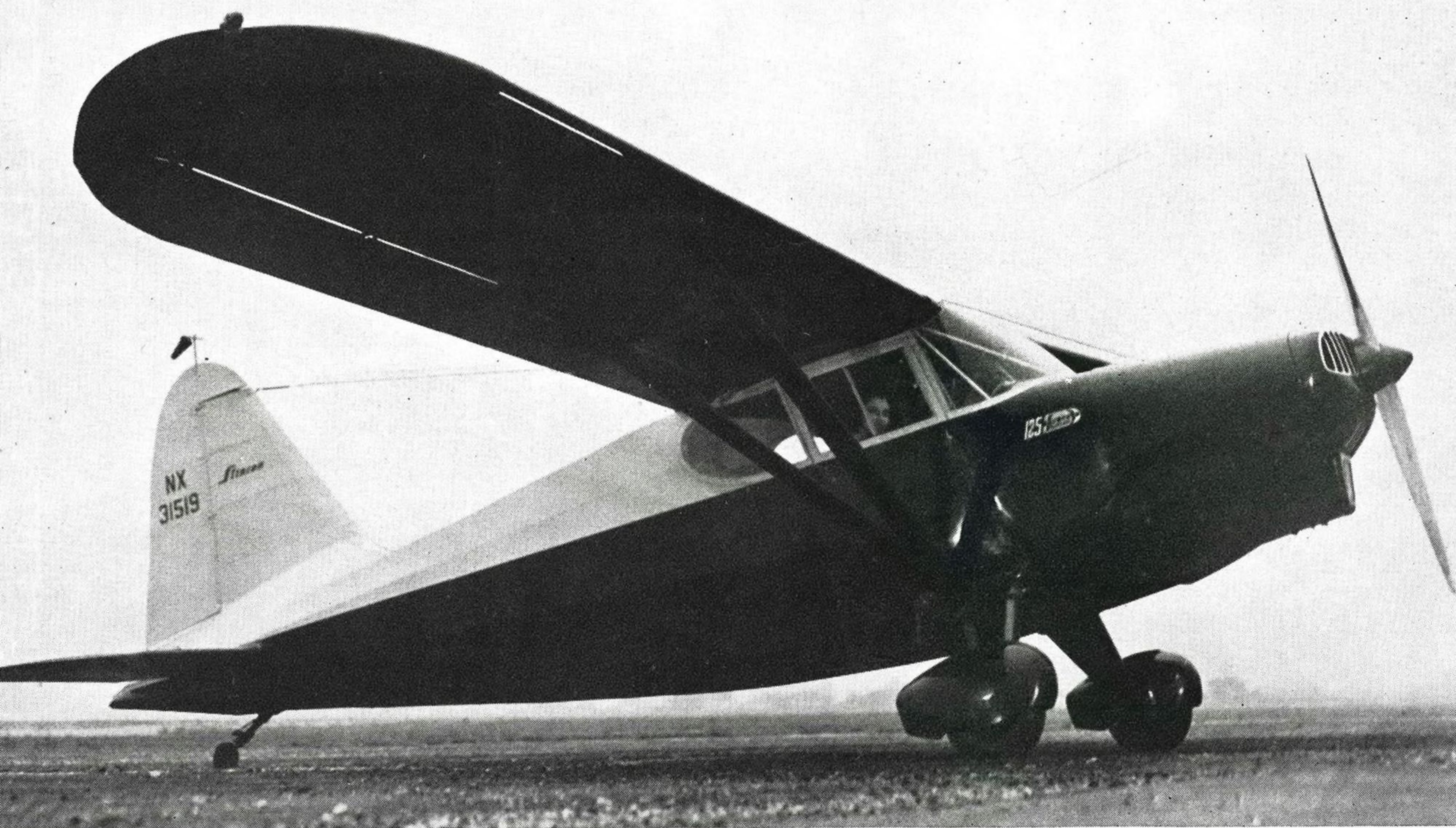


Aviation News

McGRAW-HILL PUBLISHING COMPANY, INC.

DECEMBER 18, 1944



Consolidated Vultee's Stinson Voyager 125: Ready for mass production as soon as material restrictions are relaxed, Convair's post-war personal plane combines features of the Stinson Army liaison plane with others of the pre-war Stinson Voyager 105. The result: a sleek, luxuriously furnished plane which will carry three with ample baggage, or four persons with small baggage allowance. Plane cruises at 112 mph., and has 470-mile range. Safety and reliability have been the major consideration in design, company officials report.

Lewis Reveals JP Research as Major Industry Activity

Discloses that a "very large number" of planes powered by jet propulsion and gas turbine units are being developed by Army and Navy...Page 35

State Legislatures Eye Aviation as New Tax Source

Official federal and state groups study situation with view to legislation; CAB committee works on multiple taxation problem...Page 45

Plants Taxed to Meet B-29, A-26, C-54 Schedules

Design changes and sharply increased requirements also factors in possible spread between output and military needs...Page 34

Distribution Main Hurdle in Surplus for Schools

Providing of tools, instructional booklets, teachers and other facilities for educational work in aviation are other serious factors...Page 7

Ask Reforms in Legislation, Personal Aviation Policy

NATA at its St. Louis meeting presses vigorously for federal action to eliminate useless rules hampering development of private flying...Page 11

CAA Research on Swivel Wheels May Revise Port Plans

Ability to make cross-wind landings, believed possible in projected post-war research, could simplify landing field needs...Page 15

KEN-RAD TUBES

HEART OF AIR COMMUNICATIONS

for every type of plane...



METAL RECEIVING



TRANSMITTING



Dependable transmission and reception under all conditions of military and airline service

KEN-RAD

AVIATION DIVISION
OWENSBORO · KENTUCKY
EXPORTS 15 MOORE STREET NEW YORK

• Write for your copy of "Essential Characteristics" the most complete digest of tube information available

TRANSMITTING TUBES
CATHODE RAY TUBES
SPECIAL PURPOSE TUBES

RECEIVING TUBES
INCANDESCENT LAMPS
FLUORESCENT LAMPS



GLASS RECEIVING



MINIATURE

THE AVIATION NEWS

Washington Observer

U.S. CHAMBER ON AVIATION—There are indications that the policy of the United States Chamber of Commerce which endorsed steamship line participation in air commerce last year on the recommendation of its Transport Committee, may be put to another test this year. There were strong, but ineffective revolts against the stand by Pan American and domestic airline members of the body at that time. The Chamber, generally, has stood on a platform of maximum freedom of the air as far as air policy goes, and supported a policy of regulated competition, with steamship participation as far as airline policy goes.

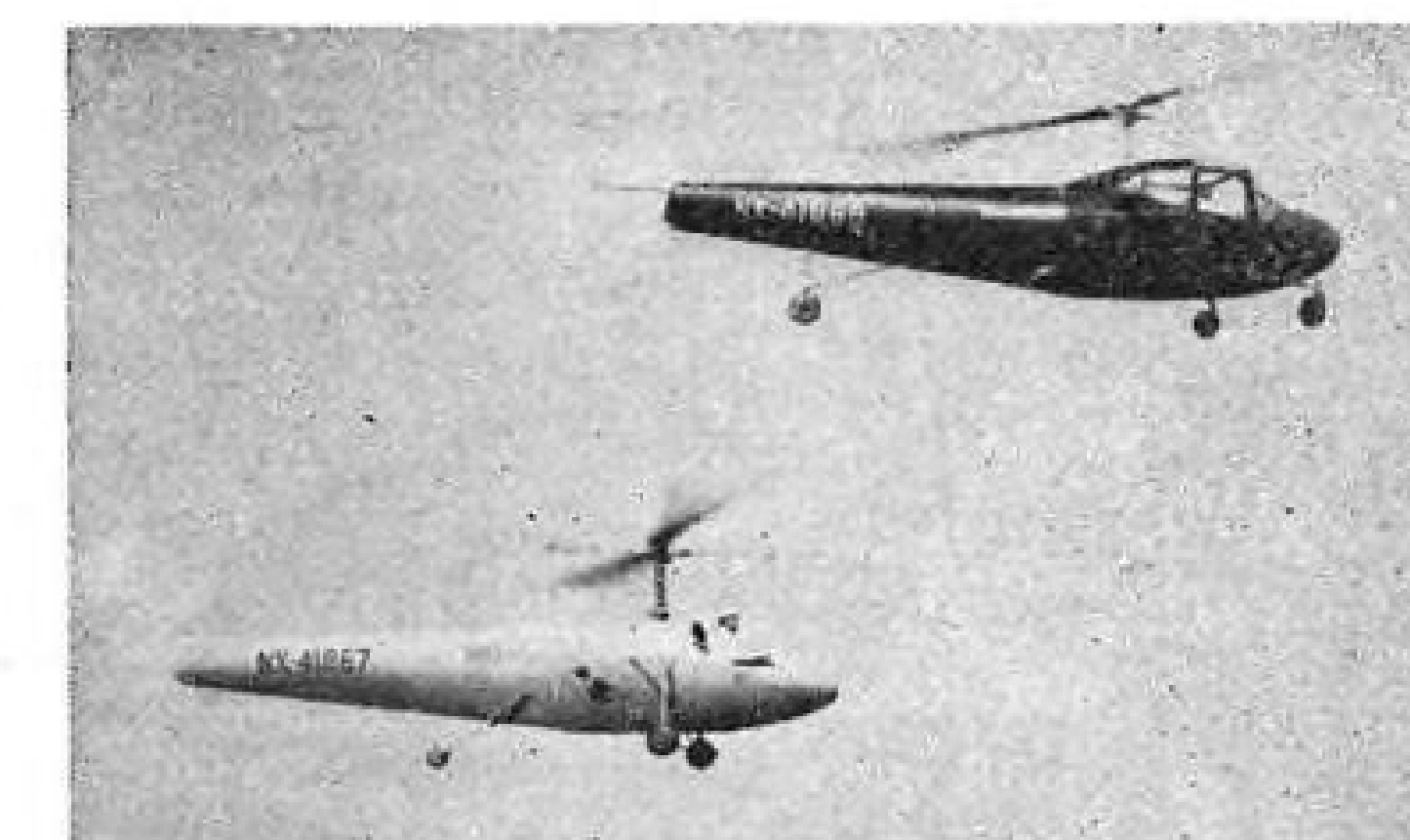
★

ENDORSES CHICAGO RESULTS—The Chamber's Committee on International Transport last week endorsed the principles adopted by the International Civil Aviation Conference. Business judgment as reflected in past expression of National Chamber policy has indicated such a stand. Chairman of the Transport Committee is William K. Jackson, vice-president and general counsel of United Fruit and a vice-president of the Chamber. Aviation men on the committee of 24 members are J. C. Cooper, Pan American; Jack Frye, TWA; W. A. Patterson, United; J. E. Slater, American Export; S. J. Solomon, Northeast, and Harry Woodhead, Consolidated Vultee. Ralph Damon, of American, a member of the committee last year, has resigned. Damon and Solomon filed a minority opinion last year to the Chamber's resolution stating that they supported steamship participation only to the extent provided by existing law—which isn't much.

★ ★ ★

NEWFOUNDLAND—Last minute withdrawal by the British of Newfoundland participation in the world aviation agreement, ostensibly because of doubt of its status, is but

another phase in the horse-trading game the English are forcing in international air. Newfoundland is a Crown Colony, but is in a form of empire bankruptcy that gives the British control of its international and internal relations. It also is the probable focal point for North Atlantic operations.



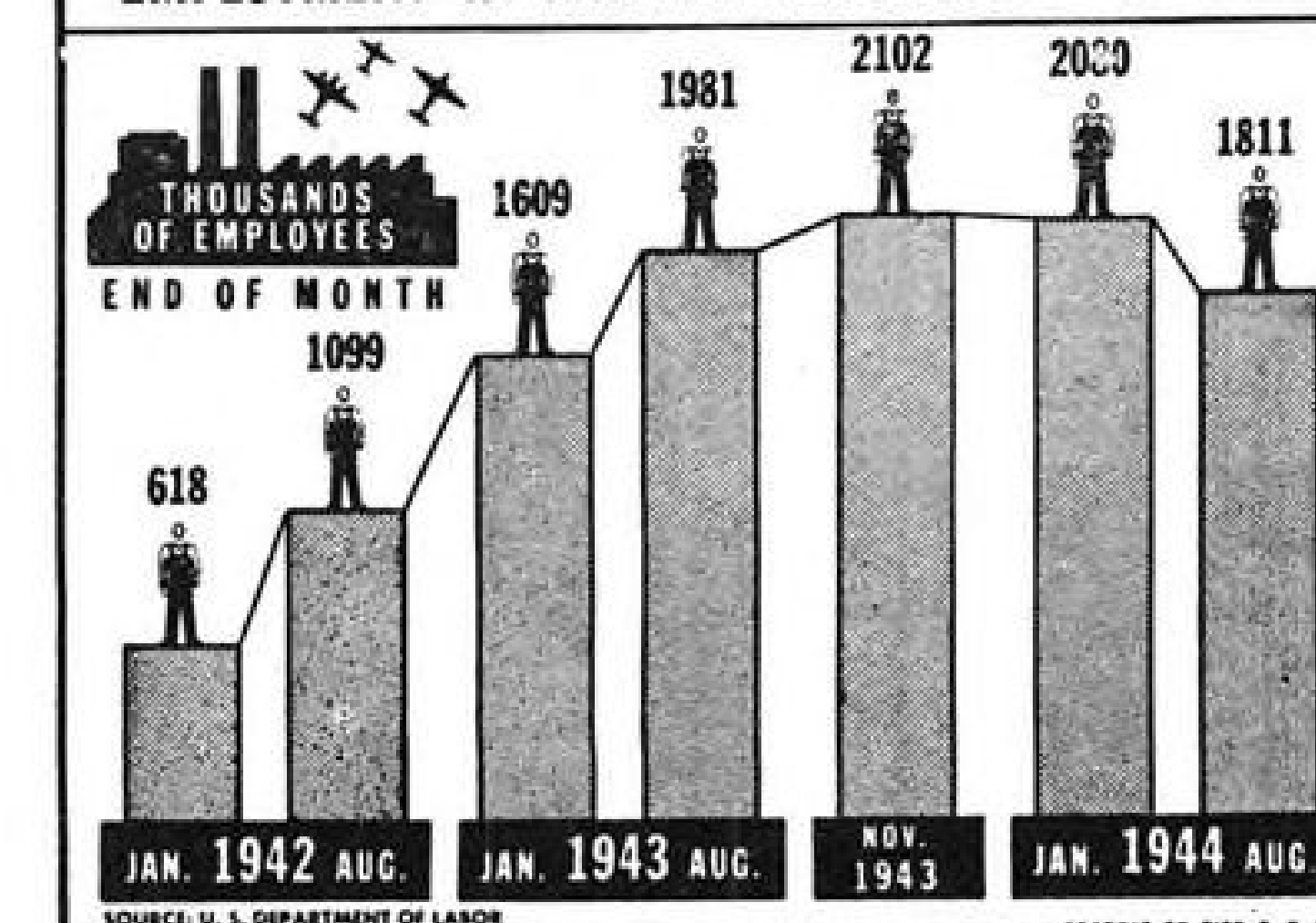
Two Bell Helicopters—Lower version, seldom photographed, was first in series. Stabilizer bar that gives Bell ship its high stability shows under rotor blades. Five-place model is on way.

CHIEFS OF STAFF—Only point on which agreement was fully reached in the Woodrum Post-war Military Policy Committee hearings last summer—that a permanent Joint Chiefs of Staff organization is desirable—is being implemented by the introduction of legislation. Chairman Carl Vinson (D., Ga.) of the House Naval Affairs Committee and Chairman Andrew May (D., Ky.) of the Military Affairs Committee, have simultaneously introduced bills giving the Joint Chiefs of Staff permanent status in the nation's military organization. The organization now operates under executive order and would be disbanded six months after the war. Action is expected immediately after the first of the year.

★

VITAL FUNCTION—More than meets the eye is involved in the legislation. It does not mean any unification of the services, a point which many experts doubt would be at all efficient, but it does assure coordination and permits maintenance of the principle of joint command down through both services. But beyond that, there will be many phases of this country's participation in the post-war world that will require constant attention to national policy on the part of the services at a level with State Department functioning. That is probably behind this latest move, which serves notice on the world that the joint chiefs are working as a continuing team in the international power picture.

EMPLOYMENT IN AIRCRAFT INDUSTRY PAST PEAK





SPACE to Grow Bigger

Western United States has 58 per cent of the land area of the country, yet it houses only 13 per cent of the people. With new power resources, new industry, new water that will reclaim millions of arid acres, it holds out great opportunity for man to capitalize on land, his primary source of wealth. For, besides the soil that grows food and fodder, the West now has big industry.

The great distance of the West would work a hardship on agriculture and industry were it not for air transportation...air service built to meet the needs of the West. Western Air Lines is the West's own airline. Born 18 years ago in the West, it has grown big in the job of serving the West. It knows the expanding economy of the West—the pressing need to keep pace with the population shift westward. Western Air will continue to effectively serve the land and the people of the West.

GENERAL TRAFFIC OFFICE: 510 WEST 6TH STREET, LOS ANGELES 14, CALIFORNIA

WESTERN AIR LINES

AMERICA'S PIONEER AIRLINE

AVIATION NEWS

THE STAFF

GEORGE W. PFIL.....Publisher
ROBERT H. WOOD.....Editor
C. SCOTT HERSHEY.....Managing Editor
JEROME BUTLER.....Copy Editor
MERLIN H. MICKEL.....Transport Editor
DANIEL S. WENTZ II.....Transport
MARY PAULINE PERRY.....War Agencies
WILLIAM G. KEY.....Special Assignments
BLAINE STUBBLEFIELD.....Special Assignments
MARTIN V. MERRITT.....New York Editor
SCHOLER BANGS.....Pacific Coast Editor
ALEX MCSURELY.....Private Flying Editor
DALLAS MALLARD.....Art Director
ANDREW B. MARTIN.....Sales Manager

CONTENTS

	PAGE
Washington Observer	3
Headline News Section	7
Private Flying	16
Air War	23
Personnel	24
Financial	30
Production	34
Transport	39
Editorial	50

THE PHOTOS

Consolidated Vultee Aircraft Corp., Cover, 7, 17, 34; Bell Aircraft Corp., 3; British Combine, 8; U. S. Navy, 9; Taylorcraft Aviation Corp., 16; U. S. Army Air Forces, 23; Wide World, 35; General Electric Co., 36; Boeing Aircraft Co., 39; Harris & Ewing, 45.

Editorial Headquarters,
1357-63 National Press Building,
Washington 4, D. C.

Publication and Executive Offices,
330 W. 42nd St., N. Y. 18, N. Y.

Pacific Coast Office, 621 So. Hope St., Los Angeles

Copyright, 1944, Vol. 2, No. 21. Published weekly by McGraw-Hill Publishing Co., Inc., price 50c a copy. Allow ten days for change of address. Subscription rates—United States, Mexico and Central and South American countries, \$5 a year, \$8 for two years, \$10 for three years. Canada, \$6 a year, \$10 for two years, \$12 for three years. All other countries \$9 a year, \$14 for two years, \$18 for three years. Entered as second-class matter July 31, 1943, at the Post Office at New York, New York, under the Act of March 3, 1879. Printed in U.S.A. Cable Address "McGrawhill, New York."

James H. McGraw, Founder and Honorary Chairman; James H. McGraw, Jr., President; Howard Ehrlich, Executive Vice-President for Business Operations; John Abbink, Executive Vice-President for Editorial Operations; Curtis W. McGraw, Vice-President and Treasurer; Joseph A. Gerardi, Secretary; J. E. Blackburn, Jr., Director of Circulation, 330 West 42nd Street, New York 18, N. Y. Branch offices: Chicago, 520 North Michigan Ave.; San Francisco, 68 Post Street, Los Angeles, 601 W. Fifth Street; Aldwych House, Aldwych, London, W. C. 2; Washington: Philadelphia; Cleveland; Detroit; St. Louis; Boston; Atlanta. Return Postage Guaranteed.

Advertisers Index

Allison Div. of General Motors.....	38
Bell Aircraft Corp.....	6
Boeing Airplane Co.....	25
Eitel-McCullough, Inc.....	37
Ethyl Corporation.....	21
Fairchild Engine & Airplane Corp.....	44
Federal Telephone & Radio Corp.....	31
Goodyear Tire & Rubber Co.....	26, 27
Jack & Heintz, Inc.....	32, 33
Ken-Rad Tube & Lamp Corp.....	2nd cover
Lear, Inc.....	29
Mercury Aircraft, Inc.....	48
Northrop Aircraft, Inc.....	40
Republic Aviation Corp.....	47
Resistoflex Corp.....	49
Robinson Aviation, Inc.....	22
Sperry Gyroscope Co., Inc.....	3rd cover
Standard Oil Co. of California.....	43
Western Air Lines, Inc.....	4
White-Rodgers Electric Co.....	4th cover

NEW CROP-DUSTING SALES FIELD—A new inexpensive chemical defoliant has been developed that can be dusted from planes over cotton fields several weeks before picking time. This leaves bolls unharmed and they can be stripped off by new mechanical pickers, tobogganing picking costs and making American cotton cheap enough to compete with lower-cost countries and with rayon and other competitive materials in the domestic field. It takes 30 pounds to the acre, and opens a new field for plane dusting service.

BIG PLANE LAG—Labor shortages and turnover are affecting production of the B-29 and B-32 and the Douglas C-54, say WPB sources. The Douglas plant in Chicago has enough labor at present, but is having to train hundreds of persons each week to keep pace with the losses. All four B-29 plants are suffering from shortage of trained personnel despite the great need for the planes in the Pacific. The same applies in the B-32 program.

NATIONAL SERVICE ACT AGAIN—There are numerous indications that the War and Navy departments are preparing to start another campaign for enactment of some form of national service legislation, similar to the Austin-Wadsworth bill which got a cool reception last spring in Congress despite the efforts of Under Secre-

tary of War Patterson and the late Secretary of the Navy Knox to put it over. War Department refused to acknowledge defeat and despite the seeming tardiness of any such measure at this stage of the war, still would like to see a national service law passed, according to informed quarters in Washington.

*

ARMY VS. WPB—In recent weeks the Army is reported to have made significant progress in its struggle with the WPB over control of production and the associated question of timing reconversion. Recognizing the ascendancy of its influence, especially in the White House where James F. Byrnes is said to lend a sympathetic ear, the War Department is now believed ready to renew its drive for a national service act. The War Department has placed more emphasis on the manpower shortage as a factor limiting production than has either WPB or the War Manpower Commission. This is being cited as another indication that the Army feels a national service act is the best corrective.

CONGRESS COOL—If the measure is brought up again when the new Congress convenes, there are few who give it much chance of enactment. Industry generally is as opposed to the measure as it ever was and there has been no change in labor's position. The draft labor bill was unpopular politically last spring.

Industry Observer

said the company will stop plane manufacture at the end of the war and would "leave that to the West Coast."

►Acceleration of P-47 production at Republic is being met by increasing schedule of working hours on both day and night shifts.

►The same air travel cards, dated 1941-1942, will be valid through 1945. No discount will be available, probably until peace. Before the war, card holders were given a 15% discount from one way fares. A plan now being considered by the airlines would reduce the discount in the post-war period to 5%.

►Air Corps topside states definitely there will be no further publicity on new jet propulsion aircraft until they are in combat. Several companies had hoped for announcements in the near future.

►Although all other activities of Air Cargo, Inc., have been wound up, a staff of four will work until Apr. 1 to complete the market survey.

►Rapid increases in B-29 output is a "production miracle," WPB Acting Chief Batcheller believes. Of the 15 most critical war programs, Super-

fortresses led with a 30% gain in November over October, and a 99% increase over June.

►The excellent work of L. Welch Pogue at the International Civil Aviation Conference has CAB and airline officials worried. They fear he will be given a new post in the international aviation picture. Pogue's high standing in both industry and government is seldom equalled by any government official.

►Airlines are favoring both a flight engineer and a flight mechanic, in addition to pilot and first officer, on long-range, four-engined landplanes, but they believe the flight engineer could be omitted on shorter runs.

►Douglas has under consideration establishment of DC-3 or C-47 spare parts depots at several warehouses throughout the country to serve domestic lines and export needs. Meanwhile, new production of parts is unlikely until Douglas receives reliable estimates of future airline needs.

►Average airframe weight per Navy planes accepted has increased from 2,740 pounds in early 1940 to 6,423 in the first half of 1944, but cost per pound has declined.

►The Navy had on hand at Sept. 30, 35,575 aircraft, compared with 25,892 at Jan. 1. It retained 19,859 of the planes it accepted in first 9 months of 1944, against 20,277 in the 1943 year. It received 50,268 engines in the first nine months of 1944, comparing with 65,426 in the full year 1943, but this includes some lend-lease material.

BUILDING VERTICAL SKYWAYS

By WAYNE W. PARRISH

Publisher of "American Aviation" tells of Bell Aircraft's progress in helicopter development



"In my estimation it will be some time before flying around the country in a helicopter becomes widespread. However, great strides are being made in the development of rotary wing aircraft. One outstanding achievement is Bell Aircraft's new helicopter which, largely through two ingenious innovations, has made possible both stability and precision control.

"One innovation is a two-bladed rotor, supported on a universal joint so that it is free to 'see saw' and at the same time to turn on its longitudinal axis. The second is a bar which, gyroscopically, tends to keep the rotor

in its plane of rotation regardless of the position of the mast. This is a basic Bell Aircraft patent which works for stability under all conditions. It is found only in the Bell helicopter.

"The Bell helicopter represents a type of aircraft men have long wanted. It can take off and land on a very small plot of ground, and even in winds of nearly gale force it can fly up, down, backwards, forwards and sidewise—and still remain stable and under perfect control.

"When ceiling and visibility are too poor for a fixed wing plane to fly—then it's 'helicopter weather'—for the

helicopter can slowly, safely feel its way through murk or fog.

"The helicopter will have many important industrial uses in the postwar world. Plans are already being formulated for its use in crop dusting, forest fire patrol, pipe line patrol, emergency rescue work, feeder taxis for airlines, executive travel, and many other peace-time applications.

"When this progressive company can turn its skills and resources to producing peace-time needs, look to the Bell helicopter to be one of the leaders in the postwar aviation field."

★ Buy War Bonds and Speed Victory ★

MEMBER AIRCRAFT WAR PRODUCTION COUNCIL...EAST COAST, INC.

BELL Aircraft

PACEMAKER OF AVIATION PROGRESS

© Bell Aircraft Corporation

NIAGARA FRONTIER DIVISION

Buffalo and Niagara Falls, N. Y.

Airacobra (P.39) and Kingcobra (P.63)—Fighters
Airacomet—America's First Jet Propelled Plane
The Bell Helicopter

ORDNANCE DIVISION

Burlington, Vt.

Flexible Gun Mounts and other ordnance materials

GEORGIA DIVISION

Marietta, Ga.

B-29 Boeing Superfortress

VOLUME 2 • NUMBER 21

Aviation News

McGraw-Hill Publishing Co., Inc.

December 18, 1944

Distribution Cost Main Hurdle In Allocating Surplus to Schools

Providing of tools, instructional booklets, teachers and other facilities for educational work in aviation are other serious factors confronting plan to utilize surplus equipment in training students.

By WILLIAM G. KEY

Costs of distribution are going to be one of the principal factors in allocation of surplus aircraft equipment for educational use. Other factors causing concern now are provision of tools and instructional booklets necessary for use of the equipment, teachers and teaching methods in the period before ex-service personnel are available, and provision for allocation, under equitable arrangements, to trade schools for which provision was not made in the Surplus Property Act.

The Advisory Committee for Utilization of Surplus Class E Aeronautical Equipment for Edu-

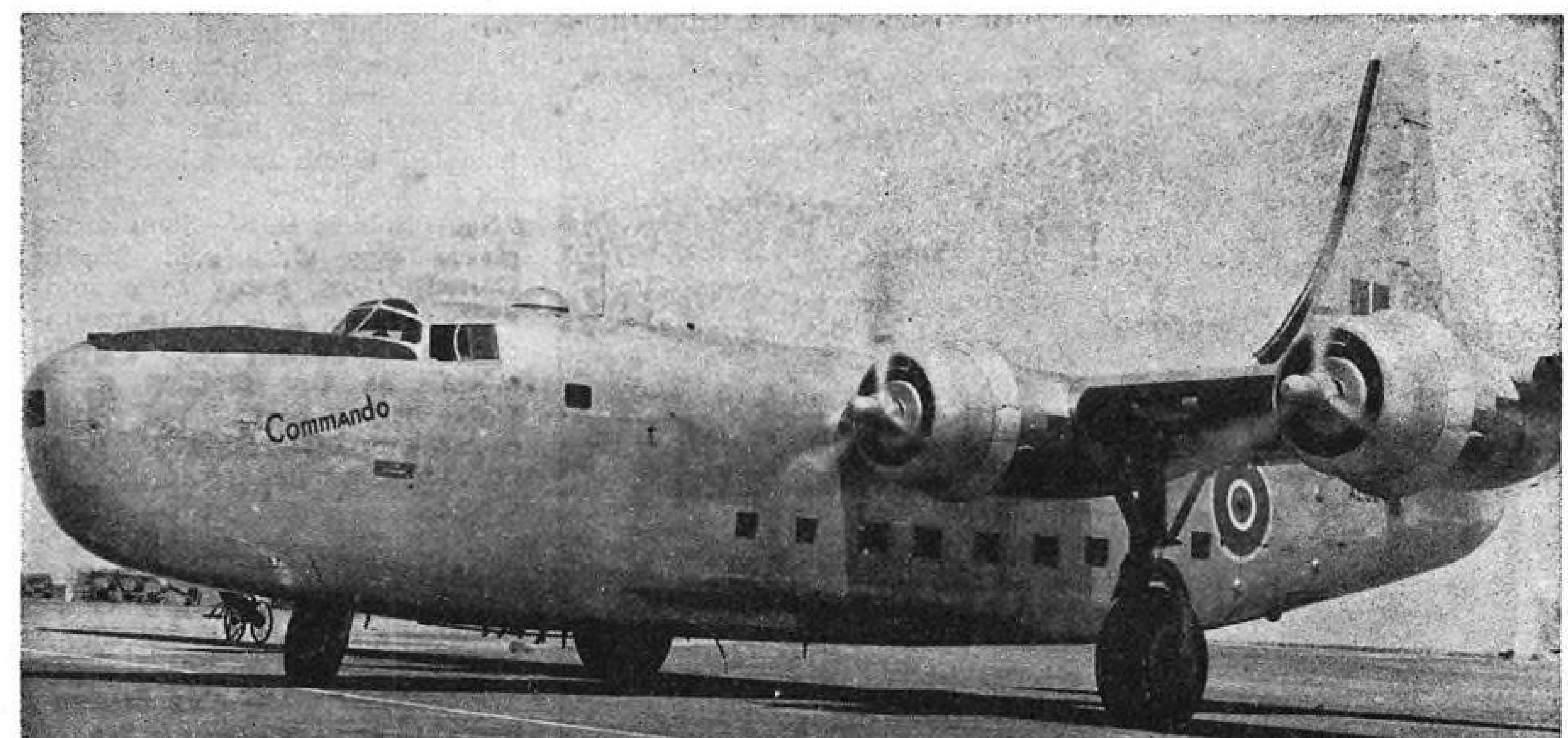
cational Purposes has suggested a program to Lieut. Col. William B. Harding, chief of the Surplus Property Aviation Division, under which designated "representative agencies" will assume responsibility for allocation and distribution of surplus equipment to schools in their category.

► **School Canvass**—These "representative agencies"—probably state education departments for public schools through the high school classification, the American Association for Junior Colleges, the Association of American Colleges, the National Catholic Education Association for parochial

schools and others yet to be designated for other institutions—will conduct a canvass of all eligible schools within their jurisdictions to determine requirements for instructional material commensurate with their plan for training in the future.

