Aviation News

McGRAW-HILL PUBLISHING COMPANY, INC. JANUARY 10, 1944

Forecasts 110,000 Planes in 1944: *T. P. Wright, director of the Aircraft Resources Control Office, and internationally known engineer, who in this issue of* AVIATION NEWS *presents a forecast of 1944 aircraft production and a retrospect of 1940-1943 air power preparation.* *Article on page 7.*

Washington Observer

OBSTACLE TO PLANE PRODUCTION—A recent experience of an airframe company with a subcontractor who before the war made a household appliance, and whose heart was still in the home, shows what the aircraft industry is up against. The airframe company made fine progress and soon it was to need assemblies the subcontractor had agreed to produce. The assemblies failed to appear. A trouble shooter rushed to the small plant to find the work hadn't even started. Truth was that the little company was reading about plans of WPB to permit resumption of production of household appliances, and it was holding off until WPB decided. Within a few hours it changed its mind quickly. A telephone call from a high WPB official ordered the aircraft work finished or the little firm would be denied materials for any kind of production. The aviation industry, expected to be one of the last to shut down war production, will fight this kind of battle many times from now on.

* * *

ANOTHER BLOW FOR CAMOUFLAGE — Army Air Forces' recent decision to omit the war paint on many combat planes may be followed by another dictum making camouflage of aircraft and other warplants unnecessary. If so, the art will suffer a heavy blow. With introduction of infra-red rays in aerial photography and elsewhere in warfare, camouflage usefulness dwindles.

* * *

GERMANY'S SECRET WEAPONS — Germany's frequent threats of secret weapons to come arouse no ridicule in some of the highest government officials in Washington. In fact, there is a note of genuine concern apparent here. If worst comes to worst, the first use of gas, by the Allies, is considered not improbable.

*

ANOTHER SECRET WEAPON—Disclosure in England of the Allies' new secret weapon, using infra-red rays, which enables our bombers to hit vital targets despite cloud covers as thick as 25,000 feet, means that any more Japs landing on such areas as the Aleutians, with the worst visibility in the world, will have showers of bombs on their bases, regardless of fog and storm. So far the importance of this invention in the North and Northwest Pacific has been ignored by commentators. It shouldn't be.

* * *

BRITISH VS. U. S. JET PROPULSION—Returning visitors from England, who have been shown some of the best research that England has to offer, express the conviction that our ally is ahead of us in jet propulsion development, although War and Navy Dept. officials refuse to concede this. Events later this year are likely to prove the tourists' point, however. As an interesting sidelight on the subject, each of our own two services has been quietly sparring with the other for several months to put out the first public announcement of current work in this field.

* * *

SLUMP FOR PRIMARY TRAINERS—Probably the most severe cutback the aircraft industry will see in 1944, in plane types, will be in primary trainers, whose production will drop to a mere trickle. Close to 7,000 PT's were delivered in 1943.

* * *

DOUGLAS DENIES RUMORS — False and damaging rumors of wholesale layoffs became so widespread and so threatening to production that the Douglas Company found it necessary to issue a formal denial, sealing their case with the statement that the Douglas backlog is greater than at any time in the company's history. Donald Douglas formally asked Charles E. Wilson, WPB executive vice-chairman, to authorize and initiate, through the Division of Labor Production of WPB, an inquiry into the circulation of the erroneous and damaging reports.

* * *

CONGRESS RETURNS — There are many trouble-making controversies on the Congressional door-step as the lawmakers return this

Corsair *in British battle dress.*

week, foremost among them being the new tax bill on which there is considerable uncertainty in the minds of some members about the renegotiation amendments. It is not impossible that a presidential veto might follow if the changes made by the Senate Finance Committee are approved. There is some talk of attempts to compromise with the administration on renego-

AVIATION NEWS

January 10, 1944

CONTENTS

★

THE PHOTOS

★

THE STAFF

GEORGE W. PFEIL ..... *Publisher*
ROBERT H. WOOD ..... *Editor*
C. SCOTT HERSHEY ..... *Managing Editor*
JEROME BUTLER ..... *Copy Editor*
MERLIN H. MICKEL ..... *Transport Editor*
MARY PAULINE PERRY ..... *War Agencies*
BLAINE STUBBLEFIELD .. *Special Assignments*
SCHOLER BANGS ..... *Pacific Coast Editor*
ALEXANDER MCSURELY ..... *Midwest Editor*
BARBARA FREDERICK ..... *Editorial Assistant*
DALLAS MALLARD ..... *Art Director*

★

Editorial Headquarters,
1252 National Press Building,
Washingon, D. C.

