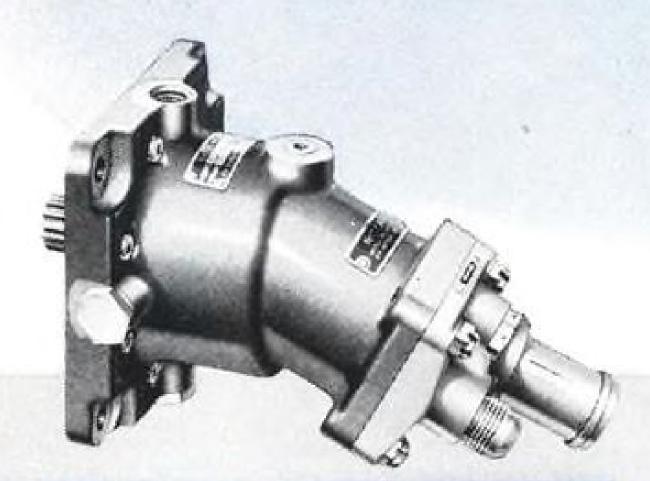
AVIOLO BUSS MCGRAW-HILL PUBLISHING COMPANY, INC. NOVEMBER 27, 1944



Lockheed's Post-War Saturn 75 Aimed At Feederlines: This new airplane, designed for short-haul, high-frequency airline operation, has a cruising speed of more than 200 mph., carries 14 passengers, a crew of two, baggage and cargo in the standard version.

"Should I Use Constant Volume or Variable Volume Aircraft Pumps?"



WHEN TO USE

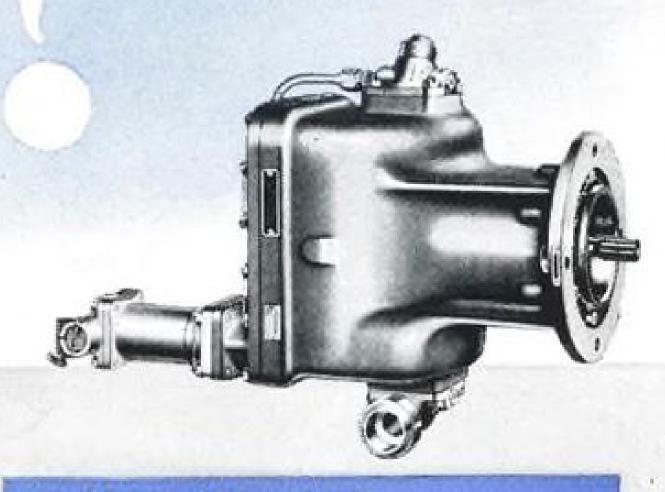
VICKERS CONSTANT VOLUME

PISTON TYPE PUMPS

This pump requires an accumulator and unloading valve in the majority of aircraft hydraulic circuits. The fixed-stroke pistons deliver fluid continuously to the unloading valve. The unloading valve automatically opens when the accumulator has received and stored its maximum volume of fluid at system pressure; the pump then operates at no pressure by returning oil directly to reservoir. When the accumulator pressure drops to a predetermined minimum, the unloading valve automatically closes and diverts the oil to charge the accumulator. This constant volume pump is recommended when hydraulic power is required for short periods during take-off and landing . . . when operating flaps, landing gear and power brakes. It also supplies any small demand during flight . . . like cowl flap actuators. And it takes care of normal requirements while on the ground . . . including parking brakes and cargo door operation.



1404 OAKMAN BOULEVARD DETROIT 32, MICHIGAN



WHEN TO USE

VICKERS VARIABLE VOLUME

PISTON TYPE PUMPS

This pump automatically delivers the volume of fluid required by the hydraulic system. When the requirement decreases, the stroke of the pistons is automatically shortened; when more volume is needed, the piston stroke is automatically lengthened. There is no inlet restriction to cause cavitation. An excess of fluid is never pumped. The pump maintains full pressure in the system with minimum horsepower. An integral pressure control device automatically and continuously maintains the desired pressure independent of varying volume demand and of engine speed. This variable volume pump is recommended when hydraulic power is used continuously during flight . . . as for power boost flight control, gun turret drive, and cabin supercharger drive.

Vickers Engineers will gladly discuss with you the relative merits of these pumps for your individual requirements.

ENGINEERS AND BUILDERS OF OIL HYDRAULIC EQUIPMENT SINCE 1921 THE AVIATION NEWS

Washington Observer

OVER-EXUBERANCE—Tendency on the part of municipalities and even states, to ask for more than they will reasonably need of airport funds out of the proposed billion dollar airport law, is expected to be curbed by the requirement that federal funds be matched by local funds.

* * *

AAF-CAB OUTLOOK—Renewed discussion of air forces backing for the post-war civil air transport system re-asserts the old question confronting the Civil Aeronautics Board: is the scheduled air system to be regarded and treated as a peacetime standby, quickly convertible to military air power? The Civil Aeronautics Act can be interpreted in the affirmative. Up to now, the Board, through its rate-making and route certification powers, has developed the system on a convenience and necessity, minimum cost basis, with a few wartime exceptions.

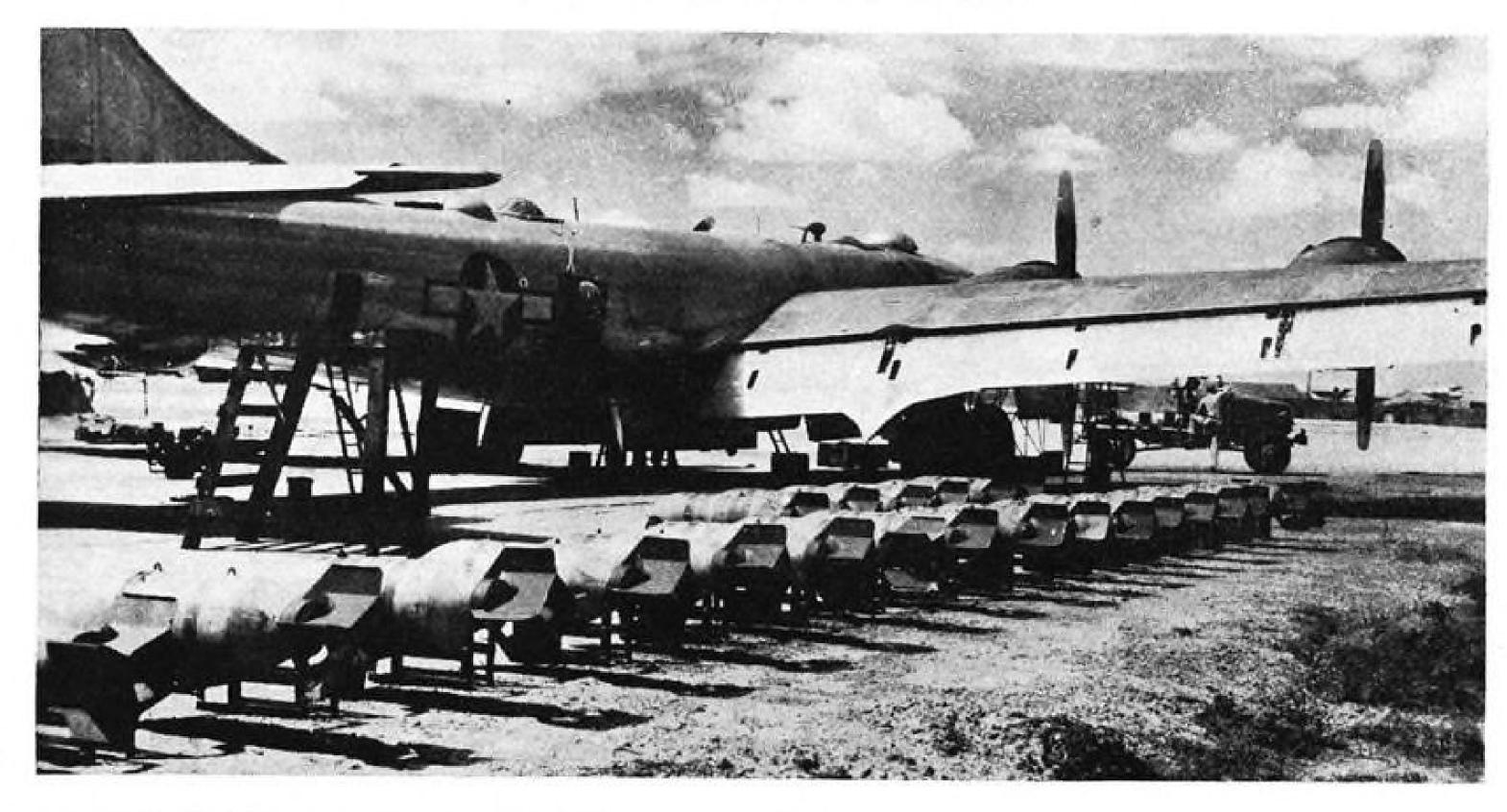
FEEDER LINE QUESTION—CAB's decision on the extensive feeder line system now proposed, could be affirmative if the Government is to support a civilian backlog for military power, without regard to necessity. Future decisions on domestic and foreign trunklines could be affected in the same way. The Board can leave this knotty problem to Congress. The matter of building military air power in the shape of civil aviation will be an international consideration.

DOMESTIC SUBSIDIES—Even if subsidies are closely controlled on international routes, domestic subsidies, in this or any country, could support air transport fleets that would count heavily in military operations.

A NEW LEA BILL—There will be aviation sparks flying from the House side of Capitol Hill when the new Congress convenes. Chairman Clarence F. Lea (D-Calif.), of the Interstate and Foreign Commerce Committee, is reported laying plans to launch another aviation bill comparable in scope to the controversial Lea bill of this session. Lea indicated last week he planned to have his committee start aviation hearings shortly after the new Congress begins

INTERNATIONAL AIR REPORT—Whether the Senate Commerce Committee will come forth with a report on international aviation as a result of its year's hearings on the subject is still a matter of conjecture, but the chances of such a report appear to diminish as time passes. Chairman Josiah Bailey (D-N. C.) in Washington for a few days before returning to the Chicago conference, indicated there would be no report before the end of the year. It was pointed out that about two months ago—just before the election recess—Bailey submitted a sketch of "what might develop into a committee report" to members of the aviation subcommittee to "precipitate" Committee action, the

Bomb Load for B-29 Superfortress.



AVIATION NEWS . November 20, 1944



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AVIATION NEWS

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Washington Observer

superficial. They point out that the CAB deals

with a nationalized group of states and that

such a comparison only could be drawn if there

INDUSTRY ADVISORY COMMITTEES-

There are indications that the War Production

Board will place great reliance on the know-

how of its industry and labor advisory commit-

tees to hasten civilian production and maintain

employment when the day of conversion finally

were an international federation of states.

latest word indicates a report is unlikely in the present Congress.

* * *

MANUFACTURERS' EXHIBITS—Some of the foreign delegates to the Chicago air parley have expressed disappointment that there were not more manufacturing exhibits in connection with the conference, but the State Department was mindful that Britain, particularly, might not look favorably upon attempts to further the sale of American planes at an international meeting. Despite lack of exhibits, manufacturers had representatives at the conference and it was likely there was talk about plane purchases, if not actual negotiations.

WORLD-WIDE CAB—Officials in the Capital who oppose the creation of an international air authority with broad economic powers as proposed by Canada at the Chicago conference contend that the Canadian analogy that such a broad policy would apply Civil Aeronautics Board principles to the international field is

* * *

Nothing definite has been done about it, but there is a strong movement afoot in WPB to establish the present Industry Advisory Committees on a permanent basis as a means of continuing into the post-war period the industry-government relationship which these committees now perform. The aircraft industry advisory committee, which is still in the forma-

tion stage, might be affected by the movement.

* *

appears.



will appeal the CAB decision awarding Denver-Los Angeles route to Western after an examiner's report recommended that UAL be given a certificate. If CAB stands by its decision, United may take

the case to the courts.

Rumors persist that E. L. Cord is increasing activity in the air transport industry.

▶ All American Aviation contemplates converting one of its two recently acquired Douglas DC-2's to carry through passengers while picking up mail on the fly. The line never has carried paid passengers. The other DC-2 may be cannibalized for spare parts, which are scarce.

▶ Western industry sources say Howard Hughes, who has landed a small contract with the AAF for a fast photographic plane, will begin deliveries next year.

Edo Aircraft, outstanding manufacturer of floats, is planning to produce a limited quantity of a single engined reconnaissance ship for the Navy.

▶ Officials of the Douglas Chicago plant are confident they will be turning out more C-54's next year than any other plant building four-engined transports. The *Mars* will be the only heavy transport in the flying boat class which will be produced in coming months.

Although Platt-Leage's striking twin-rotor helicopter, the YR-1A, is reported much more successful than had been hoped, it is not yet earmarked for more than a token production order.

Glenn Martin has no desire to undertake manufacture of its new medium range Mercury until at least 200 commitments were in sight, but the company is understood about ready to make the ship. Foreign delegations at the International Air Conference have been talking quietly to Martin

representativs at the Stevens.

Army Air Forces is learning important lessons in super bomber production from the B-29 raids, one being to cut gross weight by eliminating extra gadgets. The B-29, because of extra equipment, is flying thousands of pounds in excess of the designed gross. But the lesson is tough on Consolidated-Vultee, which is receiving change orders wholesale, cutting weight of the B-32.

Like most new aircraft, the B-32 will be behind schedule for several months as production gets underway, but both company and AAF realize the problems ahead. A plan studied for a while would have standardized the B-29 and B-32 tail. Boeing of Canada, pioneer Catalina producer, will complete its program for the U. S. Navy in 90 days and will convert to other work. Noorduyn will close down on C-64 Norseman transport work in several months and Fairchild of Montreal will cease SBF output early next year.

Washington production officials say the Bell P-59A, pioneer jet-propelled Airacomet, will not go into quantity production and most indications are that it will be discontinued completely in the near future.

Plans for a big air show in 1945 which never got much past the talk stage have been voted down by the industry.

Army is aiming to double B-29 production in the next three months. Republic Aviation at Evansville is now turning out cowls for the Superfortress.

Ford, which has been building CG 13A gliders, will change over to CG 4A's under new contract. Reason given is that CG 13A is still on service test while 4A has proven itself and there is need for older model.

▶ A German-controlled manufacturer in Switzerland is reported planning production of an aircraft that can be converted into an automobile.

CLEVELAND 14, OHIO

November 27, 1944

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Vital Problems Still Unsettled As Chicago Talks Near Close

Freedom of the air and closely inter-related subject of traffic quotas are left undecided in first draft of document drawn up by top men of U. S., Britain and Canada.

By MERLIN MICKEL

draft of a multilateral air transport agreement to the International Civil Aviation Conference at Chicago hinted strongly that more than minor considerations would remain unsolved when the meeting ended.

The document drawn by top men of the United States, British and Canadian delegations left unsettled, as first submitted, the important inter-related problems of freedoms of the air and adjustment of capacity to traffic offering (traffic quotas), and there was little definite indication that they would be ironed out at a scheduled general committee session to be held later in the week.

▶ Windup—Since the conference apparently was to end Saturday or at the latest by the middle of this week, the question was whether in that time it could dispose of issues that had occupied three nations almost solidly for more than a week before the draft document was made public last Monday night. Rather, it seemed that these and other more minor differences, although their study was continuing, must receive the attention of whatever international interim body is to function until such time as an international convention can be ratified and placed in effect.

The proposed draft was the first conference accomplishment in that direction. Points still under consideration, in addition to traffic quotas and freedoms of the air, were the possibility of special provision for United Nations that have been under occupation or devastated by war, to insure them a place in the international picture when they are able to enter it, and the "denunciationor termina-

Circumstances surrounding last tion' section common to treaties. week's submission of a partial > U. S. Maintains Position-The draft indicated that the United States had successfully maintained thus far its position that an international air body should have no more than a consultative role regarding such political and economic matters as routes, rates and frequencies. It was the British who appeared to have yielded partly from their contention that these considerations should be within the jurisdiction of an international authority.

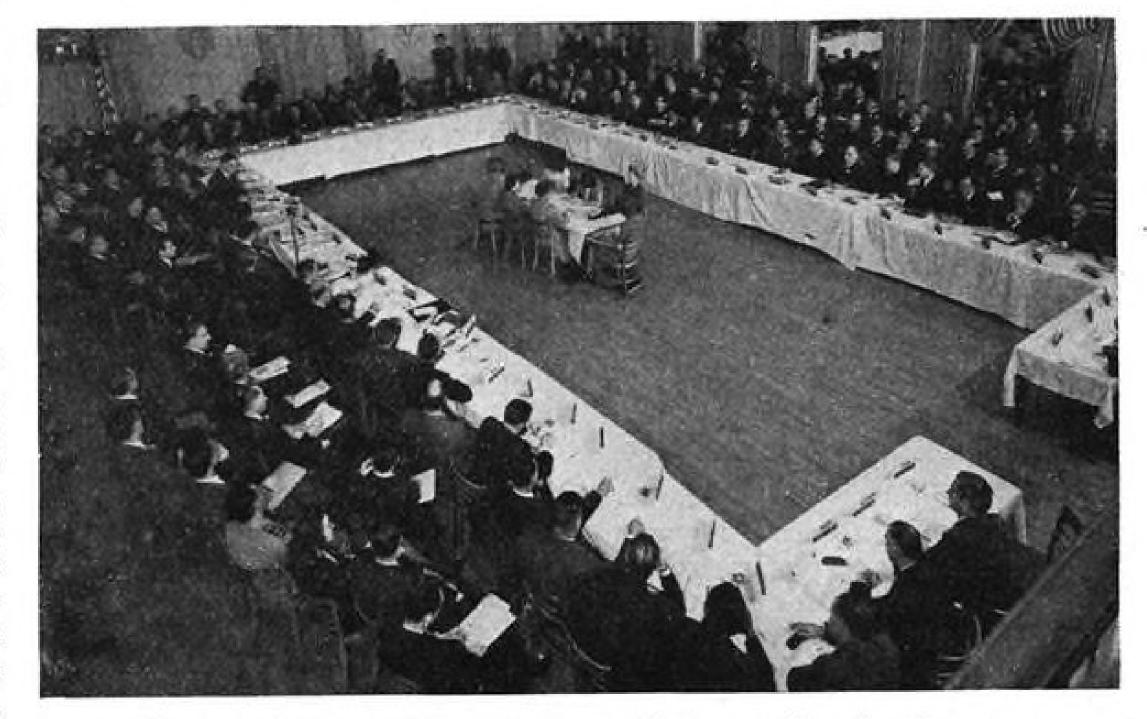
> As was considered likely a week ago, the draft left determination of passenger and freight tariffs to operators' conferences subject to review by an international board, and surrounded by safe-guards to permit orderly solution of differ-

The proposal by the United States, United Kingdom and Canadian delegation, none of which committed themselves to the draft, related primarily to air transport and was submitted for conference consideration and study.

Administration—Though incomplete, it contemplated formation of an International Air Administration, made up of an Assembly, Board of Directors, and such other bodies as necessary. The Administration would foster planning and development of international aiservices, with the purpose, stated briefly, of offering the best service at the lowest possible price with free choice among alternative services; prevent economic waste through unreasonable competition, avoid discrimination between members, and encourage aircraft design and operation.

The Assembly would consist of member states' representatives, each state entitled to one vote, the majority deciding unless otherwise provided. Representatives of half the member states would constitute a quorum. The Assembly would meet at least once a year.

The Board of Directors, a permanent body responsible to the Assembly would be composed of a president, elected by the Assembly, and a membership of 14. Seven member states chief in air transport importance would appoint one national each to the board to serve three years, the other seven to come one each from seven other member states.



Plenary Session of International Civil Aviation Conference

Conference Highlights

- The United States reportedly urged that, as a convenience to newsmen, a summary be written of the partial draft of a proposed air treaty announced last week by the U.S., British and Canadians at the International Civil Aviation Conference, but the British objected and the 21-page document was released in toto late at night. Conferences on the "A-B-C" differences between the United States, Britain and Canada started Sunday Nov. 12. After two or three days it appeared that the U.S. and Canada were finding a common ground. Spokesmen for both said reconciliation was near. New difficulties arose, however, and it was more than a week before the first draft was issued. One observer summed the talks briefly as a contest between the diplomats on the one hand and the operators on the other. Another source closely connected with a visiting delegation involved in the controversy, described the diplomatic sparring succinctly: "The U.S. puts in a phrase we don't like," he said in effect. "Then we try to change it around so it won't mean anything but still won't be conspicuous by its absence."
- · Lists of proposed international member.

air routes had been submitted early last week by the United States, France, Poland, Philippine Commonwealth, Norway, Sweden, Czechoslovakia, Turkey, Portu-Liberia, Iran, Denmark, Syria, Iceland, Peru, Yugoslavia, Chile, Cuba, Switzerland, Lebanon, Netherlands, Spain and Egypt. All but France were made public and some were revised as the conference wore on. Egypt, Spain, Lebanon, Yugoslavia, Syria, Turkey, Iran and Czechoslovakia—fewer than half—signified no intention of coming to the United States although the Czechs contemplate an eventual route to North America.

- The French appeared to have dropped their earlier suggestion that an international company be formed to operate at least one trunk route as a test of such operation.
- People who missed L. Welch Pogue at the Oklahoma City Clinic may be interested in the response he gave a reporter who asked him why he wasn't at the Clinic. "I can't go get my hair cut," the CAB Chairman said, "while my house is on fire." His Clinic speech was read by Oswald Ryan, CAB member. M. M.

Duties of Board—Included in the duties of the Board, which would carry out the Assembly's directions, administer Administration finances, determine personnel, etc., would be the collection, examination and publication of information relating to international air operation, including operations costs and "particulars of subsidies paid to operators from public funds."

As an integral part of the treaty, technical annexes would have the same effect and come into force at the same time as the convention itself.

The draft was studied in detail at a plenary session of three of the major conference committees, those on multilateral aviation convention and international aeronautical body, provisional air routes, and interim council, the interrelation of whose work is obvious from their titles.

Discuss Committee Reports—The fourth committee on technical standards and procedures was to meet separately to discuss reports of its 10 sub-committees, submitted previously. Expectation was that all would be accepted for study after the conference, both by interim technical committees

and the aviation industry in the various nations.

Reports of the subcommittees were coordinated by Edward P. Warner, CA3 vice-chairman. They dealt with communications and airways systems, rules of the air and traffic control practices, licensing of operation and mechanical personnel and log books, airworthiness of aircraft, aircraft registration and identification marks, me-

15,000th Ends P-40's

Production of Curtiss-Wright's P-40, once labeled America's most "doubted, adored, damned, praised, ridiculed and lauded" fighting plane has ended with the completion of the company's 15,-000th fighter plane for the United Nations. The 15,000th Curtiss fighter came off the line in Buffalo wearing the insignia of all the 28 different air forces in which Curtiss fighter planes have served during this war. The final plane was the 14th of a series-the P-40N. It was known progressively as Mohawk, Tomahawk. Kittyhawk and Warhawk.

teorological information, aeronautical maps and charts, customs procedures and manifests, accident investigation involving foreign aircraft, and publications and forms.

Allied Aviation Sale

Allied Aviation, of Baltimore, which recently constructed a pilot model of a small, twin-engine bonded-plywood amphibian, is reported in process of sale to Commonwealth Aircraft (formerly Rearwin Aircraft and Engines, Inc.), Fairfax Airport, Kansas City.

The amphibian was named the Trimmer for its designer, Gilbert Trimmer, who is associated with the company. R. E. Breed, president of Allied, is also president of General Refining Co., Baltimore.

was flown with apparently satisfactory results last summer. It weighs 2,150 pounds, seats three, and has two 75-hp. engines. Allied built the LRA-1 amphibious glider which was accepted but not put into production because the Navy canceled its entire glider program. Allied produced several other bonded plywood articles for the Navy.

AVIATION CALENDAR

Nov. 27-28—Executive Board Meeting, National Aircraft Standards Committee, Hotel Lexington, N. Y.

Nov. 27-28—Air Traffic Conference, Carlton Hotel, Washington, D. C. Nov. 29—Air Transport Association, Annual

Nov. 29—Air Transport Association, Annual Meeting, Carlton Hotel, Washington. Nov. 29-30—National Meeting, National Aircraft Standards Committee, Hotel Lexington, N. Y.

Nov. 30-Dec. 1—American Marketing Association, Edgewater Beach Hotel, Chicago, Ill.

Dec. 4-6—SAE National Air Cargo Meeting, Chicago.

Dec. 5-7—Second Annual Meeting, Aviation Distributors and Manufacturers Associa-

tion, Jefferson Hotel, St. Louis, Mo. Dec. 6-7—National Aviation Trades Association, Annual Convention, Jefferson Hotel, St. Louis, Mo.

Dec. 11—Joint Meeting, Industrial Conservation, Aviation and War Production Divisions, American Society of Mechanical Engineers, 7:30 p.m., Engineering Societies' Building, 29 West 39th Street, New York.

Dec. 12-13—First California Aviation Conference, Hollywood Roosevelt Hotel, Hollywood, Calif.

Dec. 13—Canadian Aircraft Traffic Managers Meeting, Montreal. Dec. 17—Wright Brothers lecture, Institute

of Aeronautical Sciences, Washington.

Jan. 8-12—SAE Annual Meeting and engineering display, Book-Cadillac Hotel, De-

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 6-9—International Aviation Fraternity, first annual convention, Miami Beach, Fla. May 20-27—Pan-American Aircraft Exposition, Dallas.

Army Allots Over 100 New Planes To Essential Civilian Users

Aircraft involved in recent action by Army were not surplus aircraft but models taken in most cases from production lines and shifted to non-military operation.

More than 100 new airplanes have been released by the Army in the past few months and allotted to essential civilian users. These are not surplus planes, but planes in most cases taken from Army production lines and shifted to civilian use. It is understood that others have been diverted in the same manner and have not yet been certificated by the Civil Aeronautics Authority. Twenty-six Douglas DC-3's and two Lockheed 18-50's have been allocated in this way to airlines.

▶ Experimental Types—Twenty of the planes are experimental types, released because the Army or the Navy has no need of the particular type of plane. In this category are Consolidated-Vultee's Model 39 and the Budd RB-1.

Eighteen of the planes are Beechcrafts assigned larged companies as personnel and light cargo transports. Three of these went to General Motors Corp., which is requesting still more.

Some are new types such as the Hiller and Landgraf helicopters, the Globe Swift conventional plane, several Pipers, Taylorcrafts and Aeroncas, and various gliders which might have had some military value but will not be built in quantity for the services.

Allotment Procedure—The planes are being allotted under a procedure in which the Munitions Assignment Board (Air) and the Joint Allocation Committee approve the reassignment. The planes then are licensed by the Civil Aeronautics Authority under regular procedures.

Under this system, it will be possible for aircraft companies to divert planes from service production lines and equip them for civilian use. The planes are not formally declared surplus. It is the procedure that would be followed if the Douglas proposal to take fair quantities of new planes from the production for airlines is accepted. It could work in similar fashion for others, such as Curtiss with its Commando, Lockheed with the Constellation and Boeing with its new 377 Stratocruiser. Normally the procedure is followed when

More than 100 new airplanes surplus planes of the type are not ave been released by the Army available.

DC-3's assigned airlines were distributed in this manner: six to American Airlines, five to United Airlines, four each to TWA and Northwest, two each to Delta and Chicago and Southern, one each to Continental and Pan American. The two Lockheeds went to National Airlines, which recently opened its Miami-New York service.

Other new planes assigned to civilian use are:

Grumman G44A to Grumman Aircraft Engineering Corp.

Swift GC1A to Globe Aircraft Corp., Fort Worth, its manufacturer. It is still classified as experimental. Fleet 16B to Jack R. Kennedy, Taylorville,

Lockheed 18-10 to Superior Oil Co., Los Angeles.

Meyers OTW 145 to Allen H. Meyers, Tecumseh, Mich.

General Air Transport MC1A to General Pa.

Airborne Transport Co., Los Angeles.

