

Aviation News

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Sign Contracts for 93 Four-Engine Transports: *Presidents of three airlines meet at New York to make "on-the-line" commitments with Douglas Aircraft Co. for DC-4 and DC-6 transports. William A. Patterson, United Air Lines, and Donald W. Douglas sign as (left to right) Capt. Eddie Rickenbacker, president of Eastern Air Lines and an interested observer, looks on, and A. N. Kemp, American Airlines, and Harold J. Roig, Pan American-Grace Airways, await their turn. (Story on Page 7).*

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THE AVIATION NEWS

Washington Observer

INDUSTRY FUTURE—The dominating theme among the leaders of the aircraft industry at their recent meeting in Washington was that, while there are many factors bearing on the problems of termination and conversion, the industry is entering a new era and ultimately will emerge as not only a strong industry, but a vital force in the economic future of the nation. Many an observer and official in Washington got a new and impressive picture of the aircraft manufacturing industry as a result of the meetings of the Aeronautical Chamber's Board of Governors. The press conference at which the presidents of major companies laid themselves open to questions from the Washington press produced an excellent general reaction.

★ ★ ★

AIRPORT FUNDS—Municipalities are insisting that airport funds continue to go directly from the federal government to cities and counties, rather than be channeled through agencies at the state level. Conference of Mayors and Municipal Law Officers will put their weight behind the campaign. City-county groups insist that airports are not comparable to highways, say Civil Aeronautics Administration can filter local pressure and won't need a buffer of state aviation commissions. Commissions will back handling of funds at state levels. One state, South Carolina, probably will take over all airports for operation after war. It now maintains them, except where they are under federal control.

★ ★ ★

AUTOMOTIVE BLAST—The Automotive Council for War Production has had harsh words for the government's reconversion program lately, charging among other things that various Washington agencies are guilty of pro-

crastination in putting into effect policies formulated by other agencies in meeting reconversion problems. The council further charges conflict between current regulations and adequate steps to make practical preparations for reconversion. Briefly, the automotive people don't believe the nation will be prepared for V-Day and that the Washington agencies should move with the same speed on conversion that is being made by the Allied armies across Europe.

★

AUTOMOTIVE OUT OF AIRCRAFT—In connection with the surplus problem, it is now generally believed in Washington that the automotive industry, currently heavily engaged in aircraft work, will return to manufacture of automobiles as soon as possible. It is pointed out in Washington that the automotive industry each day contributes to the eventual aircraft surplus while each day the shortage of automobiles increases. While automobile manufacturers probably will move out of the airframe business, the manufacture of engines is something else again, and old-line aircraft engine makers may find additional competition on their hands.

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WAGE STABILIZATION—Probable impact of large scale industrial reconversion after the defeat of Germany on the wage stabilization policy is receiving serious consideration by the War Labor Board and other officials in Washington. Two reports are on the way which undoubtedly will influence the decision to recommend a change in the Little Steel formula which limits general wage increases to 15 percent of the January, 1941, level. One of these is from the panels created to hear AFL argu-

Army's huge new plane, the B-29 Superfortress bomber takes off.





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ments for lifting the wage ceiling and the other from the basic steel panel which heard demands of the USW-CIO for a general increase of 17 cents an hour. Pressure definitely is on.

★ ★ ★

COAST GUARD AIR—Coast Guard will ask larger appropriations for its air arm as a result of the Air-Sea Rescue Service it will set up as a post-war organization. Nine Coast Guard air stations cover the whole U. S. coastline today, and only two of these are equipped for major repairs. Many more will be needed. More ships for weather reporting, ocean airway beacons and rescue activities will be necessary.

★ ★ ★

GROWING IDEA—The idea that air power will maintain peace and promote prosperity is gaining in Washington and it is understood that the military is ready to submit to Congress detailed plans for post-war air forces that would assure the continued healthy growth of the industry. Top aircraft executives are wary about making guesses on the size of the post-war air force, leaving that up to Congress.

★

FORCE FOR PEACE—A spokesman for the industry, E. E. Wilson, of United Aircraft, noted that in the history of the world there have been three great eras of peace. The Greeks enforced it through their maritime power in the Mediterranean and the Romans through maritime control and land armies in Europe after which came the Victorian era of peace under the protection of British sea power. Now, Wilson believes, and many a Washington official is beginning to hold the same view, that with our great air power we have the opportunity to impose a fourth great era of peace. You will hear more of this during the international aviation conference set for November.

★ ★ ★

RADIO PROCUREMENT—AAF procurement of radio equipment will continue through the Signal Corps, at least for the present. A move to change system is reported to have been dropped. The Signal Corps argued it would have confused the picture needlessly, since AAF controls experimental development and selection of types pretty effectively anyway.

★ ★ ★

UNIFIED SERVICES—Army is blithely proceeding under assumption that a unified defense department will emerge after the war. In the field, reports say, Army officers talk as though it were a foregone conclusion, despite the fact the Woodrum Post-War Military Policy Com-

Washington Observer

mittee reported it shouldn't be considered until after the war and questioned the ultimate wisdom of joint services. The Army recognizes that under the American system it will revert to a comparatively small organization while the Navy will remain big and would like to get in on Navy's permanent establishment. Opposition, though, will be great and Capitol observers are betting it will not go through. Navy is doing too good a job—and Americans don't break up winning teams.

★ ★ ★

BUDGET BUREAU COLD — Bureau of the Budget is turning a cold eye on the Randolph airport bill, and, strangely, is questioning the need for 6,000 airports in the country.

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SOD RUNWAYS—Look for development of sodded airport runways to be intensified. Civil Aeronautics Administration has been studying



What a night-flying carrier flyer sees on landing.

problems in conjunction with Army and Navy. Costs are much lower, and properly prepared fields give good service at low maintenance cost. They have to be well-maintained, however, or they cannot give long service. Costs are low enough for moderately-heeled private flying groups—no more expensive, for example, than a good golf course.

★ ★ ★

UNIFORM CODES—Forty-four state legislatures meet next year, and the aviation industry will do well to plug for intelligent aviation legislation. Virtually all are expected to deal with the subject. National Association of State Aviation Officials is preparing uniform code it hopes to see adopted by most states. It is considered moderate, and NASAO hopes it will avoid excesses harmful to aviation.

Three Airlines Place \$50,000,000 Order for Douglas Transports

Contracts for 93 Douglas DC-4 and DC-6 transports signed by American, Panagra, and United; report more to come.

By MERLIN MICKEL

A substantial portion of the immediate post-war big plane market was absorbed last week when American Airlines, Panagra and United Air Lines agreed to purchase 93 four engine Douglas transports, with more to come.

The transaction, done in New York with ceremony, provided the dotted line aspect of an agreement that has existed in one form or another since before the war, when various deals were on for the DC-4s that wound up in military service as C-54s.

► **Two Types**—American signed for 25 DC-4s and 30 DC-6s, United for 15 DC-4s and 20 DC-6s, and Pan American-Grace for three DC-6s. Cost of the 40 DC-4s and 53 DC-6s is expected to run over \$50,000,000. United expects to swell the total to 108 in a few days by contracting for 15 additional DC-6s. This company announced last January it would buy 47 DC-4s and 39 DC-3s or other twin-engined planes in the five years immediately following the war.

► **EAL May Buy**—American plans to add to its order, and Eastern Air Lines, one of the four that had the planes on order when the war started, is still negotiating. Douglas says other large operators here and in foreign countries are interested.

Two other lines, Pan American and Western Air Lines, participated with these four last December in announcing details of the DC-4 and describing it as the type of plane that will be flown transcontinentally with two or three stops. They were absent, however, at the New York meeting.

► **Presidents Sign**—The other lines were represented by their presidents. A. N. Kemp signed for American, Harold J. Roig for

Panagra, and William A. Patterson for United. Capt. Eddie Rick-enbacker of Eastern was an observer.

Donald W. Douglas conducted the signing rites for the company of which he is president, and the press conference that followed.

The new contracts bring Douglas to the threshold of civilian production with commercial orders totaling more than \$100,000,000. This is more than three times greater than any previous peak of non-military orders in the company's 23 years.

► **DC-4 Cost \$400,000**—Final price of the planes involved in the contracts probably will depend on the quantity produced. United's President Patterson expects the DC-4s to cost around \$400,000 each, and the DC-6s about \$590,000. Estimates last October were that the DC-4s might cost approximately

\$445,000 a piece. This contrasts with a \$1,500,000 price tag on the original DC-4, designed prior to 1940 under arrangement with Eastern, United, TWA, American and Pan American.

► **Working on Financing**—As to financing problems, Patterson was quoted to the effect that a chattel mortgage arrangement might be more suitable than equipment trusts, although the final decision must await existing conditions when the planes are in production.

Whatever the airline executives' thoughts when the deal was made, it had a salutary effect on the stock market. New York papers noted strong advances in aviation shares, both transportation and manufacturing, with Douglas going up 2¾ joints to a new high for the year. The boost was reflected in the general market advance of a quarter point.

► **Delivery Dates Uncertain**—When commercial production of the big planes can start obviously is indefinite, but Douglas amplified his statement that the order will in no way interfere with his company's military production. He believes victory in Europe will be followed by Army and Navy permission to go ahead.

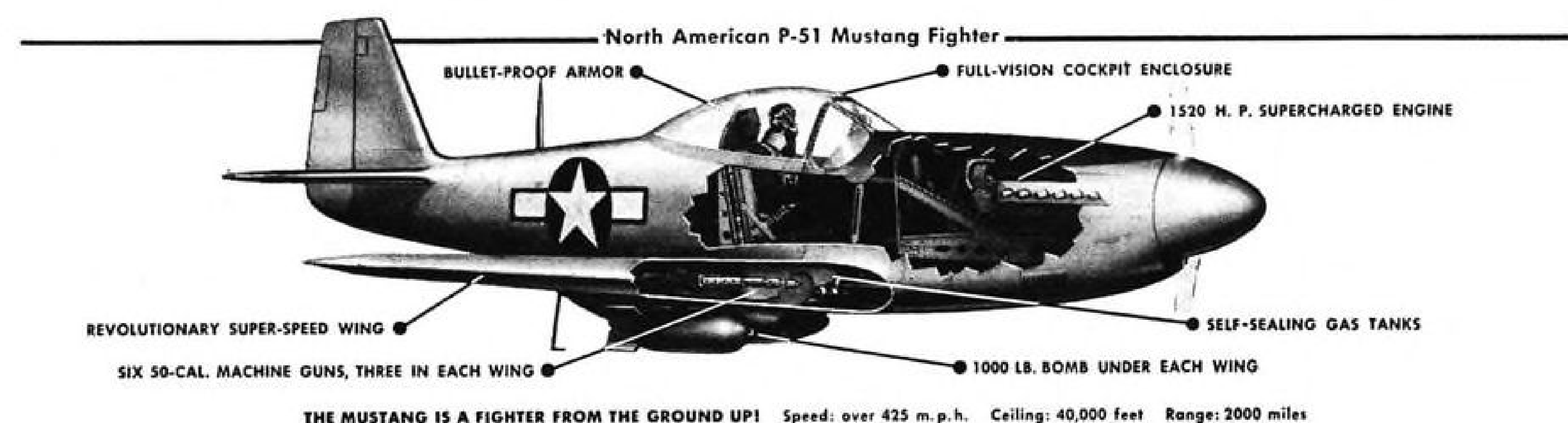
Others speculated that delivery



This Peace Talk Makes Sense

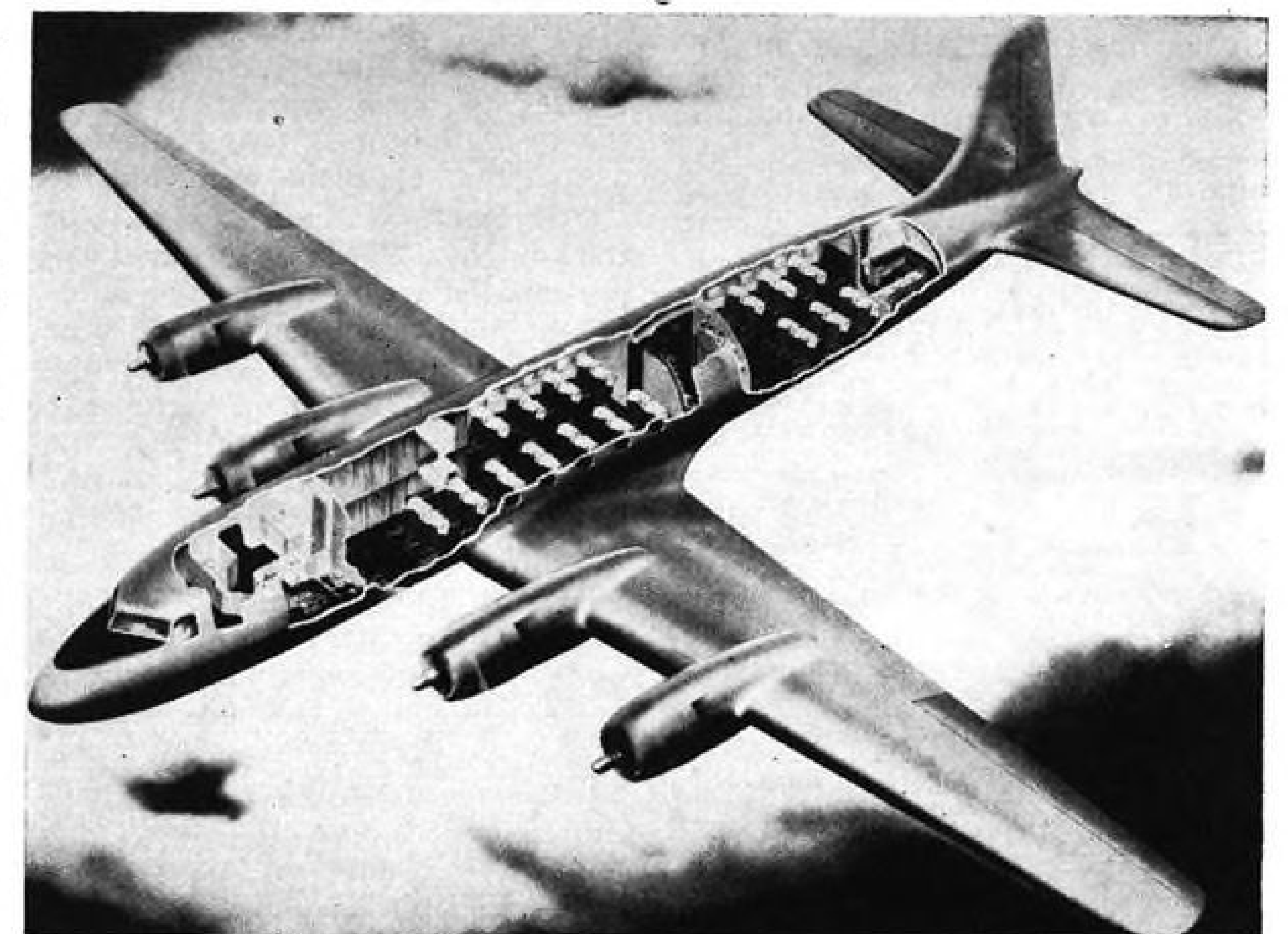
You don't have to translate the language of a Mustang's 50 calibre guns or the 75 millimeter cannon talk of a Mitchell bomber. The Japs already understand. So do the Nazis. So let's keep talking. You bet you can help! Think of it this

way. The Bonds you buy help build these fast-talking planes. The waste fat you collect helps arm them. Waste paper helps ship them, and gasoline flies them. Wouldn't you like to say a few words of this kind of "peace talk," too?



North American Aviation Sets the Pace

PLANES THAT MAKE HEADLINES...the B-25 Mitchell bomber, AT-6 Texan combat trainer, P-51 Mustang fighter (A-36 fighter bomber), and the B-24 Liberator bomber. North American Aviation, Inc. Member Aircraft War Production Council, Inc.



An artist's cross-section drawing of the DC-6

might be possible next June, since the manufacturer expects the first commercial planes to be ready six months after work on them is begun. An advantage lies in the fact that most of the machine-tool equipment that has been used in making the C-54, military version of the DC-4, of which the first version was turned out after Pearl Harbor, can be adapted readily.

► **Pressure Cabin for DC-6**—Both DC-4 and DC-6 are well known in industry circles. Both will be commercial developments of the C-54. Douglas describes the DC-4 as a four-mile-a-minute, 44 passenger and cargo transport plane with 1,450 hp. Pratt and Whitney twin-Wasp engines, the DC-6 as a five-mile-a-minute 56 passenger and cargo air liner equipped with 2,100 hp. double-Wasps. Each will have a crew of five. The DC-6, which is to have a pressurized cabin, as a sleeper plane would carry 24 sleeper and two sitting passengers.

Each plane will have a wing span of 117' 6". Length: DC-4, 93' 11"; DC-6, 100' 7". Height: DC-4, 27' 6 5/16"; DC-6, 28' 5". Both tricycle landing gear, fully retractable. Hamilton Standard hydromatic propellers. Maximum cruising speed: DC-4, 280 mph; DC-6, 334 mph. Normal cruising speed at 60 percent rated power at 10,000 ft.: DC-4, 239 mph.; DC-6, 278 mph. Stalling speed for both, 80 mph. Fuel capacity: DC-4, 2,877 gal.; DC-6, 2,577 gal. Range: DC-4, 3,610 mi.; DC-6, 2,715 mi. Wing loading: DC-4 (at gross weight of 71,300 lbs.) 48.9 lbs. per sq. ft.; DC-6 (at gross weight of 80,000 lbs.) 55 lbs. per sq. ft.

The airline presidents estimate that the DC-6 will make possible coast-to-coast schedules of 8½ hours, and Chicago-New York time of 2 hours 40 minutes.

AVIATION CALENDAR

- Oct. 2—NATA Region 2 Meeting, Macon, Ga.
- Oct. 3-4—Georgia Air Clinic, Macon, Ga.
- Oct. 3-4—Air Line Dispatchers' Association, annual convention, Congress Hotel (tentative), Chicago.
- Oct. 3-4—Magnesium Association, first annual meeting, Waldorf-Astoria Hotel, New York.
- Oct. 5-7—SAE National Aircraft Engineering and Production Meeting, Los Angeles.
- Oct. 20—Institute of Aeronautical Sciences, National Air Transport Meeting, Statler Hotel, Washington.
- Oct. 25-26-27—Southwestern Aviation Conference, Amarillo, Tex.
- Nov. 13-14—National Association of State Aviation Officials, Annual Meeting, Oklahoma City.
- Nov. 15-18—National Clinic of Domestic Aviation Planning, Oklahoma City.
- Dec. 4-5—SAE National Air Cargo Meeting, Chicago.
- Dec. 5-7—Second Annual Meeting, Aviation Distributors and Manufacturers Association, Jefferson Hotel, St. Louis, Mo.
- Dec. 6-7—National Aviation Trades Association, Annual Convention, Jefferson Hotel, St. Louis, Mo.

1,450 HP Engines

Powerplants on the DC-4 commercial airliners ordered this week by American, Pan American-Grace and United Air Lines, will be more powerful than those used on the military version of the plane the C-54, which have been announced as having a takeoff rating of 1,350 hp. The commercial planes will use engines with 1,450 hp. giving them a total of 5,800 hp. as against 5,400 for the C-54.

Navy Reveals Use Of Takeoff Booster

Jet-type unit cuts one-third to one-half off runs on carrier, permits start with heavier loads; tests begun in 1941.

Jet-equipped planes that take off in one-third to one-half the normal run have been used by the Navy for more than a year and have proved of material assistance in carrier and flying boat operations. The Navy, in releasing details of the jet-assisted takeoffs, discloses that tests were begun in 1941 at the Naval Academy.

The jet unit is a cylinder full of a solid propellant that includes oxygen in the mixture so that it can burn without air. A spark plug sets off the propellant, thrust being obtained through passage of the gas through a rocket-like vent in the tail of the unit. The unit is easily mounted and develops 330 hp. through takeoff.

► **Flight Tests Made**—Although experiments were started in 1941, the first flight test was not made until Mar. 1, 1943, with Marine Corps Capt. William L. Gore at the controls. Captain Gore had experimented with jet-assisted takeoffs at his own expense some time before while still a Marine private. The first plane was a Grumman Wildcat fitted with five units. The test was successful. The same plane was flown from a carrier Mar. 18.

During 1942, Aerojet Engineering Corp., of Pasadena, Calif., was given a Navy contract for experimental development of a more powerful unit, which by June, 1943, was developing five times more power than the first jets. Quantity production followed.

The jet units also are being used by the Navy on PB2Y's and PBM's in batteries of four, six and eight,

permitting greatly increased loads in Pacific transport operations.

Asks Lifting of Ban On Private Flying

Stanton move expected to effect relaxation of wartime restrictions except in vital defense area.

Further relaxation of existing emergency flight limitations on private flyers appears an early prospect as a result of the recommendation of CAA Administrator Charles I. Stanton, for repeal of the limitations except in vital defense areas and zones of military operations.

The Administrator's recommendation was forwarded to the Civil Aeronautics Board last week. War Department authorities approve it, prompt action by the board is expected to remove the limitations except in the defense areas and military operation zones.

► **Probable Restricted Areas** — Areas where the regulations would continue include the East Coast zone, east of a line running from Weston, Maine, to Corolla, N. C., and the West Coast zone, extending approximately 150 miles inland, covering part of Washington and Oregon and most of California.

Stanton asked elimination of requirements that landings and takeoffs be made at only designated landing areas, and that operators of designated landing areas keep records of flights made from those fields.

He cited the termination of blackouts in England to the board as an indication that "conditions which required the promulgation of these regulations no longer exist."

► **War-Time Measure**—The emergency flight rules in Section 60.95 were established at request of military authorities so that the identity of every pilot and location and destination of every plane in the air would be known to proper authorities.

Last December the CAB ruled that pilots flying between points outside vital defense areas no longer needed to obtain clearances for each flight. Within the last few months the War Department has permitted the basing of civil aircraft at certain East Coast airports, establishing corridors through which they may be flown out of the defense areas.

On the West Coast the Fourth Air Force at San Francisco, last week clarified its "easing" of

civilian flight restrictions, which now permit private plane owners to fly within the defense zone, subject however to the following rigid restrictions:

► Flights must be point-to-point between designated and controlled airports.

► They must be for business reasons by individuals or organizations engaged in the war effort; for agricultural purposes, or to bring planes into the zone for major repairs not available outside.

► No allowance is yet made for any civilian flight instruction.

Philip G. Johnson Boeing Head, Dies

Philip G. Johnson, 50, president of Boeing Aircraft Company, died September 14, at Wichita, Kan., following a cerebral hemorrhage. He had stopped at the Boeing



Wichita Division en route back to his home in Seattle from a visit in Washington.

A native of Seattle, he attended the University of Washington, College of Engineering, and started with the Boeing Company in 1917, as a draftsman. He rose to successive posts of production manager, superintendent, vice-president and general manager, and became president in 1926. He was also a former president of United Airlines Transport Corp., and is credited with a major role in the establishment of the Trans-Canada Airlines, which he served as vice-president in charge of operations from 1937 to 1939.

The large-scale production of the B-17 Flying Fortress and the B-29 Superfortress by his company were attained during his later term as president when he returned to the Boeing Company in 1939.

Air Talks Expected to Pave Way For World Aviation Agreements

Provisional international route arrangements and accords on granting of transit and landing rights believed likely to result from conference of 50 nations invited to November parley.

The government's announcement last week that it had invited more than 50 countries to an international aviation conference in the United States in November was a cautiously-worded document which demonstrated:

► That the State Department, which administers foreign policy and hence international aviation policy, seeks to avoid all possible points of friction with Congress in this regard.

► That the administration intends quickly to secure maximum advantages to U. S. air transport on a worldwide basis, stemming from its superior development and wartime contribution.

► That if aviation is to be used as an instrument for promotion of international amity as well as national security, arrangements for its utilization on global trade routes must be arrived at multilaterally and must not exclude the legitimate aspirations of other nations.

These two proposals stood out: Provisional world route arrangements should be made at the conference.

The conference should agree that each country participating would grant necessary transit and landing rights.

This means that the world route map recently made public by the Civil Aeronautics Board probably will be offered for approval and that other nations will come prepared to offer their own maps. The likelihood that the conference will become a cartographers' session, however, is ruled out by the fact that the type of agreement sought on transit and landing rights would virtually assure each nation of the routes it wants.

A sprinkling in the State Department document of such words as "provisional," "transitional" and "interim" indicates that "permanent" arrangements can be left to a later conference or to direct approval by respective governments, after a proposed interim council has passed judgment on the "practical experience obtained during the transition period."

► **Congress' Role** — Here Congress

should be able to approve the American delegation's actions, knowing that U. S. air transport would be able to take fullest advantage of its head start on other commercial air powers, but that "provisional" arrangements would be subject to later revision if desirable.

The State Department said "substantial agreement" had been reached already on such subjects as right of transit, avoidance of scrambles for exclusive rights, application of cabotage, control of rates, curtailment of subsidies, uniform safety standards and navigation aids and use of airports on a national and most-favored-nation basis.

► **Pattern**—The conclusion was inescapable, despite caution of the government's announcement, that the major air nations must already have decided far more than was indicated on what pattern should be cut at the conference for future air transport.

There was considerable mention of the necessity to plan resumption of international air transportation immediately, as though the Department sought to justify holding the conference as soon as possible. Perhaps this was necessitated by the attitude of the Senate Commerce Committee, which has asked the President to hold up action because of possible changes in legislative policy.

► **Provisional Arrangement** — The question arises as to what "provisional" arrangements the United States might make to fly the routes agreed upon. A logical answer seems to be that at first the ATC and the NATS will be used, and that a switch to the commercial companies will be made in the spring when they will have been certificated by the CAB.

It is significant that the conference, to be attended by more than 50 nations, is the largest ever called, and that the U. S. wishes to send its carriers through the air space of every participating country. It may be assumed that nations without international carrying aspirations will be encouraged to develop feeder services.

New Unity in Aircraft Industry Demonstrated in ACCA Turnout

Revived Chamber expected to play important role in determining policy with respect to contract termination problems.

By SCOTT HERSHEY

Top executives of the aircraft manufacturing industry who met in Washington during the sessions of the Board of Governors of the Aeronautical Chamber of Commerce demonstrated the new unity of the industry which will be necessary to meet problems of termination and conversion.

It has been months since all company presidents of major manufacturing firms would turn out for a Chamber meeting—although they have done so for meetings of the National Aircraft War Production Council.

► **Optimists Prevail** — Among the aircraft executives, as in any group, there are extreme optimists and some pessimists, but the consensus is that the industry which has weathered many a storm during its comparatively short existence, can weather another and emerge stronger for doing it.

Three principal problems involved in the survival of the industry, as outlined by E. E. Wilson, chairman of the Board of Governors and vice-chairman of United Aircraft, are contract termination, surplus disposal and disposal of surplus plants. While all executives agreed that many factors are involved which complicate these three problems, the industry generally is expecting a retrenchment and welcomes a return to a normal status from its present "largest industry in the world" position.

► **Output After Nazi Defeat**—Industry leaders had only guesses as to the volume of their output after the fall of Germany and there was a feeling that some companies would be able at least to start on conversion shortly after the defeat of the Nazis, others will continue to operate on a scale only slightly less than at present while others, notably Navy contractors, will continue to the final shot at the Japs.

The extent to which the Government relaxes manpower controls also is involved, since if labor is shifted from aircraft to some other war production, little commercial work could be done.

► **Contract Settlements** — Prompt

and fair settlement of aircraft contracts at the time of termination is essential, in the view of industry leaders, to provide funds for rapid reconversion to civilian production and maximum post-war jobs.

They endorsed a program prepared by the Chamber's Contract Termination Committee, which said the aircraft industry went to war on a basis of "first things first" and will not survive except on a termination method embodying these same principles. In the termination stage, the essential first thing is a fast final financial settlement divorced from detailed allocation and disposal of material.

