviation industry, made a personal visit to the ADMA-NATA meeting in St. Louis recently, to be greeted by a parody of his story, as distributed by Aeronca Aircraft Corp. The parody parallels the original almost line for line and illustration for illustration, but recounts the troubles of a long auto trip in the early days of the motor car. Moral: Don't sell personal aviation short. Remember automobiles had their troubles too in their early days. Front pages of the Price original and the Aeronca parody are reproduced above.



We don't promise a revolution, but we *do*

Keep your eye on Taylorcraft. "The ship with the built-in tailwind" will be out in front when the boys come back.



AVIATION NEWS • December 25, 1944





## On To New Horizons

The development and production of this superior lubricating oil for aircraft engines was one of Mid-Continent's contributions to war-born needs. Today, huge quantities are being supplied to the Air Forces of the United Nations all over the world but a constantly increasing supply is or soon will be available for commercial and privately owned aircraft. Inquiries are invited.

**MID-CONTINENT PETROLEUM CORPORATION**

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## THE AIR WAR

\*\*\*\*\*  
COMMENTARY

### Marines Expanding Air Arm For Support of Ground Forces

System found vastly more effective through setting up of air liaison teams operating between troops, aircraft carriers and fighters and bombers in operation by means of VHF radio.

Primary mission of the Flying Leathernecks is to provide direct air support for the Marine Corps ground forces in all types of operation. Hitherto Marine Aviation has been almost wholly shore-based, but now Marine air units are undergoing training to operate from their own carriers with slightly redesigned *Corsairs*.

As carriers become available, they will be able to fly from them in close support of Marine landing forces. From lessons learned in past operations, such close air support is now vastly more effective by setting up air liaison teams between ground units, aircraft carriers, and fighters and bombers actually in the air, by means of VHF radio.

► **Marine Aviation Expanding**—As in the case of the Army Air Forces and Naval Aviation generally, the Marine Air Arm has expanded more rapidly than the Marine Corps as a whole. According to the original program the Marines were to have two air wings, each to be attached to a Marine division, with each wing divided into five air groups of several squadrons each.

Passing into the fourth year of the Pacific War, there are now three expanded Marine aircraft wings, two in the Central and one in the Southwestern Pacific, and two operational training wings, one in North Carolina and one in California. The Third Wing, organized at Cherry Point, N. C., in November, 1942, is one of these, and has grown from a small group of fighters to a Wing of 8 Groups (2 dive bomber, 2 fighter, one medium bomber, one night fighter, one utility and one air warning group), and includes a larger number of personnel than the entire Marine Corps possessed a few years ago.

► **Early Pacific Engagements**—By

their gallant, hopeless defense of Wake Island, Marine flyers of Fighting Squadron 211 have become immortal in the memory of America. In the decisive battle of Midway, Marine Corps dive bombers and torpedo planes (SBD's and TBD's) attacked the enemy carriers and battleships in the face of heavy odds, scoring several hits, while badly outnumbered Marine fighter pilots, aided by anti-aircraft batteries shot down some 40 planes of a large group of enemy carrier-based planes attacking shore installations on Midway Island.

Then came Guadalcanal, and out of that inferno of the South Pacific have come many of the Marine aces—fighter pilots Major Joe Foss, Major John Smith, and dive-bombing heroes, Lieut. Col. Richard Mangrum and Major Elmer Glidden, and many others.

During those hectic months, from much-bombed Henderson Field, all aviation units, Army-Navy-Marines, were commanded by Major Gen. Roy S. Geiger, USMC. This war's first example of "unified command" also achieved a remarkable success at Guadalcanal. Major Gen. (now Lieut. Gen.) Vandegrift commanded a Navy task force (Navy air, surface, under-surface, Marine units), which was shortly joined by Marine Air, then Army Air, and finally Army ground. It was an All-American combat team, and no friction anywhere.

► **Solomons**—By February, 1943, Guadalcanal had been cleared of the enemy, and Marine pilots in newly-arrived *Corsairs*, *Dauntless* dive-bombers, *Avenger* torpedo bombers and (later) *Mitchell* medium bombers began seeking targets further afield, and the great climb up the ladder of the Solomons began. The Russell Islands were occupied on Febru-

ary 20 and fighter and bomber runways were laid out, with Munda on New Georgia the immediate objective. The tempo was stepped up in March, and the First Marine Aircraft Wing was supplemented by the advent of the Second.

All Marine aviation was under the command of Major Gen. Ralph Mitchell, USMC, who also took his turn with Major Gen. Nathan Twining (13th Army Air Force) and other commanders, in a rotating three-months' command of all land-based aviation in the South Pacific.

Munda's defense fell on Aug 5 and it was rapidly converted into a huge air base under Major Gen. Francis Mulcahy, USMC, commander of the New Georgia Air Force. Kahili, Bougainville and other enemy bases then began to feel the sting of Marine planes, while periodically, after the capture of Bougainville, the important Jap base at Rabaul, New Britain, received a steady pounding from the Marines and heavy blows from General Kenney's 5th Air Force *Mitchells* and *Liberators* based in New Guinea.

► **Gilberts and Marshalls**—Landings followed at Vella Lavella, Bougainville, then bloody Tarawa in the Gilberts. Further south New Britain and the Admiralties were secured, and then the dazzling atoll victory of Kwajalein in the Marshalls. Among the Marine *Corsair* outfits flying from Bougainville was "The Black Sheep" Squadron, led by the late Major Gregory ("Pappy") Boyington, who shot down his 26th Jap plane over Rabaul, tying the record of Major Joe Foss, and then disappeared.

It was from Bougainville that Marines in two PB4Y's (Navy *Liberators*) daringly flew over the dreaded Jap mystery base of Truk, and reported a large concentration of Jap warships, including two carriers. This led to the great two-day assault on Truk from Kwajalein by Admiral Mitscher's fast carrier Task Force 58.

The story of the operations of the Fourth Marine Air Wing (Central Pacific), under Major Gen. Louis E. Woods, and the campaigns in the Marianas, Palau and the Philippines, as well as the important part played by Marine flyers in the South Pacific Combat Air Transport Command (SCAT), and in night fighting, will be told in a subsequent article.

NAVIGATOR



**1918** First crude radio sets used by the Jennies and DeHavillands of World War I were powered by wind-driven generators built by Westinghouse. They were relatively heavy and bulky by today's standards.



Since the days of DH's . . . answering aviation's need for

## "MORE WATTS... LESS WEIGHT!"

Since the day the first DeHavillands and Jennies found a need for power to energize the earliest aircraft radios, the aircraft industry has voiced a recurrent need:

*"Give us WATTS—but hold down WEIGHT!"*

From that day to this, Westinghouse engineers have worked hand-in-hand with aircraft builders and designers to supply that need. How well they have succeeded may be judged by the progress of d-c generator design. Today's Westinghouse Aircraft Generators supply the highest output-to-weight performance.

Dynamotors—for transforming d-c power to higher or lower voltages—also have grown smaller and lighter in proportion to their ratings, thanks to Westinghouse engineers. The progressive development shown here has contributed to the wider and greater usefulness of electrically powered auxiliaries and controls in planes.

Westinghouse efforts toward taking the weight out of kilowatts are continuing—and will continue. They offer another sound reason for making Westinghouse your electrical partner in aviation progress. Westinghouse Electric & Manufacturing Co., Lima, Ohio. J-03210



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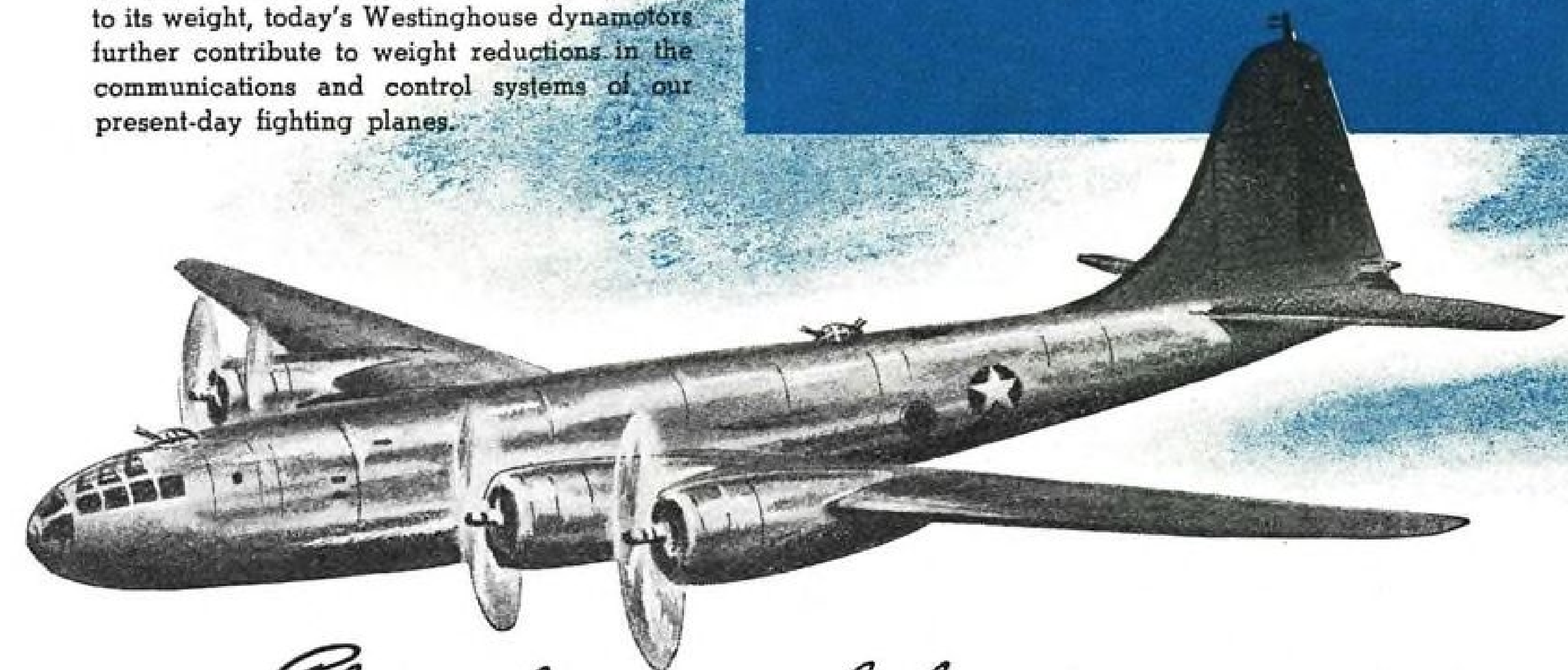
**1931** This light, minimum-ripple dynamotor—first of its kind—was introduced by Westinghouse.



**1934** The trend toward lightness and compactness advanced again with this improved dynamotor.



**1944** Small, sleek and powerful in proportion to its weight, today's Westinghouse dynamotors further contribute to weight reductions in the communications and control systems of our present-day fighting planes.



*Electrical partner of the aviation industry*

**YESTERDAY . . . TODAY . . . TOMORROW**



# Arnold Finds Premature Optimism Cutting Down Plane Production

General, in quick tour of West Coast plants, discloses that A-26's, B-29's and P-38's are behind schedule and P-51's and B-24's ahead; blames overconfidence for relaxation of effort.

Gen. H. H. Arnold made a quick tour of Southern California aircraft plants recently to see whether manufacturers "have a correct estimate of how the war is going." What he said to aircraft company presidents and production executives may be guessed by facts brought out in the general's only Los Angeles press conference.

► Behind schedule is the West Coast's production of Douglas A-26 attack bombers, Boeing B-29's and Lockheed P-38's.

► Ahead of schedule is the West Coast's production of North American P-51's and Consolidated Vultee's B-24's.

► Major West Coast airplane builders have hired 109,916 new workers in the past 10 months, but 177,649 have quit in the same period.

After his plant visits, General Arnold showed serious concern over the effect on war manpower of "premature optimism that is spreading throughout the United States."

He spread before newsmen a Los Angeles newspaper headlining "German Defense Crumbles," and blamed loose reporting for waning interest of war workers in their jobs.

"I'd like someone, anyway, to tell me just where the German defense did crumble," said General Arnold. "That headline certainly didn't come from the military."

► **Cites Invasion Optimism**—General Arnold dated the trend of thinking that the war may be nearly over to the early, quick phase of the European invasion and said "today I do not believe that the American public has yet changed its views to meet conditions as they are."

Actually a survey of the West Coast manpower situation indicates that, as early as the first of this year, the appeal to workers to stay on the job and finish the job was losing its persuasive effect.

► **Problem for Manufacturers**—Heavy termination losses of ex-

## Mum on New Craft

These highlights of the European and Pacific Air war developed in Gen. H. H. Arnold's Los Angeles press conference last week:

His only comment on the reported development of new big bombers (B-35, B-36, B-42) was, "I don't want to talk about them. I want the German and Japs to learn of them the hard way."

Asked to comment on American jet propulsion developments: "Hitler would give several hundred thousand dollars to know my answer to that one."

Germany today is leaving virtually undefended many bombing targets, but is "very sensitive about certain other targets, and shoots the works at our bombers striking at them."

German fighter pilots of today fail to show either the skill of attack initiative of "the old German air force," nor has Japan today the "eager pilots of some time back." To point the foregoing, General Arnold cited the recent case of 16 P-47's forcing a flight of 60 ME-109's to break and run with an ultimate loss of 10 German fighters. He believes serious fuel shortage has forced heavy curtailment of German pilot training. He said that after a raid on Japan by 15 B-29's, only 13 holes were found in the entire group of planes, despite the fact that at one time 70 Jap planes tackled one of the B-29's.

Rumors of Jap jet plane development have borne no fruit. No Jap jet planes have yet been seen.

periened aircraft workers since the first of the year have given West Coast manufacturers a persistent manpower headache.

Knowledge that military induction has been responsible for varying percentages of separations by workers who have labored steadily in the plane plants from one to more than five years does not relieve their worry appreciably. They feel that many workers refuse to be convinced that their presence is vital to the winning of the war and that they are quitting to establish themselves in civilian business pursuits.

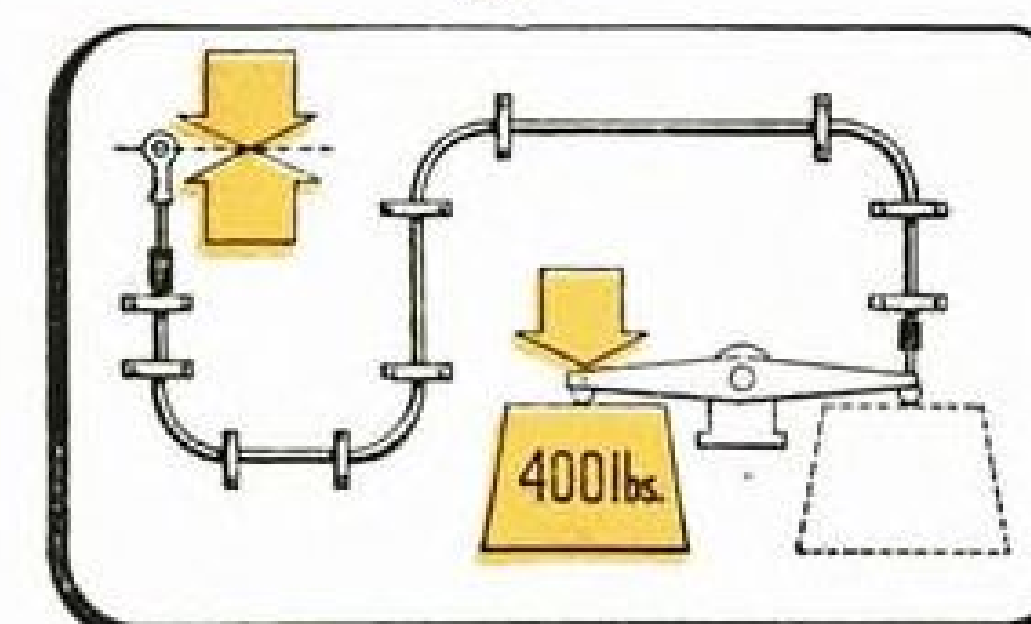
► **Military Quits Decline**—While military induction "quits" reached a peak of 24.32 percent in May—4,544 workers throughout the West

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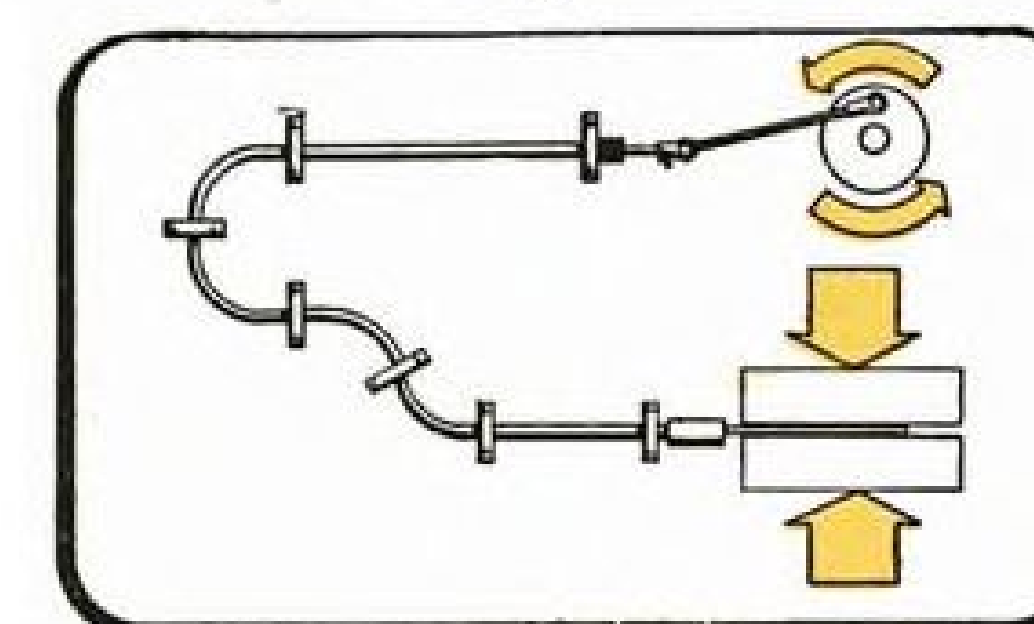
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of Army Air Force Winterization acceptance for operation in extreme temperatures is the Simmonds-Corsey Push-Pull Control. Comprehensive tests with temperatures as low as minus 72°F. and as high as 160°F. prove efficient operation under wide variety of conditions.