★

Advertisers Index

Washington Observer

tiation, although many members remain firm in their belief that changes are necessary.

★ ★ ★

CONGRESSMAN'S SUPER BOMBER — Rep. Sparkman, of Alabama, was quoted by a few newspapers as saying a giant new bomber bigger than the B-29 is being produced and will soon be in large-scale production. This was news to the aircraft industry. The Congressman says he was talking about the single Douglas B-19 of some years back, which is larger than the B-29, and that a reporter got confused by all the numbers.

★

DOUGLAS' BIG TRANSPORT—Until the Congressman explained the erroneous quotation, most industry observers in Washington thought he referred to the plans Douglas has for its big DC-7. Informed officials here say the company believes it can turn out the first big airliner of the series a year after it gets approval for commercial production. Other figures indicate a maximum 4,000-mile range, accommodations for about 90-day passengers or 40 berths, and a gross takeoff weight of about 150,000 pounds.

★ ★ ★

THE AAF CATALOG AGAIN—Air Force Materiel Command still rues the day it issued the famous catalog advertising surplus products in color and snappy sales talk. The Army has found it necessary to state publicly that only 1.5 percent of the Air Force property disposed of in October and November went into civilian channels. It was a good idea but it worked too well. The Specialized Depot at Memphis, Tenn., hired experts from the leading mail order houses, who turned on their sales appeal to the queen's taste, even introducing loss leaders almost extinct in civilian life. "That catalog certainly went over big," said a Materiel officer to "Aviation News." "It sort of created the wrong impression." The very first page showed a nice roll of garden hose, listing several sizes; tanks, compressors, fuel pumps, movie projectors, leather clothing, heaters, generators, tools and a variety of parts and gadgets were offered in 32 pages of tempting pictures and copy.

★ ★ ★

CUTBACK LAYOFFS — Commenting on the layoff of 1,000 workers at the Euclid, Ohio, plant of Thompson Aircraft Products Co., and a smaller number at the main plant in Cleveland, Army officers confirmed the company statement that the action resulted from "sudden sharp cutbacks in military aircraft valves and parts orders." The cutbacks were in orders for valves and parts for certain types of planes which will go almost out of production early in 1944. Army refused to say what types, but it is presumed they meant trainers. They said that even if aircraft plants affected could retool for other plane types or other war products, they would not need the Thompson products referred to. This is only the beginning of cutbacks which will increasingly affect nontactical planes, parts, and, possibly in 1944, combat planes.