Schweizer 5 GU-1-19 to Schweizer Aircraft Corp., Elmira, N. Y. Piper J3C-65 glider and Piper L4X glider to Piper Aircraft Corp., Lock Haven, Pa.

Landgraf R Experimental to F. Landgraf, Los Angeles. Hillercopter 44 Experimental to Hiller In-

dustries, Berkeley, Calif.
Grumman G-44 to Union Oil Co., of California.

Beechcraft C185's to the following: three to General Motors, and one each to Goodyear Aircraft Corp., United Aircraft Corp., Bell Aircraft Corp., Standard Oil Co., Lear Avia, Inc. of Piqua, O., Emerson Electric Manufacturing Co., Eclipse Pioneer Division and the Halliburton Oil Well Cementing Co., of Duncan, Okla.

Beechcraft B185's to Phillips Petroleum Co., Bartlesville, O.; Ford Motor Co.; Firestone Tire and Rubber Co.; Aviation Corp.; Brown Shipbuilding Co., Inc., of Houston.

Beechcraft D175's to Manning and Brown Inc., of Denver; Goodyear Tire and Rubber Co., Akron; Fullerton Oil Co., of Los Angeles. Vultee 103 Experimental to Consolidated Vultee Aircraft Corp., Dearborn, Mich. This is the Stout Helicab.

Vultee 39 Experimental to Consolidated Vultee Aircraft Corp., San Diego. This is the large transport built by Consolidated.

Midwest MU1 glider to Joseph Steinhauser, Chicago, Ill. Piper J3C 65 and Piper JC3 65 Experimental

to Piper Aircraft Corp., Lock Haven, Pa.
Taylorcraft 7 to Taylorcraft Aviation Corp.,
Alliance, O. This is an experimental plane.
Aeronca 11A to Aeronca Aircraft Corp.,
Middletown, O. This is an experimental plane.
Chance Vought VS326 Experimental to Pratt

Call A to Call Reuel, Afton, Wyo. Budd RB-1 to Edward G. Budd Manufactur-

ing Co., Philadelphia.

Lockheed 18-56 with experimental engine to
Bechtel McCone Corp., Los Angeles.

Taylorcraft DCO 65 to Taylorcraft Flying

Club, Alliance, O.
Fourteen Fleet 16B's to Decatur-Dayton
Aircraft Exchange, Decatur and Dayton, O.
These are Canadian planes, brought in with

These are Canadian planes, brought in with permission of the Surplus Property Board. Kaiser H10 Experimental to Cargoes, Inc., New York.

Lockheed 14 to Celanese Corp. of America, New York. University of Minnesota UMG3 experimental

Goodyear GA1 experimental to Goodyear Aircraft Corp., Akron.

Two Piper J3C's to Rubber Development Corp., Washington.

Smith Sailplane SG5 glider, experimental, to Stephen W. Smith, Bridgeport, Conn. Waco SRE to Wire Bound Box Co., Indian-

CW Travelair to Jack Kratzer, Lewistown,

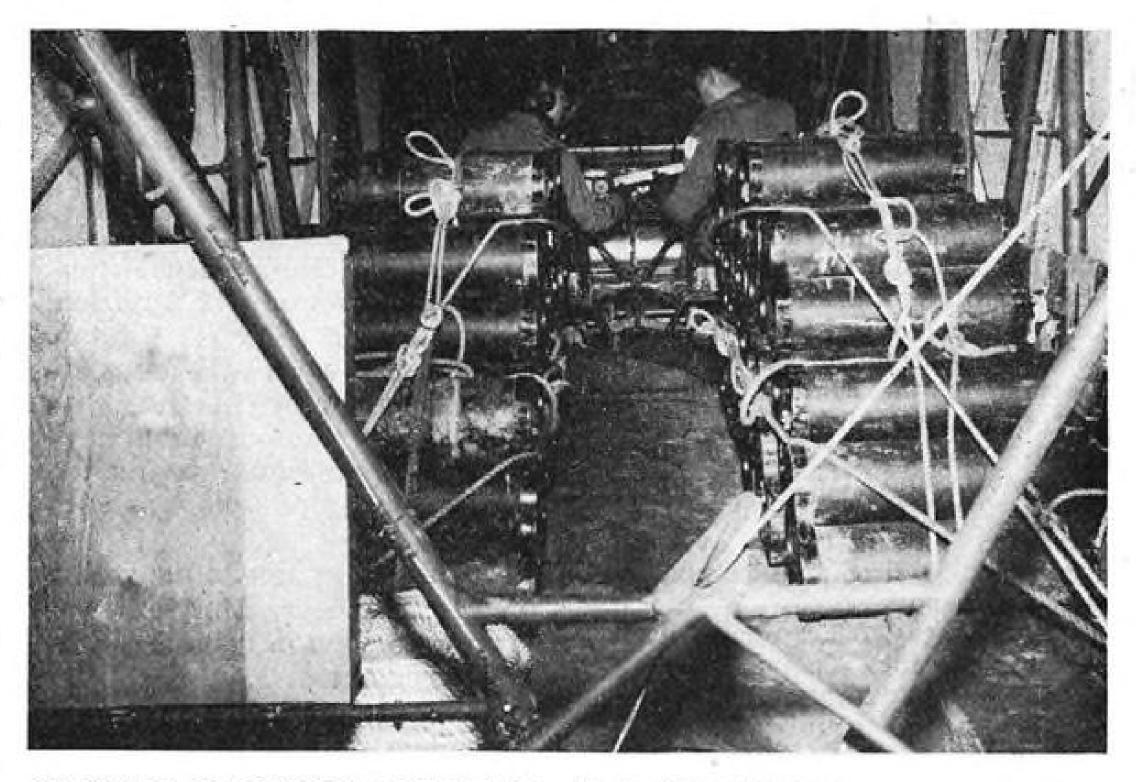
Carolina Aeronautical Corp., experimental plane, to same company, Burlington, N. C. Hockaday Comet, experimental, to Hockaday Aircraft Corp., Burbank, Calif. Taylorcraft 9X4 experimental to Taylorcraft

Aviation Corp., Alliance, O. Aeronca 7, experimental, to Aeronca Aviation Corp., Middletown, O.

Grumman G-63 experimental to Grumman Corp.

Frankfort glider, experimental, to Gordon W. Blaisdell, Western State Teachers College, Kalamazoo, Mich.

Two Aeronea 65CA's to Aeronea Aircraft Corp., Middletown, O.



GLIDER CARRIES MORTAR AMMUNITION:

Commando, Lockheed with the Constellation and Boeing with its new 377 Stratocruiser. Normally the procedure is followed when Interior of an American Waco CG-4A glider loaded with 60 mm. high explosive mortar ammunition is shown in this picture, taken in the European theater. Gliders have proved their value in speeding flow of supplies to isolated and fast-moving units.

Bevans Cites Need Of Retaining Plants

General stresses advisability of maintaining a strong industry to meet any future emergency.

An indication of the thinking in the Air Forces regarding the future of the aircraft industry was pointed up by a recent statement of Maj. Gen. J. M. Bevans, assistant chief of air staff, personnel, who said it was essential that the United States maintain "a very healthy collection" of aircraft manufacturing companies which will be capable of even more rapid expansion in case of future emergency than was possible during recent years.

Stressing the need for flexibility and possibility of quick changeover, General Bevans pointed out

U. S. Combat Planes

Total of U.S. first line combat planes as of Oct. 31, including reserves, was approximately 23,000, Brig. Gen. Frederic H. Smith, Jr., deputy chief of air staff, disclosed. Of this figure he said 12,000 were actually assigned to operating squadrons, 6,000 others were overseas as ready reserves, at maintenance depots or under repair; 1,200 others were on the way to theaters, having left the United States; 1,270 others had left factories and modification centers on their way to staging areas or to points of departure from this country; 800 others were in modification centers, and a ready reserve in this country of over 1,000 planes was being maintained.

Other planes making up the announced total of 75,000 AAF line combat planes, overseas; planes include: 2,500 second 300 in process of being returned to the United States for special training or experiment; 5,000 planes overseas in transport and troop carrier work; 2,000 mostly light utility and liaison types, overseas; 14,000 first line combat and transport types in the United States; 5,000 others in the shops for repair; 23,000 trainers and miscellaneous planes in this country.

General Smith said principal shortage is in transport planes. Enough trainers are necessary to train additional pilots for much increased first line strength if necessary, he added.

Look Into Future

Maj. Gen. J. M. Bevans, assistant chief of air staff, personnel, is definitely looking

He said recently that we are only in the very elementary stages of aircraft development and then added-without going into detail on jet and turbine power plants—"I am sure we shall all live to see the day when a propeller will be an exhibit for a museum."

that the Lockheed Lightning P-38 fighter, which would seem to be a rather standardized piece of Air Force equipment, still has some modification or improvement incorporated into it on the production line every 40 hours.

Laboratory Work-Research and development of new military aircraft must be carried on, in his opinion, not only by the military but also by industry to give full scope to American inventive genius. In addition, air power must have the assistance of a healthy civil aviation body.

International aviation, he said, must be developed because air commerce can be one of the really powerful factors in maintaining happy international relations, with airpower the key to the future to insure a good, secure peace.

General Bevans defined airpower as "the business of the Air Force: in war to exert it, in peace to develop it for the national defense or as an instrumentality for the enforcing of the peace."

Charles S. MacNeil, Prop Designer, Dies

Charles S. McNeil, 34, chief engineer of Aeroproducts Division, General Motors Corp., Dayton, Ohio, died last week of a heart attack after bringing his plane to an emergency landing in a hayfield near Brazil, Ind., saving the life of a companion who was with

Recognized as an outstanding propeller engineer, MacNeil was returning to Dayton from a speaking engagement at Kansas City.

Co-Inventor of Prop — He was co-inventor with W. J. Blanchard of the Aeroproducts propeller. In collaboration with Blanchard, he constant speed propeller.

He was graduated from Massa- Douglas, Ga.

chusetts Institute of Technology in 1932 and was a member of the Institute of the Aeronautical Sciences and the Society of Automotive Engineers.

MacNeil was born in Malden, Mass., and following his graduation from MIT became associated with Blanchard at Curtiss-Wright Aeronautical Corp., and later with Aeroproducts Division of General Motors.

AAF Asked to Clear Flying School Policy

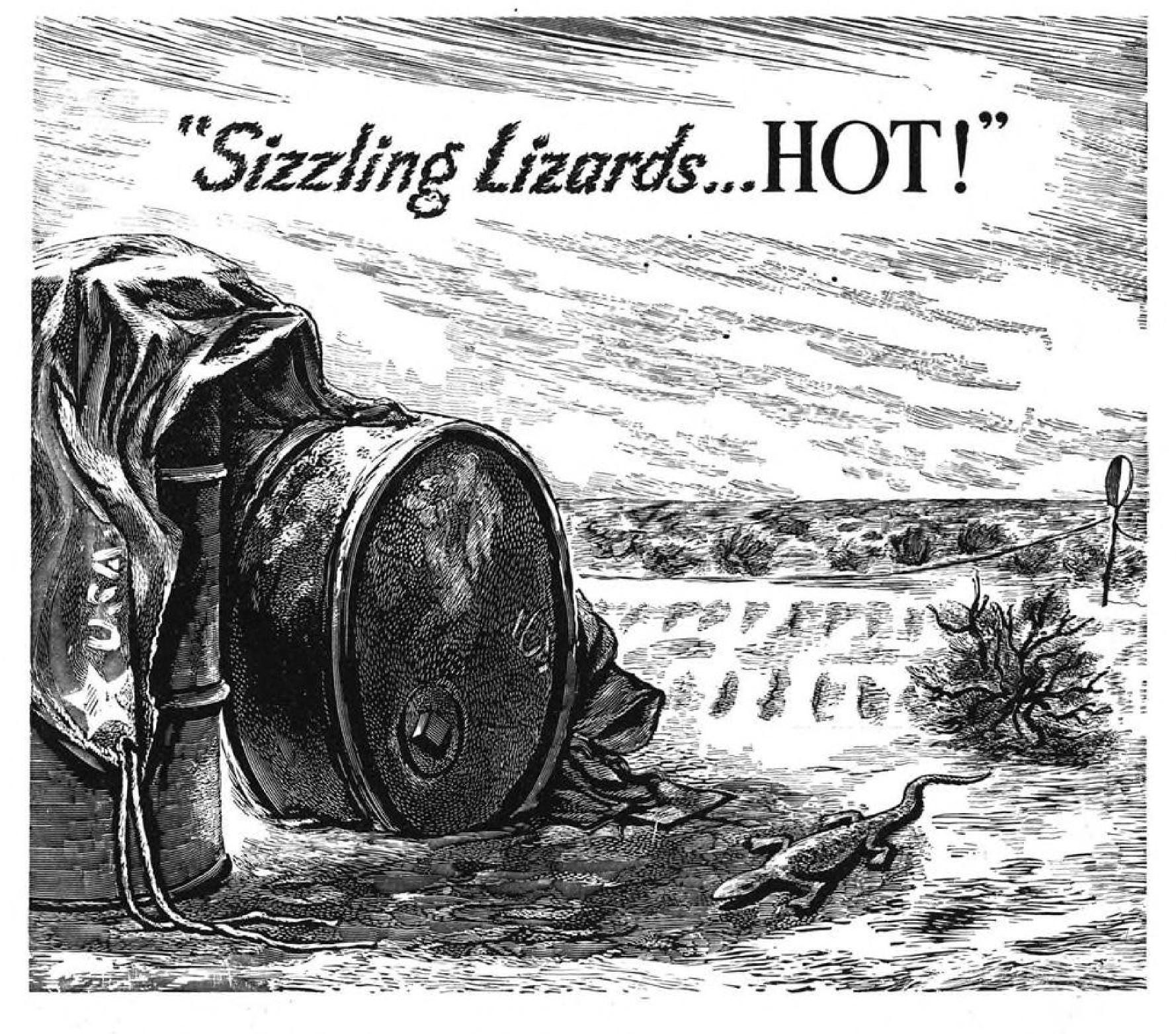
ATS President Coombs urges limited production of post-war planes; Army to close six more primary contract units Dec. 28.

Limited production of post-war planes and determination of the Army Air Forces' permanent policy on contract schools has been asked by J. Wendell Coombs, president of the Aeronautical Training Society, coincidentally with disclosure that the Army will close six additional primary contract flying schools on Dec. 28.

Since the caliber of pilots and planes has made it possible to curtail pilot output, Mr. Coombs suggested that it is time for the War Department to determine whether the efficiency, safety and low cost accomplishments of the contract schools are to be perpetuated in the AAF post-war training program. All remaining schools, said Mr. Coombs, probably will be necessary for the military peacetime pilot program, and "if the contract school system is to be made permanent . . . an announcement to that effect should be made now so that the experienced personnel presently employed in these schools will not seek other postwar jobs."

Asks Limited Production—The ATS president also suggested that "since the war has progressed to a point where the greater part of our original 64 contract schools will be closed by Dec. 28, it is not too much to suggest that at least limited production be authorized for the type of planes that will be needed in peacetime operations."

Schools scheduled to close Dec. 28 are: Eagle Field, Dos Palos, Calif.; Ryan School of Aeronautics, Hemet, Calif.; Midwest Air School. El Reno, Okla.; Southern Airways. invented the first dual rotation Inc., Decatur, Ala.; Darr Aero propeller as well as the automatic Tech, Inc., Albany, Ga.; and Raymond-Richardson Aviation Co.,



TAKE the machines and materials of our temperate civilization into 120° of desert heat and you get some new problems . . .

Actually, 100 octane Aviation Gasoline-volatile-stewing in a desert fuel dump of steel drums, tends to separate into its constituent parts . . . gets "gummy."

This was one of the hazards of a war in which aviation gasoline must be kept "on tap" in the hottest spots of all geography.

Scientists at the "University of Petroleum," Shell's research laboratories, found the answer to this new wartime problem . . . a new, revolutionary "inhibitor." A few drops in a barrel of fuel, and its molecules stay put. Gum doesn't form . . . Storage of 7 years, at 120°, is possible. Although it is not yet in production, the Army Air Forces have accepted Shell's new inhibitor as a research achievement of prime importance to desert operations. Thus—one more outstanding contribution to America's war effort from Shell.

Shell Research made possible the first commercial production of 100 octane aviation fuel and supplied it to American Military Aviation—giving our planes new speed, flying range, and tactical advantage. Later Shell discoveries vastly increased both the power and production of aviation gaso-

Today, more Shell 100 octane aviation fuel is supplied to aircraft engine manufacturers, for critical test and run-in purposes, than any other brand.

Farsighted airport operators will find Shell's wartime popularity a profitable peacetime asset.



FINER FUELS FOR THE AGE OF FLIGHT

11



GAS FOR FIGHTER-BOMBERS:

Gasoline is transferred from delivery trucks at an advanced air base somewhere in France. Many of the cans will be flown to even more advanced airstops from which fighter-bombers are operating against the Germans.

Cut in Naval Air Procurement Slated

A sizable cut-back in naval aviation procurement for the present fiscal year is reflected in the Navy Department's request that its contract authorization be reduced by \$2,000,000,000—from the \$3,600,-000,000 approved by Congress in the 1945 appropriation act last June to \$1,600,000,000.

The request was submitted to the House Appropriations Committee, expected to comply with the Navy's proposal by attaching a rider to the coming deficiency appropriation bill. Hearings on this bill began last week.

Research Increasing — Although naval aviation procurement is on the downgrade, the research program of the National Advisory Committee for Aeronautics is still on the upgrade. This is evidenced by the Committee's request that House Appropriations include in the coming deficiency bill supplemental appropriations totaling \$7,-401,000—\$2,656,000 for salaries and expenses for an increased personnel force, \$835,000 for construction at the laboratory at Langley Field, Va., and \$3,910,000 craft Engine Research Laboratory at Cleveland.

Other aviation appropriations

asked of Congress are \$20,500 for the Civil Aeronautics Board and \$11,400 for the Post Office Department for additional personnel at airmail transfer points.

Curb RCAF Schools

The British Commonwealth Air Training Plan will not be renewed when it expires next Mar. 31, by which time it will have graduated 224,296 since it was started in April, 1940.

Trainees have been sent to Canada from all parts of the British Empire for training under the Royal Canadian Air Force. When the program was at its height it was operated by a staff of 101,418, of which 69,753 were Canadians and 31,665 from other Empire nations. Cost of the program was shared by Canada, Great Britain, Australia and New Zealand.

▶ Surplus—Termination of the program was said at Ottawa to be due to a surplus of air crew men built up by the plan, which was gauged on higher casualties than actually have been suffered.

Training bases being closed are to be used for storage or turned over to War Assets Corp., governfor construction work at the Air- ment organization set up to sell mandos, and company officials said surplus supplies, or will be kept in the holiday shutdown will interoperation for the time being with fere least with production of the skeleton staffs.

Abbott and Turner Resign Jacobs Posts

Resignations of C. J. Abbott as president and director and of Donald F. Turner as vice-president in charge of manufacturing headed a change in the officers of Jacobs Aircraft Engine Co.

Concurrently, it was announced that the management contract between the engineering firm of Ford, Bacon & Davis, Inc., and the company would terminate by mutual consent Dec. 31, 1944. The engineering firm was retained by Jacobs in 1940 to assist and supervise the company's wartime expansion program and the handling of its war production.

Mutually Agreeable—Due to cutback in procurement for the AAF training program, demands for the company's products have decreased to such an extent as to make the termination of the management contract mutually desirable, the company announced.

J. A. Harris, 3rd, chairman of the board of Jacobs, was elected president as well as chairman. He announced that H. B. Knerr, company treasurer, would assume the additional duties of general manager, a new position, and that A. R. Thomas, now director of purchasing, is appointed assistant general manager.

New Engines—Other officers are: J. Story Smith, vice-president and secretary; Albert R. Jacobs, vicepresident and director of engineering; Henry M. McFadgen, vicepresident and engineering manager, and George P. Breece, assistant secretary-treasurer.

Harris said the company "will continue aggressively the development, manufacture and sale of aircraft engines," and that new engines are in the process of development to increase the company's range in the aviation field.

C-W Plant Inventory

Curtiss-Wright airplane plants at Buffalo, Kenmore, St. Louis and Louisville will shut down for the week from Dec. 25 to Jan. 1 to permit taking and adjusting inventories and maintenance work. airplane division officials disclosed last week.

All of the plants are engaged in production of Curtiss C-46 Combig transports.



in the Northrop BLACK WIDOW

Our pilots call this big night fighter an "honest airplane"- it has no bad habits.

It climbs like a scared cat, is swift enough to hold its own with fast fighters . . . and it handles like a polo pony.

The Black Widow can almost hover in the air. In loops, spins, Immelmanns and tight fast turns, it has proven one of the most maneuverable planes fighting today.

More, it lands slowly, takes off quickly reducing the hazards of small, blacked-out

Much of this handling ability is due to Northrop-developed "retractable ailerons" designed into the wings, the first on any plane.

Even in a small fighter such performance would be an achievement in design. The Black Widow however, is big as a medium bomber - with great range and load capacity. It carries a 2 or 3 man crew protected by armor plate . . . plus night-fighting equipment . . . large fuel tanks . . . 20 millimeter cannons, .50 caliber guns and ammunition!

The Northrop group, with a long record of achievement in aerodynamic development and production, regards the Black Widow P-61 night fighter as its outstanding contribution to the war effort. And it believes that many Black Widow design features will prove valuable in peacetime aircraft to come.



NORTHROP AIRCRAFT, INC. . NORTHROP FIELD, HAWTHORNE, CALIFORNIA . MEMBER AIRCRAFT WAR PRODUCTION COUNCIL, INC.

Allied Aviation Loses NWLB Wage Case

Summary of week's activities in U. S. and war agencies.

National War Labor Board unanimously denied a request of Allied Aviation Corp., Dundalk, Md., that a retroactive wage increase ordered for a six-month period become effective only after reimbursement by the U.S. Navy, which had a cost-plus-fixed-fee contract with the company during the period involved.

The company and IAM-AFL, which represents the 130 emall terms of a contract, including wages, when the Navy canceled its contract with the company, which was building gliders. The company then refused to sign the agreement with respect to wages and the case was certified to the Board as a dispute.

Alien Property Custodian James E. Markham has announced that with reestablishment of private at Roswell Army Air Field, N. M. and business communication with France, filing and prosecution of patent applications by French nationals in the Patent Office will again be permitted.

More than 11,000 jobs are now open in plants manufacturing radar equipment for the armed forces, War Manpower Commission said, because of expanded production

Monson, Fay Quit

The resignations of Roland P. Monson as chief of the Civil Aeronautics Board's Rates and Audits Division and Edward A. J. Fay, chief of the Tariffs and Service Division were announce by the Board last week.

Both have accepted positions with airlines, Monson in the comptroller's office of Pan American Airways, and Fay as cargo and tariff planning director of Chicago and Southern Air Lines. Their successors have not been announced.

schedules and employment de-

ployees involved, had agreed on War Department has authorized construction of hangars, school buildings, additional gasoline storage and added taxiways at the Sioux City, Ia., Army Air Base, in the amount of \$2,416,600. Randolph Field, San Antonio, has been authorized \$2,014,172 for additional construction.

An expenditure of \$1,140,917 has been authorized for construction

Contract for construction of stor ₹ age warehouses and storage areas at River Rouge, Mich., has been authorized in the amount of \$722,-263, presumably at Ford Motor Co., plant in River Rouge.

National Labor Relations Board ordered Airesearch Mfg. Co., of Arizona, Inc., Phoenix, and company agreed, to cease and desist

from discouraging membership in UAW-CIO; from making hostile, derogatory and opprobrious statements to employees regarding the union by way of threat, restraint or coercion of employees; or from in any other manner interfering with, restraining, or coercing employees in their self-organizational rights; offer 3 employees immediate reinstatement with back pay; and post compliance notices.

Departing Committee on Aircraft Materials Conservation has issued a bulletin to authorize the re-refining and re-use of ground run-up oil drained from newly installed aircraft engines at contractors' plants providing certain conditions are complied with, in order to aid in conserving critical transportation facilities and to conserve aircraft engine lubricating oil stocks. AAF and Navy Bureau of Aeronautics have agreed to the order and conditions.

The Committee in addition said that, since the issuance of a directive on the supply of berylliumcopper, the supply continues to remain adequate to meet all currently known essential aircraft requirements and existing WPB and CMP orders are considered to have the supply situation under adequate control. They have suspended the directive.

Defense Plant Corp., has increased its contract with McDonnell Aircraft Corp., to provide additional equipment at a plant near St. Louis, at a cost of approximately \$40,000, resulting in an over-all commitment of about \$720,000.

Titeflex, Inc., of Newark, has received the Army-Navy "E" award for excellence in war production. Titeflex manufactures aircraft equipment.

A table showing representative pre-war personal planes with prices and other information-prepared by J. Carleton Ward, is reproduced here.

Make Model	Gross Weight	Weight Empty	No. Passengers	List Price	Engine Hp.	GW.	oer lb. WE
Aeronca	The state of the s	23.111513	* eloscinguro		Mp.	~	*****
Chief Beech	1250	720	2	\$ 1,995	Cont. 65	\$1.60	\$2.77
D-17-R Beech	4200	2430	5	\$16,490	P&W 400	\$4.02	\$6.78
185 Cessna	7500	5043	7	\$48,000	P&W 800	\$6.40	\$9.53
C-145 Fairchild	2350	1380	4	\$ 6,790	Warner 145	\$2.89	\$4.92
24W-9 Fairchild	2550	1481	4	\$ 6,280	Warner 145	\$2.46	\$4.24
24R-9 Grumman	2616	1561	4	\$ 6,530	Ranger 165	\$2.49	\$1.18
Widgeon Grumman	4500	307.5	4-5	\$25,000	Ranger 400	\$5.55	\$8.14
Goose Luscombe	8000	5475	8	\$56,100	P&W 800	\$7.00	10,25
8-A Piper	1200	650	2	8 1,975	Cont 65	\$1.65	\$3.04
J-3	1160	660	2	\$ 1,885	Cont. 65	\$1.63	\$2.86
Piper S-Cruiser Spartan	1550	860	3	\$ 2,845	Lyco. 100	\$1.83	\$3.31
7W-ExStinson	4400	2987	5	\$16,500	P&W 400	\$3.75	\$5.52
105 (Voy) Taylor	1580	900	3	\$ 2,995	Cont. 75	\$1.90	\$3.33
BL-65 Waco	1150	640	2	\$ 1,775	Lyco, 65	\$1.54	\$2.78
VKS Waco	3250	2020	5	\$ 6,440	Jacobs 285	\$1.98	\$3.19
2VN	3800	2508	5	\$10,695	Jacobs 285	\$2.81	\$4.27

Pre-War Personal Planes

Discuss ACCA Post

Problem of filling the general manager's post at the Aeronautical Chamber of Commerce again is engrossing the aircraft manufacturing industry, a position which Eugene E. Wilson, vicechairman of United Aircraft, is now filling on a temporary basis.

The question is due for discussion at the Chamber's annual meeting in Washington, Dec. 7, but it did not appear likely that a decision would be made and there is considerable sentiment in the industry to keep Wilson on for the time being.

The Chamber will elect a Board of Governors and a complete list of officers at next week's meeting.



THE COLLINS RADIO organization has always been driven by the urge to pioneer . . .

To introduce professional standards of design and performance in transmitters and receivers for radio hams in the early thirties.

To engineer a radio outfit that stood up to the rough-and-tumble of Admiral Richard E. Byrd's second expedition to Little America.

To take high quality broadcast equipment out of the laboratory and make it economically practicable for any broadcasting station.

To meet the individual requirements of some of our great airlines with specially engineered communication equipment, including the Collins Autotune.*

To be prepared on December 7, 1941, to go into

production of airborne and ground based radio gear of highly advanced design for the Armed Forces—the result of research and development looking years ahead.

Very soon, we hope, this restless Collins urge to pioneer beyond present horizons will be exerting itself again for the airlines and other commercial and private users of radio communication equipment. Collins Radio Company, Cedar Rapids, Iowa.