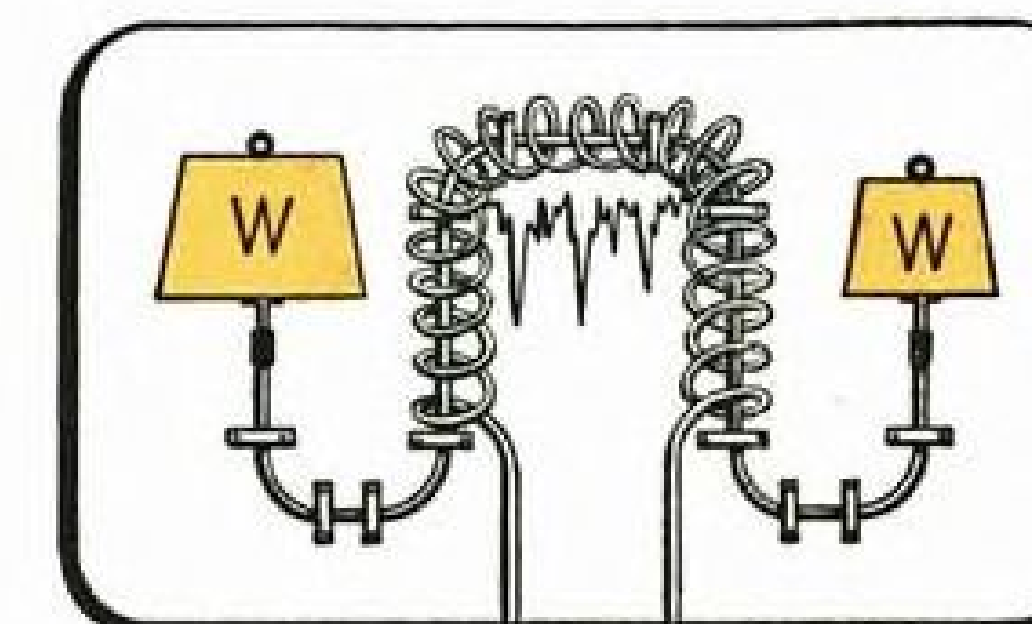
Read how these other tests, conducted to AAF specifications, show how Simmonds products more than qualify for EXTRA DUTY as well as NORMAL DUTY operations.



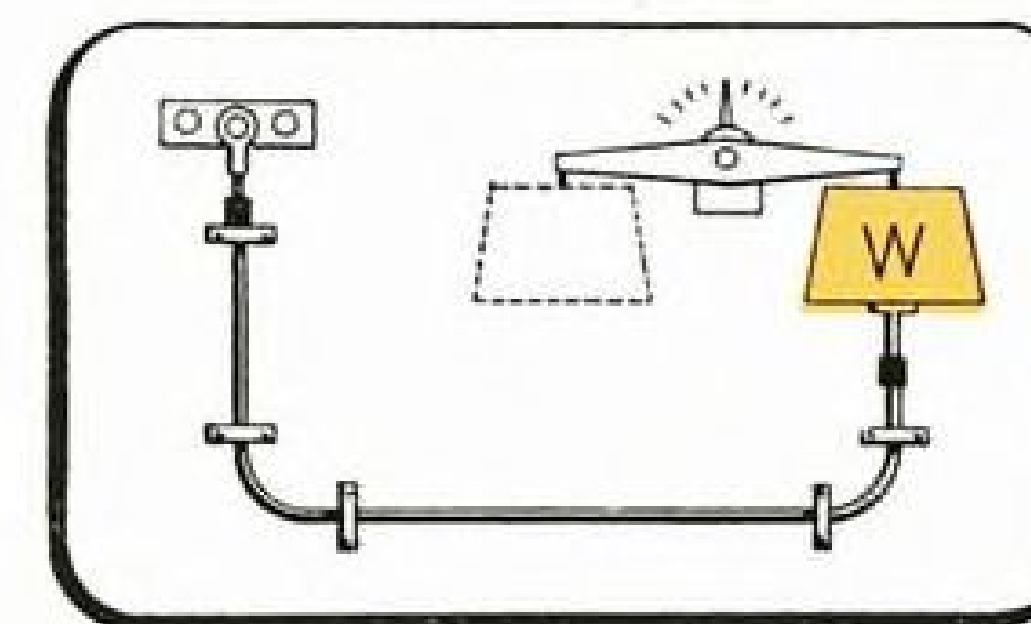
**STATIC STRENGTH:** In this test Simmonds push-pull control successfully withstands tensile and compressive forces of 400 lbs. Credit simplification of design, improved linkage.



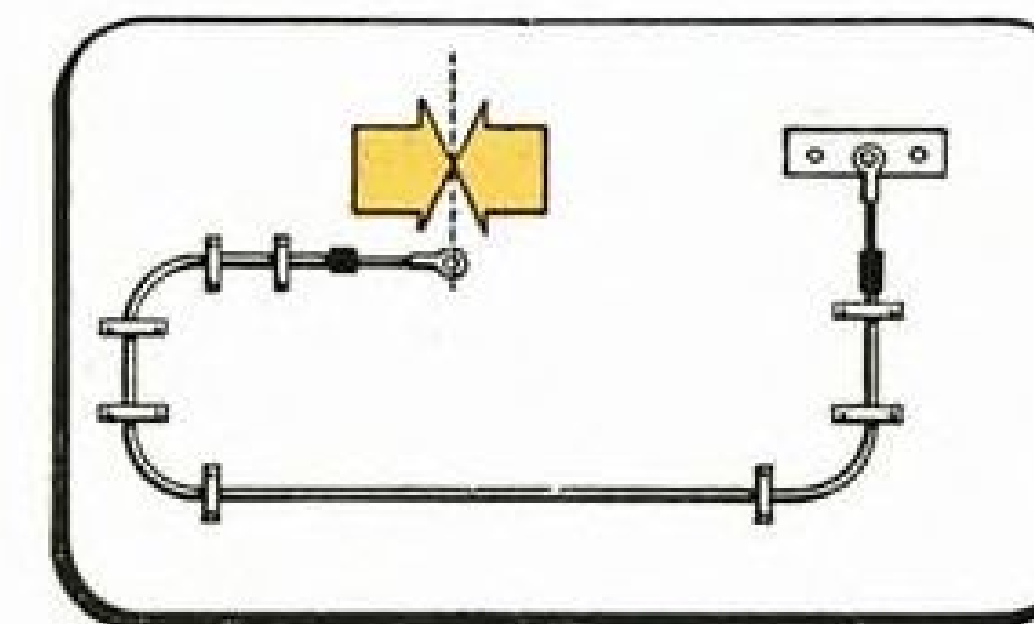
**ENDURANCE:** Cycled 30,000 times under stress, as illustrated, Simmonds controls are not affected in any way, and can be expected to outlast the life of unit served.



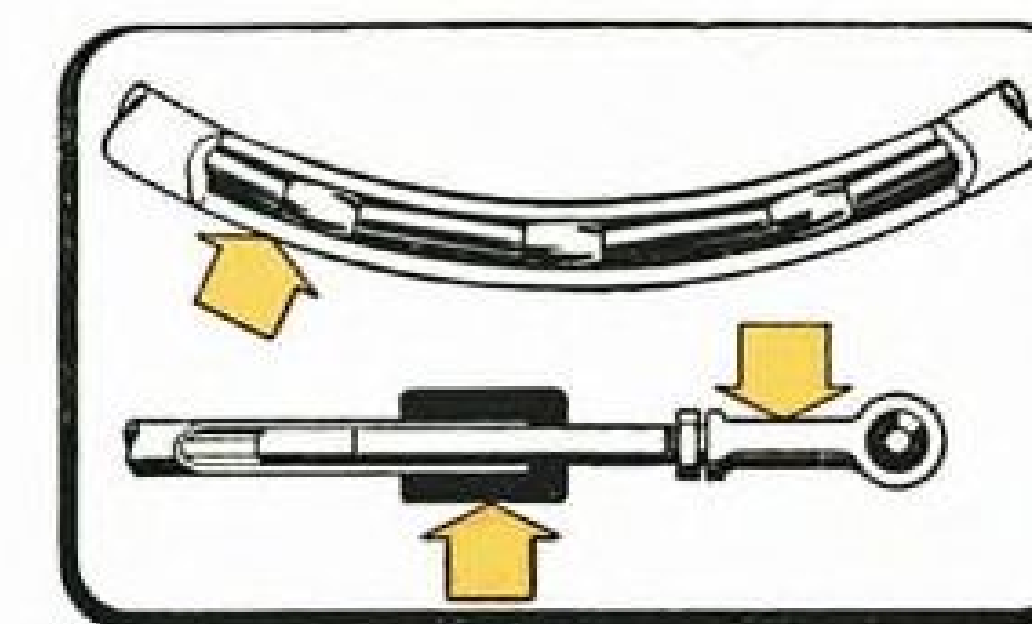
**EFFICIENCY:** Input-output ratio of control is measured at various temperatures in insulated chamber. Result: average efficiencies are twice the AAF requirements.



**PRECISION CONTROL:** Motion between tension and compression is negligible. Before endurance test: average—.046"; after—.082". Simmonds are precision-built controls.



**DEFORMATION:** AAF specifications call for loads ranging from 10 to 50 lbs. Allowable average deformation is .140". Simmonds controls average only .083".



**CORROSION:** Simmonds controls meet AAF specifications for corrosion resistance with standard cadmium plated or anodized surfaces. Tube ends are rubber sealed.



## KINGCOBRA PRODUCTION LINE:

This unusual view shows the progressive development of a Bell P-63 Kingcobra along the production line at the Niagara Falls plant of the Bell Corp. In the foreground is the basic fuselage structure. In the center the planes begin to take shape, with the addition of the cockpit structure and the tail. On the far line are the virtually completed ships, showing the compact installation of engine behind the pilot. The bulk of Kingcobra production is going to the Russian Air Force.

**INQUIRIES** concerning War Contracts or Post-War problems involving push-pull control equipment are invited. Our service engineers will furnish you gladly with analyses and recommendations. Telephone or write to your nearest Simmonds office.

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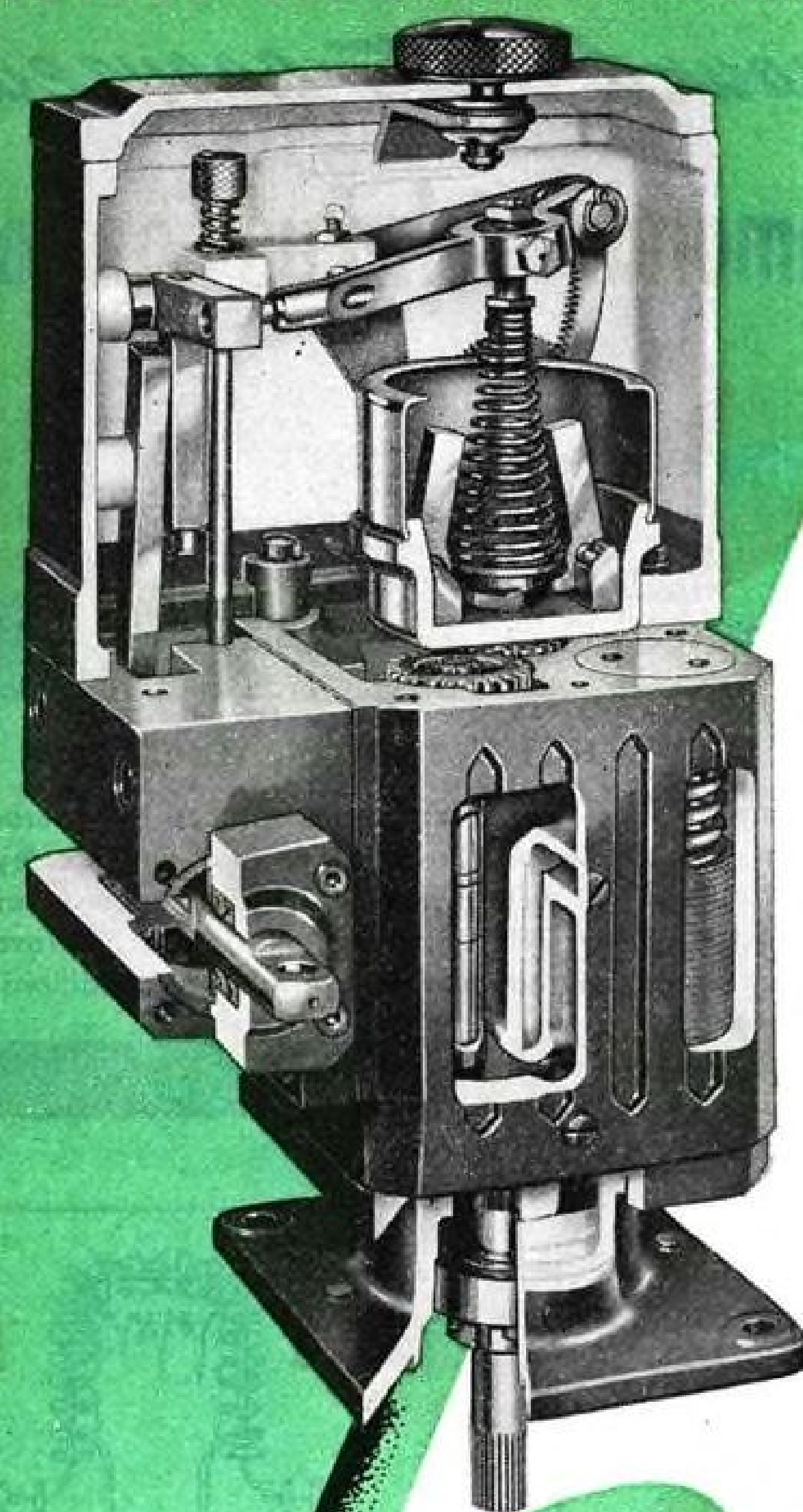
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● This Hydraulic Governor for Diesel engines is a good example of our skillful engineering and precision machining. After Victory is won, part of our facilities will be available to you.



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*Manufacturers of:* HYDRAULIC AND ELECTRIC WINDSHIELD WIPERS FOR AIRCRAFT  
HYDRAULIC GOVERNORS FOR DIESEL ENGINES • ROLLER BEARING TEXTILE SPINDLES • FUEL OIL PUMPS  
AIR COMPRESSORS • PRECISION PARTS AND ASSEMBLIES

Coast plane industry—the percentage was down to 4.71 for the last-tallied month of October.

"Quits" by workers having one year or less employment continue to give the West Coast industry its highest loss ratio, a maximum of 71.51 percent last January and 59.77 percent in October.

Of greater concern, however, is the fact that three-year workers now are leaving the industry in increasing numbers. At the start of the year, "quits" by this class of worker accounted for 4.95 percent of all separations.

► **Induction Rate**—Military inductions boosted this percentage to as high as 12.61 during the months from March through July. However, the tapering off of military induction "quits" failed to restore the January average. Three year "quits" in August accounted for 7.65 percent of all separations. The figure rose to 8.36 percent in September, and to 10.35 percent in October.

Similarly four-year "quits" have risen from 1.52 in January to 3.38 percent in October. "Quits" by workers employed five years or longer were .63 percent in January—1.5 percent by October.

### Seek B-29 Workers

Boeing opens coast-to-coast recruiting campaign to meet increased Army demands.

Boeing Aircraft has undertaken a coast-to-coast recruiting campaign in 32 states to meet increased demands by the Army for the B-29 Superfortress.

The recruiting is under direction of the U. S. Employment Service

### Navy Plane Output

Status of naval aircraft production, as reported by Rear Admiral DeWitt C. Ramsey before House Appropriations Committee:

"Our production in general is in fair shape, but it needs constant attention because of the conflicting interests of the Army, of course, in their heavy shell program, and in the congested areas such as those . . . on the West Coast. . . . It is a fight to hold on to our manpower and to avoid separations from the vital industries.

"We have lost in a relatively few months 140,000 workers in the aircraft industry, and that is the crisis that faces war production today and I would say it is the only real weak element in the program today, but it is a serious one. There are no serious materiel bottlenecks. . . ."

of the War Manpower Commission with members of Boeing's Personnel division cooperating, an indication of the importance attached by the Government to the B-29 production program. With a critical manpower situation in the Puget Sound area in which the Seattle and Renton plants are located, national recruiting was the only recourse.

For the past several weeks new workers added as a result of the recruiting have totaled slightly over 300 a week.