► **Post-War Air Policy**—The Chamber governors emphasized, too, the need for the country to adopt a post-war air policy and cited the statement of Gen. H. H. Arnold, with whom they conferred, to the effect that the future security of the country depends to a great extent on an adequate air force and

an industry with an ever-increasing technical know-how.

Latest developments abroad, in the opinion of the governors, again prove technological progress in aviation is essential to national security. This means the industry must expand research in its engineering laboratories if the United States is to retain its dominant position in military and commercial aviation.

Continuing aeronautical progress, General Arnold said, requires an understanding and cooperative handling of the problems of contract termination, cutbacks, use of Government-owned plants and tools and disposal of surplus combat aircraft.

Kaiser to Produce New Hiller-Copter

Shipbuilder wins patent purchase contest over several old-line aircraft companies which bid for manufacturing rights.

Henry J. Kaiser will make his bid in the expanding helicopter development field with Stanley Hiller, Jr., and his newly-flown model. The Hiller design is generally regarded as the most promising yet tested, and Kaiser won out over several old-line aircraft companies in obtaining patent rights for mechanisms of the 19-year old inventor's Hiller-copter.

► **Agreement**—Terms of the transaction involve building of a factory in Berkeley, Calif., and an employment agreement between Hiller and Kaiser Cargo, Inc., the company which will develop the helicopter.

► **Plan 4-Place Model** — The first result of the Kaiser-Hiller contract will be the design and construction of a four-place model powered by a 250 hp. engine. The young inventor has been deferred at Navy request to continue his work.

The Hiller design (AVIATION NEWS, July 31 and Aug. 7) was first flown in May in secret tests in the University of California stadium. The prototype has a 12-foot tubular steel and fabric fuselage. A 90 hp. Franklin engine drives superimposed contra-rotating two-blade rotors of 25 feet diameter. The helicopter has developed forward speed of 100 mph. and can sustain cruising speed of between 75 and 80 mph.

Control is reported to be easy, and including Mr. Kaiser, several persons have flown it with only five minutes of instruction.

Work to Start on CAA Grid System As Army Eases Air Marker Ban

Relaxation of security measure in all areas but West Coast and Alaska will permit states to begin immediately on approved latitude-longitude program.

By BLAINE STUBBLEFIELD

Army has lifted its ban on air markers, except on the West Coast and in Alaska, and work on CAA's approved latitude-longitude grid system will start immediately in several states, employing discharged soldiers and others displaced by war contract stop orders.

After years of checking with thousands of pilots, and after examination of many proposed systems, CAA has approved a system developed by Blanche Noyes, air marking specialist, in cooperation with CAA's Airways Engineering Division of the Bureau of Federal Airways. The system is designed to cover the entire world if other nations wish to adopt it. Indications are that Canada and Mexico are inclined to accept it.

► **Air Addresses**—Basic principle of the system is "air addresses" lettered on the ground near easily-located landmarks. The address is in minutes and tenths of minutes of latitude and longitude as given on standard maps of the Coast and Geodetic Survey. Having read the address on the ground, the pilot finds his pinpoint location on his standard grid map. In addition to the air address, the ground marking includes an arrow, pointing to true north, and another arrow

pointing to the nearest landing area, with the distance in miles.

Grid marking will be primarily an aid to contact flying, which will be prevalent for years to come because the cost of instruments and radio may decline slowly, and many flyers will not have time to study their operation. But the record shows that pilots of scheduled transport and other professional operations will use the marking system on occasion to their great advantage.

► **CAA Role Advisory Only**—For the present, CAA's program is purely advisory. It has no funds for construction of markers. The work will be done by State and local governments and by private interests. Coast and Geodetic Survey will sell the grid maps, but oil companies, aircraft manufacturers and other concerns will produce their own versions, many for give-away distribution. Most private flying is done on a short-range basis and one to three or four maps are enough. To include sufficient detail, the maps are usually on a large-scale, and complete coverage of the United States makes a large bundle.

Quite likely, business concerns will be interested in building markers and including their advertising. In fact, several of them did it under the pre-war system, and many have the idea in mind for the future. Such advertising projects could turn out good or bad. If they abide strictly by the standards set up in CAA's bulletin, avoid spoiling legibility of the marking by juxtaposition with advertising matter, and do not clutter up the night scene with more confusing lights—of which there are already too many—the result could be good. It is possible commercial sponsors might build a large proportion of the marker system.

► **Army's Ban Criticized** — Many persons who have worked on marker development say the Army's ban was ill-advised and unnecessary. Any invading air forces, if they came by day, could easily find their objectives, and if they came by night, they could

not have seen the markers anyway, provided the lights of illuminated ones were turned off. Particularly illogical was the fact that inland markers were allowed to remain, but no new ones could be installed. However, not much harm was done, as the old system consisted only of the names of places and directional indicators.

There is nothing new about grid air marking. Grid maps were used long before, and during, the last war. Both the air address and the coordinated grid map have been in use in England for some time. CAA's proposed system is now in use by the armed forces, particularly in fire control by the observation aviation of the Field Artillery.

Officials said the recent proposals of Cessna Aircraft, which include the erection of pylons on the corners of ten-mile squares, while it proved impractical mainly because the pylons themselves would be dangerous obstructions and because they would be hard to find, nevertheless had stimulated interest in the problem. Many marking plans have been submitted and considered.

► **Landmarks** — Any number of easily discernible landmarks, like road intersections, river crossings and confluences, mountains, lakes, towns and villages, gas tanks, will be marked. CAA estimates that about 100,000 of these air guides will be required adequately to cover the United States, but more may be provided in time.

CAA is just now issuing a bulletin for the guidance of persons responsible for the construction of the air guides. The marking may be formed with paint on suitable surfaces, such as roofs and hard-surface roads; with crushed rock on open ground or mountain side; with shrub plantings on lawns and parkways; with porcelain letters mounted on posts in deserts and areas subject to flood; in regions where snowfall is deep, lettering may have to be placed on silos, grain elevators, large buildings.

► **Only Ads to Be Illuminated**—So far, only markers planned by advertisers are to be illuminated. Miss Noyes said she experimented for a year or so with luminous paint, without success. It cannot be seen from any practical height. Of course reflecting prisms cannot be used, because they would receive no light to reflect. Gaseous tubing and hooded electric lights are the only practical means of lighting the markers. Where paint is used, chrome yellow and black, or inter-



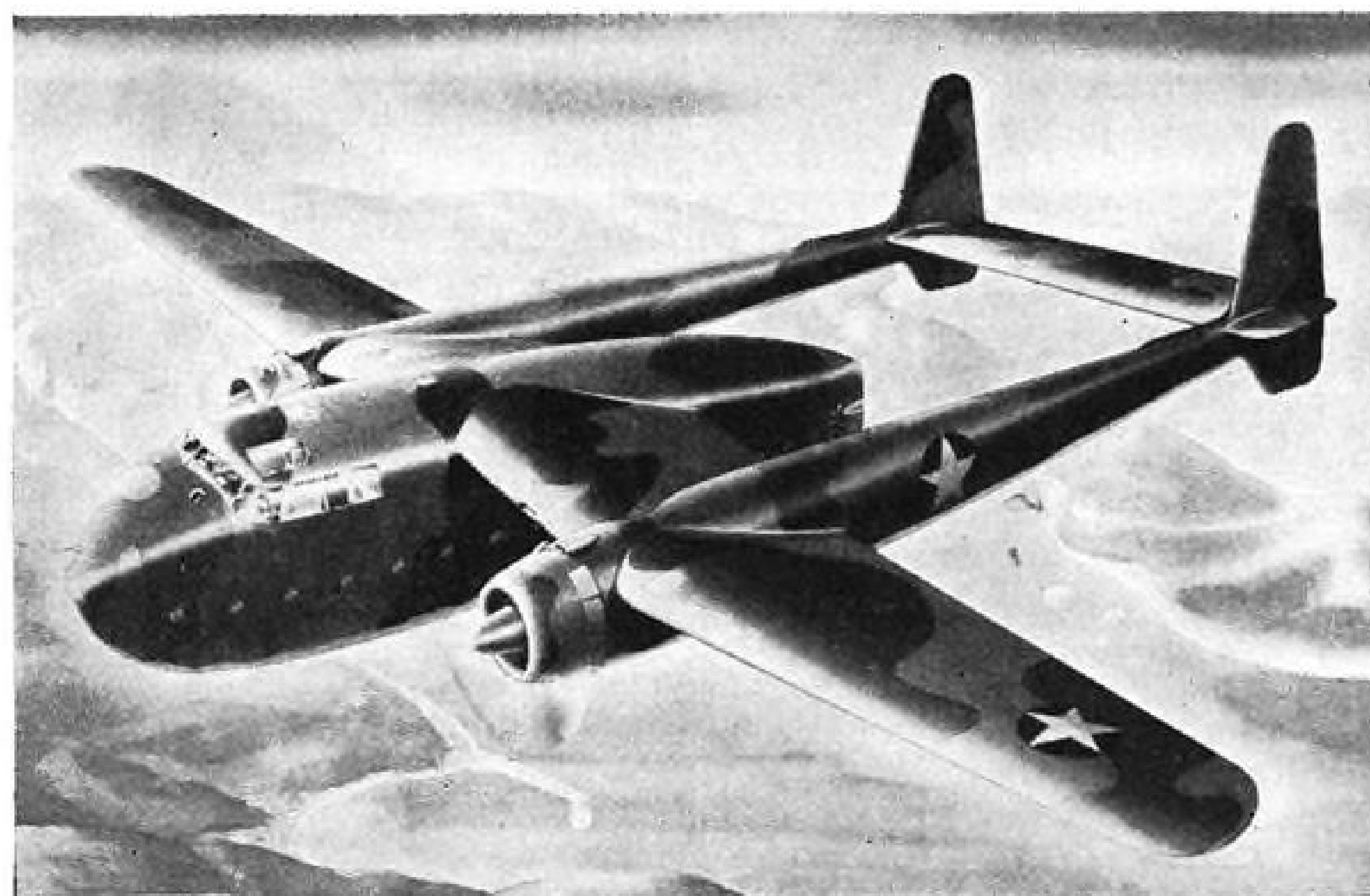
Kaiser Examines New Helicopter: Henry J. Kaiser and 19-year old inventor Stanley Hiller, Jr., inspect the Hiller-copter after Mr. Kaiser had flown it on a test hop.

national orange and white, are recommended for high visibility.

At this stage of the program, when contact flyers are not supposed to be out at night, most of the markers will go unlighted. But to be of real value to commercial aviation, the guides will have to be lighted. Furthermore, the time may come when personal planes will be flown in large numbers by night. For instance, direct lift machines, which probably can be flown low and slow for safety in darkness and overcast, could bring about prevalent personal night flying. It is a safe bet that the address system will be lighted in time.

► **Standard Oil Program**—Standard Oil Co. is planning a program of lighted markers, and has already turned one on at Charleston, W. Va. Extent of this and other companies' plans have not been made known. Several mills in Texas have placed lighted markers on their roofs.

Seven states have set up funds and are initiating air guide programs: Alabama, Nebraska, Tennessee, Texas, Missouri, Minnesota, and Ohio. Most states now have aeronautical commissions which handle such projects. In the case of Texas, however, marker plans are in the hands of the governor. Ohio has legislation making the establishment of markers compulsory by all its municipalities. The state itself erects the guides for those municipalities which do not comply, and charges the cost to them.



Fairchild's C-82 Makes First Flight: Artist's drawing of Fairchild's new cargo plane built for the Army and designed to operate from airfields of limited size. Details of construction are restricted but the all-metal plane is said to have a range in excess of 3,500 miles and to be easily adaptable to peace-time commercial service. This drawing first appeared in AVIATION NEWS on October 4, 1943.

SWPA Studies Disposal of Planes Not Salable on Civilian Markets

Trainers moving at rapid rate and good prices but release of tactical craft to RFC for liquidation presents serious problem.

By WILLIAM G. KEY

Chief emphasis of the Aviation Division of the Surplus War Property Administration has turned to studies of means of handling planes that will not be salable on the civilian market.

Sale of trainers through the Defense Plant Corp., with cooperation of the Civil Aeronautics Administration unit that handled the WTS program, is proceeding smoothly. The first group of WTS planes—some 5,400—are virtually cleared out and service trainers are now following them on the bid block. There will be about 6,000 of these service trainers available for these current sales.

► **Worst Hurdle Passed**—Surplus officials believe the worst hurdle in the handling of the lightplanes has been cleared, although they believe prices will break as the ready market becomes saturated and it appears evident that new planes will soon be available. Prices have taken a downward trend in the past few weeks, although the bid system has tended to keep prices high for desirable lightplanes. Generally speaking, the best of the lightplanes have already been sold.

But the lightplane problem is mild in comparison with that which will be faced when tactical types of craft are declared surplus and released to the Reconstruction Finance Corp. for liquidation. This phase of the surplus situation has not been solved, and no attempt is made to minimize its seriousness. One battle-worn bomber has been torn down as a test, but the number of man-hours involved has been placed on the restricted list by the Army Air Forces and probably will not be revealed for some weeks. It probably will be found that the man-hours involved in tearing down these planes for salvage will be far more costly than the revenue derived.

However, SWPA is seeking some means of returning at least a part of the national investment other than war victory in these planes, rejecting the concept that the country must accept them as a total loss. Answers are being sought and the nation's top experts are being called in to advise.

But the problem is pointed up by the experience with military training gliders, about 1,000 of which have come into the hands of DPC. Apparently they have no utility value, little scrap value and no logical non-aviation use except possibly as temporary play houses or tool sheds. No solution to their disposition has been found, but any ideas will be welcomed by those responsible for disposal policies.

Transport planes have not yet come into the surplus category, and it is not anticipated that any will for some time to come. A long period in which transports will have to be allocated is foreseen, even after the end of the European phase of the war.

Negotiations are now under way for the sale of a few specialized planes of off-standard types, but no sales have yet been made.

• Wichita Chamber of Commerce has issued a color brochure on the Wichita Airpark Plan mapping out where future airparks within the city will be located. Six locales are marked on the map for proposed airparks.

WEST COAST REPORT

Lockheed Engineer Sees 'Copter As Answer to Small Plane Demand

Hall L. Hibbard reveals company's interest in rotary wings, with plans for giant model; says mass production of four- or five-place craft should bring price down to \$1,500.

By SCHOLER BANGS

One of the foremost aeronautical engineers of the United States, Hall L. Hibbard, chief engineer of Lockheed Aircraft Corp., believes—

► Some form of helicopter will be the answer to the aviation industry's search for a small, personal aircraft that will be both cheap and safe to operate. In mass production of 10,000 a month a four or five-passenger helicopter of such design should sell for not more than \$1,500 and very possibly for less.

► Within ten years military aircraft with new sources of power will have pierced the speed-of-sound "stone wall" and will realize super-sonic speeds exceeding, possibly, one thousand miles per hour. ► Helicopter speeds reasonably may be expected to reach 350 miles per hour.

► Future land-based air transports may be expected to gross 250,000 pounds.

► Contrary to other expressed beliefs, as airplane size increases landing gear weights will not rise excessively. Landing gear weights will remain as a constant of approximately 15 percent of the weight of the airplane.

► Ten thousand feet should prove to be the maximum length necessary for runways to accommodate even the largest transports safely, and provide a safe stop in event mechanical trouble develops up to the moment of lift from the runway.

Hibbard was a dinner guest of West Coast Aviation Writers when he made these observations in Los Angeles last Monday.

His comments may be assumed to indicate definitely the extent of Lockheed's post-war manufacturing interests.

► **Lockheed Testing Rotors** — He disclosed for the first time that Lockheed has been conducting extensive tests of helicopter rotors in the factory's wind tunnel and said—

"I don't believe it will be letting

any cat out of the bag to say that during our early tests of rotor combinations we discovered quite by accident one combination that gives one-third more lift than that obtainable by any others tried out."

He said that his company is "pretty well along" in the development of a 184,000 pound air transport model. (Lockheed's Constellation has been designed for a maximum takeoff gross of 86,250 pounds.)

► **Copter Cost vs Auto**—Elaborating on his helicopter interest, Hibbard said Lockheed has extended its research to the point of a part-by-part comparison of a 4-5 passenger helicopter with parts of a medium-priced automobile and has determined that on a "mass production basis" the cost of building the helicopter will not exceed the production costs of the automobile.

"The helicopter will be the ideal private aircraft because it will offer extreme safety and will give the owner something he can get home in, and put in his garage," he said.

► **High Speed Flight**—Hibbard also made important observations on problems confronting high speed flight.

"When we reach speeds of 600 miles per hour we will have to provide refrigeration for air taken into the cockpit.

"The 'beating' an airplane takes at high speed is terrific, and we probably will have to provide the pilot with some form of floating seat to absorb the bumps and make his flight endurable. Building the aircraft structure strong enough to take high speed stresses will not be too difficult.

► **Super-Sonic Planes** — "Super-sonic aircraft will require a radical wing using a knife-edge entering edge at high speeds, and incorporating some mechanism to provide a rounded leading edge for slow speeds and safe landings.

While he also said Lockheed is experimenting with small aircraft

designs for private owners, he gave no indication of what the plane, if produced, will offer in the way of size and performance.

C-82 Eyed as New Post-War Contender

Re-entrance of Fairchild Aircraft into the large-plane field was marked by the recent first flight of the C-82, cargo ship built for the Army, which undoubtedly will figure in Fairchild's bid for post-war commercial contracts.

The powerful twin-engine, all-metal, high wing monoplane, designed specifically for operations from and into medium size fields, has a range in excess of 3,500 miles.

► **Easily Adaptable**—While it is engineered to meet war needs for carrying guns, tanks, ammunition, supplies and troops, its advanced design and many innovations make it easily adaptable to peacetime commercial air service. A Fairchild spokesman said "the plane's unique features for handling passengers, mail, express and cargo of varying size promise it a big role in the post-war air world."

The C-82, according to Paul J. Frizzell, assistant general manager, is a direct result of Fairchild's experience in cargo plane development begun 10 years ago with construction of the Army C-31, one of the first especially designed cargo-carrying planes for military service.

► **Small Plane Producer**—Fairchild in recent years has specialized in personal craft and utility designs of small and medium size. The company has produced upwards of 5,000 PT-19 primary trainers during the war and the UC-61 military liaison plane, the latter being a modification of the old F-24.

► **Restricted**—Details are restricted, but the plane is in the 50,000-pound class, about twice the size and capacity of the familiar Douglas DC-3. Take-off required only a part of the 3,000 and 5,000-foot runways at the Hagerstown airport.

The C-82 has a tricycle landing gear and when on the ground the bottom of the fuselage, which has a square interior, is the height of a truck platform to make for easy loading and unloading of cargo.

► **Design**—The after-end opens to the height and width of the interior. Tail assembly is on twin boom. Its position behind the fuselage is made possible by the gull design of the big wings.

PRIVATE FLYING

Port Operators Study Progress Of Rent-a-Plane, Air Taxi Project

Services established by Gerald Chatterton of South Dayton airport and Dayton School of Aviation expected to meet rising demand for plane and flying time by returned pilots who wish to continue air activities without necessity of buying planes.

By ALEXANDER McSURELY

Midwestern airport operators are watching the progress of the Dayton Rent-a-Plane and Air Taxi services, recently established by Gerald Chatterton, operator of the South Dayton airport and the Dayton School of Aviation. Chatterton, a former automobile dealer, has operated airports in the Dayton area for the last five years.

A pilot qualifying for rent-a-plane must have a private pilot's license, be checked out by an instructor from the flying school, and must contract to fly at least 50 hours a year. He can rent a plane for local flights for \$5 an hour, or at a cross country rate of \$5 a day plus 6 cents a mile.

► **Road Basis**—Cross country mile-

age is figured on a road mileage basis rather than by air miles, because of the more exact calculation. Plane renters fill out a form which also calls for signatures of operators of airports at which they stop on a cross country trip.

The same planes are used for the rent-a-plane service as for student flying, so that any ship on the line is available, either for flight training or renting, making a large pool of planes for both purposes. A budget plan for the pilots renting planes, permits them to pay \$50 down, and \$20 a month for 10 months, or a total of \$250 for 50 hours of flying. A pilot who does not fly the full 50 hours in a year, pays \$6 an hour.

► **Has 16 Pilots**—Chatterton now has 16 pilots signed in the rent-a-plane program, all graduates of his flying school, and believes the service offers a means of keeping private pilots interested in continuing their flying after they are licensed, even if they do not buy planes. He believes the service will take the place of flying clubs at his field, which he estimates costs the average member from \$3 to \$4 an hour.

At only a slightly higher cost the plane renter can have a plane available any time he wants it, he points out. The operator says the rent-a-plane plan is more economical, for any flyer who flies 100 hours a year or less, than the present cost of plane ownership, including insurance, hangar storage, depreciation, and fuel and maintenance.

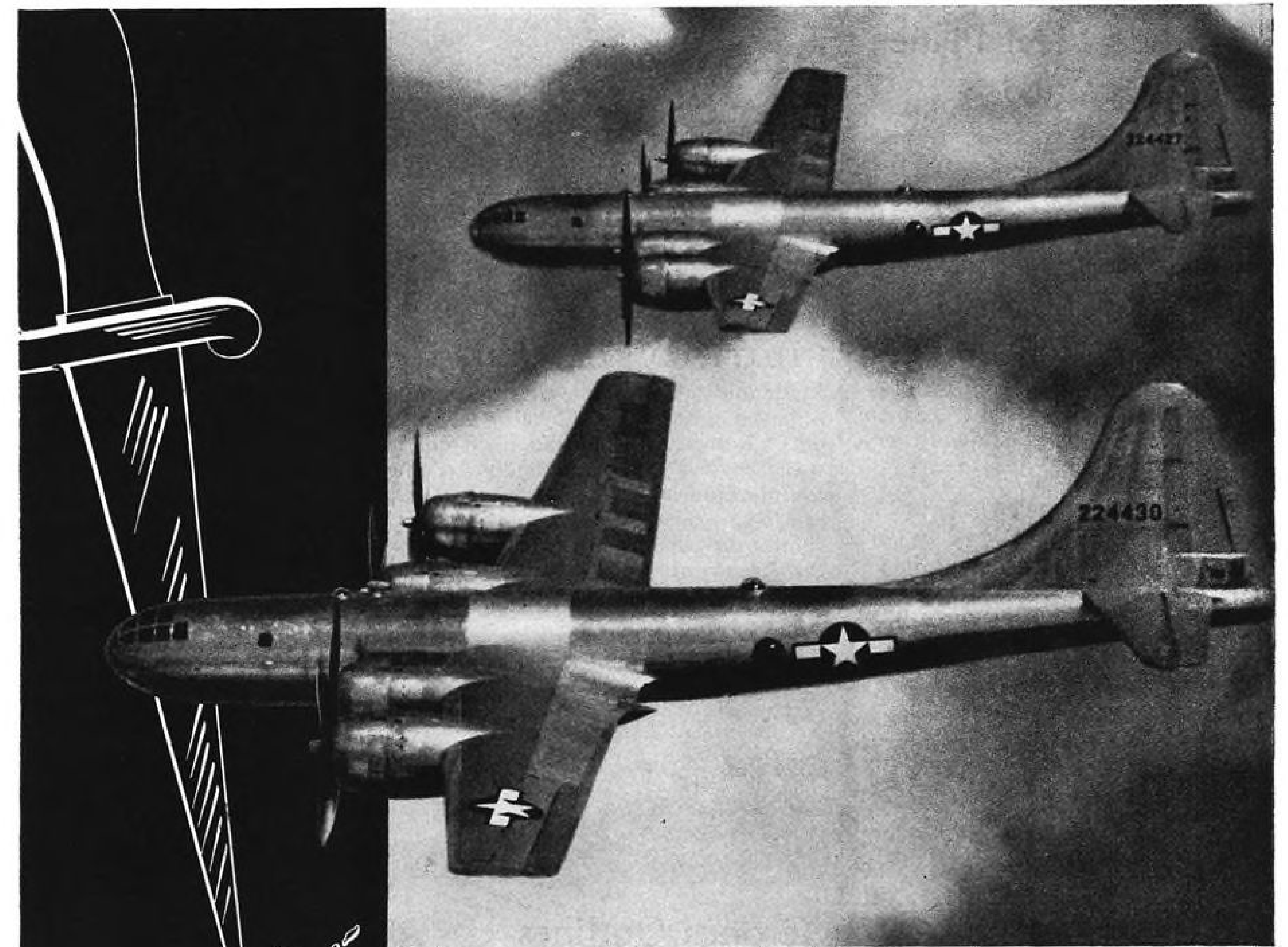
► **Air Taxi Service**—The air taxi service likewise operates on a mileage basis, using a two-place Culver to haul one passenger, and a four-place Waco for transporting two or three persons. Top rate is 30 cents a mile, for two or three persons, divided proportionately, while the single passenger rate is 15 cents a mile for trips up to 200 miles, with the rates scaling down for longer distances.

Still mindful of his automobile dealer experience, Chatterton is studying the possibility of a post-war plane and auto sales display building, on the Dixie Highway U. S. Route 25, which runs only a short distance from his flying field.

• O. M. Scott and Sons Co., Marysville, Ohio, has issued a booklet entitled "Airfields of the Future," which is being distributed through the Jay H. Maish Co., Marion, Ohio. It contains suggestions for building and maintaining turf areas for both large and small airfields.



Air Taxi, Rent-a-Plane Service Opened: Above, billboard advertising, near Wright Field, of the Dayton Air Taxi service, has brought emergency customers to South Dayton airport, home base of the air taxi. Photo below shows four-passenger Waco used by South Dayton airport for air taxi service to surrounding towns, while smaller light-planes are used both for rent-a-plane and flight instruction purposes. Gerald Chatterton, operator of the field, is seen in the control tower operating a flash gun signal.

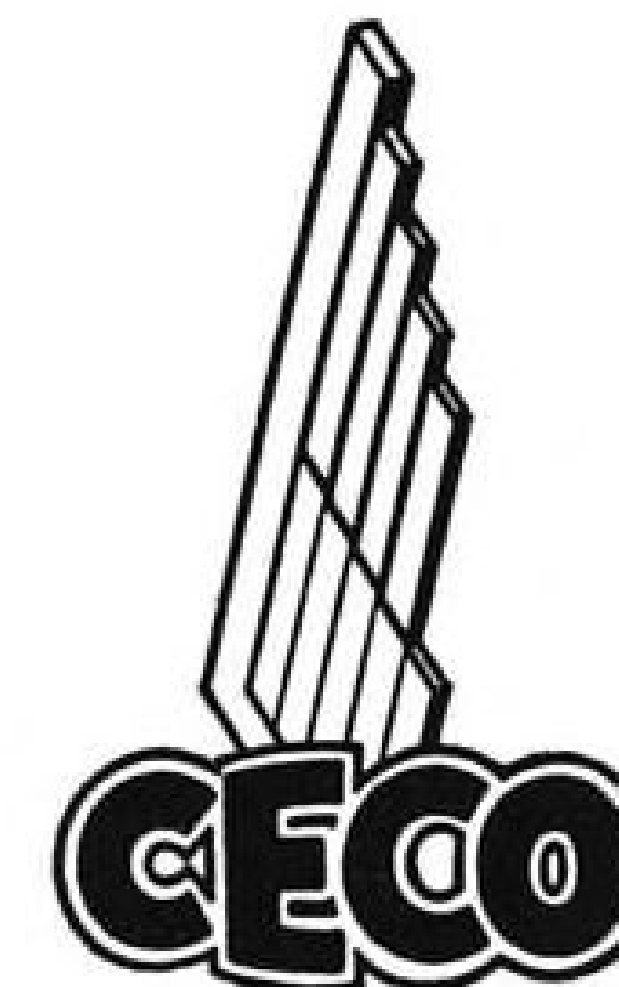


U. S. Army Air Force Photo of B-29 Superfortress

DAGGER-THRUST

where it hurts most!