*The Collins Autotune is a repositioning mechanism which quick-shifts all transmitter or receiver controls simultaneously and with extreme precision to any one of a number of pre-determined frequencies. U. S. Patents issued and pending.





Compulsory Training Urged at Clinic

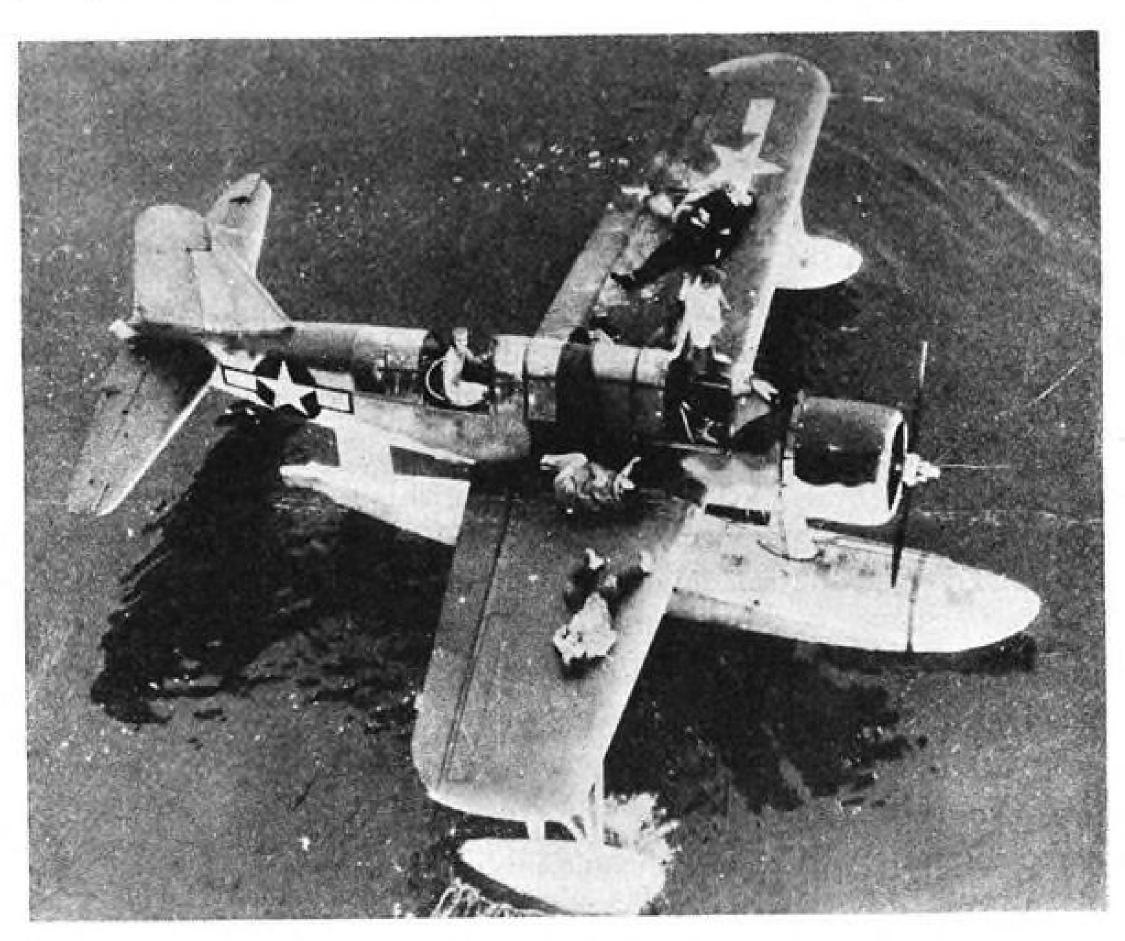
Post-war military program to provide U. S. with sizable peacetime airforce called for in resolution adopted at final session.

Compulsory military training to provide the United States with an airforce that can successfully smash any future attacks on this country or its possessions was called for in a resolution adopted at the closing session of the National Aviation Clinic at Oklahoma City.

Proposed from the floor by J. Carleton Ward, president of Fairchild Engine & Airplane Corp., the resolution was unanimously adopted after a second by Dudley M. Steele, Burbank airport manager. Steele's son and Ward's stepson have both been killed in combat service. The resolution pointed to need for professional airmen, of age suitable to combat rigors, and followed a warning from Ward that airpower's present development and future potential destructive menace, means disaster for any country caught off-guard with an inadequate air defense in future. ▶ Proposals—Other resolutions re-

iterated last year's clinic's demands for a unified department of national defense consolidating Army, Navy and air; urged speed-up of CAB hearings on airline and feederline actions; endorsed aviation education for veterans and high school aviation classes; called for speedy development of airports, parks, harbors and flight stops by government and private agencies, and asked that land donated for public use as airports should be tax-free.

They also opposed practice of granting exclusive vending privileges to any single aviation oil vendor at an airport; urged peacetime leasing of airport facilities built in the war effort, to municipalities or other political subdivisions, with a clause providing facilities would be immediately available for national defense emergency; petitioned Congress to provide funds to continue CAA operations of control towers, and funds to assist municipalities in financing maintenance of large airports, where the cost was too high, and where the field was needed as a defense reserve; called for expanded intensive research by government and industry; urged speedy negotiated settlement of terminated war contracts and called for disposal of



KINGFISHER NAVY RESCUE PLANE:

16

The Chance Vought OS2U-3 Kingfisher has proved one of the most versatile of the Navy's planes, but its biggest role has been that of rescueof Navy pilots downed in the Pacific, of men from torpedoed ships, of storm survivors such as these men aboard a Coast Guard rescue plane off the east coast. Two of the best known rescues were of Navy pilots under the guns of Jap-held Truk.

surplus aircraft in a manner which would not destroy the aircraft market and the aircraft industry.

Canadian Planes

Central Aircraft official, in SAE address, doubts that Dominion can make serious bid for world plane markets.

The Canadian aircraft industry cannot expect to compete for world aircraft markets after the war, in the opinion of W. J. McDonough, managing director of Central Aircraft, Ltd., but should develop a new aerial work horse for the development of the Canadian north-

He believes that the most prolific source of business for Canada's post-war aircraft industry lies in the development of Canada's natural resources.

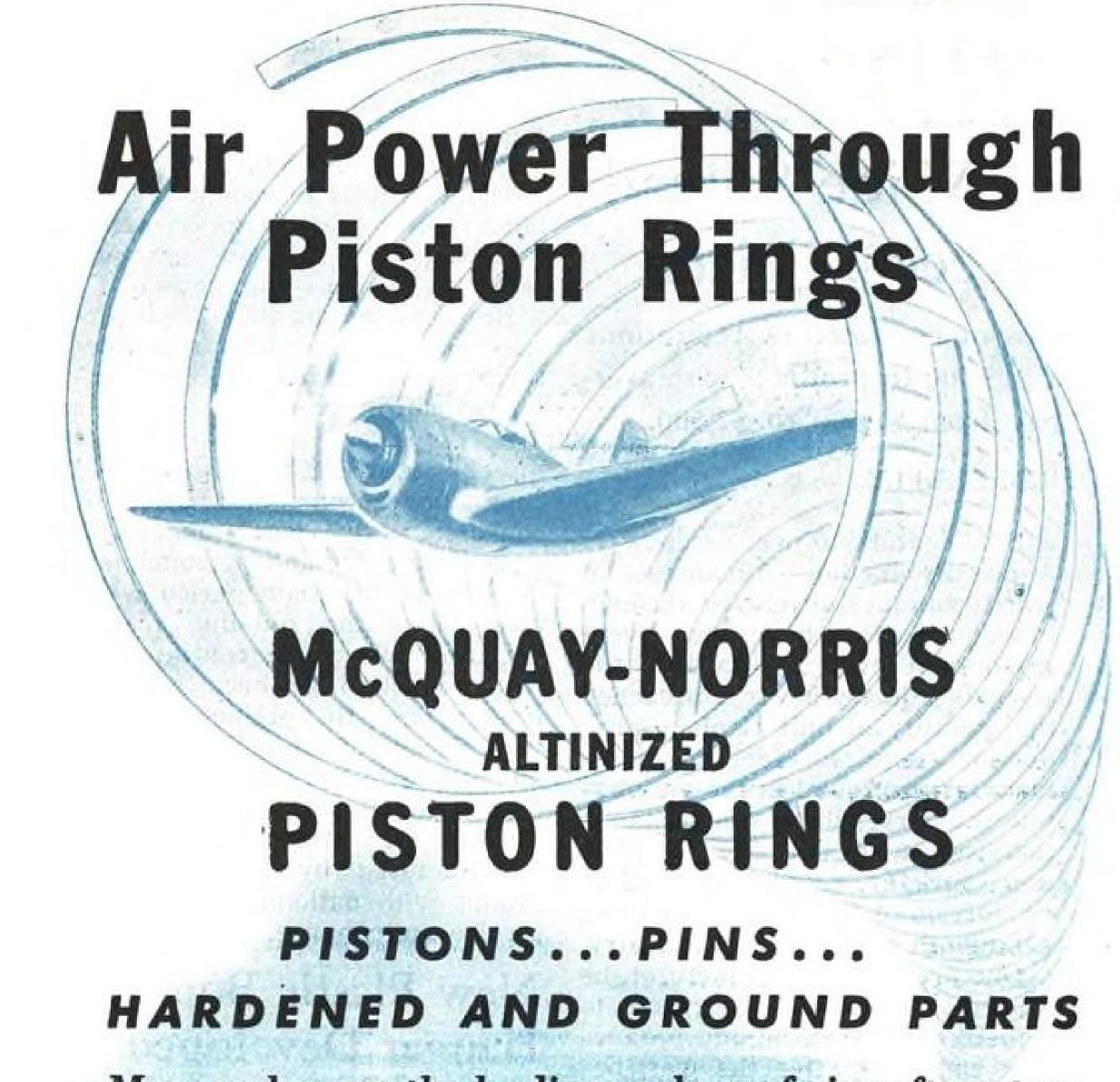
Addresses SAE at Toronto -"What we need most of all," he told a recent meeting of the Society of Automotive Engineers at Toronto, "is a new work horse of the north, cheap as to first cost, economical in operation and easy to maintain. The backbone of Canada lies in her timber and mineral resources and to further the development of these vital fibres of our natural progress we must have airplanes of the right type and plenty of them."

In the 10 years before the war the airplane in Canada advanced the frontier by more than 100 years, McDonough said, helping to develop thousands of areas never before visited by white men. He expected that the Canadian aircraft industry will have to dismiss about 100,000 of the 130,000 now employed in it after the war ends. In 1937, only about 500 persons were working in the industry.

Bell Cuts Work Week

In the first major shift of hourly schedules revealed, Bell Aircraft Corp. is reducing the work week of 5,000 non-production employees in the corporation's three plants in Buffalo and Niagara Falls. Schedules in the Marietta (Ga.) B-29 plant remain the same.

The cut in hours is from 48 a week to 44. Exemption permitting the company to reduce schedules from the mandatory 48-hour week for clerical, office and administrative employees was granted by the War Manpower Commission, and does not indicate any reduction in production schedules.



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

PARTS FOR AIRCRAFT ENGINES

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

PARTS FOR PROPELLER ASSEMBLY

Machined Magnesium Parts Piston Rings

EQUIPMENT FOR MAINTENANCE OF AIRCRAFT

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

LANDING GEAR PARTS

Machined Aluminum Pistons Piston Rings **Hardened and Ground Parts**

PRECISION WORKERS IN IRON, STEEL, ALUMINUM, BRONZE, MAGNESIUM



PRIVATE FLYING

Fairchild Head Sees Wide Spread In Personal Plane Needs, Prices

J. Carleton Ward says consensus of customers' specifications calls for aircraft costing about \$13,500 to produce, with average purchaser expecting to pay from \$1,500 to \$2,500.

By ALEXANDER McSURELY

What the public wants in a postwar personal plane and what it may be able to get for the price it is willing to pay, are two different things, in the opinion of J. Carleton Ward, president of Fairchild Engine and Airplane Corp.

In a realistic consideration of engineering costs involved in building the post-war personal plane called for by a concensus of potential customers' specifications as reported in various surveys, Mr. Ward finds that the total price of the airplane, on pre-war cost basis would come to about \$13,500 whereas the average consumer, according to the surveys expects to pay between \$1,500 and \$2,500.

▶ Specifications—Speaking at the recent National Aviation Clinic at Oklahoma City, Mr. Ward described the plane, specified from a composite of recent surveys as: low wing, with retractable tricycle landing gear, four to five seats, 120 pounds baggage allowance in 24 cubic feet of space; insulated for heat and sound, with cabin heater and ventilator, full instruments for night or day instrument flights; two-way radio for standard bands and VHF, bonded and shielded; two doors minimum; dual controls. and an interior as luxurious as a high class automobile.

The plane is expected to cruise at 125-150 mph, takeoff over 50 foot obstacles in 1,200 feet, climb at 650 feet per minute, land at 50 mph, and have 500-mile range with alternate fuel and reserve, and 13,000 foot ceiling.

Mr. Ward pointed out that, while some reduction in costs of instruments and equipment may be expected, there is no basis for engine costs which will meet expectations of the airplane builders or the public. Lowest selling price, unconfirmed by manufacturers, inditurers indicate that expected costs could hardly exist in the face of awning.

will be nearer \$10 per horsepower. Mass Production—Advantages of war techniques developed through mass production have been overrated, and even in wartime the aircraft industry never approached the quantity of unit airplane production required for the mass manufacture found in the automobile industry, where single manufacturers turn out 500 to 5,000 units per day, as against wartime production of 10,000 airplane units per month by the whole industry.

One prominent manufacturer, he reported, has said he expects to replace all his tooling and production engineers after the war, because it will be impossible for him to produce economically by the same methods as he could with unlimited funds for production of tooling to overcome shortage of skilled labor.

New Materials—Arguments that new metals, alloys and plastics will reduce costs, have been general statements, not accompanied by "a bill of particulars that would convince the prudent manufacturer," he added.

Gas turbines, jet engines, twocycle engines, and other prime movers now under development are not expected to be available for quantity use in the personal plane field, in the immediate postwar years. All production engines in use in this war were designed before the war, and experienced manufacturers doubt that there will be any "revolutionary jump" in the curve of engine develop-

▶ Engines—Surplus engines will be an important factor in the personal plane market, and may be available at fantastically low prices, depending on how they are marketed, but Mr. Ward warns against the dangers of progress in cates a hoped-for figure of \$5 per the aviation industry without a horsepower, and most manufac- healthy engine industry, which top, with half projecting as an

wholesale dumping of surplus engines. Moreover, unless the engines are reconditioned and subject to the manufacturer's guarantee, unsafe engines may prove a boomerang to the entire industry.

The Fairchild president regards labor costs, a basic factor in manufacturing costs, as an unknown factor in the post-war period.

He foresees gradual reconversion to personal plane manufacturing in three phases, reconditioning of surplus pre-war types, a first wave of post-war planes built by smaller and specialized companies accompanied by some conversions of war models to peacetime sport and personal use, and finally the main period when established and old-line manufacturers who have continued in war production, get back to peacetime types. He predicts that a wide variety of competitive models and types offered at first, will eventually shrink into a smaller number of competitive models manufactured by a few strong groups with national distribution, service and finance.

New Plastic Bonded Hangar Developed

A new plastic bonded hangar for large, single-engined airplanes is offered by Texas Pre-Fabricated Housing Co., Dallas.

The "T-44" has 441/2-foot door width, is 30 feet deep, with 11-foot clearance. Construction is Douglas fir plywood over yellow pine frame. Plastic adhesives used in three veneers are described as waterproof, warpproof, and repellent to insects and dry rot. The roof, of the same plywood, is 660 square feet and is designed to support 55 pounds per square foot, which is equal to very heavy snowfall. The pitch is 21/2 inches per

Concrete Piers—The building is anchored to 16 concrete piers 18 inches square by 12 inches deep, and "will withstand winds of hurricane velocity." The company says the patented plywood boxbeam over the door will carry 2,500 pounds or more without sag-

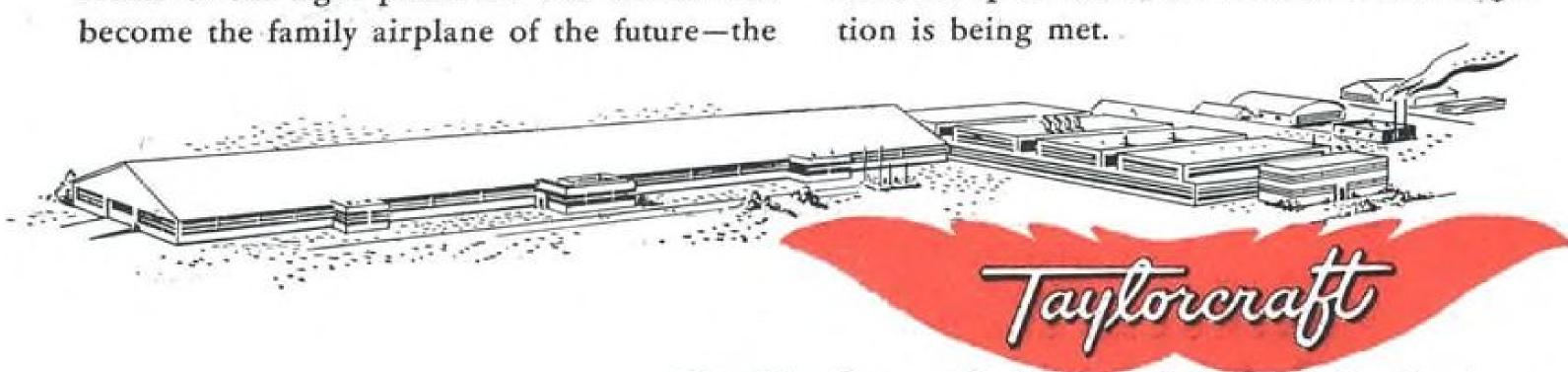
Covered with aluminum paint in asphalt base, the T-44 will resist moisture condensation and weather in all climates, according to the company's statement. The lightly balanced door is the hinge canopy type, swinging up into the hangar

TOMORROW'S FAMILY AIRPLANE! WHAT WILL IT BE?

- -Low-wing? High-wing? All-wing?
- -Will it be metal? or plastic? or what?
- -Will it have one engine? or two?
- -How about speed?
- -Will it be even simpler to operate than a car?
- -What will it cost?

These intensely practical considerations today are guiding Taylorcraft engineers as they design and re-design the fundamental improvements of the light plane for war which will airplane that you, your family and your friends will fly.

Since 1941, the only aircraft Taylorcraft has produced have been planes for war-"grasshoppers" that fly at fow altitudes, spotting troop movements, carrying messages, taking off from and landing in rough, postage-stamp fields. But Taylorcraft hasn't forgotten its obligation to the American people as its past and future customers, to perfect the safe, sure, low-cost airplane of advanced design that will fully measure up to tomorrow's needs. That obliga-

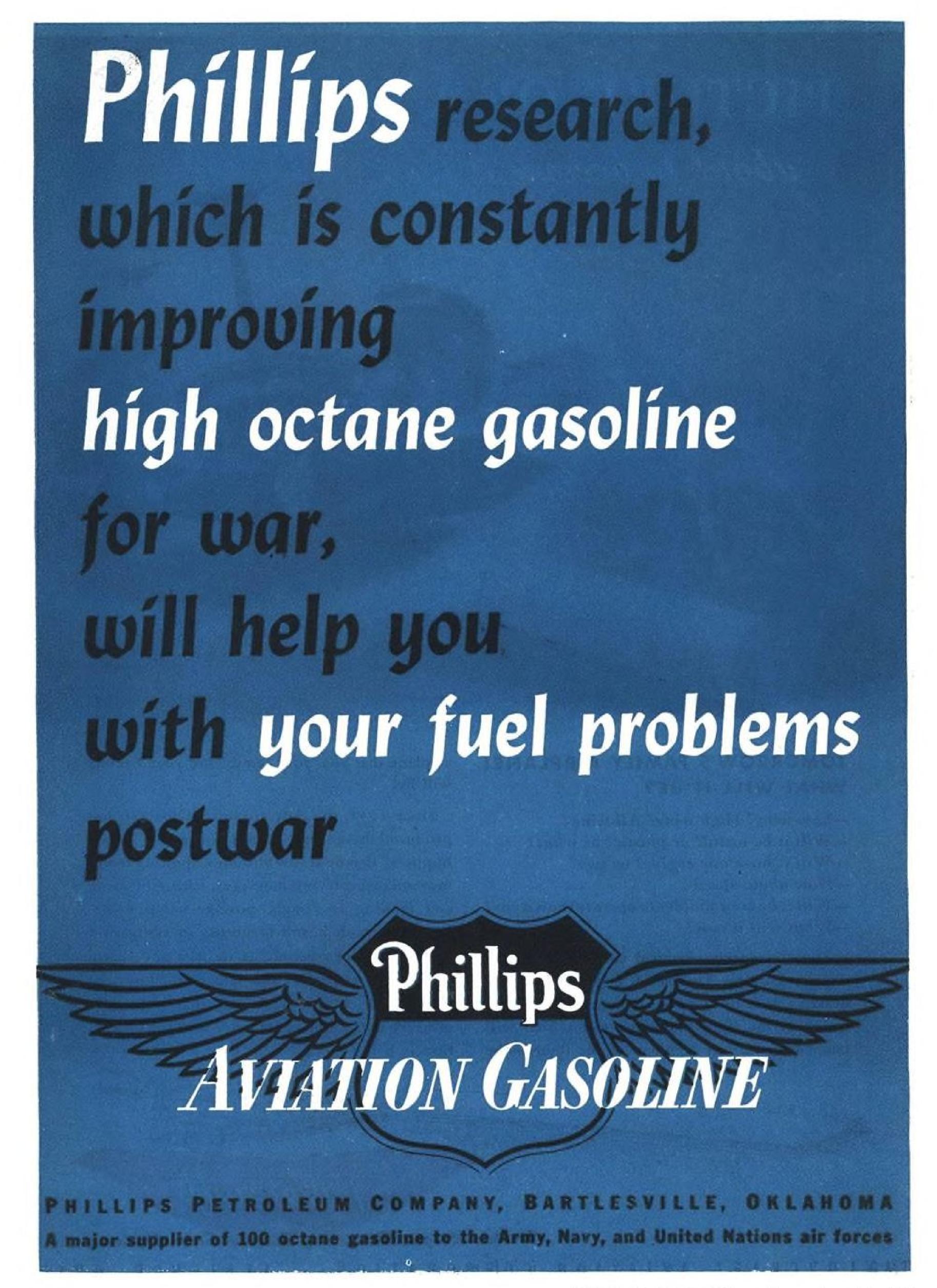


PICTURE OF A DREAM

about to become a fact

World's Largest Builders of Side-by-Side Airplanes

TAYLORCRAFT AVIATION CORPORATION . ALLIANCE, OHIO



Congressional Flight School "Converts" with Little Difficulty

Organization, operated by Arthur Hyde reopened last June after being closed two years by coastal security ban, now has from 500 to 600 students.

By BLAINE STUBBLEFIELD

private flying base getting back since purchased ten planes from into civilian business.

nautics, eight miles northeast of Washington, D. C., was closed Aug. 4, 1942, under the First Fighter Command's coastal security ban. It was reopened last June 22 by means of a corridor to the unre- surplus property some of its liaison stricted interior, and today has 500 planes. to 600 flight students. A chart on

run Congressional since 1936, says he can build up his student list to by Civil Air Patrol, flying searchlight and air tracking missions. Headquarters of the Maryland Wing 33 is still there.

▶ 90 Percent Primary Students— About 90 percent of Hyde's business is primary students. About 65 percent of these are women: Waves, Wacs, Marines and government girls. Most of them of course do not hope to buy airplanes of their own. They are simply taking their choice of available diversions for their spare money.

Hyde tells people that learning to fly is a worth-while education in aeronautics, whether one intends to own a plane or not. Persons who fly, he says, will understand and feel at home in the aviation era just ahead.

When private flying was grounded in 1942, Hyde moved to Martinsburg, W. Va., where he gave flight training to 80 boys every eight weeks, through the Civil Pilot Training-WTS period, using 25 Wacos, Taylorcraft and Pipers.

The Martinsburg field is now operating a civilian business, owned and managed by Hyde. Two 5,000-foot runways have just been completed.

Here is a case history of an old gressional Field in June, and has WTS, total 25. He doesn't want Congressional School of Aero- any of the heavier basic trainer type, and expects some difficulty in getting more airplanes until such time as manufacturers may be permitted to turn out new ones, or the Army decides to declare as

Gasoline for private operations the office wall showed 120 hours is unlimited, under the Civil Aeroflown the day before this writer's nautics Administration's rationing program, Hyde says. The indi-Owner Arthur Hyde, who has vidual flyer does not use coupons; he just rolls up and calls for service. Allocation of fuel is made 1,000 or more when peace ends to the distributor. Congressional transportation and other troubles gets all it wants, but is not aland permits him to improve his lowed to make taxi or charter services and add attractions. The trips. All flights must be for field was occupied during the ban training purposes, and there is no pretense that they are war-connected.

> ▶ Post-War Program — Congressional airport, first used as such in 1926, comprises 250 acres. The sod surface is rolling contour of such elevation that some parts of the field cannot be seen from some other parts, but the customers do not seem to mind that. Present plans are to plow up two or three runways after the war and harden them with one of the several chemicals now being developed for that purpose. Mr. Hyde figures on erecting modern buildings, showrooms and non-aviation recreational facilities.

> At this time, Congressional employs 17 instructors, two of whom are girls-the latter doing first class work. Instructors are paid an hourly rate. Rate to students is \$7 per hour solo, and \$10 dual. This is one dollar higher than the pre-war rates. Mr. Hyde sees no immediate possibility of reducing

Some base operators say they have pioneered aviation for love and no money. Mr. Hyde says he always has made a profit at Congressional airport, and still does. In addition to selling flight ser-Bought 10 WTS Planes-Hyde vices, he sells Taylorcraft, and exbrought 15 planes from Martins- pects to continue. Taylorcraft is burg, when he opened the Con- sufficiently pleased with his rec-

ord, he believes, to allow him to take on another agency.

New Selling Methods—He has several ideas on new airplane selling methods. For one thing, he will employ salesmen who do nothing else but sell. He has some plans for displaying airplanes, which he is not ready to discuss. and he says the question whether salesmen ought to be airmen or well-dressed smoothies is important, but doesn't state which side he is on. Hyde says he did pretty well as a distributor without using any modern merchandising methods. By using such methods, he thinks he can do many times better. The merchandising of aircraft is a subject that hasn't yet been scratched, in his opinion.

In regions like Washington, which has good airline connections, Hyde does not expect much charter and taxi business, although he will handle what he can get. Taxi fares are so high in comparison with scheduled rates that few will pay them. Fly-yourself business should be good. Past experience has been that a very large percentage of students don't get certificates and most of those who do don't buy airplanes. If this trend continues, and post-war aircraft prices are as high as expected, Hyde believes more planes may be sold to fly-yourself services than will be sold to private

On Nov. 20 Mr. Hyde is opening Hyde Field, at Clinton, Md., six miles southeast of Washington. This 300-acre field has two macadam runways, built by the Navy, which took it over from Hyde before he had put it in operation, before the war, and operated it during the training period. One runway is 3,000 feet long, the other is 3,800, and there are several shorter practice runways. Modern office and operations buildings are nearing completion, and 100 private hangars will be erected. A number of airplanes were held in reserve to open the new field. Mr. Hyde owns it outright, with no

New Port Dedication

Pittsburgh's present commercial airport, Allegheny County Airport, will be used for private flying and cargo planes after the war, it has been announced in plans for dedication of the new \$12,000,000 Greater Pittsburgh airport, set for

Air Transport Command will

21

move its activities from the present county airport to the new field at dedication time and will operate the field exclusively until the war ends. Commercial airline operations will continue at the county airport until the end of the war, when they will move to the Greater Pittsburgh port, leaving Allegheny to private flyers and cargo.