► **Capacity Production**—C. L. Egtvedt, Boeing chairman, said recent additions to the Army contract for Superfortresses from the

Seattle and Renton plants insure capacity production at these two factories and at the company's branch plants in Western Washington well into the spring of 1946. This backlog represents in the neighborhood of \$1,150,000,000.

While there remains a steady demand for more women workers, because of the higher turnover, it is important that a higher percentage of men be hired. B-29 production planning indicates a need for at least 50 percent men and preferably 55 percent. The percentage of men in direct factory work has decreased from 47 percent on Jan. 1, 1944, to 43 percent at present.

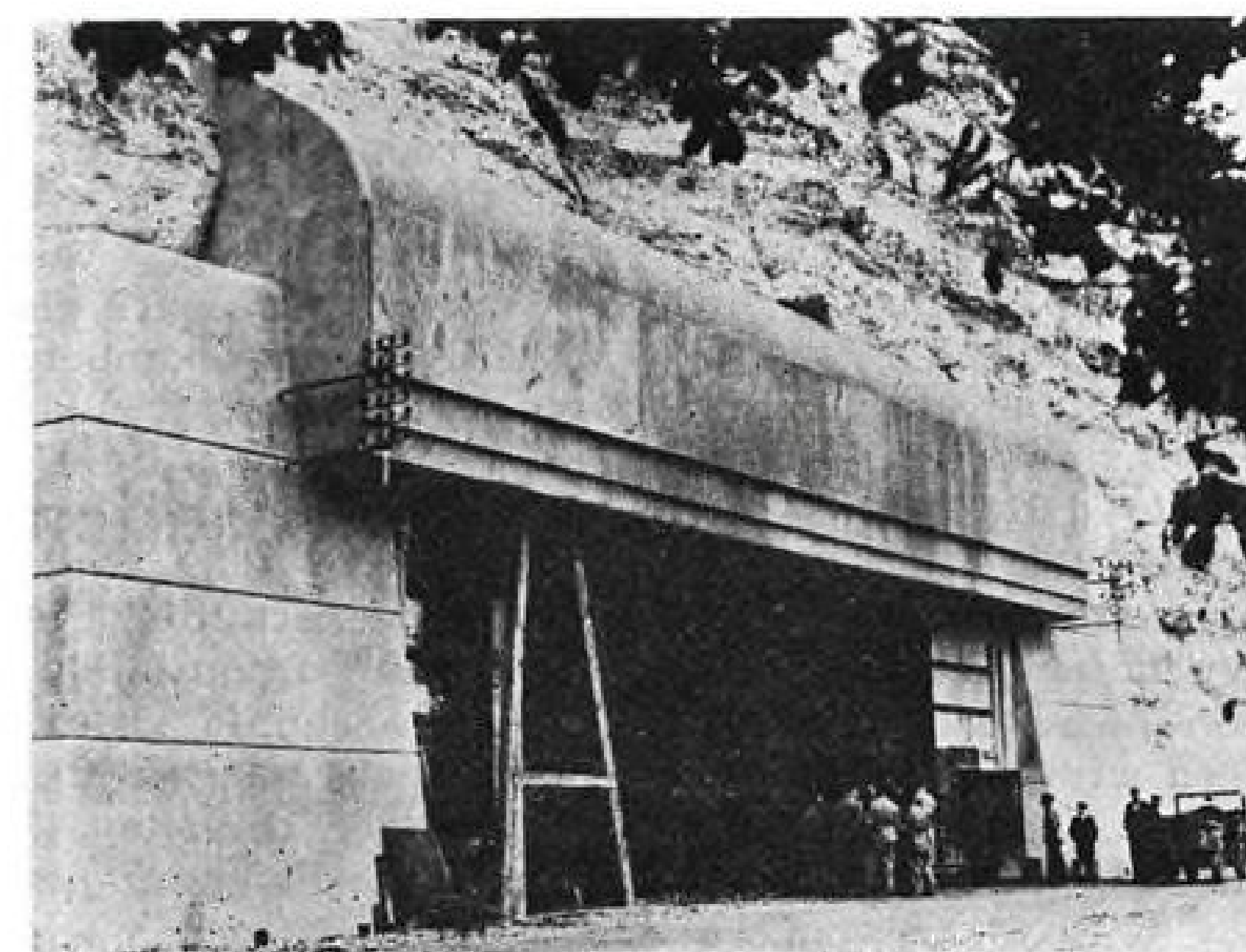
### Ramsey Reveals Cut In Navy Air Needs

Bureau of Aeronautics chief tells House Appropriations Committee of changed situation in aircraft procurement.

Reduction in limitation of the amount of contract authorization for Naval aviation was disclosed in testimony before the House Appropriations Committee by Rear Admiral DeWitt C. Ramsey, chief of the Bureau of Aeronautics, due to the changed situation now existing in procurement of naval aircraft.

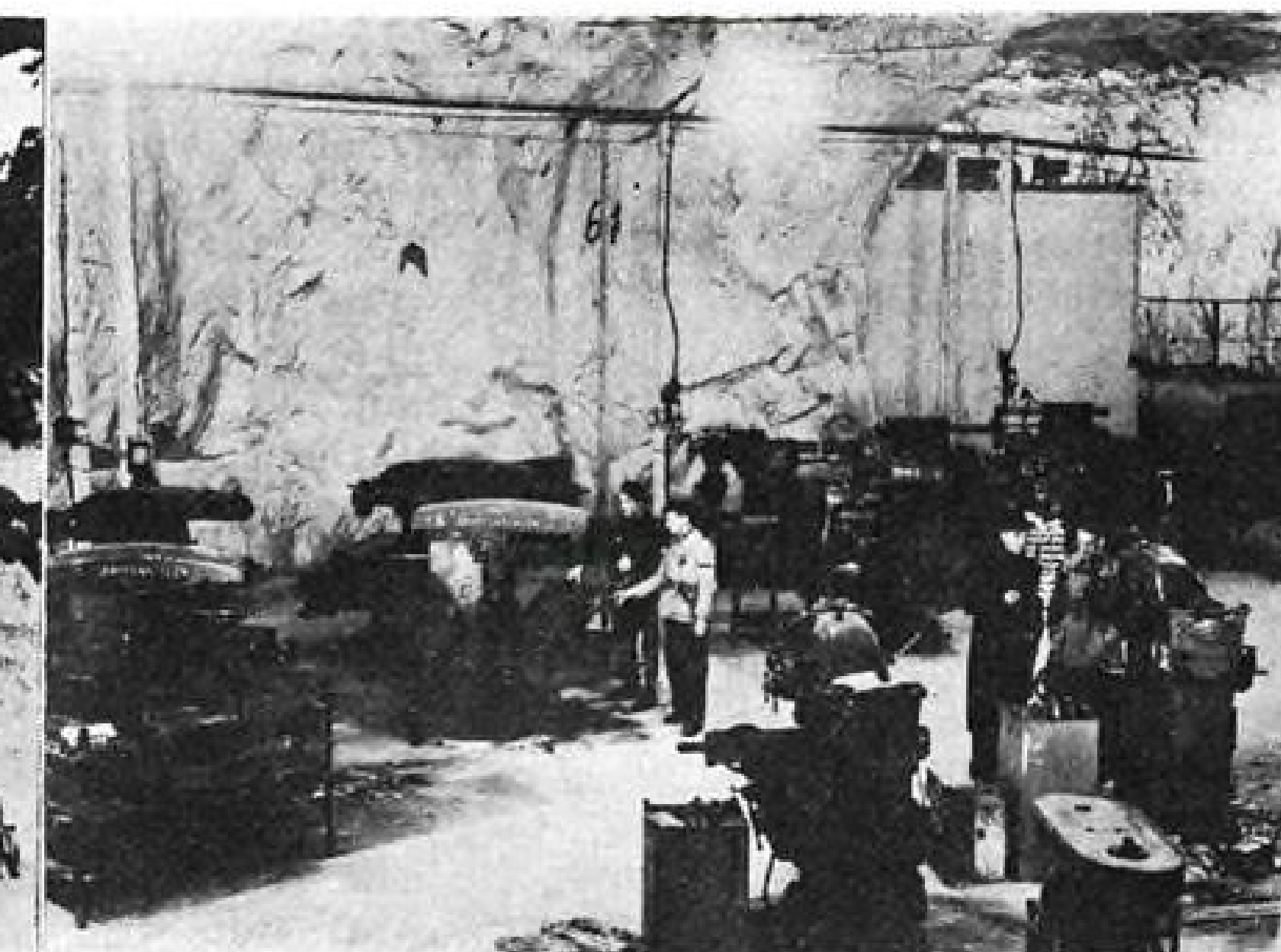
The reduction was from \$3,600,000,000 to \$1,600,000,000 of which later amount, not to exceed \$25,000,000 may be used for expansion of and facilities in public and private schools.

► **Losses Under Estimates**—At the time the 1945 estimate was submitted, WPB urged the Navy to



### NAZI UNDERGROUND AIRCRAFT PLANT:

Shown above are two views of the Nazi's underground aircraft plant at St. Astier, 65 miles east of Bordeaux on the Isle River. Entrance is shown as



well as an interior set-up of lathes, mostly German and American make. Note light and power lines overhead.



award aircraft contracts from 12 to 15 months in advance, in order to maintain full production. This so-called lead time is now considerably less, requiring the placing of much fewer advance orders in the fiscal year 1945. Also losses of planes to date have been less than had been anticipated. These factors have combined to reduce materially the number of naval airplanes which must be ordered in 1945.

It is now estimated that the amount of contract authorization required for this fiscal year will not exceed \$1,600,000,000 and Admiral Ramsey recommended a reduction of \$2,000,000,000 from the original estimate.

At the time the 1945 budget estimate for aircraft construction was submitted in January, 1944, it was estimated that funds and contract authority were then available for procurement of the 15,183 airplanes then remaining from the 1944 program of 27,642 planes, including spares and equipment.

**Procurement Policy Changed—** These 15,183 planes were expected to be ordered during the period from Jan. 1, 1944, to June 30, 1944. These financed aircraft were scheduled for production during the latter half of the fiscal year 1945, and in the majority of cases well into the first quarter of the fiscal year 1946. As of Dec. 31, 1943, it was estimated that approximately \$2,000,000,000 (including \$200,000,000 balance from the 1943 appropriation transferred to the 1943-44 appropriation) was available for obligation.

However, due to a change in naval aircraft procurement policy which reduced the lead time in placing airframe contracts from 12 to 15 months to approximately eight to 10 months prior to scheduled production, only 6,065 planes, at an estimated cost of \$829,000,000 were actually released for procurement during the last six months of the fiscal year 1944.

The 1,121 airplanes, at an estimated cost of \$864,054,000, released for procurement since July 1, 1944 to date, carry naval aircraft production to about September, 1945, and in effect complete the 27,642-plane program of 1944 with an unobligated balance of approximately \$1,125,500,000.

In order to cover the cost of current naval airplane production schedules through June, 1946, Admiral Ramsey said, as a result of orders placed prior to July 1, 1945, it is now estimated that about

7,000 fewer aircraft will be released and that \$875,000,000 less will be required than provided by Congress in the 1945 budget.

The 1944 program was for 27,600 airplanes and for 1945 it was 24,320.

## New Methods Speed B-25 Settlement

Revised system cuts red tape and negotiation time; \$1,590,782 payment approved in less than 60 days after filing of claim.

Recent settlement of claims arising out of the hundred million dollar North American Aviation contracts for production of the B-25 *Mitchell* bomber have demonstrated the adjustment to the changing needs of war production and speed in settlement of contractor's claims.

The situation arose, as reported by the Air Technical Service Command when the AAF decided to concentrate B-25 production at North American's Kansas City plant, so that the entire facilities of the Inglewood, Calif., plant could be devoted to building the P-51 *Mustang*. The Southern California plant was notified on Feb. 5, 1944, that it would make no more B-25's, and on July 7 turned out the last of the 3,208 *Mitchell*'s produced in slightly over three years at Inglewood.

**Paid in 60 Days—**On Sept. 4, North American submitted its claim to the Western District, ATSC and 24 days later a negotiated settlement of \$1,590,782.93 had been reached. Payment of the claim was approved Oct. 27, less than 60 days after the filing of the claim.

During the progress of the negotiation, the Government recovered \$1,164,576.55 on raw materials and purchased parts which were diverted to production in other plants and it was expected that eventually about 95 percent of the cost of the remaining inventory will be recovered by the same method of transfer.

**Speed Lauded—**Brig. Gen. Donald F. Stace, Commanding General, Western District ATSC commented that the speed with which this highly involved claim has been settled is evidence that war contractors can and will realize that they have a definite obligation under the Contract Settlement Act of 1944, and will follow the Army Air Forces' lead of assigning men, with full power to act, to the

job of cleaning up unfinished war business.

Col. E. W. Rawlings, chief of the Readjustment Division, ATSC, which is charged with contract adjustment and plant clearance for the AAF, pointed out that the production shift was an outstanding example of adaption to changing war requirements. He said that contract adjustment as represented by this shift of production from B-25's to P-51's is one of the most valuable methods of meeting the need for flexible war production.

## \$5,000,000 Orders Placed with Republic

Conditional orders totaling more than \$5,000,000 were reported booked by Republic Aviation at the St. Louis convention of the National Aviation Trades Association, indicating the interest of personal aircraft distributors in Republic's post-war entry into this new field of activity with their *Thunderbolt Amphibian* (AVIATION NEWS, Dec. 4).

**Shipments—**Republic's shipments on the P-47 *Thunderbolt* fighter for 1944 will approximate \$400,000,000. Employment at Republic now totals 17,248.

A special dividend of 25 cents a share, payable Dec. 28 to stock of record Dec. 21, has been voted.

## Convair Fort Worth Makes 3000 B-24's

Fort Worth division of Consolidated Vultee has produced more than 3,000 B-24 *Liberators* and C-87 *Liberator Express* transports since the first *Liberator* came off the lines in April, 1942.

While C-87 production was discontinued at the Fort Worth division several months ago, the plant is now stepping up work on the new B-32 *Dominator* bomber, details of which still are restricted.

## Kinner Buys Gladden

Kinner Motors has acquired the Gladden Products organization, hydraulic control manufacturers, and will continue to operate the plant of the Gladden company.

Kinner plans to diversify its operations for the post-war market, and the new plant, situated a few blocks from the Kinner factory in Glendale, Calif., will fit into the production picture both for war and peace output.

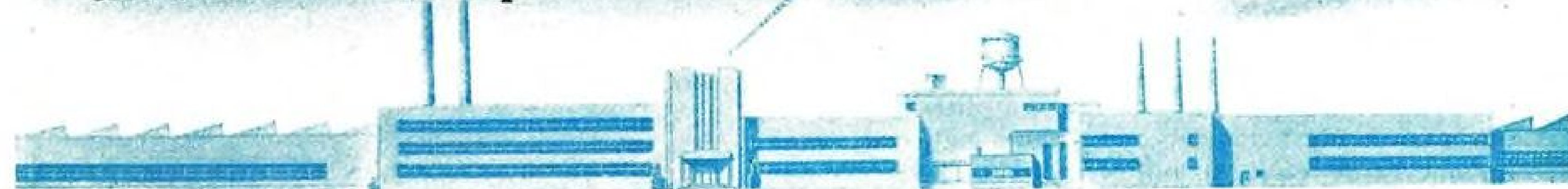
# Air Power Through Piston Rings

**McQUAY-NORRIS**  
ALTINIZED  
**PISTON RINGS**

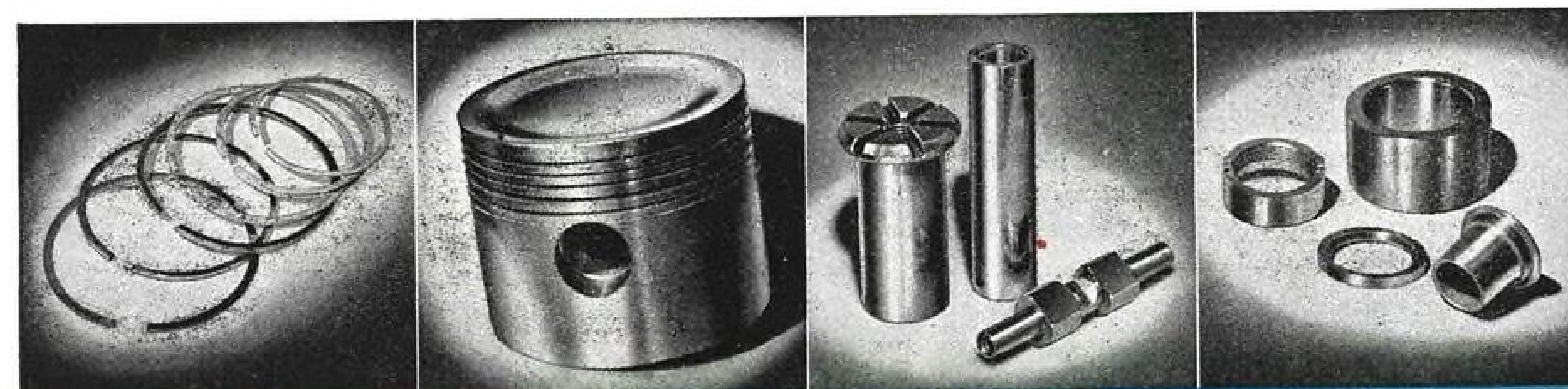
PISTONS...PINS...

## HARDENED AND GROUND PARTS

More and more, the leading makers of aircraft motors are using McQuay-Norris precision parts. Our 34 years' experience in precision manufacture, our long and intensive work in metallurgy, heat treating, clinical research and laboratory experiment, enable us to turn out the sturdy, dependable parts demanded by modern aviation. Your inquiries are invited.