Each agency will have a list of the type of materials available or scheduled to be available within a reasonable geographic area. This list will be compiled from a non-technical master list now in process of preparation and probably will total some 20 pages after having been shortened from an original draft of 32 pages.

► **Advantages Listed**—The Advisory Committee submitted to Col. Harding that such a plan would have the following advantages: It will facilitate more rapid handling of a larger volume of educational aeronautical equipment than has heretofore been possible; it will reduce the cost of material to the individual school by delivering it through the nearest disposal storage depot; and it will insure a permanent organization for dis-



CHURCHILL'S MODIFIED LIBERATOR EXPRESS:

Already historic as Premier Winston Churchill's conference plane, this modified C-87 Liberator Express may be used again by Britain's war leader. This photograph is the first permitted publication since the "Commando" was given a seven-foot extension of its nose section at Consolidated Vultee Aircraft Corp.'s

Tucson modification plant. It can carry 20 passengers. In the fuselage are seven bunks, an electric galley and refrigerator, work table, and a conference table for use in flight. Recently it made a round trip from Montreal, Canada, to Sydney, Australia, in four days, 16 hours, 10 minutes of flying time.

tribution of aeronautical educational material after the close of the present war.

It is not anticipated that the program can be instituted much before the end of the war because of various factors involved. A primary one is the lack of teachers, and a lack of knowledge of requirements and possibilities in local schools, and lack of a definite program of any size in many states. A second, and vital one, is that much of the equipment, such as engines, requires special tools for assembly, disassembly and repair. These are not available. A third is the lack of instructional booklets that must accompany each article if it is to be of value to the school.

► **Cost Serious Problem**—Although there is hardly a measuring stick available, the cost hurdle is expected to be the most serious of all, since it will be necessary for the schools to pay fixed packing charges and delivery costs from warehouses to the institutions. In the past there has been considerable difficulty with this factor in distribution of material by the Army Air Forces and also by the Navy.

It is felt by some close to the scene that an educational program for educators will have to be undertaken in some phases of the program. There are many uses of the surplus equipment other than shop practice, and many schools

may not take advantage of this element in surplus. It has been suggested, for example, that simulated cockpits would be of very great value in training, that hydraulic mechanisms could be used for demonstration in other than trade or aviation classes. There will be synthetic devices of various types that will have application and value in many ways. Virtually a new approach to educational processes will have to be taken if full utilization is obtained from the material available.

► **Safeguards**—The surplus equipment will have to be surrounded with safeguards to prevent its ever being used in planes again. This matter is still under discussion, but the final answer probably will be some system of property accountability that will assure destruction of the material after it has served its purpose. Many of the engines and other equipment will have been constructed of condemned and rejected parts and used until now in service educational programs.

Under the Advisory Committee plan, the Surplus War Aircraft Division of Defense Plant Corp. will offer the material as it becomes available to the representative agencies, with a stipulation that it must be accepted within a specified period after which the offer will be canceled.

► **Schools to Specify Needs**—Schools would be notified and in turn would return a list of items

they desire to the representative agency, where they will be screened against the schools program.

Requirements for schools will be made up in advance, and the requests of each school accompanied by an authorization for the expenditure of school funds for packing charges. When materials are available, the schools will be notified and then must send SWAD a transfer agreement and a check to cover the packing costs. SWAD will then release the materials to the schools at the warehouses.

1300 Canada Planes Declared Surplus

Total of 209 of craft, mostly trainers, sold; many go to South American countries.

More than 1,300 service planes have been declared surplus in Canada and 209 of these had been sold at the end of November, the bulk of them trainer types. With spare parts and equipment sold, a total of \$305,345 has been returned to the government.

The War Assets Corp., Canadian government corporation established to sell surplus goods, has disclosed that many of the sales have been to South American countries. Informed Canadian sources say that most of the trainers, probably Fleets and deHavilland *Moths*, went to purchasers in Mexico, Brazil, Ecuador, Peru and the British West Indies. A Grumman JRF *Goose* was sold to Ecuador for \$35,000.

► **Some Sold in U. S.**—Some of the planes also were sold in the United States, going to a mid-western buyer after clearance under an agreement with surplus officials in this country under which neither country will sell to each other's nationals except when type shortages make such sale advisable.

Seven planes have been sold to Canadian air transport companies, with a second Grumman *Goose* bringing a top price of \$35,000. A Beechcraft went for \$16,500 and five Lockheeds, probably *Electras*, brought an average of \$15,000 each.

► **Trainers**—Of the trainers, 185 have been sold at an average price of \$1,427, with nearly half expected to be cannibalized for replacement parts. Shortage of spares and replacements is given as the reason for sale outside of Canada,

since the types are not now manufactured there. It is known that a group of Fleet trainers was sold to the Mexican government.

The surplus declarations have generally been single- and twin-engine trainers, small obsolete transports and obsolete light and medium bombers.

Canada's policy in general follows that of the United States in handling combat types, although a few Lockheed *Hudsons* may be converted for temporary transport use. So far, no combat types have come into surplus, Canadian officials say.

Where no prospects of sale exist, WAC is removing wings and salvageable instruments and storing the plane carcasses in outside storage.

Aviation in Schools Makes Rapid Gains

But, compared with programs in offing, surface has hardly been scratched.

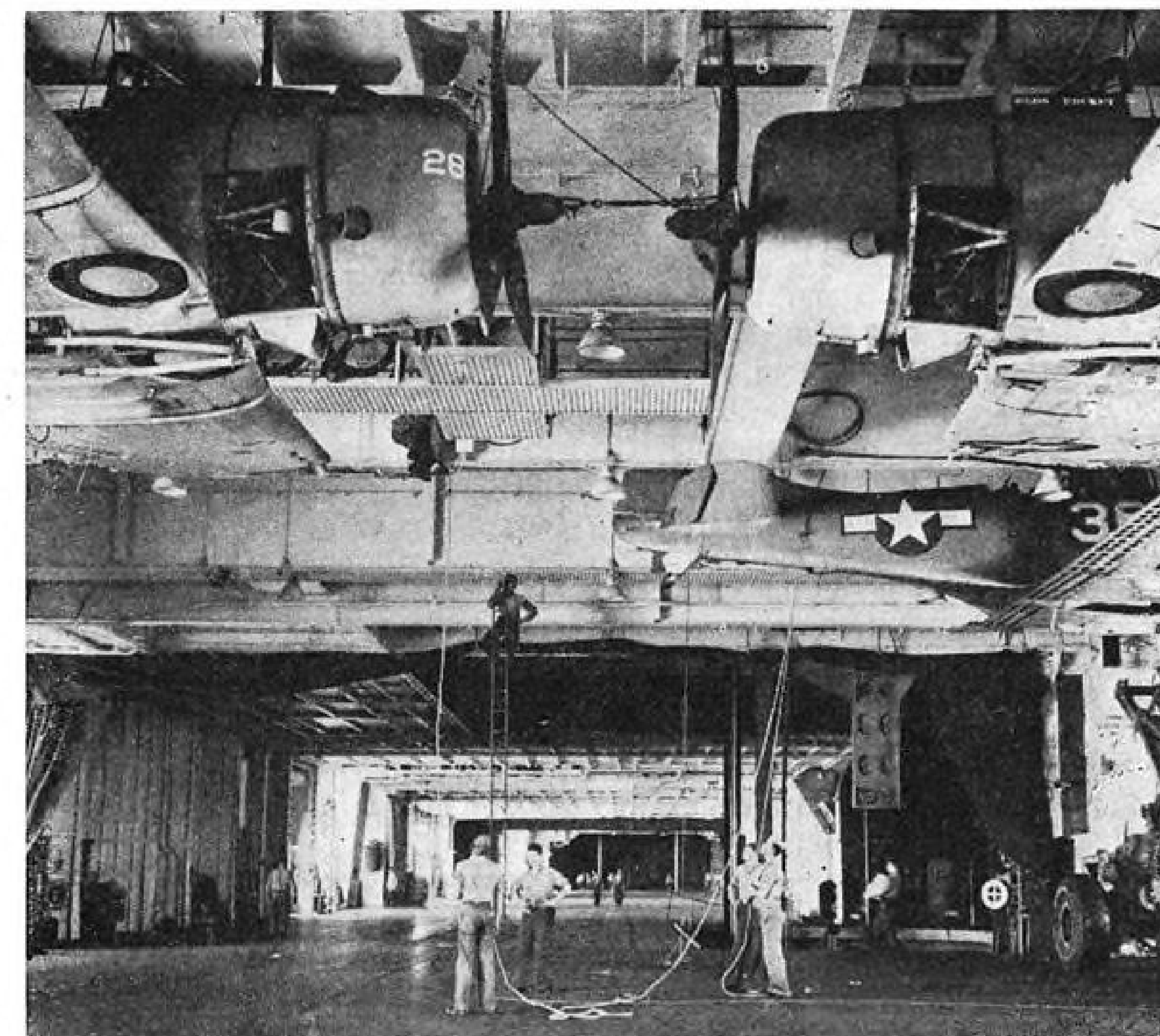
Considerable progress is being made in development of aviation education in the school systems of the nation, now under active study by a number of groups in industry and education, but the surface thus far only has been touched.

Although schools in all 48 states now incorporate aviation classes of one type or another, the degree of participation and the number of schools involved varies widely.

Only nine states can be said to have programs for post-war aviation education completed, and even in these states development of activity at the level of the individual school must still be undertaken. However, these nine states and several others now studying the subject, are undertaking a broad program of air age education that goes far beyond strictly vocational or instructional phases.

► **Foundations**—There are several movements under way to intensify this school program, and at least three foundations for air age education are being operated now or projected for the immediate future.

Probably of primary broad interest is the development of state programs for elementary schools, high schools and junior colleges. These have been completed in at least eight states, and are under study in other states at present. The Aviation Education Service of



PLANES STOWED ABOARD CARRIER:

This unusual picture shows method of stowing planes, not needed at the moment, on the hangar deck of a modern American airplane carrier.

the Civil Aeronautics Administration has been acting as consultant and coordinator to the state departments of education in this work under the direction of Bruce Uthus, chief of the service, and Edgar Fuller, principal educationist of the service.

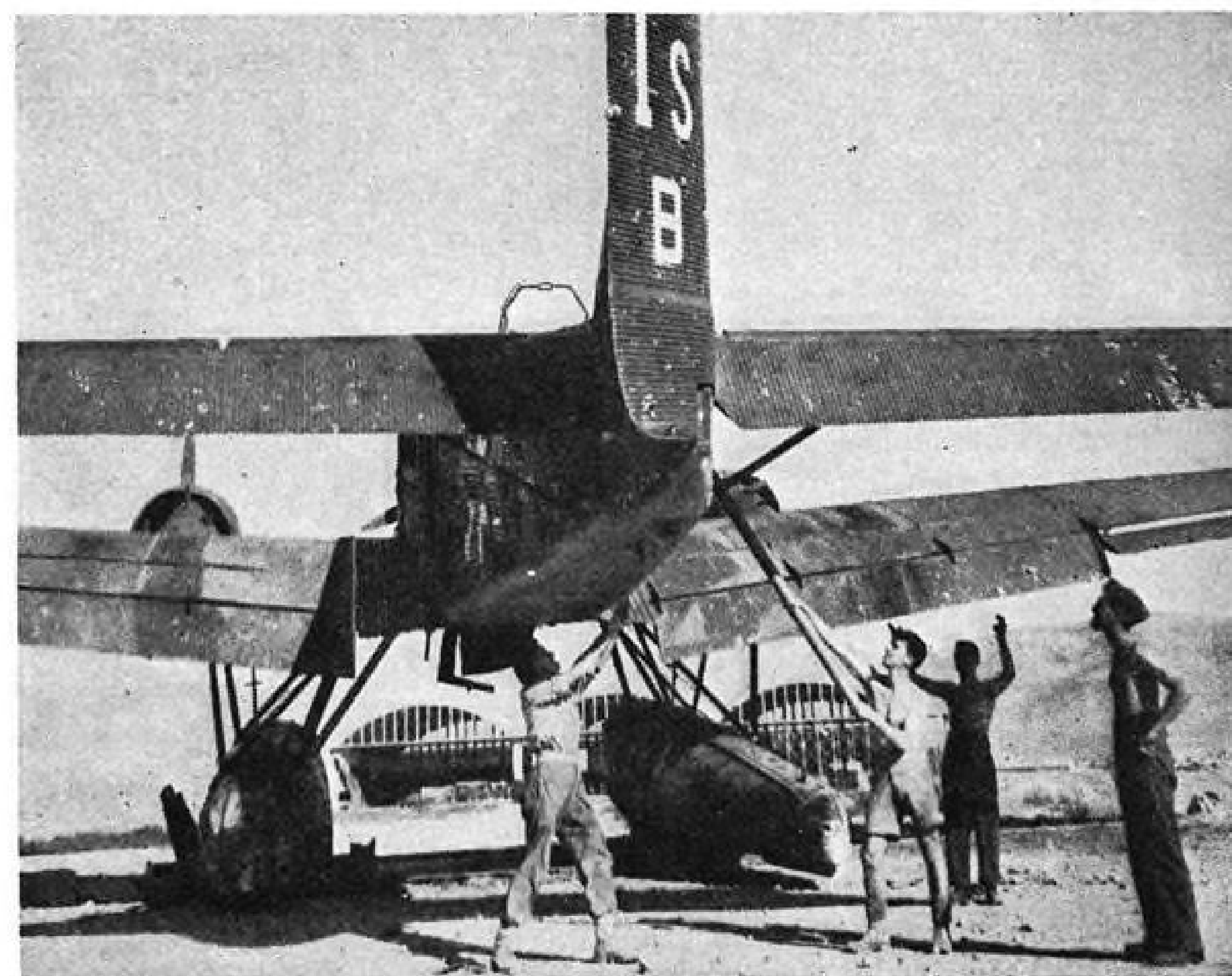
First state to complete its program was Wisconsin, followed by Illinois, Colorado, California, Connecticut, Pennsylvania, the District of Columbia, and Texas. Tennessee has been active in promoting aviation education through its State Bureau of Aeronautics, and only last week announced that a division of aeronautics has been established in the Department of Education to cooperate with the Bureau of Aeronautics in carrying out an extension of its pioneer program. New York State has been active in working out air education plans, and the New York City schools have been studying their program independently.

In the past, the most extensive programs have been carried out in the Texas-Oklahoma area, in California and the other Pacific Coast states, in Pennsylvania, New England, Illinois and Wisconsin. While Tennessee has been active, educational circles say that the state has been hampered by lack of just the division announced last week

to work in the department of education. The most backward states in the development of post-war air age education have been in the south and in the Prairie states, although even in these sections some individual states have been making marked progress, notably Alabama at the higher educational levels.

The National Association of Secondary School Principals and other groups within the framework of the National Education Association are working out extensions of the program. A forthcoming issue of the Secondary School Principals' Bulletin is devoted to the programs of states already developing their post-war operations in the air field. This may be expected to arouse interest in states not now active.

► **Educational Groups**—The three education foundations are the pioneer one of American Airlines—Air Age Education Research—and the Air Age Education Foundation, for which the American Association of School Administrators is seeking support, and an as yet unnamed foundation that is far along in the planning stage. This last would be organized by the aviation industry as a whole, but would be operated independently to assist states and other education groups in working out programs, supply-



SEAPLANE VERSION OF A JU 52:

Royal Air Force men check a seaplane version of a JU 52 for booby traps at an airfield in Greece.

ing classroom aids and render other assistance in development of aviation in education.

At the college level, a recent survey of Bendix Aviation Corp. indicated that only one-third of 1,200 leading American colleges and universities are actively interested at the moment in aviation education. Of the 1,200 polled, 455 responses showed 377 expressing interest. Of these, 237 now offer courses of study in aviation. Two hundred twelve of these plan to continue and some to expand their courses after the war, while 15 are uncertain, 10 had no comment on this phase. Of the 140 not currently teaching aviation courses, 95 have definite intent of establishing air education courses, but 41 are still uncertain and four have no present plans.

► **Facilities Lacking**—However, a survey of facilities at the various colleges now teaching aviation courses, showed that only 76 of the 237 have necessary facilities for a permanent program of aviation education. One hundred sixty report fairly adequate or "limited" facilities and stress that they need additional equipment.

When this is measured against the wartime activities of colleges in training youth for Army and Navy programs, it reveals that there is still a large gap to be closed before aviation education comes into its own even in these progressive schools.

The state programs for youth below the junior college level are not designed to give the student an education in aviation as such, but to lay the groundwork for such an education. It envisions education of the student and re-education of adults in the effect of aviation on

every sphere of human life and activity; state programs of teacher guidance to develop competence in instructing students in air age education; re-examination of the curriculum to meet new needs; proper preparation and use of materials such as maps, films and reading material. At the high school level, the pupil would have opportunity both for general courses in aeronautics as well as a start in the vocational phases.

Also that the high school level, the state programs recommend four hours of actual flight experience for students. This would be conducted through contract operators and designed more to demonstrate flight principles and operation of equipment rather than instruction in flying, which is recommended only at the junior college and college level. W. G. K.

Tenn. Education Dept. Forms Air Division

Unit organized to promote pilot training in schools, foster port construction and serve as clearing house for aviation developments throughout state.

Establishment of a Division of Aeronautics in the Tennessee Department of Education, with Charles H. Gilmore, former coordinator of the Naval Cadet CPT program as director, and Kenneth Newland of CAA aviation education service as consultant, is announced.

Formed to promote and coordinate aviation education in the state, the new division has as specific objectives:

- To assist colleges in programs for training aviation teachers.
- To aid high schools and colleges in obtaining equipment and instructional materials.
- To establish airport operations institutes at Memphis, Nashville, Chattanooga, Knoxville and Tri-City airports, to be attended by superintendents, principals and teachers of high schools.
- To develop a plan for extending aviation to more high schools.
- To arrange for visits of high school and college students to five major airports in the state.
- To encourage CAP cadet program.
- To serve as clearing house for aviation education ideas and materials, and instructional aids, for the state.

Five colleges in the state own their own airports and 10 others

have airports leased. Among the owners is Fiske University, Nashville, believed the first Negro university to own its airport.

Extension Department of University of Tennessee is arranging for correspondence training of aeronautics teachers in Tennessee high schools, financed by the state bureau of aeronautics, based on experience with a previous training program for nearly 300 teachers in seven state colleges and universities, including both ground school training and 10 hours flight.

The University also projects a "workshop" in aviation education in cooperation with the state department of education, for the 1945 summer term in which materials and teaching methods will be studied and a program of aviation education will be set up for the schools of the state.

► **900 Students Enrolled** — Nine hundred high school students in 50 schools throughout the state are now enrolled in a one-unit aeronautics course.

Aeronautics teachers have organized the State Association of Aeronautics Teachers with Eugene Bence, of Whitehaven High School as president, Gilmore as executive secretary, and vice-presidents from the three sections of the state, Isma Chandler, East Tennessee, Jacob Shapiro, Central Tennessee, and J. P. Bradberry, West Tennessee. The association will work with the aviation division in expanding the state's aviation education program.

Build 18,000-Ton Die Forging Press

An 18,000-ton die forging press is now under construction, designed primarily for use in producing large magnesium forgings needed in the aircraft program and is expected to aid materially in development of larger and more efficient aircraft component. ► **Built by Mesta**—WPB officials, in announcing that the new press will be built by Mesta Machine Co., of Pittsburgh, said that in the past there has been no die forging press of more than 10,000 tons capacity in this country. Magnesium forgings up to five or six feet in length have been made by the Germans but the new American press will enable the production of still larger sizes.

The press will weigh about 5,000,000 pounds and will exert a pressure up to 36,000,000 pounds.

NATA Asks Reforms in Legislation and U. S. Personal Aviation Policy

Association at St. Louis meeting presses vigorously for federal action to eliminate useless rules and requirements hampering development of private flying; seven resolutions adopted.

By ALEXANDER MCSURELY

Encouraged by official indications that non-scheduled aviation and personal planes are finally moving forward from the forgotten back seat to which the federal government has relegated them in recent years, the National Aviation Trades Association at its closing convention sessions in St. Louis pressed vigorously for actual federal action to secure the promised gains.

Seven resolutions adopted recommended reforms in existing legislation and administrative policy:

- That CAB broaden its policies to include problems of non-scheduled aviation on a parity with scheduled aviation; that the Administrator of CAA reorganize his administration with equal sections for scheduled and non-scheduled aviation; that the Assistant Secretary of Commerce encourage, foster and promote these changes.
- That Congress and state legislators keep aviation legislation at "an absolute minimum" and as uniform as possible.
- That a trend toward municipal and state-owned aviation enterprises be opposed in favor of private ownership and management of air services and facilities.
- That existing policy for disposal of surplus aircraft by the government in direct sale to purchasers is "not in the public interest" and favoring disposal rather through established dealers.
- That the present interpretation of the G.I. Bill of Rights causes a hardship on veterans by preventing them from taking flight training in less than 30 to 38 weeks, and urging revision of this policy.
- That Civil Air Regulations have tended to stifle and discourage the development of private flying because of over-regulation, and recommending that requirements be revised, relaxing the current over-stringent demands for physical condition, aeronautical knowledge and skill.
- That NATA members shall study needs of landing facilities within their areas of operation and report their own and other local

views on local needs to the NATA office for tabulations and presentation to proper state and federal authorities for action.

Attack on over-regulation of flyers was made by William A. Ong, Kansas City, former NATA president, in a convention address which charged that existing legislation "has abused, neglected and almost totally ignored non-scheduled aviation while CAB and CAA have handicapped it still more by promulgation and enforcement of ridiculous, thoughtless regulation."

"A continuation of this policy will assuredly throttle non-scheduled aviation and private flying at the very beginning of the new era of prosperity that is prophesied for us," he warned. "A successful man won't take the time to make himself an amateur meteorologist or an amateur engineer or a walking encyclopedia of government directives before he is permitted to own and fly his personal plane. The aircraft industry and its very best designers and engineers can never design an airplane that will make worthwhile the conquering of the endless mass of red tape in the CAR."

► **Revisions Proposed**—CAB Safety Director Jesse Lankford pointed out that existing regulations are "an inheritance from several previous organizations," and outlined the work done by the CAB Safety Bureau in proposing revisions for comment by pilots. Deadline for comments is set for Dec. 30. Proposed revisions are to be presented for adoption the first week in January, and if adopted, they will be effective some 60 to 90 days later.

"It is my belief," Lankford said, "that entirely too much emphasis has been placed on physical requirements for pilots. It seems only reasonable that any person free of an ailment which is likely to incapacitate him suddenly and without warning and who has reasonable vision should be eligible to fly."

► **War Production Urged**—Importance of continuing aircraft war production at full speed must take

precedence over any reconversion projects, Grover Loening, WPB aircraft consultant, told the convention, but added the board was ready and willing to permit operation of civilian manufacturing which contributed to the war effort, or in areas where manpower was sufficient to prevent interference with war projects.

He pointed out that, while companies which may produce prototypes in easy labor areas have an advantage over other companies which are still on war work proj-

Roosevelt Letter

A definite indicator of the recent growth in importance of non-scheduled aviation in the entire national picture was the letter from President Roosevelt received by NATA President Roscoe Turner, at the St. Louis meeting, and read to the convention.

Observers, noting the personal reference to Colonel Turner by President Roosevelt, pondered the letter's effect on the NATA election which returned the Indianapolis base operator to office for a second term.

Addressed to "My dear Colonel Turner," the letter said:

"Please convey my personal greetings to all the members of the National Aviation Trades Association, both those assembled with you at St. Louis and those who are absent on essential services in all quarters of the world. The annual meeting of the National Aviation Trades Association should remind us all of the splendid role that the Association's members have played and are playing in the nation's wartime aviation. The country takes pride in and expresses its gratitude for the fine work of your members in the armed forces, in the operation of war training schools for the military services and in vital civilian flying during the years of national emergency.

"You have my sincere good wishes in all your plans for enlarging aviation's future contributions to the welfare and prosperity of our own people and all peace-loving people throughout the world. I know that you, who have labored so valiantly in bringing civil and military aviation to its present high state of proficiency, will be in the forefront guiding the industry to its post-war destinies."

Object Lesson

One example of a situation that should be avoided in educational use of surplus materials has been cited.

It is that of a southern school which requested, and received, a war-weary plane from the Army in the days before the Surplus War Property Administration. The plane turned out to be a medium bomber. It arrived in sections by railroad, together with a freight bill for more than \$600. Then the school found that the plane wouldn't fit in the building intended for its use. Its value was virtually nil, except as an object lesson.

ects, the advantage might be equalized by a renegotiation adjustment favoring the company which completes its war work. Emphasizing that this was his personal opinion, Loening said such a settlement would give the company extra funds to catch up with other companies in development and marketing.

► **Shoestring Feeders**—Bauman R. Otto, secretary of the Feeder Airlines Association, and president of Otto Aviation Corp., discussed the fallacy of "shoestring" feeder operation plans, pointing out that Americans who ride the feeder lines will demand the same high standard of air service, safety and comfort that they have been accustomed to getting on trunklines.

He predicted railroad and bus post-war improvements will provide new luxury of accommodation and increased speed with which the feeder lines must compete and warned that there may be a period of "in the red" operations for both feeder airline and public, until the service was fully developed.

Wins Collier Trophy

Navy Capt. Luis de Florez awarded prize for development of special devices used in training combat pilots.

Award of the Robert J. Collier trophy to Capt. Luis de Florez, USNR, for his contribution to the safe and rapid training of combat pilots and crews through development of synthetic devices, is announced by Grover Loening, chairman of the Trophy Committee of the National Aeronautic Association. Current holder of this aviation award is Gen. H. H. Arnold, who received it a year ago for his organization and leadership of the AAF throughout the world.

► **For Greatest Air Achievement**—The Collier Trophy was founded by the late Robert J. Collier, of New York City, pioneer sportsman aviator, and is awarded annually by the National Aeronautic Association "for the greatest achievement in aviation in America, the value of which has been demonstrated by actual use during the preceding year."

Capt. de Florez has been responsible for many simple and complex devices to accomplish faster, safer and more inexpensive training of military aviators. He served as a civilian in the Navy Department during World War I as engineer in charge of aircraft instrument development. He was com-

missioned a lieutenant commander in the Naval Reserve in 1940 having learned to fly previously. Called to active duty in 1940, he won his Navy wings at Pensacola before going on duty with the Bureau of Aeronautics, where he is now Director of Special Devices. He was commissioned a captain in November, 1942.

Nutt Heads Packard Air Engine Division

Second major announcement in two weeks reflecting entrance of Packard Motor Car Co., into the post-war aircraft engine field is that of appointment of Arthur Nutt, until several months ago vice-president of engineering for Wright Aeronautical, as director of Packard Aircraft Engineering Division.

Packard disclosed recently that permanent flight test facilities are being built with Defense Plant Corp. funds at Willow Run Army Air Base, with temporary quarters for work now in progress in the Ford Willow Run plant. New re-

search engineering facilities have been placed in operation in the past year at Toledo.

► **Producing Rolls-Royce Engines**—Packard has been producing Rolls-Royce Merlin engines for the North American P-51 Mustang and other planes, but has not indicated it will switch over to the later-model Griffon, and industry sources say the company is developing its own engine design.

Nutt will maintain offices in Toledo, working under Col. J. G. Vincent, Packard vice-president of engineering. He had been associated with Curtiss-Wright since 1916 and has been a pioneer in engine development since that time. He is a former president of the Society of Automotive Engineers.

2 Firms to Produce New C-82 Packet

Fairchild and North American to cooperate in turning out large AAF order for military cargo planes.

Efforts of Fairchild Engine & Aircraft Co. and North American Aviation will be joined in production of Fairchild's recently announced new military cargo airplane, the C-82 Packet.

The Army Air Forces have ordered a large undisclosed quantity of the aircraft from North American. Fairchild engineers will furnish design and production engineering required to get North American into the earliest possible production of the plane. Fairchild will also continue to produce the maximum quantity of C-82's possible in the facilities available at its Hagerstown, Md., plant.

► **Facilities**—North American has immense facilities in its large modern plants at Dallas and Kansas City, Kan., where the C-82 will be built. The company has established a reputation for quantity production on three outstanding planes of its own, the P-51 Mustang, the B-25 Mitchell and the AT-6 Texan.

The C-82 is the first successful plane designed expressly for cargo-carrying since the start of the war. It is designed for carrying tanks, artillery, ammunition, troops or paratroops and has a range in excess of 3,500 miles. It is in the 50,000-pound class and is powered by two Pratt & Whitney Double Wasp engines of 2100 hp.

Delegates from 14 Nations Sign "Five Freedoms" Document

Agreement, based on U. S. principle of building up world air transport with as little restriction as possible, makes available for countries desiring it a free air, restricted only by such provisions as are called for to protect sovereignty.

By MERLIN MICKEL

Delegates from 14 nations, including the United States, have signed an agreement that if accepted by their governments will place into immediate effect for the signatory states the broadest concept of open skies for international air transport.

The agreement is the "five freedoms" document advanced by the U. S. at the International Civil Aviation Conference at Chicago. A week after the conference ended, it had been signed by the U. S., Afghanistan, China, Dominican Republic, Ecuador, Haiti, Honduras, Mexico, Nicaragua, Peru, Sweden, Turkey, Uruguay and Venezuela.

► **Five Freedoms**—These nations, and others who may sign the document later, thereby signified willingness to give each other the right to cross their own territory, make non-traffic stops, carry outbound and inbound traffic anywhere among the agreeing states, and carry intermediate traffic unless other nations exercise their right to prevent it.

These freedoms, based on the U. S. principle of building up international air transport with as little restriction as possible, thus change the entire face of international air relationships within the space of less than two months. They make available for nations desiring it a free air restricted only by what provisions are called for to protect sovereignty.

► **Standard Form**—The traditional method of bilateral agreements, the only method when the conference started last Nov. 1, still can be used by nations desiring it. A standard form was set up for such agreements before the conference adjourned.

A two-freedom agreement, embodying freedom of transit and non-traffic stop, was signed by representatives of 25 nations, including all but two of those whose delegates signed the five freedoms document. The United Kingdom subscribed to this more restricted plan, with the reservation that the signature did not commit New-

foundland. Explanation was made that Newfoundland was a crown colony which might again receive dominion status, the inference being that the matter would be taken up with the Newfoundland government.

► **Trusteeship**—Since this is a provisional government, in effect a trusteeship, by a king-appointed governor and three British and three Newfoundland commissioners, there appeared to be nothing that might delay such a consultation and a definite answer whether Newfoundland is in or out of the agreement.

That answer is vitally important to the U. S. and Canada (although the latter signed neither the two-freedoms nor five-freedoms document) because, as was pointed out in AVIATION NEWS last April, Newfoundland is the key to North Atlantic operations over the great circle route and without it the U. S. trans-Atlantic operations almost inevitably would be confined to the South Atlantic and via Bermuda and the Azores. A representative of a least one U. S. flag line—Jack Nichols, vice president of Transcontinental & Western Air, Inc., in charge of foreign route development—contended that by refusing to include Newfoundland in its acceptance of the two freedoms, the United Kingdom had "failed to take the stranglehold off the Atlantic." The incident emphasized Newfoundland's importance in diplomatic exchange.

► **Plenary Session**—At the final plenary session of the air conference, five documents, typed on gold edged treaty paper and bound in leather, were available for signing. In addition to the "final act" of the conference, there were four appendices. Two of them were the five-freedoms and two-freedoms documents. The others were an interim agreement and the permanent convention.

The final act, signed by all 52 nations who sent delegations, except Liberia, contained the standard form of agreement for provisional air routes, the bilateral

agreement form for those countries desiring to go ahead by this method. This document also contained the several resolutions passed by the conference, and a roster of the delegations and committees.

First appendix, establishing a provisional international organization to function until a permanent convention on international civil aviation comes into force or another conference is held, was signed by 33 nations. Thirty-one signed the convention itself, which is the second appendix to the final act. Third and fourth are the two-freedoms and five-freedoms optional international air services transit agreements.

A fifth, which had the universal approval of the conference, contained the drafts of technical annexes.