Briefing

For Private Flyers and Non-Scheduled Aviation.

By ALEXANDER McSURELY

Fuller utilization of existing airports for private flyers, by a new runway and traffic pattern which would make it possible for two planes to land and two to take off all at the same time on a 160-acre field, is being studied by the Illinois Aeronautics Commission. The plan, projected by George Roberts of the commission calls for eight 1,945 foot runways 100 feet wide, and hangars at the four corners of the field. By addition of small acreage, the field could be developed into a feeder airline port.

Model Airpark-Eldon, Mo., a city of 2590 population, 12 miles from Lake of the Ozarks, is building an airpark as an operating example of what a small community will need in the air age. Financed by the city, with state planning aid from E. V. Fryhoff, state aviation development section head, the Airpark site is within walking distance of any place in town. Eldon plans to invite the aviation industry to place exhibits of hangars and service equipment at the airpark, for demonstration to other Missouri towns.

Wilson Tells 'Em-A high spot of the Aviation Clinic at Oklahoma City came last week for private flyers when NATA's John Wilson got up on his hind legs and told both municipal and state governments where to head in. His comments came just after a squabble between representatives of the two governmental divisions, as to which should deal with the federal government to get federal grants for airports. "The main thing is to get the airports," said Wilson, "and aviation can't afford to have the program tied up by jurisdictional squabbles." He went on to point out that while private flying and non-scheduled aviation represent 95 per cent of the total, their airport needs are being neglected, and demanded a change in policy.

Pilots' Physical Requirements Unaffected by Proposed Changes

In view of widespread disagreement on question, Board asks retention of present standards to expedite other revisions.

The long-awaited proposed revisions of Parts 20, 43 and 60 of the Civil Air Regulations, affecting private pilots, are being circulated for comment by CAB with still no decision on the relaxing of physical requirements.

Declaring a considerable difference of opinion exists on this question between pilots and physicians, and among pilots themselves, the Board stated "the matter is under intensive study and an objective research program is under way which we hope will furnish substantiating evidence upon which to make these changes."

▶ Regulation Amended—The Board therefore proposed to retain the present medical requirements so as not to delay putting into effect the other revisions. It pointed out that the applicable regulation already has been amended to permit persons with physical defects to obtain certificates on demonstration of ability to pilot aircraft

The suggested revisions of Parts 20, 43 and 60 were known in Oklahoma City during the closing sessions of the National Aviation Clinic. With CAB officials present to explain details of the changes, consensus was that, while the revisions did not go far enough, at least a start had been made. The crowded Clinic schedule prevented formal consideration of the amendments.

Other major recommendations: Applicant for powered aircraft rating must have 10 hours dual, 30 hours solo time in three-control aircraft, or 7 and 20 hours in twocontrol non-spinnable planes. At least five hours must have been logged within the 60 days immediately preceding application. Crosscountry time must be eight hours, including one flight of not less than 50 miles with two full-stop landings enroute. Eliminated is flight test in spins.

Applicant must be able to perform such maneuvers as: landings from not more than 1,000-foot altitude with engine throttled and 180-degree change of direction; moderately-banked figure eights with altitude variation not exceed-

ing 200 feet; 720-degree power turn in each direction with no less than 60-degree bank and altitude variation no greater than 200 feet.

Applicant for instrument rating must have logged at least 40 hours instrument flight under actual or simulated instrument flight conditions, not less than 20 hours of which must have been in actual flight.

A pilot shall not fly under instrument flight rules unless he has had at least six hours instrument flight during the preceding six calendar months, or logged six hours under actual instrument conditions while accompanied by a pilot holding an instrument rating, or under simulated instrument conditions, or under simulated conditions in CAAapproved equipment.

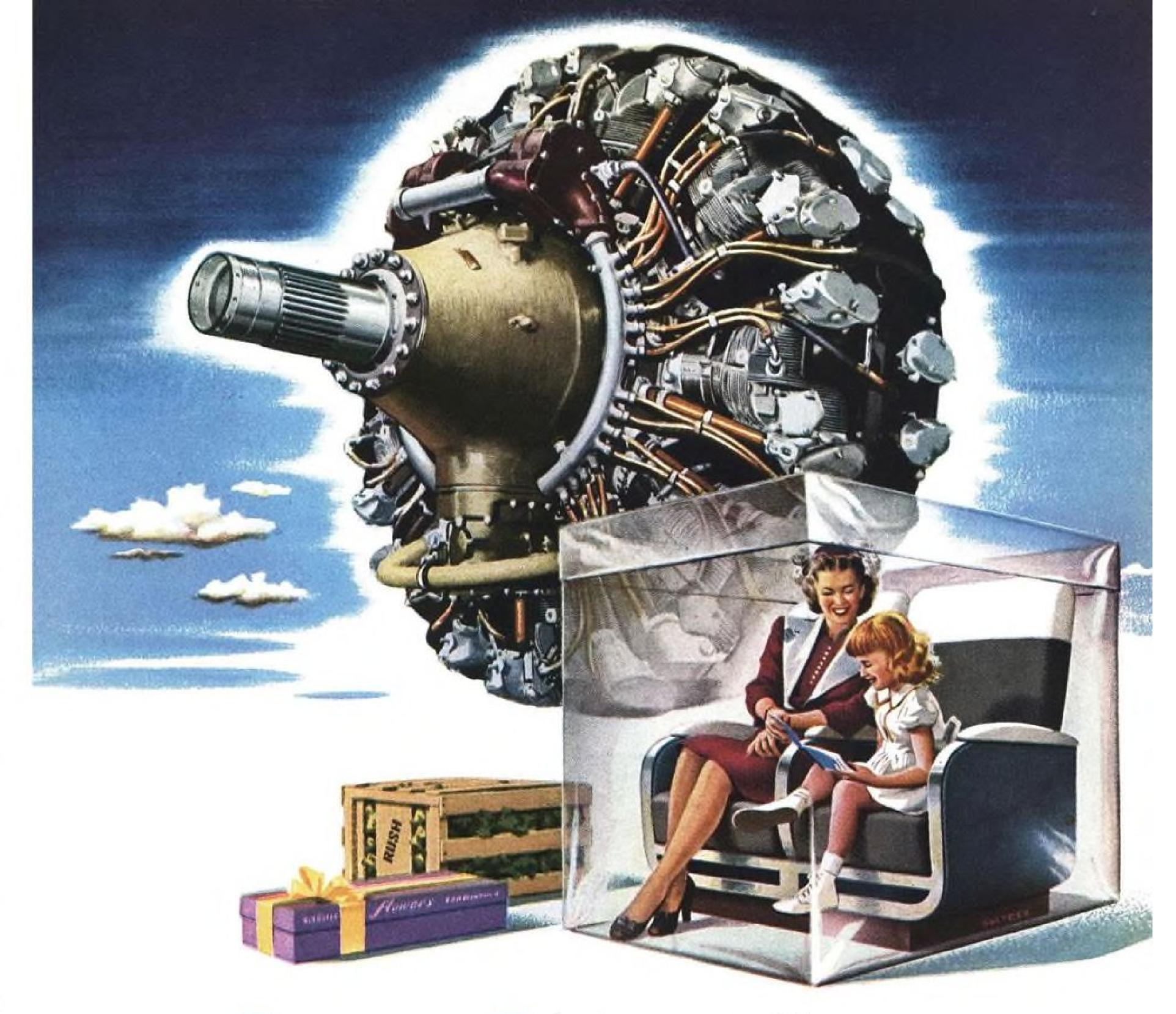
▶ Changes—Prominent among the changes is that automatically extending the airworthiness certificate of an aircraft beyond the year's period provided it be given periodic inspection by a "mechanic designated for that purpose by the Administrator."

Under the proposed regulations, weather minimums would be based upon visibility and proximity to clouds, rather than upon ceiling. For flight off airways, or on airways below 1,000 feet, minimum visibility would be one mile. Above 800 feet, minimum proximity to clouds would be 500 feet vertically, 2,000 feet horizontally. The same regulation applies at any altitude within a control zone.

Lease Hangar Space

Southeastern Air Service, Inc. has leased 22,000 square feet of hangar and shop space at Atlanta municipal airport, for another operations base in its sales and service system, which also includes main bases at Athens and Macon, Ga., and associate bases in other smaller cities, in conjunction with individual operators on a standard plan of operation.

The hangar and shops formerly were used by Delta Airlines as a modification center. Sales, student instruction, charter flights and repairs will be principal activities at the Atlanta base.



Faster and Fresher via Cyclones

Transportation of perishables by air becomes a highly interesting prospect as ton-mile costs shrink. Yet no commodity under consideration is so perishable as human vitality, which on extended trips wilts like lettuce or gardenias.

Faster, Cyclone-powered air transport gives passengers a wide travel advantage in distance covered before fatigue sets in. With still higher standards of commercial speed in sight for tomorrow, transportation to any part of the world will be possible with maximum saving of passenger vitality.

The accepted high-power engine for super-speed transport in such installations as the Boeing Superfortress, Lockheed Constellation, Curtiss CW-20E Commando and Martin Mars is the Cyclone 18, with a rating of more than 2200 horsepower. True to Wright tradition, the smooth-running Cyclone 18 is thrifty of fuel and maintenance, and offers operators a payload bonus of two extra passengers over comparable power plants. Wright Cyclones pay their way.

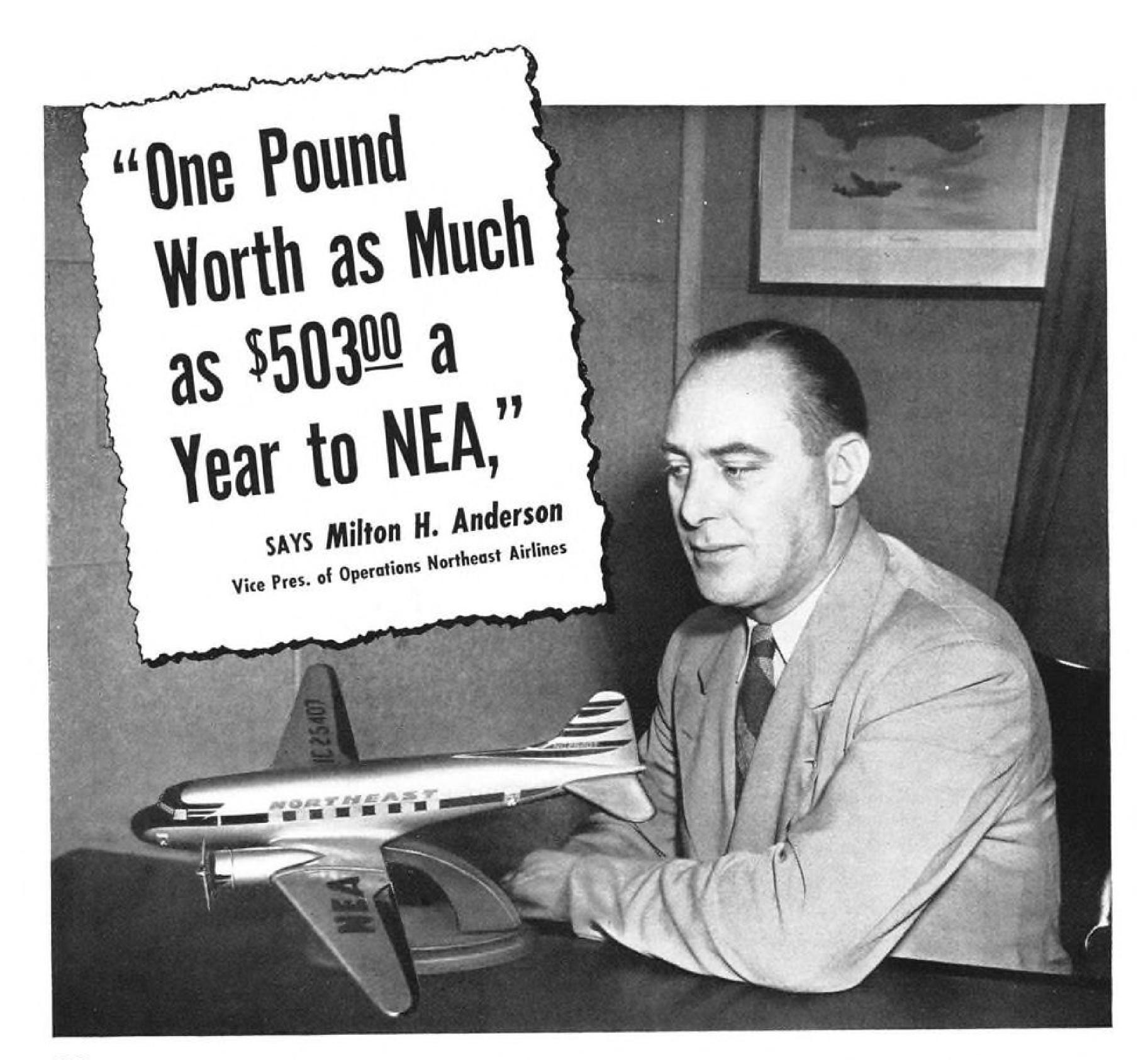
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PERSONNEL

sales representative of Pan Ameri- for the year 1942, was given



ways, has been B. Barringer. appointed general traffic manager to head the line's traffic and sales activities in North and South America. De Groot's headin New York,

Panagra's South American headquarters in Lima, Peru, and other Robinson, president and chief engiindustrial centers. Before joining Panagra in 1939, he was engaged in promoting trans-Atlantic travel through educational and sales promotion campaigns.

The Evans Glider Trophy for 1943, was awarded to Richard C. duPont, former special assistant on the Army Air Forces Glider Program, who was killed on an experimental glider flight Sept. 11, 1943. The award was presented by Maj. Gen. L. S. Kuter, assistant chief of air staff, Plans, to Richard C. duPont, Jr., eight year old son of duPont. Also present at the ceremony in the Pentagon Building were Mrs. Allaire duPont. widow, and A. Felix duPont of Wil-



VISIT RYAN PLANT:

Rear Admiral Ernest M. Pace, Jr., (center) formerly Navy member of the Aircraft Production Board and now the Bureau of Aeronautics general representative in charge of aircraft procurement in the western district, on a visit to Ryan Aeronautical Co., factory in San Diego. At right is T. Claude Ryan, president of the company, and Lieut. Comdr. R. O. Deitzer, Bureau of Aeronautics representative at Ryan.

Christopher de Groot, formerly U. S. mington, Del. The first award, made can-Grace Air- posthumously to the late Maj. Lewin

Robinson Aviation, Inc., New York, has opened a West Coast Division in Hollywood. E. S. Titus has been transferred from the New York office to become manager of the new division. Robinson builds vibrashock mounting. F. C. Thieme, forquarters will be merly chief engineer of the Northwestern Aeronautical Corp., Minbut he will spend some time at neapolis, and of Air Parts, Inc., Minneapolis, is now assistant to C. S. neer of Robinson Aviation.

> Nate Hast, founder and owner of General Television and Radio Corp.,



has joined Lear, Inc., as merchandising manager in charge of styling and marketing nationally the new home radio sets. Lear is at present building aircraft radio. Hast

has distributed more than 4,000,000 model planes during the war, models that have had widespread use for instructional purposes, and has been working with radio since the days of crystal sets. He has been with Philco and Emerson Radio.

Orin Redhead has been appointed manager of the Columbus, Ohio, office of the Aero Insurance Underwriters. Redhead was active in aviation insurance in Toledo prior to joining the British Commonwealth Flying Training Program in Canada in 1942. He has also flown as a Civil Air Patrol pilot in Florida and as a transport pilot in the Air Transport Command.

Fred C. Fischer, industrial and public relations manager of the Long Beach plant of Douglas Aircraft Co., Inc., has been named assistant industrial relations manager for all Douglas plants to assist A. C. Galbraith.

Fairchild Engine and Airplane Corp. announces formation of a new engineering liaison section to function as part of the design division of engineering. George A. Evans will head the new group assisted by Charles M. Wax and C. W. Personius.

Standard Molding Corp., Dayton. He been appointed works manager of



AT PORT CEREMONY:

Three speakers at the dedication of the Morgantown, W. Va., Municipal Airport's new lights were, left to right: Mrs. Blanche Noyes, famed aviatrix and a Bendix trophy winner who is now with the Civil Aeronautics Authority; Rep. Jennings Randolph of W. Va., who has an airport bill pending before Congress; and Col. H. C. Greer, president of the West Virginia Aviation Foundation.

has been with the Celanese Celluloid Corp.'s Dayton officer handling the Air Corps work for the past two

David M. Salsbury has been elected vice-president and general manager of Westinghouse Electric Supply Co.

Mrs. Grace M. Biermann, formerly administrative assistant of the Eco-



nomic Bureau of the Civil Aeronautics Board, has been appointed assistant chief of public relations for CAB, replacing Doris Miller, who has joined the public relations staff of

American Airlines, Inc., in Washington. Mrs. Biermann had newspaper experience in Iowa and was with the Interstate Commerce Commission before joining the CAB about seven years ago.

Changes in command assignments of the Army Air Forces include: Brig. Gen. William W. Walsh, newly appointed Assistant Chief of Air Staff, Training, and Maj. Gen. William O. Butler as commanding general of the 6th Air Force. Maj. Gen. Ralph W. Wooten, a former commander of the latter post, is now commanding general of U.S. Army Forces in the South Atlantic.

Don Balfour, factory superintendent of the Nashville division of Con-George W. Waite has joined the solidated Vultee Aircraft Corp., has



Today and Tomorrow

In the past 25 years, Mid-Continent has been a leader in the development of new and improved lubricants of all types. D-X Aviation Oil is one of the recent results of this progressive research. It is a superior lubricant designed for and used in military aircraft in all parts of the world. Limited quantities are now available for civilian use.

MID-CONTINENT PETROLEUM CORPORATION

TULSA, OKLAHOMA

the plant, succeeding Ernest Wenigmann, who was named acting division manager. Bernard Clark, former night factory superintendent, succeeds Balfour as superintendent, and W. H. Cook, a former general foreman, becomes night superintendent.

Samuel S. Metzger, manpower officer of the western procurement district, Air Technical Command, has been promoted from lieutenant colonel to colonel. He also represents the Aircraft Resources Control Office on the Production Urgency Committee and the Manpower Priorities Committee.

H. Webster Crum (photo) has been appointed manager of the New



Products division of Good-Aircraft year Corp., succeeding Ray Hudson who goes to Detroit on a new assignment. In his new post, Crum will continue to head the company's out-

side activities in lighter-than-air. In 1942, was named manager of Airship Control for Goodyear, to coordinate with subcontractors the huge airship production schedule for the Navy.

Gerry W. Hawes, Jr., is the new district traffic manager in Washington for American Airlines, Inc., replacing Herbert D. Ford, who has been transferred to Chicago as regional passenger traffic manager. Hawes was formerly traffic manager for American in Buffalo and since 1935 has held various traffic positions in St. Paul, Minneapolis, Chicago and Milwaukee. While in Buffalo he served on the board of governors and was chairman of the Economic Division of the Pan American Council of the Coordinator of Inter-





Hawes

Ford

American Affairs. Ford spent eight years in the Washington office of American. Hawes has been replaced in Buffalo by George C. Maj. Ansel E. M. Talbert, former gier has been transferred from Bos- Tribune, recently received his proton where he was traffic representa- motion from the rank of captain.



DR. LOMBARD HONORED:

Maj. Gen. O. P. Echols, assistant chief of air staff, presents the emblem for Exceptional Civil Service to Dr. Albert E. Lombard, Jr., special assistant to the director of the Aircraft Resources Control Office, for his outstanding contribution in assisting in the development of aircraft resources.

James M. Robbins has been named technical representative of the B. F. Goodrich Co., on the staff of the new Colombian Tire Co., in Bogota.

William R. McPhail, 43, assistant to the Atlantic division traffic manager



of Pan American Airways, died recently at his home in Larchmont, N.Y. McPhail joined Pan American in 1942 after serving 22 years with the American Express Co., and Thomas

Cook travel agency. He was known in travel circles throughout the world and estimated that he had made about 40 crossings of the equator by ship and airplane.

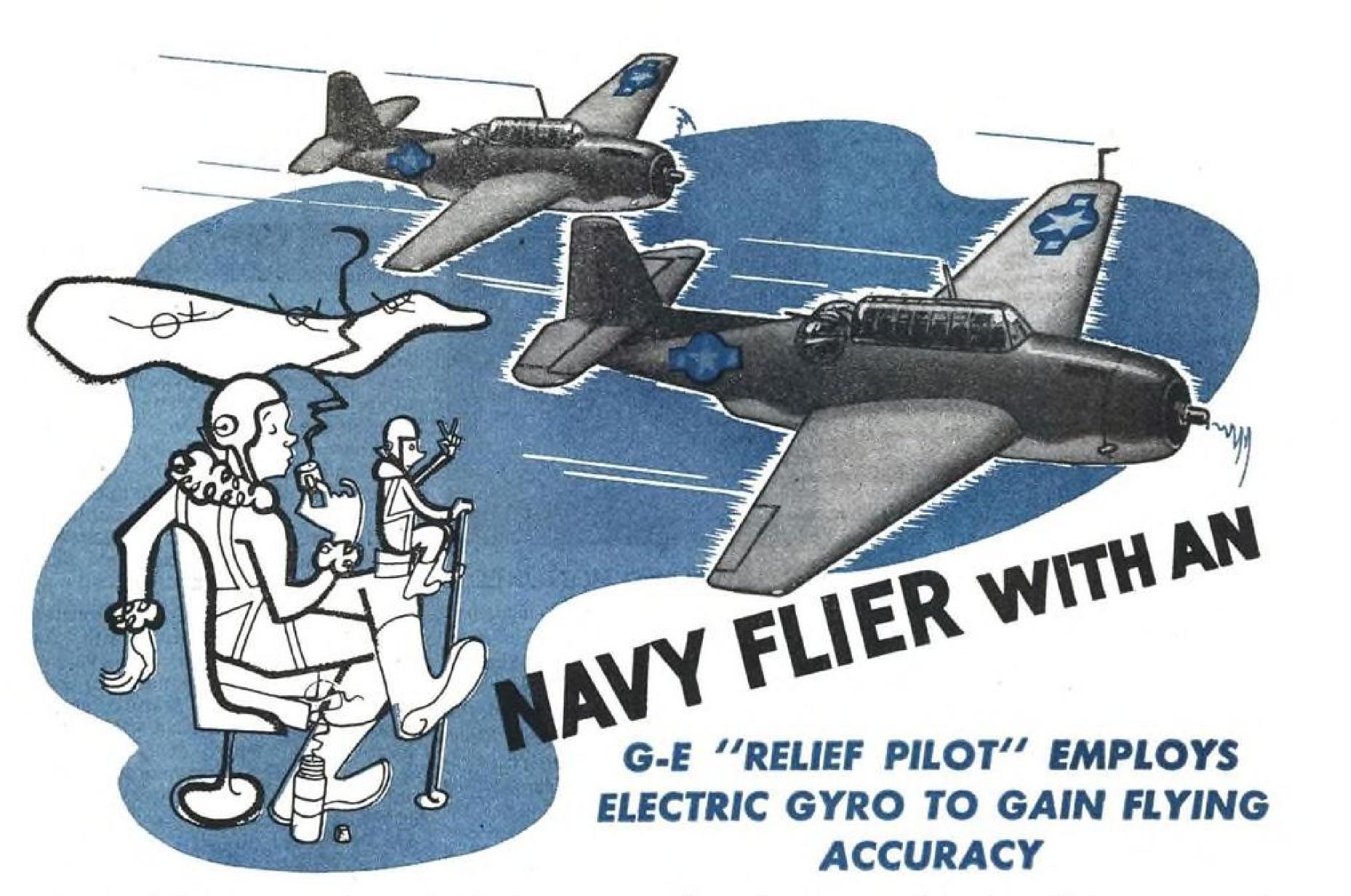
Ira G. Ross, formerly assistant head of the research laboratory's structures department of Curtiss-Wright Corp., and William F. Milliken, Jr., former head of Flight and Aerodynamics for Avion, Inc., have been named as manager and assistant manager respectively of the Curtiss-Wright research laboratory's newly established department of Flight Research.

tive, to Wright's post in Syracuse. Major Talbert is a combat intelli- neered Production'."

gence officer assigned to the Eighth Air Force headquarters in England. He entered the Army Mar. 10, 1942, and attended officers' training school at Fort Myer, Va.

TELLING THE WORLD

- National Tool and Die Manufacturers Association has started publication of a bi-weekly "News Let-TER" to keep executives posted on news of the industry. National headquarters are in Cleveland. Emphasis is placed in the letter on developments within the industry itself, and Washington happenings. It is being issued through publicity headquarters at 2 West 45th Street, New York, and any executive may write to be on the mailing list.
- Western Electric Co., celebrates its 75th anniversary this month. As part of the anniversary observance, employees of the company in key cities will preview a feature length motion picture entitled "Heritage For Victory" which dramatizes the growth of the organization over three-quarters of a century. Western Electric was founded in Rochester, N. Y.
- Fourteen new motion pictures to aid in the training of war poduction workers in vocational schools and war industries have been released by the U.S. Office of Education. The new films cover such subjects as aircaft maintenance, pipefitting, welding and engineering.
- Walt Disney Studios have prepared two training films covering the fundamental theories of electricity and electronics. The training films are being given wide distribution because the Air Technical Service Command has recommended that every electrical specialist in the Army Air Forces view the films at least once.
- A training film portraying the proper use of safety shoulder harness has been released for distribution. The film was prepared through the combined efforts of the Office of Flying Safety, the Training Aids Division, and the First Motion Picture Unit.
- Bendix Aviation Corp. plans to launch an aggressive merchandising and advertising campaign when its line of AM and FM radios and radio-phonograph combinations is introduced. Newspaper schedules are planned. The sale of home radios is the company's first venture into the consumer field.
- A panorama of photographs show-Wright, who was traffic manager for aviation editor and foreign corre- ing the firm's various products and American in Syracuse. Roswell An- spondent of the New York Herald their wartime usages makes up the current Chrysler Corp. ad, captioned "Pictorial report on 'Engi-



Whether he's hot on the trail of a Jap convoy or patrolling vast, lonely stretches of the Pacific, a torpedo-bomber pilot puts a lot of faith in his automatic pilot. It must help him find tiny far-off targets. It must relieve the treacherous monotony of straight flying. And, if he's carrier-bound with "no gas to spare," it's got to hit the needle's eye.

It is no wonder then that our newest torpedo bombers are equipped with the G-E electricgyro autopilot!

HARD PILOT OR SOFT

The G-E autopilot is exceptionally flexible. It can serve as a "hard pilot" for flying where you want to sacrifice comfort for extreme accuracy. Or, at the turn of a dial, it becomes a "soft pilot," providing a smooth ride while still maintaining a high degree of accuracy. More, it can be set to automatically circle the ship at a rendezvous, or to hold a helical course to gain altitude.

The G-E autopilot offers a lot of other things, too. It is highly stable, preventing the plane from hunting or fluttering. It is accurate at high altitudes. It is light in weight. Especially important, it is easy to service and maintain.