The great B-29 Superfortresses are CECO equipped.



CARBURETORS
FUEL PUMPS
PROTEK-PLUGS

There is no sneaky, knife-in-the-back quality about the fierce stabs of these massive B-29 Superfortresses at the heart of Japan. The Nips expect them . . . warning systems tell when they're coming . . . fighter planes take off to meet them and ground defenses throw up a curtain of flak. But nothing yet devised can stop these sky-giants from delivering their loads of destruction *when and where it hurts most.*

The skill and genius that designed, engineered, and produced this "blitz on wings" is American to the core. It is typically American to build the most powerful and complicated flying mechanism ever assembled . . . and then put it into mass production. This means that each one of the thousands of component parts must be as technically and physically perfect as man and machine can make it. And further it means ceaseless seeking for new ways to achieve still higher standards of performance, stamina, and dependability.

The CECO carburetors and fuel pumps on the Wright engines powering the B-29 — and the CECO engineers and workers here at home — are living up to these specifications.

CHANDLER-EVANS CORPORATION
SOUTH MERIDEN, CONNECTICUT, U. S. A.

Public's Ideal Plane Specs Studied

New specifications for "Tomorrow's Personal Plane" are compiled by tabulating a survey of Aircooled Motors Corp., Syracuse, N. Y., Franklin engine manufacturer, which polled air-minded American men and women.

Of those questioned, twenty-four percent replied. Consensus of their requirements is sensible, not beyond reach of present manufacturing, but a little ahead of most designs thus far announced.

SPECIFICATIONS

Low-winged (51.3%); Mono-plane (87%); landplane (64.5%). Landing gear: retractable (68%); tricycle (51%).

Cruising speed: 115-125 (20%); 125-150 (39%); over 150 miles, (14%).

Construction: fuselage all-metal (55%); wing covering metal (48%).

Landing speed: 35-40 (33%); 40-50 (51%).

Seating capacity four persons (57%); baggage per person 25-50 (44%).

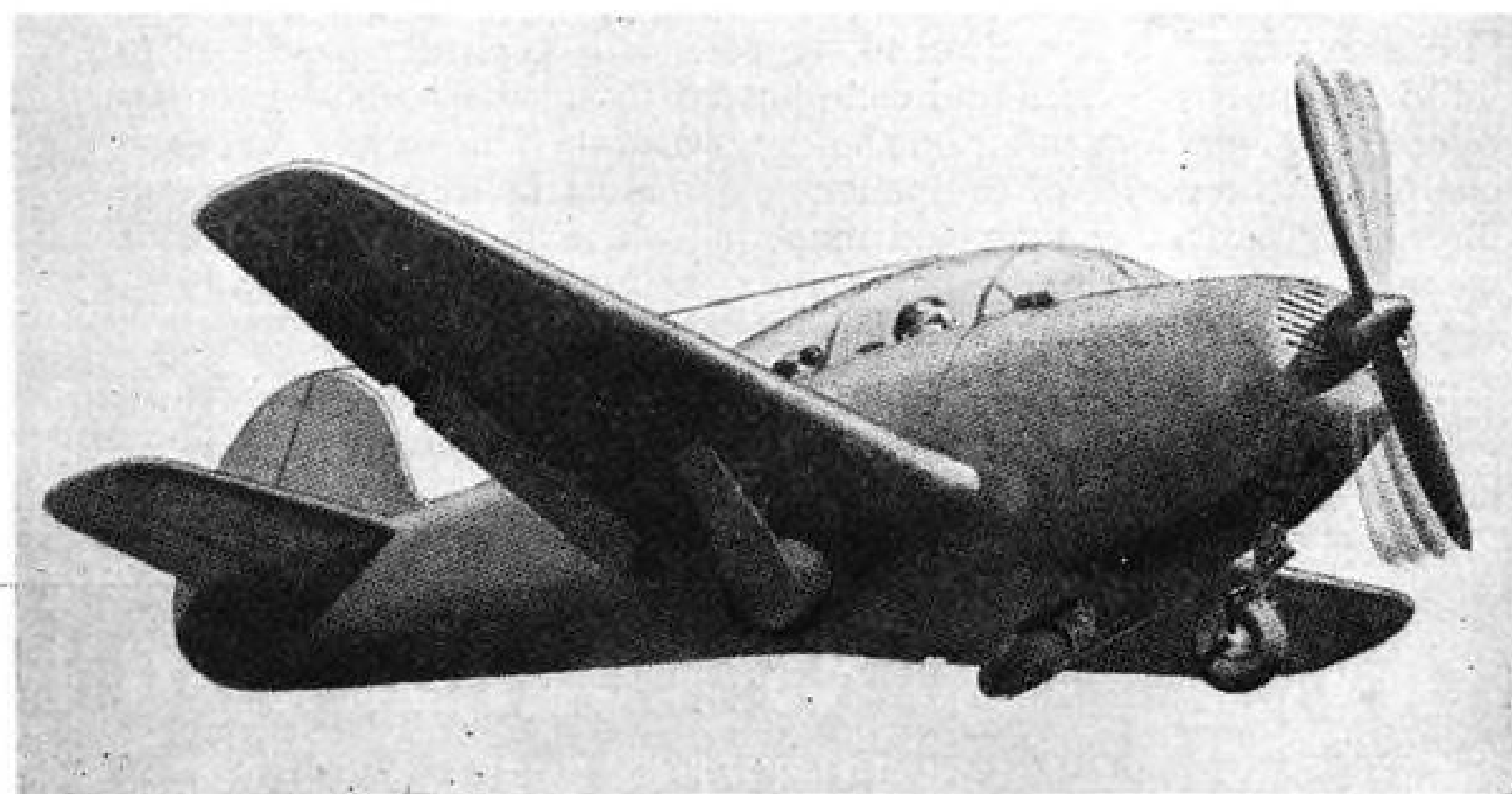
Engines: one, 65%; air cooled horizontally opposed (57%); 6 cylinders, (32%); horsepower, 100-125 (21%); 125-15 (21%).

Accessories: Electric starter and generator (96%); magneto ignition (61%); radio receiver and transmitter (82%).

Propeller: flight-adjustable pitch (49%); constant speed (25%).

Controls and safety devices: Flaps (75%); slots (37%); two-control (coordinated rudder and aileron) (31%); conventional control (53%).

Price: \$1,500-\$2,000 (22%); \$2,000-\$2,500 (26%).



Replies to Franklin survey specified plane like this



UTILITY, COMFORT STRESSED IN NEW AERONCAS:

Sleek low-wing Aeronca Arrow, below, now flying as a plastic bonded plywood prototype, will be of metal construction when production begins. Retractable landing gear gives it high performance, with top speed around 140 mph. Newly designed Aeronca Tandem, above, offers considerable improvement in aerodynamic cleanliness, economy, speed, comfort, ease of operation, shortened landing and takeoff runs, over similar pre-war planes. Tentative price quotations, around \$2,000 for the Arrow, around \$1,000 to \$1,500 for the Tandem, depend on quantity production.



Aeronca Outlines New Sales Plan

Merchandising program seeks to put lightplane marketing and small port operation on more scientific basis.

Reducing the heretofore haphazard business of personal plane merchandising and small airport operation to a system is the goal of a post-war merchandising plan of Aeronca Aircraft Corp.

Emphasizing rehabilitation of the returned service man by en-

couraging his participation in lightplane sales, the plan also seeks to provide opportunity for war workers and others who may not have other employment when re-conversion comes.

▶ **Handbooks**—Three handbooks, "How to Make Small Airports Pay," "Why You Should be an Aeronca Dealer," and "Aeronca, the Plane You'll Want to Fly," are ready for distribution to prospective dealers, and a fourth, "The Airplane Dealer's Handbook," is in preparation.

Company distributors and representatives are prepared to assist prospective dealers in surveying market areas. Model bookkeeping systems are set up. Promotion work to whet the public appetite for flying and aircraft ownership is outlined. A new insurance plan, which the company says "will effect a very substantial saving in insurance premiums to future purchasers of Aeronca planes," is to be offered, backed by "a group of some of the largest mutual insurance companies in the world, with assets of approximately \$100,000,000." While educational aircraft exhibitions are encouraged, the plan frowns on a return of the "daredevil flying circus of yesteryears."

The Birdmen's Perch

HAVE YOU GOT ONE OF THESE?

Know all men BY THESE PRESENTS

THAT

E. B. McClung

having demonstrated an unusual, superior, and mystifying knowledge of things aeronautical, and having made this superior knowledge available to less informed signmen through the BIRD MEN'S PERCH, thereby contributing to the LORE AND ADVANCEMENT OF AVIATION, is hereby commissioned

PERCH PILOT (Bottom Rung Grade)

and is therefore entitled to the courtesies and privileges suitable to his exalted rank, as well as deserving the instantaneous and respectful attention of all and sundry airborne signmen.

SIGNED: *Al Williams*
CHIEF PERCH PILOT

SIGNED: *Flatten*
AVIATION CHIEF PERCH PILOT

If you haven't, it's your own fault.

Because all you have to do to get one, is to send us a Little Known Fact About Well Known Planes that's good enough to print. Like this one from E. B. McClung, of Kessler, West Virginia:

The seven-ounce wing rib of a "putt putt" can withstand a load of 800 lbs.!

Four more items, McClung, and you'll rate a promotion to Senior Perch Pilot. A Little Known Fact like this will do the trick:

The wing span of the B-29 is 20 feet greater than the distance covered (121 feet) by the first successful airplane flight!

Okeh. Now it's your turn. Send your L.K.F.A.W.K.P. to:

Major Al Williams,

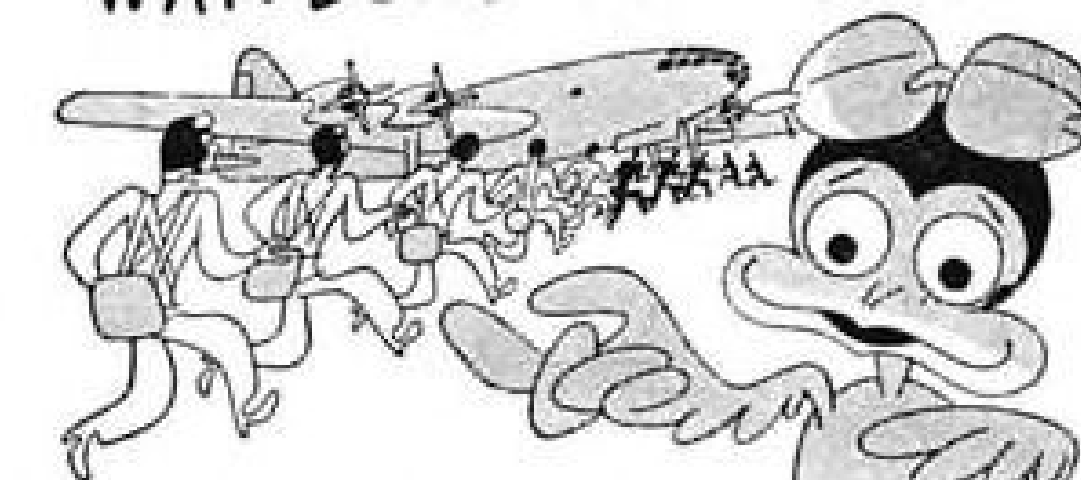
alias "Tattered Wing Tips," Gulf Aviation Products Manager, Gulf Bldg., Pittsburgh 30, Pa.

THE FEATS OF 2 FEET...

The B-29 airfoil does a tremendous job of lifting!

It carries more weight per square foot of surface than any wing ever built. This was achieved by designing a wing—and then practically adding another wing in the form of huge flaps! In flight, the

THE HEAT'S ON THE CREWS OF THE B-29'S TOO. HOW ABOUT ANOTHER WAR BOND FOR THEM?



flaps are not in evidence. But when the heat's on—take offs and landings—they add a whale of a lot to the performance of the wing.

Gulfpride Oil does a tremendous job of lubrication!

It carries terrific weights per square foot of surface in preventing metal-to-metal contacts. We add to this lubricating ability by refining crudes—and then practically adding another refining in the form of the Alchlor Process! In normal operation, this additional refining step may not be in evidence. But when the heat's on—take offs, climbs, and other "extra-load" operations—the Alchlor Process adds a whale of a lot of lubrication to Gulfpride!

Gulf Oil Corporation and Gulf Refining Company...makers of



OIL IS AMMUNITION—USE IT WISELY

SOFT, WET CARBON ON A SPARK PLUG MEANS A CYLINDER NEEDS ATTENTION.

BEGIN BY CHECKING THE RINGS IN THAT CYLINDER, REPLACING IF NECESSARY.

YOU CAN'T GET FULL ENGINE PERFORMANCE WITH BAD RINGS NOT EVEN WHEN YOU USE...

... THAT GOOD GULF AVIATION GASOLINE

Huge Post-War Lightplane Market Shown in Crowell-Collier Survey

Study reveals that 48 percent of 2500 persons polled plan to buy plane or helicopter; 39 percent of civilians prefer roadable aircraft; military flyers 78 percent in favor of conventional.

Findings of the Crowell-Collier Publishing Co.'s new study on "Tomorrow's Customers for Aviation" are of particular interest to personal plane manufacturers, distributors, fixed base operators and private flyers, since a large portion of the study is devoted to the post-war personal plane market.

Interpreters of the tables and charts, however, must not lose sight of the background factors supplied with the study, or they are apt to make some erroneous conclusions.

► **2,000 Civilians Polled**—The study was made by polling approximately 2,000 civilians from the upper 50 per cent of the urban population in terms of income and living standards, and a group of 500 Army and Navy flyers. Many students of post-war private flying believe a large factor in the market will be the residents of rural areas and small communities in the West and Midwest, which apparently were not polled.

Analyzing the intent to buy a personal plane after the war, the study shows 1 percent of the group expects to buy an airplane first after the war, before any other major purchase, and 2 percent will buy an airplane second, while 10 percent expect to buy a plane, and a total of 48 percent expressed some interest in owning a plane or helicopter in the future. At first glance the report appears discouraging, but it is pointed out that the group surveyed is a sample of 10 million families. When the 3 percent represented by the first and second groups is applied to the 10 million families the finding indicates a market for personal planes amounting to approximately 300,000, far above any pre-war markets. Peak years for plane registrations in this country, 1942, showed only 24,836 planes registered.

► **Roadable Plane in Demand**—Civilian public preference for a combination automobile-airplane, over either the helicopter or the conventional plane indicated by the study, should serve as a spur to roadable plane builders. Thirty-nine percent favor the roadable

combination as compared to 26 percent voting for the helicopter and 31 percent for the conventional plane. The military poll, however, shows 78 percent favoring conventional planes, 11 percent for the roadable plane and 8 percent for the helicopter. Significant, too, is the finding that 83 percent of civilians wanting helicopters and 77 percent of those wanting roadable planes prefer to wait five or six years after the war to get the vehicle of their choice, if it is not available until then, rather than buy what is available immediately after the war.

► **\$2,000 Ceiling Favored**—Only 11 percent express willingness to pay more than \$2,000 for a plane. For maintenance, fuel storage and repairs, the median estimate is \$50 to \$59 a month. Sixty-eight percent of the civilians and 60 percent of the military flyers ask for four or more seats in their planes, but a majority in both groups indicate they will accept a minimum seating of two persons in the plane, if necessary.

As might be expected, the military flyers want higher speeds than the civilians, while taking into consideration higher cost of opera-

tion. A speed of 100 mph at two cents a mile is selected by 37 percent of the civilians and only 13 percent of the military group, while 26 percent of the military group ask for a top speed of more than 150 mph, as against only 12 percent of the civilian buyers asking for such a speed.

Other significant indications of the study:

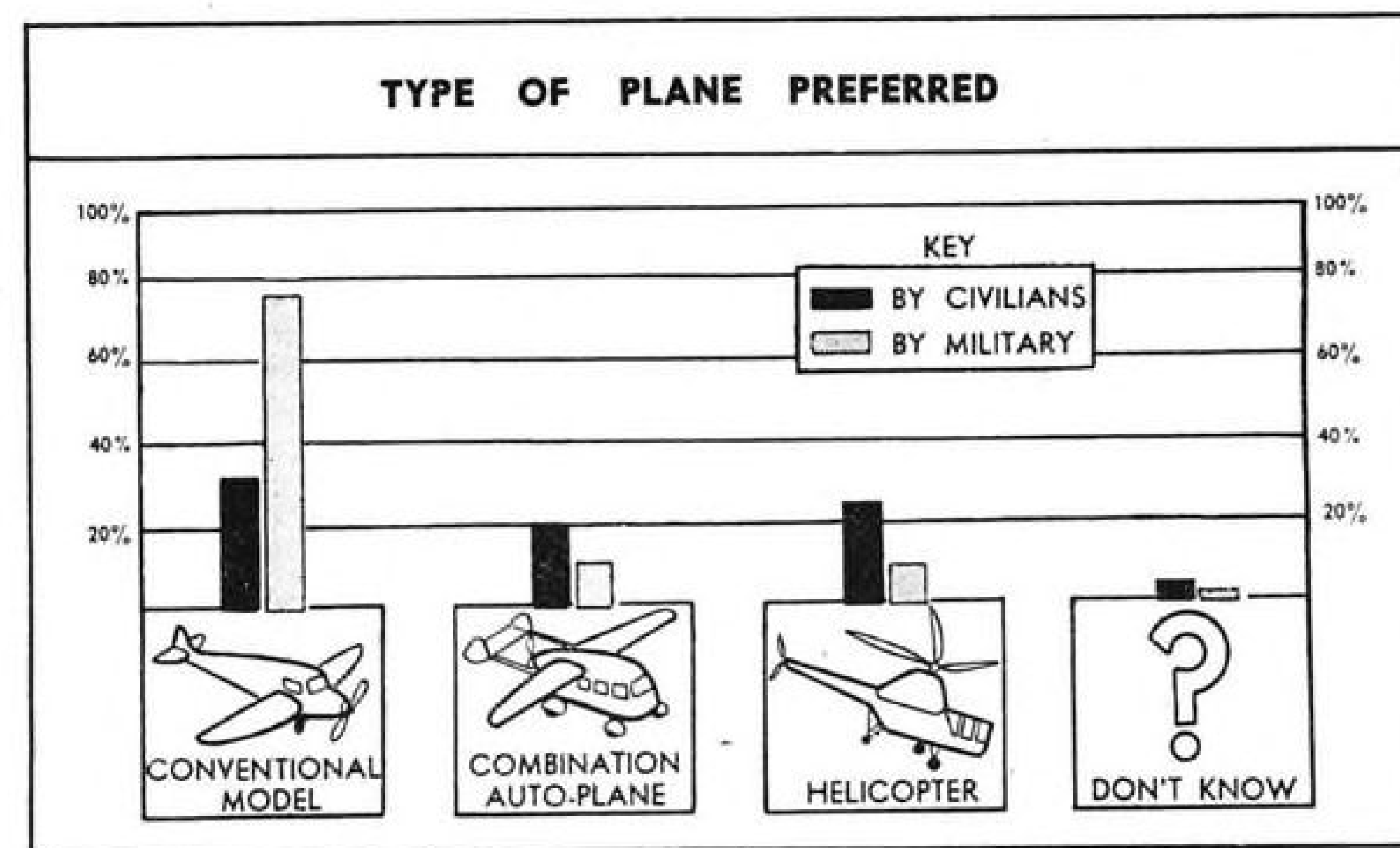
► Eighty-five percent of the military group interviewed want planes after the war, with an additional 6 percent who might be interested under favorable conditions.

► Of civilians living 30 minutes or more from the nearest airport, 27 percent say development of an airport nearer their homes would increase their interest in private flying.

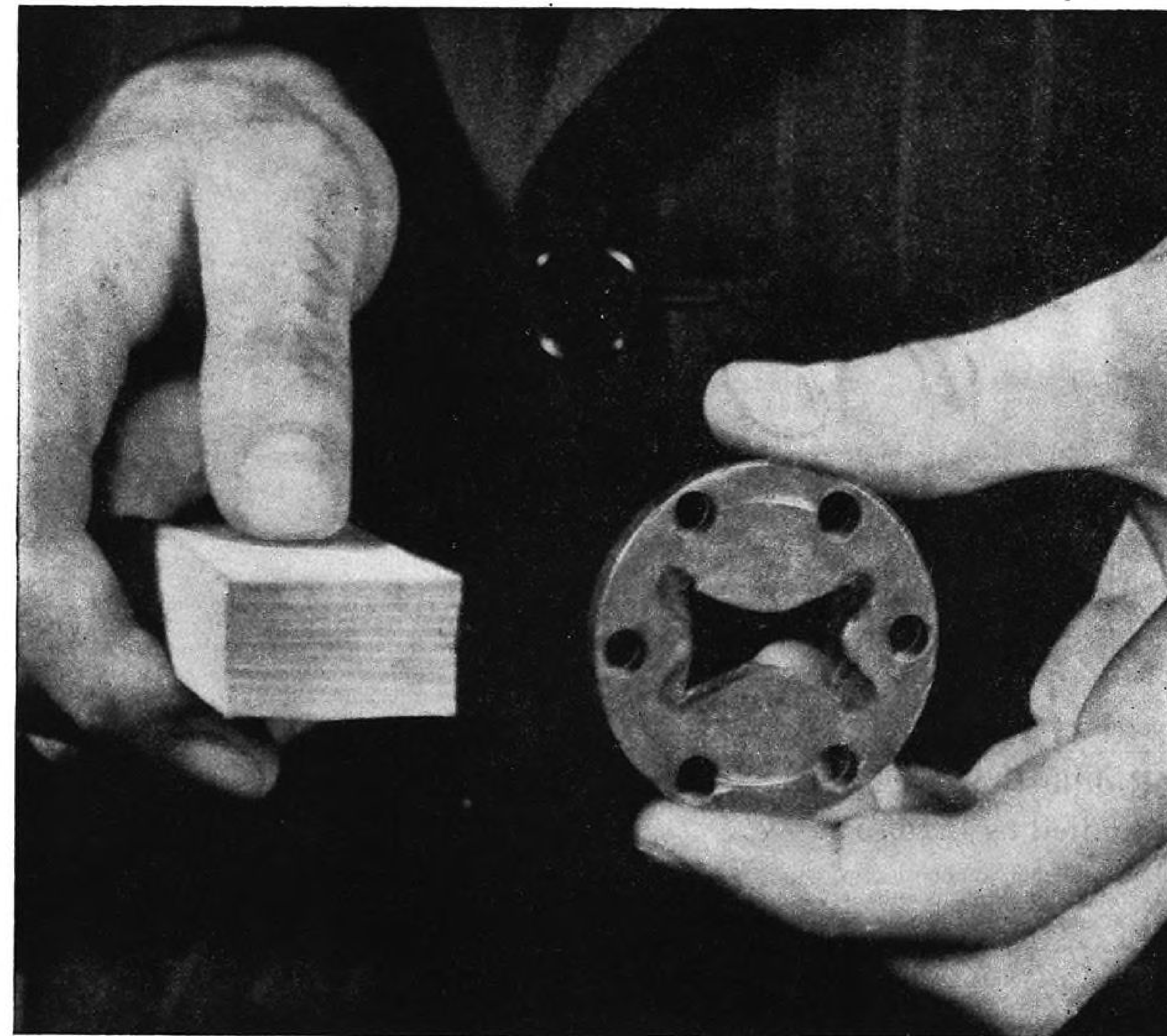
► Asked if they would buy a plane in place of a car or in addition to a car, 84 percent said the plane purchase would be in addition to the car.

► More men than women want to own planes, with 45 percent of the men interviewed, and 31 percent of the women expressing a desire to own aircraft.

Among the 1 percent who expect to buy a plane before any other major purchase after the war, 50 percent expect to make the purchase within a year and a half after V-day. More than one-quarter of the military group (27 percent) and only 9 percent of the civilians who had indicated any interest in ownership, think they will be ready to buy a plane within six months after the war.



Roadable Planes Preferred: Crowell-Collier study on post-war aviation markets indicates a preference by the civilian public for roadable planes (combination auto-airplanes) over conventional planes or helicopters, as shown by the above chart.



Like a square peg from a round hole . . .

You have to know what rubber will do before the die is cast

ONE GUN TURRET leaked when it rained until a special sealing strip was developed . . . and extruded. The odd shape of the seal was engineered by men at B. F. Goodrich who have been solving problems like it—with extrusions—for dozens of aeronautical applications.

"Extruding" is a process where rubber—natural or synthetic—is pressed through precision dies to emerge in a desired shape and form. Designing these dies requires careful engineering

planning due to the peculiar flow characteristics of the rubbers used. As shown above, dies often look a lot different than the strip that comes through them.

Another important factor in successful extruding is a thorough understanding of both natural and synthetic compounds. For when compounds change, the shape of the extruded piece may change, due to differences in the amount of swell. Dies must be revised to allow for these differences. You have to know rubber—what it will do and how it will flow—to make successful extrusions.

Although B. F. Goodrich dies already available cover thousands of different shapes, each new application is studied to be sure that the best re-

sults are obtained. If a custom-built die is needed, blueprints are made and the special shape is produced.

The applications of extruded seals are practically unlimited. So if you have any problem that you think might be solved with a ring, tube, strip, or packing, write to *The B. F. Goodrich Co., Aeronautical Division, Akron, O.*

Skyway or Highway
B.F. Goodrich
FIRST IN RUBBER



AVIATION MEN DISCUSS SOUTH'S AIRPORT PROGRAM:

Nationally-known aviation men attending a recent Southeastern Airport Conference at Auburn, Ala., were (right) Ed Nilson, Beech Aircraft; W. T. Piper, president of Piper Aircraft; J. Kirk Baldwin, airport consultant of the CAA; Tom Eve, of Southern Airways. At left are E. W. Stanford, Alabama aviation

director; Capt. Guillermo Sarria, who is studying American airport construction for the Peruvian government; John L. Sutton, Delta Airlines; D. R. Yarbrough, South Carolina airport engineer; and Steadham Acker, Birmingham (Ala.) airport manager and aviation consultant to Oklahoma City.

Riddle Brazil School Studied as Pattern

Washington authorities expect other similar plants to be set up to aid South American neighbors in aviation.

Top Washington aviation authorities are watching development of John Paul Riddle's school for aircraft technicians in Sao Paulo, Brazil, where classes of Brazilian students now are being graduated at two-week periods from a student body of 600, built up in less than a year.

These Washington sources believe that the Riddle school is only setting a pattern for many other such schools. The careful selection and training of American instructors is based on a long-term policy of building up South American technical aviation schools as a means of providing the countries to the south with basic technicians for a greatly-expanded air service.

► **Reported Backed By Arnold** — Mechanics and aviation technicians now are being turned out of Riddle's school, the Escola Technica de Aviacao, and some details of the school's background and significance were disclosed only last week when it was reported that it had the backing of Gen.

H. H. Arnold, commanding general of the Army Air Forces, and civilian aviation authorities.

The Escola Technica was organized at the request of the Brazilian Air Minister, Dr. Joaquim Pedro Salgado Filho, who also has played a large part in the construction of an aircraft engine plant and an aircraft manufacturing plant in that country. Dr. Salgado Filho visited this country in the summer of 1943 to seek assistance with the school project, which forms part of the program of building up the Brazilian Air Force as one of the United Nations forces.

Brazil was taking over anti-submarine patrols in South Atlantic waters, had been freed from dominance of Axis airlines in its domestic commercial aviation and was laying the groundwork for general industrial development of the country. The Brazilian Air Force largely consisted of American Lend-Lease planes and it was imperative that Brazilian mechanics and technicians be trained in American methods and standards.

► **Patterned After Miami School** — Mr. Riddle was selected to guide establishment of this first school and direction of its training along lines followed in the Embry-Riddle School in Miami, where close contact already had been formed

with South American countries.