Ramsey Sees Planes With Speed of Sound

Navy Bureau of Aeronautics chief tells House Naval Affairs group of progress of aviation in four war years.

Aircraft with the speed of sound are forecast by Rear Admiral De Witt C. Ramsey, chief of the Bureau of Aeronautics.

"It is anticipated that in the near future top speeds of fighter aircraft in service will approach the sonic range and be accompanied by further marked increases in rates of climb and service ceilings," Admiral Ramsey told the House Naval Affairs Committee.

While airplanes of such speed capture the imagination, Admiral Ramsey commented that most spectacular of new developments are those connected with the adaptations of radar and other electronic devices to aircraft use, outstanding, among others, being the advent of the night fighter.

► **Studied by Airlines**—While he did not mention it, many of these devices will have application to commercial craft and already are under study by commercial air line engineers.

Electronic weapons of all sorts, the Admiral said, have played a decisive part in the prosecution of the present war and the application of new and improved devices is expected to increase still further our future margin of superiority over the enemy.

► **Advanced Designs**—Planes still

on the secret list include unconventional arrangements of advanced design such as the employment of jet propulsion, a development which goes hand in hand with forecasts of speeds on the sonic range, which vary from about 660 to 760 miles depending on altitude and other conditions.

He noted that the top speed of fighters has increased more than 100 mph during the last four years and their range doubled. He commented that the Navy's Vought F4U Corsair and Grumman F6F Hellcat fighters have become mainstays of the Navy and Marine squadrons and that the Curtiss Helldiver dive bomber which has replaced the Douglas SBD Dauntless on carriers, delivers twice the bomb load and has much greater range and higher speeds than its predecessor.

GM Development Unit Shifted to Allison

The aircraft development section of General Motors, directed by Don Berlin and now operating under Fisher Body Division, is being transferred to Allison Division, Indianapolis. The change will be effective Feb. 1.

C. E. Wilson, General Motors president, said the transfer was being effected in order to consolidate activities of the corporation which is currently engaged in manufacture of aircraft engines as represented by Allison and development of aircraft engine installations and associated problems as represented by the Aircraft Development Section.

► **New Facilities**—Flight test facilities, including a large hangar and work shops, are nearing comple-

tion at the Indianapolis division.

Wilson said the move completes plans long under development to provide Allison division with experienced aircraft personnel and suitable facilities for development and test of engine applications to airplanes. Such work is now confined to military requirements but, when possible, work will be started on applications of Allison engines to commercial aircraft.

AVIATION CALENDAR

- Dec. 19—Brewer Trophy Award Dinner, National Aeronautic Association, Statler Hotel, Washington, D. C.
- Dec. 20-21—National Aircraft Standards Committee, ACCA, Eastern Division meeting, Jefferson Hotel, St. Louis, Mo.
- Dec. 20—East Coast Aircraft War Production Council, New York City.
- Dec. 20—West Coast Aircraft War Production Council, Los Angeles.
- Jan. 5—National Aircraft Standards Committee, ACCA, Western Division meeting, Hollywood Knickerbocker Hotel, Hollywood, Calif.
- 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.
- April 4-6—National Aeronautic 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.

41st Anniversary of Wright Flight

Forty-first anniversary of Wright Brothers' first motor-powered heavier-than-aircraft flight at Kitty Hawk, N. C., Dec. 17, 1903, was observed in Washington by the annual Wright Brothers lecture, under sponsorship of the Institute of the Aeronautical Sciences and the National Aeronautic Association. John Stack, chief of the Compressibility Research Division of the NACA Langley Laboratory was to deliver a paper on "Compressible Flows in Aeronautics." Presentation of the Robert J. Collier Trophy for 1943 to Capt. Luis de

Florez USN, was another event scheduled for the anniversary observance.

Orville Wright, surviving member of the famous brother team, now 73 and still active in aeronautical research projects, expected to spend the day quietly in his Dayton home.

At Kill Devil Hill, near Kitty Hawk, Vice Admiral P. N. L. Bellinger, commander of the Atlantic Fleet's air forces, was principal speaker for ceremonies at 11 a.m., the approximate hour of Orville Wright's takeoff on the historic first flight.

Calif. Air Leaders Prepare for Post-War

Major plane builders, under ACCA's Aircraft Manufacturers Council, join in drafting recommendations on aviation to be submitted to State Legislature.

California aviation and civic leaders moved to prepare their state for post-war aviation developments with the realization that they must act now if California, which claimed 10 per cent of the nation's pre-war aircraft registration, will be ready for the air boom expected on the West Coast after the war.

For the first time, the state's major aircraft builders, Lockheed, Douglas, North American, Northrop, Ryan and Consolidated Vultee, joined to draft, under the Aircraft Manufacturers Council—division of the Aeronautical Chamber of Commerce—industry suggestions to the State Legislature on various aviation legislative proposals.

Another move saw the State Assembly's interim committee on aviation begin the preparations of resolutions and bills to be offered to the Legislature at the January session.

► **Draft State Program**—Gov. Earl Warren's California State Reconstruction and Employment Commission expected to complete within a week the final draft of state aviation projects, which Commission members hope to see administered by a future State Aviation Commission.

The conference also emphasized the need for airport zoning laws.

In Hollywood the Los Angeles Chamber of Commerce gathered together a state-wide representation of airlines, aircraft manufacturers, airport managers, personal aircraft owners and municipalities in the first California Aviation Conference.

At the close of two days of meetings, 200 conference delegates voted perpetuation of the conference and its expansion into an annual Western States Aviation Conference.

► **Eastburn Chairman**—Glen Eastburn, vice-president of the National Aeronautic Association and chairman of the Los Angeles Chamber of Commerce Transportation Committee, who organized the conference, was elected permanent chairman.

U. S., U. K. Exchange Data on Standards

Agreement reached during visit of American technical mission to England.

An important step toward an interchange of information on aircraft standards between American and British technicians was achieved during a recent mission to Great Britain, undertaken by a group of technicians representing aircraft manufacturers in the United States, who have just returned.

Substantial progress toward greater uniformity of standard parts, materials and practices in British and American industries was reported by the group who said Britain has carried out to a high degree of standardization there due to the necessity for conserving materials and manpower.

► **Important Progress Made**—While the actual working out of standards will of necessity take considerable time, the American technicians did make important strides toward the free exchange of information on such matters, equivalent to interchangeable standards, and work will start at once on spark plugs, certain elements of propeller shafts, hydraulics, electrical systems and fittings and plumbing attachments.

The group, which represented the National Aircraft Standards Committee and the Society of Automotive Engineers, returned a visit made to the United States by a technical mission in May of last year.

Surplus Plane Total Reaches 23,391

A total of 23,391 airplanes have been declared surplus by the Army, Navy and other government agencies and, as of Dec. 1, 6,239 surplus planes had been sold.

W. L. Clayton, Surplus Property Administrator, said that, of the 23,391 planes, the largest number are in the trainer category. Of the total sold, the largest portion were light civilian type planes requisitioned from their owners after Pearl Harbor for use in preliminary Army and Navy training programs. In addition, 911 former Army and Navy planes, largely trainers and liaison planes used for artillery spotting and short-range communication flights were

sold. Not included in the total sold were 20 twin-engined transport planes recently declared surplus and allocated to domestic airlines.

► **Combat Craft**—A large number of combat aircraft are also surplus, mostly obsolete fighters and bombers which have outlived their military usefulness or are beyond economic repair.

A break-down of surplus combat types shows 893 single engine fighters; 56 two-engine fighters, 736 two-engine bombers and 131 four-engine bombers, a total of 2,223.

Clark to Enter Law

Senator Bennett C. Clark, of Missouri, chairman of the aviation subcommittee of the Senate Commerce Committee, defeated in the primary election this year, will enter private law practice and may specialize in railroad accounts.

Clark told some colleagues recently that "I have tried a number of cases for railroads and when I get out of the Senate I may try some more cases for railroads; at least I hope I shall."

Surplus Transports Not to Compete with New Planes

Surplus transport planes will not be placed on the market in competition with new planes after commercial production begins, and no transports will be sold to foreign nations unless they get a certification from the Civil Aeronautics Administration, it has been learned.

Disclosure of Surplus Property's Aviation Division policy in the handling of this very delicate problem has been made to industry executives in a series of meetings that were exploratory in character, but in which general policies were outlined for discussion.

An attempt was made to determine a formula for payment to manufacturers for reconversion of transports for domestic airline and foreign use, but this remains a matter for discussion.

The policy of not "dumping" excess transports on the market in competition with new types means needs of airlines and individuals in this country and abroad will not be supplied from surplus when comparable planes can be delivered by the manufacturer within a reasonable length of time.

Martin Sees 80% Cut In Post-War Aviation

The aircraft industry will lose its position as the world's largest during the reconversion period, but in the opinion of Glenn L. Martin, head of the company bearing his name, it will retain at least 20 per cent of its present volume.

► **Optimistic View**—Martin, in a speech before the Lansing, Mich., Economic Club, took an optimistic view of the industry's post-war possibilities generally, holding that "the aeronautical field has scarcely scratched the surface of its possibilities." He believes that, despite loss of position during the reconversion period, the aircraft industry will outrank the manufacture of automobiles to retain its No. 1 position.

He forecast speeds of 500 mph. on long flights in vibrationless, sound-proofed private airplanes while warplanes of the futures will operate at 700 mph. speeds and be equipped to operate and land with safety in "zero-zero" fog.

The requirement of CAA standards for planes sold to foreign nations guarantees that these countries will not be able to buy American transports and place them in operation at costs less than that paid by American lines and individuals. It also is a guarantee that American safety standards will be met at least when planes are turned over to foreign operators.

On the part of the manufacturers, Defense Plant Corp. officials were assured they would undertake reconversion or conversion of surplus planes whenever Army, Navy and War Manpower Commission approval could be obtained.

An attempt to reach conclusions on conversion costs did not go beyond the discussion stage. A fixed cost basis was termed impractical because of customer wants for varying standards and equipment, and a proposal is now under discussion whereby companies would undertake conversion on a basis of actual cost to the airline operator or individual, plus a fixed four or five percent for the converter-manufacturer's expenses in the operation.

PRIVATE FLYING

CAA Research on Swivel Wheels May Revise Nationwide Port Plan

Ability to make cross-wind landings, believed possible in projected post-war research, could simplify landing field needs in many cases to single flight strip.

By BLAINE STUBBLEFIELD

As the time approaches for the light airplane industry's second attempt to establish a volume market, the Civil Aeronautics Administration is confronted with the question whether to recommence its aircraft and engine development activities.

The Bureau of Air Commerce's design program was thrown out nearly a decade ago because of protest from the industry, which argued that prospective purchasers were ignoring existing models and waiting for Director Gene Vidal's famous "\$700 dream plane."

► **Father of Safety Models**—Vidal's design project, which was engineered by John Geisse and others, is widely credited with fathering the present *Ercoupe*,

Skyfarer, and other safety models, and it can be contended that the Bureau's development section was far-sighted and useful. Those entertaining that opinion say it was ill-advised publicity that caused the trouble.

CAA, with the approval of T. P. Wright, is preparing to try further development as an aid to the industry. Officials believe that if the benefits go direct to manufacturers for optional use in their designs, without any ballyhoo, the project will be approved. Extent of CAA's development effort will depend on initial success, and on the industry's attitude.

► **Wheel Research**—Number 1 project is swivel wheels. CAA put an item in a request for appropria-

tions to cover caster wheel experimentation, and it was cut out by the Budget Bureau. Nevertheless, funds probably can be found in another drawer.

Top men of CAA do not feel quite safe in sponsoring and administering the proposed post-war construction of thousands of airports and airparks for private and taxi-charter aviation while swivel wheels remain in an uncertain stage.

If cross-wind landing should become common practice after many of the fields are built, a great deal of money spent for land and for clearing approaches and for zoning would have been wasted. A single runway field requires only a fraction of the land and approach work as does a multiple-runway field.

► **British Tests**—Possibility of success with swivel wheels is based extensively on progress reported by the British. Two English companies, O. F. Maclaren, Ltd., and Maclaren Undercarriage Co., Ltd., have developed satisfactory swivel wheel arrangements, which are produced by Airwork, Ltd., under Maclaren licenses.

An agency of the British Government has released reports on trials of the Maclaren swivel wheel designs, pronouncing them satisfactory. They have been in use for some time on the *Magister* and *Oxford* trainers, and they are being installed on North American P-51 *Mustangs*. The reports indicate that landings have been made successfully in crosswinds of 60 mph. velocity.

► **May Use "Ercoupe"**—If CAA can get started on a castering wheel project, probably initial work would be done with an *Ercoupe* belonging to CAA, and the project already conducted by Piper, on a *Cub* plane, would be enlarged in scope. Those who have studied castering wheel problems say that bigger planes can be equipped for cross-wind landing, but how big they do not pretend to know.

Success on swivel wheels (proving them either good or impractical) would be followed by development on such problems as the reduction of noise caused by both engine and propeller—a serious obstacle confronting those who would locate landing facilities close to dwelling areas.

In general, development work which would pay off to manufacturers only on a long term basis would be regarded as suitable for government participation.

2 Airpark Programs Debated in Wichita

Planning Commission and Chamber of Commerce committee offer rival plans for landing fields inside or close by city limits.

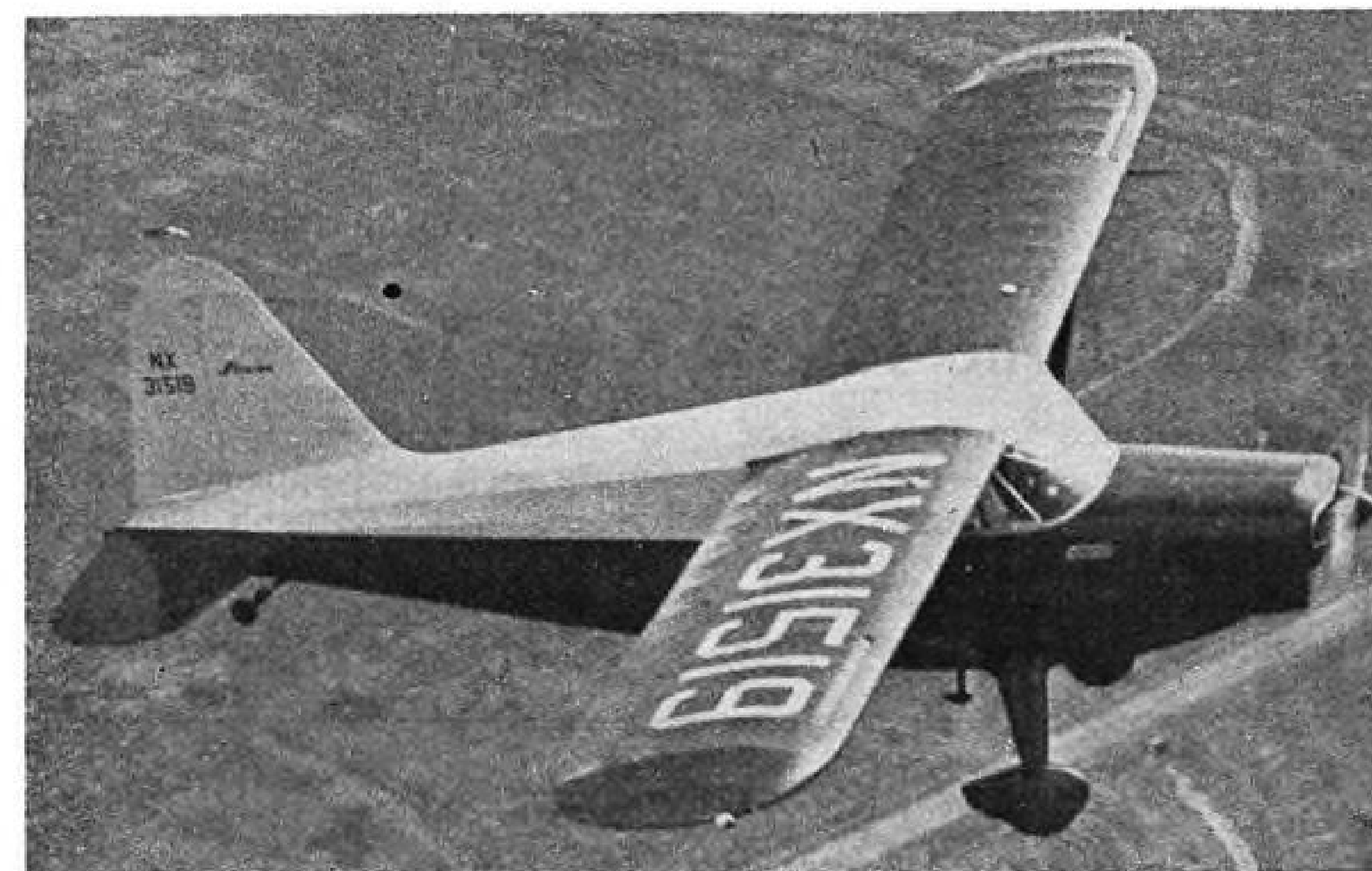
Two airpark programs, one of which calls for four airparks within the city limits of Wichita, Kan., are the subject of current debate between the City Planning Commission and the aviation committee of the Wichita Chamber of Commerce.

The aviation committee's program calls for a principal downtown airpark within three blocks of the city's business area, and for three other airparks in the city limits, two serving residential areas and a third providing landing facility to the north end industrial district.

► **'Copter Field Planned**—The planning commission is advocating a program prepared by Harland Bartholomew and Associates, consultants, St. Louis, which would build three airparks, just outside the city limits, north, south and east, and a helicopter landing field in the heart of the city.

Both bodies are agreed that Wichita also must have a secondary municipal airport with options for future expansion into a second principal field, to supplement facilities of the present Class 5 municipal airport.

► **Compromise**—A conference be-



STINSON VOYAGER 125 IN FLIGHT:

First flight picture of the new Consolidated Vultee Stinson Voyager 125 three-to-four-place plane, which arrived at NATA St. Louis meeting last week with less than 10 hours' total flying time. Plane has 34 foot wingspan, is equipped with wing slots and flaps, powered with 125 hp. Lycoming engine.

tween the planning commission and the aviation committee is being called in an effort to compromise the principal point of variance over the main downtown airparks.

Meanwhile the city commission of Wichita recently rejected a demand for a law prohibiting flight students from flying over the city. A recent ordinance codifying and modernizing previous city laws on aviation, contains no radical changes from the previous laws. It sets 2,000 feet during daylight, and 3,000 feet at night, as minimum altitudes for flying over the city except for landings, takeoffs and emergencies. Only planes licensed by CAA, or those owned by the armed services, or a recognized agency of the government or manufacturer, may fly over the city.

Tenn. Operators Meet

Eighteen flying school and airport operators from all sections of Tennessee met recently to organize the Tennessee Flight Operator Association, for promotion of civilian aviation. Frank Knapp, head of Knapp Flying Service, Clarksville, was named president, and A. L. Pelettier, of Gillespie Airways, Nashville, was elected secretary-treasurer.

Majority of the group represented flying schools until recently engaged in military flight training, while operators of other private and municipal fields were included.

Asks U. S.-Controlled Aviation Gas Tax

NAA councilor for California tells West Coast group of need for uniform federal levy to be used for benefit of airways to replace state system.

Replacement of all state aviation gasoline taxes with a uniform federal tax, revenue from which would be allocated directly to airways and landing facilities, was urged last week in Hollywood at the California Aviation Conference.

Sponsor of the proposal was John R. West, national councilor for California, National Aeronautic Association and president of West-Marquis, Inc., Los Angeles advertising agency.

► **Cites Heavy Cost**—A personal airplane owner who uses an *Ercoupe* and a *Stinson* extensively in business and pleasure flying, West termed state aviation gasoline taxes "a popular form of stealing money from people in aviation." He estimated that varying state aviation gasoline taxes now in force in 16 states will be bringing those states a total return of nearly \$100,000,000 annually, a year or two after the war.

West contended that few states now collecting and keeping aviation gasoline taxes offer airport or airways development in return for taxes paid by airlines and personal airplane owners. He said that, of the 16 states now charging an avia-



TAYLORCRAFT FOUR-PLACE MODEL 15:

Excellent visibility for front and rear riders marks Taylorcraft Model 15, new four-place plane, demonstrated recently at St. Louis. Plane has 125 hp. Lycoming engine, and uses new wing with extremely low stalling speed. Company says plane's range from stalling to top speed is "greater than ever obtained in any previous wing design." Seats have Airfoam cushions, and front seats are adjustable with handcranks. Flaps are operated from a crank on instrument panel. Plane has dual controls, and a new elastic-hydraulic shock absorber system. Price may run around \$4,000.

Eye Tests Tested

Through cooperation of the National Research Council, the CAB safety bureau will soon have the factual evidence necessary to determine what constitutes "reasonable vision" required of a pilot. Failure to have a definition for this term has delayed revision of physical standards for pilots, Jesse Lankford, safety bureau director, points out.

Now the NRC is working on a project to put 150 to 250 applicants for licenses, whose vision is under present standards, through a controlled flight instruction course. Lankford believes results of the project will show visual acuity standards can be reduced for the private pilot, with no sacrifice to safety, so that the examination can be given by any reputable physician.

tion tax and using it for state purposes, eight openly admit the funds thus raised go for the building or maintenance of highways and roads.

Service Stressed At Hawthorne Talks

Better service and customer relations was the main theme of a recent two-day managers' conference held for 18 key officials of the Hawthorne organizations, at Columbia, S. C., under leadership

of Beverly E. Howard, head of Hawthorne airport operations system. Principal speaker, W. T. Gannaway, formerly in sales training work for General Motors Corp., and former adviser to the Turkish government, pointed out that too many people in the flying business still segregate themselves from potential customers by wearing "fancy uniforms" and maintaining an air of superiority and mystery which doesn't sell air-planes or flying.

► **Conducts Course**—Gannaway recently concluded a course in cus-

tomers relations for instructors at the Hawthorne Columbia base, and similar courses are projected at the other Hawthorne bases, at Orangeburg, S. C.; Greensboro-High Point, N. C.; Rocky Mount, N. C., and at bases to be reopened when the war is over, at Charleston, S. C., and Washington, D. C.

The conference included a buffet luncheon attended by 65 leading state, city and aviation officials and business men, and a luncheon at Columbia municipal airport, where Hawthorne has recently completed extensive improvements for visitors and pilots.

Wright Asks Post-War Research on Personal Aircraft

A trend toward increased federal recognition of personal aviation, which until recently has been a "stepchild" of CAA and CAB, has become apparent within the last few weeks, and is growing stronger.

Major factor in the changed attitude has been the progressive attitude of Administrator T. P. Wright of CAA, although William A. M. Burden, Assistant Secretary of Commerce, and L. Welch Pogue, CAB chairman, also have indicated a more positive stand favoring non-scheduled aviation.

Latest indication of the trend's strength is a statement by Administrator Wright that CAA should take a more active part in fostering technical development of better personal aircraft, and that funds should be made available for this purpose as a post-war project. Pointing to a need for technical encouragement of civil aircraft paralleling that given to military aircraft by the National Advisory Committee for Aeronautics and the military and naval technical engineers, the administrator emphasizes that further development of the personal plane is vital and necessary to provide the utility required for large public acceptance. He recalls that the Civil Aeronautics Act of 1938 specifically charges CAA with "encouraging and fostering development of civil aviation and air commerce in the United States and abroad."

Wright anticipates a total licensed field of 400,000 personal planes 10 years after the war, providing an annual market for 175,000 planes, or a business for manufacturers amounting to \$350,000,000 a year, about four times what is expected to exist for the transport plane manufacturers.

The administrator outlines the following four-point policy for

U. S. civil aviation and the federal government in the immediate post-war period:

► **Fundamental facilities necessary for expansion of air transport:** (a) an adequate and efficient system of conveniently located airports; (b) modernized and expanded airway facilities.

► **Fundamental facilities aiding in development of private flying:** (a) a large number of small airports conveniently located to population centers both in rural and urban areas; (b) stimulus to development of improved aircraft types; (c) government assisted flight training.

► **Steps to make our youth air-minded:** (a) provision of technical aviation information to educational institutions; (b) encouraging flight experience in high schools and flight training in colleges.

► **Steps to enable the United States to take its proper place in international aviation:** (a) by appropriate communication with foreign civil aviation agencies; (b) by training and informing foreigners in American aviation techniques; (c) by assisting our industry in expansion abroad.

Wright recalls that efforts of the federal government to develop a popular lightplane date back to 1935, although there has been little development effort in recent history. As a result, at least partly, of CAA efforts, the private plane production increased from only two planes in 1933, to 436 in 1935, and to 4,455 in 1940.

Encouragement of personal aviation is essential, he declares, not only from the standpoint of providing an important new industry, but also to develop a large backlog of young American pilots, experienced in the air, and a healthy manufacturing industry, both of which are essentials of national defense.

'Copter Club Formed At Vought-Sikorsky

Employee group to build own rotor craft as soon as materials are available.

The Alpha Helicopter Flying Club, composed of 10 Vought-Sikorsky Division, United Aircraft Corp., employees at Bridgeport, Conn., is awaiting relaxation of materials restrictions to begin construction of a one-place helicopter powered with a 65 hp. engine, for the club's use.

Believed to be the first amateur helicopter flying club in this country or perhaps in the world, the group organized in April, 1943, adopted a constitution in June, and set out to build its own helicopter, since it was impossible then and still is to buy one, except for military uses.

► **Fuselage Begun**—In August, construction was started on the fuselage of a two-place helicopter with overhead main rotor and compensating smaller tail rotor, similar in many respects to the Sikorsky. The fuselage, of geodetic construction, using strips of ash and pine in a "basketweave" design similar to the construction of the British Wellington bombers, was reinforced with steel tubing. It was completed in November, 1943, but restrictions prevented obtaining equipment and other materials to complete the craft, so further work was abandoned.

All club members contribute not only financial support but ideas and work toward building of the helicopter. Weekly dues are assessed, proceeds used entirely in buying materials for the projected new craft.

► **Membership**—Club membership is open to all persons interested in development of the helicopter.

Revised Road Bill Near Final Passage

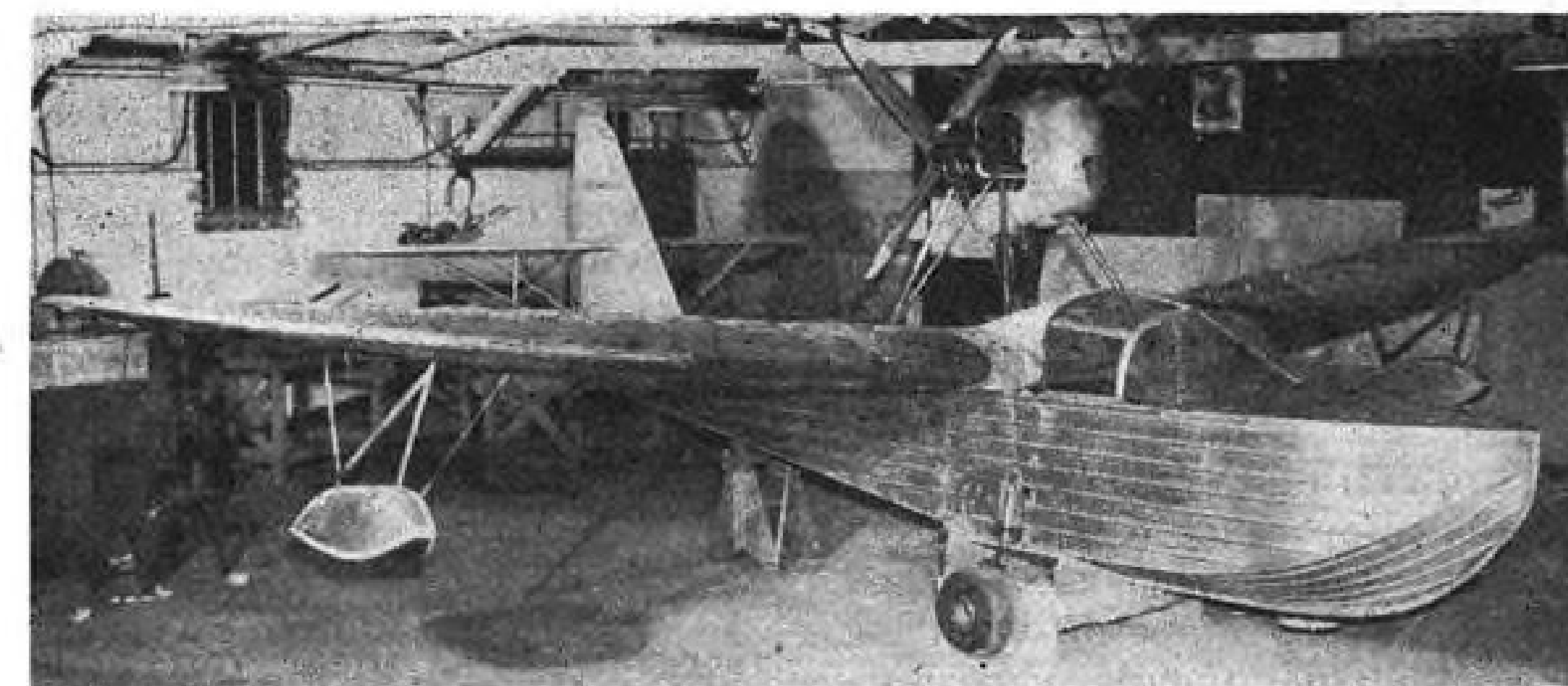
Flight strip section removed with provision for extension or relocation of highways around airports, subject to consultation of port authorities.

The Federal Highway Aid Bill, minus the disputed provision for building flight strips by the Public Roads Administration, was expected at presstime, to reach final passage within a few days.

The flight strip section was eliminated from a revised bill reported by a joint Senate-House conference committee, substituting a new section providing only for extension or relocation of roads around airports, which is to be subject to consultation of airport authorities, state highway departments and the Public Roads Administration.

► **Victory for CAA and CAB**—Defeat of the flight strips section is a victory for CAA and CAB, whose representatives vigorously opposed the measure on the ground that it would permit location of flight strips to be decided without reference to the CAA national airport program, and would divert funds from this program, thereby possibly depriving some communities of much needed airports, in order to establish little-used "waystations" along highways.

(Reps. Jennings Randolph of West Virginia and Clarence Lea of California are credited with leading the House fight which led to elimination of the provision there and eventually to its final removal.



AMPHIBIAN USES 4-BLADE PROP:

Another entry in the small amphibian class for personal plane flyers is the two-place Applegate amphibian, at one time sponsored by Piper, and now being further developed as an independent project, at Elwood, Ind. A four-blade pusher propeller is fitted to the engine which is mounted above and at the rear of the wing. Plane has metal hull, and a revised wing design different from that of the original craft.

Plan Port Awards

Thirteen prizes totaling \$7,500 will be awarded for the outstanding contributions to the nation's airport development in 1945, based on achievements between Jan. 1 and Sept. 1. The competition, designed to stimulate private and community interest in construction of landing facilities, will be judged by a committee of aviation leaders designated by the National Aeronautics Association.

The awards include a \$5,000 first prize, a second of \$1,000, third of \$500, and ten \$100 prizes. They have been donated by Andrew J. Haire, president of Haire Publishing Co., New York City. Winners of the top awards also will receive plaques, while the others will receive honorable mention certificates.

Hawthorne Expands

Rights to operate the Fayetteville, N. C., municipal airport have been granted to Hawthorne Flying Service, according to Beverly E. Howard, president of Hawthorne aviation organizations.

The Fayetteville base is the fourth operation started by Hawthorne recently in the Carolinas. Others include Orangeburg, S. C., Greensboro-High Point, N. C., and Rocky Mount, N. C., as well as its municipal airport operation at Columbia, S. C., started in 1938.

Manager of the new operation is W. Sibley Law, a native of Spartanburg, S. C., who has had 15 years' flying experience, including two years of Army instruction at Hawthorne's Army contract school at Orangeburg.