MOTOR-OPERATED GYRO

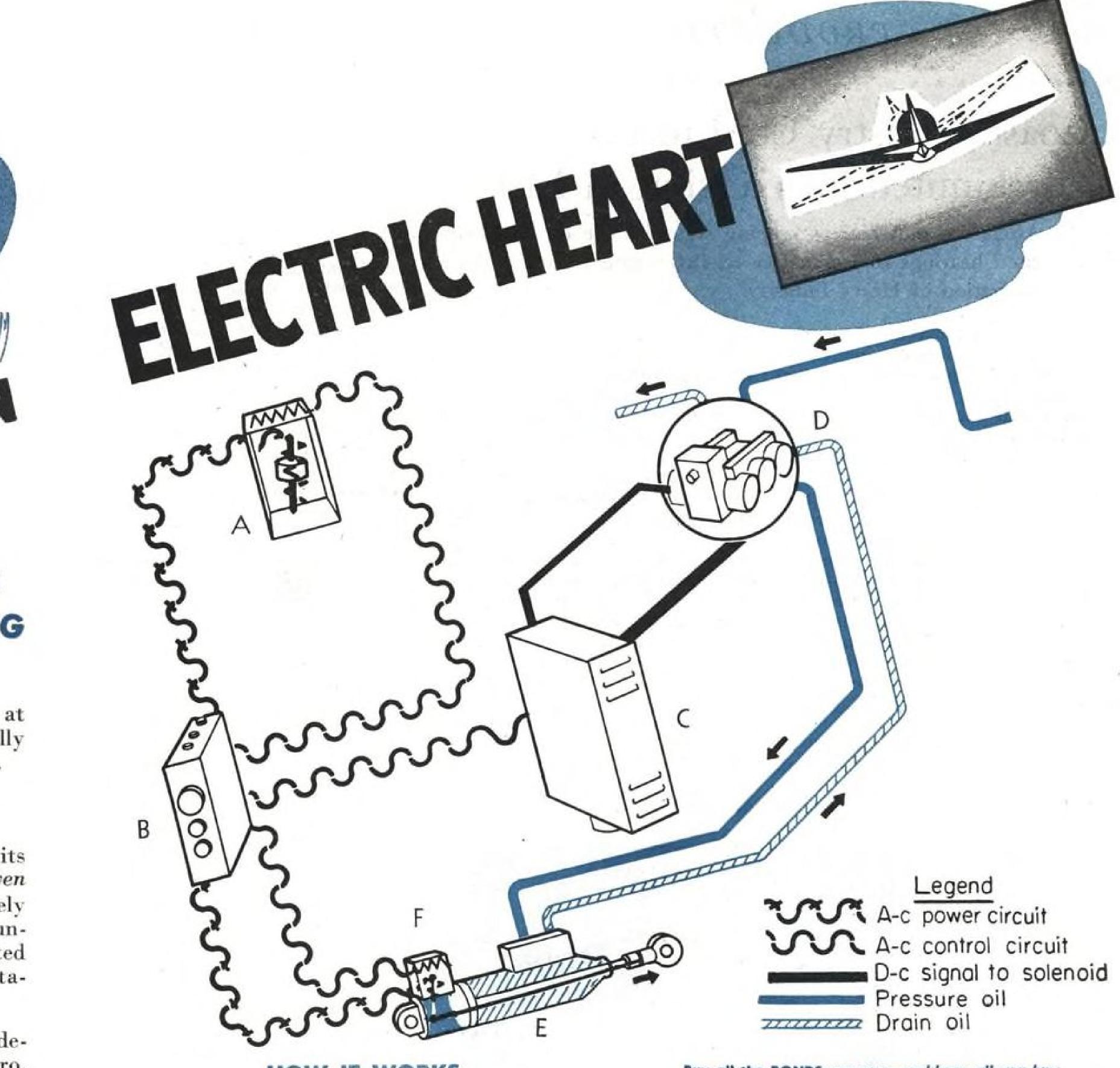
Heart of the G-E autopilot—and one of its principal advantages—is its electrically driven gyro. Operating on 400-cycle a-c, extremely high, synchronous speed is obtained; and, unlike air-operated gyros, this speed is not affected by altitude. This adds up to greater gyro stability and increased accuracy of control.

Further, by electrifying the units which detect and amplify signals originated by the gyro, G.E. has done away with mechanical linkages and greatly increased the system's flexibility. Simple electric controls now make it easy to adjust this autopilot for any type of flight, for any degree of stability.

The G-E autopilot is indeed an excellent example of G.E.'s ability to develop complete, integrated systems for aircraft. General Electric Company, Schenectady 5, New York.

AVIATION NEWS • November 27, 1944





HOW IT WORKS

This simplified schematic diagram shows the G-E autopilot in the process of counteracting left bank. The axis of the electrically driven gyro (A) remains vertical. Electric pickoffs within the gyro housing, which have rotated with the ship, detect the degree of rotation and send a signal through the junction box (B) to the servoamplifier (C). Here the signal current is amplified and rectified to d-c. The direct current then operates the solenoid transfer valve (D) in the correct direction to permit high-pressure oil to force the piston in the hydraulic system to the right.

As the piston moves, it turns the rotor of an electric follow-up device (F). Displacement of this rotor (primary), which is excited from the a-c power supply, produces a signal in the stator (secondary). This signal "works against" the first signal, gradually reducing the latter's voltage as the piston travels to the correct position.

Buy all the BONDS you can—and keep all you buy



PRODUCTION

Coast Industry Cold to Program For Limited Conversion in East

Aircraft manufacturers keeping watchful eye on San Francisco hearings of Committee to Investigate Effects of Centralization of Heavy Industry.

the hearings being held in San Francisco by the Committee to Investigate the Effects of the Centralization of Heavy Industry, of which Sen. McCarran (D.-Nev.) is chairman.

The committee proposes that Eastern manufacturers be permitted to convert to civilian production first-to a limited extent, a move contrary to the views of West Coast aircraft manufacturers anxious to get into commercial pro-West Coast manufacturers keep on war contracts as long as there are war contracts to be had, on the belief that this procedure will be in the West's interest in the long run.

30

The aircraft manufacturing in- bers propose a limit to the degree dustry has a primary interest in to which eastern manufacturers could participate in civilian aircraft production by "freezing" Government-owned plants for "an indefinite period," unless manufacturers were willing to scrap their old privately-owned facilities and carry on operations in a new Government plant.

Pointing out that aircraft production accounts for 60 per cent of all war contracts in the three West Coast states, the McCarran group in a recent report mainduction as soon as possible. The tained that cutbacks would hit the committee's view, generally, is that West too hard and could be better taken by the East, whose increase in industrial employment, percentagewise, during the war period has been much less than in the West. The increase in industrial employment in the East has been Freezing Urged—Several mem- only 48 per cent, compared with

an increase in industrial employment in the West of 150 per cent, the report said.

Western States-Under the committee's grouping, "Western" states include the following: North and South Dakota, Nebraska, Kansas, Oklahoma, Texas, Montana, Idaho, Wyoming, Colorado, New Mexico, Arizona, Utah, Nevada, Washington, Oregon, and California.

The Eastern group, referred to by the Committee as "the eleven states which house the evil of centralization" are a selective group comprised of Massachusetts. Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Ohio, Michigan, Illinois, Delaware, and Maryland. These are the states in which war contracts should be canceled first, according to the Mc-Carran group.

▶ VE-Day Changes—Of the Western group, the Committee said that "immediately the European war ends, war production, particularly shipbuilding and aircraft, should be shifted to this area to the extent that is consistent with Navy plans."

The McCarran group argues that the Eastern firms will have no advantage in advance conversion to commercial aircraft production.

"When the Western aircraft firms do convert to commercial production, they'll be able to come out with a newer model, making obsolete, or at least less preferable the earlier model of the Eastern manufacturers," a spokesman for the Committee said.

"Freezing" Proposal Explained-In connection with its recommendation that government facilities in the eleven eastern states be indefinitely frozen for the benefit of the West, the Committee commented:

"In terms of the value of the war contracts, both the taxpayers and the private investors have gotten their money out of the investments in war plants and facilities in these states. To secure the industrial gains made in other areas during the war, and to stabilize the industrial population in the states outside this area, the new Government-owned war plants and facilities in these eleven states must be frozen for an indefinite period.

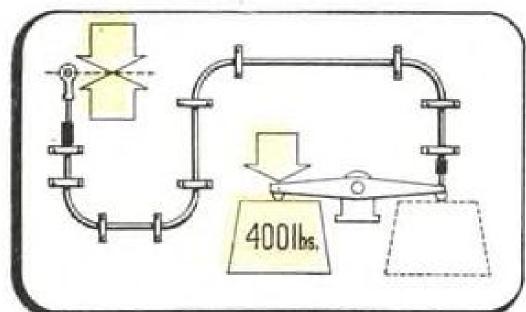
"In 1939, these eleven states accounted for 65 per cent of the Nation's manufactures. Their share of the manufactures cannot be increased without ruinous consequences to the other 37 states. The new plants and facilities must not be sold or leased except under specific conditions where the indus-



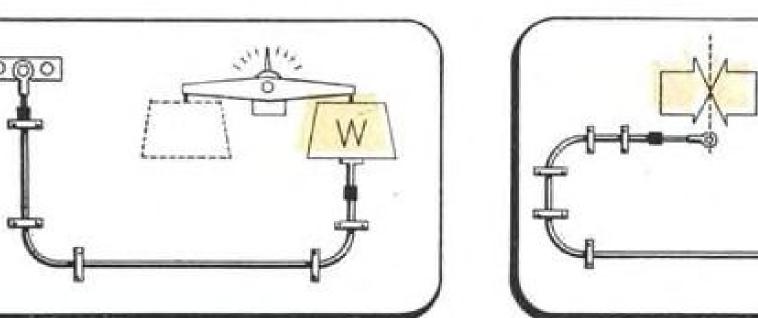
FIRST P-38 BUILT BY CONVAIR AT NASHVILLE:

First P-38 Lockheed Lightning fighter plane to be assembled at the Nashville Division of Consolidated Vultee under the plant's expanding production program is now in flight test. The plane, which is part of the 10-plane assistance project designed to ease facilities at the Burbank plant of Lockheed, originators of the model, was assembled from parts shipped to Nashville from Lockheed.

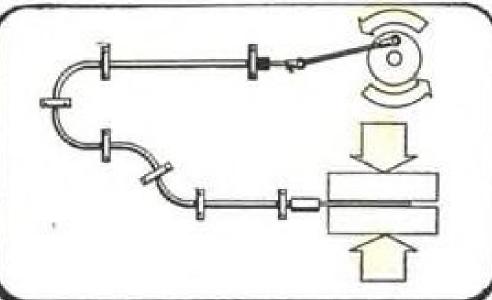




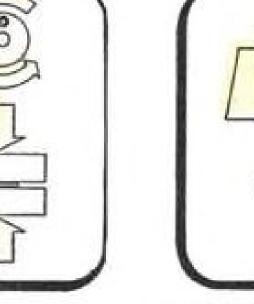
STATIC STRENGTH: In this test Simmonds push-pull control successfully withstands tensile and compressive forces of 400 lbs. Credit simplification of design, improved linkage.



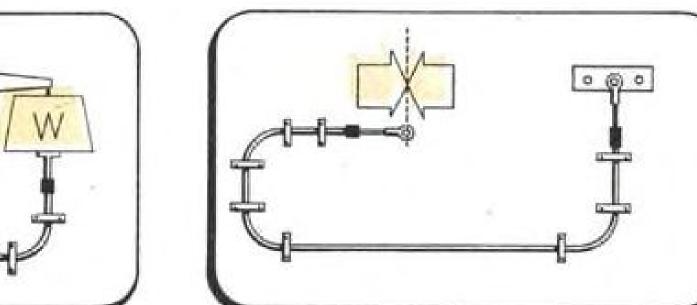
PRECISION CONTROL: Motion between tension and compression is negligible. Before endurance test: average-.046"; after-.082". Simmonds are precision-built controls.



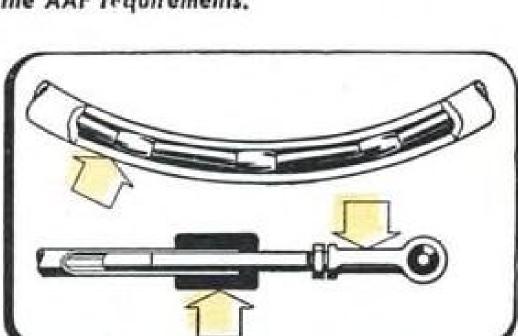
ENDURANCE: Cycled 30,000 times under stress, as illustrated, Simmonds controls are not affected in any way, and can be expected to outlast the life of unit served.



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



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



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

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

SIMMONDS EQUIPMENT FLIES WITH EVERY TYPE OF ALLIED AIRCRAFT

Automatic Engine Controls — Push-Pull Controls — Spark Plugs Hydraulic Accumulators — Hydraulic Fuses — Chronometric Radiosondes Self-Aligning Rod-End Bearings — Fasteners and Clips of Specialized Design 30 Rockefeller Plaza, New York 20, New York

Branch Offices: Dayton * Washington * Hollywood * Montreal

Manufacturing Plants: New York . Vermont . California

tries buying or leasing the new plants will undertake to scrap their old plants to take advantage of the new."

Test Supercharger For Lightplanes

Device designed to increase horsepower from 30 to 40 percent with little increase in weight.

Possible solution to the problem resulting from the demands on light aircraft engine manufacturers for more horsepower at less cost and little addition in weight is being explored by the manufacturer of a mechanically-driven, positive displacement supercharger designed to increase horsepower from 30 to 40 percent with little increase in weight, but with an overall reduction in horsepower cost.

This would put the 65 to 125 hp. engine equipped private plane into a more desirable class, giving it faster rate of climb, higher cruising speed and greater maneuverability. Attempts have been made to increase the horsepower of light aircraft engines by increasing engine speeds, necessitating reduction gears between the crank-shaft and propeller and by similar methods. The results have contributed for the most part to additions to frontal area, weight, bulk and cost. ▶ Engine Speed Not Increased —

Manufacturers of the Roots-type positive displacement compressor believe that the application of their device would eliminate these disadvantages to a large extent since engine speed would not be increased.

Being mechanically driven rather than exhaust driven, as in the case of turbo superchargers, this supercharger requires only a small cost for addition to regular models.

The Roots-type of positive displacement compressor was used for many years to supply large volumes of air to iron melting furnaces and for other industrial purposes requiring an inexpensive but reliable supply of air under pressure. Its makers believe it is well-suited for engines operating at variable speeds because of its ability to deliver air very nearly in proportion to its speed.

J. P. Stewart, assistant general manager of B-W Superchargers, Inc., believes a favorable outlet for the supercharger now seems to be the small and medium rated gasoline engine for private aircraft. These planes, he points out, have not followed military and superchargers.

Vet Rehiring Plans

Canadian aircraft plants, overhaul and repair organizations and transportation lines are being urged by the Canadian Aircraft Industry Relations Committee to

place war veteran personnel managers on the job of hiring war veterans.

The committee which was organized early in the war, recommends that discharged servicemen be trained to do a down-to-earth rehabilitation job when the war veterans come home, expecting peacetime placement in the Canadian aircraft industry.

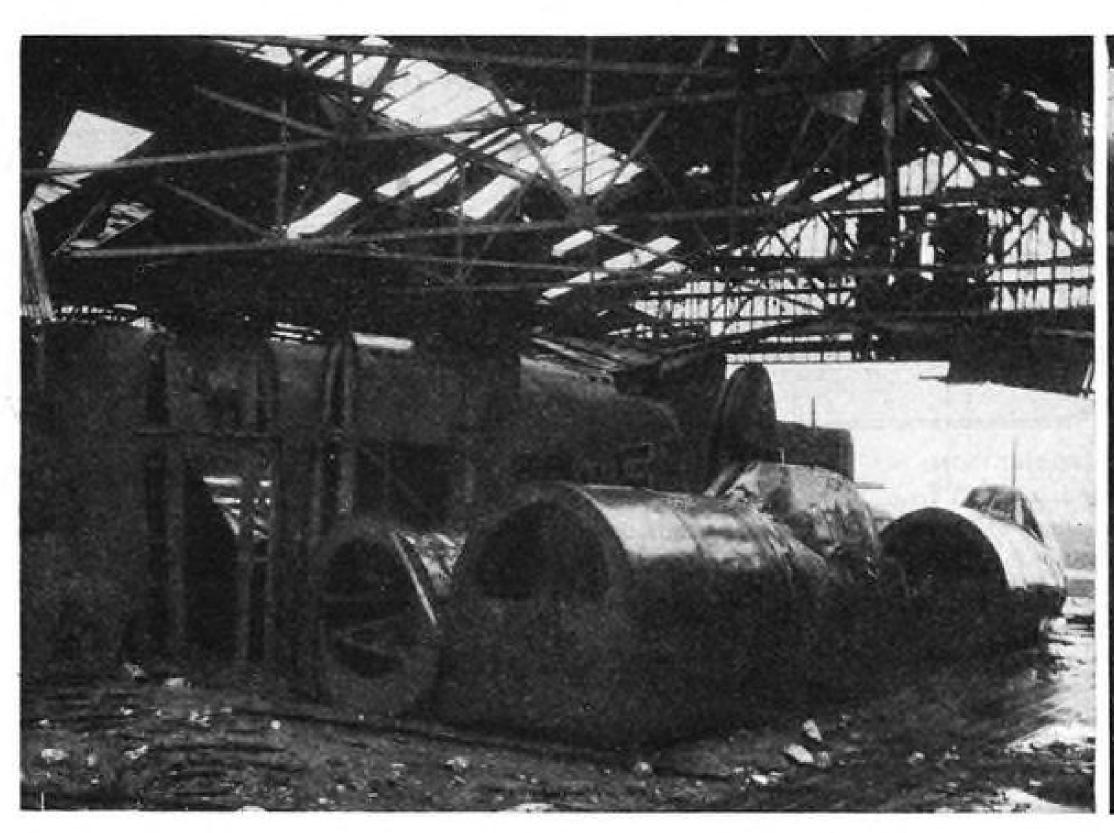
▶ Watched In U. S .- Aircraft executives in the United States are watching the program with interest since the problem of veteran placement is already beginning to assume some proportions and in some cases is running into union seniority regulations.

United Aircraft Shipment up 10%

Shipments of aircraft, engines and propellers by United Aircraft Corp. increased 10 percent in the first nine months of this year over the 1943 period, while net income on common stock before renegotiation increased five percent.

The increase in shipments by transport craft in utilization of the operating divisions, Pratt & Whitney, Hamilton Standard propellers, Chance Vought and Sikorsky, was made despite a substantial drop in shipments for the third quarter.

Two New Models-Frederick B. Rentschler, corporation chairman, reported that due to changes in schedules for military require-





NAZI DUMMY PLANE PLANT PUT OUT OF BUSINESS:

bombers put this "plane plant" out of business in facture of dummy planes for German airfields. Al-

32

Heavy bombing attacks by AAF Flying Fortress the factory wrecked. It had been devoted to manu-March. When the Yanks captured Dijon they found though crudely made, they were deceptive from air.

AVIATION NEWS . November 27, 1944



BOEING SUPERFORTRESS . . . mighty monarch of the stratosphere. Clean in flight as a silver bullet, the B-29 is the

first plane ever built that combines tremendous size and tremendous carrying capacity with the speed of a fighter plane.

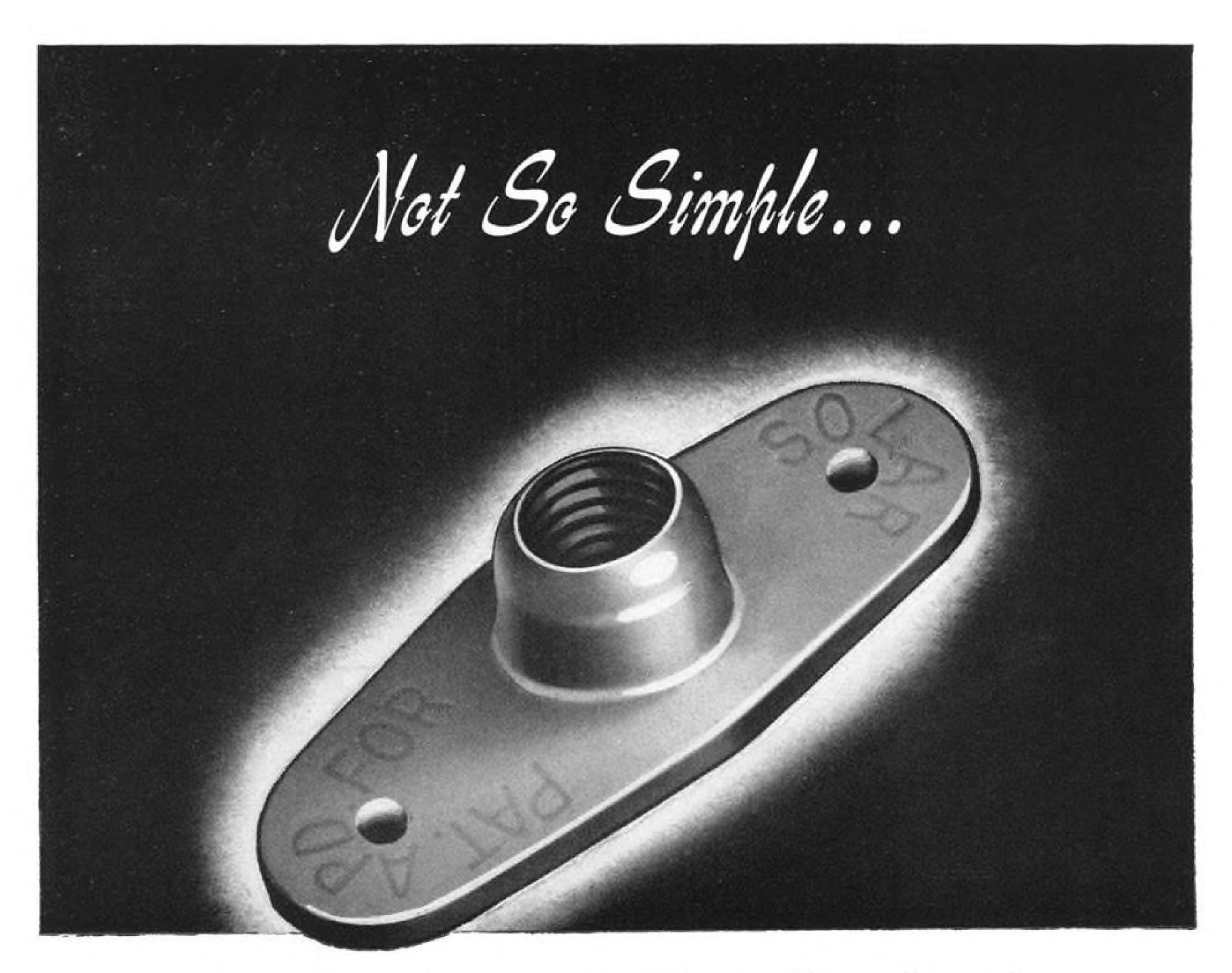


What's new in Hydraulics? Write for this new book, "Pressurized Power and Controlled Flow by PESCO"

PESCO ELECTRO-HYDRAULIC POWER PACKAGE. This new PESCO development makes possible the transmission of controlled hydraulic power wherever you can run a wire. A complete hydraulic system, compact, light in weight, it contains a reservoir, an electrically-driven pump, a pressure relief valve and pressure switch. Delivers pressures up to 3,000 p. s. i. Installed close to the hydraulic cylinder, it eliminates long runs of tubing and many operating parts. PESCO Products Co., 11610 Euclid Avenue, Cleveland 6, Ohio (Division Borg-Warner).

In Aircraft Hydraulics, Fuel Pumps, Air Pumps, Related Accessories...





...To Engineer A New Product!

This little self-locking nut plate is typical of Solar's challenging spirit which, fifteen years ago, brushed aside tradition to give the world the first really safe method of venting dangerous airplane gases - the Solar stainless steel exhaust manifold.

Two years ago there was a desperate need for self-locking nut plates for military plane production which would sustain high temperatures. Solar met the emergency with SOL-A-NUT ... a stainless steel

nut plate developed with Solar initiative on different principles of design and construction

SOL-A-NUT is simplicity itself - now that it is finished. But back of it are months of hard work and original thinking - of research and design - of material tests—trials in use—re-design and further tests.

It is not a simple matter to engineer new products, particularly those made of stainless steel and used where high temperatures prevail, or hot gases, acids and corrosion are encountered. This is the field in which Solar's experience and know edge are

> at their best. Consult Solar on your problems. Address "Management".

STAINLESS STEEL PRODUCTS

SOLAR

ments and the introduction of two advanced models in the Pratt & Whitney Engine Division, shipments for the third quarter were \$161,084,331 compared with \$191,-611,076 for the 1943 period. Total for nine months was \$581,010,146 against \$525,409,530 in 1943.

Net income for the nine months period was \$12,573,763 compared with \$11,982,323 for the same period in 1943.

OK Packaging Study

More than 100 aviation manufacturers are cooperating in the program for preservation and packaging of aeronautical equipment, working through the Aeronautical Chamber of Commerce which set up 17 subcommittees for the purpose of commenting and making recommendations on Army-Navy aeronautical specifications in this project.

The Working Committee of the Aeronautical Board, which is comprised of the chiefs of the Army and Navy aeronautical services "an outstanding service."

SAE Study Asked-At the suggestions of the ACCA, the Services, through the Working Committee, have asked the Society of Automotive Engineers to form a

subcommittee to study the technical requirements for preservation and packaging, the only problem confronting the Services in this program.

Prop Training School

The propeller training school at the Westerly, R. I., plant of Hamilton Standard Propellers has graduated more than 3,200 propeller technicians, recently turning out its 100th class for the Army Air Forces.

The school was enlarged from civilian instruction in May, 1942, to teach propeller operation, maintenance and servicing to every branch of the armed forces, with particular emphasis on AAF ground crews. Other trainees included men from various aircraft industries, civil service employees, and military and naval personnel from Great Britain, Canada, China, Brazil, Peru, Iceland, Nicaragua, Australia and Uruguay.

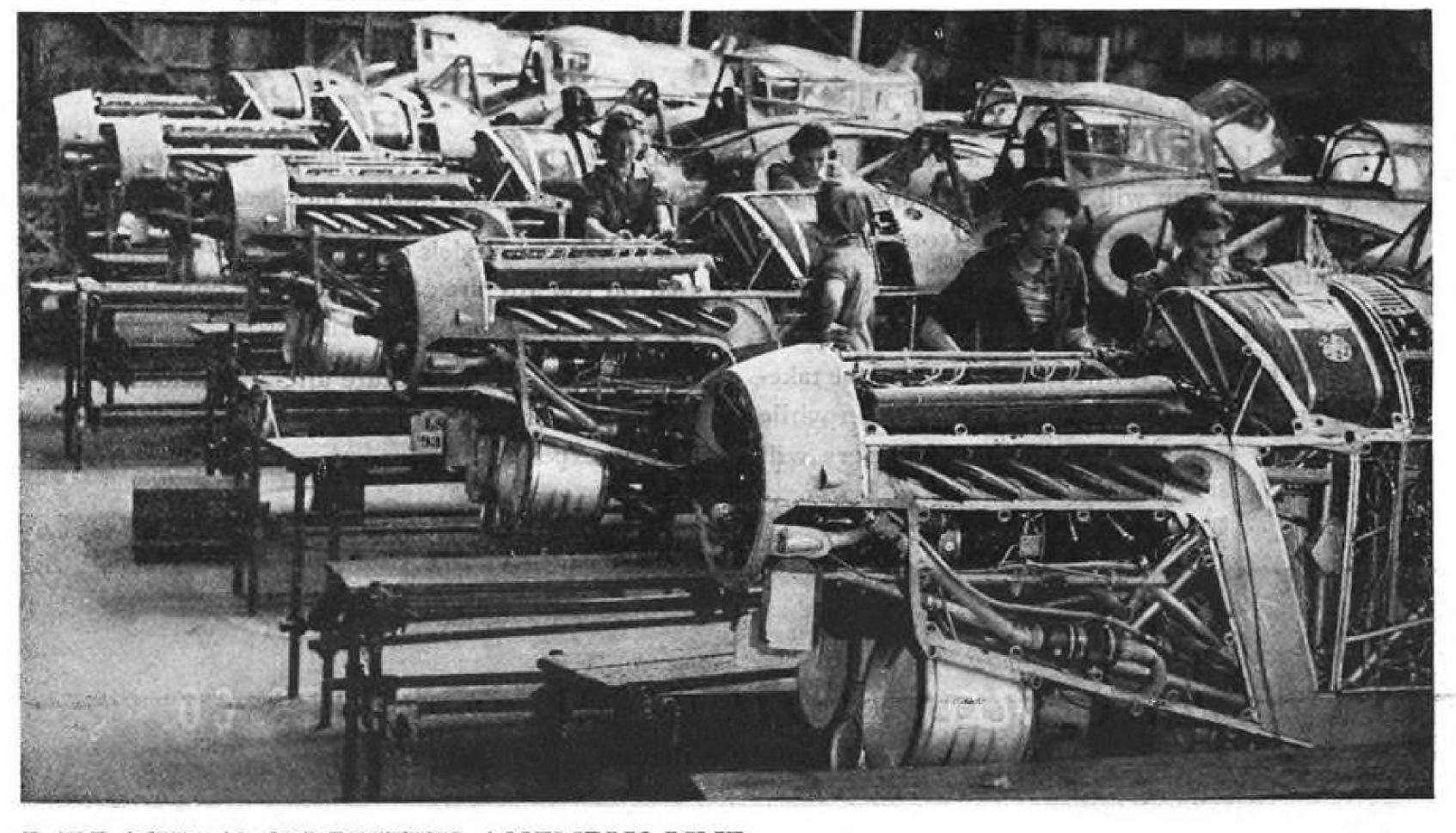
▶ Short Courses Given—The course is normally for four weeks, but has commended the Chamber and special shorter courses of one or the cooperating companies for two weeks are given to representatives of the aircraft industry and civilian students of various kinds. The school operates to accommodate aviation firms who wish to send men for primary or refresher

Fairchild Camera 9 Months Net Off

Net earnings for Fairchild Camera and Instrument Corp. during the nine-month period ended Sept. 30 last, after estimated taxes and subject to adjustment was reported at \$812,-178 as against \$977,429 for the same period last year. Directors declared a cash dividend of 50 cents a share, payable Dec. 21, 1944 to stock of record Dec. 15.