Instructors were chosen and trained in Miami while construction of the school was under way in Sao Paulo. First students entered in November of last year and the first class was graduated from a school now run by 150 American instructors in August of this year.

► **More Instructors Trained** — Additional instructors still are being trained in Miami for the South American work, which has become so important that Mr. Riddle sold out his interests in the Embry-Riddle school to organize a new company expressly formed to handle the details of technical schools in South American countries. This is the J. P. Riddle Co., which has headquarters in Miami.

The school is considered in Washington to be only the first step in helping South American countries in the building of air service patterns. They forecast that other such schools will be necessary, that pilot training programs will have to be started and that instruction of South American students in air traffic control, airport management, airways operation, radio construction and operation and other phases of commercial aviation will be extended in cooperation with these countries through aviation missions.

Green Light TO A THOUSAND PLANES

"Flight 232 calling airport, come in airport. Over".

"Airport to Flight 232, this channel open for you. Over".

"Flight 232, we are now a hundred miles due south, can we have landing instructions? Over".

"Airport to Flight 232, time check—now 10:24, land 10:39, south to north runway six, beam four. Will clear 10:38, time check. Over".

"Flight 232, time checked, land 10:39, orders clear, Roger".

Federal, long recognized as a manufacturer of better vacuum tubes, now leads with new production methods resulting in still greater tube efficiency and length of life. Everywhere, it's Federal tubes for superior transmitting and industrial power performance.



Not much different from the way planes come into the major airports right now, is it?

But tomorrow the traffic will be greater than ever. More traffic in the air will require accurate ground and aerial traffic control, to carry instructions from ground to air to ground.

That is a job for Federal. Here in one compact research and manufacturing organization is centered the know-how to design and manufacture complete air-traffic control systems.

Federal Aerial Navigation Equipment is even now guiding air liners from takeoff to landing. And new developments are being invented and tested to increase aerial safety

—to give a green light to a thousand planes, as fast as they come and go.



Federal Telephone and Radio Corporation



Newark 1, N. J.

THE AIR WAR

COMMENTARY

Jap Inner Defenses Softened For Next Allied Penetration

Improved Nipponese warplanes ready to meet advancing U. S. forces; American technical advantage less than year ago.

The next few weeks will see some solid advances from the outer perimeter toward Japan's inner empire line—Japan-Formosa-Luzon and the Bonin Islands. MacArthur's men with Kenney's flyers and Kincaid's 7th Fleet will start their northward hop to Mindanao, while Spruance's 5th Fleet and Halsey's 3rd will move in from the Central Pacific. Japanese air power has all but collapsed in New Guinea and the Halmaheras, in the Marshalls and eastern Carolines, and is rapidly deteriorating in the western Carolines and southern Philippines, as evidenced by recent Naval task force and 13th Air Force attacks on Yap, Palau and adjacent bases, and almost uncontested 5th Air Force attacks on Mindanao.

Her carrier-based aviation has been practically wiped out, the *coup de grace* having been delivered by the ubiquitous Task Force 58 in the furious battle of the eastern Philippine waters last June. However, Japanese air power on the heavily equipped bases in Luzon, Formosa and the islands of Japan proper may be expected to put up a tough fight. Pilot losses have been serious, but the aircraft have been radically improved.

Planes of Early Conquests—Many of the early models with which the Jap Army and Navy pilots were equipped have disappeared from the scene. These include such fighters as *Claude* (Navy Type 96), *Nate* (Army Type 97) and *Zeke* Mk. I (the original Zero); such medium bombers as *Nell* (Navy Type 96) and *Sally* (Army Type 97); the torpedo bomber *Kate* (Navy Type 97) and dive bomber *Val* (Navy Type 99). Based on the Japanese calendar (2596 to 2600) these type numbers indicate that these aircraft were placed in service between 1936 (type 96) and 1940 (type 00).

Engines used were copies of Pratt & Whitney radial air-cooled engines such as the Hikari and Kotobuki (9-cylinder, 650 to 900 hp.) and early models of the Kinsei and Sakae (14-cylinder, twin-row, 950 to 1,050 hp.). As is well known, these planes featured the lightest possible construction, with a minimum of equipment for the pilots. Armor protection and self-sealing fuel tanks was regarded as just so much excess weight, and a high proportion of magnesium contributed to make these early models flying coffins for Jap airmen. Fire-power was also light, 7.7 mm. (.30 cal.) guns being standard equipment.

New Fighters—During 1942-43 *Zeke* Mk. 2 and a clipped-wing version nicknamed *Hamp* were equipped with Sakae 21 engines of 1,150 hp. and greatly improved 20 mm. cannon, but still no armor or self-sealing fuel tanks. These features first appeared on the Army fighter *Oscar* Mk. 2 in rather crude form, with improvements found in the later series and in the still newer Army fighters *Tojo* (Type 2) and *Tony* (Type 3). *Tojo* is powered by a Nakajima Type 2 radial engine of 1,400 hp., and *Tony* by a Kawasaki 12-cylinder liquid-cooled inverted V engine, similar to the German Daimler-Benz 601, with injection pump of Japanese design.

These two fighters roughly correspond to the German *Focke-Wulf* 190 and *Messerschmitt* 109, and are highly respected by our Navy and Army Air Force pilots. Latest *Tojo* armament consists of six 12.7 mm. (.50 cal.) machine guns; top speed is around 380 mph. and 4-bladed propeller has been reported. All these fighters are also used as fighter-bombers, carrying bombs under the wings, or plywood type jettisonable fuel tanks when required as long range fighters. A formidable twin-en-

gine ground attack and night fighter is known as *Nick* (Type 2) and is armed with 12.7 mm. guns and one 37 mm. cannon. Type 2 (short for 02, Japanese year 2602) means put into service in 1942; Mark 2 means an improved model.

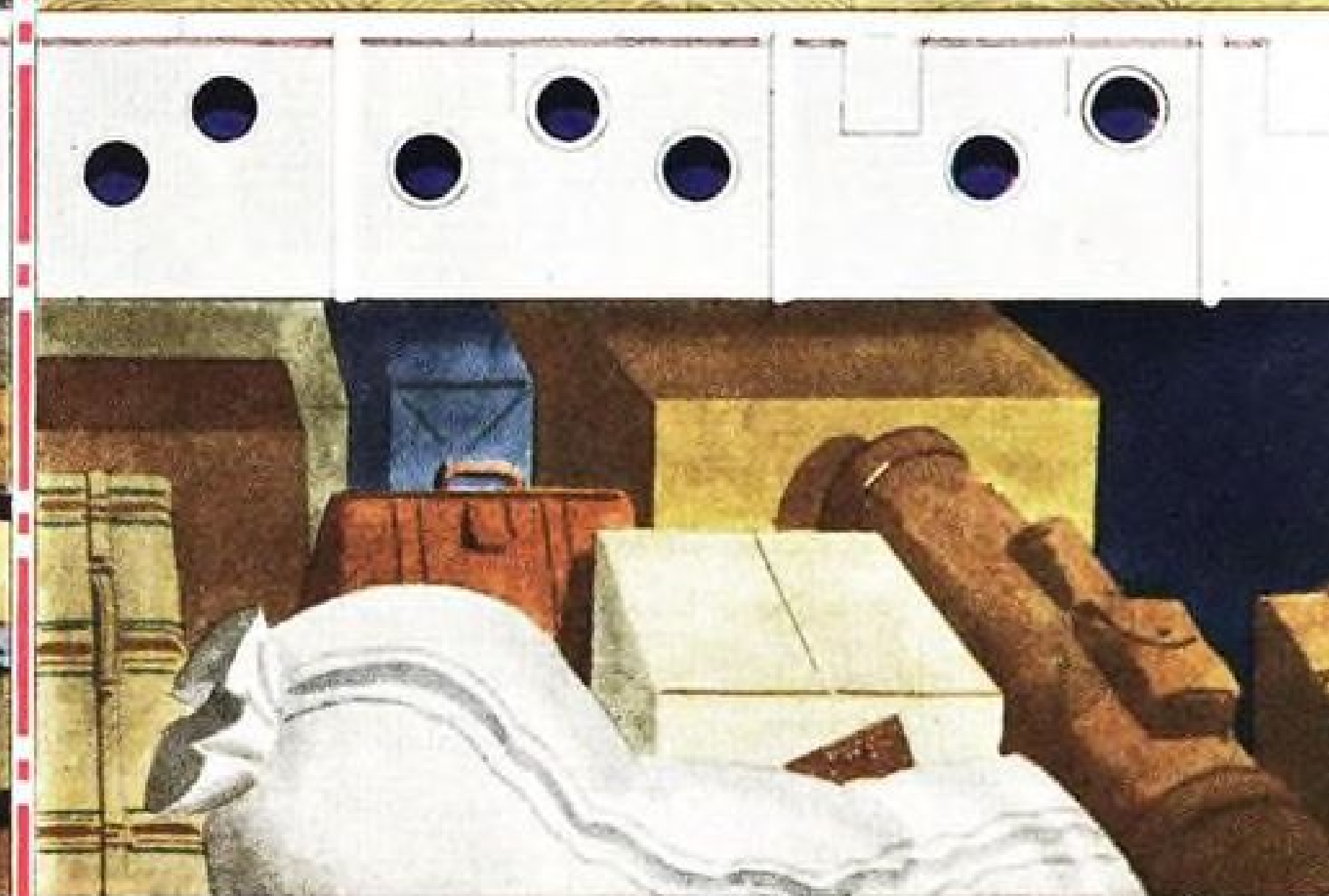
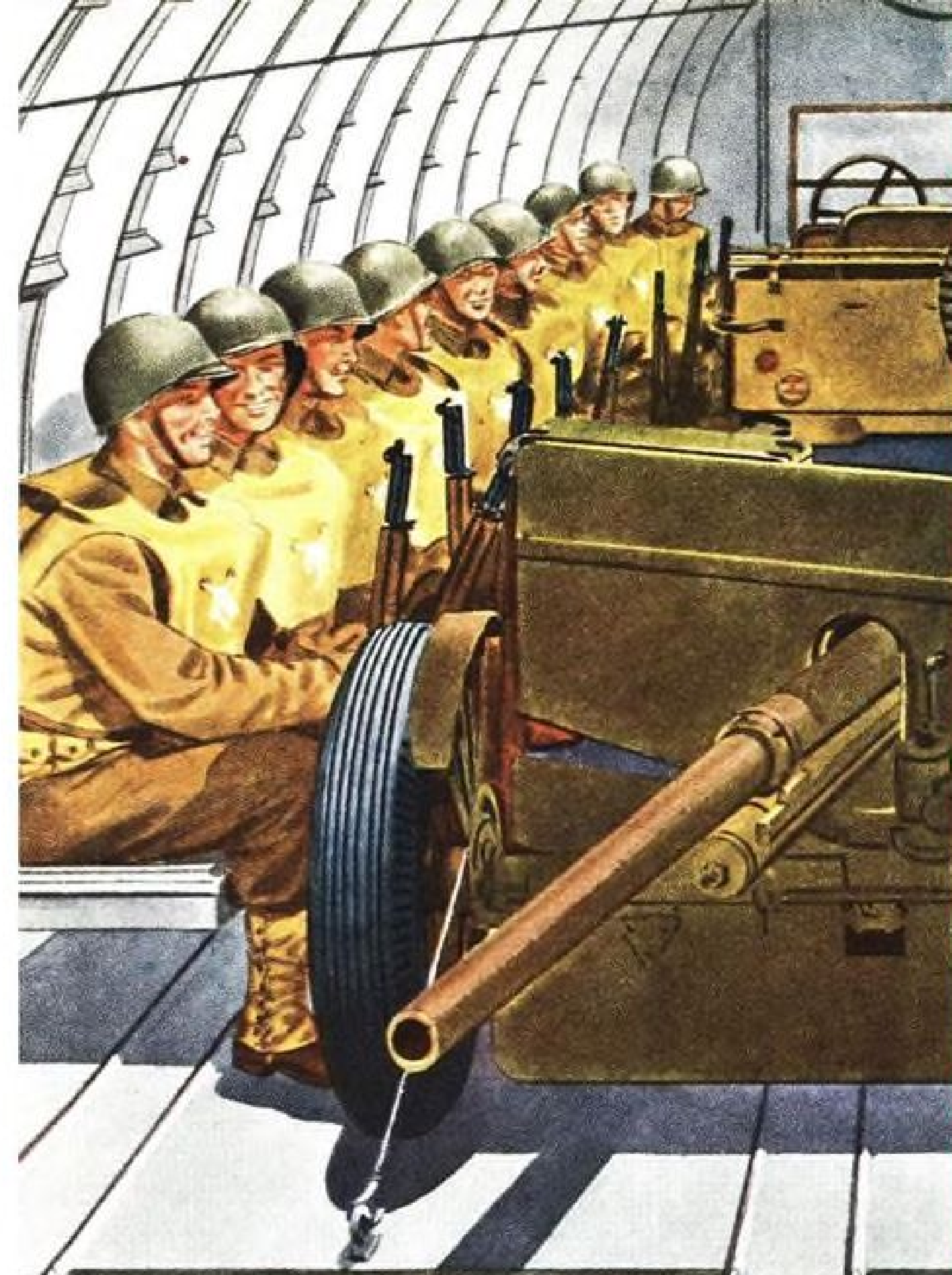
Better Bombers—The early Navy medium bomber *Nell* has been largely replaced by *Betty* (Navy, Type 1), an airplane in the same class as our B-25 and B-26, although not so rugged nor so heavily armed as the latest models of these hard-hitting American bombers. Army's *Sally* Mk 3 is replacing earlier models, and a new Army bomber in the same class is *Helen*.

An early Army light bomber named *Lily* (Type 99) is being replaced by Mk 2, with heavier armor and fire power. Up to recent months it was not known for certain if the Japanese had any 4-engine heavy bombers in operational use, apart from the flying boats *Maxis* and the newer *Emily*. The existence of a land-based heavy bomber has now been confirmed, but no details as to size and performance are yet releasable.

Further Improvements—Recent reports indicate the use of heavier armor plate, bullet-proof glass, better quality self-sealing fuel tanks and improved oxygen equipment. All this spells increased concern for the Jap pilots. Engines up to 1,600 hp. and more are being installed, some with extremely ingenious booster devices, including water injection. An 18-cylinder radial engine of well over 2,000 hp. has been developed and may appear in new or improved fighters and bombers early in 1945.

Radio gadgets have been improved and the use of radar has been confirmed. New type turrets and electrically controlled guns have been added. There seems to be considerable evidence to substantiate Secretary Forrestal's recent statement that, although U. S. Navy planes have been improved, we do not now have as great technical advantages over the enemy as a year ago.

Those Odd-sounding Code Names—It may be of interest to trace the origin and usefulness of the colorful code names for the various Japanese aircraft, and this will be the subject of a forthcoming article. The whole system is now being revised by the newly organized Technical Air Intelligence Center, Anacostia, Washington, D. C., under a combined Army, Navy, British arrangement. —NAVIGATOR



PROVEN IN WAR — FOR PEACETIME PERFORMANCE

In war the Curtiss Commando has established itself as a major instrument of transportation. It has hauled personnel and supplies of all types wherever the need has been critical—often under most unfavorable flying conditions.

Evolved from an airline design, the Commando will be available for commercial

operation as soon as the strategy of war permits. Its conversion into a luxury airliner or a cargo carrier will be speedy. This will help to bridge the gap between war and peace by providing jobs for the men and women who build and operate these transport airplanes. Look to the Sky, America!

Curtiss-Wright Corporation, Airplane Division.

Curtiss Commando

Low Bidder For Tomorrow's Air Commerce

Hundreds of Aviation Cadets are moving onto "the line" in their flying togs every day at Southeastern Air Service, Inc.



operated by Southeastern Air Service, Inc. Life in a Civil Contract school is one of a highly organized routine from dawn to dusk . . . with morale high and a spirit of teamwork and comradeship which is instantly recognizable as an outstanding American characteristic contributing to the success of our Armed Forces.

★ ★ ★ ★ ★ ★ ★ ★

**SOUTHEASTERN
AIR SERVICE, INC.**

Formerly GEORGIA AIR SERVICE, INC.

★ ★

Joseph E. Lowes, Jr., (photo), director of public relations for Fairchild Engine and Airplane Corp., Hagerstown, Md., has been named chairman of Yale University's alumni war service, succeeding **R. H. Macdonald**, recently appointed chairman of the

Bruce F. Barclay (photo) has been named city traffic manager for Mid-Continent Airlines' new city ticket office in Omaha which will facilitate handling the increasing volume of air passengers originating there now and to prepare for the additional growth expected by the company. **Flora McLean** will be ticket agent. She was formerly employed in Western Airlines' Los Angeles city ticket office.

Jack C. Wilson, former senior administrative officer of the U. S. Army Signal Corps production field office in San Francisco, has been appointed Pacific district manager for the radio division of Bendix Aviation Corp. He will be stationed in San Francisco.



Snodgrass

George Stevens Roper, chief, air transport section, aviation division, Department of State, is giving a course on air transportation at the School of Foreign Service at Georgetown University during the coming term. The course will be divided

Col. Harry C. Short has been named manager of Continental Air Lines' modification center in Denver, replacing **Stanley R. Shatto**, who has returned to Continental as vice-president in charge of maintenance and engineering. Short will assume direction of the center after being placed on inactive status with the AAF. He has been commanding of-

Muller

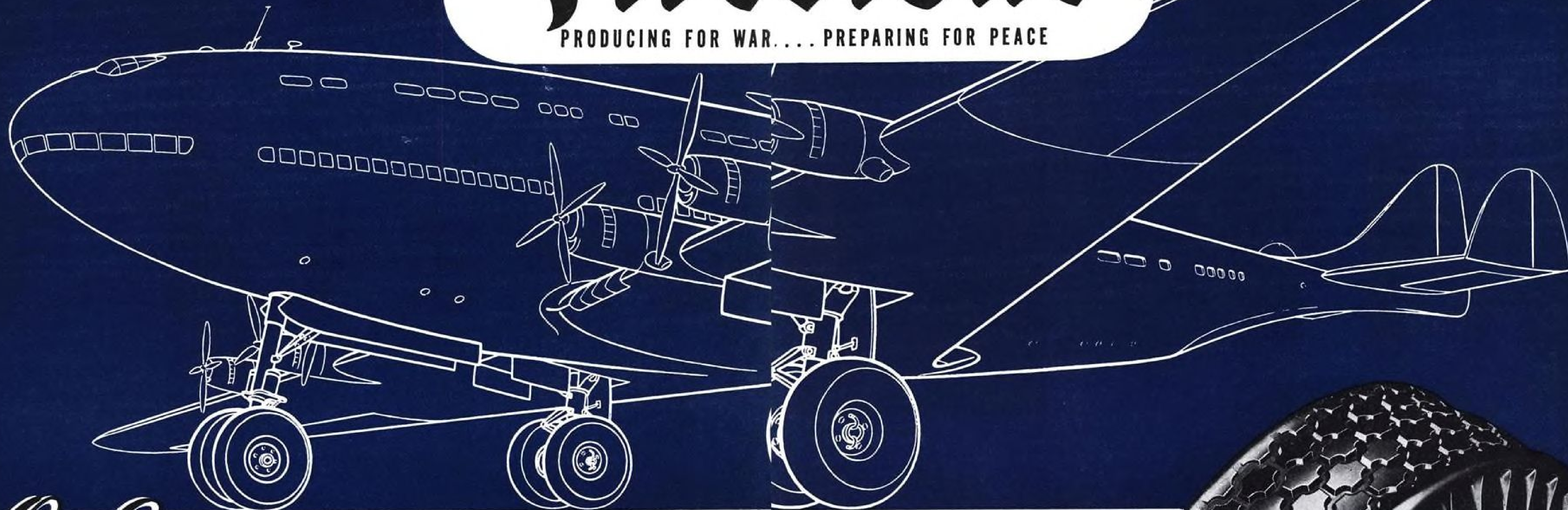
John K. Boyle, former executive adviser to the vice-president and general manager of Lockheed Aircraft Corp., and chairman of the company's contract termination committee, has been appointed director of readjustment services of the Aeronautical Chamber of Commerce. Boyle will supervise the preparation of analyses, reports and recommendations on contract termination, renegotiation, surplus disposal, market development and related industry problems. In addition he will direct the industry coordination and government liaison with respect to these matters.

Russell F. Jacques, of the engineering staff of Laister-Kauffmann Aircraft Corp., St. Louis, Mo., recently was elected director of the Plains division of the Society of Aeronautical Weight Engineers. Jacques is chief of weight engineers at the Laister-Kauffmann plant.



Firestone

PRODUCING FOR WAR... PREPARING FOR PEACE



Of Course YOUR NEW PLANE WILL BE SAFE IN THE AIR *But* **HOW ABOUT ON THE GROUND?**

TOMORROW'S passenger and cargo planes will fly the skyways of the world. They will touch their wheels upon the soil of many countries. But not every airport will be as smooth or as safe as La Guardia or Croydon or Le Bourget. Many emergency fields will be little better than clearings, often small and covered with mud. And tomorrow's planes must be able to land and take off safely on the WORST of these fields as well as on the best of them.

That is why so many aircraft designers have their eyes on the Channel Tread Airplane Tire, developed and pioneered by Firestone. They know that this remarkable tire gives maximum flotation and superior traction on wet and muddy fields and permits quicker braking on landing. They know it has been tried and proved on combat planes operating out of all kinds of fields during the war and that it is famous for long life and dependability.

Would you like full information about Firestone Channel Tread Tires for your postwar planes and plans? A letter, wire or phone call will bring a trained Firestone aircraft engineer without obligation.

Listen to the Voice of Firestone with Richard Crooks and the Firestone Symphony Orchestra, under the direction of Howard Barlow, Monday evenings, over N. B. C.



FIRESTONE AIRCRAFT COMPANY, AKRON, OHIO; LOS ANGELES, CALIF.; MAKERS OF
TIRES, TUBES, WHEELS, BRAKES, AIRSPRING LANDING GEARS, BATTERIES, SPARK PLUGS, HOSE CLAMPS •
VELON SEAT COVERINGS, FOAMEX CUSHIONING, FUEL AND OIL CELLS, BUSHINGS, AND MANY OTHER AIRCRAFT SUPPLIES

Copyright, 1944, The Firestone Tire & Rubber Co.

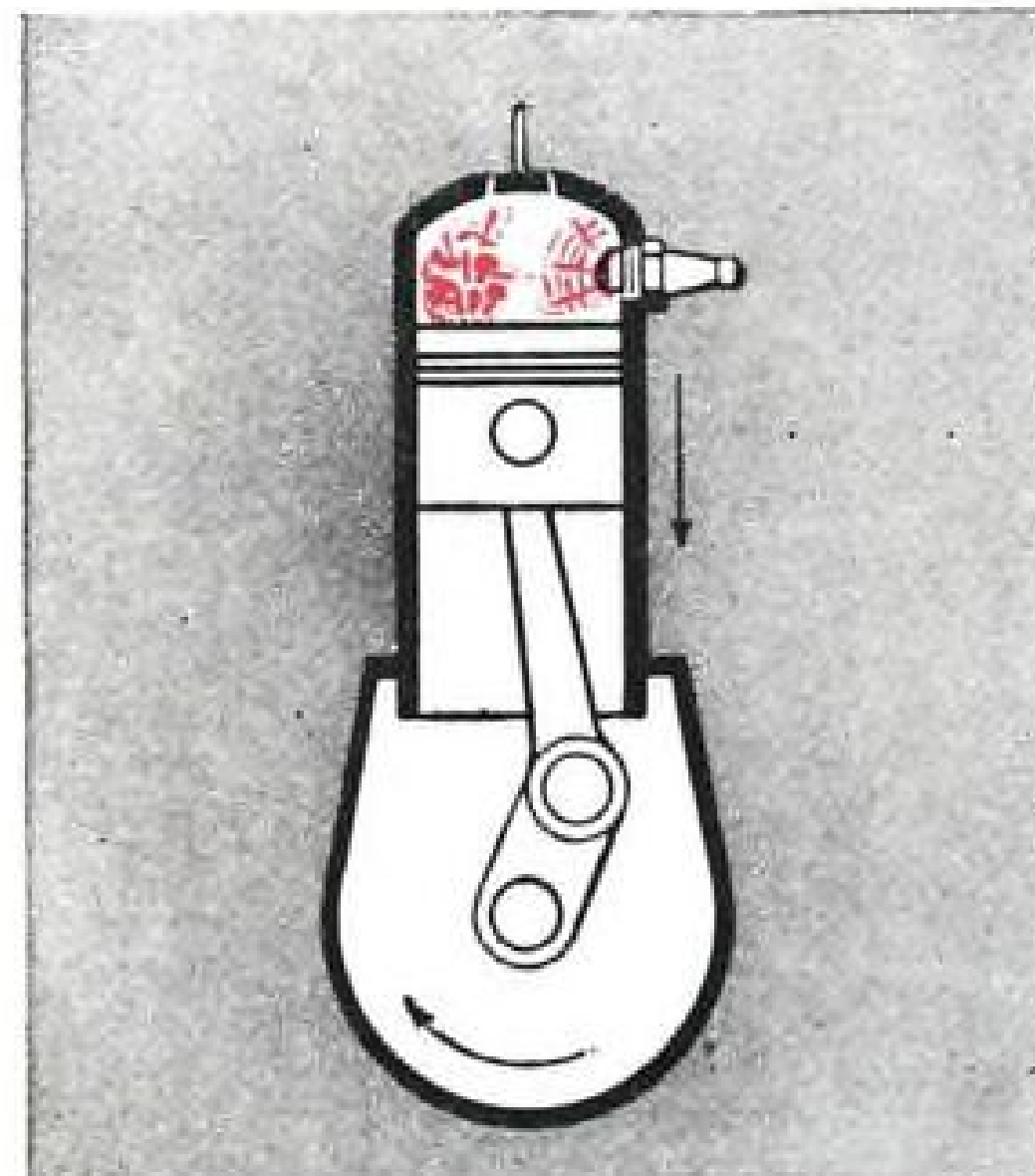
New Flight Instrument guards against fuel waste!



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



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



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



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



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



Courtesy Wright Aeronautical Corp.

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

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

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

Sperry Gyroscope Company INC.

Great Neck, New York

Division of the Sperry Corporation

GYROSCOPICS • ELECTRONICS • AUTOMATIC COMPUTATION • SERVO-MECHANISMS

Garrard Mountjoy, winner of a National Association of Manufacturers "Modern Pioneer Award" and head of the Licensee Consulting Section of RCA laboratories industry service division, has been appointed head of the Lear, Inc., Radio Laboratories.

John Frazier Dickson, recently discharged from the Army Air Forces, has joined the Pennsylvania-Central Airlines traffic staff, and is to be assigned to Youngstown, Ohio.

Merle I. Gallagher has been named Boston station manager for United Air Lines, in anticipation of direct service into New England. Gal-



Estill

Gallagher

agher has been with United since 1932. George Estill has been appointed supervisor of cargo service procedures for United. Until recently he assisted United's director of military operations officials in analyzing cargo problems and standardizing handling procedures at all United stations.

Howard K. Morgan has been named director of engineering for Trans-



continental & Western Air, Inc. He has been superintendent of communications for the airline since 1938. In his new position he will have charge of all engineering activities, including planning, development, engineering flying, communications and operations engineering, under the general supervision of J. C. Franklin, vice-president of engineering.

Ernest P. Weckesser has been named administrator to correlate all activities connected with the employment of returning veterans of the B. F. Goodrich Co.