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**McQUAY-NORRIS MFG. CO. (AIRCRAFT DIVISION), ST. LOUIS, U. S. A.**  
CANADIAN PLANT, TORONTO, ONTARIO

## PARTS FOR AIRCRAFT ENGINES

Piston Rings  
Oil Sealing Rings  
Supercharger Rings  
Carburetor Parts  
Machined Aluminum Pistons  
Piston Pins  
Counterweight Cheek Pins  
Machined Magnesium Parts  
Cylinder Hold Down Nuts  
Hardened and Ground Parts

## PARTS FOR PROPELLER ASSEMBLY

Machined Magnesium Parts  
Piston Rings

## EQUIPMENT FOR MAINTENANCE OF AIRCRAFT

Pistons for Oxygen Compressor  
Piston Rings for Oxygen Compressor  
Pins for Oxygen Compressor  
Pistons for Air Compressor  
Pins for Air Compressor  
Piston Rings for Air Compressor

## LANDING GEAR PARTS

Machined Aluminum Pistons  
Piston Rings  
Hardened and Ground Parts





## PERSONNEL

L. B. Kinports has been named manager of United Air Lines' foreign agency and tour department.



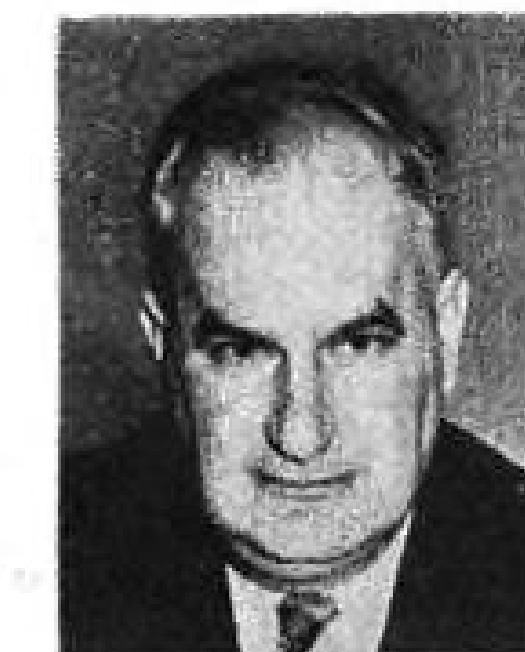
Kinports, for the past four years president of the American Steamship and Tourist Agents Association, will be located at Chicago headquarters of the airline to supervise agency work domestically and to handle tour promotions in the post-war program. In 1942, Kinports joined the office of the Coordinator of Inter-American Affairs, specializing in travel and air priorities, subsequently he became director of the office's service operations division.

Leopold H. P. Klotz, whose election as vice president of Luscombe Airplane Corp., Trenton, N. J., was announced in AVIATION NEWS Oct. 9, has been elected president, succeeding A. C. Hastings, Jr., who has retired. Clarence L. Riegel, who has been secretary and assistant treasurer, has been made secretary and treasurer. Riegel formerly was

president and executive manager of the New York Credit Men's Association.

Richard W. Sylvester has been named traffic manager of Pan American-Grace Airways, Inc., for South America. He has been special representative for Panagra at Balboa, Canal Zone, and has been active in traffic sales. Before joining Panagra, Sylvester was associated with the traffic department of W. R. Grace and Co., in New York.

Roy C. Sylvander (photo) has been appointed director of engineering of Bendix Aviation Corp.'s Eclipse-Pioneer Division. Sylvander has been chief engineer of Eclipse-Pioneer for the past three years and made important contributions to the development and



production of flight, navigation and engine instruments. He succeeds W. A. Reichel, who resigned. Sylvander joined the company in 1935 as assistant chief engineer.

Dobert J. Dunanoe, Jr., manager of Woodrum Field for the past eight years, has resigned to become chief of the airport management section, Airport Division, Civil Aeronautics Administration.



### WINS COLLIER TROPHY:

Capt. Luis de Florez, who was awarded the Robert J. Collier Trophy for 1943 for his contribution to the safe and rapid training of combat pilots and crews for the Navy through the development of synthetic devices. Gen. Henry H. Arnold was awarded the trophy for 1942 for his organization and leadership of the AAF. Captain de Florez, a pilot, is director of special devices for Navy's Bureau of Aeronautics.

Recent appointments at Kellett Aircraft Corp. include that of John G. Rombough to be assistant to the executive vice president. Rombough has been in the aircraft industry for ten years, eight of which he was an industrial engineer for Bell Aircraft Corp. Walter H. Hassler, new production control manager, replaced Ken Schneider, now with Lockheed Aircraft Corp. Hassler spent ten years with Consolidated Vultee Aircraft Corp. and during the past year has been with Kaiser-Fleetwing Corp. as production manager. John H. Bystrom becomes new assistant to the general superintendent.

E. F. Lazar has been appointed assistant general sales manager of Sperry Gyroscope Co., in addition to his duties as manager of the special electronics department and the federal sales department. As assistant general sales manager, Lazar will be responsible for planning sales department product programs and coordinating these programs with the engineering department and the customer.

Lieut. Col. Thomas J. Blanton (photo), recently returned to the United States after two years and five months as a procurement officer attached to the Air Service Command in England, has taken over the post of Army Air Forces resident representative at Wright Aeronautical Corp., a division of Curtiss-Wright Corp. Colonel Blanton succeeds Lieut. Col. C. R. Borkland, who has been assigned to the office of the commanding officer, Eastern District, with duties in the office of the Deputy Commander.



Walter E. Peek, newly appointed sales manager of Electronic Laboratories, Inc., Indianapolis, will have charge of the sales of all E-L products, which include vibrators and vibrator power supplies.

J. E. Thomas has been named manager of cement sales in the Industrial Products Sales Division of B. F. Goodrich Co., in which capacity he will direct the sale of all adhesive materials handled by the division.

Paul E. Hovgard, (photo) widely-known aeronautical engineer and pilot, has been named associate director of the research laboratory of Curtiss-Wright Corp.'s airplane division at Buffalo. Hovgard served previously as director of flight test for the Airplane Division. He will be associated with Dr. C. C. Furnas, research laboratory director. Hovgard has been in aviation since he joined Travel Air manufacturing in 1926 and became chief engineer. He was chief engineer also of Kellett Autogiro and Pitcairn Autogiro.



Col. Horace A. Shepard has been named acting chief of the production section in the Procurement Division of the Air Technical Service Command, in addition to his duties as chief of the division's control section. He succeeds Col. George E. Price, who has left Wright Field on an undisclosed mission.

Merrill C. Meigs, civilian consultant to the Air Technical Service Command director, Lieut. Gen. William Knudsen, accompanied his chief on a recent tour of factories. Meigs served as director of the Aircraft Production Division of the War Production Board.



## Investment Analysts' Consensus Gives Airlines Over-Average Rate

Aircraft manufacturing issues estimated at "average to below"; Bendix, Douglas, Lockheed, Sperry and United listed as favorites with better prospects than balance of group.

Forecast of aviation's future continues to be touch and go among the investment advisory services.

In its annual forecast for 1945, Poor's investment advisory service attempts to rate all active stocks. Included in this group is a wide representation of the aviation group. The accompanying table presents these selections along with their market ratings. Poor's has attempted to forecast final 1944 earnings for the airlines but has eschewed advancing any such prognostications for the aircrafts—with but two exceptions, Bendix and United Aircraft.

It can be seen that the airlines continue in high favor with a strong preponderance toward "above average" ratings. American is clearly the favorite with an outright "buy" recommendation. Surprisingly enough, Pan American is considered "average to below."

► **Aircrafts**—As a general rule, the aircrafts draw "average to below" as their ratings. Bendix, Douglas, Lockheed, Sperry and United Aircraft are credited with "above

average." Bellanca is considered a definite sale.

The forecast of 1944 airline earnings falls short of the mark. For instance, American earned \$6.67 per common share for the first nine months of the year, yet Poor's thought the company would earn only \$4.75 for the entire year. Similarly, United actually earned \$3.23 per common share for the initial nine months, as contrasted to Poor's guess of \$2.00 for the entire year. Also, TWA earned \$2.04 for the nine months compared with the estimate of \$1.50 for the year. Eastern is expected to show 1944 earnings of \$2.85 but actually earned only \$1.22 per share for the first nine months and probably will fall short of Poor's estimate.

In the same forecast number but in a different compilation, Poor's also lists some outstanding low priced stocks. In this group are three aviation companies. Of Piper Aircraft, Poor's says a "large post-war demand is indicated"; Republic Aviation—"has good industry position"; and Western Air Lines "prospects are improved by

route expansion." All companies are rated "AA"—above average—according to Poor's.

► **Moody's Aircraft Analysis**—In a current analysis of the aircraft manufacturing industry, Moody's stock survey asserts: "The great contraction, prospective right after the war, in the volume of aircraft manufacturing has been widely anticipated for so long that its potency as a market influence seems to be wearing out." A broad decline has featured the aircraft market pattern with the past year's strength viewed as an upward phase in a series of backing and filling movements. The accompanying chart shows the aircraft trend compared with the general market.

Moody's believes the public has been slump minded regarding the aircrafts and much of the market's adjustment appears to have been accomplished. The service opines, "From now on aircraft manufacturing stocks should be watched for buying occasions, in a selective way, and not entirely avoided at this late stage in their process of reappraising the peacetime outlook."

Among the favorable factors, Moody's believes that the better companies have very favorable financial positions in relation to the prospective decline in volume. Further, it is maintained that the peacetime outlook for the aircraft manufacturing companies will not be injured by what may appear as excess capacity.

► **Favored Stocks**—The advisory service feels that the individual companies who have achieved successes in the military field will probably do well in commercial plane development. In this respect, Boeing, Douglas, Lockheed and United Aircraft are favored. Presumably these equities represent favorite vehicles for accumulation on market weakness by investors who "have no representation in the group at the present time." It is conceded that, because of the inevitable volume contraction, there may be some casualties among the established plane makers but "there will also be some strong survivors."

In an interesting poll undertaken by Paine, Webber, Jackson & Curtis, a leading New York stock exchange firm, the aviation group fared very poorly among the outstanding peace beneficiaries. Statisticians and collaborators on the stock exchange firm's circuit were asked to select six industries stand-

ing to benefit most from ultimate return to peace. Among the various industries, air transport ran a poor fifteenth among the groups selected. Aircraft did not even show among the 33 industries forming the compilation.

► **Results of Poll**—In this poll, among 228 votes distributed through 19 lists of 12 stocks each, the following airlines received one vote apiece: American, Braniff, Eastern, PCA, United and Northeast. In the aircraft group only Beech and Douglas received one vote each. Bendix also received one vote but was classified in the automotive group.

It is interesting to see the diverse opinion that exists for example between the Paine, Webber poll and Poor's investment ratings. The stock exchange firm's compilation is even more interesting when it is realized that it attempts to place in proper perspective all industry groups. On this basis, the much heralded peace beneficiary—air transport—is far less favorably situated than such groups as building, rail equipment, autos and even railroads.

## 128 Radio Devices Produced by Bendix

Output of division of aviation company ranges from compasses to instrument landing systems and control networks; sales for fiscal year reported at \$148,790,816.

More than 128 types of communications equipment—radio and radar devices for aircraft and other military use—are being produced by Bendix Radio Division of Bendix Aviation Corp., which reported gross sales of \$148,790,816 for the fiscal year ended Sept. 30, 1944. Output ranges from radio compasses to instrument landing systems and control networks.

Philadelphia Division of Bendix Aviation reports an all-time production high in aircraft flight instruments and other warplane equipment during October with shipments totaling nearly \$8,500,000, reflecting increased Army requirements for precision devices for the Boeing B-29 program.

► **New Compass**—Raymond P. Lansing, vice-president, points out that the Flux Gate compass, second new compass to have been invented in 4,500 years, is standard equipment on the *Superfortresses*

Poor's Aviation Earnings and Market Ratings						
AIRLINES	Share	Earnings	Price Range	Market	Rating	
	Est. 1944	Actual 1943	1944 High Low			
American.....	\$4.75	\$5.18	43 1/4 40*	Fuy		
Eastern.....	2.55	2.42	40 1/2 33	AA		
Northwest.....	1.45**	1.28**	30 1/2 17 1/2	AA		
Pan American.....	1.75	0.97	30 1/2 25 1/2	AB		
PCA.....	0.75	0.55	24 1/2 13 1/2	AA		
TWA.....	1.50	2.12	26 1/2 17 1/2	AA		
United.....	2.00	2.13	35 22 1/2	AA		
Western.....	0.75	0.22	12 7 1/2	AA		
AIRCRAFTS						
Aviation Corp.....	...	0.61	5 1/2 3 1/2	AB		
Beech.....	...	10.09	14 1/2 7 1/2	AB		
Bell.....	...	6.25	15 1/2 10 1/2	AB		
Bellanca.....	...	1.06	4 1/2 2 1/2	SW		
Bendix.....	...	6.95	40 1/2 33 1/2	AA		
Brewster.....	...	NA	37 15 1/2	AB		
Con-Vultee.....	...	14.57	15 1/2 11 1/2	AB		
Douglas.....	...	9.92	72 1/2 47	AA		
Grumman.....	...	6.58	30 1/2 11	AB		
Lockheed.....	...	7.44	23 1/2 14 1/2	AA		
Martin.....	...	11.15	22 1/2 16 1/2	AB		
Nation-I Aviation.....	...	0.66	15 1/2 9 1/2	AB		
North American.....	...	1.98	11 1/2 7 1/2	AB		
Sperry.....	...	3.77	29 1/2 22 1/2	AA		
United.....	...	5.75	53 1/2 25 1/2	AA		

Source: Poor's Investment Advisory Service Annual Forecast for 1945

Key: Market Ratings:  
Buy—Stocks judged in most favorable position.  
AA—Above Average but not up buy or lifelines.  
AB—Average to Below—Deemed no better than average.  
SW—Switch. Should be sold promptly.  
Notes: #Up to December 11, 1944  
\*On new stock  
\*\*Year ended June 30

and other bombers and that he expected production of these compasses to continue to expand and to remain high after hostilities have ceased. None of the interested commercial airlines can be supplied at this time.

A continuing demand for flowmeters, devices developed by Bendix to indicate accurately the rate of gasoline consumption and which are now being supplied principally for the B-29 program, also was predicted by Lansing.

While the dollar volume of all products is currently at a record high, Lansing said present schedules call for increasing production another 10 to 15 percent per month by January and forecasts based on recent estimates by the armed services as to their probable demands indicate the peak rate will be continued during all next year.

## Financial Reports

► **Solar Aircraft** of San Diego and Des Moines had net sales of \$14,750,002 for the first half of the fiscal year ended Oct. 31. Unaudited figures showed a net income after provision for taxes and renegotiation reserves of \$422,173. This is equivalent to earnings of approximately \$1.34 per share on the \$1 par value common stock.

E. T. Price, president, said operations of the company are increasing with a present backlog of \$29,500,000 not including anticipated orders for exhaust manifolds and

parts for jet propulsion power units amounting to approximately \$15,000,000, which are now under negotiation.

► **Liberty Aircraft Products** reports sales for nine months ended with August at \$16,606,781 compared with \$14,852,135 for the same 1943 period. After provision for taxes and possible losses resulting from war conditions, net profit transferred to surplus was \$418,707, equal to \$1.45 each on 287,000 new common outstanding following the recent two-for-one-split.

## Stock Transactions By Airline Officers

Dealings of executives in securities of own companies disclosed.

L. H. Dwerlkotte, executive vice-president of Western Air Lines, Inc., purchased 2,000 shares of the company's common stock during October, according to a summary of security transactions made public by the Securities and Exchange Commission. The acquisition brought his holdings in Western Air to 10,890 shares.

James Work, director and principal stockholder of Brewster Aeronautical Corp., sold 1,700 common during the month, reducing his ownership to 89,150 shares.

Jack L. Oatman, an official of Solar Aircraft Co., sold 500 common, leaving him 1,000 shares.