James S. Ogsbury, president, said sales for the fourth quarter are expected to be moderately less than the average for the first three quarters of this year, but that comparison with the fourth quarter of 1943 will be poor because this latter quarter witnesses the greatest physical volume in the corporation's history, and prices this year are considerably lower. While the firm has several months work ahead in war orders, Ogsbury said it was natural for new orders to be received in less volume than corresponding shipments and for some existing contracts to be reduced or cancelled. The effect has been to reduce unfilled orders from a year ago.

Net earnings per share were reported at \$3.67 compared with \$4.29 for the previous period.



BARRACUDAS ON BRITISH ASSEMBLY LINE:

Interior views of aircraft plants in Britain are infrequent. This picture shows construction details and a general view in the assembly shop of partly-built Fairey Barracudas.



TYTE LOOK AHEAD to a nation of fliers. W Our youth will serve, as they always have, to keep America in the forefront of world aviation. Son will teach Dad.

With this growth, Safety will be a vital requirement. To see the runways, to be sure of the takeoff and the landing, to enjoy clear vision while cruising, Marquette Windshield Wipers will

help greatly toward safe flying and provide comfort to the pilot during inclement weather.

Many different models of Marquette Wipers are used on the aircraft of our Airlines, our Army Air Forces, and our Navy Air Forces.

Marquette wipers for future aircraft, including the planes of the private flyer, will be based on this experience.



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

U CLEVELAND 10, OHIO

THE AIR WAR

COMMENTARY

U. S. Air Crisis Develops in China As Jap Forces Swing Westward

Nipponese capture of "bomb Tokyo" bases and attempt to establish impregnable line of defense in China brings war in that theater to highest pitch since 1938.

were pushing in from the Normandy beachheads in all directions, landing on strategic Saipan in the Marianas, and carrying out the first B-29 mission from western China against the big steel works in Yawata, something else on the debit side of the ledger was taking place which for a long time at least may go far to offset these solid triumphs. The vital air base and rail center of Changsha (Hunan Province), after four unsuccessful attempts, was encircled by heavily speed of this advance last spring reinforced Jap troops, and was to fall a few days later.

Maj. Gen. Claire Chennault characterized this new drive as an attempt to establish an impregnable line of defense in China, bringing the Chinese war to its greatest pitch since 1938. He declared that if the Japanese were successful in clearing the entire Canton-Hankow railway and building defensive positions on it, the Asiatic war could be prolonged for years (Aviation News, June 26). From all that has happened during the succeeding five months it is evident that Chennault, as usual, had his eye on the ball.

Rapid Jap Advance—To get the whole picture it is necessary to go back to last April, when Japan's first blow in the current offensive fell on Tang En-po, one of Chungking's ablest generals, in northern Honan province. The objectives: (1) to close the 120-mile gap of (from Chengchow to Sinyang), and (2) to extend Japan's inner line of defense from the Yellow River to the Yangtze. The campaign marked the first time the Japanese crossed the Yellow River Kwangsi provinces, used with such in force since the Chinese blew up devastating effect by General the dikes in 1938 and sent the river Chennault's 14th Air Force, pain- tegic air blows against the Jap flooding southwestward.

About mid-June as the Allies make up for the inadequate weapons of his men, for the lack of air cover by ill-equipped units of the Chinese Air Force (the U.S. 14th had no bases in this area), and for the almost complete absence of transport facilities. On the other hand, the Japs, despite a small force of 50,000 against 300,000 Chinese, had fleets of trucks, mobile cannon, whippet tanks and armored cars. This priceless mobility enabled them to cover 300 miles in less than three weeks. The has been matched in the recent drive in the southern province of Kwangsi by Shunroku Hata, now a field marshal as a result of his earlier blitzkrieg in the fertile northern Honan province. Not even the Russian drive across eastern Poland or the American dash across France exceeded the speed of these two Jap thrusts.

Area Near Chinese Reds—After the fall of Chengchow (late April) and recovery of the missing stretch of roadbed (rails had been taken away and had to be brought in from other less useful railways), the Japs slashed out to the west in a drive hardly noticed at the time, capturing strategic Loyang some weeks later and striking out beyond Lingpao into Tungkwan, Shensi Province. Tungkwan is at the edge of the Communist-controlled region, about 200 miles south of Yenan, headquarters of the Chinese 8th Route Army, and the Peiping-Hankow railway 50 miles east of Siam, marked on the maps as an Allied air base.

▶ Those Costly Air Bases—Darkest part of the entire picture is the loss in rapid succession of the vital air bases in southern Hunan and fully built up from the early days General Tang put up a good of the Flying Tigers at a cost of to come from the Pacific. fight, but his tactical skill could not hundreds of millions of American

dollars and thousands of millions of Chinese (and American) manhours, with the hundreds of thousands of tons of gas and oil, bombs and bullets, spare parts and materials flown over the aerial Burma Road. Changsha in June, Hengyang in July, Lingling in August, Wuchow and Tanchuk in September, and now Kweilin (pron. Gweye-lin) and Liuchow (Lew-joh) in November. The sudden thrust west from Liuchow toward Hochih (capturing Ishan) and the great motorbase of Kweiyang (pron. Gweye-yang) on the Burma Road, half way between Kunming and Chungking, isolates the remaining Kwangsi airfield at Nanning. It also threatens to block the flow of heavy guns and equipment for the Chinese armies even before they can start coming over the Ledo-Burma Road and the India-China pipe-line for the U.S.

Eastern China Cut Off—Besides this, China is now split in two, with the staging airfields east of the Hankow-Canton railway completely cut off from necessary supplies. These include Kian and Suichwan (Kiangsi Prov.), Lungyen and Kienow (Fukien Prov.), and Yushan and Lishui (Chekiang Prov.). The latter was the base for which General Doolittle and his flyers headed after their raid on the cities of Japan, and was planned to become eventually one of the chief of the "bomb Tokyo" bases in eastern China, suitable for B-24 operations.

For the present use of these bases has had to be restricted, and the prospects of establishing a port on the China coast rendered considerably more difficult. If the Japs can close the rail gap which now exists between Liuchow and Nanning it will complete their Siberia to Singapore interior supply line. How About B-29 Bases?—More serious still, the enemy possession of the string of Hunan-Kwangsi bases poses a very real threat to the Superfortress bases in Szechwan Province. Defense of these vital bases, western prong of the giant aerial pincers for strategic bombing of Jap war industries, has become more of a problem and one which may divert American air effort in China from its hitherto highly effective work, especially against Jap shipping. The air crisis in China may mean that for the near future the main straaircraft industry, etc., will have

A. E. M. Martin, Physical Co.

NAVIGATOR

FINANCIAL

Revived Interest in Aircrafts Puts Some Issues at New '44 Highs

Marked advances in a few cases registered with no actual change in company's physical properties or prospects, analysis of leading shares discloses.

Fluctuating stock quotations not cial consideration given the trend only provide a guage to the vary- as indicated by available reports. ing fortunes of industry but also Book Values Up - The accomafford a good measure of market valuations of separate companies under observation.

favored with revived investment reached by the market prices at interest and, in many instances, have gone on to record new peaks for the year and longer. In this liberally rewarded. Equally imin the physical properties of the companies themselves.

Douglas—For example, Douglas not so long ago hit a new high for the year, representing a gain of about 25 points from the low of 1944. To a holder of 100 shares of Douglas, this meant an improvement of \$2,500. Translated marketwise, this also meant that the Douglas Aircraft Co. experienced an appreciation of more than \$15,-000,000. Yet, there was virtually no change in the plant or property of the company itself. What happened was simply the evaluation by market speculators and investors that perhaps the outlook for the company was not so bad as first appeared and was deserving of higher prices.

AVIATION NEWS has prepared the range in market valuations for twelve of the leading aircraft companies along with actual book valuations as of the last year-end together with a projection of estimated book values as of this coming year-end. The market valuations are of course based on the high and low quotations for the separate stocks. Book valuationsas of the last year-end are taken directly from the balance sheets of the companies. Estimated book values for the 1944 year-end are premised on the belief that this year's earnings will be at least as good as that of last year with spe-

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panying table shows that with but four exceptions, aircraft book valuations of about a year ago are Recently, the aircrafts have been higher than the highest point any time under review. It is also evident that using projected book valuations as of this coming yearprocess, stockholders have been end as a backdrop, aircraft equities are generally selling at a decided portant, some tremendous changes discount. Of course, this has been in market valuations have oc- a common phenomenon in recent curred without the slightest change years and was the obvious result of the market showing its apprehension for the aircraft industry's future. In fact, market deterioration developed to the point where prices fell below that of net working capital for many of the aircrafts. (Aviation News-Sept. 18,

It is particularly noteworthy to see the substantial increment in market values-mostly occurring in a period of less than six months —with hardly any adjustments in the actual physical facilities themselves. For instance, Grumman's market valuation almost trebled during this period-going from \$5,588,000 to \$15,494,000. The company did not strike oil on its property nor did it realize any substantial overnight inventory profits. The explanation is simply in the improved outlook of the company

and industry as suddenly viewed by the composite market.

Study in Contrasts—It is also an interesting study in contrasts to observe how companies with almost like book valuations can have varying market valuations. For example, Grumman with a book figure of almost \$12,000,000 at its high point enjoyed a market premium of more than \$3,500,000. On the other hand, Bell with a book valuation of almost \$13,000,000, at its very best in the market, sold at less than half that amount. Similarly, Martin and Lockheed, at their best prices, enjoyed the same market valuations-around \$25,-000,000. Yet, Martin valued its equity at better than \$38,000,000 compared to around \$33,300,000 for Lockheed.

▶ Wide Swings—It is important to realize that these wide swings in market prices by no means alter the basic or underlying position of the companies themselves. In periods of distress selling, market quotations may become demoralized resulting in ridiculously low quotations for equities. Yet, the companies represented may actually be prospering and strengthening their equity positions.

It is significant that companies like Bendix and United Aircraft stand out in that the market price of their equities has consistently commanded a premium over book valuations—counter to the general industry trend. For example, at its high mark, United sold at almost twice its book figure and even at its lowest point commanded a substantial market premium. The explanation is simple: both of these units have established relatively high investment standing based on consistent and stable earnings. Bendix, with its diversified line of products, has less to fear in the post-war period. United, as a leading producer of engines, is well fortified for the future and is strongly supported by balanced aircraft diversification.

Market and Book Valuations Major Aircraft Companies

	Common		nate 1944 aluations∮	Book Equity Valuations	Estimated Book Equity Valuations
Company	Shares Outstanding	High Point	Low Point	As of Dec. 31, 1943	As of Dec. 31, 1944
Beech (A) Bell Bendix (A) Boeing Con-Vultee (B) Curtiss-Wright Douglas (B) Grumman Lockheed Martin No. American (A) United	1,082,454 1,386,000 7,432,039 600,000 508,060	\$ 5,700,000 6,105,500 99,522,500 21,108,750 24,948,000 53,882,000 43,500,000 15,494,000 25,286,000 25,286,000 39,502,500 86,335,275	\$ 3,100,000 4,137,000 70,936,250 13,531,250 15,592,500 35,302,000 28,200,000 5,588,000 15,602,000 17,840,000 24,762,500 67,745,850	\$ 7,020,640 12,904,391 71,153,168 23,640,795 (c)33,678,463 55,517,331 45,462,000 11,796,849 33,309,523 38,006,493 18,927,032 (c)44,207,505	\$10,750,000 15,000,000 80,000,000 26,000,000 65,000,000 51,000,000 17,000,000 39,000,000 46,000,000 22,000,000 (c)50,000,000

#Up to Nov. 17, 1944. (A) As of Sept. 30.

(B) As of Nov. 30.

NOW IS THE TIME TO RE-EXAMINE YOUR AVIATION ADVERTISING PROGRAM



VIATION is entering the most important mar-A keting transition in its history. The selection of aviation advertising media must be more critical than ever before. With some 36 publications from which to choose, the keenest judgment and analysis must be exercised by the advertising buyer to select those that offer adequate coverage of the true buying influences of aviation. We believe the most rational approach is through a clear definition of the structure and buying functions of the aviation market.

Aviation's market structure is simple. It is divided into three, and only three, major divisions:

- 1—Military Aviation . . . calls for continuing coverage-for the military has always been and will continue for some time to be aviation's biggest dollar customer.
- 2-Air Transport . . . calls for more intensified coverage than ever as our swiftest-growing public carrier.
- 3-Personal Aircraft . . . calls for strong coverage of the key men who will sell and service planes, distribute parts and accessories, operate airports - the fixed-base operators, distributors and airport managers.

The functions of the industry are manufacturing, operation, maintenance and distribution.

Frequently misinterpreted as divisions, they are, in fact, functions within the three major divisions.

They are closely related and interdependent. So closely, in fact, that it is almost impossible to say where one stops and the other starts.

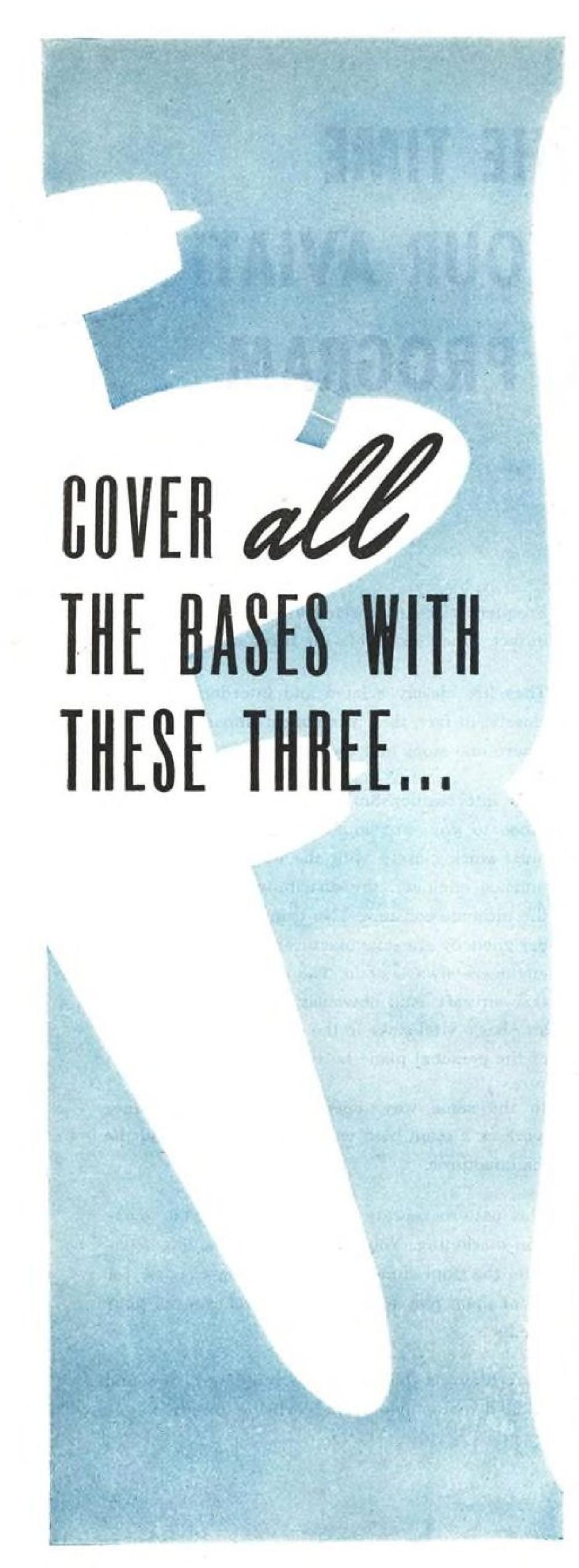
This interrelationship is of utmost sales importance to you. For in aviation the manufacturer must work closely with the operator, the maintenance engineer, the distributor and even with the ultimate consumer. No transport plane is ever designed by the manufacturer alone. The airline engineers always sit in. The same is true in military aircraft. And obviously the fixed-base operator has a vital stake in the design and engineering of the personal plane he will sell and service.

In the same way, operations and maintenance work as a team both with the distributor and the manufacturer.

This pattern repeats itself throughout your aviation marketing. You cannot in your selling separate the four functional buying influences, for all of them play a part in the purchasing of your products.

Here, then, is the key to the building of a sound and adequate aviation advertising program . . .

(over)



AVIATION

. . for foundation coverage of aviation's multiple buying influences.

Aviation serves not just one, or two, but all four of the industry's buying influences . . . Manufacturing—Operation—Maintenance—and Distribution.

For these four functions are interdependent and interrelated. The men of each of them exert a vital buying influence that affects all your aviation selling—whether to the military aviation market, the air transport market, or the personal aircraft market.

Researchers, designers, engineers and production executives are concerned not only with the building of airframes and components but also with the operation maintenance and distribution of their products after they leave the factory. Conversely, operators, maintenance engineers and distributors exert strong influence on the designing and engineering of the planes they will late sell and service. Throughout all the functional activitie you find a close intermeshing of interests.

That is why *Aviation's* editorial policy has for 28 year been the serving of *all* the industry's interlocking interests . . . Research, design, engineering and production Operation, finance, distribution and maintenance in a its phases. Legislation and administration.

That is why *Aviation* maintains the largest staff of ed torial specialists in the field of aeronautical publishin That is why *Aviation* has 42,000 paid subscribers representing *all* functions of the industry.

To you Aviation offers comprehensive advertising coverage of all aviation's buying influences—the FOUN DATION MAGAZINE on which to build your aeronautical advertising schedule.



YOUR REQUEST will bring the whole story of "AVIATION foundation magazine on your aviation schedule."

AVIATION NEWS

. . . for intensive coverage of aviation's 10,000 key men.

The 10,000 paid subscribers of Aviation News offer you one of the most influential buying groups in U. S. industry today. They are the top executives of our aircraft builders, and of the plants that supply them with engines, propellers, parts, equipment, instruments and accessories. They are the military officials and civilian administrators who direct our government's huge and expanding interests in aviation development. They are the leaders and planners of U. S. airlines. They are the key distributors of tomorrow They are the men who control the buying decisions in the many, many businesses that have a vital stake in the future of aviation.

To these leaders, Aviation News supplies each week the informational background so essential in decision-making, in market-planning, in laying the groundwork for aviation's future.

Aviation News (the only aeronautical weekly) was created specifically to speed the news and its implications in fast, readable, interpretive reports to the men who are molding the postwar shape of aviation.

Every one of Aviation News' 10,000 key audience subscribed to Aviation News within 10 months after its first issue. This is a circulation record without precedent in its field. For remember, Aviation News' subscription rate is \$5 a year, not the usual \$3. And its circulation is truly selective, subscription sales being carefully confined to the very top of aviation's management men in industry and in government. So swift has been the acceptance of this new-to-aviation journalism, that within its first year Aviation News has been accepted for membership in the Audit Bureau of Circulations.

To you Aviation News offers timely, direct and intensive coverage of the top men of the industry.

AIR TRANSPORT

. . . for intensive coverage of our swiftestgrowing transportation market.

In the span of less than 20 years a new, major transportation industry has been developed—bringing you huge new markets and marketing potentialities. Air transport has taken its place alongside the railroad, marine and automotive industries as one of our great public carriers of people and cargo.

Air Transport serves the builders and planners of this swiftly-growing industry—and serves them to the exclusion of all other interests. Among Air Transport's 10,000 paid subscribers you find the administrative heads, operation and line maintenance and overhaul executives, engineers, designers and their key supervisors and personnel—the financial and legal interests who back them—the military and government authorities who promote air transport expansion—the planners and builders of the \$800,000,000 program for airport and airway facilities—the transport manufacturing executives and the key men of thousands of manufacturing suppliers to the industry.

Within its first year, Air Transport has become the strong national voice of its industry. To the extent that air transport's key men have fully subscribed to its 10,000 paid (A.B.C.) circulation. This is a record of unusual significance (1) because circulation is carefully confined to airlines men, aircraft and parts manufacturing executives, military and government authorities and (2) because Air Transport's subscription price is \$5 a year rather than the traditional \$3.

To you Air Transport offers direct and intensive advertising coverage among the builders of this specialized business:

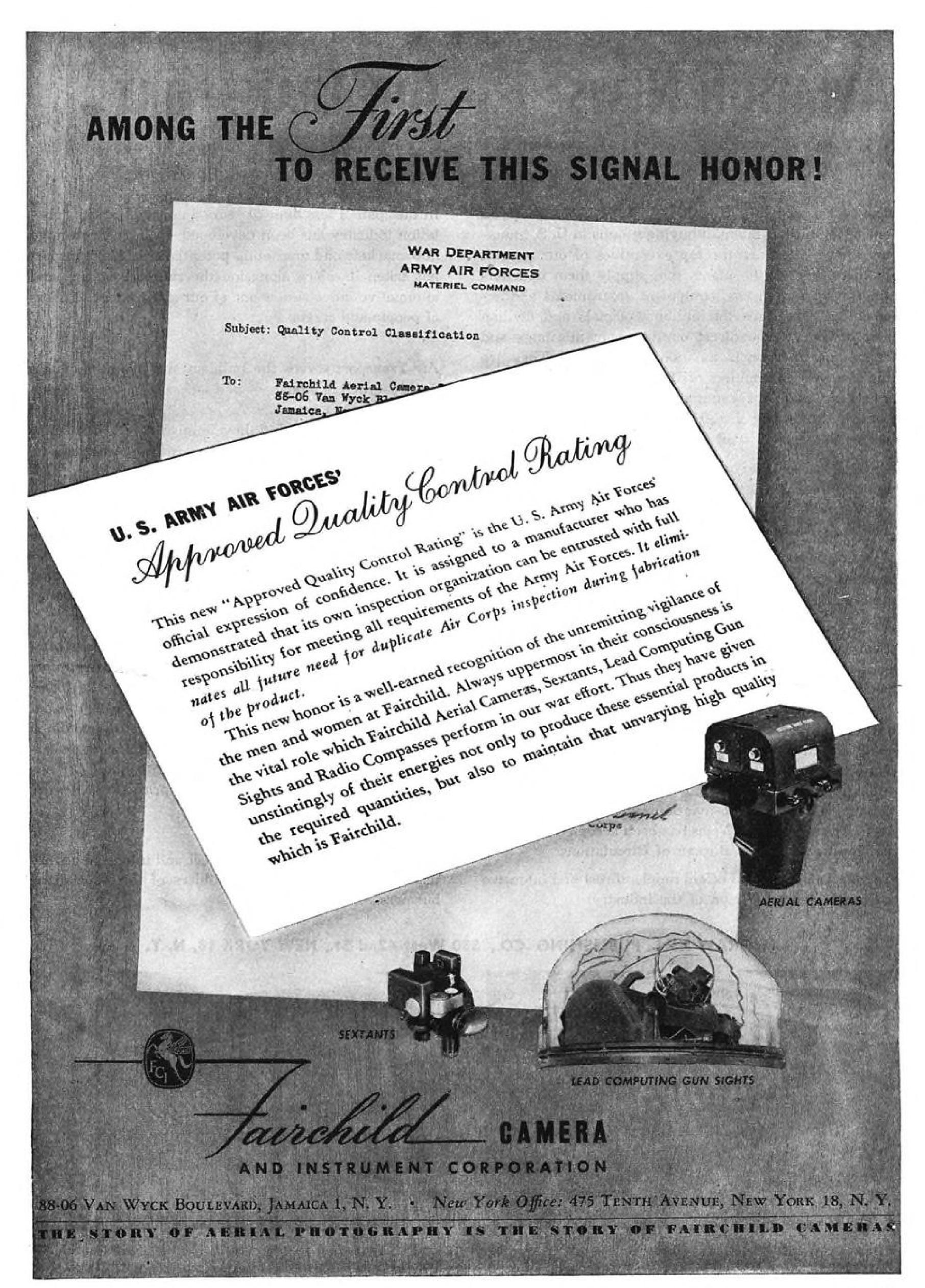
McGRAW-HILL PUBLISHING CO., 330 West 42nd St., NEW YORK 18, N. Y.



YOUR COPY of "Aviation's 10,000 Key Men" is waiting. Write for it.



YOU'LL WANT all the facts. Ask for "The Builders of Air Transport."



TRANSPORT

CAB's Multiple Taxation Group Asks Levies to Aid Aviation

Committee, in two day discussion on Washington, lays groundwork for possible recommendations in report to Congress.

By DANIEL S. WENTZ II

Ground-work for a proposed tax system designed to aid in development of the air transport industry was laid at a meeting in Washington last week of CAB's Advisory Committee on multiple taxation of air carriers.

The two-day discussion under chairmanship of CAB member Oswald Ryan developed some basic principles from which the Board hopes to formulate a series of recommendations in compliance with Congress' request that CAB the end of this year.

Cites Effect of Taxation-Ryan a relatively narrow margin of taxation. operating profits, a small change > Control Method-From the eco-

in the expense of doing business or in the amount of taxes may have a relatively heavy impact upon net profits."

The problem, he said, may be discussed in three aspects-legal, political, and economic. Legal theory varies from the position that airline taxation should parallel the rule. principles developed for taxing roalroads, to the view that the Federal government has exclusive control of the navigable air space over the U.S. and therefore enjoys commerce.

Politically, the requirement is for characterized air transport as "not a system of governmental machinunique in being extremely sensitive ery which will not stunt the growth to taxation; like any industry with of air transport by indiscriminate

nomic point of view, a method of tax control which will be non-discriminatory between large and small carriers and between carriers operating over different routes seems to be required.

Ryan also indicated that the tax question has important international bearings arising in part out of the prospect that domestic carriers may also become international operators. "If a nation over which an airline operates is permitted to tax the carrier, such a development would be a potential threat to international amity," he

Foreign Flag Operations—He indicated, among other possibilities, that by international convention, foreign-flag international air carriers might be exempt from taxation, or that the principle of exclusive jurisdiction for the nation under whose flag the international carrier operates might become the

Although the committee did not attempt to formulate final recommendations to the Board, it was the consensus that the better solution to the question probably lay in explore the problem and report by plete jurisdiction over air com- some form of federal-state cooperation. Federal action was seen as a possible requirement for an equitable apportionment of property, income, gross receipts or capital stock of the airlines among the states for tax purposes.