ST. LOUIS' FOREST PARK LANDING STRIP:

On 1500-foot temporary landing strip in midtown St. Louis, personal plane manufacturer's pilots landed new models and prewar ships last week to demonstrate utility of airparks. Above: Piper L-4X liaison-

ambulance plane, designed for post-war conversion as four-place personal plane, makes landing on strip in Forest Park. In foreground, new Aeronca side-by-side plane, and Piper cruisers.

Briefing

For Private Flyers and Non-Scheduled Aviation.

By ALEXANDER McSURELY

Prospective distributors and dealers of personal planes, and of course, the potential customers, too, are getting hungrier than ever for the appearance of some post-war planes on the market, as a result of a few appetite-whetting peeks that manufacturers permitted, and the promises of more interesting planes to come which were heard at the recent NATA-ADMA meeting. New plane news gleaned in St. Louis includes:

► **Piper**—Significant was reaction of prospective dealers to pictures of an experimental two-place Piper twin tailboom pusher plane. Numerous operators urged Piper to push through development of the plane, as four-place ship, predicting enthusiastic public reception. Currently, the experimental model's flight characteristics are not fully satisfactory, but are expected to be much improved by redesign of the cabin. Experimental plane has 130 hp. engine, retractable landing gear, is credited with cruising speed of little over 100 mph.

► **"Skycycle"**—Another radical new Piper design, the one-place *Skycycle*, with 40 hp. engine, probably will be a leading contender for the lowest priced personal plane. Designed mainly as an airport "runabout," the plane may sell for as low as \$775, if it goes into mass

production. *Skycycle* has only 20 foot wingspan, carries 10 gallons of fuel, has fuselage made of plastic with aluminum rear section. Plane was designed to use plastic P-38 wingtanks, made by Piper, as part of fuselage. It will cruise at over 90 mph., has 115 mph. top speed.

► **Republic**—Despite the fact that Republic wasn't able to get its amphibian out to St. Louis because the plane was weathered in at Harrisburg, Pa., the Farmingdale delegation at St. Louis found favorable reaction from operators, and went home with cash deposits for a first year output of 2,400 planes. The amphibian finally reached Indianapolis, then turned back to Washington for a show to Army officials and a return to home base.

► **Cessna**—Until Cessna has definite knowledge of the time when it may resume civilian plane production, it does not intend to announce its post-war models, but is continuing development work. Reports indicate a line of several all-metal planes, including a two-place ship.

► **Family Planes**—Only two entries in the family plane competition made an actual appearance, Taylorcraft's four-place plane, and Stinson's "three-to-four" place *Voyager*, both powered with 125 hp. engines. A third 125 hp. new plane shown was the Piper L-4X designed for liaison and ambulance use for the Army, but expected to be readily convertible to a four-place family plane. Both Piper and Aeronca are now at work on low

wing four-place planes. Aeronca's is expected to be flying by early spring, will have a 150 hp. engine.

► **Two Control**—Several manufacturers are reported to be entering the two-control plane field, presumably as licensees of Engineering Research Corp., the *Ercoupe* maker. Aeronca showed pictures of a twin-tail, tricycle gear, low-wing plane which is expected to be its first two-control plane. And while no other definite announcements were heard, a number of other manufacturers are seriously studying the adaptation of two-control to their products, because of the simplicity of operation for the dub-flyer who will provide tomorrow's mass market.

► **Rocket 185**—The Johnson Rocket 185 three-place high performance lightplane was scheduled to make its first public flight last week at Ft. Worth, and is due to start on a tour of demonstration in January.

► **Other Taylorcraft Models**—Besides its four-place family plane, Taylorcraft announced a low-cost two-place all metal plane, Model 12, and a deluxe two-place, Model B-12-B with redesigned cabin. Price quoted on the four-place was around \$4,000, with no quotations on the other two planes.

► **Landing Strip Demonstration**—Despite unusually bad weather throughout the convention week, visibility improved sufficiently for a brief demonstration of the Forest Park landing strip, in which a number of the new planes participated. Planes in the demonstration included Taylorcraft's four-place and deluxe two-place, the Piper L-4X and two Piper *Cruisers*; Aeronca's new tandem and side-by-side two-place planes, the new Stinson 125, two *Ercoupes*, and a few older planes. All were piloted by crack pilots with commercial ratings, which is partial explanation of the fact that none of the planes used more than half the 1,500-foot strip for landing or takeoff, and most of them used much less.

► **Display Room**—One of the main thoroughfares of St. Louis will have a personal plane showroom fronting on it, as soon as the planners can get building materials for the \$75,000 project. Operated on Kingshighway, in connection with the St. Charles Airport, by E. H. Woestendiek and Robert A. Baudendistal, the showroom will display complete planes in its windows, and will also carry a parts department to service the planes.



JOHNSON ROCKET READY FOR DEBUT:

First photo of Johnson Rocket, 185 hp. three-place plane, at Ft. Worth plant, as plane prepared for recent public demonstration before newsmen at Meacham Field. Plane has unusually heavy wing-loading for personal plane class, 15.5 pounds per square foot. Aeromatic propeller, retractable tricycle gear with wide 106" tread and range of 850 miles at cruising speed of 185 mph., are other announced features. Rocket 185 has 30 foot 10 inch wingspan, is 21 feet 6 inches long, will land at 56 mph. and has initial rate of climb of 2,000 feet per minute. Estimated delivery price is \$5,000 with full equipment.

They wouldn't fly without them...



A pilot on the India-China run has an ancient fat Buddha attached to his control panel to help him "over the Hump."



A bright chiffon scarf is part of the flying equipment of a certain fighter pilot. It belonged to his best girl—but now it's his "insurance."



A navigator always carried with him a captured Jap diary. He believed it contained telephone numbers and addresses of Tokio belles—until he discovered it was a field ration list.

Ethyl antiknock fluid goes along with fighting planes powered by U.S.-made gasoline. *It goes into practically every gallon of fighting grade aviation fuel*—which is one reason why our fliers not only have the best gasoline but plenty of it.

ETHYL CORPORATION

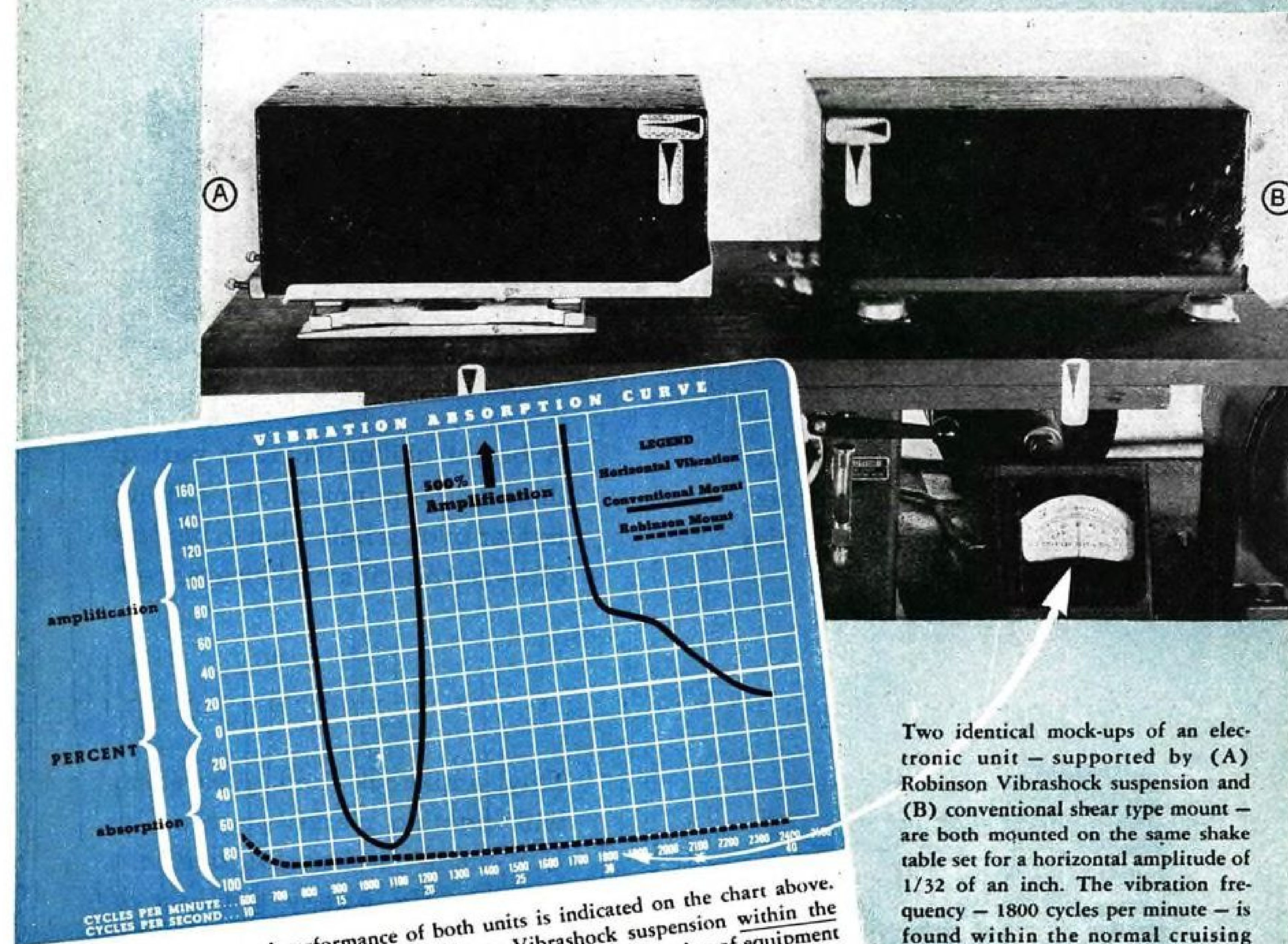
Chrysler Building, New York City



ETHYL is a trade mark name

Do you really get the BEST in Vibration Control?

Here is proof of the performance of the new Robinson Vibrashock* suspension, using the exclusive double neutral axis principle as compared with a conventional type shock mount formerly used for the same equipment.



The complete picture of performance of both units is indicated on the chart above. Note the smooth performance of the Robinson Vibrashock suspension within the entire operating ranges of aircraft. It is apparent that the mere mounting of equipment "in rubber" does not insure protection from vibration and shock. In fact, conventional type mounts often amplify vibration 300% or more.

Robinson engineers build the only complete, fully engineered suspension guaranteed to absorb over 90% of all vibration throughout the entire aircraft operating range. This is an efficiency rating far beyond accepted standards, and it makes possible performance and reliability previously unobtainable for electronic equipment. Our services are available to aircraft, radio, and electronic manufacturers and users.

* Trade Mark

ROBINSON AVIATION, INC.

750 FIFTH AVENUE, NEW YORK 19, N. Y.

FIRST NATIONAL BUILDING, HOLLYWOOD 28, CALIF.

Two identical mock-ups of an electronic unit — supported by (A) Robinson Vibrashock suspension and (B) conventional shear type mount — are both mounted on the same shake table set for a horizontal amplitude of 1/32 of an inch. The vibration frequency — 1800 cycles per minute — is found within the normal cruising speed range of most airplanes.

THE AIR WAR

COMMENTARY

U. S. Gains on Leyte Consolidated For Next Air Blow Against Japs

Full scale move against northern Philippines possible, spear-headed by aviation based on newly recovered territory.

Despite the painfully slow clean-up on Leyte, occasioned partly by the abnormally heavy rainfall with its resulting mud, sweat and tears, and partly by the frenzied efforts of the Jap to send reinforcements for a costly delaying action, the situation appears to be well in hand. In conquering most of Leyte Island (total area about 2,800 square miles) and Samar (5,100 square miles), we have liberated some million and a half Filipinos and have gained possession of strategic territory in the heart of the Philippines, from which Manila and other important enemy bases can be dominated. A full-scale move against the northern Philippines, with landings at various points and with invaluable aid behind the lines from organized guerrilla Filipino forces, appears as a possibility in the relatively near future.

► **Progress on Leyte**—The Japanese had developed a large number of airfields on Leyte Island, most of them clustered in the southern part of Leyte Valley along the Marabang River and inland from Dulag on the east coast. The best of them were at Dulag itself, San Pablo, Burauen and Buri, with several other emergency air strips. The best airfield on the island, however, was at Cataisan Point, across a small bay from Tacloban, capital and main port (20,000 pop.) Tacloban Field was built as a commercial airport, with two all-weather strips, one over a mile long. All of these airfields are in American hands, and the indefatigable engineers (headed by Brig. Gen. L. J. Sverdrup) have improved them and added new strips. The only important airfield on Leyte still in enemy hands is at Valencia, about seven miles north of Ormoc, and this may have changed hands by the time this appears in print. The main Jap air effort is coming from his many well stocked airbases on Luzon, on

the islands in the Visayan group, (west of Leyte) especially Negros Island, and from the airfields around Davao, southern Mindanao. ► **Early Air Operations**—On A-plus-2 (Oct. 22) the ground echelon of a heavy bombardment wing (308th) from General Whitehead's Fifth Air Force was landed on Leyte Beach. This was the initial group comprising the First Air Task Force, a streamlined striking force based on experience gained in the fast moving, leap-frogging tactics developed by General Kenney in New Guinea. Three days later the Tacloban strip played a memorable role in handling more than 200 emergency landings and takeoffs of Navy fighters and bombers from Admiral Sprague's light carrier force (7th Fleet). By A-plus-seven (Oct. 27), a few hours after the last Navy plane had taken off, the steel mats were fastened into place just as the first P-38s of the 49th Fighter Group circled and landed.

► **Other Units**—The 308th Bomb Wing, before the arrival of its *Liberators*, laid the ground work for the Air Task Force, setting up operations, establishing service and supply facilities, intelligence, and a complete communications network. An air force surgical hospital was set up, and an airdrome squadron was on the job. Air liaison parties were attached to various infantry and artillery units of the Sixth Army. Around this nucleus the First Philippine Assault Air Task Force was being built up.

► **Transports, Night Fighters, Bombers**—A few days later the C-47s flew in, bringing food for the fighter units, evacuating the seriously wounded on their return trip to northwestern New Guinea. These were followed by the *Black Widows*, and during the following weeks the effective work of these night fighters cut down Jap night bombing raids. P-40s and P-47s

were added to the day fighter and fighter-bomber strength. As other strips were secured and improved, A-20 light bombers and then B-25 *Mitchells* were flown in and stepped up the air punch of the FPAATF. The record of the Task Force against Jap convoys has been spectacular. Finally, when the big B-24s became operational, substantial loads began to be dropped on the airfields of the neighboring islands recently, including heavy attacks on Luzon.

► **Assists by Carriers and Marines**—Carrier-based aircraft had been assigned the role of supplying air cover during the first few days of the invasion. After the enemy-crippling Second Battle of the Philippines, carrier planes of Admiral Halsey's Third Fleet began a series of heavy attacks on convoys, enemy shipping, airfields and other installations on Luzon and elsewhere, many of them in the vital Manila Bay area. The flying Marines have also contributed greatly to the air picture with their repeated attacks with *Corsair* fighters (special poison to the Japs for nearly two years now), and their highly effective work with PV-1 (Navy *Ventura*) night fighters. Here is a team in action which gives point to a recent masterpiece of Japanese Domei radio understatement: "Frankly, the war situation in the Pacific is not favorable to the Japanese." NAVIGATOR



21ST BOMBER CHIEFS:

Shown at a new Boeing B-29 Superfortress base in the Marianas are, left to right: Brig. Gen. Emmett O'Donnell, Jr., commanding general of a wing of the new 21st Bomber Command; Lieut. Gen. Millard F. Harmon, commanding general of the AAF in the Pacific Ocean areas and deputy commander of the 20th Air Force, and Brig. Gen. Haywood S. Hansell, Jr., commanding general of the 21st Bomber Command.

PERSONNEL

O. Theodore Larson (photo), vice-president and general manager of Trans-Canada Airlines, will return to United Air Lines the first of the year as assistant to **J. A. Herlihy**, vice-president — operations. Larson first joined United in 1929 as meteorologist at



Omaha and was assistant superintendent of dispatch at the time he left the company in 1937 to go with TCA. At one time Larson was associated with the airways weather division of the U. S. Weather Bureau at Detroit and Chicago.

E. Russell Trotman, former aviation editor of the Springfield, Mass., *Republican*, has been appointed publicity representative of Hamilton Standard Propellers Division of United Aircraft Corp., Hartford, Conn.

John B. Millis has been appointed assistant public relations manager of the Propeller Division of Curtiss-Wright Corp. He has been public relations manager at the Indianapolis plant and will be succeeded there by **Jack Stark**. Millis formerly was with United Press and served as their Indiana manager. Stark, a member of the Aviation Writers' Association, served as assistant to the publicity director of Curtiss-Wright Corp., in New York.

Promotion of three traffic men of United Air Lines to new positions in the western area has been announced. **S. O. Halberg**, district



Kellogg Murray Halberg

traffic manager at Salt Lake City, has been appointed assistant to **Warren Burke**, United's traffic manager at San Francisco. **Sam B. Kellogg**, formerly assistant district traffic manager at Los Angeles, replaces Halberg at Salt Lake City. **Carl Murray** becomes assistant district traffic manager at Los Angeles.

O. B. Wilson has been named New York industrial manager for Brown Instrument Co. of Minneapolis-Honeywell Regulator Co. Wilson has been with the Brown company for 21 years. **J. A. Robinson** becomes industrial manager of the Chicago branch of Brown.

MacDonald Bryan, director of public information for National Airlines, Inc., was re-elected president of the Florida Publicity Association, Inc. This will mark his third year in office. The Association is helping promote suitable memorials in Tampa and St. Petersburg, commemorating the first commercial flight made by Tony Janus in 1914.

Perley Boone, whose new position as director of press for Air Trans-



port Association of America, was announced in *AVIATION NEWS*, Nov. 27., was formerly director of press for the New York World's Fair. He resigned from the news staff of the *New York Times* to join ATA. Boone will establish headquarters in the Washington offices of the Association.

D. W. Pennington has been named reproduction supervisor and editor of *Hughesnews*, house organ for Hughes Aircraft Co. He succeeds **Erich Hahn**, who resigned as editor to re-enter the publishing business for himself.

D. C. Evans, assistant to the operations manager of Northwest Airlines, has been appointed superintendent of stations for the company's eastern region between Chicago and Billings, Mont. He succeeds **R. C. Anderson**, now on special assignment for the company.

John C. Straub, formerly associated with the Research Laboratories division of General Motors Corp., Detroit, has been appointed research engineer of American Foundry Equipment Co., Mishawaka, Ind. Straub has worked closely with aircraft transmission and spur gears development.

Ernest A. Foster, for the past three years Los Angeles bureau manager for United Press, has resigned to become public relations co-ordinator at Lockheed Aircraft Corp., Burbank.



Arthur Nutt

Arthur Nutt, who supervised development of the engine which powers the B-29, has just been named director of the new aircraft engineering division of the Packard Motor Car Co. He will have offices in Toledo, site of new laboratories to develop advanced aircraft engines. Nutt was vice-president of engineering for Wright Aeronautical Corp., a position he recently resigned.

G. Richard Young has been named director of purchases for the Weatherhead Co., Cleveland, as successor to **Charles T. Craig**, recently appointed manager of the company's Chicago sales office and territory.

N. B. Fry, newly elected president of the Air Traffic Conference of America, is assistant traffic manager for United Air Lines. Fry was with Tidewater Oil Co. before entering Boeing School of Aeronautics. He joined United in 1935 and has been assistant traffic manager since 1940.

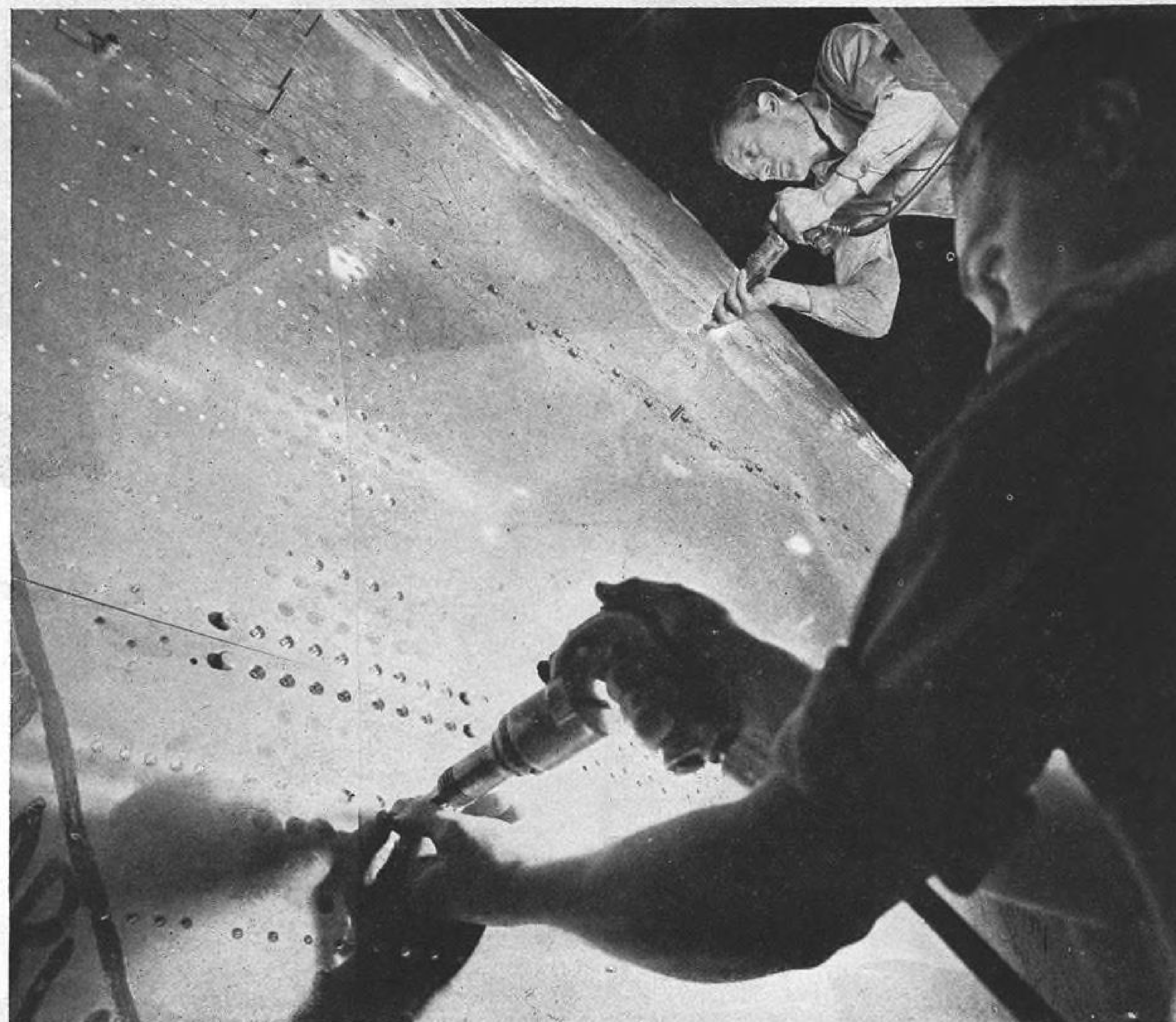
Edward R. Burn has been named to the research and development staff



of the Goodyear Aircraft Corp. Before joining Goodyear, Burn was for four years with Aeronca Aircraft Corp., where he was director of engineering and research, and for seven years prior to that he was associated with Piper Aircraft Corp.

Lewis W. Douglas has been elected a member of the board of directors of General Motors Corp. Douglas is president of Mutual Life Insurance Co., New York. He was director of the budget for a year and a half.

Col. Frederick W. Castle, 35, has been promoted to the rank of brigadier general. A graduate of West Point in 1930, he was one of the



Finish the Fight with War Bonds

Destroyer

Look up from the floor of one of Boeing's mammoth plants at the gleaming wing sections of B-29 Superfortresses — long lines of them, held edgewise in massive jigs. Inevitably, you think of ships being built in their ways. There is the flowing curve of ribs and frame. The breath-taking bigness. The sense of staunch, clean grace.

Even when you study them more closely, the likeness to a ship persists. For the wing skin of one of these great bombers is no flimsy sheet. Its flush-riveted plates are of tough aluminum alloy, nearly as thick as the steel hull of a destroyer.

Something of immense importance has happened to airplanes in the last few crowded years. They are *no longer fragile*.

Boeing engineers were among the first to envision giant ships of the air, many tons in weight. They pioneered modern transport design with the 3-mile-a-minute Boeing 247, which pointed the way for all subsequent air liners. They made history with the B-17 Flying Fortress, first and most famous of the fighting four-engine bombers — the luxurious Stratoliner which inaugurated high-altitude travel — and the ocean-spanning Boeing Clipper.

Now they have produced a still greater aircraft — the B-29 Superfortress — mightiest of the world's battle planes. No other airplane has been assigned so important a responsibility in the conduct of the war. In the size, speed, capacity and superb flying qualities of this great bomber, you can glimpse something of America's future in the air.

When the war is over, the ingenuity, experience and skill in engineering and manufacturing that have given Boeing heavy aircraft leadership will once more be devoted to products of peace. You can know of any such product . . . if it's "Built by Boeing" it's bound to be good.

DESIGNERS OF THE NEW B-29 SUPERFORTRESS • THE FLYING Fortress
THE KAYDET TRAINER • THE STRATOLINER • PAN AMERICAN CLIPPERS

BOEING

GOOD YEAR AIRCRAFT PRODUCTION REPORT

CONTRACTS: 76928-LL91367
GRUMMAN TBF-1 (Avenger)
3,000 Sets, Empennages

DESIGN CONTRACT RECEIVED: SEPTEMBER 1940

FIRST PRODUCTION UNIT DELIVERED: OCTOBER 1941

100TH PRODUCTION UNIT DELIVERED: MAY 1942

CONTRACTS COMPLETED: NOVEMBER 1943

Remarks: Production history of these contracts includes detailed structural design prior to tooling and manufacture of entire empennage. Battle history of these carrier-based Navy fighters embraces epic achievements at Midway and Coral Sea; fighting testimony of sound construction and of Goodyear Aircraft Corporation's ability to deliver mass production of important components on rapid schedule.

Goodyear is building components for sixteen different Army-Navy types of aircraft, including complete Corsair fighters and airships.

HOW GOODYEAR AIRCRAFT CORPORATION SERVES THE

1. By constructing components to manufacturers' specifications.
2. By designing parts for all types of airplanes.
3. By re-engineering parts for mass production.
4. By building complete airplanes and airships.

AVIATION INDUSTRY

5. By extending facilities of Goodyear research laboratories to aid the solution of any design or engineering problem.



Akron, Ohio

Litchfield Park, Arizona

WAR BONDS BUY THE WINGS OF VICTORY

first eight officers, then a captain, to go overseas with Gen. Ira Eaker to form the Eighth Bombardment Command early in 1942.

H. H. Whittingham, formerly vice-president in charge of engineering of the Norge and Detroit Gear Aircraft Parts Divisions has been ap-



Whittingham



Reindel

pointed vice-president and manager of the unit. **Ira H. Reindel**, chief engineer for Norge, has been promoted to director of Norge engineering. At the same time it was announced that the name of the Detroit Gear Aircraft Parts Division will be changed to Detroit Gear Division.

Raymond E. Montgomery (photo), formerly assistant to the special representative for



Pan American-Grace Airways, Inc., in Miami, has been appointed to succeed **Richard H. Eggleston**, special representative there, who recently retired. Before joining

Panagra, Montgomery was in the traffic department of United Air Lines. Prior to that he was affiliated with several investment houses.

Gould B. Martin has joined the public relations staff of Fairchild Engine and Airplane Corp. as publicity manager. For the past two years Martin has handled publicity for Hamilton Standard Propellers, a division of United Aircraft Corp. Previously



he spent many years in the public relations and publishing business with his own organization in New York City, and later was with Platt-Forbes, Inc., advertising agency.

Col. Byron E. Brugge, chief of staff to Brig. Gen. Emmett O'Donnell, who led the first B-29 raid on Tokyo, is missing in action after the fourth Superfortress raid on the Japanese homeland.

Matt Denning has been named director of sales of the Finishes Divi-

sion of E. I. duPont de Nemours and Co., succeeding the late **W. Franklin Donohoe**.

Jacqueline Cochran has been elected to the board of directors of Northeast Airlines, Inc. She succeeds **Robert F. Bradford**, who resigned from the board on becoming lieutenant governor-elect of Massachusetts. Miss Cochran holds numerous world air records and has been serving with the Army Air Forces as director of Women Pilots and head of the WASPS. In private life she is Mrs. Floyd B. Odium.



P. H. Spencer, who designed the prototype from which the Republic Thunderbolt Amphibian has been evolved, is assistant chief commercial project engineer at Republic Aviation's Farmingdale, L. I., plant. Spencer designed, constructed and flew a biplane glider



in 1913 and the same year designed and built two flying boats and a tractor land biplane.

John F. Strickler, Jr., has been appointed assistant chief engineer of the Niagara Frontier division of Bell Aircraft Corp. Strickler has been with Bell since 1936, having been employed by Consolidated prior to that time. He was project engineer on the Airacuda, Bell's first fighter plane, did some design work on the Airacobra and was assistant chief project engineer on the development of the P-63 Kingcobra.



George C. Ford has succeeded **W. S. Clark** as works manager of Consolidated Vultee Aircraft Corp.'s Vultee Field Division. He has been chief of industrial relations at Vultee Field for the past year and a half. The Vultee plant currently is producing major assembly units for the B-32 and B-24 bombers, the PB4Y Navy patrol bomber, and Lockheed P-38.



Carrier Corp., Syracuse, N. Y., announces that **Allen K. Snyder** has rejoined the company as staff assistant to the director of advertising and sales promotion. **N. Stuart Irwin** has been named assistant director of advertising and sales promotion.

TELLING THE WORLD

• A new monthly publication, *The Air Force Woman*, bulletin of the National Association of Air Forces Women, has made its initial appearance. Mrs. Harold W. Grant is director of public relations and Mrs. A. D. Theobald is editor. Any wife, mother, widow, daughter or sister of an AAF man who is, or ever was, on active duty or any woman member of the Army attached to AAF may join the organization.

• Delta Air Lines, Atlanta, is distributing by mail and on its liners a four-color, 20-page booklet entitled, "Welcome to Southern Skies." Designed for air travelers, especially those flying for the first time, it traces Delta's 20-year history, pictures the territory it serves, describes its war work and briefly outlines post-war plans.

• Patricia O'Malley, public relations council for Transcontinental and Western Air, Inc., has published a new book entitled "Airline Girl."

• The Frank M. Hawks Memorial Award was presented to Roy W. Howard, president of Scripps-Howard newspapers, "For the contributions of the Scripps-Howard newspapers" to the development of commercial aviation in 1944.

• A motion picture entitled *Tornado in a Box*, concerning the gas turbine, has been released by Allis-Chalmers Manufacturing Co. The film is being lent to any industrial or engineering group. It is a 16 mm film.

• Answers to hundreds of questions on aviation and related subjects are presented in a new booklet, *At Ease Aloft*, just issued by the advertising department of Pan American Airways. Copies are being made available through Pan American district sales offices and travel agents.

• Republic Aviation has transferred its account to Albert Woodley Co., New York.

• The United Welding and Manufacturing Co., Hartford, maker of aluminum parts for aircraft, has appointed S. Duane Lyon, Inc. W. D. Cayton will be account executive to direct its advertising. Newspapers, magazines and trade papers will be used.

• Plans for a new Northwest Airlines advertising campaign are now being made by Newell-Emmett Co. Paul E. Newman is account executive.

Muscles for America's Aircraft



TO LOWER landing gears, to open and close shutters, to raise and lower flaps, airplanes need muscles. They must be sure-fire, smooth and precise in their action. They must be strong and dependable.

Here you see such muscles. They are Lear Actuators.

These Actuators are powerful, yet operate on a plane's limited electric current. They're tough and strong, yet tip the scales

in ounces or paltry pounds. They can be started and stopped with a simple switch or can be completely automatic.