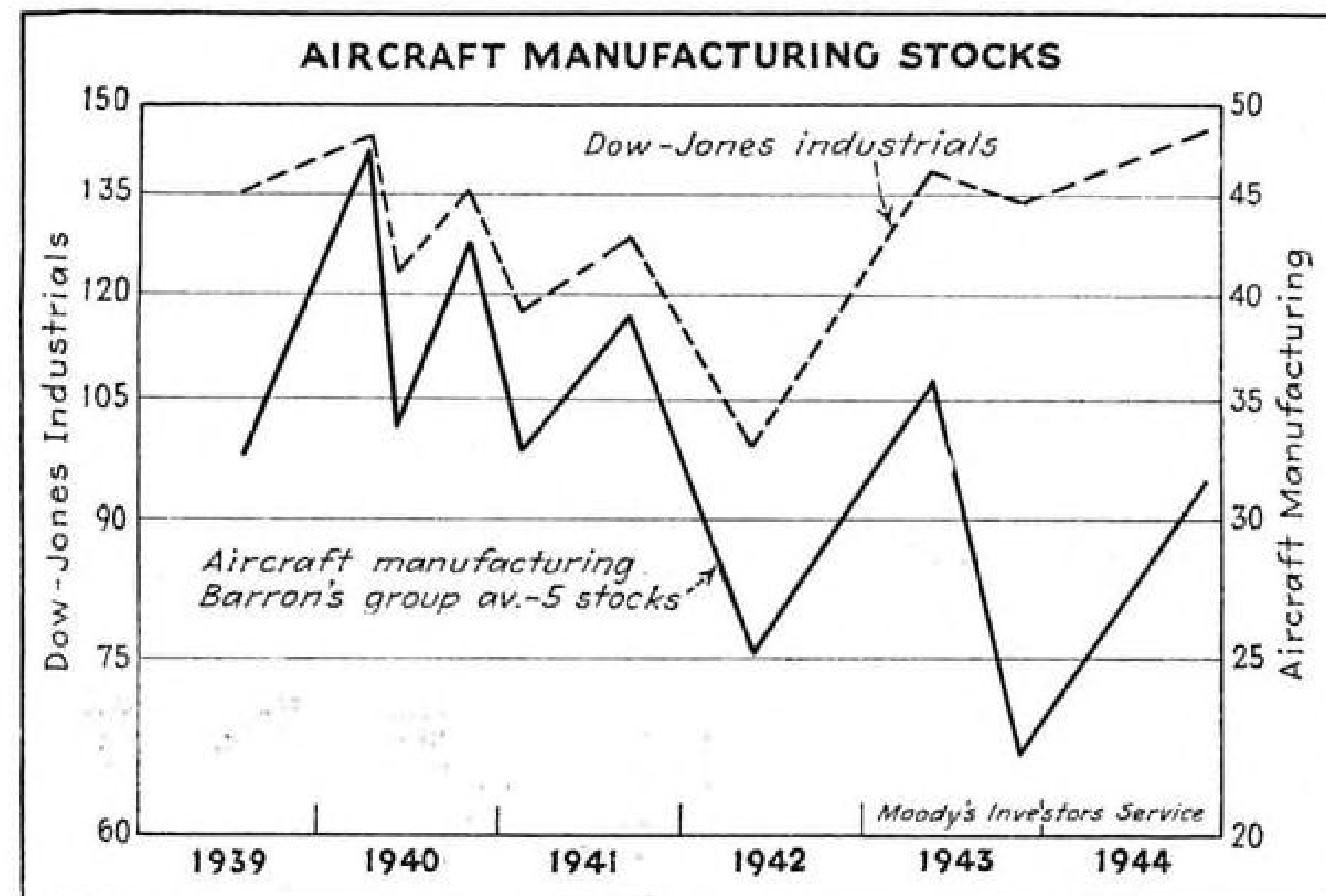
► **Jacobs**—C. T. Ludington, director of Jacobs Aircraft Engine Company, reported the sale of 500 shares of the company's capital stock through a trust. At the close of the month there were 2,000 shares in the trust.

Leon A. Swirbul, executive vice-president of Grumman Aircraft Engineering Corp., sold 500 common, giving him a balance of 25,600 shares at the close of October.

Robert E. Gross, president of Lockheed Aircraft Corp., received 35 shares of the capital stock as a gift, increasing his holdings to 31,196 shares.

► **Piper**—Max Booke, assistant secretary of Piper Aircraft Corp., received 50 common through an exchange, raising his holdings to 450 shares.

Francis A. Callery, vice-president of Consolidated Vultee Aircraft Corp., bought 1,600 common in September, increasing his ownership to 2,000 shares. Raymond S. Pruitt, general counsel, sold 200 common in October, leaving him 480 shares.



NOTE: Principal turning points of aircraft manufacturing stock average and Dow-Jones Industrials for the same dates are shown.



## TRANSPORT

### CAB's Northwest Opinions Point to Merger, Interchange

Decision makes airline fourth transcontinental carrier; PCA also gains entry into New York.

By DANIEL S. WENTZ II

Using as their point of departure the Civil Aeronautics Board's decision in the Chicago-New York case, which established Northwest Airlines as the fourth transcontinental air carrier and extended PCA's system from Pittsburgh to New York, Chairman L. Welch Pogue and Vice-Chairman Edward P. Warner last week outlined in two separate opinions their theories of merger and interchange as the alternative development patterns which U. S. domestic airlines soon must face.

Pogue's dissent was devoted to a discussion of a possible merger between Northwest and PCA, a solution he viewed as preferable to that adopted by the majority in granting both lines access to New York. Dr. Warner's opinion considerably enlarged the existing concepts of inter-line coordination, and directed the industry's attention to unexplored areas in which untried forms of interchange and similar two-carrier arrangements might be worked.

► **Forerunners** — The dissents of Pogue and Warner were in-

terpreted as forerunners of what the Board's position with respect to the existing carrier may be in the future.

After outlining the Board's responsibilities in developing a sound and economic air transportation system, Pogue said: "I had hoped that the Board would defer its decision on the two applications I am considering here and give Northwest and PCA time to work out some consolidation or merger. . . . If these two systems were combined, we would have a fourth strong transcontinental carrier."

"I believe," he continued, "that only in the event of such a consolidation or merger would the public convenience and necessity justify the authorization of access to New York."

► **Merger Discussed** — Although Pogue's statement on the Northwest-PCA combination left some doubt whether he was suggesting the merger or was referring to a plan already under discussion, AVIATION NEWS learned reliably that representatives of the carriers had broached the subject, presum-

ably with the knowledge of some Board officials.

The Chairman stated his belief that the standard of public convenience and necessity set forth in the Civil Aeronautics Act was a "very broad one designed to permit and require the Board to carry out the basic objectives of the Act." Some lawyers, however, were of the opinion that the law as it now stands would not permit the Board to require mergers, although some agreed it might readily encourage such action in fulfilling its statutory functions.

Dr. Warner's opinion reopened the question of interchange and laid before the industry a number of new ways in which carriers might coordinate their activities. It was interpreted as a companion piece to Pogue's remarks, the two, taken together, forming opposite sides of a problem the airlines probably will have to face.

► **Parallel Competition** — Warner pointed out that the introduction of Northwest and PCA into New York created parallel competition among four carriers between Chicago and New York and Detroit and New York. Parallel competition, he went on to say, serves a useful purpose on some routes, but obviously has some limits.

The answer, he continued, lies in new forms of interchange. "The possibilities of such arrangements are far from having been explored to their limits in the past," he said.

Among his suggestions for closer inter-line coordination he mentioned:

► **Agreements on mutually satisfactory financial terms** whereby one carrier would operate its planes over another's routes, or



#### TWA STRATOLINERS IN RECONVERSION PROCESS:

Picture at left shows one of TWA's Stratoliners as it received touches at Boeing's Seattle plant, where five of these ships were fitted with new Flying Fortress wings, engines and landing gear. At right is a closeup

taken as new horizontal stabilizers and elevators were installed, flush with rudder and end of tail cone. Original stabilizer assembly was about 3 feet forward, as can be seen by outline on ship's skin.



### Oliver L. Parks Announces the Opening of a Resident School of the Air for Young Women Exclusively, at the Alabama Institute of Aeronautics

This resident school of the air is for young women exclusively. It is in recognition of the dominant part to be played by young women in the age of personal flying. It is offered to young women who want to add Air Wisdom to their other accomplishments. Courses offered you in flight instruction and ground school training lead to a CAA Private Pilot's Rating in a 12 weeks' course of training.

Your flight and ground school training at Alabama Institute will be on the same colorful campus where, for the past 5 years, U.S. Army Air Force Cadet, Royal Air Force Cadet, Free French Cadet, Civil Pilot, and War Service Training have been given. You will study under the same competent, experienced instructors who successfully graduated 100% of the members of the original Civil Pilot Training class in 1939. You will have the advantage of the experience gained since then in flying over a quarter million hours in flight instruction.

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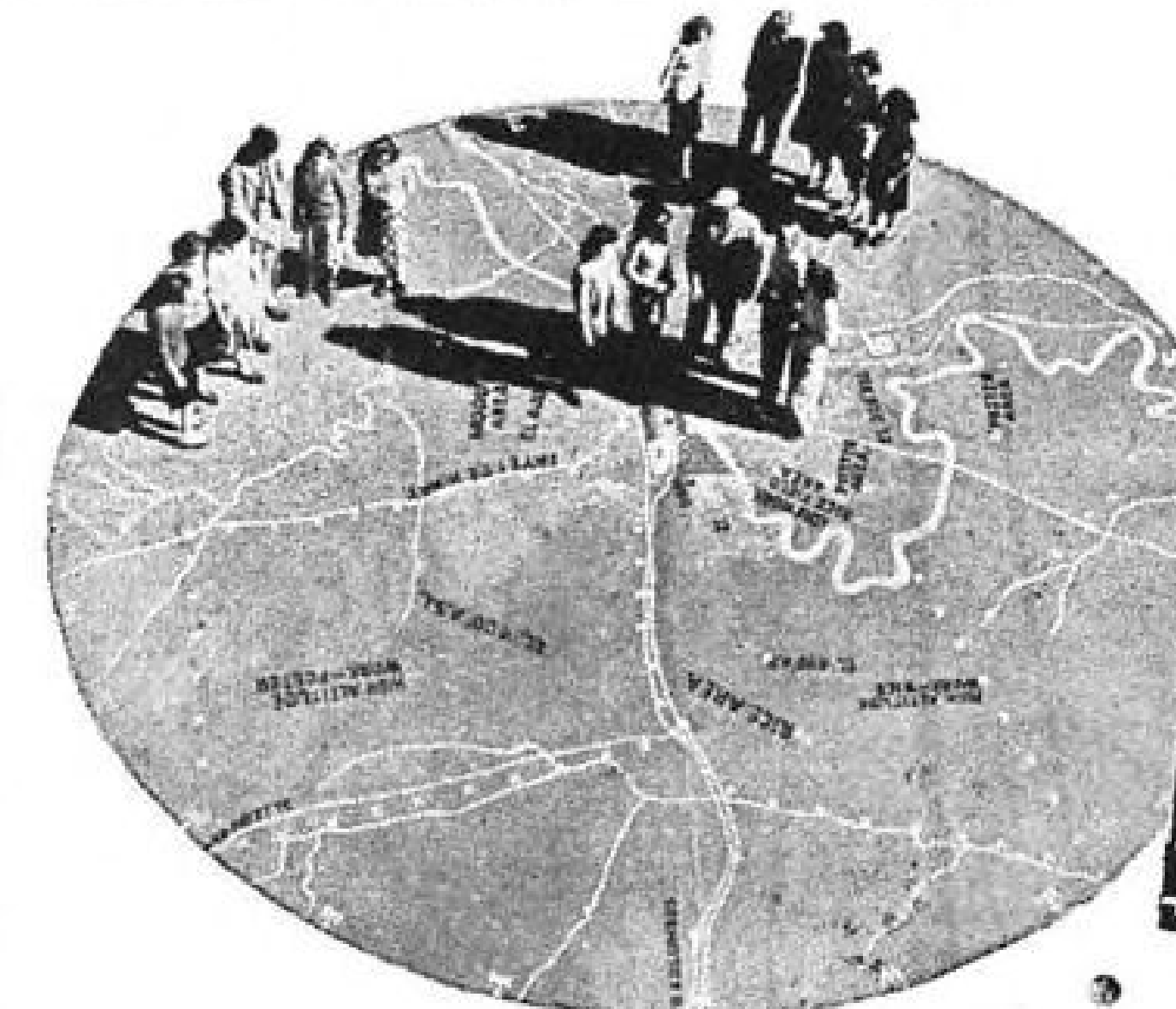
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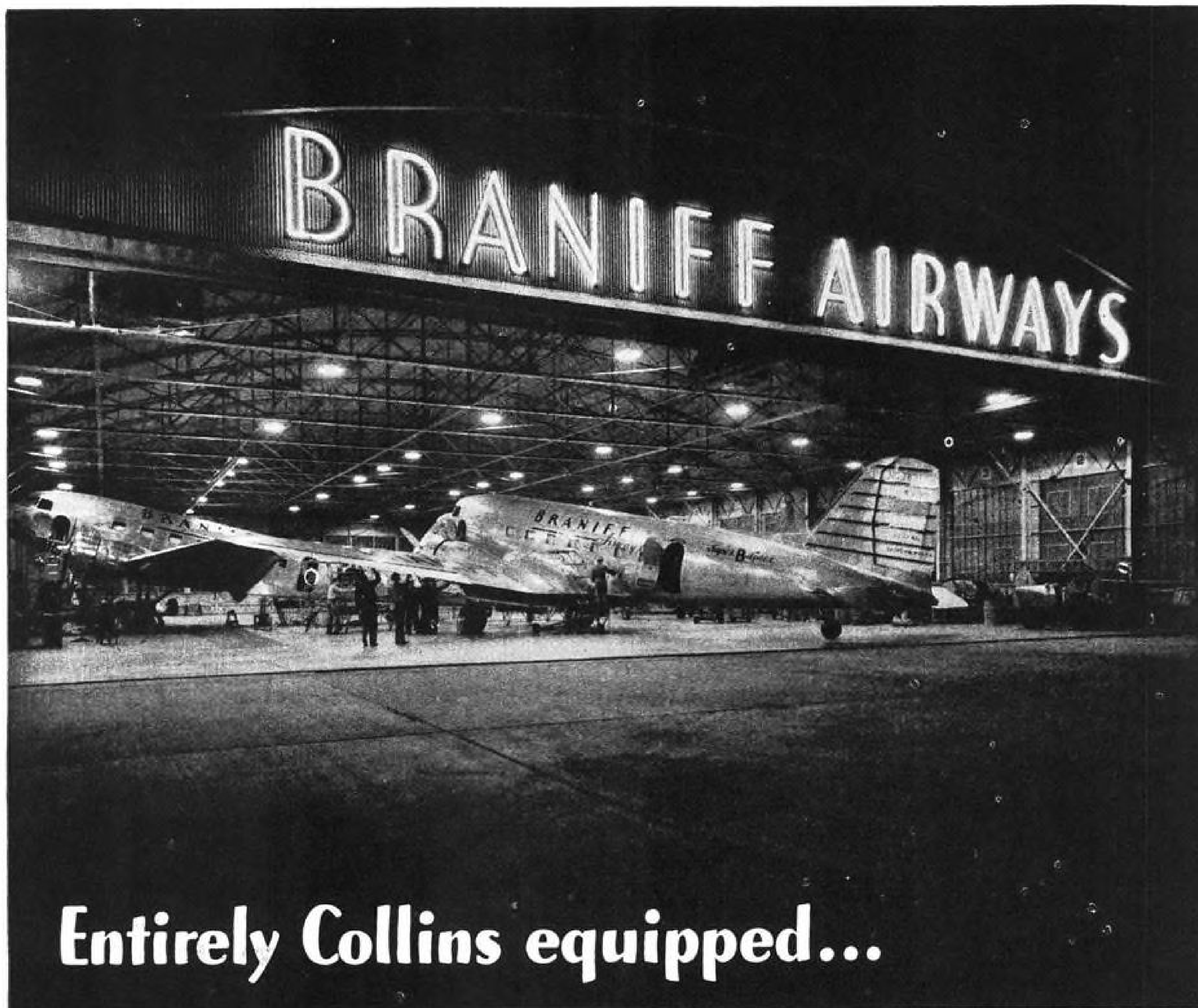


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Today Braniff uses Collins multi-channel or Autotune equipment at every point at which it has a radio station, and every ship in its *Super B Liner* fleet carries a Collins 17F Autotune aircraft transmitter.

There is a deep satisfaction in having supplied the nerve-system on which Braniff relies in maintaining its magnificent record of safety and operating efficiency.

When Collins turned to war production, it could apply the know-how that came from furnishing communication equipment which met the exacting needs of Braniff and other major airlines. When it returns to civilian design and production, it will add to that know-how the tremendously increased, intensified experience acquired in its services to the Armed Forces. Collins Radio Company, Cedar Rapids, Iowa.



\*The Collins Autotune is a repositioning mechanism which quick-shifts all transmitter or receiver tuning controls simultaneously and with extreme precision to any one of a number of pre-determined frequencies. Patents issued and pending in the USA and other countries.



each might make an extension of service on certain schedules.

►Flight crews of the original carrier might operate the plane to its ultimate destination, with certain flight personnel qualified for certificated routes of another carrier.

►If the number of schedules so operated was substantial, dispatching and ground service personnel might be stationed along the other carrier's routes.

►Sale of transportation and contact with passengers would be left entirely to the carrier certificated for the route.

Such arrangements, Dr. Warner pointed out, could permit two quite distinct services operated over the same route, "but with a common commercial objective, traffic man-

agement, and coordinated and agreed planning and scheduling in place of a direct competition which might be in excess of anything that the conditions of the route would justify."

Such interline arrangements, he said, were not only possible between Northwest and PCA in the present case, but there were "other instances that seem conspicuously fitted" for such operating agreements. He said the fact that portions of a potential through route being certificated to different carriers need not interfere with their making arrangements for through operations, presumably indicating the Board's willingness to encourage joint operations.

## Swedish, Danish Agreements Signed

The State Department has announced signing of commercial aviation agreements with Sweden and Denmark, effective Jan. 1, 1945. The former contemplate routes between New York or Chicago and Stockholm. The latter is similar and grants rights to U. S. airlines in Denmark and Greenland, specifying that the Jan. date is provisional, and definite on confirmation by a free Danish government when established after Denmark's liberation.

The agreements, which followed

announcement that a pact had been signed with Spain, incorporated standards adopted at the International Civil Aviation Conference for such bilateral arrangements.

## Traffic Conference Plans Reorganization

Increased emphasis to be placed on cargo in ATA unit's new setup.

Steps to place cargo on a par with passengers in deliberations of the Air Traffic Conference, a division of Air Transport Association, are being taken by the Conference in a reorganization plan approved at the recent Washington meeting.

The plan outlined in the accompanying chart, contemplates under the overall direction of the Conference two divisions with exclusive jurisdiction respectively over passenger traffic matters and cargo traffic matters, including mail.