Some members of the Committee



CAB AIRLINE TAX STUDY COMMITTEE MEETS:

Members of the Advisory Committee appointed by ing Officers; Roy Blakey, president, National Associa-W. H. Wallace, Mississippi State Tax Commission; R. G. Lochiel, treasurer, PCA; Joseph McGoldrick, row) George Watson, National Association of Assess-

the Civil Aeronautics Board to assist in its study on tion of Tax Administrators; I. M. Labovitz, Bureau Multiple Taxation of Air Carriers are shown above of the Budget; Carl Shoup, Columbia University; with CAB Member Oswald Ryan, Chairman of the James W. Martin, University of Kentucky; (Rear) Advisory Committee. Left to right are (front row) Dixwell Pierce, California State Board of Equalization; Edward Logan, director of the budget, Pennsylvania; Professor C. R. Lovell, CAB consultant; Al comptroller, City of New York; Oswald Ryan, CAB; Noonan, National Association of Assessing Officers; George Mitchell, CAB consultant in charge of the Amos Culbert, vice-president, American Airlines; W. study; Mario Sonnino, CAB consultant; Irston R. G. Hirzel, CAB consultant; C. M. Chapman, Wiscon-Barnes, director, CAB Economic Bureau; (Second sin State Tax Commission; Roy Blough, Treasury Department; and Ronald Welch, CAB consultant.

favored a federal law prescribing a definite allocation formula, while others held that the responsibility for making suitable allocations should be delegated to an existing federal agency. Another group favored the creation of a new federal-state joint body representative of both governments in membership and function.

Present System Criticized — Many members of the Advisory Committee voiced fears that the present method of taxing aviation fuel by the states would lead to burdensome and unequal taxation, and urged that some study be given to a program of exclusive federal taxation of aviation fuels.

The Advisory Committee is composed of airline representatives, tax administrators, and experts in public finance and federal-state relations. Its recommendations may form a basis for Congressional action to remove the potential threat to the air transport industry posed in the Supreme Court's decision in the Northwest Airlines case last spring.

No date has been fixed for a future meeting of the Committee.

Bristol Freighter

A British bid for post-war air cargo business is seen in an announcement from London last week that an aerial equivalent of famous tramp steamers, known as the Bristol Freighter,

was in the advanced planning stage. The prototype is scheduled to be completed by mid-1945, with production models ready late in the year.

The plane is designed to operate at speeds ranging from 120 to 150 mph, and its builders expect that operating economies will enable it to haul cargo 20 cents per ton mile. Hatches in the ship's nose permit rapid loading and unloading of cargo.

Competition—Should the plane prove capable of cargo handling at the rates expected, it may provide competition for U. S.-built types. Cargo rates lower than 25 cents per ton-mile have not been predicted, except in a few instances, for planes now under construction or planned in this country.

UAL Net Up Sharply

Nearly doubling its net income for the third quarter of this year as compared to the like period of 1943, United Air Lines realized \$2,269,672, President William A. Patterson reports to stockholders. Net for the third quarter of 1943 was \$1,151,741. This year's third quarter earnings equal \$21.61 per preferred share and \$1.43 per common share.

The new high in operating revenues for the quarter of \$9,993,124 was achieved by record plane utilization and revenue load factors tied in with the return to the line of transports by the Army. United's fleet now numbers 55 after reaching a low of 33 in 1942 and part of 1943. Revenue miles for the third quarter were 130,373,-264, mail ton-miles 5,276,378 and express ton-miles 1,113,225. Similar figures for the 1943 period were 101,810,512, 2,699,736 and 1,076,-

Net for Year-For the current year to Sept. 30, United realized a net of \$5,194,509, equivalent to \$49.46 per preferred share and \$3.23 per common share.

Any further increase in plane utilization and load factors can not be expected, Mr. Patterson warned. He said maximum figures in those categories apparently have been reached and that when the peak of war activities has been passed a decline is likely.

Boone Replaces Hart, JNAC Press Chief

Perle Boone, New York public relations and newsman has succeeded Charles Hart as press relations man for airlines Joint National Advertising Committee. Mr. Hart has joined Erwin Wasey, New York, which handles the Committee's advertising account.

JNAC was set up several years ago to coordinate advertising policy of the several airlines and to conduct a national advertising campaign dealing with passenger traffic matters of common interest to the lines. The Committee's 1944 budget is \$689,550, of which \$426,-500 was contributed by the airlines, and \$263,050 by aircraft manufacturers and vendors. A total of \$473,550 was allocated to advertising space (almost entirely in popular magazines), \$56,000 to the publicity work of Mr. Hart and staff, and \$135,000 was impounded. It is understood that, for their part, the airlines expect to contribute about \$300,000 toward the Committee's program.

Branch of ATCA—The Committee is a branch of the Air Traffic Conference of America, which is in turn subsidiary of the Air Transport Association.

The Committee's office has been moved from New York to ATA headquarters, 1515 Massachusetts Ave., Washington, D. C.

Boone's publicity efforts will be

confined to passenger traffic pro-

plant of Aero Services, Inc. Two of the ships will be equipped in the war effort.

TACA AIRWAYS, S. A. CORPORATE STRUCTURE As of October 1, 1944



The following companies have been formed but are not yet operating: Lineas Aereas TACA de Colombia Aerovias Paraguayas, S.A. Aerovias Argentinas, S. A. ' nea Aerea TACA de Venezuela

TACA de Mexico, S.A. is currently acting only as agents for TACA, S.A.; however, local operations in Mexico are planned.

TACA'S CORPORATE SETUP:

Chart above shows corporate structure of TACA Airways (Transportes Aereos Centro-Americanos, S. A.) as of Oct. 1. The subsidiaries, some of which are not yet operating, give an indication of the extensive expansion planned for the company by Lowell Yerex, its president. motion and problems. At present When associated companies in the system begin operations, TACA he will try to keep before the airprobably will present some serious competition for Pan American Air- traveling public the airlines' part ways.

New Air Ambulances Of NATS in Service

Fleet of Douglas Skytrains to help handle casualties from Pacific war theater.

Serving major Naval Hospitals from San Francisco to Boston on regularly scheduled flights, a fleet of flying ambulances of the Naval Air Transport Service's West Coast Wing has begun operations, Capt. James E. Dyer, commander of the Wing based at Oakland, Calif., reports.

Preparations were completed early in November for transporting 700 patients per month-war wounded arriving at San Francisco, San Diego and Seattle, from the Pacific theaters. Planes used in the service are R4D twin-engined Douglas Skytrains.

> Serious Cases-Types of casualties handled by the service include surgical patients who cannot stand prolonged trips and otherwise could not be transported at all, blind patients traveling to the Philadelphia Naval Hospital, less severe types of tuberculosis, and certain cases of mental shock.

Each insulated plane will carry about 17 web litters, cabins will be pre-heated for winter operations, and oxygen will be provided for use when necessary. Planes will exchange field litters with the Naval Hospitals so that patients will not have to be transferred, according to the NATS plan.

Special operational considerations will be given to certain types of patients, Captain Dyer reported. For example, tubercular patients will be flown at the lowest safe altitude. Trained hospital corpsmen from the originating hospital will accompany the patients, returning via NATS at the completion of each trip. Should a plane encounter operational difficulties, arrangements have been made to care for patients at alternate government hospitals.

The new scheduled service is an outgrowth of the wing's year and a half experience in carrying patients in varying numbers on special flights.

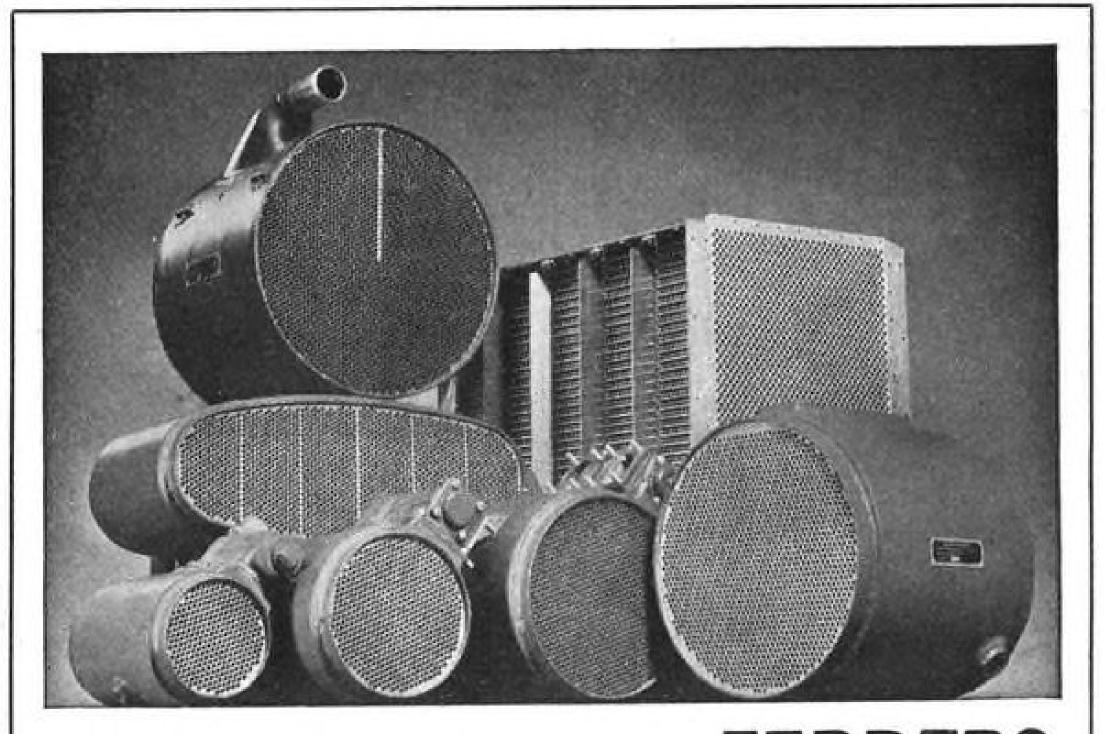
Three Douglas transports, recently acquired by TACA Airways from the Army, are undergoing reconversion at the Van Nuys, Calif.,

for passenger service while the third will be an all-cargo plane.



AIRLINE TERMINAL NURSERY LOUNGE:

Experimental yet indicative of a post-war service that may be offered at all major air terminals is USO-Travelers Aid women's and babies' lounge at Lockheed Air Terminal, Burbank, Calif. Esther Nasatir, director of the project, says it is the first of its kind to be established. Priority-grounded mothers awaiting airspace have a comfortable lounge for their own use and complete nursery equipment for their babies, ranging from infant medical supplies to screened trundel beds and a kitchen for the preparation of infant foods and formulas.



HIGHER AND FASTER with FEDDERS

The above photograph shows several types and sizes of Fedders air, engine and oil cooling units.

They are helping America's foremost plane manufacturers deliver the kind of fighting performance which is skywriting the word VICTORY on compat fronts throughout the world.



As specialists on heat transfer equipment since 1896, Fedders skill and experience are re-

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FEDDERS MANUFACTURING CO., INC.

BUFFALO 7, N. Y.

sponsible for high heat transfer efficiency, light weight and re-

Lockeed Offers 14-Place Saturn For Post-War Short Haul Use

New craft, designed for feeder operations, to have cruising speed over 200 mph., range 1,600 miles with eight passengers.

Lockheed Aircraft's bid for the weight. commercial market embodied in the short-haul, high frequency airline is the Saturn 75, a high wing. all metal, land based monoplane carrying 14 passengers, a crew of two, baggage and cargo.

It is powered by two Continental-built Wright engines of ninecylinder, air-cooled design, which develop 525 hp each. The Saturn has a cruising speed of over 200 mph and a top speed of 240 mph. Maximum range is 1600 miles with eight passengers, crew and baggage.

Low Landing Speed-Take-off distance of the plane is 1055 feet and its low landing speed of 73 mph make it especially adaptable to small airports. Saturn has a rate of climb of 1230 feet per minute, its service ceiling is 26,000 feet, and it will maintain a 14,200 foot altitude on one of its two engines.

These performance figures are based on a 13,500 pounds gross

Small but LUSTY

Robert E. Gross, Lockheed president in announcing the new airplane, said two feeder line opera-

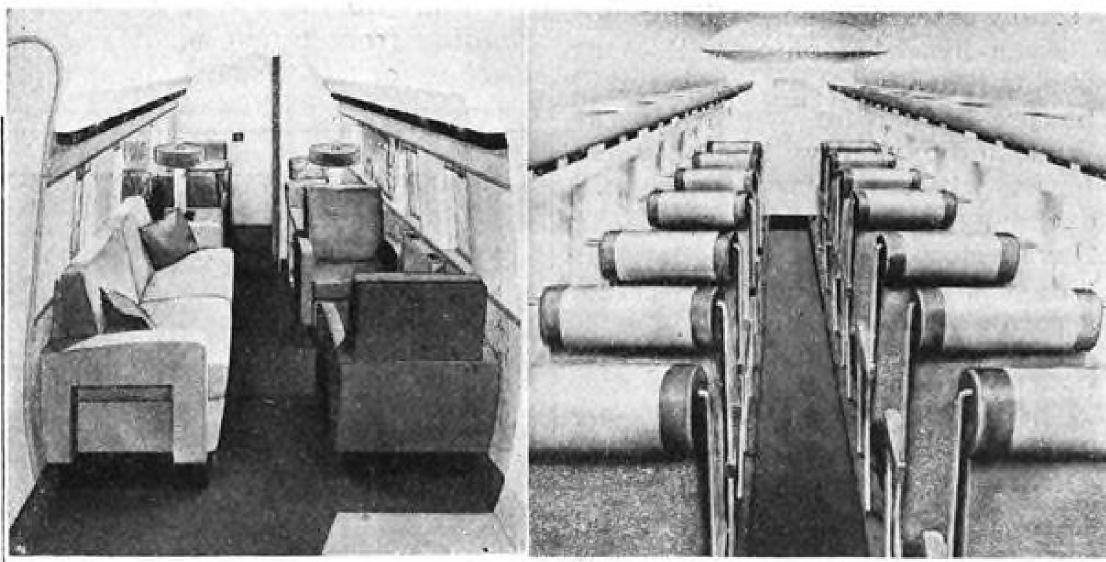
had purchased Saturns subject to approval of their route applications by the Civil Aeronautics Board and that others were negotiating contracts.

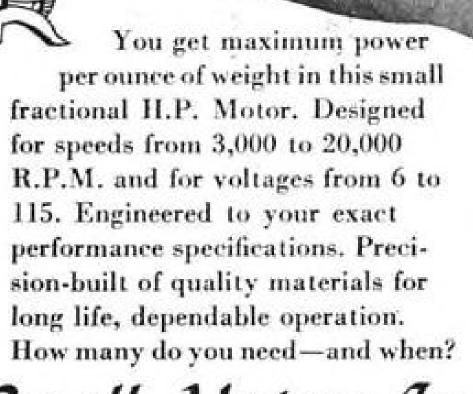
Requirements-He pointed out that the requirements of the shorthaul, high-frequency airline are difficult, calling for a sturdy, swift plane that will give high performance at low cost.

The Saturn, Gross said, is small

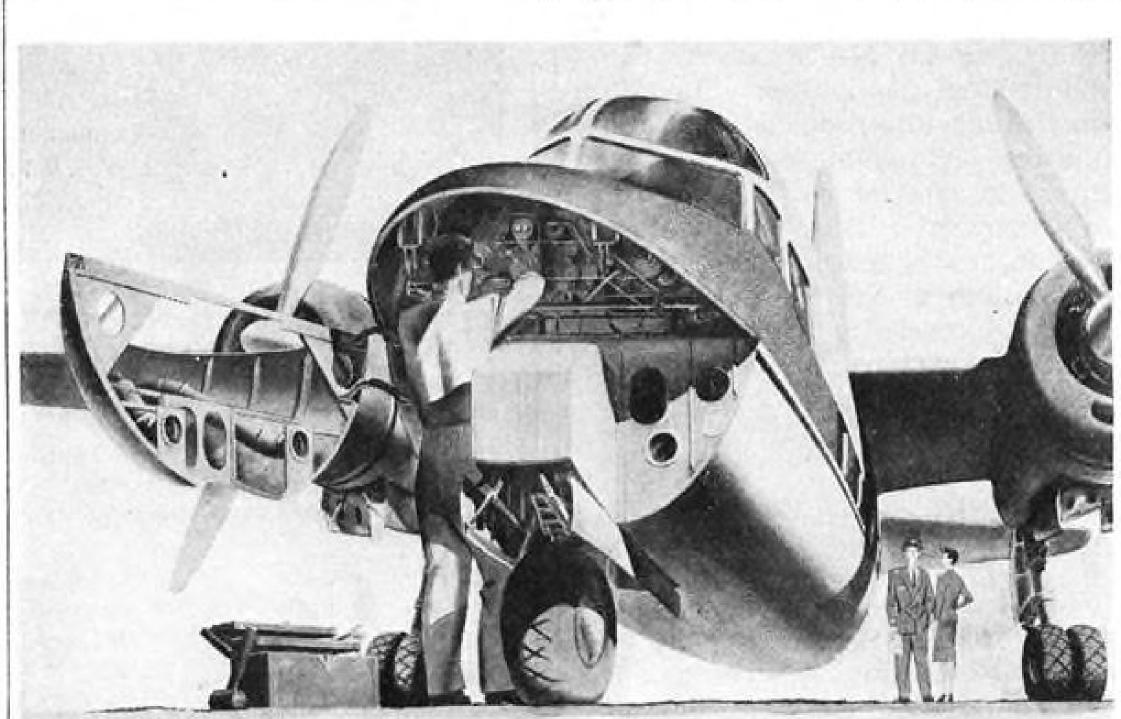


Details of Lockheed's Post-War Feeder Plane: Interior views show the standard version for 14 passengers and the design for corporation executives. The hinged nose cone is one feature for quick service.





Small Motors, Inc. 1314 ELSTON AVE., CHICAGO 22, ILLINOIS Design • Engineering • Production



enough for the short-haul operation, and operates with sufficient economy to be self-supporting on relatively light payload. He sees it, too, as an ideal airplane for trunkline operators through areas where traffic is sparse, or distances between cities, is short. The plane, he said, will meet all Civil Aeronautics Regulations for transport aircraft.

Parts Interchangeable-An aspect of its economy lies in the interchangeability of its parts, including the dual wheels on the main landing gear, the horizontal and vertical tail surfaces, the elevators and rudders and the stabilizers and fin.

Passenger seats may be removed quickly and a movable bulkhead permits quick cargo conversion where conditions require. Saturn has a tricycle retractable landing gear, dual brake system and control surfaces designed for rapid and safe airport maneuverability. Quick-Change Power Plants -Lockheed emphasized quickchange power plant units, accessibility of parts that require service and simplicity of the various units, all directed at quick main-

The Saturn will be manufactured when military production permits. Gross said the company's volume of war work had increased in the face of cut-backs elsewhere and that production of the peacetime plane would not be allowed to interfere with current output of the Lightning P-38, the Constellation, the Navy Ventura bomber, Boeing Flying Fortress built by Lockheed, and the new fighter type.

Revenue Mileage Up

Air carrier statistics prepared by Civil Aeronautics Board's Economic Bureau disclose that revenue passenger miles flown during August, 1944, represented a 45.57 percent increase over August, 1943. Similarly, mail and express revenue mileage figures were up 50.48 percent and 22.03 percent respectively.

For the twelve month period closed Aug. 31, 1944, the over-all revenue passenger load factor stood at 89.78 percent, compared with 85.04 percent for the previous The lines also completed 122,864,893 of 129,087,179 miles scheduled to be flown for a performance factor of 95.18 percent. Average revenue passenger and mail loads showed an increase,



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PARTIAL CONTENTS:

Important: The 1945 ANNUAL is completely new and different from the 1944 ANNUAL in content.

		Introd	uction by:
Army Air	Force	Gen. I	H. H. Arnold
Naval Av	iation	Admira	Ernest King
			E. E. Wilson
			H. Hinckley
Commerci	al Airlines	Col. Edg	ar S. Gorrell

. . . and many other absorbing, informative chapters

THE AVIATION ANNUAL OF 1945

Edited by REGINALD M. CLEVE-LAND, Member of the Staff of the N. Y. Times, Consulting Editor and Director of Aviation Research Associates; and FREDERICK P. GRAHAM, the N. Y. Times London Bureau. Both Mr. Cleveland and Mr. Grabam are former Aviation Editors of the N. Y. Times.

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while the average express load was down to 260.3 pounds from last year's figure of 299.3 pounds.

The statistics are based on reports of all domestic carriers including Hawaiian Airlines, Ltd.

Huge New Airport Planned at Warsaw

Field on banks of Vistula, four miles from Polish Capital, to cost between seven and ten million dollars.

One salient feature of plans to rebuild Polish aviation after the war is a proposed new airport at Warsaw, the Polish delegation at the International Aviation Conference explained to newsmen. The design, embodying several original ideas, was elaborated after thorough study of developments in airport design worked out in the U.S. and Britain.

Expected to cost between seven and ten million dollars, the Warsaw port is to be built on the east bank of the Vistula River, about four miles from the city, with which it will be connected by a direct highway and an underground electric railway.

Started Before War-Poland, the delegates said, acquired more than half the site and work on the field was started about two years before the war, circumstances which led them to predict that the first stage of construction can be completed and the port made ready for international traffic in a minimum of time after the war ends.

The port is designed to service and load 33 airliners simultaneously at as many different stands. Location of the terminal building in mid-field is expected to shorten taxiing time considerably. Three separate loading platforms to accommodate arriving, outgoing and transit planes are intended to eliminate danger of possible collision and crossing time delays. To facilitate passenger access planes, two platform levels will be provided within the terminal. All passenger, mail and luggage traffic will move in one-way channels for further time savings.

Four Main Runways-The plan projects four main runways built in accordance with prevailing winds, supplemented by three auxiliary strips. Length varies of diamonds creates a preponderfrom 6,400 to 10,700 feet; width from 152 to 245 feet. Approaches to the field are said to be over flat terrain and non-built-up areas.

U. S. Study Appraises Uruguay's Potential

Air cargo estimated by Dept. of Commerce analysis at 5 percent of country's total 1939 trade with America.

With the publication last week of its two latest studies of air cargo potentials, the Department of Commerce adds a seventh to the series on Latin American countries and opens a new field with an estimate of the proportion of the U. S .-South Africa trade which may move by air.

Uruguay, the Department's analysts find, ranks lowest among the seven South American countries studied, with an air cargo potential of five percent by value of total 1939 trade between the two countries. Previous studies show potentials for Argentina of 9.1 percent; Brazil, 7.17 percent; Colombia, 13.1 percent; Paraguay, 8.1 percent; Peru, 10.1 percent; and Venezuela, 12.5 percent.

Uruguay Problem - The report indicates that the imbalance between exports and imports existing in our trade with Uruguay probably will act as a deterrent to air cargo traffic, and will create the problem of one-way air trade. The total 1939 trade with Uruguay represents two percent of our overall trade with Latin America.

The South African survey indicates a similar disparity between exports and imports. Chief U. S. import from that country is, of course, diamonds, but inasmuch as most of these move via London, where they are sold at auction before reaching U.S. importers, they cannot be said to form a part of the South African potential.

One-Way Traffic-The Department finds that air cargo traffic to and from South Africa will likely be one way, and suggests the possibility of developing combination air services carrying merchandise in one direction and passengers on the return trip. A service of the latter type, according to the survey, "would obviously require cooperation between air and steamship lines."

Of a total 1939 trade of \$96,-795,558, air cargo potentials comprise some 30.7 percent or \$31,-319,729 in value. The subtraction ance of U.S. exports over imports. Chief potential air cargo exports are textile manufactures and machinery.

AVIATION NEWS • November 27, 1944

War Ends UAL Link To Anchorage, Alaska

Shifting tides of war have brought to an end United Air Lines' run from Seattle to Anchorage, Alaska for the Air Transport Command with the carrier having flown more than 5,200,000 miles, 20,000,000 pound-miles, and carried 33,500 passengers in approximately two and one-half years. United announces that, effective immediately, it is switching personnel from the Northwest route to trans-Pacific operations.

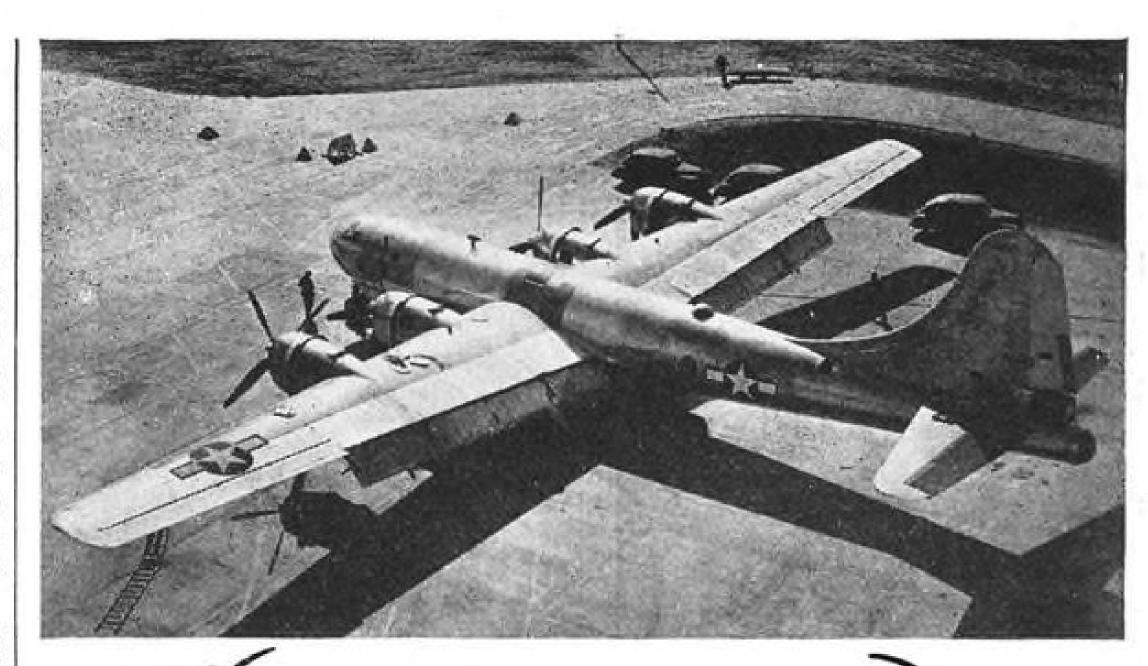
▶ Begun in 1942 — United began ATC flights to Alaska in the spring of 1942, originally from Dayton, Ohio, to Fairbanks. Another route ran from Ogden, Utah to Edmonton, Alberta. It was one of the airlines that rushed men and materiel to the Aleutian garrisons the Japanese invasion threatened in the summer of 1942. The two original routes were discontinued that fall, United taking over the 1,500-mile hop from Seattle to Anchorage via Annette Juneau, Yakutat and Cordova.

The whole northern operation was carried out without major mishap. During the past year completion averaged schedule about 95 per cent.



EXPERIMENTAL GALLEY:

United Airlines has constructed the full-scale DC-4 or DC-6 cabin model shown above to experiment with more efficient galley arrangements to be built into new planes when they become available. The DC-4 galley, 60x25x80 inches, will be located aft; the DC-6 will have two units, each 50x24x80 inches, located midway in the cabin.



B-29 . . . KING OF THE SKIES

. . . and little 2-pound bars of LEA COM-POUND play a vital role in the finishing of important parts for this mighty Superfortress at the Bell Air-COMPOUND COMPOUND craft Plant, Marietta, Ga.