Devices such as these, tried and proved under the extreme stresses of war, will prove equally important on the great new airplanes which lie ahead in peace.

Lear engineers stand ready to contribute their experience with the use of such controls. Feel free to call upon them whenever a control or actuating problem arises.

PLANTS: Piqua, Ohio, and Grand Rapids, Michigan
BRANCHES: New York, Los Angeles, Chicago, Detroit, Cleveland



Formerly Lear Avia, Inc.

FINANCIAL

PAA Financing Presents Unusual Underwriting Agreement

Investment trust to furnish up to \$25,000,000 capitalization if airline's stockholders fail to subscribe to new shares, taking option warrants instead of cash.

The proposed financing planned by Pan American Airways and designed to raise upwards of \$25 million during 1945, presents an unusual underwriting arrangement with Atlas Corp.—venture capital investment trust.

Following stockholder approval, the common stock will be split two for one and rights offered to purchase additional shares. The plan, approved by directors, will give stockholders the right, after the split-up, to purchase one additional share for each two held, plus an option warrant for the purchase of another share at \$18 per share good for two and one-half years.

► **Increases Capitalization** — The initial effect of this split would increase outstanding common stock from 1,993,261 to 3,986,522 shares. The succeeding step—stockholder subscription, scheduled for June, 1945, should increase the capitalization to 5,979,783 shares and return the company a gross of \$35,878,698 in additional funds. This is premised on present markets with current prices of around \$36 per share prevailing. This would mean a price of around \$18 per share for the split-up stock.

By subscribing to the additional shares, each stockholder would receive a warrant for each two split-up shares held, calling for purchase of one share of new stock during a two-and-one-half-year period. If the offering price should be less than \$13.50 or the equivalent of \$27 for the present stock, the price at which the warrant would be exercised would be reduced to \$16.50 a share. In this event, the company would receive \$26,909,000 in immediate new funds.

Further, on the ultimate exercise of the warrants at the end of the two-and-one-half-year period, additional gross proceeds to be received by Pan American could range from a minimum of \$32,888,800 (at \$16.50 per share) to a maximum of \$35,878,698 (at \$18 per share). In this process, total

shares outstanding would then aggregate 7,973,044.

► **Underwritten by Atlas** — Atlas Corp. has assumed an underwriting commitment of \$25,000,000. In other words, should Pan American stockholders fail to elect to subscribe to the new shares, Atlas Corp. will do so to the extent of its indicated obligation. In return, Atlas Corp. has declined a cash fee but instead has elected to accept option warrants. Should the split-up shares sell for less than 13, Atlas would be entitled to 600,000 warrants, if above 18, to 400,000. Atlas has agreed further to make a secondary distribution of any stock it may acquire but plans to retain a maximum of 200,000 shares.

There are a number of interesting elements surrounding this proposed financing. The success of this plan is entirely wrapped up in the company's future prospects. Should Pan American continue to prosper, it is obvious that its equity will be in demand by investors. The present stockholder is faced with this choice and in order to protect existing equity positions is almost forced to subscribe to the new shares. However, it is true that the forthcoming "rights" can be sold for immediate profit-taking.

► **Cash Investment Unlikely**—It is evident that Atlas Corp. is confident of Pan American's future by accepting options. Atlas will not be called on to invest any cash whatsoever if the new shares are subscribed to by the stockholders. The investment trust will stand by and is prepared to assure Pan American of \$25,000,000 in case stockholders turn thumbs down on the new shares. In any event, Atlas will receive a substantial number of warrants and will thus have a material position in the airline's future.

Investment observers were quick to reflect that it is unlikely that Atlas will be called upon to supply

any cash. The immediate market response greeting the financing plan seemed to augur a fair degree of success. Nevertheless, having a call on Pan American stock over a two and one-half year period, Atlas stands to profit handsomely in the airline's success.

► **Atlas' General Policy** — Atlas Corp.'s "general policy has been to invest in 'so-called special situation' companies which may seem unattractive but are basically and economically sound, to the end that an ultimate profit may be realized." Also, Atlas takes an active part in most of its special and controlled situations. How far the trust will go in assisting the management of Pan American remains unclear.

The largest stockholder in Pan American remains Aviation Corp., which holds 183,477 shares or about 9.2 percent of the total present issue. The same company also owns about 25 percent of the existing common stock of American Airlines.

Other general investment trusts have some substantial commitments in Pan American and no doubt will be important factors in the proposed financing. The more prominent holdings and the number of shares owned are: Blue Ridge and Lehman Corp., 16,000 each; U. S. & Foreign Securities and U. S. & International Securities, 10,000 each; National Aviation, 7,500; Consolidated Investment Trust, 6,500; and National Bond and Share 2,000.

► **Holds Northeast Stock** — Atlas Corp. also is vitally interested in Northeast Airlines and owns 90,000 shares of that carrier and has promised further assistance if needed. Other Atlas aviation investments include 4,000 shares of All American Aviation preferred and 500 American Export Airlines.

Atlas Corp. is dominated by Floyd Odlum, who has been outstandingly successful in financing operations. One of the directors of Atlas is Samuel Zemurray, president of United Fruit and which company has filed for air routes in the Latin American area.

It is noteworthy that the Pan American capitalization promises to become by far the largest among the air carriers and will easily approach that of many railroads. In addition to the 7,973,044 common shares ultimately to be outstanding, further funds to be raised by the airline will necessitate preferred stock offerings, equipment trusts or similar instruments.



UP...UP...UP into the sky!

DOWN...DOWN...DOWN to the ground again... just like the ride you take on your office elevator. That's the job Federal Aerial Navigation Equipment is doing in controlling air-traffic.

Federal traffic control equipment guides the plane from the minute it leaves the runway, right into the skies, heads it fast and sure for its destination and guides it back to earth... all with speed and accuracy.

And looking forward to the greater amount of passenger and freight traffic that will take to the air tomorrow, Federal has developed even better sky traffic control equipment.

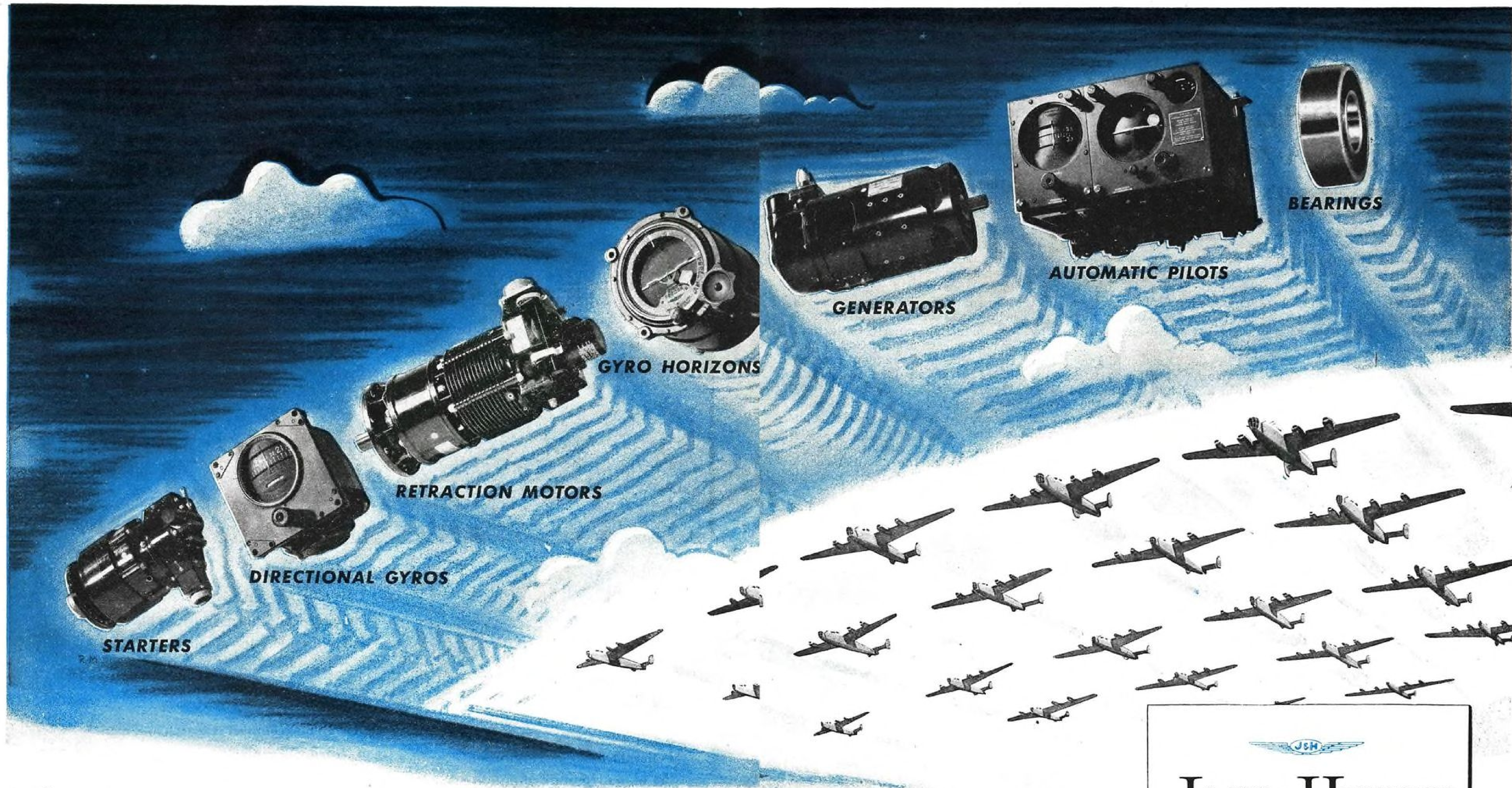
Here in one compact research and manufacturing organization is centered the know-how to design and manufacture complete air-traffic control systems for every need. Now is the time to have Federal help you plan for the air age of the future.



Federal Telephone and Radio Corporation



Newark 1,
New Jersey



"These are a few we can talk about now"

Today, the eight Jack & Heintz plants are turning out 36 different war products—in unending streams for the finest aircraft in the world. Our newest assignments are military secrets, but jobs we *can* talk about now are the instruments, auto pilots, generators, starters, motors and bearings that have gone to war by the tens of thousands.

This equipment is used in pursuit planes, bombers, transports, patrol boats, trainers, gliders . . . and even blimps. Its performance has been such that the Jack & Heintz nameplate is now a welcome sign of dependability to the men who gamble their lives on it daily in every corner of the globe.

From the first, Jack & Heintz has led the

way in reducing weight, boosting output and increasing service life on every job undertaken. Engineering like this has helped keep America's air fleet first in the war . . . it will be equally effective in holding that place in peace. Watch Jack & Heintz for new things in aircraft!

Jack & Heintz, Inc., Cleveland, Ohio, manufacturers of Aircraft Engine Starters, Generators, Gyro Pilots, Gyro Flight Instruments, Magnetos, Motors.



Buy More War Bonds and Stamps

PRODUCTION

Production Difficulties Tax Plants To Meet B-29, A-26, C-54 Schedules

Design changes and sharply increased requirements also factors in pointing up possible spread between output of vital aircraft and military needs.

Design changes and production control difficulties, in addition to labor shortages, are making attainment of schedules for the Boeing B-29 Superfortress, Douglas A-26 Invader and C-54 Skymaster critical problems.

Hiland G. Batcheller, the new chief of operations for the War Production Board, pointed out that the schedule for the supercritical B-29 is being built up in pace with production, with every indication that the big bomber will remain in the pressure classification for months to come. In discussing general requirements, Mr. Batcheller cited the fact that "since we want to upgrade as fast as possible, production can never come through fast enough."

Engine Shortage Likely—WPB evidently is looking ahead to a short supply of the Wright R-3350 engine used in powering the Superfortress. There is at present a cumulative surplus of the engine, but Mr. Batcheller pointed out that schedules are close to requirements and that upgrading of the B-29

schedule, now proposed, may result in a shortage of spare engines. Several major design changes are contemplated, he said, and these must be absorbed and the production increased two-and-one-half times by next October.

Chrysler Division of Dodge Motor Works at Chicago is credited with a "magnificent" production job turning out the R-3350 engine, but the Wright plant at Lockland, O., is termed the question mark in the program. Deliveries from this plant are scheduled to start in January and build up from that point. This plant has lately been plagued with labor disputes despite the urgency of its production schedule.

Boeing Wichita on Schedule—Boeing at Wichita has been on or ahead of schedule on B-29's since May—but schedules, WPB warns, may be increased. This plant should attain its peak rate under present schedules beginning in January. Boeing at Seattle has the "toughest job" of any B-29 plant, and to meet its schedule must have

3,500 to 4,000 new workers at the beginning of 1945 in the face of a tight labor market which now exists in Seattle.

The end of the harvest season in Nebraska is expected to help the Glenn L. Martin B-29 plant in Omaha, where 2,000 new workers are needed, and where a relatively low wage scale is hampering recruiting of new workers.

Difficulties at Bell Plant—The Bell B-29 plant at Marietta, Ga., has been having trouble with kinks in the production control system, according to WPB. Although WPB does not say so, the plant also has been hampered by the fact that the local labor supply has had to be trained virtually from scratch, with little or no metal-working or production experience to build on. The death of Carl Cover, general manager of the plant recently killed in an airplane accident at Wright Field, undoubtedly will have its effect. New general manager of the plant is James A. Carmichael, a Georgia attorney and political figure who has been associated with the plant since the selection of the plant site near his home town of Marietta.

Two or three months of delay are expected in the Douglas A-26 Invader program because of design changes. Despite the changes, WPB is seeking to lick the problem of quadrupling production by July. The Douglas Long Beach, Calif., plant was only five planes behind schedule in November and the Tulsa branch was on schedule, although it is a month behind the Long Beach unit in its design changes.

Labor Problem for "Skymaster"—The urgently needed Douglas C-54 Skymaster is in the quantity production stage, but the largest producer at Chicago is hamstrung by labor turnover. Almost 1,000 workers a week are being employed and trained for a net gain of only several hundred. The C-54 program as a whole is 27 percent behind schedule.

Another lagging production program, insofar as schedule is concerned, has been that of the Martin Mariner. But WPB admits that "the new schedule is realistic in terms of manpower" after revision early in December. WPB also discloses that additional tools would have been required to bring the Mariner production up to the level set in the old schedule. Tapering work on B-26 Marauder production is expected to ease the Martin manpower situation at Baltimore. —W. G. K.

NACA's Lewis Reveals JP Research As Major Activity of Air Industry

Discloses that a "very large number" of planes powered by jet propulsion and gas turbine units are now being developed by Army and Navy.

Research into gas turbine and jet propulsion power units for aircraft is one of the major unpublicized activities of the aircraft manufacturing industry, a situation pointed up by recent testimony before the House Appropriations Committee by Dr. George W. Lewis, director of aeronautical research for the National Advisory Committee for Aeronautics.

He mentioned several new types of aircraft that the Army and Navy are developing, involving the application of gas turbines and jet propulsion units. Dr. Lewis commented that there is "a very large number of these types." He showed the committee a number of design arrangements now undergoing study and experimentation.

New Plane Designs—New projects are being assigned to the NACA at an ever-increasing rate as a result of the introduction of new airplane designs particularly in the field of jet and gas turbine propulsion, modification of existing designs as dictated by war combat experience, the introduction of guided missiles and their application in the aircraft field and the ever-expanding complexities of aeronautical problems encountered at high speeds and high altitudes.

Dr. Lewis mentioned to the committee the F4U Vought in this connection as well as another Navy airplane, otherwise unidentified with two jet propulsion units. He called attention to a third which has a conventional engine in the nose and a jet propulsion unit in the tail. In answer to a question, he said all these have been built during the past year. He mentioned, too, the F15C, identified only as a "Curtiss job."

Army, Navy Use Studied—Those are not all the projects, he noted, but just a few of the new developments applying jet propulsion and turbines to present type airplanes. The Army and Navy, he pointed out, are feeling their way as to how best to apply these new propulsion devices.

He mentioned the YP-59—The Bell Airacomet—which he said was now in production and service in the United States, another type

with very large jet propulsion units in it, and a "special design which has a jet unit using the rocket type of propulsion." Dr. Lewis then showed the committee what he called "the most promising type as yet produced." And with that tantalizing testimony, the discussion was off-the-record.

Restricted—Another phase of the work as described by Dr. Lewis in his testimony has to do with ram jet propulsion and power units for guided missiles. He said this subject had become a tremendous field in itself. The details, naturally, are restricted.

The NACA requested an estimated \$2,656,000 for the 1945 fiscal year for salaries, expenses, construction and equipment. The Langley Field appropriation estimate was \$835,000, that for the Cleveland laboratory \$3,910,000.

It should not be overlooked that, in addition to the work being done by NACA and other agencies, there is scarcely an aircraft engine manufacturer or airplane manufacturer who is not investigating with varying degrees of intensity the possibilities of gas turbine and jet propulsion power. The possibilities are almost without horizon.

Ramsey Testifies—Rear Admiral

D. C. Ramsey, chief of the Navy Bureau of Aeronautics, testified before the same committee regarding funds needed to finance new projects pertaining to jet engines.

Admiral Ramsey said the Navy had at least three plants that will need financing to further develop the jet engine. All, he added, would be expansion of existing establishments. He estimated the needs for Westinghouse at \$19,000,000 and for Pratt & Whitney and perhaps one or two other manufacturers, about \$7,500,000 each.

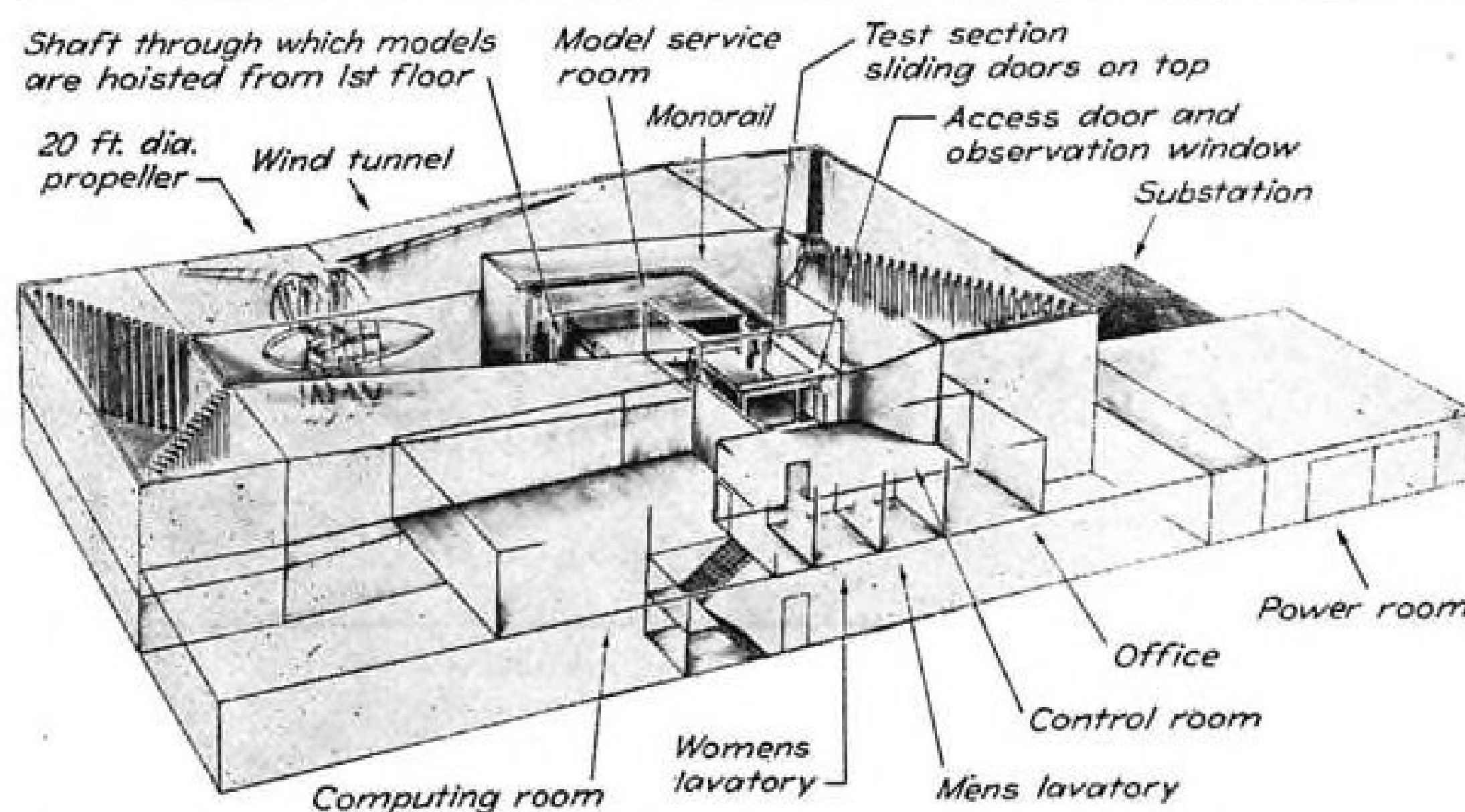
In addition, the Admiral testified, the Navy had need for financing the dual rotation propeller project which is also a United Aircraft activity for Hamilton Standard Propellers and for which the estimate is \$5,000,000.—C. S. H.

U. K. Plane Output

The United Kingdom alone built 102,000 airplanes, according to a White Paper recently issued by the British, summing up five years of war.

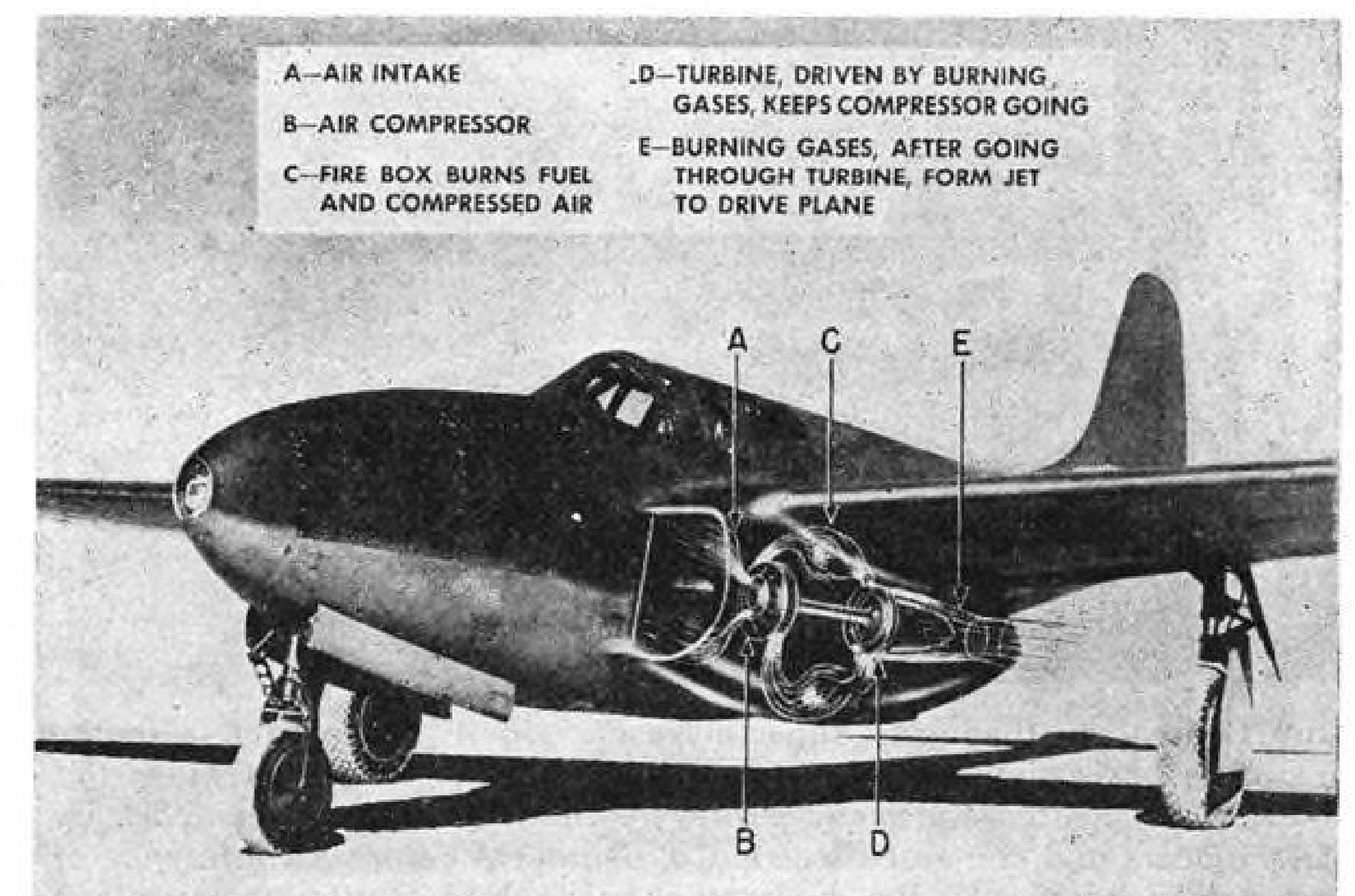
Operating under blackout conditions and frequently under attack, the aircraft plants produced 10,018 heavy bombers, and fighters are now being turned out at the rate of 940 a month.

Total American unit production in 1942, 1943 and 1944, including November, is 216,745, roughly the production since Pearl Harbor. With the addition of the 19,290 produced in 1941, the total is 236,035. For 1944, through November, the industry has produced 82,926.



CONVAIR'S NEW LABORATORY:

This phantom drawing of Consolidated Vultee's new wind tunnel shows the general arrangement of the laboratory. The 2250 hp motor will force air through the tunnel at 350 mph. Models with 10-foot wing spans can be tested. Installation of the apparatus used in research work will be completed by the end of 1945. Cost is estimated at \$524,000.



Details of Bell's Jet Propulsion Plane: Above sketch, just released, shows how these power units fit snugly beneath the wings and against the fuselage of Bell's P-59 Airacobra.

B-29 Device Utilizes Maximum Firepower

All gunners but man in tail can control more than one turret at a time in case of need to concentrate defense from any angle.

Any gunner except the tail gunner on Boeing's B-29 *Superfortress*, can assume control of more than one of the bomber's five turrets at one time under the revolutionary gunfire-control system, developed by the Armament Laboratory of the Air Service Technical Command and General Electric in cooperation with Boeing's Engineering Division.

Individual B-29 gunners have primary control of certain turrets and secondary control of others. A gunner with primary control of a turret has first call on its services, which he can relinquish to gunners with secondary control. An intricate but easy-to-operate signal system permits this exchange of control.

Maximum Firepower Utilization—In event of concentrated attack on one portion of a B-29, the gunner whose vision covers the point of attack not only can fire his own turret at the enemy, but can borrow a second turret to double his firepower. This control system re-

sults in the greatest utilization of the bomber's firepower. The system of fire control is not new to warships, but the *Superfortress* is the first airplane on which it has been installed.

Through this central control system, many combinations of turret control are possible. The B-29 has upper and lower forward turrets, upper and lower rear turrets and a tail turret. They are so arranged to cover any possible angle of attack.

The bombardier probably has a wider range of vision than any other gunner. He can operate either of two turrets separately or he can direct the fire of both simultaneously. When he needs control of but one turret, he can pass control of the extra turret to another gunner. The same principle applies to other gunners stationed in separate compartments.

Ryan Builds Plants For Big Navy Contract

Ryan Aeronautical Co.'s \$1,000,000 building expansion program got under way last week to provide facilities needed for the company's \$60,000,000 Navy contract for fighter planes.

T. Claude Ryan, president, said a large sub-assembly manufac-

turing building, and an additional two-story office building are the two main units. Fighting plane assemblies are to be built in the new factory structure. From there they will go for installation and final assembly to the adjoining final assembly building constructed two years ago.

Yard Areas Increased—Factory yard areas, used for outdoor production work, are to be increased by 82,500 square feet of new paving and a new surfaced parking lot of 569,000 square feet is to be provided for the 3,000 new workers needed.

One of the three Ryan School of Aeronautics buildings recently moved to the factory from its former location on Pacific Highway is being readied for use of the experimental manufacturing department and for flight operations. Two other buildings will be moved after completion of the east end of Lindbergh Field's new runway. Ryan's Lindbergh Field plant area ground leases now include 46 acres, eight of which were added recently to provide space for the three Ryan school buildings being moved from the opposite side of the airport.

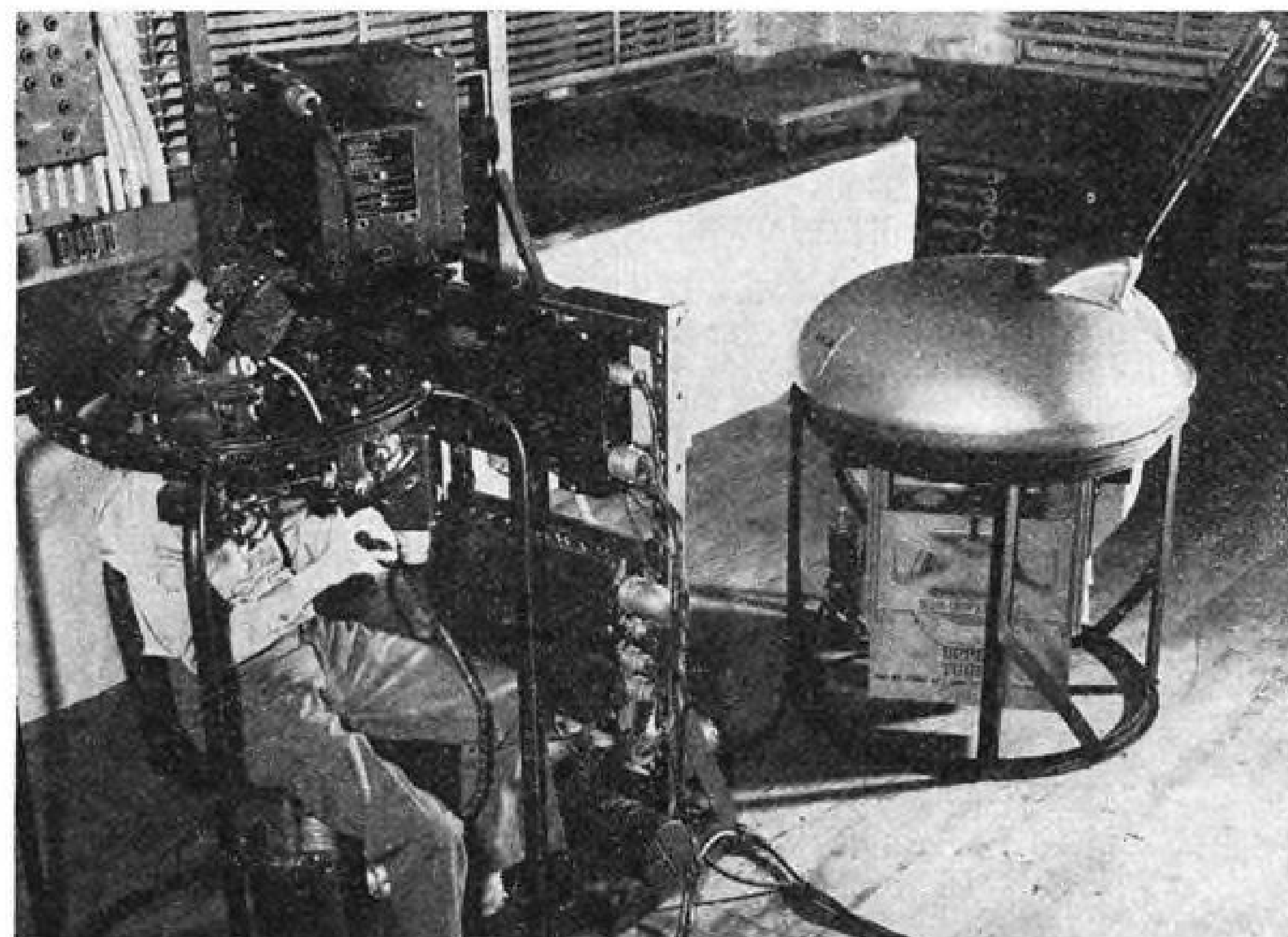
Canadian Vickers Split into Two Units

Canadian Vickers, Ltd., Montreal has been divided into two companies, one of which will continue to build ships to be known as Canadian Vickers, Ltd., and the other, Canadair Limited, to make aircraft exclusively.