Robert H. Helmer, aviation editor of the Cincinnati *Enquirer*, has been named central regional manager of Transcontinental & Western Air, Inc.'s new bureau with headquarters in Chicago. Helmer is chairman of the aviation committee of the Cincinnati Junior Chamber of Commerce and is a member of the aviation committee of the senior cham-



BOEING HONORS EMPLOYEES:

The ranks of Boeing 20-year employees were swelled by four last week when P. G. Johnson, Boeing Aircraft Company president (second from left), and R. A. Neale, Boeing operations manager (left), awarded 20-year service pins to four men who have passed the two-decade mark with the company at Seattle. Mr. Johnson is shown congratulating Walter Higgins, who works in the wing structures shop. The other three Boeing old-timers are, from left, Joseph Severs, employed in automotive maintenance; Harry Christensen, of the wood shop; and Walter Domonski, plant protection department. The Boeing Company, which was founded 28 years ago, now has 75 employees who are 20-year veterans, 12 of these having passed the 25-year service mark.

ber of commerce. He was co-founder of the greater Cincinnati Aviation Forum and a charter member of the Cruisair Club, an organization of sportsmen flyers.

George O. Stayman has been promoted to city traffic manager for Delta Air Lines for Cincinnati.

TELLING THE WORLD

- Fairchild Camera and Instrument Corp., New York, has been assigned an "approved quality control" rating by the Army Air Forces. Assignment of this rating is because Fairchild has demonstrated its own inspection organization can be entrusted with full responsibility to meet Army requirements and duplication of inspection during detail fabrication by AAF personnel will be eliminated.

- United Air Lines has started a campaign of 1,000-line and 420-line advertisements in Boston, Worcester, Springfield and Hartford newspapers through N. W. Ayer and Son, Inc., following award of a new route into the Boston area.

- Utilizing 100 newspapers in the east, Eastern Air Lines opened the largest consistent newspaper drive in its history. The campaign calls for 400-line insertions once a week and introduces the "Eastern Air Lines Expeditor." It is an enlargement of last fall's "At Your Service" campaign. The agency is Campbell-Ewald Co., Inc.

- Advertising agencies, artists, cartoonists, and aviation writers who use aircraft drawings in art work or layouts will get valuable help from the 32-page booklet, "Curtiss

Aircraft in Combat and Commerce," issued by Curtiss-Wright Corp., airplane division, Buffalo. The booklet provides a key for ordering prints of 100-odd photographs of 12 aircraft types, as well as combat shots.

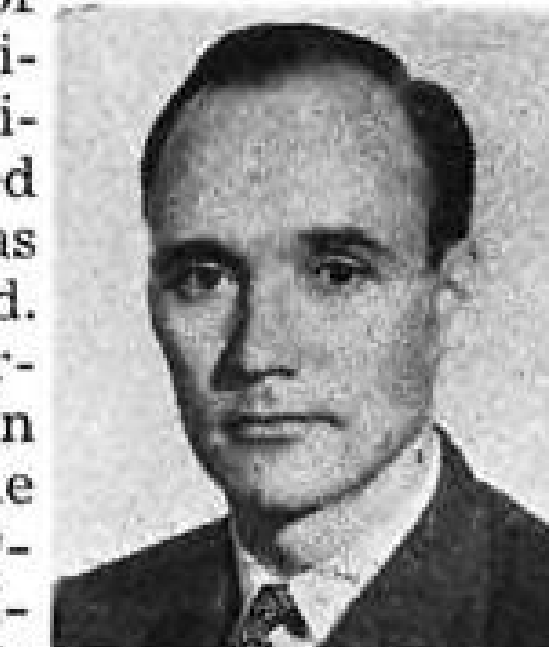
- Appointment of Eugene A. Raven as assistant director of advertising in charge of agency and direct mail activities for United Air Lines has been announced.

Raven was formerly promotion manager of the Des Moines *Register and Tribune*. He holds a private pilot's license, with 400 hours of ground school instruction and 100 hours' flying time.

- "A Forum of the Future," has been issued by Pan American Airways. The booklet contains a series of announcements published in national magazines by Pan American from August, 1942, through April, 1944.

- AERONAUTICA*, a monthly review, appeared July 15 in Santiago de Chile under direction of Lorenzo Redondo.

- Highways of the Air*, a new review of fact and opinion on the importance of radio in aviation, for distribution to the aviation industry, has just been issued by Radio Receptor Co., Inc., New York. The initial issue contains an article on the Army Airways Communications System by Lieut. Walter W. Fawcett, Jr.; *Airways and Ground Facilities of the Future*, by W. A. M. Burden; and *Radio in Aviation*, by Charles I. Stanton. *Highways of the Air* will be published at intervals for free distribution.





'bolt from the blue

Swooping down out of the heavens, this "Thunderbolt" makes a feather-light landing because the shock is effectively absorbed by Aerols.*

The Republic P-47 "Thunderbolt" is only one of many present-day military aircraft that are Aerol equipped. After victory, in tomorrow's age of flight, peacetime planes will also rely on Aerols for safe, smooth landings and swift, sure take-offs.

THE CLEVELAND PNEUMATIC TOOL CO.
AIRCRAFT DIVISION • CLEVELAND 5, OHIO
Also Manufacturers of Cleco pneumatic tools, Cle-Air shock absorbers for vehicles and Cleveland rock drills for mining and construction.

Buy U. S. War Bonds and Stamps

AIRCRAFT PRODUCTION

Visual Control Board Speeds Wright War Contract Conversions

System is substituted for former practice of handling mass of paper work and completes procedure in fraction of former time; see recent \$50,000,000 termination completed in 90 days.

Large-scale conversion of war contracts has been simplified and speeded at the Cincinnati plant of Wright Aeronautical Corp. by an ingenious procedure which substitutes a visual control board for the former system of reviewing a mass of paper work to determine the status of a termination.

Problems involved will have to be faced increasingly by industry within the next few months and many contracts, miscalled terminated, are simply replaced by another contract to fit the changing military needs for different types of equipment.

► **Time-Saver**—Officials at Wright are planning to complete terminations in a fraction of the usual time through the use of control boards. Wright at Cincinnati is meeting a predetermined schedule which has been planned to complete a \$128,000,000 termination within 105 days. As an example of the time-saving involved, one large company reported recently with satisfaction its termination of \$217,000,000 in contracts in two years.

A recent termination at Wright involving almost \$50,000,000 has been scheduled for completion within 90 days. At the end of 40 days, the Cincinnati plant is up to schedule on this termination.

► **Visual Control Boards**—Wright's system, which it is offering to place at the disposal of other manufacturers, lies in the use of visual control boards of the type widely used in scheduling production. The termination routine itself is unchanged but the feature that speeds the job is the method of scheduling the various steps involved in a termination and in keeping a check of the progress made.

Ordinarily this is done by means of forms and ledgers, the ledgers being revised from time to time. One weakness of the procedure, too, was that it failed to furnish

an accurate over-all picture at any given moment. While revisions were being posted in ledgers, changes in the status of dealings with half a dozen vendors might take place, so that the revised postings were obsolete before it was even finished. Constant re-checking was necessary to avoid needless follow-up with vendors.

► **Trial Board Set Up**—A member of Wright's Contract Termination Division had the idea that the visual control boards in the company's production department might be applied. A trial board was obtained to study its adaptability. After a few experiments, the visual board compared with the form and ledger method was simplicity itself.

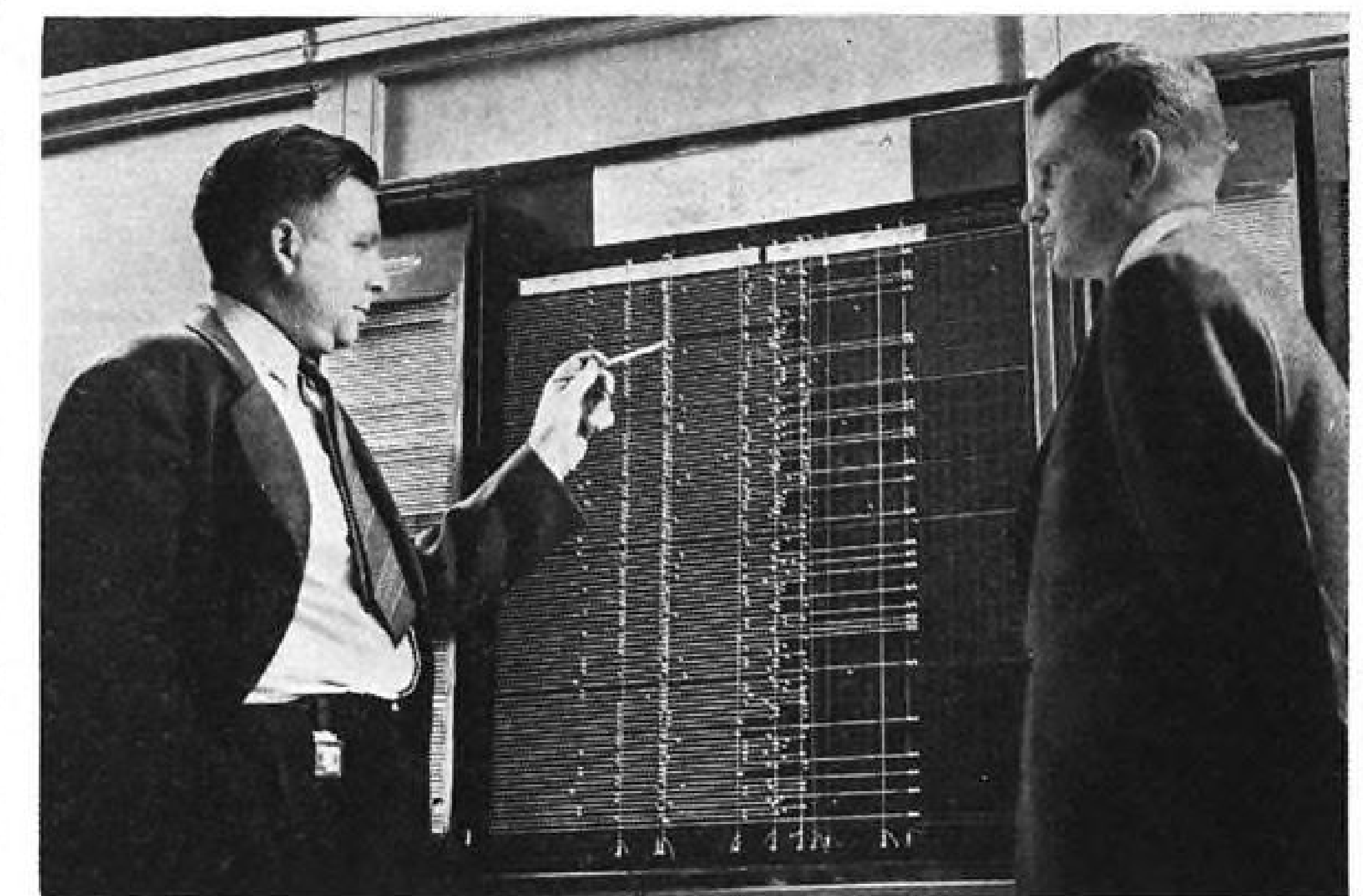
When a contract termination notice is received, a schedule is established for that termination after conference with the heads of the affected departments. This schedule indicates the date when each of the seven major steps of the

termination procedure should be completed. Each of these operations is represented on the control boards by a different colored vertical line.

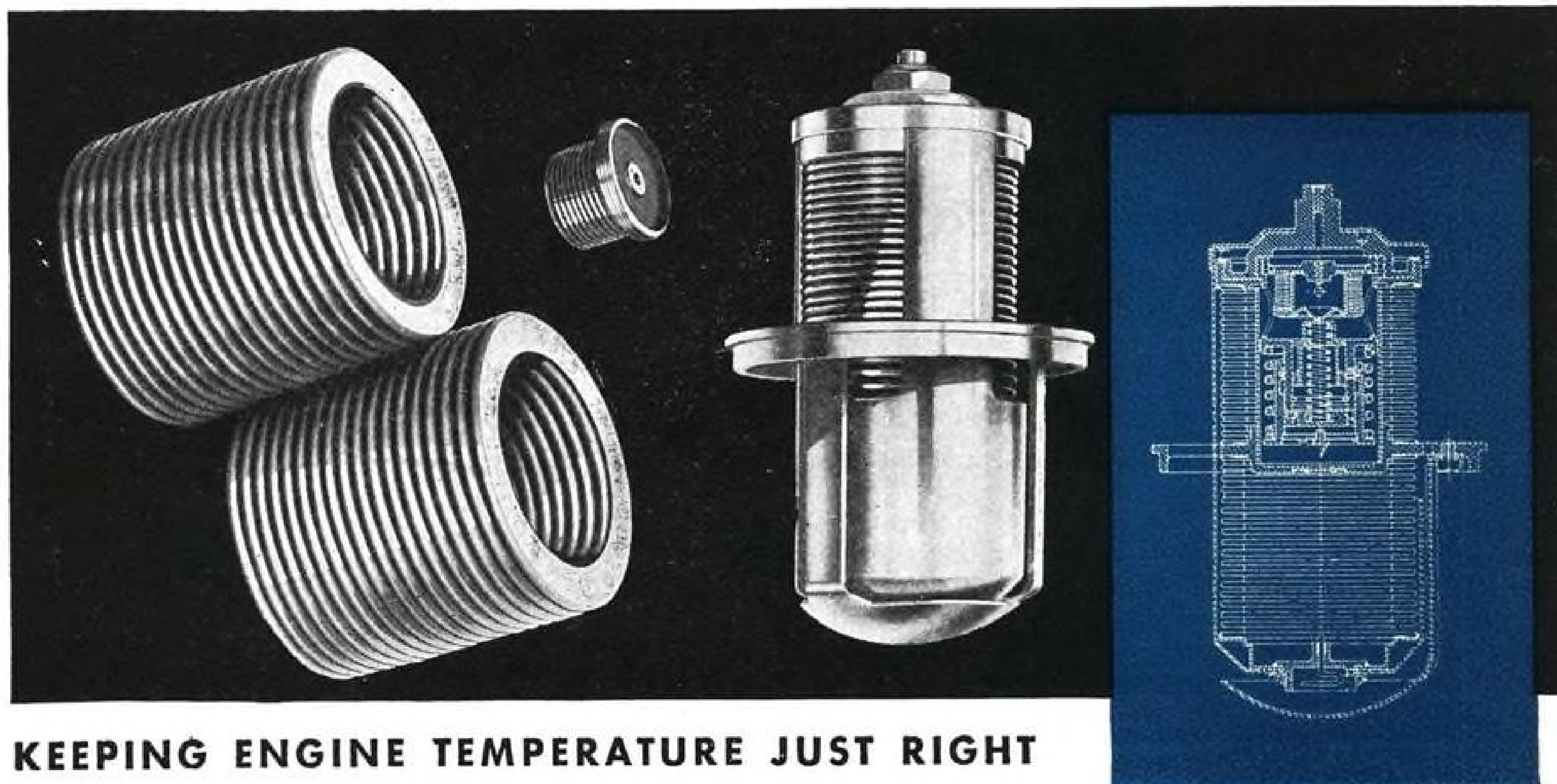
► **Progress Plotted**—Each horizontal line on the board represents a canceled purchase order resulting from terminations. The progress of each canceled order through each step of procedure is plotted on the board as the action takes place. These postings are made by inserting a peg, of the same color as the corresponding vertical line, on the actual date when the operation was accomplished. The white horizontal progress line is then extended to meet the colored vertical line representing that step in the procedure.

The outstanding vertical line on the board is the current date line which is moved one space toward the final goal each day. As this date line approaches the vertical schedule lines, it is possible to plan the next action to be taken. As the date line meets the various schedule lines, it is perceptible at a glance, by comparison with the horizontal progress lines, exactly which vendor cancellations may be running behind schedule. Through this system effort is directed toward keeping the progress lines up to or ahead of the moving date line at all times.

The control boards developed by Wright make it possible to see at a glance the precise status of the termination in the case of all vendors involved, waste is eliminated, every step is made to count.



Curtiss-Wright Termination Board: Bruce Sears, left, manager of contract termination at the Cincinnati plant of Wright Aeronautical Corp., explains the visual control board process to Paul Kent, of the factory records section.



KEEPING ENGINE TEMPERATURE JUST RIGHT ... at sea level or 30,000 feet up

If you have a problem involving the use of a bellows assembly for accurate temperature control, this application of Hydron bellows and the engineering behind it offer evidence that Clifford can help you.

The problem here was to adapt a British aircraft engine by-pass thermostat to American production techniques and practices. Its purpose is to provide for speedy engine warm-up and accurate control of engine operating temperatures regardless of altitude.

Clifford produces this thermostat as shown in the cross-sectional drawing above . . . incorporating three Hydron bellows: a large thermostatic bellows, a large altitude compensator bellows and a small automatic safety bellows. The compensating factor assures most efficient operation at sea level or 30,000 feet up. In making the complete assembly, Clifford fills and tests it to most exacting specifications . . . and it's living up to those specifications in many an aerial combat zone.

FOR BELLOWS FACTS COME TO CLIFFORD FIRST

There's no secret about how Clifford meets the most rigid requirements. Having produced industry's first hydraulically formed bellows — Hydron, Clifford is still first with the facts about these uniform, pretested metallic bellows. With an engineering staff of Bellows specialists, Clifford is equipped to save you time, trouble and expense in your current or post-war applications of bellows. Write now — before you start designs — for a sample of our facts.

Fill in and mail the coupon below — today.

CLIFFORD MANUFACTURING COMPANY

562 E. FIRST STREET, BOSTON 27, MASS.

Please send me a free copy of your 44-page Hydron Bellows Data Book. I am interested in the applications checked.

- | | |
|--|--|
| <input type="checkbox"/> Air conditioners — unit | <input type="checkbox"/> Kilns & ovens — industrial |
| <input type="checkbox"/> Air conditioning systems | <input type="checkbox"/> Oil heating systems |
| <input type="checkbox"/> Aircraft | <input type="checkbox"/> Oxygen flow indicators |
| <input type="checkbox"/> Carburetor altimeter controls | <input type="checkbox"/> Oxygen regulators |
| <input type="checkbox"/> Engine thermostats | <input type="checkbox"/> Process controls |
| <input type="checkbox"/> Gasoline valves | <input type="checkbox"/> Refrigerating systems |
| <input type="checkbox"/> High pressure steam devices | <input type="checkbox"/> Refrigerator switches |
| <input type="checkbox"/> Hot water heaters | <input type="checkbox"/> Stoves & ovens — commercial |
| <input type="checkbox"/> Instruments | <input type="checkbox"/> Stoves & ovens — domestic |
| <input type="checkbox"/> Remote and direct control of temperature and pressure | <input type="checkbox"/> Supercharger controls |
| | <input type="checkbox"/> Refrigerator controls |

Other applications.....

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CLIFFORD

First with the Facts on Hy-
draulically-formed Bellows
HYDRON



B-29 Uses Strong Aluminum Alloy

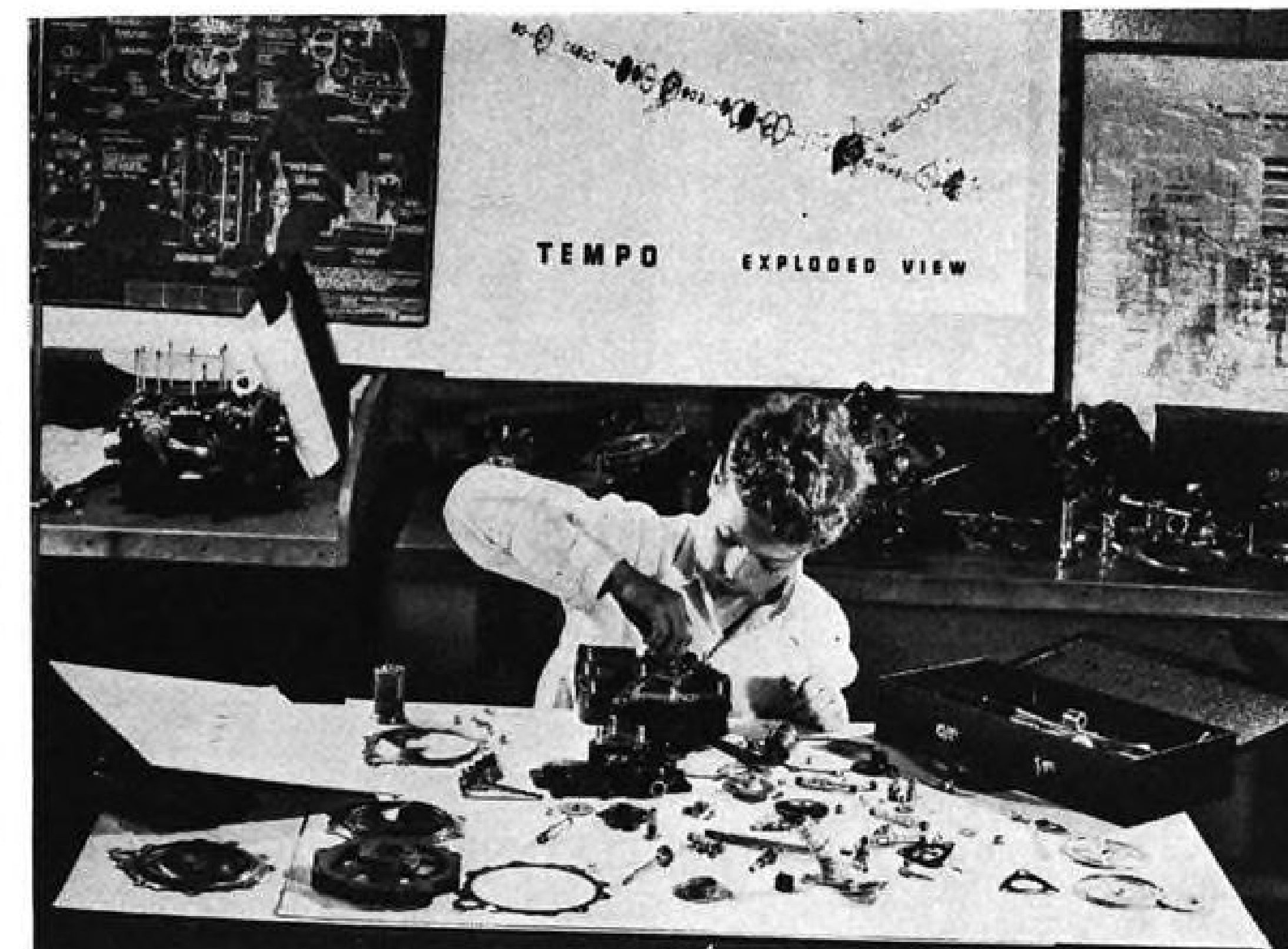
Reynolds product on center wing skins is reported as strong as structural steel but only one-third as heavy.

Disclosure that the top center wing skins for Boeing's B-29 are being prefabricated by Reynolds Metals Co. from their R-301 super-strong aluminum alloy, reported as strong as structural steel but only one-third as heavy, develops the possibility that it may be used for other parts of the bomber.

For the last year Reynolds has provided finished aluminum sheet, rod, strip, rivets, bar, extrusions, tubing, forgings, wire, washers, foil and finished parts for the Superfortress. Machinery has been set up to prefabricate other parts for the same plane such as leading edge skins, leading edge formers, trailing edge ribs and doublers, wing and fuselage skins, in-spar rib webs, nacelle fairing skins and bulkheads.

► **Weight-Saver**—J. F. Van Kenen, Reynolds' B-29 project manager, says the use of R-301 in the construction of these additional parts could cut hundreds of pounds from the weight of the B-29.

Reynolds is supplying material for these planes to three Boeing plants at Seattle, Renton and Wichita, to the Bell plant at Marietta and the Glenn L. Martin plant at Omaha, the five prime contractors on the Superfortress as well as to Hudson Motor Car, Chrysler,



ASSEMBLES INJECTION CARBURETOR IN BENDIX TEST:

Guided only by manuals and "exploded views" 11-year-old Jack Butler, of Chicago, assembled the 500-odd parts of an aircraft injection carburetor in approximately 90 minutes in a demonstration held at the Illinois division of Bendix Aviation Corp. He is a voluntary assembly "guinea pig" to test effectiveness of photographic exploded views, visual training aids used to prevent guesswork and tinkering in war production and Army service manuals.

Murray Body, Fisher Body and Martin's Baltimore plant and many smaller subcontractors.

Plant Sets Record On B-29 Engines

Further evidence of emphasis being placed on output of Boeing's B-29 Superfortress is seen in the Curtiss-Wright report that its Wood-Ridge plant, which builds Cyclone 18's for the B-29, topped all previous production records last month.

Output of the 2,200 hp. engines, largest in use on any warplane, has been climbing steadily at Wood-Ridge in recent months. Number produced was not disclosed, but the company said the month's production had risen to the next highest hundred.

► **Revisions**—Contract revisions for less powerful types of Cyclone engines will result in decreased activity at the company's Paterson area plants, production at Wood-Ridge will continue at full speed with increased schedules and with higher schedules for spares as the B-29's step up their operations over Japan. It is expected that Paterson area plants will take part in the production of parts for the 18's as the output of Cyclone 9's and 14's is reduced.

Study Plane Manhours

Aircraft War Production Council, West Coast, reports engineering time required following the first flight of a new model warplane is much greater than that required for the original design, due to modifications ordered during the operational life of the airplane.

► **Survey Made**—The survey shows that 140,273 engineering manhours were required for the original design of a typical fighter, and an additional 1,617,335 engineering manhours went into subsequent modifications. Comparable manhour figures for engineering a typical bomber are 414,012 and 2,553,683.

Plywood Agency

U. S. - Mengel Plywood, Inc., jointly-owned enterprise of The Mengel Co., and United States Plywood Corp., has opened a plywood distributing unit in Atlanta, the third in a planned plywood warehouse chain, others being at Jacksonville, Fla., and Louisville, Ky. J. P. Burford, formerly The Mengel Co.'s southern sales representative, will manage the Atlanta warehouse and also supervise the Jacksonville operation. The Atlanta unit will service the state of Georgia and parts of Tennessee, Alabama and Florida.

Canadian Output

Production and cost figures on aircraft produced in Canada since the start of the war to the end of 1943 show 10,517 planes with a weight of 21,882 short tons, without engines, were produced and cost, with overhaul at various times, a total of \$755,000,000.

In 1940 and including the last four months of 1939, 904 aircraft weighing 970 short tons without engines were manufactured at a cost of \$45,000,000. In 1941 the figures were 1,699 aircraft with a weight of 2,179 short tons, costing \$110,000,000.

In 1942, production was 3,781 planes, weighing 8,789 short tons and costing \$232,000 and in 1943 the output was 4,133 aircraft weighing 10,044 short tons at a cost of \$368,000,000.

Newest Mitchell Has 8-Gun Nose

Latest version of B-25 sets new high in plane firepower with eighteen .50 caliber machine guns.