> Because of its years of experience in "finishing" operations-in burring, polishing, buffing-LEA was the immediate choice of most war-contract companies faced with the necessity of producing articles more pre-

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SHOCK MOUNTS

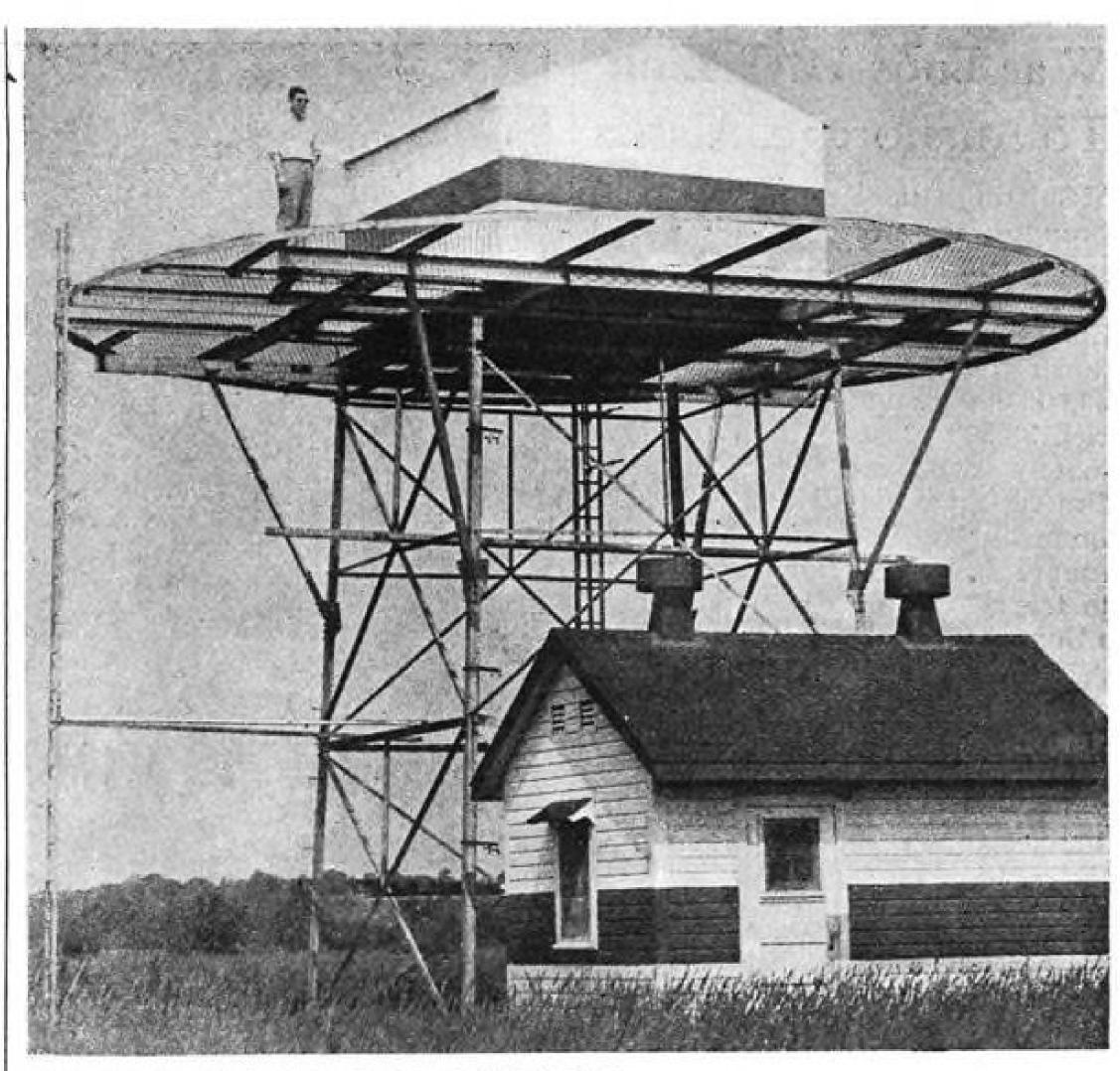
HARRIS A-N standard shock mounts are made in two types, steel and dural (non-magnetic) and conform to the joint Army-Navy specifications AN-I-16 and drawing AN-8008.

They have been approved by AAF (Wright Field) and are used extensively by the Army, Navy and aircraft manufacturers.

Made in the full range of load ratings in all standard sizes and types.

Wire or write for further details





EXPERIMENTAL UHF STATION:

Shown above is an experimental 22 ft. tower at Indianapolis, used by engineers of the Civil Aeronautics Administration's Technical Development Section to study ultra high frequency radio range equipment. Circular floor-like-section is a counterpoise, used to limit reflected ground radiations. Indianapolis studies show most practical UHF range towers ure 20 to 30 ft. high, with counterpoises 30 to 45 ft. in diameter.

AA 9 Months' Net Put at \$3,991,688

Net earnings of American Airlines, Inc., for nine months ending Sept. 30 were \$3,991,688, company reports, a drop from the \$4,251,-897 net for the 1943 period. Net for the first three 1944 quarters equals \$6.67 per common share outstanding, as against \$7.12 a year ago.

While earnings for this year were after provision for Federal income and surtax, no allowance was made for excess profits taxes. This was considered unnecessary in view of the company's earnings so far. Should last quarter earnings boost the annual profit into the excess profits bracket, it is estimated that earnings per share for the nine months would be reduced to \$3.03.

Departing Figures Up - While net income was down, operating figures increased for the first three reached 24,400,829, revenue passenger miles 406,560,217.

No charges to the government

for war services performed are included in the company's report as these were undertaken at cost and expenses charged direct to the Government.

New Feeder Talks

A new regional feeder line proceeding, designed to handle applications for new routes in Virginia, North and South Carolina, Georgia, Alabama, and Tennessee which have been crowding the Civil Aeronautics Board's docket, was announced last week by Chief Examiner C. Edward Leasure. A preliminary compilation lists 29 applicants who have been requested to appear at a prehearing conference scheduled for Jan. 22.

Leasure emphasized that the area covered by the States mentioned does not constitute a fixed boundary for the case, and the problem of scope undoubtedly will come up at the prehearing confer-

Operating airlines who have apquarters. Revenue miles flown plications in the suggested area include PCA, Eastern Air Lines, and National Airlines. Examiners have not yet been assigned to the case.

AVIATION NEWS . November 27, 1944

CAA Devices to Cut Delays at Airport

War - developed improvements will speed plane landings and takeoffs, provide all-weather collision-proof service, Glen A. Gilbert tells Clinic.

Civil Aeronautics Administration's extensive improvements under way to provide more effective traffic control service, involving approach control, automatic communication systems and VHF two-way radio and navigation facilities represent only an interim program. After the war, radar developments will make possible all-weather, collision-proof air service.

Ultimate development of a small collision warning device approximating a present-day compact radio receiver is forecast by Glen A. Gilbert, chief of CAA's Air Traffic Control Division. Actually, although authorities will not confirm the fact because of wartime censorship, it is believed that commercial collision warning devices of the type forecast will be on the market in less than a year after the war.

▶ Clinic Told of Device—Gilbert told the National Aviation Clinic that the device's indicator will be about the size of an artificial horizon. Cost will compare with other equipment used for instrument flight today, but because of this economic restriction the instrument probably will indicate positions of planes only in the front hemisphere of the plane, with an effective radius of about 15 miles.

Position of each craft in the 15mile area ahead will be shown on a screen similar to war radar.

"Collision warning devices in aircraft, automatic aircraft position reporting and traffic control instruction indicators would result in a revolutionary change in air traffic control practice," Gilbert With such equipment on board, a pilot desiring to make a flight subject to instrument flight rules, once he had received a green signal from the control tower permitting take-off, would simply follow the instructions as to stop, go, altitude-change, shown on his traffic control indicator and would refer to his collision warning indicator as necessary to insure that adequate separation was maintained between his plane and others near by.

Cuts Delay and Congestion-

With such equipment in use, emphasis of air traffic control would be shifted from prevention of collisions between individual aircraft to regulation of the flow of air traffic to minimize delay and congestion

Development of a scanning screen in airport traffic control towers to permit controllers to visualize exact position of each plane within 25 miles would be the next step.

One screen, Gilbert believes, would be necessary for the horizontal cross section of the traffic and the other screen would show a vertical cross section along the instrument landing system. Combination of these two screens on one, for a three-dimensional presentation, would be desirable.

▶ Simultaneous Landings and Takeoffs - Ideally designed airports should permit planes to land and take off simultaneously, further speeding traffic. With such planning of instruments and airports, plus changes in taxiing systems, ground traffic control and take-off facilities, it should be possible to make landings during instrument weather conditions at intervals of

Where several airports are in the

same area, their respective traffic patterns must not conflict and navigational facilities serving them must be arranged so that each may dispatch and land planes simultaneously.

CAB SCHEDULE

Nov. 27. Hearing date for the Florida case before Examiner William F. Cusick. (Docket 489 et al.).

Dec. 1. Date for exchange of exhibits in the Texas-Oklahoma case. (Docket 337 et al.) Dec. 4. Preliminary briefs due in Latin-American proceeding. (Docket 525 et al.).

Dec. 4. Hearing in the New England feeder case (Docket 390 et al.) at Washington,

Dec. 12. Exhibits due in South Atlantic case. (Docket 1171 et al.). Postponed from Dec.

Dec. 18. Briefs in the North Atlantic proceeding due (Docket 855 et al.).

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. 12. Deadline for exhibits in the Pacific route proceeding. (Docket 547 et al.). Postponed from Dec. 23.

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. 26. Rebuttal exhibits in Pacific case due. (Docket 547 et al.).

Feb. 1. Hearing in the Pacific cases before Examiner Ross I. Newmann. (Docket 547

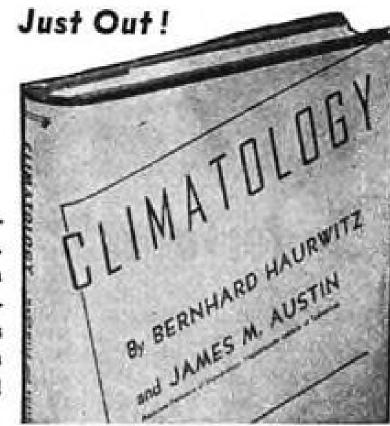
Feb. 6. Tentative hearing date for North Central case (Docket 415 et al.)

Feb. 12. Tentative hearing date for investigation of non-scheduled air services.

Get a sound knowledge of climatology

from this concise, practical book

Here is a fundamental treatment of the principles of climatology and the distribution of the climates of the earth. Physical causes and variation in space and time have been stressed with special attention being paid to Köppen's classification of climatic types. More than half the book is given over to detailed discussion and data on specific regions in terms of dynamics of the atmosphere, air mass types, and frontal activity.



CLIMATOLOGY

By BERNHARD HAURWITZ and JAMES M. AUSTIN

Associate Professors of Meteorology, Massachusetts Institute of Technology. 410 pages, 6 x 9, illustrated, \$4.50

The first part of this book deals with the various meteorological elements, their distribution over the globe, and their seasonal and diurnal variations, together with the factors determining these variations. In view of their important bearing on the physics of the climate, conditions in the upper atmosphere are discussed whenever observations are available.

The second part of the book gives detailed treatment to the climates of particular regions from the standpoint of topography, ocean currents, wind regime, air masses, fronts, cyclones, and anticyclones.

CONTENTS

- 1. Solar Radiation and Terrestrial Heat Balance
- Temperature
- . Wind and Pressure 4. Hydrometeors
- 5. Air Masses, Fronts, Cyclones,
- and Anticyclones 6. Climate Zones and Types
- 7. Description of the Climatic Types
- 8. Microclimatology 9. North and Central America
- 10. South America 11. Europe (Excluding Russia) 12. Asia (Including Russia)
- 13. Africa 14. Australia and New Zealand
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AVIATION NEWS . November 27, 1944

Cause Uncertain In TWA Plane Crash

Definite reasons for disintegration of craft not ascertained in coast hearings.

Public hearing testimony only indicated failed to prove possible reasons why TWA's trip 8, San Francisco to Los Angeles, disintegrated at 10,000 feet Nov. 4, bringing death to passengers and crew.

Detailed laboratory tests may be required to establish as better than speculation these guesses:

Destructive force may have built up in a sharp dive and violent pull-out, possibly to avoid collision with another airplane in the top of an isolated thunderhead which had just reached peak of development. Turbulence of unestimated violence may have started destruction in the thunderhead, the presence of which had not been forecast and which the pilot, Capt. Alfred Thomas Betnel, may not have seen while climbing through adjacent overcast.

There may have been a mid-air showed gradual uninterrupted collision with another airplane, the climb to 10,000 feet, level flight for second plane escaping with minor

Look Into

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to problems of underfoot safety in plant and

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30" x 48". Special sizes supplied to order.

Ideal for standing mats, ramps, entrances,

MELFLEX SAFETY STEP TREADS-Molded, Oil Resistant Heavy Duty Treads for all

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TERIAL - Available in 1/3" and 3/16"

thicknesses for all types of walkway surfaces.

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damage and its pilot failing to report the fatal incident.

While the airliner, a DC-3, virtually "disintegrated," expert testimony seemed to establish that there was no explosion. No fire developed until the wreckage struck the ground.

Investigation of all airplanes known to have been in the vicinity at the time failed to produce any evidence of collision. However, military witnesses testified that military transports had been subject to "passes" being taken at them at night by P-61 Black Widow's using radar in the vicinity of Fresno, close to the scene of the accident.

Collision Theory Checked-Laboratory tests of glue-like particles found on some metal parts probably will be ordered to check out the collision possibility. CAA's Chairman of the wreck examination committee, Leonard H. Williamson of Santa Monica, said the material possibly could have been glue from the DC-3 cabin flooring.

Definitely due for testing, to attempt laboratory reproduction, is the airliner's barograph card. It an extended period, and then sharp, possibly vertical, descent to 8,500 feet with the trace continuing down to 7,500 feet, where the barograph pen whipped violently off the record card and then returned to the edge at 6,000 feet and continued there until the wreckage landed.

▶ Crash Board-Edward Minser, TWA superintendent of meteorology, could only interpret the card as indicating that at the point where descent began there was "some very sharp impact."

Sitting as a crash board were William K. Andrews, Chief of the CAB Investigation section; W. F. Koneczny, CAB aircraft specialist; George French, CAB meteorologist; Ralph Reed, CAA's Sixth Region Chief Investigator, and Frank Mc-Kelveen, Sixth Region investigator.

Trans-Canada Air Lines reports that its New York-Toronto service operated during October with a passenger load factor of 93.1 percent. Of 1,076 seats available, 1,002 were used. The company also claims a nonstop trans-Atlantic record between Montreal and Great Britain of 10 hours and 13 minutes eastbound. The plane setting the record, a Lancaster, carried more than 6000 ington, New York, Atlanta, and pounds of mail and 2,036 pounds of other points. Capt. V. D. Lovelace is cargo, and bettered the previous president of the newly-organized mark by one hour and one minute. corporation.

SHORTLINES

▶ The Seattle-Tacoma Port Commission has filed a brief with the Civil Aeronautics Board in the Hawaiian Case strongly recommending that Northwest Airlines' application for a Seattle-Honolulu route be approved. The Pacific Northwest, the Commission asserts, has been relegated to a position of inferiority in the matter of water transportation, and is determined to prevent similar discrimination in air transport. Matson Navigation Co., a steamship operator, is the only other applicant for a route between Hawaii and the Pacific Northwest.

United Air Lines' revenue passenger miles in the third quarter of 1944 totaled 130,373,264, an increase of 29 percent over the same period last year. Mail and express ton miles were 5,276,378 and 1,113,225 respectively, increases of 95 and 3 percent over 1943's third quarter. The company now has a plane utilization of 13 hours, 20 minutes daily, compared with eight and one-fourth hours' utilization in 1941. Totals for the first nine months of 1944 represent new passenger, mail and express records, President W. A. Patterson

City of Zurich, Switzerland, has prepared plans for a new airfield, located six miles outside the city, to cover an area of 529 acres. The field is to have four runways, one equipped for instrument landings in all weather conditions. Cost is estimated between 65 and 70 million francs and construction is expected to take three and one-half years.

▶PCA's October passenger total was 51,990, second highest monthly record in the company's history and represents an increase of 116 percent over the same month last year. Mail and express figures were respectively 25 and 12 percent greater than in October, 1943. Reconversion of three recently returned DC-3's is progressing in company shops at Washington, and the plane will likely see service about the first of next year.

Colonial Airlines' New York-Montreal service, operated with three DC-3's, carried 6,442 passengers during October. The three planes operate two round trips daily. September figures for the same route show 6,295 passengers.

Eastern Air Lines' net profit for the nine months ended Sept. 30 dropped to \$721,684 from \$758,461 earned in the same period of 1943. In terms of per share earnings, these figures are equivalent to \$1.22 per share for 1944 and \$1.29 per share for

Atlantic-Western Airplanes, Inc., has announced a charter air service operating out of Richmond to Wash-

Women's Post-War Air Market Studied

Jacqueline Cochran says women citizens over 21 exceed men by 600,000.

A growing realization of the potential importance of the mass market represented by American women is noticeable in the air transport industry and in one or two progressive air schools which plan special courses for women

Manufacturers of lightplanes so far have given less evidence that they appreciate this sales possibility to increase production and cut costs and prices.

Impressive figures on the economic value of women in marketing were read to the National Aviation Clinic by Miss Jacqueline Cochran, probably the outstanding missionary for more aviation activity by women. She is director of the Wasps, which will be dissolved by the Army Air Forces Dec. 20.

She cited these points:

- There are 600,000 more women than men in the U.S. over 21.
- ▶ Women control 80 percent of the nation's buying.
- ▶ Women are heirs to nearly 80 percent of all estates left by men and to two-thirds of those left by women.
- Sixty percent of all cars are bought by women.
- ▶ Sixty-five percent of all railroad passenger traffic is by women and two-thirds of all bus passengers are women. Yet just before the war only 20 to 25 percent of air passengers were women.

"As over half of the prospective customers wear skirts and think and act in many ways different from men, it would pay for transport companies and small plane manufacturers to cater more to women by having some women who know both aviation and the women's angle in their organization. Women could sell aviation, flying and air transportation to women generally," Miss Cochran says.

Industry could find capable executives among the thousand young women who have been trained to fly by the Wasps, Miss Cochran believes. Many have had past experience as executives and others could be trained especially to exert a powerful appeal on the nation's women who, as a group, enjoy travel, determine the expenditure

of most of the nation's money, but who have not flown.

Comforts—Women have no more fear than men in any respect, and perhaps less in relation to flying, but they have believed the widely circulated contention that aviation is a man's game, and aviation so far has failed to furnish the niceties of travel which women prefer.

When the airlines and private plane makers make possible a high percentage of trip completions in all weather, because of improved navigation aids, for example, women will no longer hesitate for fear of being stranded short of destination with only a handbag, Miss Cochran said, citing this as typical of the unpublicized attitudes of women toward aviation which industry business men do not realize or understand. Such ignorance will not be tolerated in the highly competitive aviation market, Miss Cochran says.

Leslie Neville, editor of Aviation, told the Clinic that "until the little woman learns to fly the family plane there just isn't going to be any family plane. The so-called fair sex is the most important determining factor in any purchase and the bigger the purchase the more important and the less silent she becomes."

CAB ACTION

 The Board has designated Boston, Mass., as the place for hearing the New England case (Docket 399 et al.). Hearing will begin Dec. 4 in the Auditorium, fourth floor, Public Works Bldg., 100 Nashua St., before Examiner Bar-

· CAB denied Pan American's request that the American Export acquisition case be consolidated with the North Atlantic route case for examiner's report and oral argument. The Board deferred action upon the request to consolidate the two proceedings for decision, stating that this request would be decided on in accordance with the positions taken by parties to the Export case in briefs and oral argument. Export's attorneys had asked the Board to dismiss Pan American's motion, but the Board's action made their request unnecessary except for the consolidated decision

• Upon the request of PCA, the Board removed from the consolidated Pacific case (Docket 547 et al.) all portions of applications requesting service between points within the United States. Northwest's applications had requested several new domestic routes in

addition to international service.

• An application of Charles R. Bentley, doing business as Southeast Airlines Feeder, has been dismissed by CAB at Bentley's request. The application had been consolidated with the Florida case. Another application in the same case, filed by Clarence W. Ludwig, was dismissed for failure to exchange exhibits. An application of J. I. Leak was withdrawn from the consolidated case to be heard at a later date on the applicant's request.

• The Board approved an agreement between PCA and Northwest Airlines covering the air conditioning of Northwest's planes by PCA at

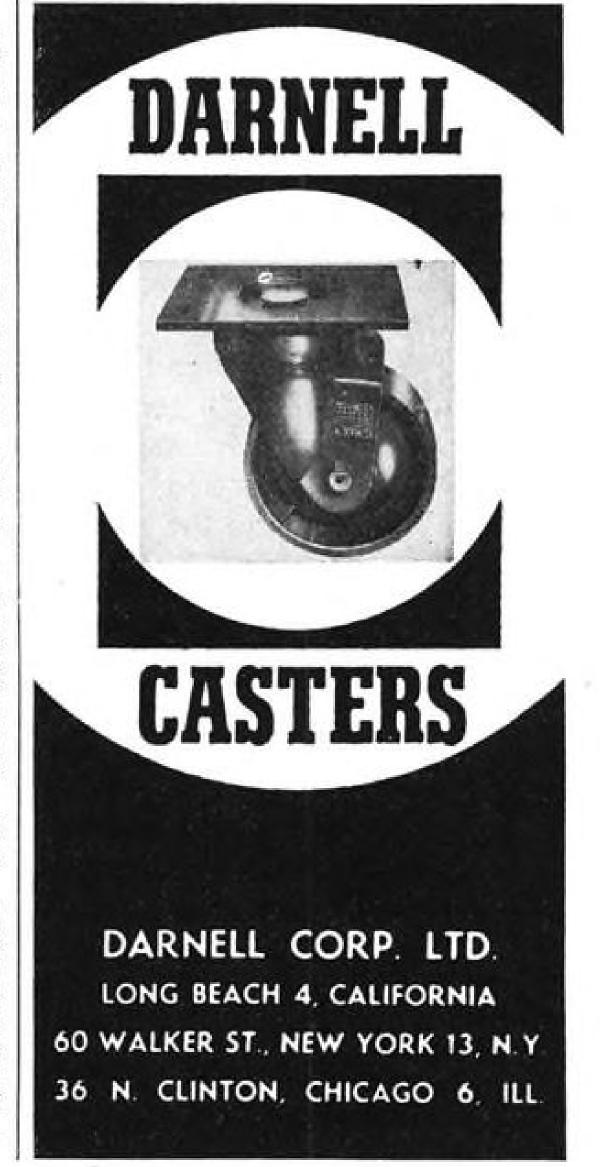
 Applications of Hannaford Airlines, Inc., Lone Star Airlines Co., Wayne B. Lee, Texas Bus Lines, and Texas Motorcoaches, Inc., have been consolidated with the Texas-Oklahoma case, making a total of 49 applicants. American Airlines, Braniff Airways, Chicago and Southern, Continental, Delta Air Corp., Eastern Air Lines, and Mid-Continent Airlines are the only operating airline applicants. Examiners Wrenn and Keith have warned that failure to exchange exhibits by Dec. 1 may result in dismissal of a delinquent's applica-

• The report of Examiners Raymond W. Stough and Robert J. Bartoo in the Fairbanks-Anchorage-Kodiak mail case recommends granting a new route to Woodley Airways and authorizing the carriage of mail over Alaska Airlines route between Fairbanks and Anchorage. The route which the examiner's recommended for Woodley Airways extends from Fairbanks to Kodiak via Anchorage and Homer, with a suggested restriction that scheduled trips between Anchorage and Fairbanks shall not exceed those scheduled between Anchorage and Kodiak. Also recommended was authorization for Woodley to carry mail on its present route between Anchorage and Ninilchik. The proceeding was the first case heard in the Board's Alaska office.

• National Airlines has filed with CAB notice of intention to begin non-stop service between Jacksonville and New Orleans on AM 39 and between Jacksonville and Miami on AM 31 beginning Jan. 1. The carrier also proposes one-stop service between New York and New Orleans and New York and Miami, stopping at Jacksonville on both trips.

Compania Mexicana de Aviacion (CMA), Mexican affiliate of Pan American Airways, has received Civil Aeronautics Administration approval to operate between Mexicali, Mexico, and Burbank, Calif., via San Diego and Long Beach. New routing permits originating or terminating flights at Long Beach Municipal Airport when weather conditions prevent using Lockheed Air Terminal at Burbank.

Runway repairs at Havana's Rancho Boyeros Airport were completed early this month and Compania Nacional Cubana de Aviacion (CNCA), Pan American Airways Cuban affiliate, has resumed operations there. The Cuban Army airport "Columbia" has been used as an alternate.



EDITORIAL ***************

Continue the Clinic

A LTHOUGH the Second Annual National Aviation Clinic closed hardly more than a week ago its success as an open forum and safety valve is assured.

It has already ripped away some of the traditional clannishness which has always divided the airlines, private flyers, fixed base operators; federal, state, and municipal officials, manufacturers, educators and airport managers.

No other gathering contributes so much to understanding and tolerance. Representatives from every aviation activity now sit down together and debate rather than carry on their name calling in the aviation press and the newspapers.

From a long-term view, it may be fortunate that uncontrolled dissension over the Lea Bill broke out at last year's first clinic. After a year to meditate over the rumpus and watch one air bill after another die on Capitol Hill, maybe the family has learned that none of its members can put over single-handed a job that involves the whole group.

If some of this spirit of give and take has been absorbed, this baby of an aviation industry so overgrown for its age may be showing encouraging signs of maturity and constructive public service.

Moving spirits of the clinic, the National Aeronautic Association and the diligent citizens of Oklahoma City, are worthy of unstituted praise for bringing this new aviation institution into being.

Only superlatives describe Oklahoma City's hospitality and efficiency, and the completeness of arrangements and organization. They would place the community at the top in any all-aviation poll to name the city which has done the most for aviation in the past year. The clinic should be permanent, and it belongs only in Oklahoma City.

Progress on Airworthiness

A HIGH POINT in the International Civil Aviation Conference has been progress of the technical committees which resulted, among other action, in adoption and discussion of a massive 110-page document outlining airworthiness minimum requirements to set effective safety standards for civil aircraft operating in international navigation and commerce.

The easily read draft, free of ambiguities, was prepared by the Civil Aeronautics Administration's engineering staff under the leadership of Edward P. Warner, vice chairman of the Civil Aeronautics Board.

This group, whose members on the Aircraft Airworthiness Subcommittee at the conference included Charles F. Dycer, F. R. Russell, representing the aircraft industry, A. A. Volmecke, Charles F. Dycer, Paul Spiess, and Dr. Warner, worked assiduously day and night for weeks before the opening of the Chicago sessions. The document resulting was the only such draft submitted at the conference and it was adopted immediately for study.

The draft, of major interest to airframe and power plant manufacturers, covers proposed airworthiness requirements for aircraft, engines, propellers and equipment.

As to issuance and validity of airworthiness certificates, it is similar to regulations proposed by the International Commission for Air Navigation in 1938. But the U. S. staff set new precedents in establishing quantitative operating limitations for aircraft airworthiness requirements.

It recommends specific requirements covering strength, performance, and flight characteristics for four categories: normal, transport, training and acrobatic. The ICAN regulations are specific only for the normal category. For transports, airplane performance is related to the airports and terrain on each route to be flown.

Furthermore, the ICAN contains practically no requirements covering airworthiness of miscellaneous equipment items such as wheels, brakes, skis, floats, lights, flares, safety belts, which are covered by the new draft with specified quantitative tests. For the first time, when such regulations go into effect, such items can be installed on foreign aircraft with the assurance that they will meet requirements by the home government without red tape. Glider and rotor-plane airworthiness requirements will be proposed later.

The entire technical staff of CAA and the CAB vice chairman, by their labors prior and during the conference, have advanced signally the cause of aircraft safety and have made a significant contribution to U. S. leadership in formulating an international code of airworthiness which will come ultimately from an International Airworthiness Council.

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