The split came following discussions between the Canadian government and Canadian Vickers representatives. The government-owned plant of the company, where *Catalina* flying boats have been built and which is now producing Douglas DC-4 transports, forms the new Canadair Ltd. It is at St. Laurent, near Montreal, and will be managed by Benjamin W. Franklin, who has been in charge of aircraft production for Canadian Vickers.

Announced By Howe—Announcement of the transfer of the shipbuilding and aircraft operations into two companies was made by Munitions and Supply Minister C. D. Howe, at Ottawa.

His statement did not give any intimation of the eventual disposal of the government-owned aircraft plant to Canadian Vickers or whether Canadair Ltd. will be a government-owned corporation.



Gun Control on Boeing's "Superfortress": An AAF sergeant is shown operating basic elements of the central gunnery control system on the B-29, demonstrated and made public for the first time in New York by AAF officers and General Electric Co. engineers before a conference of industrial leaders. All the gunner has to do is to get the enemy plane in his sight and press the trigger. The complicated mathematical problem of accounting for speed of the enemy plane, its distance, gravity and parallax are worked out at split-second tempo by electronic and mechanical units of the system.

*They give their lives
That others may live longer*

The two Eimac electron tubes illustrated are "guinea pigs" in the science behind the science of electronics.* They are but two among many that live and die in the Eimac laboratories while undergoing a variety of gruelling tests deliberately designed to wear them out. Such work provides performance data upon which you can depend and speeds the development of new electron vacuum tubes.

Perhaps nowhere else will you find as great an emphasis on testing and inspection as is practised at Eimac. There are literally hundreds of individual tests and inspections to which every Eimac tube is subjected. Such rigid control along with painstaking care in fabrication has enabled Eimac to set performance standards difficult to equal... and to maintain these standards in tube after tube, year after year. This is an important fact to remember when you are selecting electronic equipment, because it's the electron vacuum tube that makes such equipment "tick". Hence your equipment can be no better than the vacuum tube it employs... Remember, too, that Eimac, being an exclusive manufacturer of electron vacuum tubes, is in a position to render unbiased help with your electronic equipment problems. A note on your company letterhead giving details will bring this assistance without cost or obligation.



Read this booklet—it's FREE ELECTRONIC TELESIS*

Sixty-four pages, fully illustrated, covering fundamentals of Electronics and many of its most important uses. Written in layman's language, this booklet will prove of interest to everyone. Your copy will be sent without cost or obligation. Available in English and Spanish languages.

*Telesis: Progress consciously planned and produced by intelligently directed effort.

Follow the leaders to



EITEL-McCULLOUGH, INC., 955 San Mateo Ave., SAN BRUNO, CALIF.

PLANTS LOCATED AT: SAN BRUNO, CALIFORNIA AND SALT LAKE CITY, UTAH

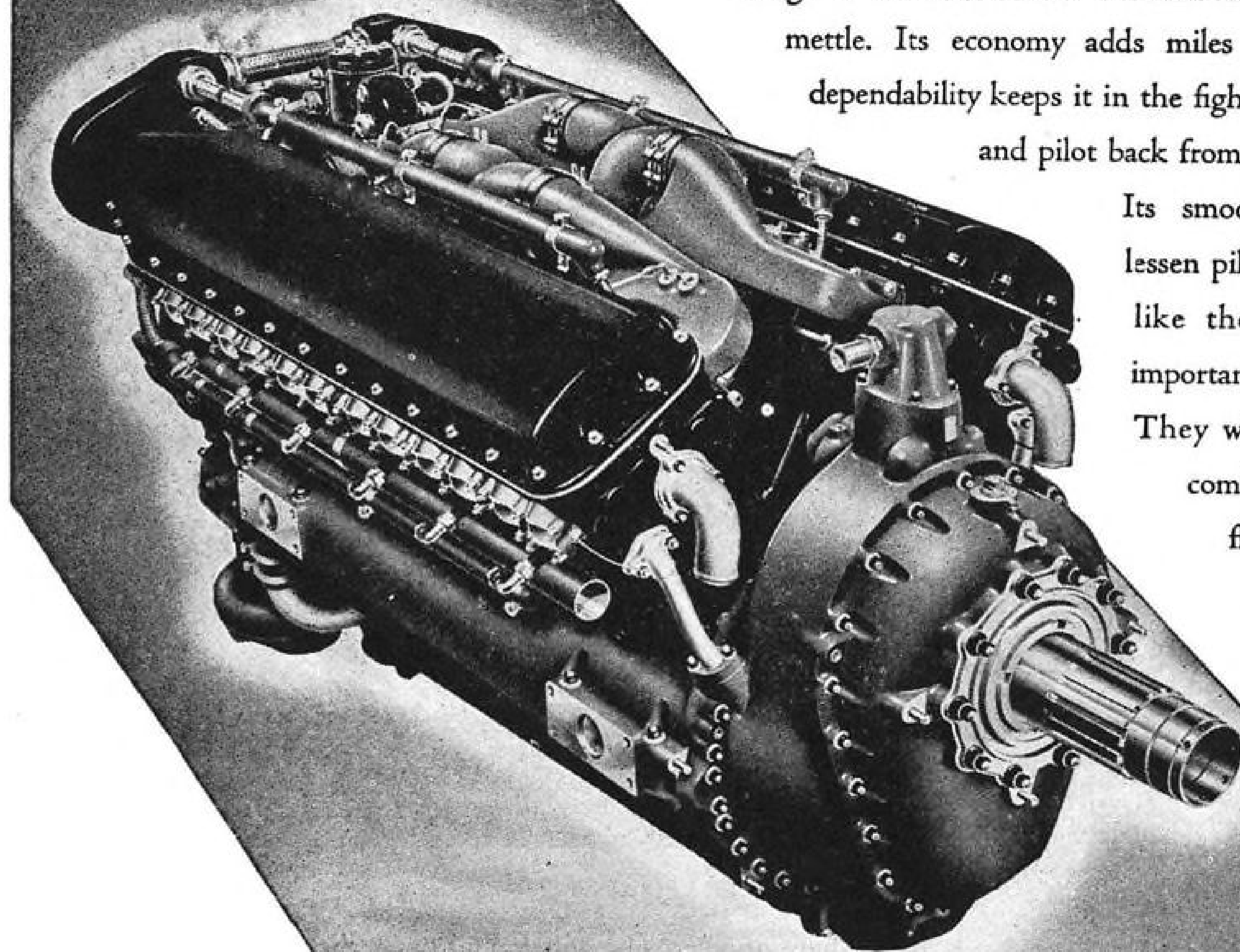
Export Agents: FRAZER & HANSEN, 301 Clay Street, San Francisco California, U. S. A.

*The science behind the science of electronics is the focusing of all branches of science on the development of new and better electron vacuum tubes.

TO FIGHT THERE AND BACK

In this war pilots often fight far over enemy territory, hundreds of miles from their base. So fighter planes need range as well as sting. ★ In such sorties the Allison engine has proved its mettle. Its economy adds miles to every tankful. Its dependability keeps it in the fight, helps get both plane and pilot back from hazardous encounters.

Its smoothness and response lessen pilot fatigue. ★ Qualities like these will continue in importance after the war's end. They will contribute to the comfort and safety of your flights in the days of great air transport to come.



POWERED BY ALLISON

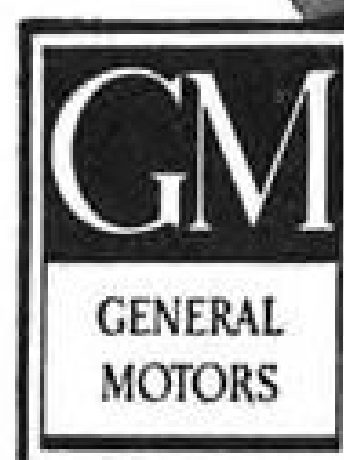
P-38—Lightning
P-39—Airacobra
P-40—Warhawk
A-36 and P-51—Mustang
P-63—Kingcobra

More than 60,000 Allison engines have been built for the above planes of the U. S. Army Air Forces.

LIQUID-COOLED AIRCRAFT ENGINES

Allison

DIVISION OF
Indianapolis, Indiana



GENERAL
MOTORS

Every Sunday Afternoon
GENERAL MOTORS SYMPHONY OF THE AIR—NBC Network

**KEEP AMERICA STRONG
BUY MORE WAR BONDS**

TRANSPORT

UAL Asks Board to Reconsider Award of Denver-L. A. Route

Patterson, president, charges CAB overlooked the entire public interest in reversing the examiner's recommendation for United and allocating route to Western Air Lines.

By DANIEL S. WENTZ II

United Air Lines' deep dissatisfaction with the Civil Aeronautics Board's decision in the Denver-Los Angeles case resulted last week in a petition for reconsideration and reargument of the Board's dictum awarding the route to Western Air Lines. In addition, W. A. Patterson, United's president, in a letter to all employees of the line, charged the Board with making a wrong decision, and pledged himself to making every legal effort to obtain a reversal.

Patterson described the Nov. 11 decision as "a shock to all of us," reversing as it did the recommendation of Examiner Albert F. Beitel that the route be awarded to United. The Board, he said flatly, overlooked the entire public interest "in favor of the interests of one company and that one company controlled and dominated by one man with a relatively few stockholders."

► **Anomalous Position**—Patterson's letter and the brief both referred to the anomalous position in which United would find itself—cooperating with Western in the conduct of a two-carrier transcontinental operation, and competing with the same carrier between Los Angeles and San Francisco.

The effect of the route award to Western, of course, would be to relocate the interchange point at Denver instead of Salt Lake City. Equipment interchange formerly was accomplished by means of a CAB-approved agreement between the two carriers.

► **Clarifies Position**—United's brief leaves small doubt as to the company's position regarding a new agreement covering interchange of the four-engine equipment with which the trans-mountain route will be operated. "We may as well tell the Board now that United Air Lines is not going to fly any Indian heads to New York City,"

said the attorneys. An Indian head is Western's insignia.

They further pointed out that if CAB had awarded the route to Western on the assumption that United would be willing to undertake another interchange agreement, then the Board's assumption was unwarranted.

The brief, in general, presented a comprehensive critique of the Board's methods of preparing its opinions. Rather than accept or refute arguments presented by the opposing attorneys in a case, the Board's decisions are made on the basis of general principles whose validity has not been completely enunciated, United's attorneys claimed.

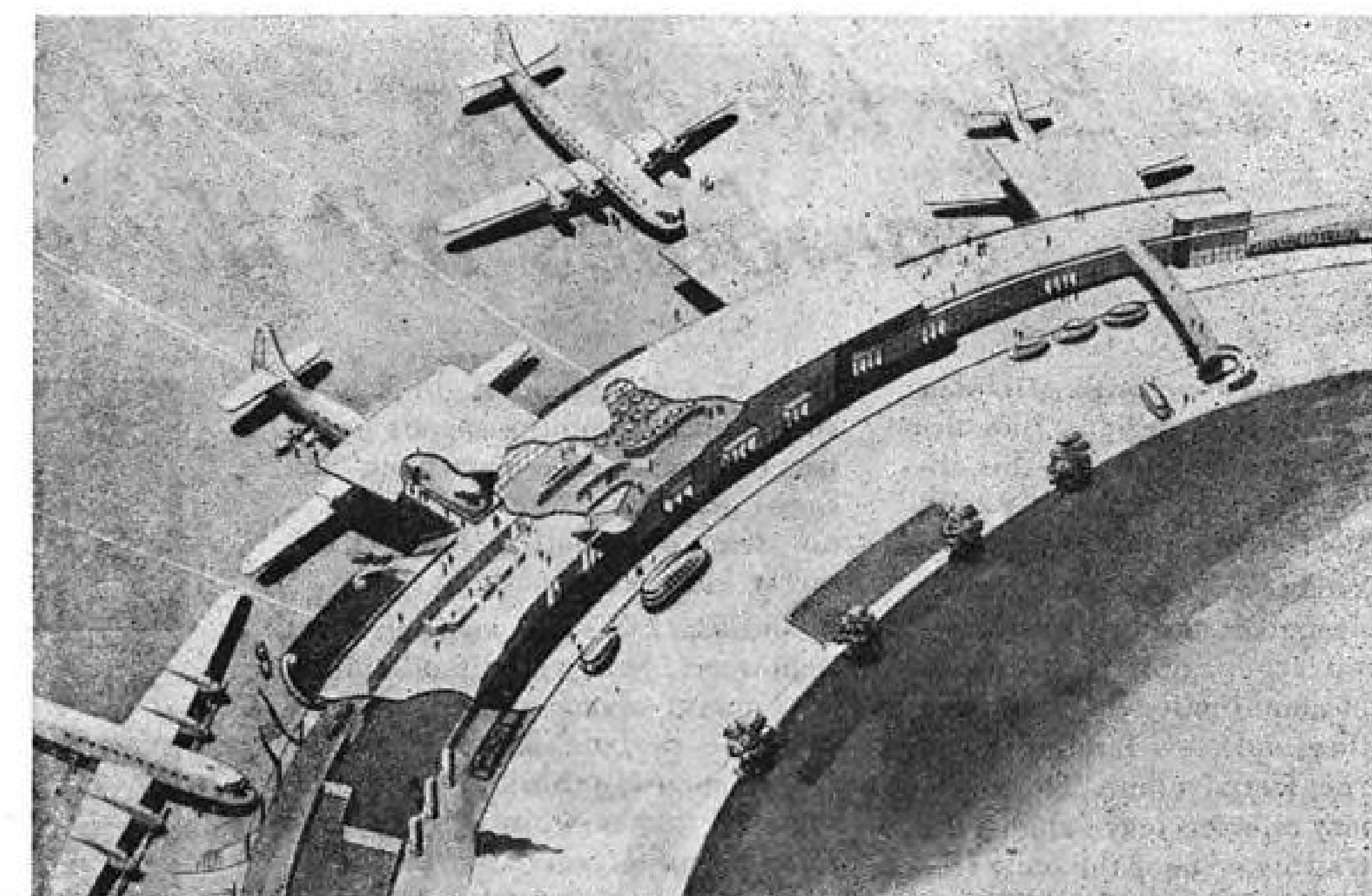
► **TWA Protests**—United was not

Clears It Up

Oswald Ryan, member of the Civil Aeronautics Board, believes misunderstanding of the distinction between CAB and CAA has caused "more confusion in the public mind than any other event within aviation history."

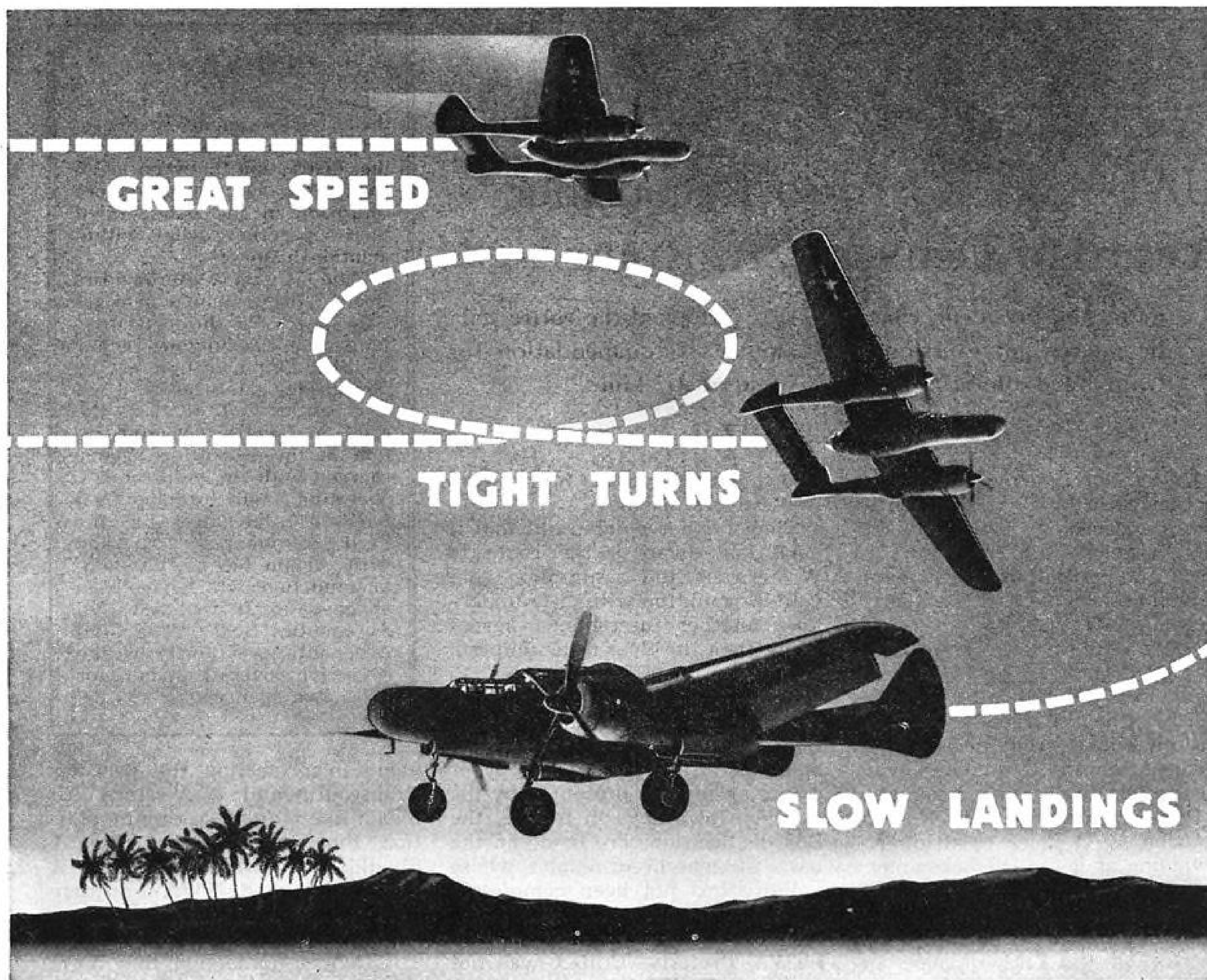
"The Civil Aeronautics Board," he explained in a recent speech, "is the legislative, judicial and regulatory agency for the administration of the powers delegated by the Civil Aeronautics Act of 1938; the Civil Aeronautics Administration is the executive agency charged with the enforcement, operating and promotional functions delegated by the Civil Aeronautics Act, and with certain technical regulatory functions which have been assigned to it by the Civil Aeronautics Board. The Civil Aeronautics Authority is the collective overall name for these two agencies."

alone in protesting the decision. Transcontinental & Western Air filed a like request, asking in addition that the case be reheard. Should the award stand, TWA lawyers claimed, TWA's position as a through transcontinental carrier would be seriously impaired. The Denver connection, they point



"FORWARD DOCKING" SEEN FOR POST-WAR:

A new method of loading for post-war planes was proposed to the SAE cargo meeting at Chicago by Jared B. Morse, Boeing Aircraft Co. engineer. Morse suggested that, with "forward docking," or nosing planes into the terminal, as depicted in the picture above, 100-passenger post-war planes can be loaded in less time than a 50-passenger plane by conventional methods. Under his plan cargo and mail would be handled on the ground floor, while passengers were loaded by gangway from the second floor.



The big Northrop BLACK WIDOW combines all three —

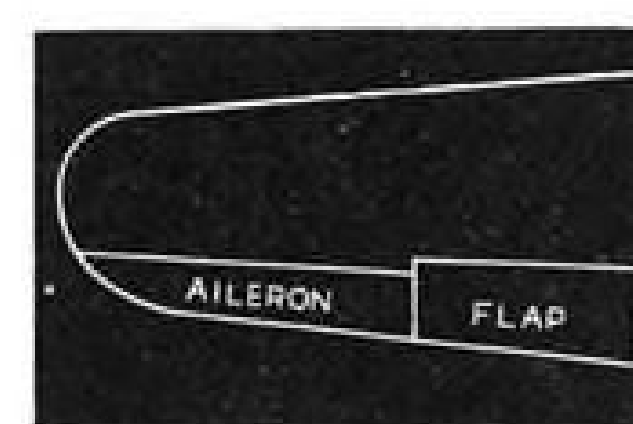
It couldn't be done with orthodox aileron and flap design. But the Army demanded—and got—this all-around performance in the agile Northrop Black Widow.

Retractable-ailerons and full-span flaps, designed and built by the Northrop group, are the secret of this first combination of tight-turning ability and slow landing speed in a large, fast airplane. These revolutionary ailerons leave almost the entire trailing edge of the wing free for flaps. So the big Black Widow lands "on a dime"—at no more than 70 to 80 M.P.H.

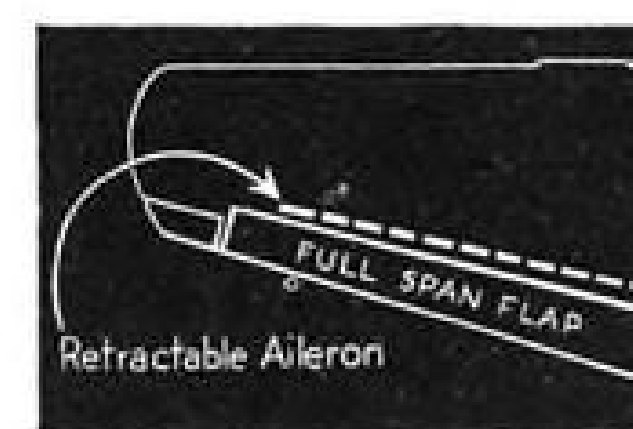
Vital to a night-fighter, think what such reduced landing speeds promise for peacetime passenger and cargo airplanes... extra safety... air strips only half as long as formerly believed necessary.

The Black Widow, swift as a fast fighter yet big as a medium bomber has many advancements in aerodynamic design. They typify the Northrop-group thinking and building skill that aviation will continue to need in the years ahead.

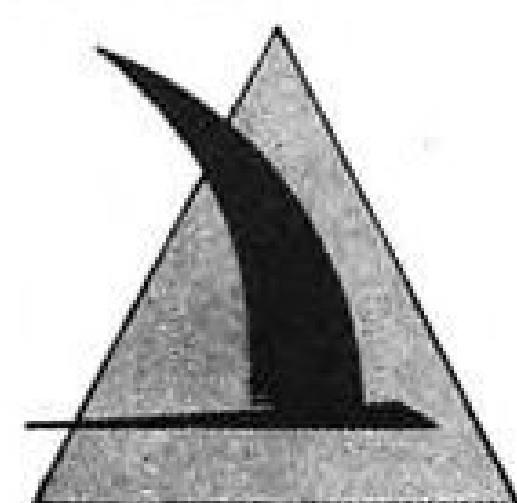
Northrop Aircraft, Inc., Northrop Field, Hawthorne Calif. Member Aircraft War Production Council, Inc.



CONVENTIONAL DESIGN: Tight turns demand "plenty of aileron," slow landings call for large flaps. With both controls sharing the trailing edge of the wing, designers were forced to compromise on performance.



RETRACTABLE-AILERONS in the wing, the first in aircraft history, were created for the P-61 by the Northrop group, making possible a more efficient aileron that teams up with the world's first full-span flap.



NORTHROP

Creators of the *Flying Wing* and the *Black Widow* P-61 Night Fighter

out, established a coast-to-coast route 45 miles shorter than TWA's present "shortest" route. Should the Western-United transcontinental system be operated, they claim, TWA would be subjected to a loss of revenue amounting to several million dollars yearly, and might be forced back into the "need" class of air carriers.

TWA also filed objections to the Board's award to American Airlines of the Tulsa-Oklahoma City-El Paso cut-off, which, TWA attorneys claimed, so drastically shortens American's flying time between Los Angeles and Chicago that it creates, in effect, another transcontinental route.

Both petitions for reconsideration will be acted on by the Board. Should its answer be affirmative, then the case might well enter a further period of litigation covering many months. Should it refuse to reconsider its stand United may carry the case into Federal courts.

Report Shows 'Musts' For Non-Operators

CAB examiner's recommendations in Lakes-Florida case reveal why State Airlines, Virginia Central and South East were disqualified.

While Civil Aeronautics Board Examiner Ross I. Newmann's report on the Great Lakes-Florida case is not particularly encouraging to non-operating applicants, it throws new light on factors likely to be viewed by the Board as disqualifying. The detailed analysis of the presentations of State Airlines, Virginia Central Airlines and South East Airlines probably will be useful to other applicants as an indication of stumbling blocks to be avoided.

While proof of convenience and necessity for a given route usually is the chief turning point in a case involving established carriers, the test of fitness, willingness and ability gains importance when applied to non-operators. In the Great Lakes-Florida report the examiner recommended that the Board find South East Airlines and Virginia Central Airlines not fit, willing and able to perform the air service for which they applied.

In listing his reasons for the recommendation, Newmann pointed to the following factors:

► Airline experience is a "must" for at least a majority of the officers of a new airline company. One official of Virginia Central was

described by the examiner as "undoubtedly a well-qualified pilot and fixed base operator," but his testimony "clearly indicates that he is unfamiliar with airline operations."

► Willingness to undertake a new business enterprise similarly is not an acceptable equivalent for air transport "know how." South East Airlines' only company witness with airline experience was criticized by Newmann as having "little realization of the risks involved in an undertaking of the type proposed by South East."

► Elimination of some ground personnel as a method of effecting strict operating economies may be considered unacceptable by the Board or its examiners. South East's proposed plan of handling ground operations through individual contracts with local airport operators as a means of reducing personnel expenses was unfavorably received by Newmann.

► Statements by bank officials, indicating their willingness to underwrite a proposed carrier operation, may not constitute sufficient proof of financial ability. One such official, testifying for South East, revealed that his bank had no written obligation to finance the prospective operator.

► Financing arrangements depending on the applicant's securing a permanent certificate also may not prove financial soundness to the satisfaction of CAB. State Airlines' financial program, which contained such a proviso, failed to secure the examiner's approval. This particular application of financial tests gains added significance in the light of the Board's recommendation, in its Local-Feeder-Pick Up opinion, that feeder operations should be certificated for temporary trial periods only.

► Feeder route patterns which necessitate considerable duplications of existing trunk services also run a risk of being disqualified on the ground that the traffic will not bear parallel competition, especially over local service segments.

None of the three non-operating applicants in the Great Lakes-Florida case can properly be described as a feeder line. Their applications asked route systems up to 2,500 miles in extent. Although these were based on a need for local service, the examiner found that in most cases this service could be provided by granting additional stops to the existing carrier, avoiding duplications created by new authorizations.

Charge 'Vet Appeal' Used in Application

Norseman Air Transport, formed of Army, Navy, ATC and RACF personnel, is criticized by AAA at New England Hearing.

Norseman Air Transport, a feeder line company formed by a group of service men and war-time pilots, became a center of discussion last week as its case was presented before Civil Aeronautics Board Examiner Barron Fredricks in the New England hearings. Charges that the service men were being "used" as a means of securing a CAB certificate were made during cross examination of one of three Connecticut businessmen who have agreed to finance the company.

Jerome E. Respass, a Hartford, Conn., business executive, testified that he and two associates were prepared to underwrite the proposed operation for \$100,000 if a certificate were granted. Austin M. Zimmerman, counsel for All American Aviation, another applicant in the case, countered: "We have shown it is the intent of these people to use these veterans to secure a certificate," but was interrupted by objections.

► **2500 Mile Route Sought**—Norseman's organization is formed of Army, Navy, Air Transport Command, and Royal Canadian Air Force personnel on active service. It is seeking authorization for some 2500 miles of routes in New England, New York, Pennsylvania and Canada.

The conflict among established carriers continued to be a feature of the proceeding. Colonial Airlines' application for a New York-Portland, Me., route was branded by Eastern Air Lines Vice President Paul H. Brattain as a "none too subtle attempt" to enter the New York-Boston traffic. The presence of Bedford, a Boston suburb, as an intermediate point in Colonial's application was the foundation for Brattain's charge that Colonial was attempting to repeat its request for a New York-Boston certificate, denied by CAB early last summer.

► **EAL Argument** — Brattain asserted that his company's request for authorization to serve New Haven, Brockton, Providence and other New England cities as intermediate stops on its New York-Boston route should be granted in preference to Northeast Airlines'

application for some of the same stops, inasmuch as the latter could not provide service south of New York, which is possible on Eastern's system.

E. Smythe Gambrell, Eastern's attorney, said his company hoped for removal of the present restriction which permits service on the New York-Boston run only by flights originating south of Richmond, Va., and Charleston, W. Va.

Northeast Airlines' presentation was marked by a statement of President Paul F. Collins that experimental operation of helicopters for feeder routes should be conducted by an established carrier which can spread the costs of the experimental service over its entire system. He said his line plans the use of the Douglas *Skybus* for

feeder routes, but was still considering the future employment of helicopters.

Wants Air Closed To Surface Carriers

Bailey, Senate Commerce Committee chairman, opposes any moves by non-aviation interests for international or domestic routes.

Senator Josiah W. Bailey, North Carolina Democrat, said last week that surface carrier operation of airlines should not be permitted internationally or domestically, that international aviation should be restricted to "one or a very few airlines," and that, domestically, existing carriers should be allowed to extend their services in preference to permitting new carriers to enter the field.

Bailey is chairman of the Senate Commerce Committee and has announced that he will assume control over that body's consideration of aviation matters in the next Congress. He was a U. S. delegate to the International Civil Aviation Conference at Chicago.

► **Favors Private Competition** — Despite his reference to one or a few airlines to represent this nation in international air commerce, the Senator is known to favor privately competition in this field. His statement is a recognition of the thing the Airlines Policy Committee has noted, that not all domestic lines will be able to fly all international U. S. flag routes. Back of Baileys' reference to expansion and strengthening of existing carriers rather than allowing newcomers to enter the field is the feeling that to permit too many of the 325 uncertificated applicants for air routes to get into the air might make it hard to reduce subsidies. He didn't mention feeder lines specifically but his declaration could be interpreted as advocating operation of feeder services in most instances by existing airlines.

► **Clash Expected** — Not all the members of Bailey's committee agree with his views. A clash can be expected with Senator Pat McCarran, Nevada Democrat, who consistently has advocated opening the field to newcomers. McCarran returned to Washington last week from West Coast hearings of his special committee on decentralization of heavy industry. He plans to introduce both of his aviation bills, one dealing with

domestic and the other with foreign aviation, in the next Congress.

The latter would provide for an "all-American Flag Line" for overseas operation. Hearings may be held on this soon after the first of the year, Bailey plans. There have been many requests that the hearings be open, and the chairman indicates that he will grant them. He hasn't determined whether to handle the situation in full committee or to appoint himself chairman of an aviation subcommittee.