►Basic Change—This separation of passenger and cargo sections of the Conference is a basic change, since cargo heretofore has been treated by one of the committees of the organization.

A special committee composed of W. G. Lipscomb of American Airlines, chairman; E. O. Cocke of

### Routes Authorized

Routes authorized by the Civil Aeronautics Board in the New York-Chicago case include the following:

►Northwest Airlines—Minneapolis-St. Paul to New York via Milwaukee and Detroit, with service East of Milwaukee only on flights originating at Minneapolis-St. Paul or west thereof, and terminating at New York, or originating at New York and terminating at Twin-Cities or points west. New route is AM 69.

►PCA—Extension of AM 55 from Pittsburgh to New York-Newark, with the condition that the service be by flights originating or terminating at Chicago or Knoxville or beyond. AM 32 amended to permit direct service between Detroit and Chicago.

►United—Permission to serve Detroit as intermediate point on AM 1 between Cleveland and Toledo, with condition that flights serving Detroit originate at Denver or west thereof and terminate at New York, or originate at New York and terminate at Denver or points west. Detroit and Cleveland may not be served on the same flight.

►American Airlines—Application to consolidate AM 7, AM 21 and a part of AM 23 will be considered in a later, separate opinion, the Board said, inasmuch as it requires Presidential approval because AM 23 includes service to a Canadian point.

Applications of Braniff, Chicago & Southern, Colonial, and TWA, for service in the same general area were denied.



### WESTERN ORDERS DC-4'S and DC-6'S:

Donald Douglas (left), seated in pilot house of a C-54, holds contracts for post-war four-engine airliners. At right is William A. Coulter, president of Western Air Lines. WAL has just negotiated for five DC-4's and five DC-6's. Purchase price was close to \$5,000,000.



TWA, and Edward Sullivan of PCA, was appointed to deal with details of the plan, including such changes in Conference bylaws as may be necessary. Attention will be given particularly to avoidance of any bylaw amendments that would limit international operations. Two or three months are expected to be required to work out these details.

Under the new setup, passenger and cargo traffic divisions will each have authority to create necessary committees and subcommittees. With some exceptions, committees will have not more than five members and subcommittees not more than three.

## AAA Forms Brazilian Sales, Service Unit

All American Aviation, Inc., announces formation of a Brazilian sales and service branch known as Aparelhos Aeronauticos All American, S. A. (AAAA), which will modify aircraft to use pick-up equipment, provide engineering services, and undertake pilot training in Brazil. Financing of Aparelhos will be 51 percent American and 49 percent Brazilian.

The company presumably is an outgrowth of a recent trip to Brazil

made by Charles Wendt, All American's vice-president and treasurer, and Mrs. Richard C. duPont. Three All American employees, "Wally" Setz, "Bill" Eichlay, and Sherwin Willis, already are stationed in Rio de Janeiro, representing the pick-up firm's interest in its Brazilian affiliate.

► **Modification Job**—The first modification job to be undertaken by Aparelhos will be installing pick-up gear in the Junkers JU52 trimotors used by Aereos Cruzeiro do Sul, Ltda., Brazilian airline. Cruzeiro plans to operate combination passenger and pick-up planes in what may be the first commercial application of this type service outside the U. S. The line operates over 11,000 miles of routes in Brazil.

Other newly-launched Brazilian aviation enterprises include Linha Aerea Transcontinental Brasileira, S. A., which plans a feeder network throughout the republic; Viacao Aerea Santos Dumont, S. A., to link southern with northern Brazil; and Linhas Aereas Paulistas, S. A., which will interconnect central Brazilian cities.

## Bottlenecks to Get Test Control Units

Chicago, Washington, Atlanta and Seattle to install new experimental approach control equipment in move to speed handling of air traffic.

In a desperate effort to eliminate or at least alleviate critical air traffic bottlenecks at the four major centers of Chicago, Washington, Atlanta and Seattle, airlines and the Civil Aeronautics Administration are setting up experimental approach control equipment to speed landing frequencies at those points. It may be extended to other places later.

The step was decided on at a meeting in Chicago to cope with this winter's approach problems. Fan markers are installed at these airports and 3117.5 kilocycles will be used as a common voice frequency, on the ground as well as in flight, at the four points specified. Federal Communications Commission has indicated willingness to grant permission for this arrangement on a temporary basis, probably until next May, in a limited number of places.

► **Time Saver**—All air carrier aircraft are equipped to send and receive on this frequency, hereto-

fore assigned to flight only. Its common use, coupled with employment of CAA's fan markers for holding points and fixes, is expected to speed the process of getting the planes on the ground from the various legs of the ranges.

A factor in selection of cities where the system is to be tried out was the need for simultaneous range and voice facilities that could be used for military planes not equipped for 3117.5 kc.

Seriousness of the problem is evident from CAA's policy of closing traffic control areas to incoming commercial flights, a policy that has been employed increasingly as congestion at major air centers has become more acute.

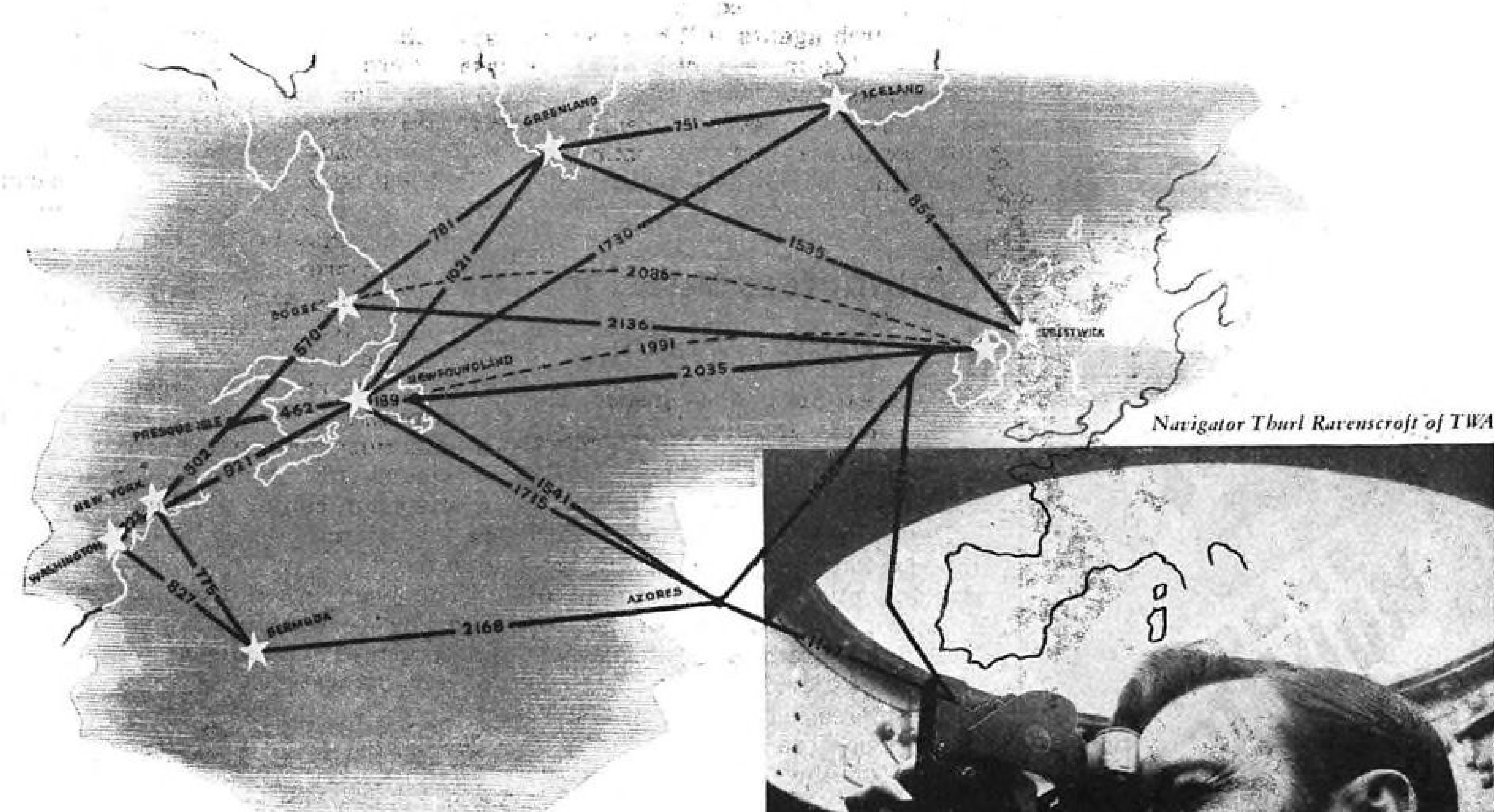
## Harvard Port Study To Take Over Year

Examination of management and financing problems main objective of Graduate School of Business Administration investigation.

The study of airport management and financing being made by the Graduate School of Business Administration of Harvard University may require at least a year for completion, early reports indicate. The project was approved last September by an advisory committee of industry and government leaders.

Among its objectives are examination of economic aspects of airport ownership and operation; study of business administrative aspects of airport operation; analysis of airport expenses, budgetary control procedures and development of principles to guide cost allocation charges, including an equitable basis for airline charges; exploration of revenue sources and standards for measuring degree of development of potential revenues; selection and training of management personnel; and to what extent airport ownership and management is a federal, state or municipal function, public utility or a commercial venture, including questions of possible ownership and operation by principal commercial users.

► **Case Studies Made**—The research is starting with case studies of different airports of varying characteristics, dealing with history, practices and various problems. Predictions are that it will be at least six months before any results can be made public, and during most of the year expected



Navigator Thurl Ravenscroft of TWA

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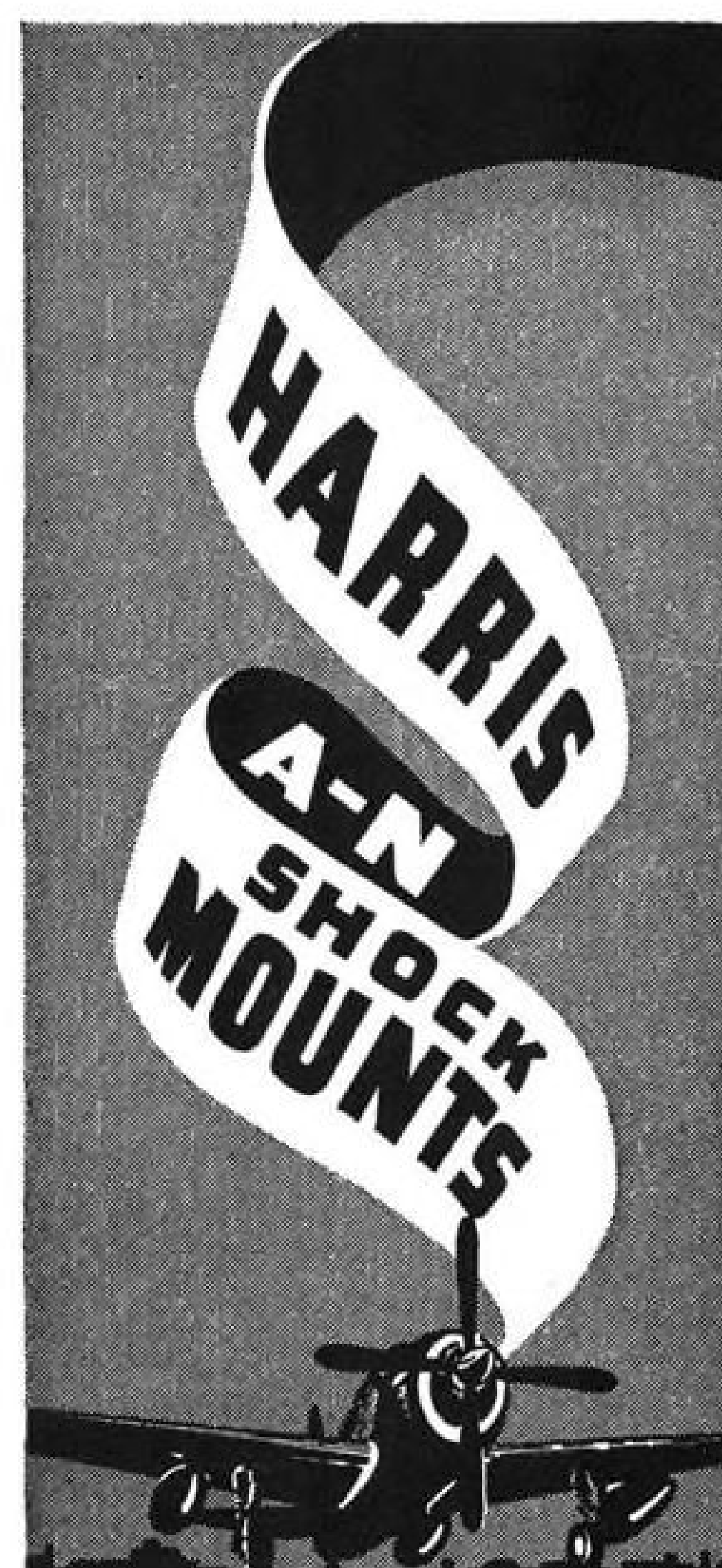
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## NEW TWA VACUUM JUG:

Picture shows Walter Y. Brown, assistant superintendent of TWA ground service, with new type beverage jug, designed under his direction, to serve carbonated beverages or thick soup on planes at 20,000 feet or higher. Of stainless steel, the jug maintains constant pressure on the liquid regardless of change in altitude. Seams are electrically welded.





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to be required, at least four research agents will be needed to assist the man in charge of the case investigations. Lynn L. Bollinger, director of aviation research of the graduate school, launched the study.

## Commerce, Interior Join Policy Fight

Support State and Justice Departments in opposing chosen instrument airline for U.S. flag operations.

Departments of Commerce and Interior have joined State and Justice in opposing establishment of a chosen instrument airline for U. S. flag operations in international air transport.

Commerce expressed its views in a report to Chairman Josiah Bailey of the Senate Commerce Committee. The Interior protest was filed as a brief in the Civil Aeronautics Board's Latin American case.

Commerce Department's report, embodying its views on the McCarran bill for creation of an "All American Flag Line," maintained that "an aggressive and progressive" U. S. international aviation policy requires that "more than one group of American managerial and technical brains be permitted to operate independently in the international air transport field."

► **Opposes Monopoly** — The report pointed out that monopoly was inconsistent with American economic tradition, and recommended that international air transport be placed in the hands of a limited number of companies, regulated by CAB, and non-competitive among themselves over parallel routes except where traffic warranted.

Foreign competition, it held, is not an effective stimulus to technical and service improvements, nor does it assure simultaneous development of new transport aircraft by a number of U. S. manufacturers. To guarantee the fullest development of our international air transport, several American carriers are required.

"In fact," the report stated, "the achievements of foreign airline monopolies, whether government-owned or privately-owned and closely controlled by the government, are not such as to encourage this country to emulate that form of organization."

► **Caribbean Problem**—The Department of the Interior, in its role as

administrator of Puerto Rico and the Virgin Islands, urged the Civil Aeronautics Board, in its consideration of the Latin American case, to improve the economic position of the Caribbean possessions by authorizing increased air service, preferably to be performed by more than one carrier where a need for more than daily flights existed. Carriers who serve Puerto Rico only as a link in a larger route system cannot meet the Island's requirements, the brief stated. The problem of inter- and intra-island service should be met by a carrier whose main center of operations is in the islands, rather than on the mainland.

The brief asked that local service be certificated immediately, inasmuch as such service would be purely domestic.

## Sees Plane Devices Cutting Runways

Lockheed's Chief Engineer Hibbard tells Hollywood conference how swivel wheels and other advances may reduce size of field and length of runway.

The largest trans-ocean airliner now contemplated will have no need for airport runways longer than 5,750 feet, a widely-known aviation engineer told the California Aviation conference in Hollywood in a preview of plane and port possibilities.

Observations and predictions made by Hall L. Hibbard, Lockheed Aircraft Corp. vice-president and chief engineer, were particularly timely in view of Civil Aeronautics Administration's recent recommendation to Congress of a huge airport program. CAA officials are known to be wondering how extensively each airport project should be developed in view of recent plane devices, notably landing gear that permits crosswind landings.

► **Single Runway Ports**—Hibbard warned airport planners against needless airport investments, and urged consideration of the possibility that in the near future single runway airports may become wholly adequate. Tests have shown, he said, that the O. F. MacLaren patent landing gear (British), which rotates the axis of wheels to permit safe crosswind landings, is practical for airliner use.

As a guide for cities planning airports, Hibbard gave the runway lengths he believes should be

"maximum" at sea level for specific types of airline usage. These were 4,150 feet for a feeder airport for twin-engine aircraft such as Lockheed's *Saturn*, 4,850 feet for a domestic airport for airlines using four-engine transports of the *Constellation* type, and 5,750 feet for a trans-ocean airport for 200,000 pound airliners. He explained that his estimates were based on airliners meeting all Civil Air Regulation requirements.

► **Reversible Pitch Prop Factor**—Declaring that he sees no likelihood that the runway lengths he specifies ever will have to be extended, Hibbard said factors assuring airliner operations in those limits, despite contemplated increases in airplane size and loads, are the reversible pitch propeller "which will be standard equipment on all airliners in the future," takeoff assisting devices, and radical development in high-lift wings.

He predicted that future wings using new boundary layer control methods will possess "three times the lift of any wing we have today. He was positive in his prediction of transport aircraft that will operate at speeds exceeding 450 mph. with jet propulsion, and insisted that the airport lengths he cited will be "perfectly satisfactory for the jet planes of the future."