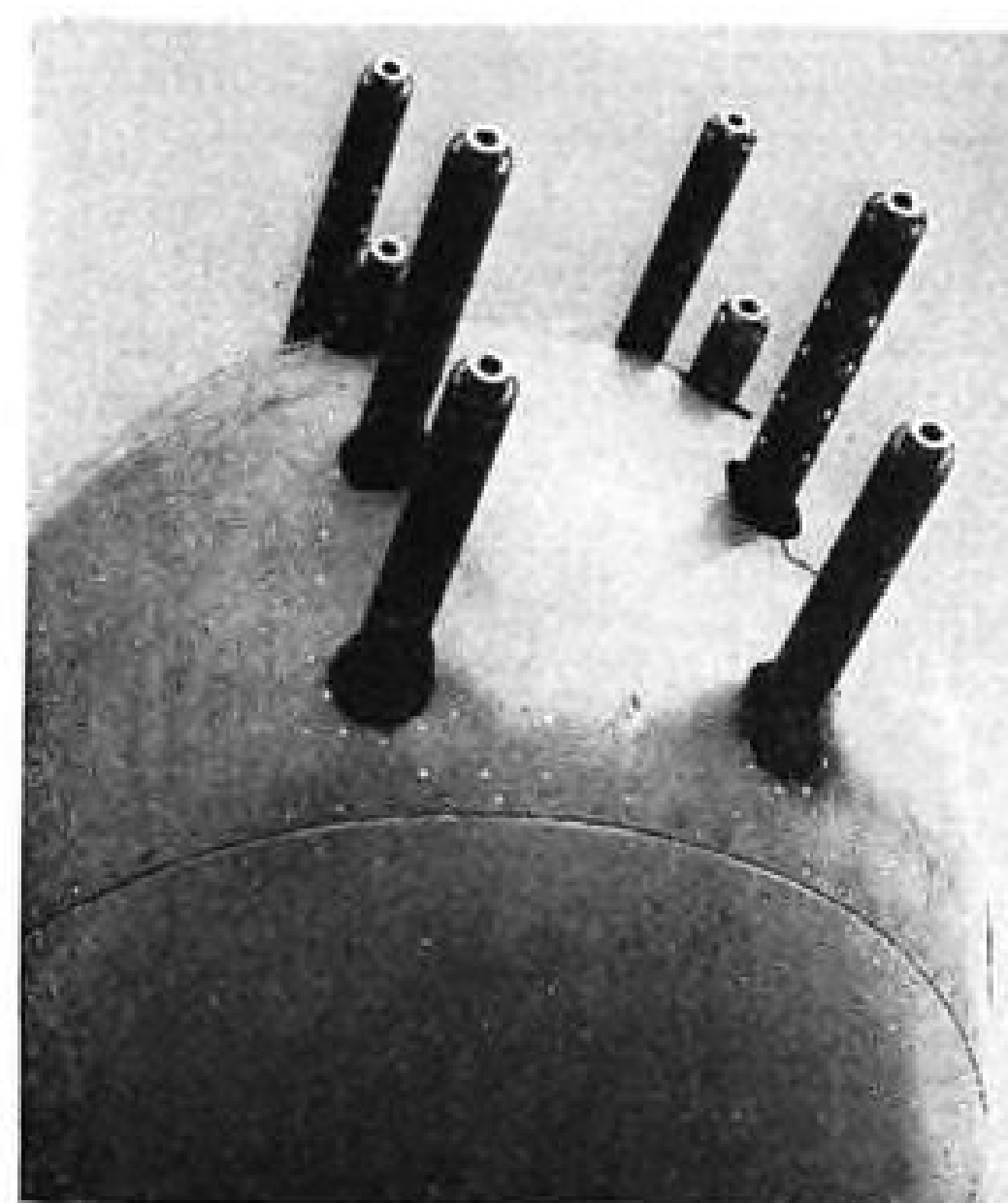
North American is now making three noses for its B-25 *Mitchell* bomber, the newest with eight guns which boost firepower to eighteen .50 caliber machine guns.

Already the most heavily armed plane, the latest version of the B-25 sets new high for concentrated destructive power. The new version is being built at North American's Kansas plant, which is producing two versions of the same bomber from the same production line.

► **Attack Model**—One is the attack model with its eight-gun nose while the other is the conventional bomber model with the transparent enclosure for the bombardier. At its California plant, North American is making the model which carries a 75 mm. cannon and four .50 caliber machine guns in the nose.

All B-25's are turned off the assembly line with bombardier nose, but kits are made up with other nose installations which can be changed over-night.

The new eight-gun nose gives the bomber 14 forward-firing machine guns, including the pair in the upper power turret. Besides the eight in the nose, the plane has four in blisters on each side of the



New "Mitchell" Bomber Nose: The latest version of North American's B-25 *Mitchell* bomber has eight .50 caliber machine guns in the nose and boosts the plane's armament to 18 .50's and a possible concentration of 14 forward-firing guns.



TEST NEW DESIGN PROPELLER:

In front of Aeroproducts' new flight test hangar at Dayton municipal airport, Test Pilot Pete Thomas briefs a test flight for his crew preparatory to take-off in the government-owned AT-11 advanced trainer warming up on the apron. The trainer has been lent to Aeroproducts for test on two-blade full-feathering Aeroproducts of a new design, capable of a complete feathering operation in two seconds.

fuselage. All 12 of the fixed guns are fired by the pilot.

► **Bombs Also Carried**—In addition to the 12 fixed forward-firing guns and two upper-turret guns, the *Mitchell* has four more fifties, two in the power tail turret and two in the waist.

A full load of bombs is carried in the two versions not equipped with cannon, but in the eight-gun nose model, the bombardier's controls are placed so that the bombs can be released by the pilot.

This arrangement was first installed in a recent version of the B-25 which carried a 75 mm. cannon in addition to the four fifties in the nose.

Helldiver Uses New Cannons on Japs

Navy has permitted disclosure that the first cannon-firing warplane built for aircraft carriers, the new version of the Curtiss SB2C *Helldiver*, is now in action against the Japs.

It has a pair of 20 mm. fixed cannon, mounted on the leading edge of the wing, in place of former armament of .50 caliber machine guns. This is in addition to the flexible machine guns operated by the rear gunner and radioman.

► **Used on Ground Targets**—The dive-bombers of Air Group One have been so well protected by their fighters they never had a

chance to use the cannon against a Jap plane in the air, but they have strafed water and land targets.

Fighting One of this Group, a continuation of the oldest fighting squadron in the Navy, is still called the "High Hatters," a name adopted in 1927 and well known to many for their aerobatic exhibitions.

New St. Paul Plant

Northwestern Aeronautical Corp., one of the largest producers of gliders, has established a new plant in St. Paul for fabrication and production of metal aircraft parts and the new plant already has begun work.

In establishing the plant, which is making jettison fuel tanks for Army planes, Northwestern separated the production from its glider plants in the Twin Cities.

Glider output is tapering off and is expected to be cut sharply by spring.

Plastics Directory

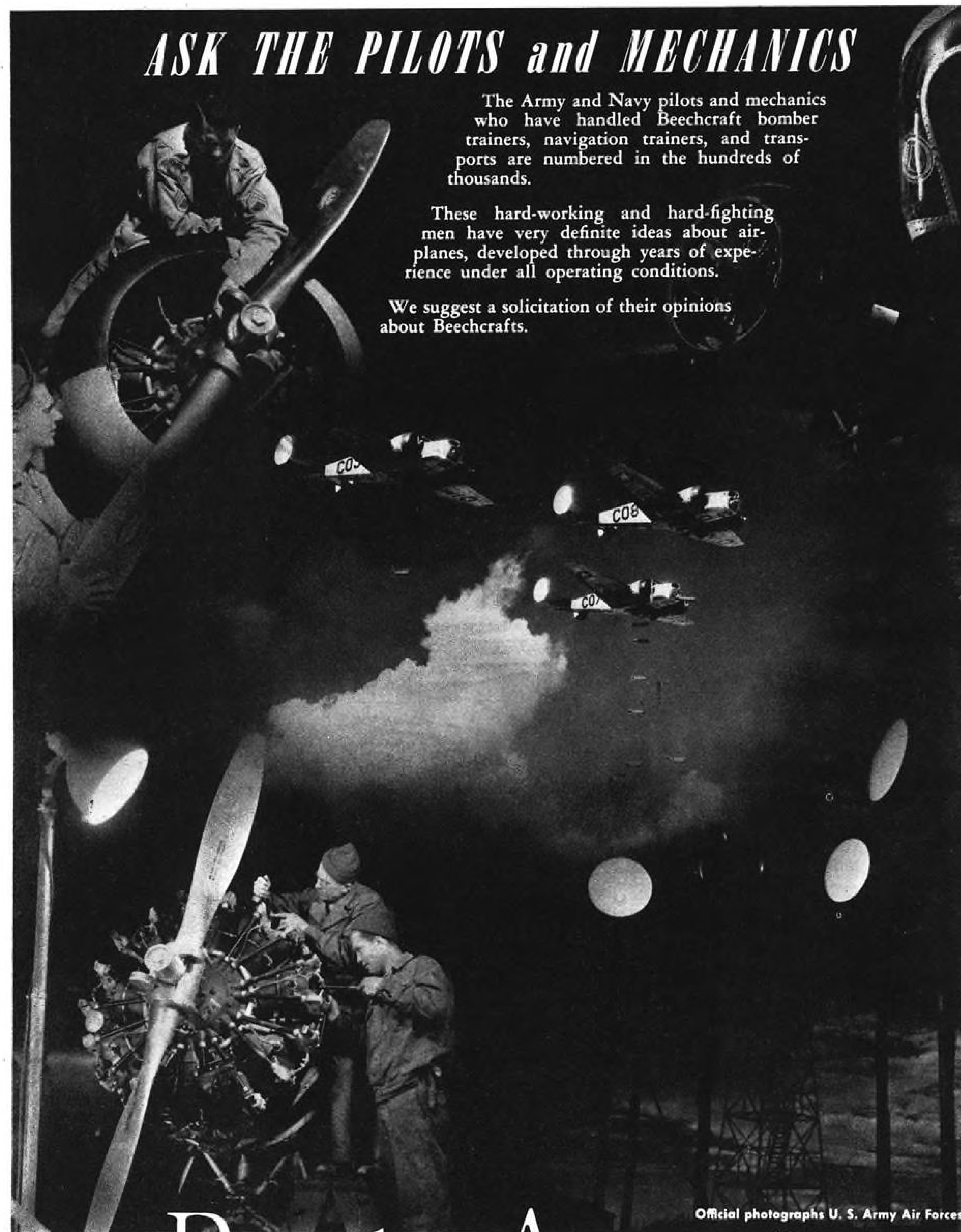
A new directory of plastics molders, laminators, fabricators and consultants in the states of Washington, Oregon and California, has been published by the Pacific Coast section of the Society of the Plastics Industry, and copies may be obtained from the secretary, Robert A. Cooper, 2140 South Vermont Ave., Los Angeles 7.

ASK THE PILOTS and MECHANICS

The Army and Navy pilots and mechanics who have handled Beechcraft bomber trainers, navigation trainers, and transports are numbered in the hundreds of thousands.

These hard-working and hard-fighting men have very definite ideas about airplanes, developed through years of experience under all operating conditions.

We suggest a solicitation of their opinions about Beechcrafts.



Official photographs U. S. Army Air Forces

Beech Aircraft

CORPORATION

BEECHCRAFTS ARE DOING THEIR PART WICHITA, KANSAS, U. S. A.

Engineering in Wood

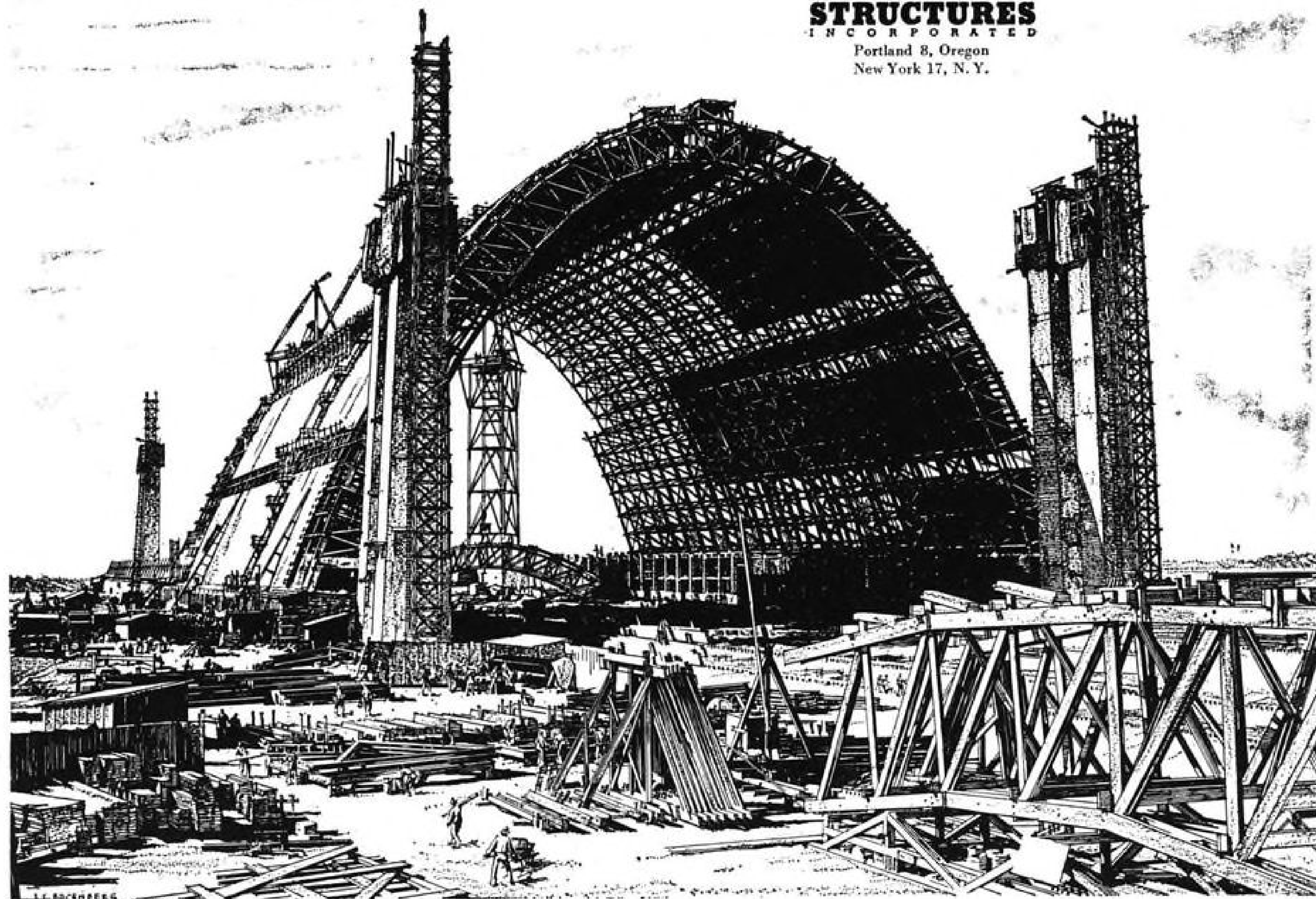
The same techniques that have made prefabricated timber such a satisfactory building material for giant Navy blimp docks have been applied equally well to aviation construction of many types—airplane hangars, manufacturing plants, passenger terminals and miscellaneous airplane housing.

It is difficult to name an aviation firm that cannot benefit from the economy, strength, construction speed, permanence of wood.

This is particularly true when Timber Structures *Engineering in Wood* policy is harnessed to a given building problem.

Engineering in Wood is many things. Research. Design. Engineering. Prefabrication. Transportation. Erection. All are part of Timber Structures service to management, architects, engineers, contractors on buildings in which roof trusses and other heavy timber items are an integral part.

Our *Engineering in Wood* service is available to you. Whether construction plans are immediate or postwar, our specialized knowledge is at your disposal. Inquiries are welcomed on the use of wood and allied structural materials. Write for literature.



NAVY LTA HANGAR. Complete structural work for this and 12 similar hangars (72% of Navy's entire LTA program) prefabricated by Timber Structures, Inc. Pen drawing by Louis C. Rosenberg, internationally known etcher and renderer. A copy suitable for framing will be mailed free to architects and engineers on professional letterhead request.

FINANCIAL

Aircrafts' Net Current Assets Up 300% to 1500% in Five Years

Survey shows that conservative dividend policy and plowing back of earnings accumulated on negligible profit margins have put industry in strong working capital position.

The vast improvement in working capital positions of American corporations generally was highlighted by a survey recently released by the Securities and Exchange Commission.

While no detail by industry is available, an independent analysis made by AVIATION NEWS discloses that the aircraft group has made outstanding gains in bolstering its net current assets or working capital.

► **Up 3 to 15 Times**—Changes in working capital positions during the past five years have been examined for the leading aircraft producers and are presented in the accompanying table. It is evident that from Dec. 31, 1938, to the end of 1943, net current assets have multiplied about 3 to 15 times for the separate companies.

This increase in working capital, for the most part, is attributable to retention of earnings. Dividend payments have been very conservative with the result that profits have been ploughed back and retained in the form of current assets. It should be added that these earnings were accumulated on very negligible profit margins.

► **Resources Built Up**—New capital through additional stock flotations contributed very little in relation to the total improvement shown during the period examined. Another important contributing factor, however, has been the depreciation and amortization charges in excess of actual expenditures for plant and equipment. During the last few years, very little has been done adding to new plant facilities with the result that depreciation charges, while a proper offset against profits, have generally had the tendency of building liquid financial resources.

There is also a strong trend toward developing working capital in a highly "liquid" form—cash and government bonds. In other words, the danger of having funds

tied up in frozen inventories is being avoided. Republic Aviation Corp. probably has the most impressive record in this respect and affords an example of industry policy. Although operating under fixed-fee contracts involving hundreds of millions of dollars worth of inventories annually (sales for the first six months of 1944 totaled almost \$220,000,000), material owned by Republic now aggregates less than \$500,000. The company, as of June 30, 1944, had net current assets of \$7,200,000—which leaves inventories representing only about 7 percent of the total.

► **Working Capital Up \$9,000,000**—Republic's mid-year account of working capital compared with the \$5,150,000 shown as of the year-end, also reveals the accelerating improvement in liquid finances constantly going on throughout the industry because of current sustained earnings. An interesting sidelight in the Republic picture is the distance the company has covered in recent years. Formerly known as Seversky Aircraft, the enterprise at the 1938 year-end, had a deficit or negative working capital of \$1,783,235. In the ensuing five and one-half years, working capital has risen by almost \$9,000,000 to give Republic its present strong financial position. This improvement is after giving effect to retirement of the company's preferred stock.

Another interesting phase is disclosed by the Republic analysis in that as of June 30, 1944, net working capital was equivalent to more than \$7.30 a share. Yet, the market price of the stock is around \$5 per share. This disparity is characteristic of most aircraft equities today.

► **Douglas**—For example, as of Nov. 30, 1943, Douglas had net current assets of about \$59 per share as contrasted to current market quotations of around \$50. Assuming that current earnings will

be no worse than that of last year, this disparity between market and intrinsic working capital values is even more pronounced. Douglas reported net earnings of \$9.92 per share last year. However, this was after deduction of \$6,950,000 or \$11.58 per share for provisions for future contingencies. On the assumption that no more than a \$5 dividend will be paid again this year, net working capital should come to at least \$75 per share for Douglas by Nov. 30, 1944.

Similar disparities in values can be found throughout the aircraft list. For example, based on 1943 year-end reports, the spread between working capital per share and current market quotations was as follows: Bell—\$14.60—\$11.00; Boeing—\$18.00—\$13.25; and Lockheed—\$17.70—\$16.75. Actually, working capital positions are even better than those shown due to current sustained earnings.

► **Exclusive of Equipment**—It must be emphasized that these valuations of working capital are exclusive of plant, equipment and other assets owned. In addition, aircraft corporations continue to accumulate post-war credits in refundable taxes.

If aircraft companies were to be liquidated completely—even at distress levels—it is evident that the equity holders, in many instances, would realize substantial profits over existing stock market prices. Indeed, it is not improbable that at the conclusion of hostilities and with the need of volume operations passed, many aircraft builders may decide to trim their sales and maintain production on a small scale. This will obviate the necessity of carrying large cash balances and special cash disbursements may be made to stockholders. Or, as has been more common in American corporate experience, outstanding stock would, in part, be purchased and retired thus benefiting the remaining shareholders.

| WORKING CAPITAL POSITIONS OF LEADING AIRCRAFT COMPANIES, 1938 to 1943 | | | |
|---|------------------------|----------------|---------------|
| | Working Capital As of: | Dec. 31, 1938 | Dec. 31, 1943 |
| Bell | \$ 778,321 | \$ 5,637,428 | |
| Bendix | 14,600,312 | 42,895,826 | |
| Boeing | 4,005,634 | 19,465,963 | |
| Consolidated | | | |
| Vultee | 3,671,224 (a) | 29,752,238 (1) | |
| Curtiss-Wright | 9,396,095 | 66,649,468 | |
| Douglas | 6,628,005 (1) | 35,438,727 (1) | |
| Grumman | 1,122,074 | 4,420,097 | |
| Lockheed | 1,346,025 | 19,061,178 | |
| Martin | 8,348,685 | 18,817,594 | |
| North | | | |
| American .. | 5,594,349 | 23,684,390 | |
| Republic ... (d) | 1,783,235 | 5,150,534 | |
| Sperry | 8,402,587 | 22,788,863 | |
| United | 18,706,695 | 85,339,439 | |

Notes: (1) As of Nov. 30.
(a) Consolidated Aircraft Company only.
(d) deficit.

TRANSPORT

Shipping Firms Present Case For Coordinated Air-Sea Service

House Merchant Marine Committee hearings develop into comprehensive review of country's post-war international air transport policy and prospects.

The House Merchant Marine Committee opened hearings last week to give shipping interests opportunity to plead their case for "coordinated air-sea" service, and by week end had swung into a full-fledged review of America's post-war international air transport prospects.

These hearings contrasted with those thus far conducted by the aviation subcommittee of the Senate Commerce Committee. They were open to the public. Every session was jammed and was characterized by opposition to a chosen instrument. The Senate group, on the other hand, has held closed hearings for about a year, reportedly without placing witnesses under oath, and has appeared ready on several occasions to come out for a chosen instrument, although the bulk of testimony placed before it has been opposed to the monopoly concept.

Hull Letter Put in Record—Most significant development in the House group was the placing in its record of the now-famous Hull letter to the Senate Committee, in which the Secretary of State took issue with chosen instrument arguments. The House Committee counsel, Irving G. McCann, read portions of the letter in the presence of Assistant Secretary of State Adolf Berle, Jr., then on the stand, Civil Aeronautics Board Chairman L. Welch Pogue, Board Members Oswald Ryan and Josh Lee, and a host of shipping company representatives.

On the monopoly versus competition issue, Berle, making the standard notation that the matter is one for Congress to decide, said the present law is "not a chosen instrument act" and until Congress changes it, the State Department will assume there is to be competition on foreign routes. He continued, following the lead of the Hull letter, that the Department

intends to do the negotiating for landing rights, Berle said that, in the pioneer days of aviation it was well for Pan American to make its own arrangements, of which he said there had been 66 either temporary or permanent. But national interest now demands government supervision.

Questioned on PAA Agreements—McCann asked Berle whether Pan American agreements had "handicapped" the war effort; the witness was unwilling to agree, but specified that many of them "needed to be revised in the light of (war) effort, notably in South America."

Berle added that some of Pan American's early negotiations had left foreign governments with the impression that reciprocal rights would be available in the United States. In this category



Pleads for Air Service: Almon E. Roth, president of the National Federation of American Shipping, as he appealed to the House Merchant Marine Committee for steamship company participation in overseas aviation.

he especially named Brazil and New Zealand.

This main point with respect to future landing arrangements was that this government is opposed unequivocally to exclusive rights, or a "scramble" for choice air routes. Better, he thought, would be the scheme proposed by America and generally accepted already by leading nations by which bilateral commercial agreements would be negotiated and their provisions generalized to apply to any other nations seeking rights in the same areas.

Congress' Problem—Berle sees the air-sea question, like the chosen instrument, as one for Congress to settle, but he stressed a distinction in that shipping services stop at coastal points whereas airlines know no geographical boundaries.

He also corrected a point much in dispute, viz, England's intentions with regard to integrated air-sea services. Although British shipping companies have amended their charters to permit operation of aircraft, the government by no means has decided whether it will abandon the monopoly of subsidy now held by BOAC.

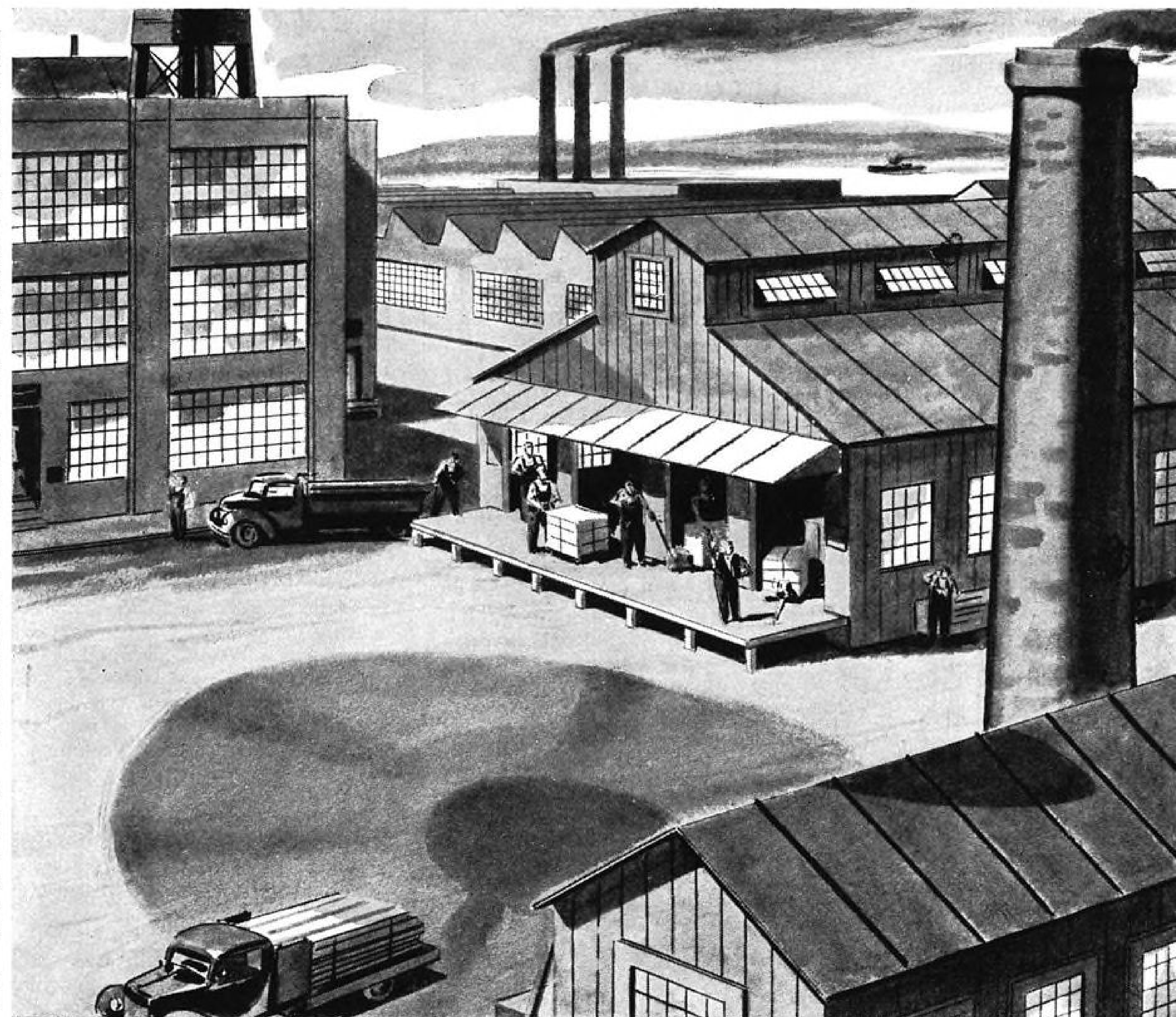
Committeemen agreed with shipping interests and the Maritime Commission that the CAB had interpreted incorrectly that section of the Civil Aeronautics Act which concerns the right of one type of transportation to engage in another.

Court Settlement Urged—Pogue denied, however, that any automatic denial had ever been rendered a shipping company's application for air services and expressed hope the matter could be settled in the courts. In the meantime, according to CAB interpretation of the Act, surface carriers must show that aircraft will be "used to the public advantage." Pogue described this as "an additional qualification which the steamship lines must meet." The President is the "final arbiter" in such matters at present and his opinion is not subject to review, he pointed out.

Shipping interests plainly were opening a well-planned drive in Congress to obtain recognition for their contention that legislative policy had never opposed their aspirations to operate aircraft.