U. K. Reveals World Route Crossing U. S.

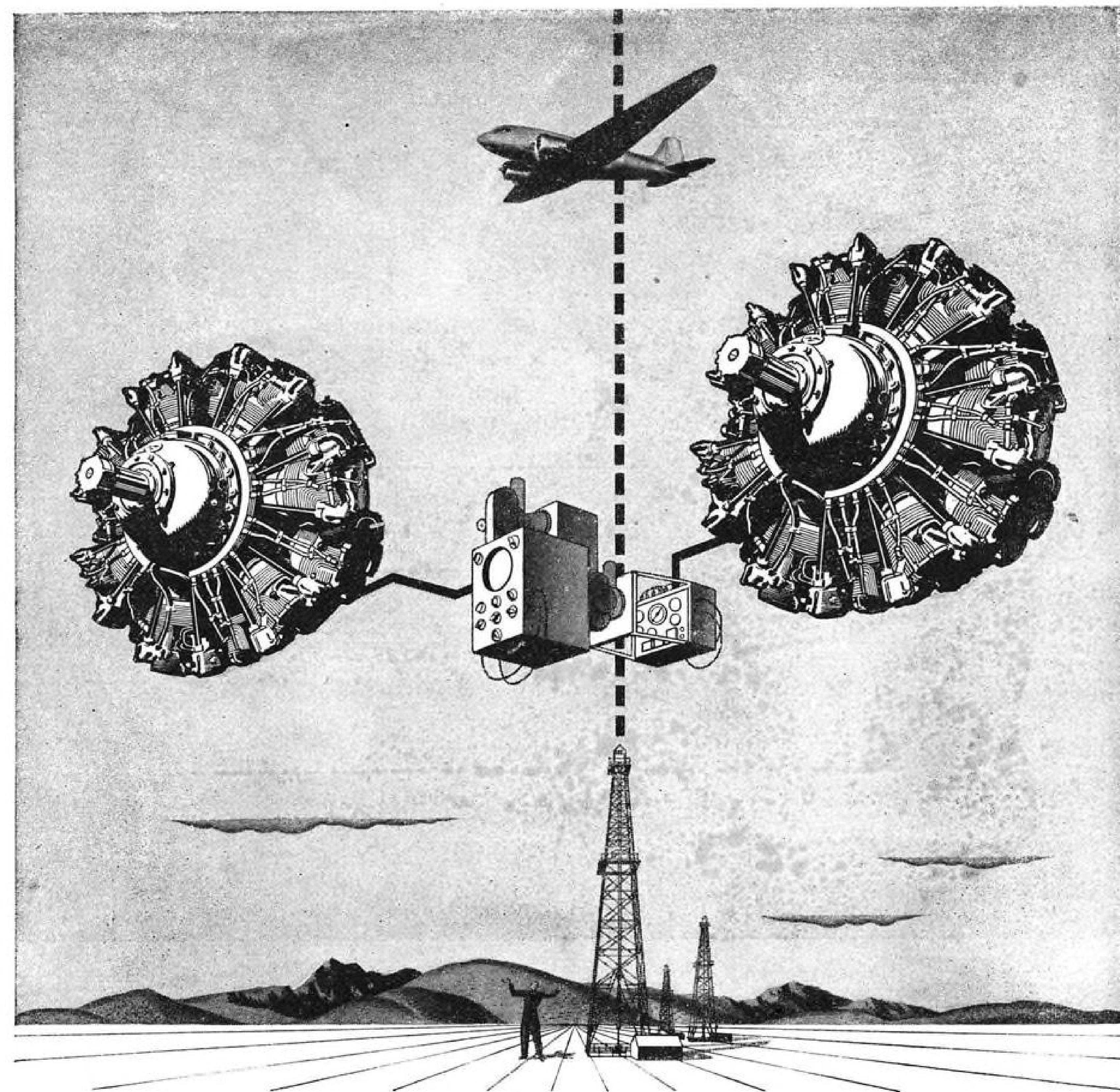
Announcement of military air-line follows international civil aviation talks at Chicago.

British announcement in San Diego of a military world airline crossing the United States followed significantly the international air route amity developed at the Chicago world air route conferences. Actually Great Britain began operating her world route as an RAF priority passenger and cargo service a month ago.

► **Montreal to Sydney**—The flight segment completed at that time extends from Montreal to Australia with landings at Washington, Dallas, San Diego and San Francisco. Pacific landings are being made at Honolulu, Canton Island, Fiji Islands, Auckland and Sydney. Britain's other world route segments are established by flights between Montreal and London and from London to Australia via India.

The Montreal-Australia segment operates twice-weekly flights, using four Consolidated Vultee Aircraft Corp. C-87 *Liberator* transports, capable of offering transportation to 12 military priority passengers plus 3,000 pounds of cargo. Delayed announcement of the service was made in San Diego by Squadron Leader Basil Fitz-Gibbon, in charge of Pacific operations. Fifty administrative, traffic and maintenance personnel are attached to his headquarters at San Diego's Lindbergh Field.

Informed domestic airline operators feel that understandings reached at Chicago, especially with regard to cabotage, preclude concern over any priority claims for post-war routes that might develop from the present British service.



Petroelectronics writes history in the sky

She looked like any other United Mainliner; but only on the surface. Inside she was a flying test tube; a compact laboratory in space. Aboard her, engineers from Standard of California and United Air Lines were seeing, for the first time, what went on inside aircraft engines in flight.

"Petroelectronics," the application of electronic instrumentation to petroleum research, made it possible. Standard's own electronics laboratory

supplied many of the instruments which recorded combustion-chamber pressures, cylinder temperatures, and fuel-air ratios; analyzed exhaust gases; checked fuel performance and consumption under varying flight conditions.

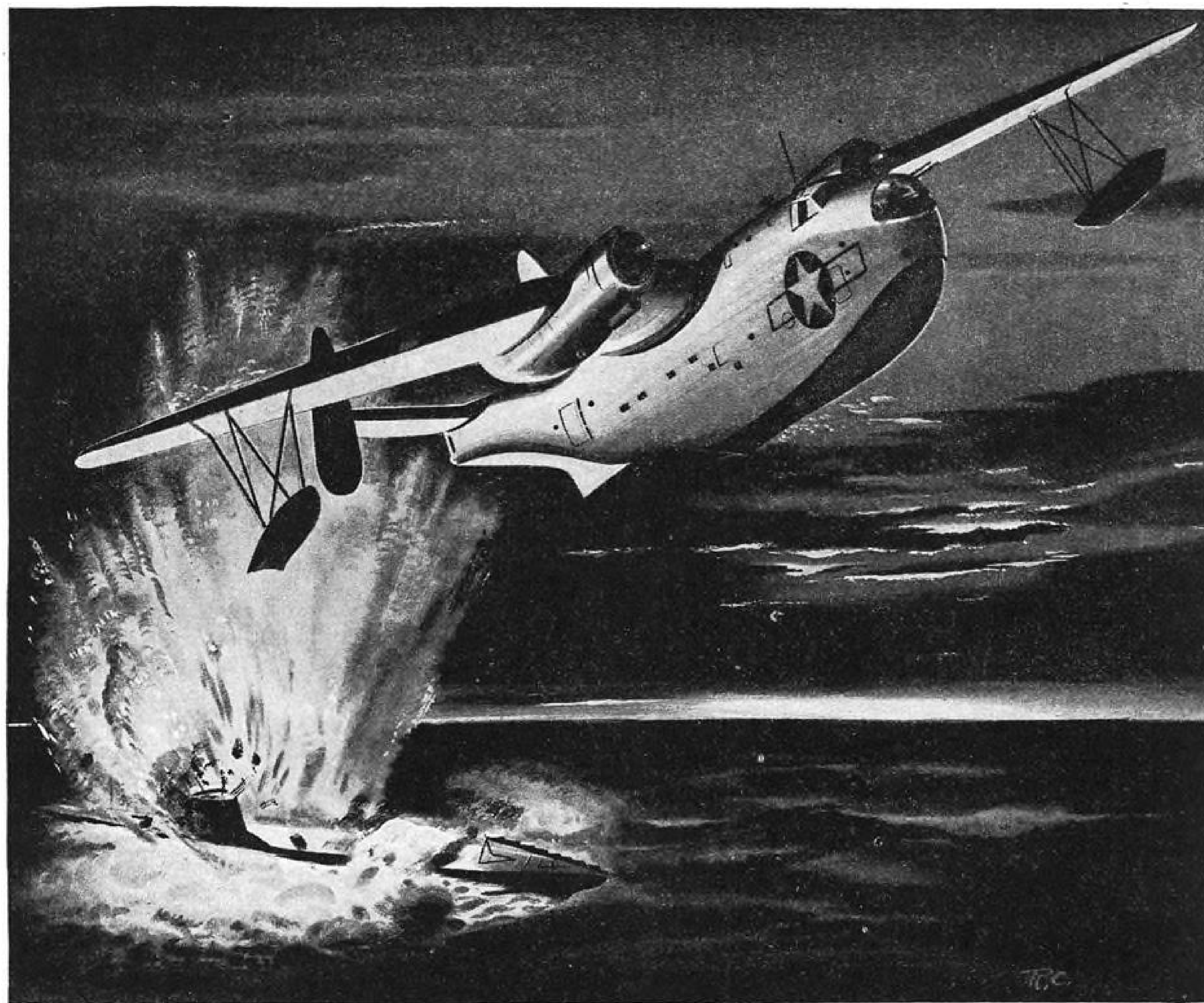
For United Air Lines, the tests revealed that leaner carburetor settings safely increased fuel economy 8% to 15%, that a certain type of spark plug eliminated preignition, that the

grade of fuel selected powered their engines efficiently.


For Standard of California scientists, this pioneer of all completely instrumented power-plant flight tests led to new fields of research—and the tremendously powerful Standard Aviation Gasoline of the present. But Standard petrolelectronics hasn't stopped there. It's giving our aviation fuel more fighting punch today—and finding new ways to make it useful in the blueprinting of more efficient aircraft for tomorrow.

STANDARD OF CALIFORNIA





WINGED FOR VICTORY *by Fairchild*

 On wings built by Fairchild, the Navy's big patrol bombers—Martin PBM-3 Mariners—fly to war over the seven seas.

They've sent many a submarine to the bottom. They soar by the hundred over icy arctic waters; patrol the far reaches of the Pacific; carry bombs and munitions, cargo and men to combat on distant naval fronts.

Behind their constantly increasing numbers is the story of industrial America at war—the story of American vision, enterprise, initiative and coopera-

tion combining to accomplish the "impossible".

Three years ago there was a critical need for these big flying boats. Fairchild undertook the job of building the vital wing panels despite the fact that Fairchild had just launched a heavy production schedule, building famous Cornell primary trainers for the Army Air Forces, and manufacturing other Fairchild-designed aircraft.

In this day of industrial miracles, this Fairchild accomplishment stands as another example of the job that can be done with cooperation, technical knowledge and production skill.

BUY U. S. WAR BONDS AND STAMPS

 **Fairchild Aircraft**

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

State Legislatures Eye Aviation As New Source of Taxation

Official federal and state groups study situation with view to making recommendations for legislation; CAB committee works on multiple taxation problem.

Indications are plentiful that state legislatures next year will devote increasing attention to aviation tax considerations. In 1943, there was some aviation tax legislation, but most of the new state air laws dealt with such general subjects as use of planes for private or commercial services, regulatory matters, and the extent to which municipalities might engage in aeronautical activities, with few enactments applying exclusively to air carriers.

One of the principal hints that legislatures meeting in 44 states next year in regular session will turn to aviation tax matters comes from the fact that half a dozen official state and federal tax groups are studying aviation tax questions. Five of these are state and one federal, the last Civil Aeronautics Board's own committee on multiple taxation, headed by Member Oswald Ryan.

► **Study Tax Problems** — The Board's research staff also is working with other groups studying tax problems. Among these are two organizations affiliated with the Federation of Tax Administrators. These are the National Association of Tax Administrators and North American Gasoline Tax Conference. The former has a committee on taxation of airlines and the lat-

ter a committee on taxation of aviation gasoline.

National Association of Assessing Officers and National Tax Association have committees on airline taxation and aviation taxation, respectively. Council of State Governments has two, a special committee on aviation and a subcommittee of its committee on taxation.

Many other groups also are looking into the situation, among them the Air Transport Association, which at its regular meeting last month voted to submit to the CAB recommendations for federal legislation that would declare against multiple, excessive and discriminatory state taxation of air carriers, and work to prevent it.

► **Upheld by Supreme Court**—A lot of this interest in aviation taxation was created by the U. S. Supreme Court's decision in the Northwest Airlines case, when it held last May that Minnesota had the right to tax all of Northwest's fleet because it is based in that state. In their 5-to-4 decision, several of the justices pointed to the need for remedial legislation.

This hasn't helped Northwest's situation, however, and the line a few days ago turned \$128,541 over to Ramsey County, Minn., in per-

sonal property taxes on its fleet for the years 1939 to 1943. Company officials warned that, unless remedied, the Minnesota taxation will compel removal of NWA headquarters to another state. The company pays taxes on portions of its fleet in six other states; only 16 percent of its total mileage is in Minnesota.

► **Cites High Tax Rate**—Northwest also reports that a recent CAB study showed tax payments by airlines have been higher in Minnesota than in any other state. That state, with two commercial air carriers, led all others last year in taxes received from airlines.

Despite the interest in aviation tax matters, however, a good deal of attention is being given to preparation of legislation to cover other aspects. In Massachusetts, for example, a state commissioner of public utilities has disclosed intention to introduce a bill before the January session of the legislature that would give his department control over virtually all airline operations within the state.

The bill would give the utilities commission authority to issue certificates of convenience and necessity for air routes within the state, including segments of interstate airlines over Massachusetts terrain if the operator makes more than one stop in the state.

► **Indiana Legislation**—In Indiana, Gov. Henry F. Schricker's commission on aviation met earlier this month at Indianapolis to discuss what recommendations for state aviation legislation it will make to the forthcoming Indiana legislature. Oswald Ryan of CAB told the group that, in the Board's



DRAFTING COMMITTEE FOR INTERNATIONAL ATA:

These men met in Washington last week to draft by-laws for an air transport association on a world scale. Left to right, they are Col. Edgar S. Gorrell, adviser, president of the Air Transport Association of America; F. W. Farey-Jones, adviser, of CIATO (Conference of International Air Traffic Operators); John Slater, American Export Airlines; Rene Briend, adviser, commercial director, Air-France; Luis Machado

of Cuba; Henry K. Gorecki of Poland; Maj. J. R. McCrindle of BOAC; John C. Cooper, vice president of Pan American Airways and chairman of the drafting committee; Lieut. Col. Ferdinand Flocon of France; Per Adolf Norlin of Sweden; and Maj. Henri Lesieur of France. Not pictured are Col. Pedro A. Chapa of Mexico, committee member, and Albert Roper, adviser.

opinion, the state's most appropriate function in dealing with civil aviation will be "primarily of a promotional and developmental character," rather than regulatory. Explaining that the Civil Aeronautics Act visualizes competition, in contrast with the policy of other countries, Ryan cautioned that the success of the U. S. policy depends on a single, uniform control, "impossible to accomplish if 49 governments instead of one attempted to regulate this subject."

Non-Schedule Local Service Proposed

Suggested by Pogue as possible solution to local air transport problem.

Civil Aeronautics Board, at the threshold of a study of non-scheduled air transport that may outdo in size even its earlier investigation into need for local-feeder-pickup service, has brought up the question of non-scheduled operation as a solution to local service problems.

► **Advanced by Pogue**—The idea was put by Chairman L. Welch Pogue in a speech delivered for him at the St. Louis meeting of the National Aviation Trades Association. Suggesting that scheduled stops at small cities every few miles probably will not offer very effective competition to railroads, buses and private cars for some time to come, Pogue said he felt nevertheless that there would be frequent but irregular demands for air service to and from small cities. He visualized "something in the nature of a glorified regional taxi service by air." This did not mean proposed local scheduled services are being ruled out. After the local service investigation, the Board announced it was prepared to grant temporary certificates to economically promising local services.

Pogue observed, however, that non-scheduled air service has become something of a "forgotten possibility" in national air transportation. "When we get down the line to really small cities," he said, "the total volume of long-distance travel by air might not constitute a major of profitable traffic flow and possibly its wide geographical dispersion could not be fitted to any rigid route pattern . . . Why should we restrict with routes that are not necessary the flexibility of air transportation to these small communities?"

Pogue Highlights

Excerpts from the speech by L. Welch Pogue, Civil Aeronautics Board chairman, before NATA's 5th annual convention at St. Louis:

► If air transportation is to become our nationally accepted means of passenger and mail transportation . . . and . . . make a significant contribution to cargo carriage, we cannot have the nation only half-clothed with air service.

► I believe that volume of non-scheduled operations constitutes an important development in air transportation. . . . After the war, the resumption and expansion of non-scheduled operations may provide the means of enabling two or three thousand instead of only 500 persons to get into a business of their own in developing this form of air transportation.

► I believe that non-scheduled operations offer the possibility of developing a considerable business in the small communities. . . . It seems clear to me that the thinking which has been done thus far on the local service problem has not undertaken with sufficient vigor a definition of the full field of opportunity for the non-schedule operator.

Form Transport Body

A British Commonwealth Air Transport Council was formed in Montreal at a meeting of ministerial representatives of Great Britain, Canada, Australia, New Zealand, Newfoundland, South Africa and India following the Chicago International Air Conference. It will provide an informational exchange among the members of the British Commonwealth and Empire.

Crash Unexplained

Testimony taken by Civil Aeronautics Board accident investigators in two days of hearings on TWA's Dec. 1 accident near Burbank, Calif., failed to assign any cause for the mishap other than that the plane was below the altitude customary at the point of the accident. The plane and its instruments apparently were functioning properly at the time of impact while an instrument approach was being made at the pilot's discretion. Why the plane was not operating at the usual

2500 to 3000 ft. altitude remained unexplained.

ATA Backs Roosevelt Ship-Airline Stand

Gorrell criticizes surface carriers' argument that air authorizations are needed to maintain strong Merchant Marine.

Preliminaries to next year's battle by surface carrier interests to secure Congressional support for their attempts to enter the air transport field appeared last week to be well under way.

As a sequel to a report by the House Merchant Marine and Fisheries Committee favoring the steamship companies' plea, and the letter reportedly written by President Roosevelt to the Committee's chairman, Schuyler Otis Bland, in which the President is said to have favored separation of the forms of transportation, Col. E. S. Gorrell, president of the Air Transport Association, threw his organization in line behind the President's view.

► **Old Argument Attacked**—Gorrell's statement attacked the familiar surface carrier argument that air authorizations are required if the shipping companies are to retain enough business to preserve a strong merchant marine. This reasoning, if carried out, he said, would mean either the strengthening of surface carriers to the detriment of air transportation, or the diversion of airline profits to subsidizing merchant marine operations rather than using them to improve air transport.

ATA Elects Officers

With one exception, Air Transport Association officers were re-elected at ATA's recent annual meeting. Exception is Vice-President Croil Hunter of Northwest Airlines, whose place was taken by J. W. Miller of Mid-Continent Airlines. Col. Edgar S. Gorrell was re-elected president, J. F. Hintersehr, treasurer, and M. F. Redfern, secretary.

Names of former directors William A. Patterson of United and Terrell C. Drinkwater, formerly of Continental and now of American, are missing from the new list of directors, which now includes Eddie Rickenbacker of Eastern, Jack Frye of TWA, O. M. Mosier of American, Croil Hunter of Northwest, T. E. Braniff of Braniff, C. Bedell Monro of PCA, and Paul Collins of Northeast.



Dear Bro. Joe:

As a Thunderbolt-maker to a Thunderbolt pilot, I just wanted to tell you how we in the Republic plant feel about you guys. Sometimes we think we're pretty good. We build one of the toughest fighters of this war. We build 'em fast - more than 10,000 so far. We see them go out of here headed for every front. We read about them in the newspapers. This is why we bust out now and then with a big hurrah for ourselves.

But...and this is the reason for this letter...when the shouting and the back-patting are all over, we know a Thunderbolt is only eight tons of fancy machinery until one of you guys takes her up into the blue. Only then is it a fighting plane.

And let me tell you this: there's a prayer in just about every bolt and rivet of those 10,000 Thunderbolts - prayers that are sort of dropped in by us folks along the assembly line for the one particular guy who's going to fly her and fight in her.

So this is the way we feel about you, Joe. It is a small thing we do beside the big thing you do.

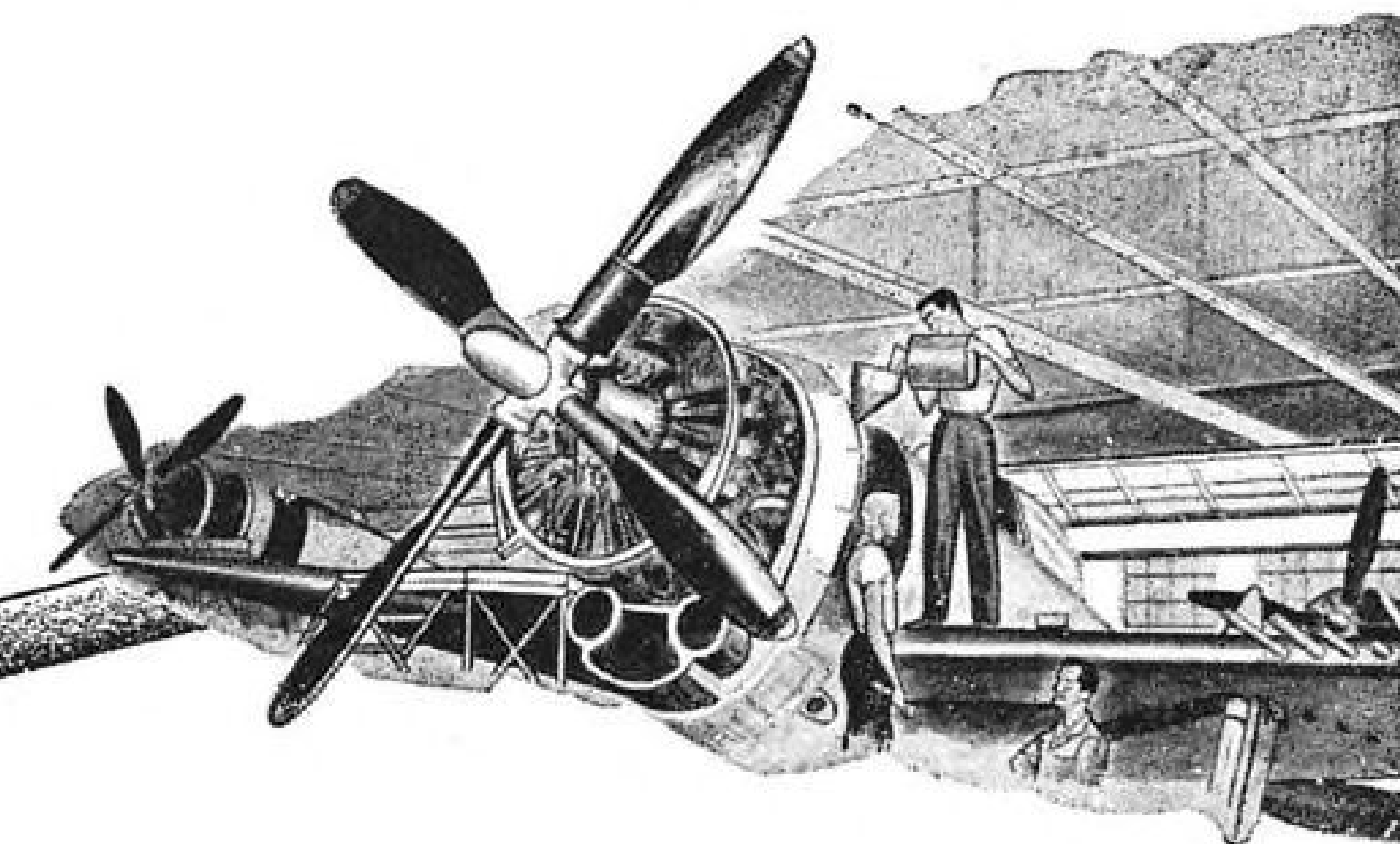
Write soon.

Your devoted brother,

Charlie

Republic Aviation Corporation, Farmingdale, Long Island, New York, and Evansville, Indiana

Republic firsts in war point to firsts in peace



REPUBLIC AVIATION

CORPORATION

Specialists in High-speed, High-altitude Aircraft

Report NWA Invited To Move to Seattle

Transfer of home base doubted, despite disputed tax assessment in Minnesota.

Reports that Northwest Airlines has been asked by the State of Washington to transfer its home base to Seattle persisted as the line paid Ramsey County, Minn., \$128,541 in personal property taxes on its fleet for the years 1939-1943 inclusive. Washington, where Northwest has its western terminus, has no state income tax.

There was considerable doubt, however, that NWA would make the move, despite the tax assessment. The levy stood up after the line had taken to the Supreme Court of the U. S. its protest that the state and county could not tax its whole fleet, simply on the grounds that the company is incorporated and has its home port in Ramsey County, Minn. The company also pays taxes on parts of its fleet in six other states. About 16 percent of its total mileage is flown in Minnesota.

► **CAB Study Started**—As a test,

the case won nation-wide attention. The Supreme Court's decision hinted strongly for Congressional action to clarify the situation, started a Civil Aeronautics Board study of the entire multiple tax problem, and sent airline attorneys scurrying to their law books to find what bearing the ruling had on other lines.

Technical Annexes To Accord Simplified

Procedure established for making changes necessitated by aviation developments without red tape of ratification by governments.

Workers on technical annexes at the International Civil Aviation Conference at Chicago scored a point in making changes possible without the red tape of ratification by governments.

There was concern for a while that such ratification might be necessary before technical developments could be adopted, but by putting technical agreements in separate annexes, to which signatories agreed to conform, an easier method was provided.

► **Machinery Set Up**—Machinery for administration of the technical agreement, one of the major accomplishments of the conference so far as the industry itself is concerned, was set up under the air navigation committee of the interim council.

In other words, amendment of the annexes to bring them up to date in line with current aviation developments, will require no action on the part of the interim council. If any nation comes forth with amendments, its proposal will be sent out to all signatory nations which thus will have opportunity to recommend any changes they see fit.

Paraguay Has High Air Cargo Potential

Prospects for plane traffic with U. S. are best of any Latin American country yet analyzed, Commerce Dept. survey shows.

Prospects for air cargo traffic between the United States and Paraguay appear more promising than those of any country previously analyzed in the Commerce Department's current series of studies of Latin American air cargo

potentials. Although 1939 trade with Paraguay amounted to only one percent of the total U. S. export-import business with Latin America, 8.1 percent of the \$2,-382,965 Paraguayan trade was potential air cargo, the report shows.

In addition, the prospects for a well-balanced traffic, with shipments in both directions being nearly equal, are more encouraging with Paraguay than with any other nation studied. Paraguay's geographical situation as a landlocked country, coupled with its poorly developed system of internal communications, is another factor favoring air transport. Good airports exist at Asuncion, the capital, and at Concepcion.

► **Shipments to U. S. Essential**—The 1939 statistics indicate that 97 percent of U. S. imports from Paraguay are considered essential to our national economy.

The analyzed exports from Paraguay to the U. S. have a per pound value of \$.58; imports from the U. S. are valued at \$.73. Both figures, relatively high in comparison with previous surveys of the Department, reflect encouraging air cargo possibilities.

Previous studies, in comparison with Paraguay's 8.1 percent, reveal the following air cargo potentials: Argentina, 9.1 percent; Brazil, 7.17 percent; Colombia, 13.1 percent; Peru, 10.1 percent; Venezuela, 12.5 percent; Uruguay, 5 percent.

CAB ACTION

- Civil Aeronautics Board refused to consolidate an application of Braniff Airways for a route between Oklahoma City, Okla., and Lubbock, Texas, via Wichita Falls, Tex., with the Texas-Oklahoma case. Chief Examiner C. Edward Leasure, in a letter explaining the refusal, pointed out that the case has advanced beyond exchange of exhibits, and any late consolidation would not be in the interest of other parties to the proceeding. The hearing date remains Jan. 12, although the place has not been selected.
- Late withdrawals as hearing in the New England case got under way included Peter Picknelly; Interstate Transportation Co., Inc.; Cowell Coach Line; and Milton, Leonard and Hyman Schoenberg. The Board made all dismissals at applicants' requests.
- Board authorized American Airlines to operate non-stop between Cleveland and Dayton, Ohio, on AM 22. One trip per day, as a part of a transcontinental flight, was begun Dec. 1.
- New consolidations in the North Central case (Docket 415 et al.) include applications of North American Airlines, Ltd., Northern Airlines, and North Central Airlines.
- A non-stop authorization was granted United Air Lines for service between Eugene, Oregon, and Oakland, Calif., on AM 11. The carrier is operating two daily southbound flights under the non-stop permit.
- The Board approved an agreement between Northwest Airlines and American Airlines covering a lease by Northwest to American of offices and equipment for joint radio remote transmission operations.
- Hearing in the Texas-Oklahoma case (Docket 337 et al.) has definitely been assigned for Jan. 22, supplanting the tentative date of Jan. 8. The hearing will be held either in Fort Worth, Texas, or Oklahoma City, Okla. Applicants have been requested to advise the Board of their preference for the location by Dec. 18.
- Board authorized the City of Providence,

R. I., the White Mountains Region Association, the Monadnock Region Association and the Port of New York Authority to intervene in the New England case. (Docket 399 et al.)

- The City of Philadelphia was denied permission to intervene in the Latin American case. (Docket 525 et al.)
- Examiner Ross I. Newmann's prehearing conference report on National Airlines' reopened rate case for AM 31 and AM39 sets Mar. 12 as a tentative hearing date, with exchange of exhibits scheduled for Feb. 20. The purpose of the proceeding is to determine a rate of mail pay for the carrier's operations subsequent to Feb. 1, 1944. Albert R. Beisel, Jr., is Public Counsel.

CAB SCHEDULE

- Dec. 18. Oral argument in the Washington-Ottawa-Montreal case. (Docket 609 et al.)
- Dec. 21. Exceptions to Examiner Ross I. Newmann's report in the Great Lakes-Florida case due. (Docket 570 et al.)
- Dec. 23. Briefs due in the North Atlantic proceeding. (Docket 555 et al.) Postponed from Dec. 18.
- 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

- TWA opened service to Topeka, Kan., Dec. 1, the seventh state capital on its system. Topeka is being served by two daily flights each way over TWA's AM 2.
- Pan American's new schedule for its Latin American division contain timetables for carriers with which PAA connects in the U. S., including Braniff, Eastern, National, United, Western and Chicago and Southern.
- Northwest reports a decline in net profits for the third quarter of 1944 to \$257,161 from last year's figure for the same period of \$312,830. Total operating revenues, however, were up to \$2,434,024 compared with 1943's third quarter total of \$1,459,052.
- United added a fourth daily cross-country round trip cargo schedule Dec. 15, bringing the line's daily all-cargo operation to 18,458 miles. The new flight operates between San Francisco and Chicago via Denver and Omaha. Connections with existing eastbound trips are made at Chicago.

How Nations Voted

This table shows how nations at the International Civil Aviation Conference, concluded early this month at Chicago, subscribed to the five documents that emerged from the meeting. Fifty-two nations sent delegations. Danish and Thai ministers were present in person. This list, as it stood a week after the conference ended, is by no means final, the documents remaining open for signature.

All but Liberia signed the final act, which includes the standard form of bilateral agreements. Thirty-three

delegations—more than the 26 required to put it into effect—signed the interim agreement that will prevail until a permanent convention is attained. Almost as many signed the convention, although it will not have force without ratification by the respective governments. Twenty-five accepted freedom of transit and non-traffic stop. Half of these joined with two who did not sign the "two freedoms" appendix to make 14 delegations signatory to the broader five-freedom document proposed by the U. S.

Signatures to the Final Act and Appendices.