While Hibbard is convinced that the helicopter will be the personal aircraft of the future, and predicts a five-passenger helicopter with a 250 mph. cruising speed, he believes its development is 10 to 12 years distant. In the meantime, he suggests cities press their development of airports and landing strips for the personal planes that will be in use.

## Huge Secret Port In Canada Completed

Newly off the secret list is North America's largest airport, a four-mile-square field operated by the U. S. Army Air Force outside of Edmonton, Alta., used partly for lend-lease aircraft flying to Russia.

After more than a year, the airfield was completed by the Army and went into operation at the end of November. It is to be turned over to Canada after the war.

► **Accommodates Largest Planes**—The airport is 10 miles from Edmonton and can accommodate the largest aircraft being built or contemplated, Army officials say. Two

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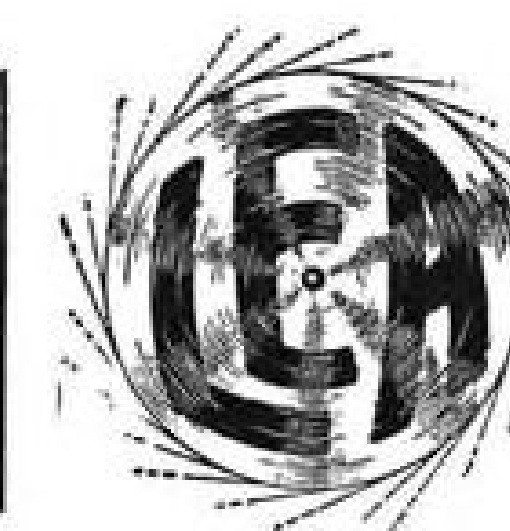
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runways are 7,000 feet long, and the port has nothing higher than farmers' barns on its 10 mile approaches. Costing \$7,000,000, it was paid for by the Canadian government in last summer's deal whereby Canada took over for \$77,000,000 all airports and landing strips built by the U. S. in the Dominion.

## Marketing Stressed By Aviation Speakers

Moore of Braniff discusses post-war merchandising of air transportation; Curtiss-Wright's Passen describes marketing research procedure.

Marketing problems and their solution, discussion topics for any commercial enterprise, are receiving mounting emphasis by air transport and aircraft manufacturing industries.

Recent examples of this attention are speeches by two men before the recent American Marketing Association meeting in Chicago. Henry B. Moore, director of research for Braniff Airways, discussed the post-war marketing of air transportation. Alan Passen, of Curtiss-Wright's Business Research Department at Buffalo, talked about the place of market research in the design and sale of transport aircraft.

► **Urges Rate Cut**—Moore finds it not surprising, in view of high express rates, that cargo now goes by air mostly for only three reasons: emergency delivery; maintenance of smaller inventories, especially of products of high unit value; and wider markets for perishables. "Cargo rates," he says, "must be reduced to a point somewhat below anything which, to my knowledge, is being seriously considered, if there is to be any major increase in volume of cargo handled by air."

How willing, "several hundred thousand potential customers," familiarized with air transportation by the war, will be to buy such transportation depends on the type of product, and here Moore says speed alone will not sell air transportation to the mass market, especially when slow surface transportation counteracts.

But whether air transportation is developed by the airlines as a mass or as a luxury service, this expert feels, may be a basic factor in determining who will be able to buy air transportation. Probably it will be both. Fares are another factor, but he doubts that

they will be under 4 cents a mile for domestic air travel in the immediate post-war period.

► **Travel Expenditures Factor**—While there hasn't been much research to find out what minimum income level makes a regular air travel customer, it is known that travel expenditures are a fairly constant percentage of the gross national product. There have been predictions that of a gross national product in 1946 of \$165 billion, 2.52 percent, or \$4,159 million will go for travel. Distribution of this sum among the different methods of transportation is a question the air transport industry must answer, Moore believes, if it is to know the size of its post-war market.

Passen described market research as a new field with new influences on prognostications, among them the increase in acceptance of air transport as a routine way of travel; accelerated progress technologically; introduction of improved and more attractive equipment; the probable rapid increase in route extension. The influence of lowered rates effected along with safety and dependability through technological advances he feels is particularly important in an overall market estimate of demand for transport aircraft.

► **Breakdown**—When it comes to breakdown of that demand by type and size, the three primary considerations are traffic volume, schedule frequency, and operation range. Secondary considerations are consumer preference, airport characteristics and terrain conditions.

Passen favors greater frequency of schedules, in some instances "streetcar frequency." Advantages of speed, flexibility and quick turnaround, says Passen, are well known to the airlines. There was an increase of 55 percent in overall frequency between 1936 and 1941.

"It would seem that if air transport is to continue to capitalize on its inherent advantages it should maintain or perhaps exceed this established trend of increasing frequency of service."

► **Short-Haul Traffic**—In connection with range of operation, Passen pointed out that most domestic air travel actually is fairly short-haul, before the war averaging about 450 miles per passenger trip. Popular impression, he comments, is that most air travel is long-haul. But in September, 1940, over 80 percent of total passenger miles

flown was in hops of less than 500 miles, and seven of the 16 domestic airlines did not have a single hop over 300 miles long.

From this he concludes that even with allowances for some increase in the average range of post-war operations, a plane that can give best performance on ranges up to 500 or 600 miles will be most suitable for "by far the greater part" of the traffic.

## CAL Asks Extension To St. Louis, Chicago

Announces negotiations are in progress for four-engine aircraft to operate route.

Continental Air Lines has applied to Civil Aeronautics Board for extensions of AM 60 from Kansas City to St. Louis and Chicago, and announced at the same time that negotiations for four-engined aircraft with which to operate the segments if granted were already in progress. Robert F. Six, Continental's president, did not specify the manufacturer or manufacturers of the "several million dollars worth" of planes his line proposes to acquire.

► **WAL Agreement Possible**—Continental's bid for entry to Chicago give rise to some speculation in industry circles regarding possibility of a Continental-Western Air Lines interchange agreement, operated at Denver to form a Los Angeles-Chicago link. Some observers pointed out that United Air Lines' blunt refusal to undertake any further interchange with Western might easily cause the latter to seek a similar agreement with a non-competitive carrier.

Continental also announced retention of Leslie Craven, a partner in the New York law firm of Willkie, Owen, Otis, Farr and Gallagher, as counsel for the line, replacing Terrell W. Drinkwater, who has joined American Airlines. Craven has represented, among others, American Export Airlines and Western Air Lines.

## Norseman Control Clarified For CAB

Closing sessions of Civil Aeronautics Board's New England hearings were marked by assertions of American Airlines officials that applications of Colonial and Eastern as well as non-operating applicants were designed to divert

## Limited Utility

Ralph S. Damon, vice president and general manager of American Airlines, recently told the Detroit Rotary Club:

"The airplane of the future, whether in cargo or passenger service, will be limited in utility primarily for reasons of economic soundness and therefore, its cargo will be limited. More than 9/10 of the cargo now carried by surface transportation will still be carried by surface carriers, even when the air transportation system reaches its fullest expansion."

traffic from existing carriers. Ralph Damon, American's vice-president, stated that recent certifications had given southern New England all the service required.

The question of control of Norseman Air Transport, an applicant organized by a group of servicemen and backed by three Connecticut businessmen, was clarified somewhat when an agreement was submitted for the record to show that the voting power of the backers would not exceed the votes of the service personnel.

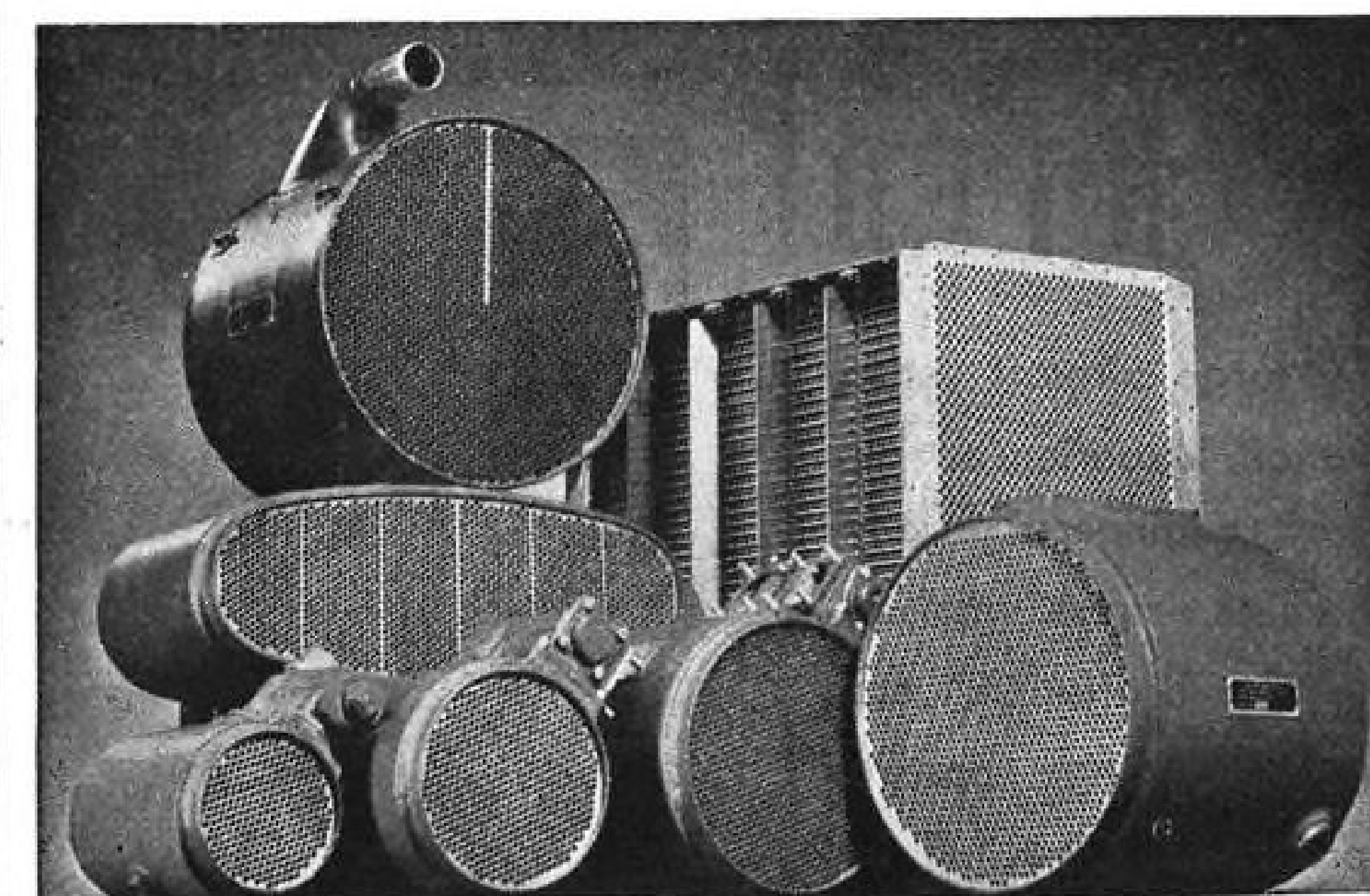
## New VHF Equipment Is Tested by CAA

Airline pilots and officials see demonstration at Indianapolis Experimental Station.

A static-free Very High Frequency radio range designed to register the course bearing of a plane on an instrument in the cockpit, has been designed by engineers of the Civil Aeronautics Administration's Technical Development Division. The new range equipment has been demonstrated to airline pilots and officials at CAA's Indianapolis Experimental Station, where it is undergoing final testing.

The new VHF range represents a departure from previous radio navigational aids in that it emits course signals in all directions instead of the usual four in low frequency ranges and two on the so-called 2 course aural VHF range. Like low frequency ranges, the new type is equipped for voice transmissions, but its static-free properties make it much more dependable.

► **Procedure**—The new type range permits a pilot to select a compass



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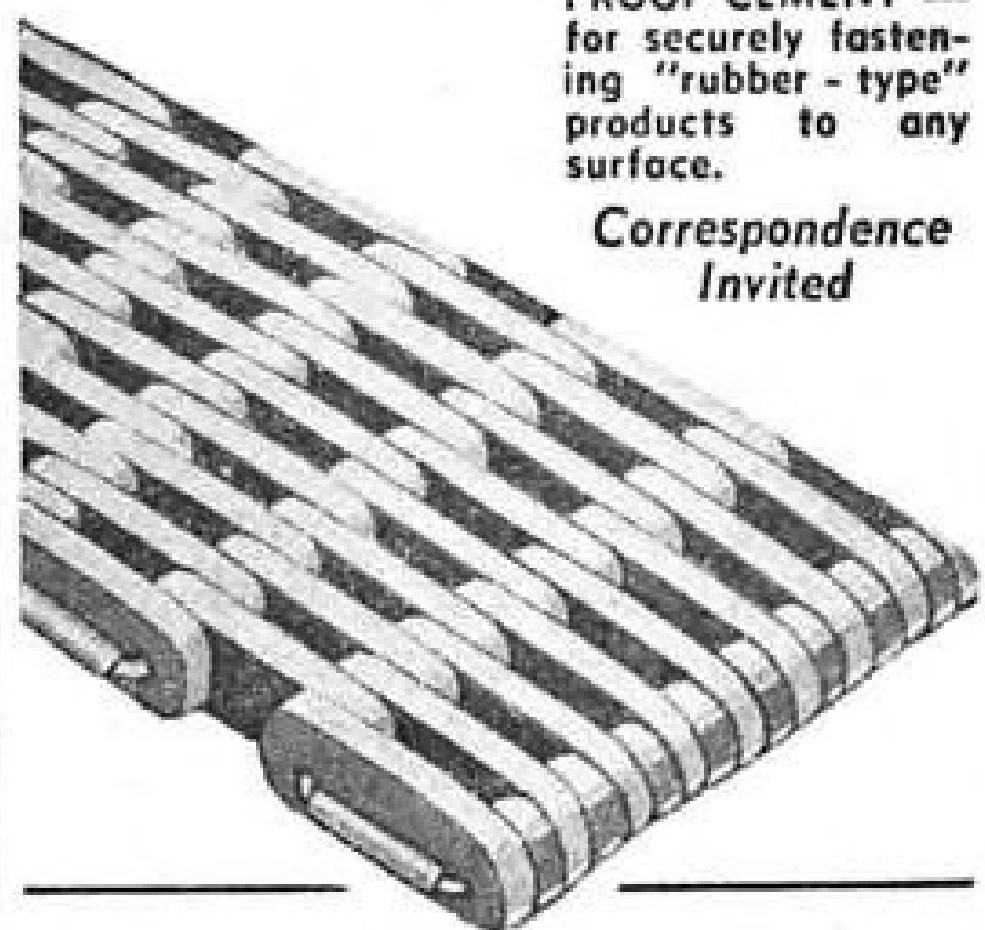
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course by setting a pointer on a 360 degree dial. As long as he maintains this course, a vertical pointer on another dial—usually the standard cross-pointer instrument landing device remains centered. Deviations from the desired course are registered to right and left to a maximum of 10 degrees by the latter instrument. The same system works in reverse. By centering the vertical indicator and reading the bearing on the degree scale, a pilot can determine his position in relation to a given range station. It is also possible to plot fixes by bearings from two or more stations.

At 1,000 feet the new range can cover a distance of 50 miles; at 10,000 feet this increases to 100 miles. All VHF 2 course aural ranges now being installed are designed for rapid, inexpensive conversion to the all-directional VHF type.

**Small Plane Possibilities**—The equipment presents encouraging possibilities for private pilots of small planes equipped with light weight inexpensive radio receivers by permitting radio navigation without extensive radio training.

The new equipment was developed independently by CAA's engineers, but it is understood that Army and Navy communications experts are studying its potentialities.



### BLOOD REFRIGERATOR:

Naval Air Transport Service planes ferry "live" blood in the portable refrigerators of the type shown above on daily schedules across Pacific routes to combat zones. Developed by Navy, the container is insulated with Fiberglas. Glass jars containing whole blood are enclosed in an ice-filled metal inner container.

## TCA Tests Auxiliary Electrical Fuel Unit

Trans-Canada Air Lines reports "considerable success" in experiments with an auxiliary fuel system on its aircraft. Operated electrically, the system is independent of the main engine-drive fuel system.

Other changes being made by TCA, beyond the experimental stage, include modification of the wing structure on its Lockheed 14-08's so that outer wing sections are interchangeable on all TCA craft. By allowing replacement of wings at overhaul time, this means a complete wing reconditioning without long periods out of service.

**Plastic to Replace Glass**—On the same planes, TCA is planning to replace window glass with plastic. Weight saving will amount to 23½ pounds per ship and the change is expected to cut breakage in half.

The line announced last week that it now has five converted Lancasters assigned to trans-Atlantic carriage of service personnel and mail. During October, with 14 of these flights eastbound from Montreal and 13 westbound from Scotland, 117 passengers, 22,568 pounds of freight and 121,912 pounds of mail were moved.

### CAB ACTION

• TWA's request for rehearing the Memphis-Oklahoma City-El Paso case, in which American Airlines was awarded an El Paso-Oklahoma City-Tulsa-Nashville route, has been denied by CAB. On its own initiative, however, the Board reopened for further argument two portions of the proceeding in which American Airlines and Continental Airlines applied for permission to serve Wichita Falls and Lubbock, Texas. Both cities, though not parties to the case, had petitioned the Board for further hearing on air service authorizations.