Land First Witness—First witness was Admiral Emory S. Land, Maritime Commission Chairman, followed by Almon E. Roth, president of the National Federation

★ NUMBER 12 IN A SERIES OF MESSAGES BY KELLETT AIRCRAFT CORPORATION ★



THERE'S SOMETHING IN THE AIR...

THE SHADOWS of slowly descending helicopters will be a frequent sight in the peacetime years to come . . . but only after the war will you learn all of the progress in design and the engineering improvements that have *already* taken place. Today's "in the air" performance of several successful helicopter types is known only to the Military Services . . . but in the tomorrows to come it is likely that the ability of helicopters to land and take off vertically . . . to fly rapidly or hover in the air . . . will find many commercial,

personal and industrial uses. The patrolling of forest areas and ranches, the inspection of cross-country power and pipe lines, spraying crops, servicing inaccessible places far from airports, are just a few of many useful applications of the helicopter. Kellett's expanding engineering staff looks with anticipation to the future . . . when modern helicopters will bring you one of the most progressive developments to come out of this war. Kellett Aircraft Corporation, Upper Darby (Philadelphia), Pa.

KELLETT

OLDEST ROTARY WING AIRCRAFT MANUFACTURING COMPANY

of American Shipping. Roth inserted into the record and elaborated on the Federation's declaration of policy. He was followed by individual shipping executives who sought to bolster his general arguments with details applicable to their own cases.

Land contended the shipping companies were the only transportation interests which converted entirely to a wartime basis, and would be handicapped seriously if prevented from utilizing aircraft after the war. Rehabilitation of passenger fleets will take so long, he said, that United States air transport companies and foreign transportation businesses otherwise might capture the traffic and markets of American shippers who pioneered world trade routes. "There is urgent necessity for prompt governmental clarification of its national policy," Land said, because otherwise post-war planning is impossible.

Pan American Asks New Pacific Routes

Files for Great Circle link between Alaska and Calcutta via Kurile Islands, Tokyo, Shanghai, Canton, Hanoi and possibly point in Siberia.

Pan American Airways served notice of its plans in the Pacific area last week with an application to the Civil Aeronautics Board for vast route developments.

Chief new route requested is a Great Circle link between Alaska and Calcutta via a point in the Kurile Islands, Tokyo, Shanghai, Canton, Hanoi, and possibly a point in Siberia. Pan American plans call for a junction at Calcutta with a requested extension of the line's trans-Atlantic certificate.

► **Alternate Route**—Other extensions applied for include an alternate to Pan American's presently certificated mid-Pacific route from Wake Island to Canton via Tokyo and Shanghai, rejoining the main line at Canton; permanent certificate for the now temporary route between Manila and Singapore with an extension to Batavia, Java; extension of the South Pacific route from Noumea to Sydney.

► **President Lines**—A new entrant in the Pacific picture was American President Lines, Ltd., steamship line, which asked CAB for a trans-Pacific route between Cali-

New World Stops

The Civil Aeronautics Board last week announced addition of several points to its tentative pattern of international routes for U. S. carriers. As amended, the routes now are: (added points italicized)

Route IV. New York-Lisbon via Bermuda and Azores.

a. Lisbon - Madrid - Barcelona-Marseilles-Rome.

b. Lisbon - Madrid - Algiers - Tunis - Tripoli-Cairo.

Route V. New York - San Juan - Trinidad - Paramaribo-Belem - Natal.

a. Natal - Dakar - Casablanca - Tangier - Seville - Madrid - Barcelona - Paris.

b. Natal - Dakar - Monrovia - Lagos or Accra-Leopoldville (instead of Brazzaville) - Johannesburg - Capetown.

fornia and Calcutta. Intermediate points include Honolulu, Midway, Tokyo, Shanghai, Hong Kong, Manila, Batavia, Singapore, Bangkok, and Rangoon.

Delta Air Corp. filed for an extension of its present route AM 24 to form a Kansas City-Miami service. Northern leg of the proposed route extends from Birmingham via Tupelo, Miss., Memphis, Tenn., and Springfield, Mo., to Kansas City, Mo. Southern extension would link Savannah and Miami via Brunswick, Ga., and Jacksonville, Fla.

Aero-Transportes Develops New Lines

Aero-Transportes S. A., Mexican airline, is moving forward rapidly in development of routes granted to it by the Mexican government, and observers say the line promises to become an energetic factor in competition there.

Most recent addition to services now operating is a route connecting Mazatlan and Tampico via Guadalajara, Aguascalientes and San Luis Potosi. Connections are made at the latter point with the North-South route linking San Luis with Piedras Negras on the U. S.-Mexican border via Monterrey. The company also is flying between Torreon and Matamoros.

► **Attorneys Present Case** — CAB Examiner Ferdinand D. Moran last week heard Aero-Transportes attorneys present their case in support of the line's application for temporary 90-day permits to land

at Brownsville and Eagle Pass, Texas, pending airport improvements at Matamoros and Piedras Negras.

Work is under way at both sites at Aero-Transportes' expense.

The State Department has indicated it has no objection to granting temporary landing permits, and it seems likely that CAB will so find. Reliable sources hold that in seeking the temporary permit the line is not trying for a foothold in the U. S. Application for such entry to San Antonio, Texas, is pending, and the granting of temporary landing rights will have little effect on the outcome of this request.

Calif.-Hawaii Route Allocation Likely

CAB expected to grant certificates to one or possibly two carriers to compete with PAA.

As the Civil Aeronautics Board's hearing on applications for routes between the West Coast and Hawaii drew to a close last week, it seemed almost certain that at least one and possibly two new carriers would be certificated to compete with Pan American Airways over the route.

Five of the six applicants have presented traffic estimates which generally agree that roughly 100,000 passengers will travel between California and Hawaii in the first year of air operations. Not all will travel by plane, but the average estimated air traffic figure shown in the table below is many times greater than the number of pre-war passengers carried by Pan American.

Following are estimates of one-way passengers mainland to Honolulu and beyond. (Round trips counted twice) first year of proposed operation:

| | Total passengers | Total air passengers | Estimated to be carried by applicant |
|----------|------------------|----------------------|--------------------------------------|
| Matson | 111,000 | 63,500 | 31,661 |
| Hawaiian | 157,250 | 55,040 | 25,100 |
| United | 163,567 | 40,892 | 20,446 |
| Western | 80,000 | 32,000 | 13,751 |
| Ryan | 86,304 | 18,037 | 7,207 |
| Average | 119,624.2 | 41,893.8 | 19,629 |

(Table inserted in record as part of testimony of H. C. Timberlake, economist of Northwest Airlines.)

This estimated traffic contrasts sharply with those on passengers which a proposed Seattle-Honolulu route would develop. Here, Matson Navigation Co. estimates 11,000 in the first year of operations, compared with a 9,485 figure presented by Northwest. As the

only applicant seeking both routes, Matson's estimate recorded in the table above shows expected traffic on both the Seattle-Hawaii and California-Honolulu routes.

► **Seattle Certificate Unlikely** — From these figures, qualified observers are in general agreement that, despite prospects for future development of the Pacific Northwest, it does not seem likely CAB will certificate a carrier at present on the Seattle-Honolulu route.

On the other hand, the bright outlook for California-Hawaii traffic indicates Pan American may expect competition from one and possibly two additional carriers.

Airlines Face Fight For Trade—Gorrell

ATA president says public patronage and competition will decide aviation's place in post-war transport picture.

Views of Col. Edgar S. Gorrell on aviation's place in post-war U. S. foreign commerce and travel are cautious and realistic when he says "the place of air transport and the characteristics of its service will be determined by public patronage and the interplay of competitive forces." What that place will be, he will not prophesy.

Gorrell is president of the Air Transport Association, but the opinions he expressed recently before the National Post-War Conference at Spring Lake, N. J., were his own, and indicate he has full cognizance of the challenge facing the airlines after the war. Aviation will accord a new alternative service to the traveling and shipping public. That public will weigh advantages and disadvantages of this and older forms of transport. Those responsible for air transport's development will do their best to increase their advantage and reduce the advantage of other carriers, but the latter may be expected to do the same. Thus "many years" will elapse before the true place of air transport is determined.

► **Test of Time**—What happens in the meantime? "Confident prophecy is out of the question" because of the war. The future will not necessarily duplicate pre-war pattern and volume, but that peacetime experience can be a reference point for consideration of future expectations. And the war has demonstrated to the traveler that "over-water flight is not a great

adventure but merely a trip by airplane from here to there," and to the shipper that international airlines afford fast, reliable service.

Two to four years immediately following the war should "translate planes into true post-war planes, thoroughly tested, and ready to issue from the production line." It can be expected that during the conversion-rehabilitation period the American airline "company or companies" that are to operate abroad will establish their right to do so, principles of international flight will be determined and accepted, with negotiations on the more important routes concluded, the international service pattern will be established and in operation, and American flag foreign operators will be "well on their way toward public acceptance as vital parts of the transoceanic transport system," providing good service at rates as low as, or below, pre-war steamship first and second or cabin class rates.

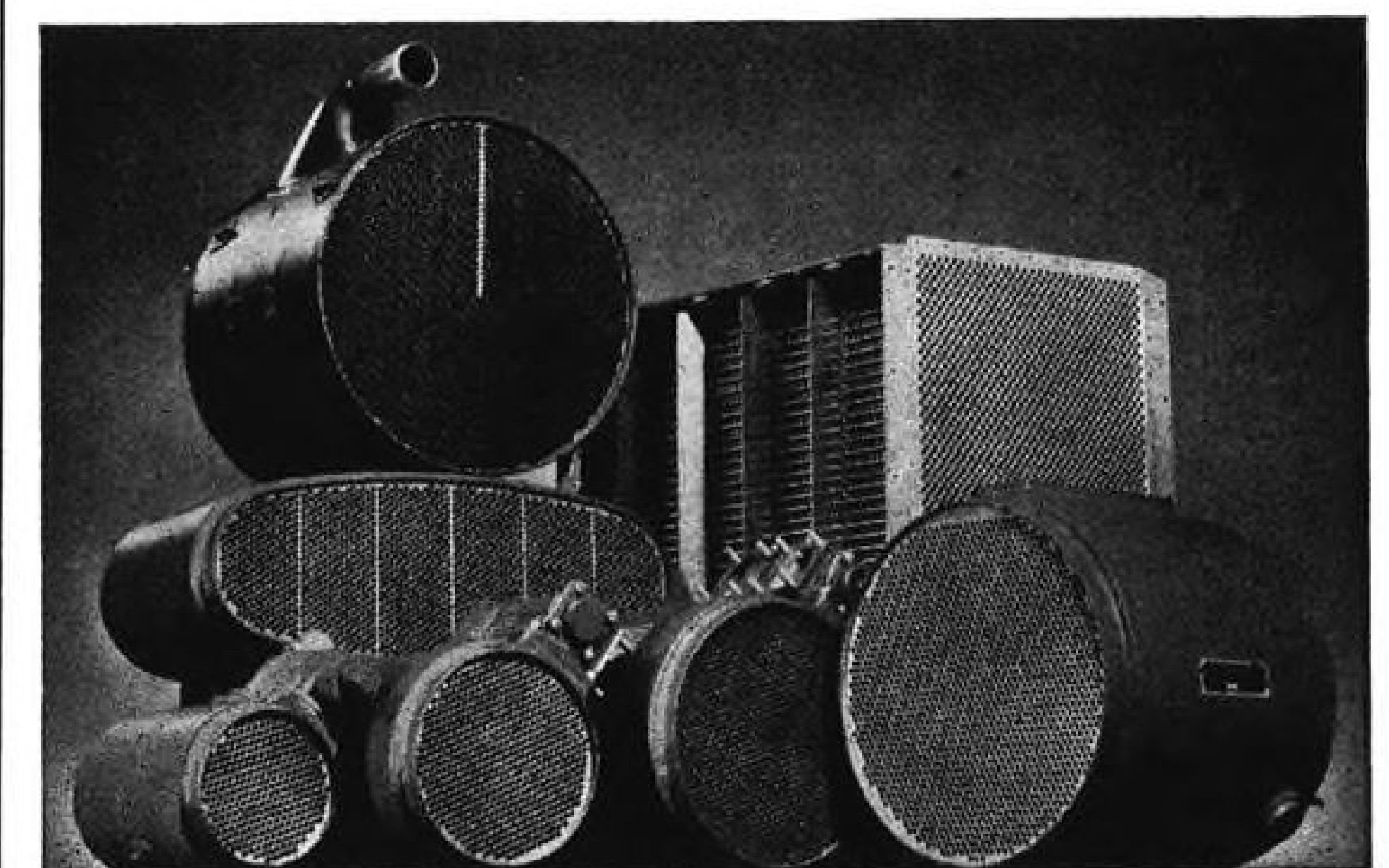
► **Overseas Air Travel**—Gorrell thinks it an early probability that a two-week vacation in Europe with all expenses paid and at least 13 days to spend in various European cities can be offered to U. S.

citizens at \$500 or less, with other more distant centers proportionately accessible. There should be "large increments in overseas air travel." But he doubts that considerable inroads into the volume of ocean freight by commercial airlines can be expected. Best chances for overseas cargo, as many have pointed out before, lie in upper brackets of high valued commodities.

Even a modest quantity of freight will not come to the airlines without an effort to get it and a fight from surface carriers to retain it. "The past history of transport shows that seldom does the new mode entirely supersede the older form, and that it usually depends upon the stimulation of entirely new traffic as well as upon diversion from the older instrumentalities."

Doris Miller to AA

Miss Doris Miller, assistant press chief for the Civil Aeronautics Board, will join American Airlines the first of the month to do publicity in Washington, D. C. Miss Miller is well known in the air transport field, having been in the CAB press room four years.



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Airline Travel Survey Forecasts Sharp Post-War Traffic Upturn

Three-fold expansion in use of services predicted in Crowell-Collier Publishing Co. study; reasons for preferring planes to other means of travel place pleasure and comfort above speed.

First-hand indications of the sizable marketing job ahead for the commercial airlines, if post-war air transportation meets its expected growth, come to light in the Crowell-Collier Publishing Co. survey forecasting a three-fold expansion in airline travel after the war.

With 65 percent of persons interviewed planning to use commercial airlines in post-war travel, as against 23 percent who already have flown the airways, a study of reasons leading to the first airline trip gives airline ticket sellers a new approach.

► **Speed Not Main Factor**—In the past, going by air has generally been talked of in terms of speed—"It pays to fly." Some 2,000 persons interviewed, however, have different ideas. Speed accounted for only 23 percent of initial flights, but pleasure flying groups (curiosity, sightseeing, pleasure and convenience) made up 44 percent. Here is a break-down of the replies to the question "what led you to make your first airline trip."

| | Men % | Women % | Total % |
|--|-------|---------|---------|
| Speed—to save time..... | 23 | 23 | 23 |
| Curiosity—wanted the experience..... | 22 | 23 | 23 |
| Business..... | 23 | 7 | 16 |
| Pleasure—visiting..... | 11 | 24 | 16 |
| Emergency—illness..... | 4 | 8 | 5 |
| Convenience..... | 2 | 4 | 3 |
| Sightseeing—vacation..... | 2 | 1 | 2 |
| Avoid train trip—no train available..... | .. | 3 | 1 |
| Miscellaneous reasons..... | 8 | 5 | 7 |
| Don't know..... | 5 | 2 | 4 |
| TOTAL..... | 100 | 100 | 100 |

The fact that women mentioned pleasure reasons for flying more often than men, together with the showing that 62 percent of women interviewed expect to fly commercially after the war, as compared with 68 percent for men, emphasizes the importance of the development of that market in post-war expansion. Further, it indicates the extent women's resistance to flying is disappearing.

Another important market for post-war air travel will be among the youths. This will be particularly true as travel rates decline. For example, the survey shows that youths went to fly, but do not do so as often as older persons,

whereas the latter group, while less anxious to fly, continue to use the airlines once having flown.

Table I below shows by ages the number of airline flights, with percentages based on total who have flown, while Table II breaks down by age groups the replies to the question "Do you expect to fly in commercial airline planes after the war?"

While the survey disclosed that more persons in large cities were planning to use the airlines than in smaller communities, airline officials were of the opinion that such was a normal reaction in view of the fact that only the larger cities have had adequate facilities in the past. In cities of 500 million and over, for example, 71 percent of those interviewed expected to fly commercially after the war, while in cities under 25 million 61 percent were planning to fly.

One of the most important jobs for the air carriers will be to overcome the obstacles to airline flights. "Lack of interest" in going by air was the reason given by 33 percent of the men and 29 percent of the women who are not planning to use airline facilities in the post-war period. The next important reason was the danger involved. This was given by 13 percent of the men and 21 percent

| | Men % | Women % |
|----------------------------------|-------|---------|
| Lack of interest..... | 33 | 29 |
| Dangerous—want to stay on ground | 13 | 21 |
| Too old to fly..... | 4 | 5 |
| Costs too much..... | 5 | 2 |
| Auto is satisfactory..... | 7 | 5 |
| Will have own plane..... | 2 | .. |
| Miscellaneous reasons..... | 4 | 5 |
| No answer..... | 32 | 33 |
| Total %..... | 100 | 100 |
| *Less than .5% | | |

| Age | TABLE I | | | | Total |
|----------------|---------|------------|---------------|------------|-------|
| | Once | 2-10 times | Over 10 times | Don't know | |
| 18-24..... | 51 | 33 | 5 | 11 | 100 |
| 25-34..... | 27 | 54 | 14 | 5 | 100 |
| 35-44..... | 20 | 49 | 20 | 11 | 100 |
| 45-54..... | 34 | 42 | 14 | 10 | 100 |
| 55 and up..... | 29 | 49 | 10 | 12 | 100 |

| | TABLE II | | | | | Total |
|-----------------|----------|-------|-------|-------|-------------|-------|
| | 18-24 | 25-34 | 35-44 | 45-54 | 55 and over | |
| Yes..... | 77 | 76 | 70 | 60 | 36 | 65 |
| No..... | 21 | 23 | 29 | 38 | 59 | 33 |
| Don't know..... | 2 | 1 | 1 | 2 | 5 | 2 |
| Total %..... | 100 | 100 | 100 | 100 | 100 | 100 |

Safety Stressed

"Aviation development has been retarded by the tendency of newspapers to play up every airline accident," says Crowell-Collier Research Department's survey "Tomorrow's Customers for Aviation."

"Little has been done in advertising and publicity to keep the public equally conscious of the millions and millions of airline miles flown without incident."

"The safety and even prosaic dependability of airline flight today is a tremendous theme which the aviation industry can and should promote. Up to now the absorption in the pure glamour of flight has kept the industry from adequately publicizing this accomplishment in fact."

of the women as their objection to air travel. Reasons for not expecting to use air travel are listed below.

If the airlines bidding for trans-Atlantic routes can get their fares as low as \$200 a round trip, 67 percent of the persons interviewed would like to go abroad after the war. Another 31 percent wouldn't go at that figure, while 2 percent don't know what they would do.

Business to South America, however, appears to be brighter, with almost three-fourths of those interviewed stating that they would like to visit that continent. However, 47 percent, as against 34 percent, would rather go by boat than by air. Twelve percent would like a combination plane and boat ride, while 1 percent think they would like to go by car. Six percent don't care how they get there.

Almost half the respondents were unable to select any particular countries in South America to visit. Brazil was picked by 39 percent. Argentina by 25 percent.



TRIBUTE TO FRYE:

A model of a Douglas C-54 was presented to Jack Frye (left) for Donald W. Douglas when Frye celebrated completion of ten years as president of TWA. An accompanying card described Frye as a "modern pioneer, whose global achievements in Douglas planes have helped place milestones in the path of aviation progress." Mayor John B. Gage of Kansas City (right) is presenting Douglas' tribute as E. Lee Talman, TWA executive vice-president, watches.

TAC Route May Link U.S. Northwest, N.Y.

Canadian firm's plans for direct Winnipeg-Toronto line eyed as bid for new service to East Coast.

Plans of Trans-Canada Air Lines for a direct Winnipeg-Toronto service which would connect with TCA's existing route to New York are viewed as actually a bid by the Canadian carrier to furnish new service from the U. S. Northwest to the East Coast over an airway Canadians contend is shorter than that of any U. S. airline.

With post-war flying equipment enabling TCA to tackle the long over-the-Lakes hop to Toronto, the line would only need entry into Seattle to set up a U. S. coast-to-coast operation of approximately 2,508 miles, some 270 miles shorter than the projected Northwest Airlines trans-continental run. Landing permission at Seattle would also give TCA opportunity to furnish single-carrier service to Europe for traffic originating in the U. S. Northwest.

► **Equipment Awaited**—Although neither the Winnipeg-to-Toronto, nor Vancouver-to-Seattle plans has been announced officially, it is

known that TCA is awaiting only suitable equipment before requesting the Canadian Government to seek U. S. permission for the Seattle extension. This is at present an exclusive route of United Air Lines and the air service agreement between the U. S. and Canada would have to be amended before TCA could achieve its ambition.

The agreement, however, expires at the end of the war and Canadians are confident that when it is revised the Dominion will be granted any route it requests. They point out that trans-border service is heavily out of balance in favor of U. S. operators. TCA flies only to New York, while U. S. carriers go into Moncton, Montreal, Toronto, Windsor, Winnipeg, Lethbridge and Vancouver. The agreement allotted Canada one route that has never been opened, Detroit to any point in the Dominion.

► **Route Shorter than United's**—TCA's present operation from the Pacific Coast to New York is roughly 100 miles shorter than United's corresponding route, but the Canadian line's elapsed time is more than one hour greater. With Douglas DC-4s replacing its Lodestars after the war, TCA expects to better the coast-to-coast time of any U. S. airline.

CAA to Decentralize Medical Division

Decentralization of the Civil Aeronautics Administration's Medical Division looking toward a vast upswing in private flying is under way, according to Dr. W. R. Stovall, Chief of CAA's Aviation Medical Division.

Addressing the 16th annual meeting of the Aero Medical Association at St. Louis, Mo., he outlined other steps his division is taking to prepare for the heavy increase in physical examination which will be required of those seeking pilot's certificates of various classes.

► **Regional Offices**—Regional medical offices have been proposed to ease the burden on individual medical examiners and to streamline administrative procedures, and Stovall indicated they might be established during the next year.

Stovall urged extreme caution in easing the physical requirements for student and private pilot certificates as proposed by the Civil Aeronautics Board's Safety Bureau.

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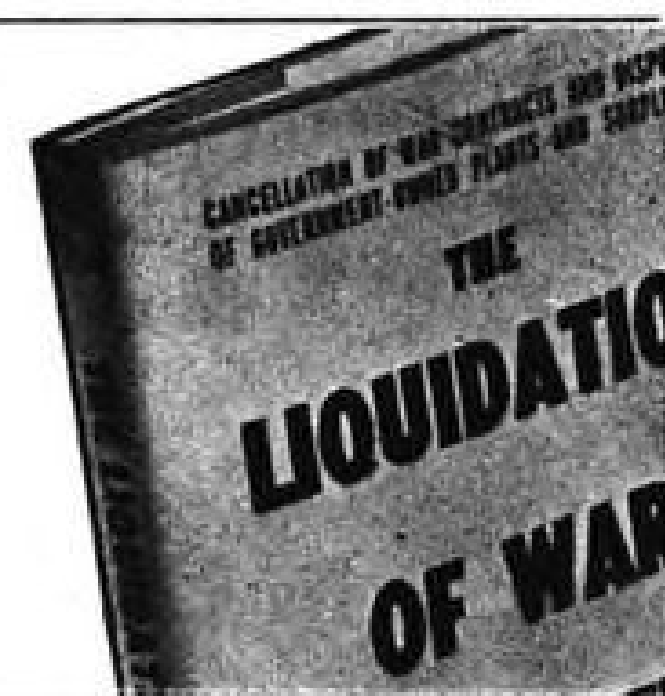
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THE LIQUIDATION of WAR PRODUCTION

★ Cancellation of War Contracts and Disposal of Government-owned Plants and Surpluses.

By A. D. H. KAPLAN

Professor of Economics, University of Denver

133 pages, 5 3/4 x 8 3/4, \$1.50

How will our war production be liquidated? To aid businessmen in considering their own specific questions of conversion, this new study from the Committee for Economic Development surveys the problem and suggests definite policies and methods of solution.

Clearly, concisely, authoritatively presented are the facts you want—the framework of reference that takes into consideration the magnitude of the job, the nature of the factors involved, and the procedures necessary to:

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What will be the areas of distress requiring help until a peacetime balance can be restored?

What lessons do experiences following World War I teach?

What is the importance of timing of the reconversion program?

In many aspects such as these, the reconversion problem is examined in this book. The issues, the facts, the figures are extracted, placed in proper perspective, and simply stated for the busy business reader, and 41 concrete proposals are made for a program providing for a smooth transition to desirable postwar levels of production, employment, and wages.

JOHN M. HANCOCK, Office of War Mobilization, Washington, D. C., says, "I certainly feel that you have done a masterful job."

Dr. SUMNER H. SLICHTER says, "I am enthusiastic about this report. It is realistic and to the point."

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Feeder Men Launch Intensive Program

Long-range equipment and public education plans projected by Association as part of its first year's program.

Feeder Airlines Association, after a formal election and appointment of membership and technical committees, is launching its first year's program with plans for equipment research and education of the public to its purposes.

Estimates are that the "educational program" will cost about \$100,000 annually for the first few years. Probably it will be in two phases, one while the lines are obtaining certificates and establishing their operations, and the other thereafter to familiarize the public with the type of service available.

► **Media** — Advertising, publicity, circulars and personal contact with communities are some of the media through which the Association plans to further its program.

Officers were named earlier, but a formal election was necessary because of the organization's recent incorporation. Harry R. Stringer, of All American Aviation, is president.

Membership committee is headed by Beverly E. Howard, president of Hawthorne Airways. Other members: Halsey R. Bazley, president of All American; Ray Hylan, president of Hylan Flying Service; Leland Hayward, chairman of the board, Southwest Airways; Oliver L. Parks, president of Parks Air College; T. Claude Ryan, president, Ryan School of Aeronautics.

► **Technical Committee** — Parks is chairman of the technical committee, on which are Bazley; Herbert C. Fox, president, Southern Aviation Corp.; Bowman R. Otto, president, Otto Aviation Corp., and Eugene R. Scroggie, operations manager for Ryan.

Both committees expect to meet

soon. One of membership's first jobs will be determination of a basis for admission of associate members from other branches of the industry. This group probably will include aircraft manufacturers, accessories manufacturers, and others selling or rendering service to the industry.

The technical committee will work with plane and accessories manufacturers on feeder line equipment problems.

Twenty-six operators and applicants for feeder airlines are charter members of the Association, which has headquarters in Washington at 1010 Vermont Ave., N. W., under Don Seevers.

► **Three Designs Studied** — That the matter of equipment is a prime interest is evidenced in the scheduling of a meeting of the new technical committee at St. Louis Sept. 23. Informed sources say committeemen favor three designs for local service planes, all twin-engine.

First would be a 260-300 hp. pickup plane to carry cargo only. Second would be a 450 hp. job, 16 to 18 passenger, combination cargo (pickup) and passenger. Third would have 800 hp., carry 26 to 30 passengers and light cargo only, probably without pickup equipment. The latter two would have movable bulkheads.

Many manufacturers are interested in future developments in the feeder equipment field. Among them are Douglas, which has announced its Skybus design, Martin, with its model 202 plans, Consolidated Vultee, Curtiss-Wright, Lockheed and Beech. Lockheed is reported to have sent out a questionnaire. Generally their interest extends to pickup possibilities, Douglas being the only one said to be cool toward the pickup idea.

Denver Feeder Case Sets Future Pattern

Arguments of both sides expected to follow same line as established in Rocky Mountain hearings.

The pattern which argument in future CAB regional feeder service proceedings probably will follow has developed with increasing clarity from the Rocky Mountain hearings in Denver, Colo., during the past two weeks. This pattern has two main aspects.