Country	Final Act	App. I Interim Agreement	App. II Convention	App. III Two Freedoms	App. IV Five Freedoms
Afghanistan.....	x	x	x	x	x
Australia.....	x	x	x		
Belgium.....	x		x		
Bolivia.....	x				
Brazil.....	x				
Canada.....	x	x	x		
Chile.....	x	x	x	x	
China.....	x	x			x
Colombia.....	x				
Costa Rica.....	x				
Cuba.....	x				
Czechoslovakia.....	x				
Dominican Republic.....	x	x	x	x	x
Ecuador.....	x	x	x	x	
Egypt.....	x	x	x	x	
El Salvador.....	x				
Ethiopia.....	x				
France.....	x	x	x	x	
Greece.....	x	x	x	x	
Guatemala.....	x	x	x	x	x
Haiti.....	x	x	x	x	x
Honduras.....	x	x	x	x	
Iceland.....	x	x	x	x	
India.....	x	x	x	x	
Iran.....	x				
Ireland.....	x	x	x	x	
Iraq.....	x	x	x	x	
Lebanon.....	x	x	x	x	
Liberia.....					
Luxembourg.....	x	x	x	x	x
Mexico.....	x	x	x	x	
Netherlands.....	x	x	x	x	
New Zealand.....	x	x	x	x	
Nicaragua.....	x	x	x	x	x
Norway.....	x				
Panama.....	x				
Paraguay.....	x	x	x	x	x
Peru.....	x	x	x	x	(1)
Philippine Commonwealth.....	x	x	x	x	
Poland.....	x	x	x	x	
Portugal.....	x	x	x	x	
Spain.....	x	x	x	x	
Sweden.....	x	x	x	x	x
Switzerland.....	x	x	x	x	
Syria.....	x	x	x	x	x (2)
Turkey.....	x	x	x	x	
Union of So. Africa.....	x	x	x	x (3)	
United Kingdom.....	x	x	x	x	x
United States.....	x	x	x	x	x
Uruguay.....	x	x	x	x	x
Venezuela.....	x	x (4)		x (4)	x (4)
Yugoslavia.....	x				
Danish Minister.....	51	32	31	24	14
Thai Minister.....	x	x	x	x	x
	53	34	33	26	16

(1) Reserve signature for later date. (2) With reserve. (3) Did not include Newfoundland. (4) Ad referendum

A background of EXCELLENCE...



that is reflected in our instrument and medium pressure hydraulic lines for aircraft applications — assurance of our integrity in workmanship and management.

RESISTOFLEX

RESISTOFLEX CORPORATION, BELLEVILLE 9, N. J.

Future Civil Plane Controls

TWO QUESTIONS which have plagued the light aircraft industry since the start of Washington's latest urgent campaign for intensified war production and less civilian output have been answered by Grover Loening, WPB's head consultant on aircraft:

(1) WPB will continue to make every effort to allow manufacturers to develop civil aircraft prototypes on a laboratory status.

(2) WPB will permit all further civilian plane production which does not impede the war effort.

Fortunately for the nation and aviation, WPB has had a capable, firm and outspoken adviser in Grover Loening. His high estimate of the value of civilian prototype development is typical of his vision.

"There are countless developments in a prototype way that can be done now by the aircraft industry in aiming at a peacetime product that would nevertheless have a war value," he told the NATA convention.

"The helicopter field is still wide open and needs a great deal of work to be done on it. There is radar with all its important blind landing implications for future airline and private flying. There are jet-engine applications to simplify and cheapen the private airplanes. There is that great new field of the development of glider trains for much cheaper and more versatile air transportation of freight which has been almost untouched except by the military.

"Still more, better, faster and cheaper-to-run commercial transports of all sizes have a concurrent military value. A new field of great significance from a military angle that has an equally great commercial possibility is development of small, airborne aircraft that will connect the great airliner to the ground as a tender does the great ocean liner without making it necessary for the airliner to land.

"Even those two outstanding needs for successful private flying promotion, the cross-wind landing gear and development of a muffler to get away from the airplane's noise nuisance, have a military usefulness, even though they are not mandatory."

Mr. Loening assures the lightplane industry at this time that wherever possible companies will be permitted to go beyond mere prototype work

and start regular production, provided labor is available and cannot be used for warplants, and provided the manufacturer has no further war orders. He also makes it clear that no companies will be compelled to remain idle merely because other firms in the field are unable to re-enter the commercial field.

"We know just as well as you do of the unfair situations that will arise as between one company and other companies in the same field. But in all business, as in all life, there is the element of luck, and we do not control it." Let it be said to Mr. Loening's credit that he does not even propose that government should try to control it.

Recognition, British and American

THE BRITISH GOVERNMENT, frequently cited by the Americans for niggardly awards of service ribbons to members of their armed services, has announced it will grant recognition to British Overseas Airways Corp. pilots, navigators, radio operators and engineers on much the same basis as it decorates its Army, Navy and other service personnel.

British Information Service points out that since the war began these crewmen have flown unarmed aircraft all over the world, often into battle areas, keeping open vital communication routes under orders of the British Government.

Our own pilots of the Air Transport Command and Naval Air Transport Service, whose combined operations dwarf the BOAC system, have had the added responsibility of ferrying desperately needed aircraft into the war zones, but no effort has been made by either the Army or Navy to confer on these men recognition of their services. Thirty consecutive days in the area still is the minimum requisite for a theater ribbon. We recommend the matter to the proper Washington authorities.

Looking Ahead?

ONE of the most interesting sessions scheduled for the National Aviation Trades Association Convention in St. Louis was to have been a discussion by manufacturers of private-owner type planes on new developments in their post-war aircraft. It was canceled at the last moment. Its subject: "Aircraft Manufacturers Look Ahead."

ROBERT H. WOOD

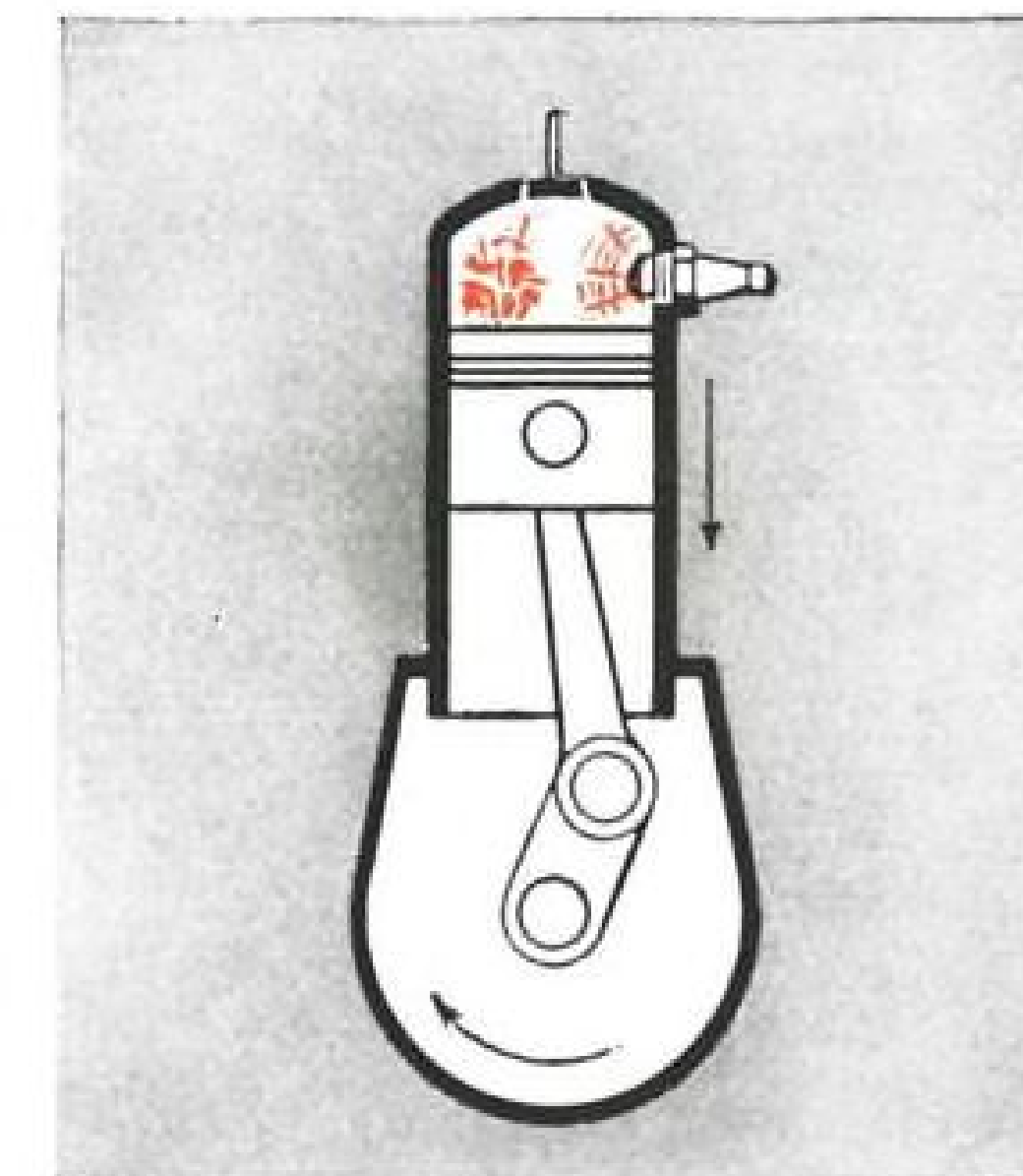
New Flight Instrument guards against fuel waste!



M.I.T.-SPERRY DETONATION INDICATOR INSURES FUEL ECONOMY... LONGER ENGINE LIFE... GREATER SAFETY



1. THE ENGINES on this airplane may be detonating, but the pilot has no way of knowing. Detonation means *destructive combustion*. In your car, you can *hear* detonation. In aircraft, the noise level is too high.



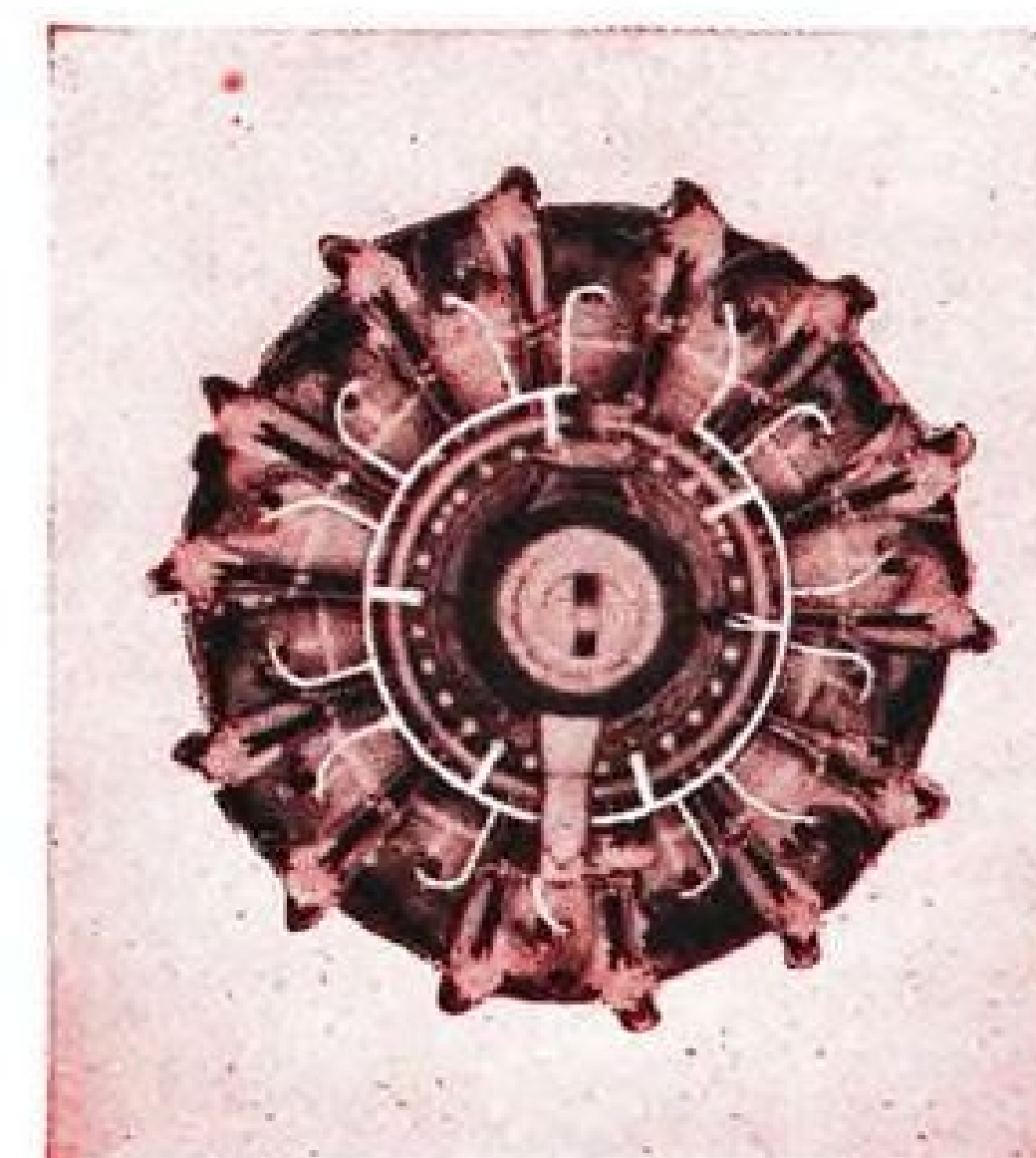
2. DETONATION increases internal temperature and pressure tremendously. If continued, it damages engines, may cause failure. How is it possible to tell when detonation occurs in flight?



3. THE M.I.T.-SPERRY Detonation Indicator detects detonation *instantly*. A flashing light on the instrument panel warns pilot to change fuel mixture. Result? Greatest operating efficiency *without damage to engines*.



4. **REMARKABLE savings in fuel!** Preliminary tests show savings of 10% or more over typical airline practice. Payload can be added. Safety is increased... engine life prolonged... periods between overhaul lengthened.



Courtesy Wright Aeronautical Co.

5. THE M.I.T.-SPERRY Detonation Indicator is installed externally—requires no piercing of cylinders. Visual signal gives instant warning of detonation. A selector switch then determines in which cylinder combustion is faulty.

6. A SPERRY *Automatic Mixture Control* may be used in conjunction with the Detonation Indicator. When detonation occurs, this device *automatically and instantly* eliminates this condition and hunts as lean a mixture as possible without sacrifice of power.

The *Detonation Indicator* is designed for use on all types of engines and aircraft. Where economy of operation is important...as it will be in postwar commercial aviation . . . this new flight instrument will stand continuous guard against wasteful conditions.

Sperry Gyroscope Company

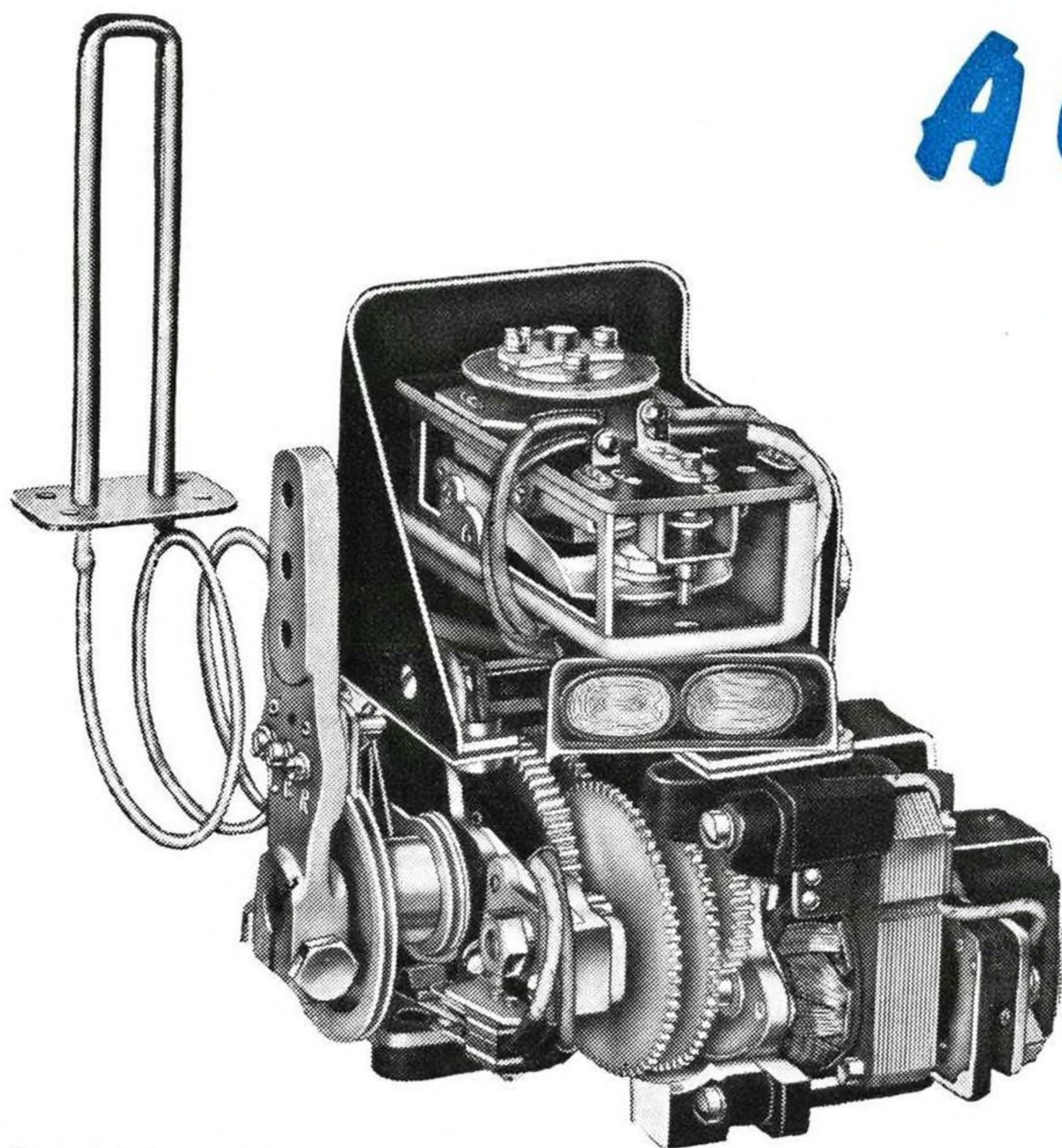
Great Neck, New York

Division of the Sperry Corporation

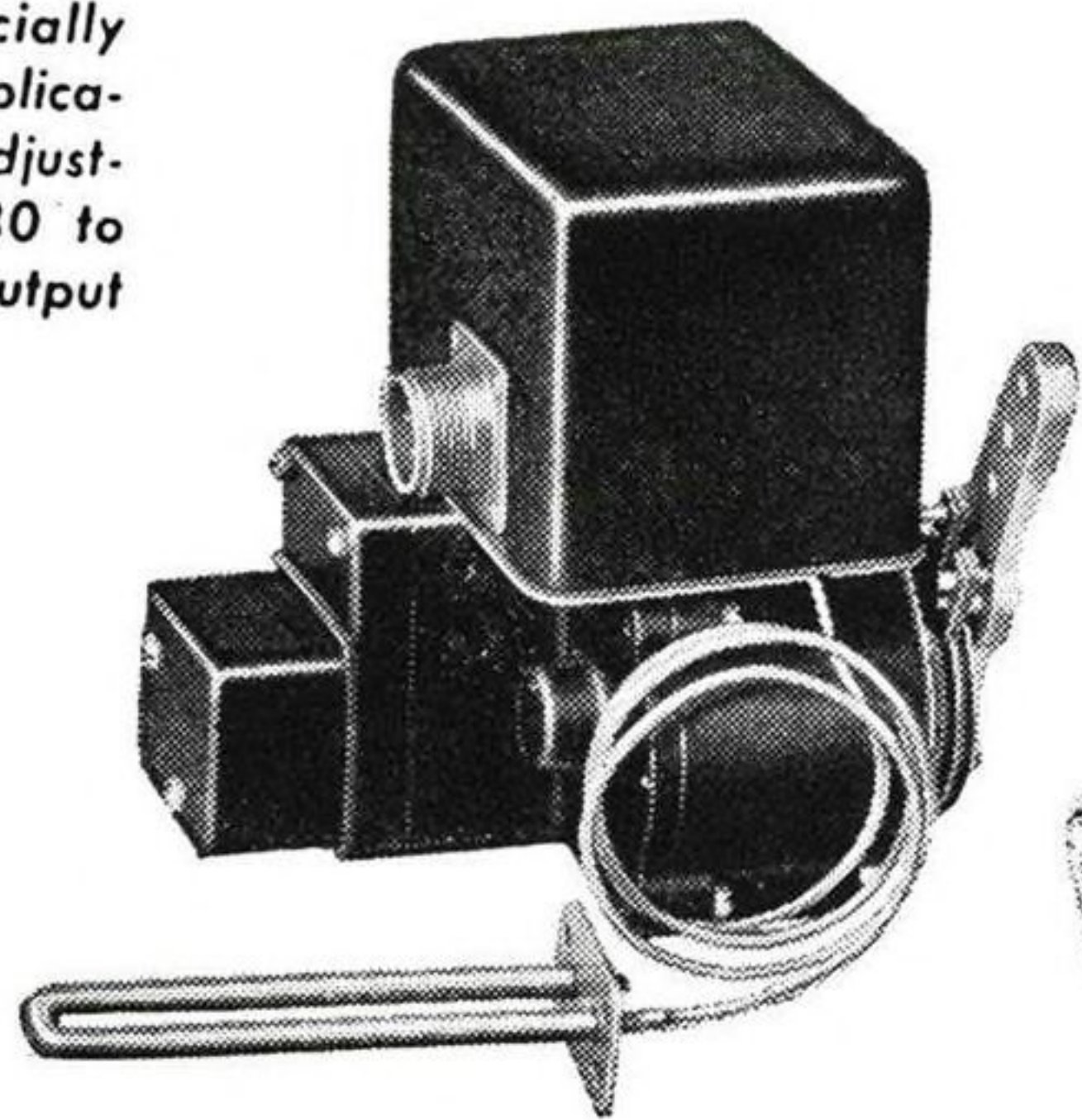
GYROSCOPICS • ELECTRONICS • AUTOMATIC COMPUTATION • SERVO-MECHANISMS

AUTOMATIC CONTROLS

for AIRCRAFT FLIGHT OPERATIONS

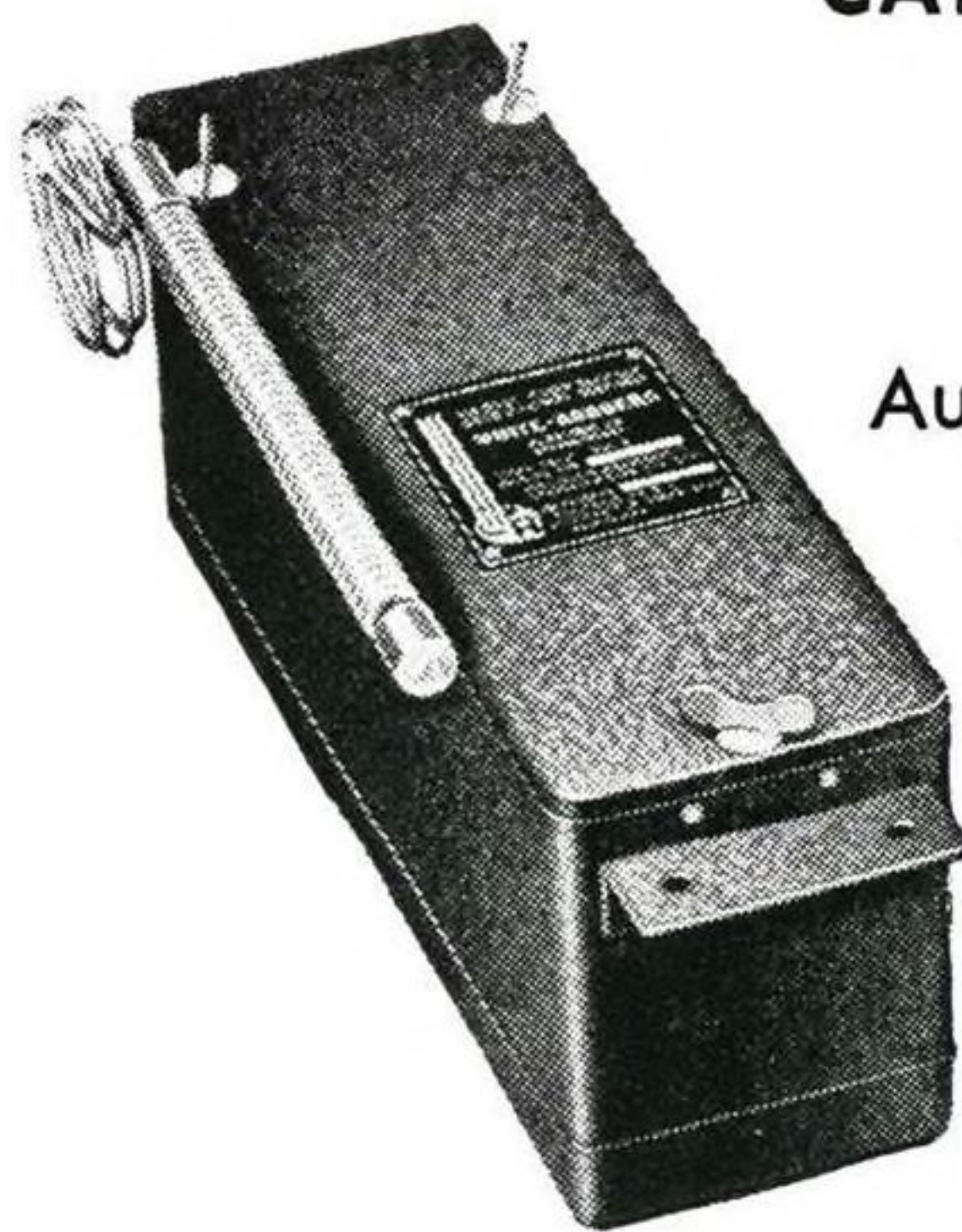


Compact temperature controlled actuator especially adapted for anti-ice applications. Arm rotation adjustable within range of 30 to 120 degrees. Torque output up to 75-inch pounds.



White-Rodgers modulating temperature controls and Servo Actuators provide the safety of automatic local or remote control and assure greater freedom for the pilot in applications involving the control of:

**CABIN TEMPERATURE
ANTI-ICE TEMPERATURE
CARBURETOR AIR TEMPERATURE
CARBURETOR MIXTURE
CARBURETOR THROTTLE**

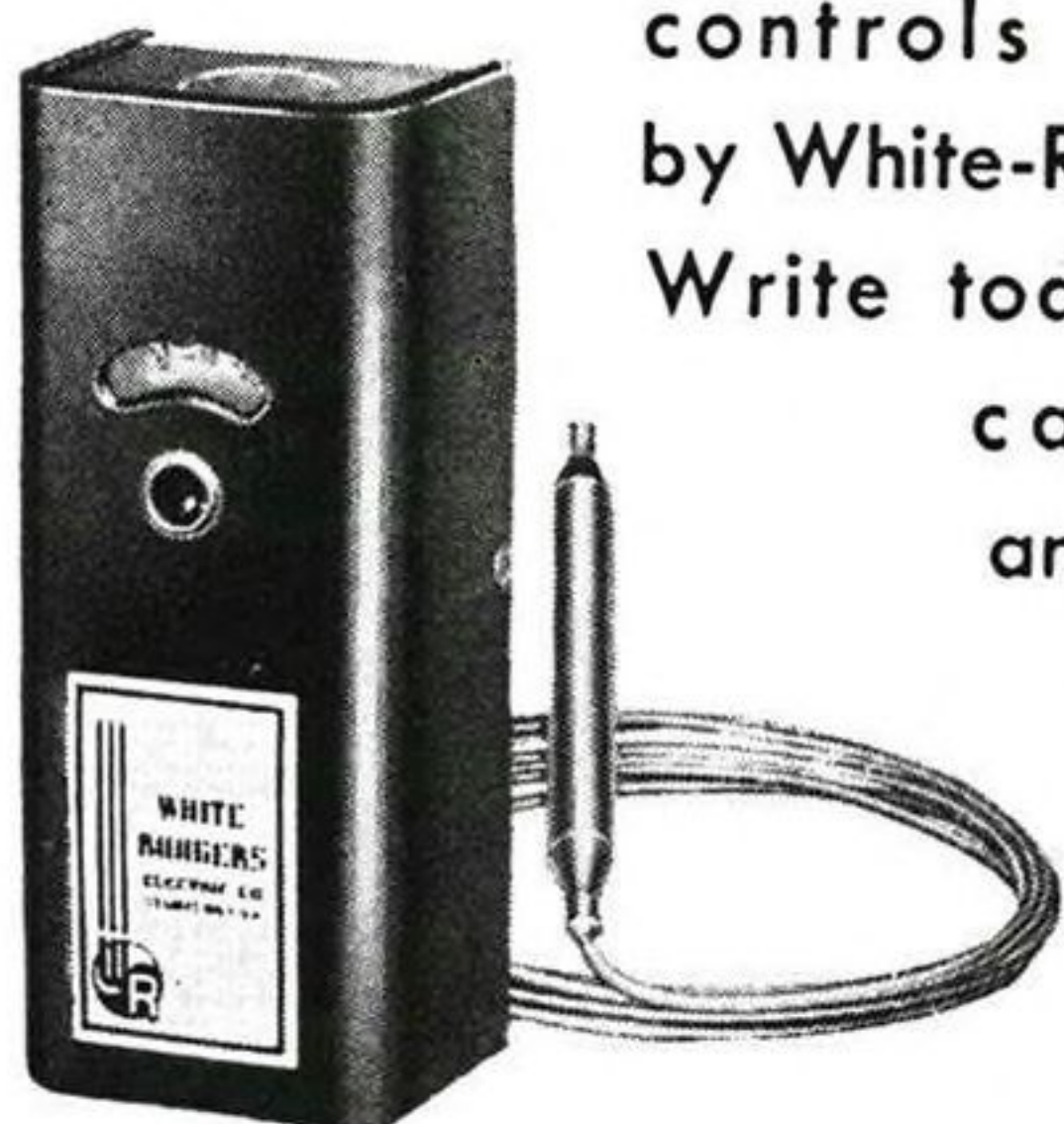


Authorized manufacturers concerned with the above or similar applications may secure engineering data on request.

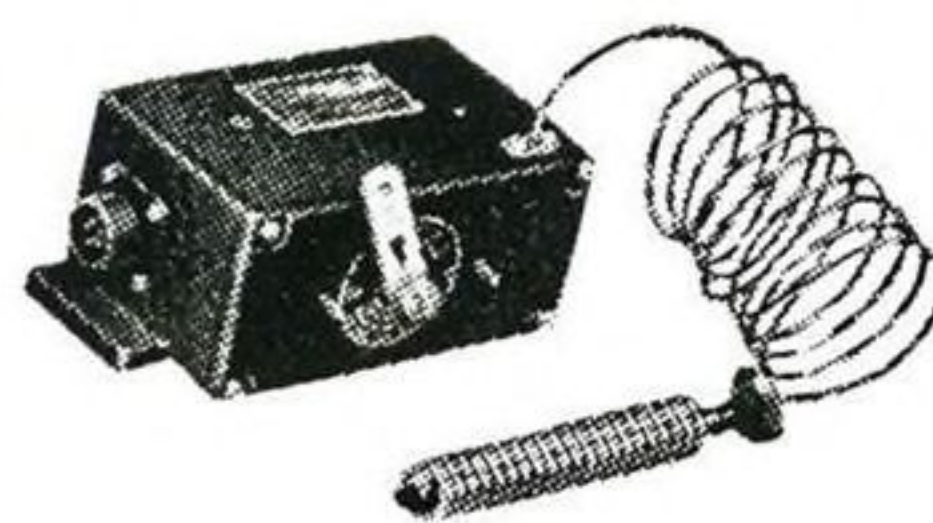
POST-WAR PRODUCTS NEED CONTROLS, TOO

Whatever is on your drawing boards for post-war, it's two to one it will have automatic features. If these features involve control by temperature or pressure, investigate controls made by White-Rodgers.

Write today for catalog and engineering data.



Sturdy and compact, this modulating control weighs but 4.35 pounds, is dust-proof and moisture resisting. Dimensions less than 10" x 3" x 5".



Modulating temperature control used for regulating carburetor air temperature.



WHITE-RODGERS ELECTRIC CO.



SAINT LOUIS

*Controls for Heating • Refrigeration
and Air-Conditioning*