• The Board rescinded a temporary suspension order to permit Eastern Air Lines to serve Evansville, Ind., as an intermediate point both on AM 47 between St. Louis and Nashville, and on AM 10 between Nashville and Indianapolis. Service to Evansville on AM 10 is performed under a temporary exemption order which will expire as soon as Chicago and Southern is ready to serve that point on AM 53.

• CAB orders in the New England Case dismissed applications of Walters Air Lines, Inc., and Clayton L. Palmer, doing business as Palmer Airlines, the former at the applicant's request and the latter for failure to exchange exhibits. A petition of the State of Connecticut to intervene was granted, but a similar request by the Hartford Chamber of Commerce was denied.

• Braniff Airways' application to include Ottumwa, Iowa, as intermediate point on AM 9 between Kansas City and Chicago has been dismissed by CAB at the carrier's request.

• Board refused to authorize a non-stop request filed by National for service between Jacksonville and Miami on AM 31. Giving as its reason the assertion that such non-stop service would constitute a "substantial departure from the shortest course between such points as determined by the route described in the certificate," the Board notified National that it would not grant permission until the carrier had made formal application upon which hearings would be held.

• The U. S. Maritime Commission received

CAB permission to intervene in the North Atlantic route case (Docket 855 et al.)  
• An application of Midwest Haulers, Inc., for a non-scheduled freight service between New York and Chicago and other points, was dismissed by the Board at the applicant's request.  
• Eastern Air Lines' request to add Ocala, Fla., as intermediate point on AM 40 was dismissed by the Board at the carrier's request. The application had been consolidated with the Florida case (Docket 489 et al.)

### CAB SCHEDULE

Jan. 8, 1945. Tentative hearing date Texas-Oklahoma case (Docket 337 et al.).  
Jan. 10. Hearing date for South Atlantic case. Postponed from Nov. 1. (Docket 1171 et al.).  
Jan. 10. Preliminary briefs in Florida case due. (Docket 489 et al.).  
Jan. 10. Briefs due in Great Lakes-Florida case. (Docket 570 et al.).  
Jan. 15. Briefs in West Coast case due. (Docket 250 et al.).  
Jan. 22. Prehearing conference on applications within the general area of Virginia, North Carolina, South Carolina, Georgia, Alabama, and Tennessee.  
Jan. 22. Deadline for exhibits in the Pacific route proceeding. (Docket 547 et al.). Postponed from Jan. 12.  
Jan. 31. Rebuttal exhibits due in Pacific proceeding. (Docket 547 et al.) Postponed from Jan. 26.  
Feb. 1. Exhibits due in North Central States case. (Docket 415 et al.) Deadline extended from Jan. 1.  
Feb. 11. Tentative hearing in Pacific route case before Examiner Ross I. Newmann. (Docket 547 et al.) Postponed from Feb. 1.  
Feb. 12. Tentative hearing date for investigation of non-scheduled air services. (Docket 1501.)  
Feb. 20. Rebuttal exhibits due in North Central States case. (Docket 415 et al.).  
Feb. 20. Exhibits due in National Airlines rate case. (Docket 824.)  
Mar. 5. Hearing in North Central States case in Washington, D. C. (Docket 415 et al.).  
Mar. 12. Tentative hearing date in National Airlines mail rate case for AM 31 and AM 39. (Docket 824.)

### SHORTLINES

• Air Transport Association, in a recent resolution, is on record as opposing any change in the Civil Aeronautics Act concerning control of an airline by surface carrier interests.

• Aero Services, Inc., of Van Nuys, Calif., is modifying DC-2's for TACA, which recently was granted Brazilian permission to operate from Rio de Janeiro to Manaus.

• United Air Lines' Alaskan operation under contract with the Air Transport Command was terminated recently with the line having carried 33,500 military passengers, nearly 6,000,000 pounds of military cargo, and more than 2,500,000 pounds of mail during two years of operations. A total of 20,000,000,000 pound miles were flown during this period, with a performance record during 1943 of 96.2 percent.

## Ottawa-Washington Link Is Urged

Attorneys in oral argument in the Washington-Canada case told the Civil Aeronautics Board last week that a route between capitals of the two nations should be established, despite a seemingly unencouraging traffic potential, in the interest of friendly relations between the two countries.



### AUSTRALIAN STUDIES TRANSPORT MOCKUP:

Inspecting mockup of Curtiss CW-20 Commando at Curtiss-Wright's St. Louis plant is Jack Stubbs (left), chief engineer of Australian National Airlines. With him is Leroy Chadbourne of Wright Aeronautical Corp., contracts division.

## Translate AVIATION terms English to Spanish — Spanish to English quickly, accurately — with this handy, compact book

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## ENGLISH-SPANISH — SPANISH-ENGLISH DICTIONARY of AVIATION TERMS

By JUAN K. SERRALLES, Senior Instructor, Inter-American Department, Casey Jones School of Aeronautics. 131 pages, 5¼ x 7¼, \$2.50

In compiling this dictionary, the author has endeavored to make it completely inter-American, preference in the choice of words being given to strictly Latin American terms as against Spanish ones. Research included a large number of technical books and reviews, as well as consultations with graduate engineers, mechanics, and specialized translators. The book will be especially helpful in reading technical textbooks, manufacturers' literature, and reports, and in translating advertising, catalogs, and manuals.

With a view toward simplifying identification of the various branches of aeronautics and of the sciences related to flight, most terms are followed by an abbreviation in parentheses. Exceptions are words of purely mechanical significance, those whose translation is identical for all branches of aeronautics and the auxiliary sciences, and those terms whose classification is self-evident. Words having to do with helicopters and autogiros are less numerous and have a more complete abbreviation.

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## A Stimulant for Personal Aviation

THE PERSONAL AIRCRAFT COUNCIL of The Aeronautical Chamber of Commerce, representing the lightplane manufacturers, displays keen sensitivity to a suggestion by the new Administrator of Civil Aeronautics that the industry needs a prod.

In a press statement released Dec. 17 Mr. T. P. Wright expressed the opinion (1) that no government agency at present is providing an "occasional stimulant to industry in the development of civil aircraft;" (2) that funds should be made available through CAA for the purpose, although no concrete plans yet exist. He noted that the Civil Aeronautics Act charges CAA with "encouraging and fostering the development of civil aviation and air commerce in the United States and abroad. . . ." These points were merely part of a broad outline of possible future civil aviation policy in the immediate post-war period, which also included additional or improved airports, airways, flight training and education, and suggestions for expanding our commercial aviation business internationally.

The Administrator tried to make it clear that his outline goes beyond merely increasing the pleasure of the flying public and increasing the utility of the plane as a private business vehicle, but also affects our future national welfare. A healthy spurt in post-war civil aviation will contribute some business to the aircraft industry, which will need every aid to maintain maximum possible strength, and expanded private flying will build up a constantly available backlog of youth experienced to varying degrees in flying and ground service duties.

**I**T IS DISAPPOINTING to those who advocate a keenly competitive, aggressive lightplane industry that three days before the release was published, the manager of the Personal Aircraft Council of the Aeronautical Chamber of Commerce, after reading advance copies, hastily anticipated that some manufacturers would believe CAA "is delving into a phase of the development and manufacture of civil aircraft." He wrote the Administrator that "this may not have been the intention of the release in any way . . . I am sure that you will understand, however, that the manufacturers feel that the development and engineering of aircraft types is their individual responsibility and prerogative and that they believe that good, hard competition in industry is the answer to technological development. They, therefore, would probably jealously desire to retain this activity to themselves individually. It is their understanding that the CAA is an administrative agency and though the CAA naturally is much interested in development of improved aircraft types, it is not a procurement agency and therefore its interest is academic and not operative. One of the best methods of aiding and stimulating design and improvement might be through the careful revision of the airworthiness requirements system."

In his reply, Mr. Wright said the Council had "entirely misinterpreted" the release "which did not in any way intend to intimate that we were going into competition with the industry in the development of

aircraft . . . We do hope and had understood that it was your wish that we encourage and foster the development of civil aircraft for private owner use in every way possible and practicable. The exact means have yet to be developed. We had understood that your organization and others had wanted us to establish some sort of personal aircraft department or division in the CAA. Naturally, if such is done it will be expected that such a group take some kind of action or else it would seem inappropriate to include them in the organization." Mr. Wright explained, of course, that it is CAB which holds jurisdiction over airworthiness requirements, and not CAA, although CAA would continue to make recommendations to the Board.

**M**<sup>R.</sup> WRIGHT could also have pointed out to the council that a reading of the six year old Civil Aeronautics Act would show that Sec. 305 specifically empowers the Administrator "to undertake or supervise such developmental work and service testing as tends to the creation of improved air navigation facilities, aircraft, aircraft engines, propellers, and appliances," and for such purposes he may also, upon approval of the authority, "make purchases . . . of experimental aircraft, aircraft engines, propellers, appliances, air navigation facilities, and radio apparatus, which seem to offer special advantages to aeronautics." Since the 1938 act was passed, this section has been virtually ignored, but the new Administrator gives notice that "we sincerely feel that it is our duty to encourage and foster private flying" and that if government can operate as a stimulant or spur to further competition within the industry to develop more economical, cheaper, safer, utility lightplanes it will do so.

The Administrator is one of America's leading aircraft engineers. Until recently he has had the responsibility for coordinating and charting the schedules of the most complicated emergency production program the world has ever seen. He knows, as does the lightplane industry, that the plane now generally considered the most advanced model for the private pilot is five to seven years old, with few other manufacturers even relatively close behind.

WE BELIEVE that the administrator is right when he tells the personal aircraft council: "all in all, I really feel that the industry is possibly a little over-concerned with the prerogatives and a little too suspicious of activities on the part of CAA which have not been inaugurated." We are disappointed in the Council's hasty, ill-considered attitude. It might welcome the chance to match wits with Government. Certainly the buying public is the judge. Give it the widest choice of improvements. The more brains at work the better.

It is imperative that strong leadership materialize immediately to start maximum experimentation and development of personal aircraft. If industry does not take this initiative, this appears to be one occasion when Government will furnish the necessary prod. The public and the nation will benefit.

ROBERT H. WOOD



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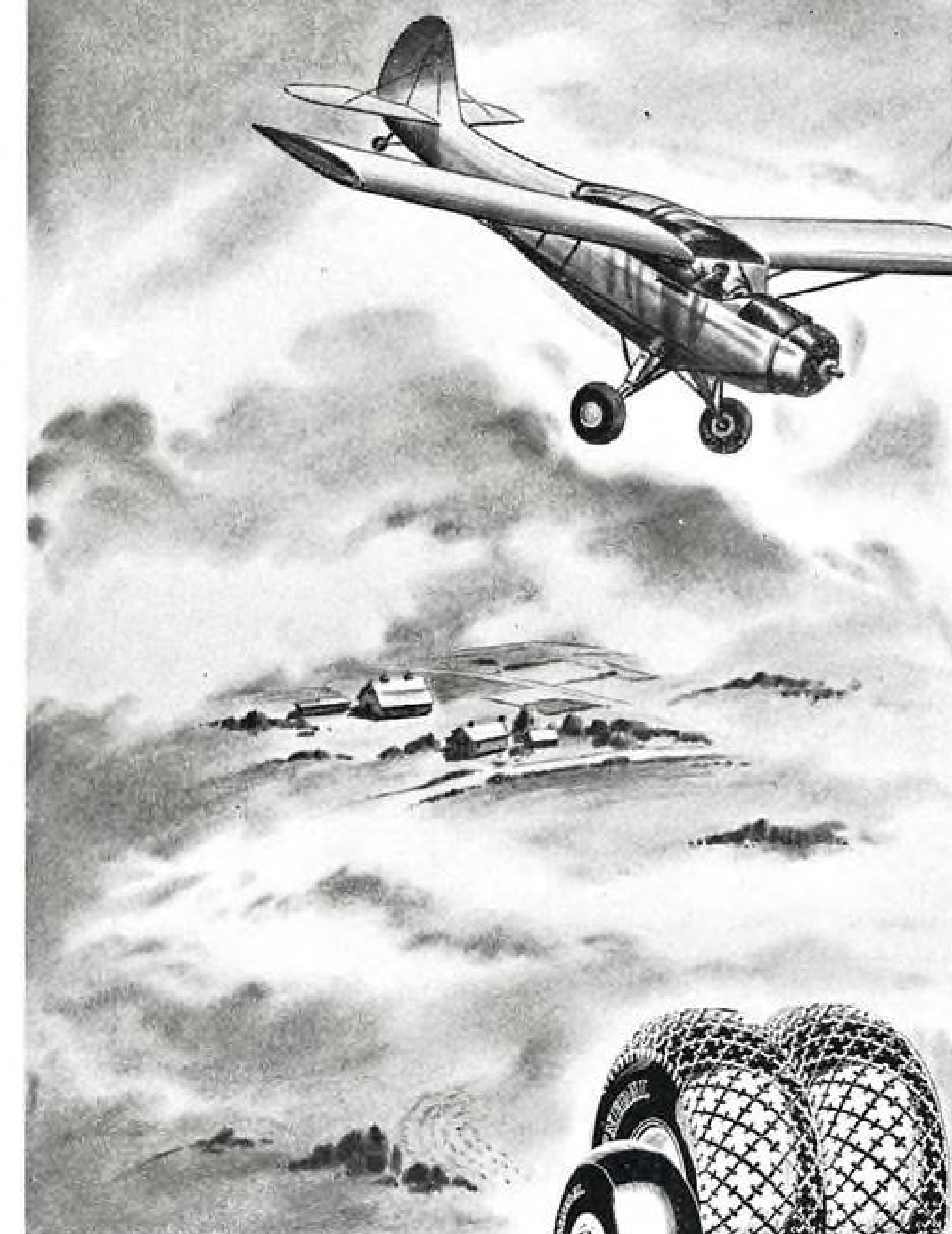
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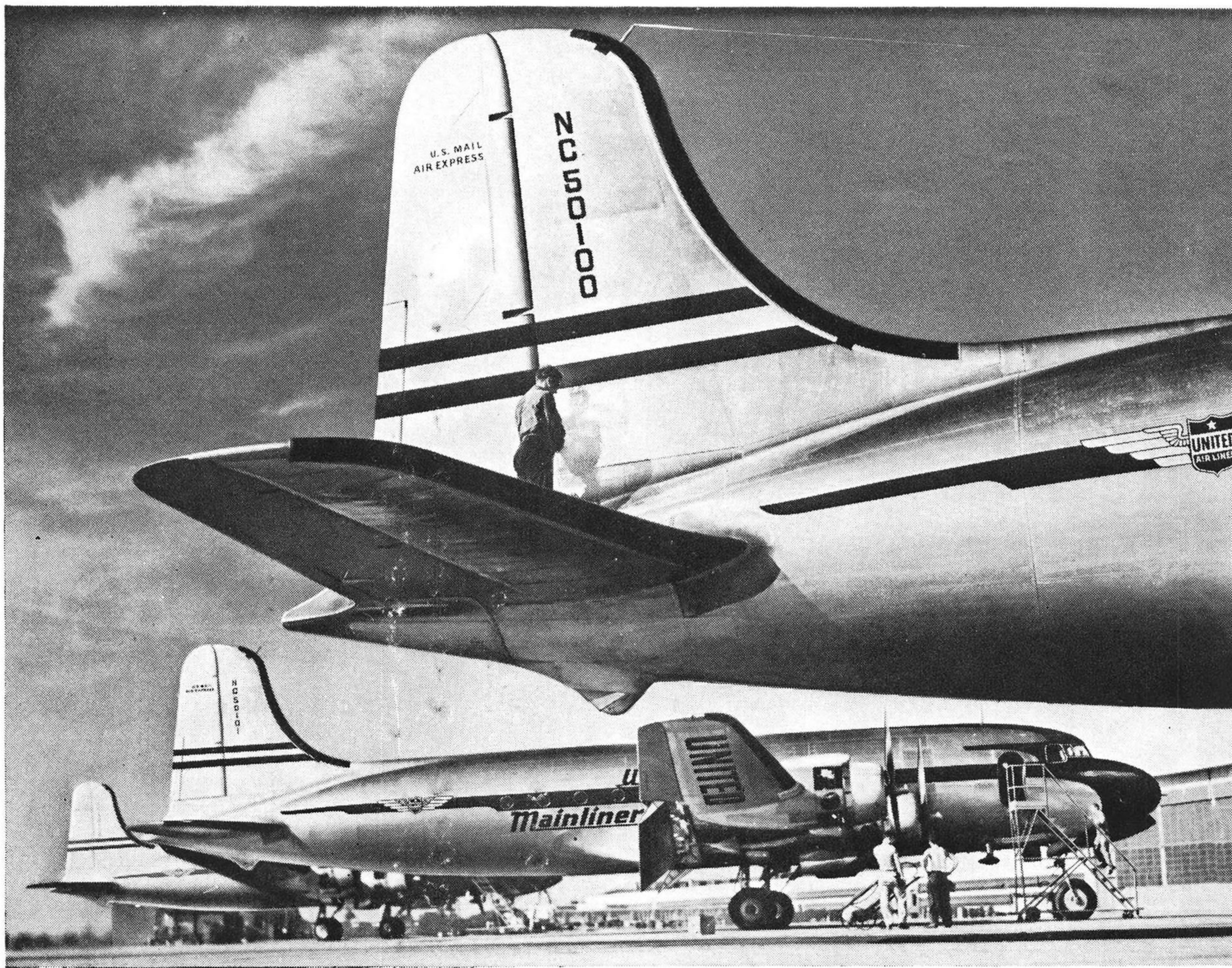
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