First, the struggle between ex-

isting carriers and would-be feeder operators is certain to be repeated in each succeeding case. Second, the "trade area feeder line" issue will be re-fought in each proceeding involving an application of one of the Braniff-sponsored lines.

► **CAB Clarification Unlikely** — Furthermore, there is little likelihood of a CAB decision to clarify the Board's stand on either of these questions before most of the regional hearings now docketed have been finished.

With the tacit backing of most of the domestic carriers, Western Air Lines is piling up evidence in the Rocky Mountain case designed to convince CAB that the domestic lines can do the local hauling job if granted sufficient route extensions. Western's application seeks feeder extensions in the Rocky Mountain area, and is typical of the way in which the airlines propose to handle local and feeder services within the framework of their existing organizations.

► **Trade Area Feeders** — Braniff's plan contemplates establishing feeder lines serving the "trade areas" of large cities, under the guidance of a major carrier. The application of Frontier Airways, based in Denver, is the first of these to come before the Board.

Smaller applicants contend that Braniff's plan is a subterfuge whereby he intends to blanket most of the Western states with an interlocking system of local lines. Should the trade area applications be granted, they hold, a comprehensive route network would result, covering the area so thoroughly that no other applicant would have a chance.

► **Denies Control** — On the witness stand, T. E. Braniff denied that his company's 25 percent interest in the trade area lines meant Braniff Airways would exercise control, and that the geographical contiguity of the trade areas had any sinister significance.

Opposing the existing carriers are fixed base operators seeking small airlines and strangers to aviation who hope to enter the field with a small feeder line. The latter type drew from T. E. Braniff the scornful remark that "many of these feeder applications are for the purpose of getting a toe under the tent. They have no idea of operating in a restricted area but hope to become major airlines."

► **Stumbling Block** — Possible stum-

bling block to many small applicants is CAB's rigid requirement of "fitness, willingness and ability," particularly financial ability. S. N. Drum, operator of Colorado Airlines, testified his company had lost \$2,617 during the six weeks it operated an intra-state service under a certificate of the Colorado Public Utilities Commission. Drum maintained, however, that his operation could be made profitable by a CAB certificate permitting interstate operations.

CAB Examiner William J. Madden expected early completion of the case.

PCA Head Cites Move To Scuttle CAB

Charges attempt to discredit Board by "American Cliveden set in aviation" and powerful railroad lobby seeking by underground tactics to force its way into commercial aviation.

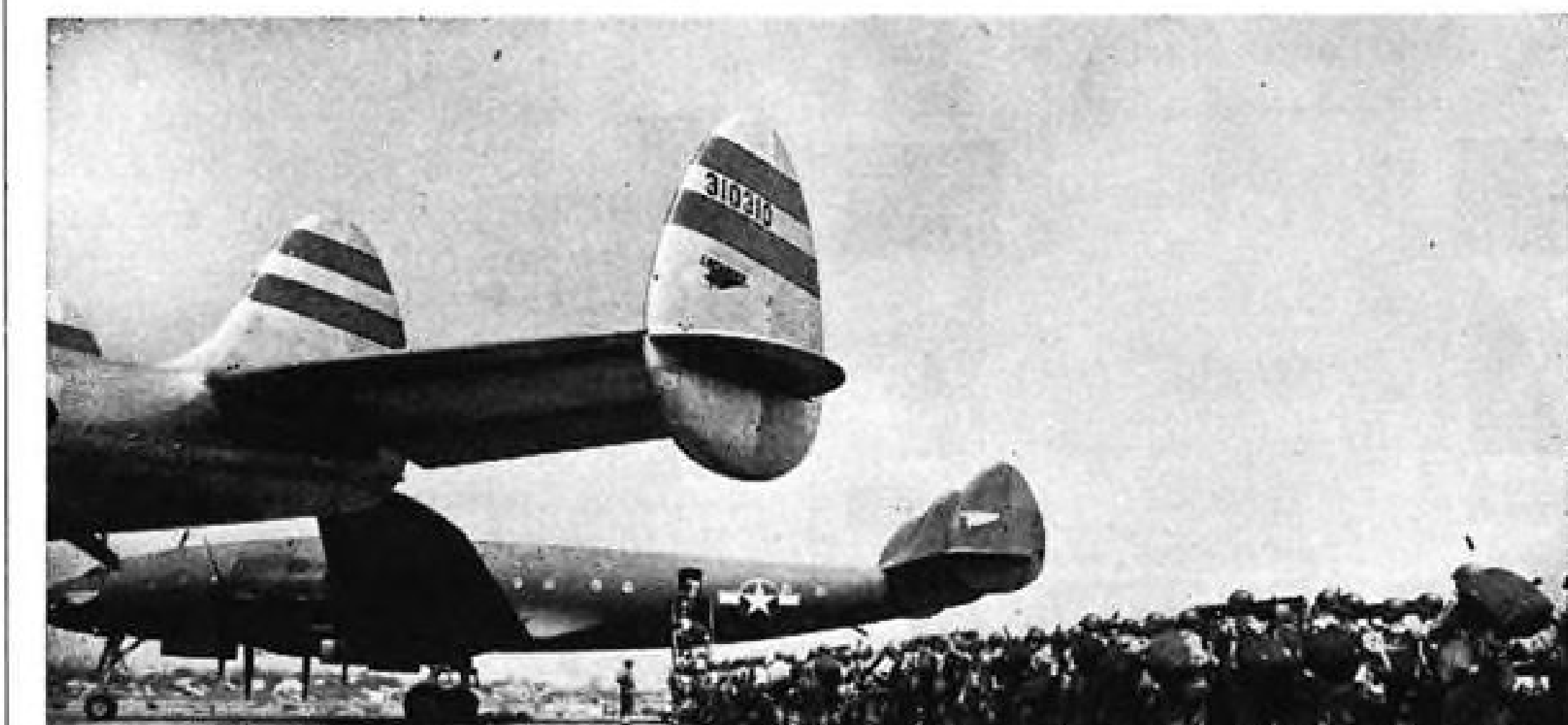
Charges that an attempt to scuttle the Civil Aeronautics Board were being made by an "American Cliveden set in aviation" and a powerful railroad lobby employing underground tac-

tics to force its way into commercial aviation has been made by PCA's President C. Bedell Monro in an address at Flint, Mich.

He endorsed the "excellent progressive record" of CAB, and branded the alleged attack on the Board as an "un-American attempt to sabotage a governmental agency" because the CAB has not been "amenable to the special interests of monopolists."

► **Cites Varying Stands** — "Certain carriers in the domestic air field who have been shouting the loudest against monopoly in the international field are seeking not only to perpetuate but to increase the virtual monopolies which they now have in their territory in the domestic field," Monro asserted. "Their actions have included vigorous opposition to continuance of the CAB as a governing body," he said, branding this group an "aviation Cliveden set."

Monro's attack was also directed against integrated transportation plans proffered by surface carriers, chiefly railroads. "Integration," said Monro, "is actually only a colossal subterfuge to foist on the American public a stultifying, destructive transport monopoly."





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All American Plans New Pickup Designs

Pioneer airline maps expansion program after completion of best year in company's history.

With designs for new pickup planes on the boards, and interest in this type of air operation growing not only in the United States but in other countries, All American Aviation, pioneer in the field, looks to another good year after the best in its history.

President Halsey R. Bazley's annual report to stockholders for the year ended June 30 showed net income after all charges of \$238,587, equal to 78 cents a share on 266,490 common outstanding, after preferred dividends. A year earlier, net income was \$27,689, or 11 cents a share.

► **Expansion**—The company plans expansion of its routes beyond the past year's increases, and has been talking with aircraft manufacturers about development of a plane for combination passenger and airmail pickup service. Consolidated Vultee is said to be working on designs for a 10-passenger plane with pickup equipment. Curtiss-Wright Corp. also is on the problem. Douglas has proposed its Sky-Bus, and Martin its Model

202. Virtually any conventional lane can be adapted to pickup, by removal of some seats and installation of equipment.

All American's manufacturing and development division accounted for \$3,720,830 of its gross income of \$4,276,725 during the year, the Air Transport Division producing \$555,895. Rebates made voluntarily by the company on its war contracts decreased the manufacturing gross by \$801,783.

► **Pickup System Used by Army**—Details of the production contracts for the Army Air Forces could not be told, but Bazley disclosed that the company has further contracts of this type for completion in the 1945 fiscal year. His statement that All American pickup equipment "found application" in active theaters of war presumably was a reference to glider pickup. Some pickup equipment has been installed on virtually all types of military aircraft. This even applies, in some isolated instances, to fighter planes.

Foreign airline operators who have visited All American to study its operations, many times flying its pickup routes, have come from Canada, the British Isles, Central America, Brazil, Sweden and Australia.

► **Financial Report**—At fiscal 1944's end, the company's current assets were \$1,198,262 and current liabilities \$322,892 against \$772,258 and \$801,257 respectively for the previous year. Net working capital increased \$904,368.

Sale of 26,218 shares of 4 percent convertible non-cumulative preferred stock improved the financial condition, yielding a net of \$609,352. Initial dividend of 50 cents was paid March 1, and a second of the same amount per share Sept. 1.

► **Traffic Increases**—Air mail traffic increased 72.7 percent over 1943. Air express was up 21 percent. Route extensions and new schedules increased scheduled mileage 1,038 miles a day to 4,572. In two years of military cargo service, terminated July 15, the line's single-engine cargo planes flew 1,738,368 miles and carried 2,461,000 pounds of cargo without serious loss or damage. New routes for which All American has applied would add 4,851 miles and 422 communities to its present 118-point system.

As a memorial to Richard C. du Pont, its founder and first president, the company has made a gift to Mass. Institute of Technology for research in aviation subjects.

Boeing Gives Data On Modified 307-J's

Boeing Aircraft Co. has prepared an engineering report on its *Stratoliner* Model 307-J as modified for Transcontinental & Western Air, looking toward sales to the transport industry of future production.

Army Air Forces recently returned to TWA five *Stratoliners* previously requisitioned for war service. These airplanes are undergoing modification at the Seattle Boeing plant. Changes include installation of *Fortress* B-17-G wings, tail section and landing gear, and larger engines, giving greater wing strength, increased stability, and higher performance.

► **Prepare for Non-War Production**—Boeing is preparing to make use of such of its manufacturing facilities as may be released in future for non-war production. Due to the great demand for B-17's and B-29's and, during a long period, for the *Kaydet* trainer, it is generally agreed that the company has had a minimum of opportunity to plan and implement its post-war activities. Though several efforts were made, Navy was never able to allocate facilities for production of Boeing's "*Lone Ranger*" XPBB-1 flying boat, which was accepted with high approval, and which has good commercial characteristics.

It is believed that specifications and performance data on proposed production of the 307-J are substantially the same as those of the five TWA units now being modified. The new design has a gross weight of 54,000 pounds, and 64 inches have been added to the fuselage.

► **Supercharged**—Cabin supercharging is retained in the modified units, and is specified for additional production of the 307-G. The pressurizing equipment will maintain an 8,000-foot atmosphere at 15,000 feet and permit benefits of altitude operations not otherwise practical with passengers.

One cabin arrangement permits seating of 47 passengers, and another 40 passengers. There are two cargo compartments, located under the passenger deck, bus fashion, with a total capacity of about 500 cubic feet. One hundred cubic feet of baggage space is located back of the cabin.

The 47-passenger arrangement is one tier of three seats and one tier of two seats. The 40-passenger arrangement is two tiers of

two seats. A cockpit crew of three, and a cabin crew of two, are required.

► **Data**—The new *Stratoliner* is said to be in the medium range class, with a reach of more than 1,000 miles with maximum payload. Maximum takeoff weight is more than 54,000 pounds and maximum landing weight is over 47,000. Required length of takeoff at maximum allowable weight is 5100 feet; landing 4000 feet, both at sea level.

Maximum altitude with one engine inoperative is reported as more than 10,000 feet. Operating empty, weight of the airplane is about 34,000 pounds. Wright two-speed supercharged engines, rated at 1100 hp. from sea level to 5500 feet are specified, with several Wright and Pratt & Whitney alternates of higher horsepower.

CAB ACTION

• Civil Aeronautics Board approved an agreement between Eastern Air Lines and Braniff Airways which provides for air-conditioning Eastern's flights at Houston, Texas, by Braniff.

• Braniff Airways resumed service on segments of AM 50 between San Antonio, Austin, Houston, and Corpus Christi, Texas, early this month after CAB lifted its suspension order for these portions of the route.

• An application for helicopter routes in Washington and Oregon, filed with CAB by the North Coast Transportation Co., was dismissed at the company's request.

• CAB lifted its temporary suspension order for Alaskan routes operated by George S. Schwamm, doing business as the Petersburg Air Service.

• Pan American Airways received CAB permission to discontinue accumulating and reporting to the Board certain financial statistics covering the line's operations for the U. S. Navy on its Pacific Division.

• Pan American's request for reconsideration of the Board's decision in the Latin-American rate case was refused by CAB.

• American Airlines application for a Los Angeles-San Francisco route, filed last June, will be consolidated with the West Coast Case, scheduled for hearing Nov. 1. American's request for consideration of the application in this case was denied originally by the Board to avoid undue broadening of the West Coast proceeding. The line's request for reconsideration of this decision, however, brought the Board's reversal. Favorable action on the application would install a fourth carrier between Los Angeles and San Francisco.

• An application of Washington Motor Coach Co. for feeder routes in Washington, Oregon, Idaho and Montana has been removed from the West Coast case (Docket 250 et al.) and dismissed at the company's request.

• Braniff Airways has asked CAB to dismiss its application for a route between Fort Worth-Dallas, Texas, and Rome, London and Stockholm. Braniff officials say the company believes its prospects for future development are more favorable in Latin-America than in Europe.

• Eastern Air Lines filed notice of intention to operate non-stop between Evansville, Ind., and Chattanooga, Tenn., on AM 10.

• Delta Air Corp. is seeking CAB permission to intervene in the Texas-Oklahoma feeder case. (Docket 337 et al.)

• U. N. Airships, applicant for over-ocean lighter-than-air service, has requested that CAB reinstate its application for hearing in the North and South Atlantic proceedings. At prehearing conferences in these cases, U. N. Airships withdrew, requesting separate hearing for its proposal.

• CAB Examiner Ferdinand D. Moran last week heard LAMSA attorneys present the case supporting the line's application for a temporary permit to use the airport at Nogales, Ariz., in its operations between Chihuahua, Cananea, and Nogales, Sonora, Mexico. LAMSA is seeking the temporary permit because the airport at Nogales, Mexico, cannot

handle the Boeing 247-D's the line recently acquired. An earlier LAMSA application asked to make Nogales, Ariz., a stop on a projected route between Cananea, Mexico, and Los Angeles.

• Prehearing conference was held in National Airlines' application to add New Bern, N. C. as an intermediate point on its AM 31.

• CAB approved United Airlines non-stop request for AM 1 between Oakland, Calif., and Denver, Colo. United operated this segment non-stop in 1943, but because such operations had been allowed to lapse more than 45 days, reapplication was necessary.

• Continental Airlines has filed a complaint against Braniff Airways alleging that a recently published Braniff schedule between Denver and Fort Worth-Dallas lists an operation which Braniff's certificate does not contemplate and which would provide destructive competition to Continental's Colorado-Oklahoma service. Continental holds that Braniff's certificate for AM 15 establishes a through Colorado-Texas service. The schedule on which Continental's complaint is founded lists an operation between Denver and Fort Worth-Dallas via Colorado Springs, Pueblo, Amarillo, and Oklahoma City.

• Cordova Air Service also filed with CAB a complaint alleging that Alaska Airlines is attempting to obstruct Cordova's operations and is delaying resettlement of affairs between the two lines. Alaska Airlines recent agreement to purchase Cordova was disapproved by CAB, necessitating a separation of the two companies' affairs, which had been conducted by Alaska pending the Board's decision. Cordova asserts that Alaska is using unscrupulous methods to force CAB reconsideration of the acquisition.

CAB SCHEDULE

Sept. 18. Latin-American route hearing before Assistant Chief Examiner Francis W. Brown. (Docket 525 et al.)

Sept. 18. Brief date in the Kansas City-Tulsa-New Orleans case (Docket 651 et al.). Extended from Sept. 10.

Sept. 23. Final date for filing petitions for reconsideration of the Board's decision in the Detroit-Memphis case (Docket 303 et al.)

Sept. 25. Hearing at Ketchikan, Alaska, on applications of Ellis Air Transport and Ketchikan Air Service for additional service in Southeastern Alaska. (Docket 876 et al.) Postponed from Sept. 14 at request of Ketchikan Air Service.

Oct. 1. Deadline for exhibits in the Oklahoma-Texas feeder case.

Oct. 2. Exchange of exhibits in the Florida cases (Docket 489 et al.)

Oct. 2. Prehearing conference international route applications, Australia.

Oct. 2. Date for exchange of exhibits in North Atlantic case. (Docket 855 et al.)

Oct. 2. Hearing on the application of Pan American Grace Airways for an amendment to its certificate authorizing temporary service between Chiclayo and Iquitos, Peru.

Oct. 15. Date for exchange of exhibits in South Atlantic case.

Oct. 16. Exhibits due in the New England Feeder case (Docket 399 et al.)

Oct. 16. Deadline for exhibits in the South Atlantic case. (Docket 1171 et al.)

Oct. 16. Hearing date, North Atlantic routes.

Oct. 20. Date for exchange of rebuttal exhibits in the Oklahoma-Texas case.

Oct. 21. Briefs due in Braniff Airways application to acquire stock of Aerovias Braniff from T. E. Braniff.

Nov. 1. Rebuttal exhibits in the Florida cases due. (Docket 489 et al.)

Nov. 1. Hearing date, South Atlantic routes.

Nov. 1. Hearing in the West Coast Case (Docket 250 et al.) before Assistant Chief Examiner Francis W. Brown and Examiner F. Merritt Rublen in the Civic Auditorium, San Francisco, Calif. Postponed from Oct. 16.

Nov. 13. Deadline for rebuttal exhibits in the New England feeder proceeding (Docket 399 et al.)

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

Dec. 4. Tentative hearing date for applicants for feeder routes in the New England states. (Docket 399 et al.)

Dec. 13. Tentative hearing date, North Pacific routes.

Jan. 10, 1945. Tentative hearing date, Central Pacific routes.

Feb. 1, 1945. Tentative hearing date, Australian routes.

MNB Rules on AA Flight Engineers

National Mediation Board has held that American Airlines flight engineers are not a separate craft for representation purposes under the Railway Labor Act, but are part of the craft or class of airline mechanics.

The Flight Engineers Association asked last December that the Board investigate a representation dispute among American's flight engineers, in which the Airline Mechanics Association was the other party, the question being whether the flight engineers constituted a separate group.

► **Duties Held Similar**—The Board reports that its investigation and company statements show that "aside from the checks and inspections required of flight engineers in connection with flight duty, their essential duties are the same as those of ground maintenance forces, i. e., performing mechanical work in maintaining the equipment."

Only 81 employees were listed in the group the Flight Engineers Association sought to vote as a separate craft or class, compared with more than 1,700 in the mechanical group.



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The Operator Speaks

LIGHTPLANE MANUFACTURERS could read each issue of the NATA dispatch with profit. The unpretentious-appearing mimeographed news-letter, of National Aviation Trades Association, crammed with news and realistic observations, wastes no words in speaking the collective mind of the fixed base operator.

Worth quoting:

- "Factory representatives seem very worried that the operators are not properly merchandising their products, and are offering many valuable suggestions. . . . Our reply has been that there is a slight period of survival to undergo before we build the air-conditioned, green-glass roofed showroom lounge on the field site of our new sales-restaurant-administration-office-club building, and that someone had better make some new 1-2 control, fast, slow landing, hands-off flying, 3-4 wheeled, comfortable utility airplane, with built-in tail winds and self good weather features and not try to sell the already sold, much talking public a pre-war model with nothing new except the conversation.

"As a matter of fact, we are sadly disappointed at some of the post-war prospects, although some look more than good. After a while you don't quite know whether the answer is to make pilots and sell them the airplanes or make an airplane that flies itself and let it make the pilots, and then sell them an airplane. Some of the boys figure that maybe someone will break loose with a new one, but most feel that for a while the public will buy any airplane and that after a settling period someone who knows nothing about aviation will come along with a simple Model T that will have some utility. Certainly we all will be glad for anything new to sell so the public can see what value really is after buying some of the surplus junk as a starter."

That's the plane salesman of the future speaking, in his own language. We have seen 5,000-word articles written on this subject that said less.

Congress Must Wake Up

CONGRESS HAS BEEN DISCUSSING the demobilization of American industry for nearly 18 months. There is still no legislation to guide reconversion.

Now, faced with imminent collapse of Germany and a conservatively-estimated 40 percent cutback in war production, Congress has been considering postponing action on some vital phases of the problem until after the election in November.

House and Senate conferees, in violent dispute over unemployment benefits, have failed utterly to reach any agreement. The Senate has sought to extend unemployment benefits to an estimated 3,500,000 Federal employees and to provide funds to finance the return home of war workers who migrated to war production centers. These provisions the House conferees refused to accept. The issues grew larger as discussions went on and a stalemate developed.

Last week the conferees openly admitted they had progressed nowhere on the important measures.

and abandoned their efforts. The only other alternative—and one which appeared to appeal to both House and Senate late last week—is to postpone as much action as possible until after the election.

Overlooked or disregarded by political-minded Congressmen is the fact that Germany may have quit the war by November and that nearly half of the nation's war plants may be either idle or operating at half-capacity. Congress needs to be reminded forcibly, now rather than later, that the prime purpose of reconversion legislation is to prevent chaos during the transition period. Congress has sole responsibility to prevent chaos. It has failed to date to take proper action.

Coast Guard's Air Aid

COAST GUARD has decided to continue its valuable and efficient air-sea rescue service after the conflict ends. With sufficient funds it will be extended to match the service's excellent sea rescue operations, with coordination of ships and planes both for protection of private and commercial flying, not only near our shores but also in trans-oceanic operations. Coast Guard ships can function as weather reporting and airway aids as well as for rescue purposes.

The service will need more bases, many more planes. Few realize that it has only nine bases along all U. S. coastlines. Operations, which probably will cover the Great Lakes, and oceanic iceberg patrol, will be an excellent training school for pilots.

The Bureau of the Budget and Congress should study the Coast Guard's proposals with great care when budget estimates are prepared, to make certain that maximum value to the national defense and safety for the flying public is assured.

Why Not Speak Publicly?

HOUSE MERCHANT MARINE COMMITTEE did the country a service when it opened hearings which, in the words of Chairman Bland, "will assist Congress in arriving at a sound international aviation policy." Although the committee seeks to aid steamship interests in obtaining permission to operate air services, it is noteworthy that the hearings were open to the public and that a decidedly anti-chosen instrument current was evident throughout. Government and shipping witnesses were heard. It is known what stand the domestic airlines would take if they testified.

All this is in contrast with the unsavory manner in which the Senate Aviation Subcommittee has been approaching the vital question of our post-war international aviation prospects. Not one open hearing has been held by that group, from which it is rumored a pro-chosen instrument report soon may issue.

The burden of proof is on the monopolists. They should spread before the public the questionable arguments they have been making before the few Senators whose favor they have won. Perhaps the trend shown in the House committee is indicative of what would happen to monopoly proponents if they conducted their business in the open.

ROBERT H. WOOD



Westinghouse Announces

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

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

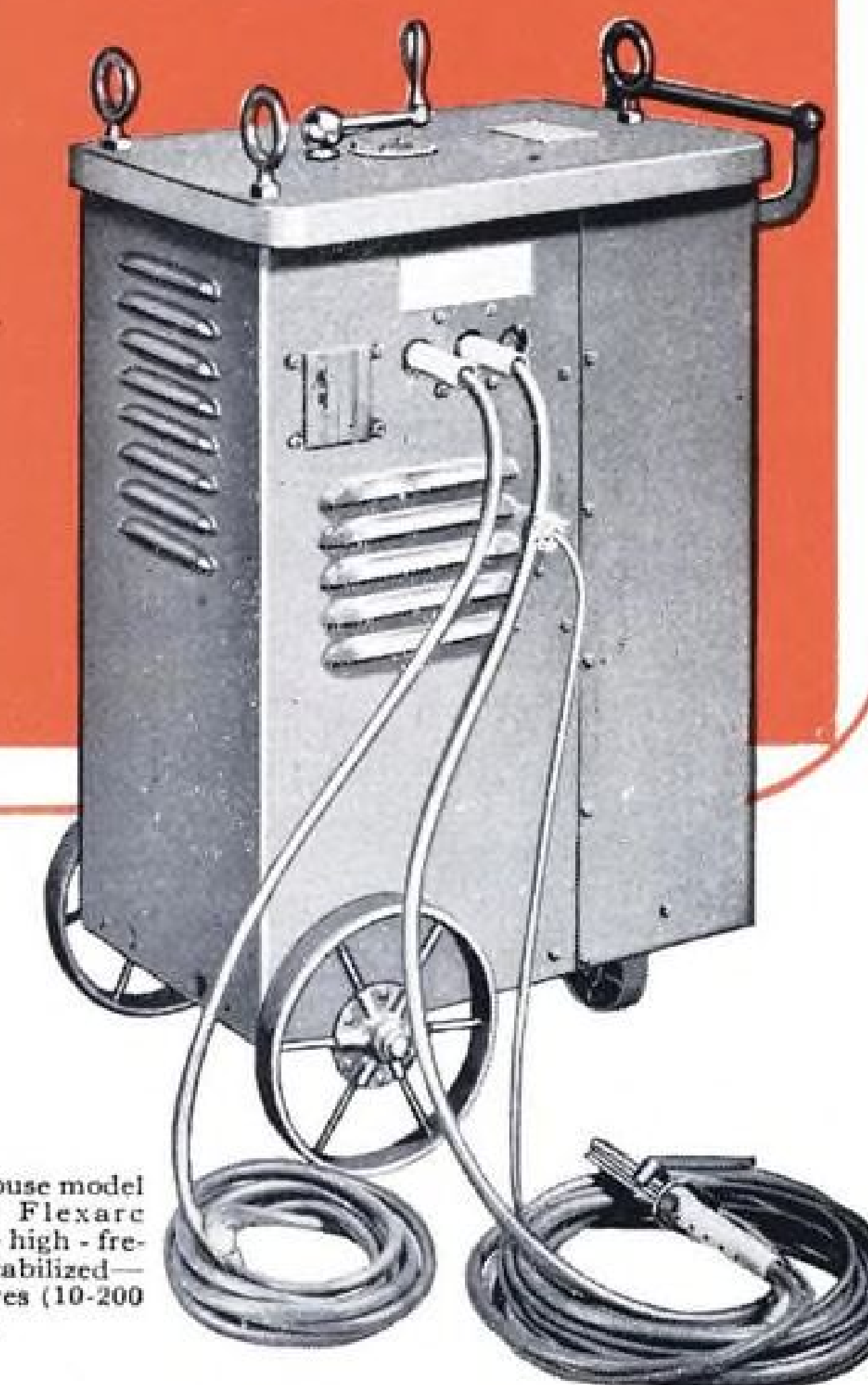
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2. Easy stepless current adjustment.
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The new Westinghouse Type WC-AC Welder eliminates the need for "adapting" welders intended for other types of service with their slower and less flexible performance.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

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

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Wizard in a Box

How this G-E computer works is still known only to its designers (shown here) and persons intimately connected with the Superfortress. As a part of the B-29 gunfire-control system (also developed by G.E.) it calculates lead, windage, gravity, and other factors in the mathematics of aerial gunnery.

The B-29 gunfire-control system and the equipment for this plane's pressurized cabins are two of many engineered systems G-E laboratories have developed for aircraft. *General Electric Company, Schenectady 5, N. Y.*



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