★ ★ ★

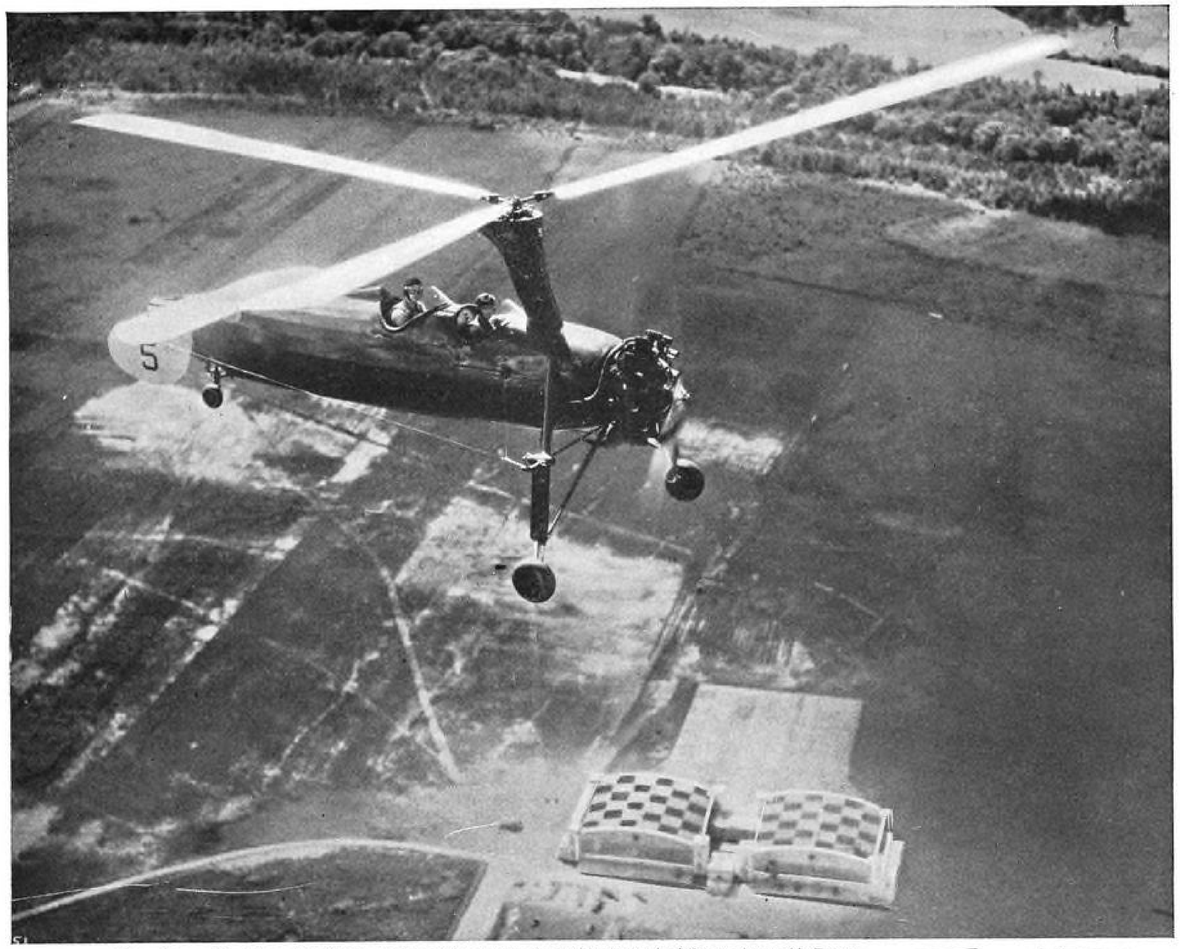
LIQUID-COOLED ENGINE DROPPED—The Navy plans to rely entirely on radial air-cooled engines for its aircraft—at least for this war—having cancelled its contract with Lycoming for an engine intended to power a new type fighter plane. This does not mean that the Navy has a closed mind on the question of liquid-cooled engines as has sometimes been charged, but simply that the Grumman "Hellcat" and the Vought "Corsair" proved such splendid performers and that production on both types was so good, it was decided to forego further development on the other fighter which had not progressed to a point where the Navy believed additional experimentation was worth while. The liquid-cooled engine was of such a design that it could be used only in the project fighter and when it was decided the fighter was undesirable at this time, it became necessary to cancel the engine contract.

★ ★ ★

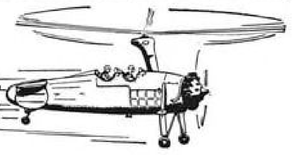
CONTRACT TERMINATION AND CONVERSION — After President Roosevelt's message clears Congress, Washington and the industry were hopeful some policy would evolve on reconversion and contract termination. Bernard Baruch and his aide, John Hancock, are said to have completed their report on termination and it is now said to be on the President's desk. The situation, currently, and subject to change without notice, is that Baruch is in the driver's seat on the postwar industry program, with Donald Nelson and Charles E. Wilson awaiting clarification and development before making their next moves. Meanwhile, observers point out that the Treasury Procurement division may wind up with a large slice of the termination and reconversion job, being the only agency under existing law authorized to dispose of goods purchased and ordered by the government.

★ ★ ★

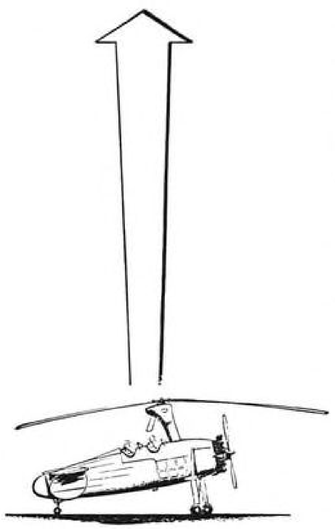
RECORD FLIGHT DISCLOSED—It has just been revealed that last spring a fleet of Curtiss C-46 "Commandos" of the Air Transport Command made the longest mass transport flight on record by delivering 90 tons of valuable cargo to an advanced Army base after a flight of 14,000 miles, more than halfway around the world. The vanguard arrived four and one-half days after leaving the United States; the entire fleet completed the flight in approximately seven and one-half days.



One of an earlier fleet of Kelletts, developed in cooperation with the United States Army Air Forces.



15 YEARS OF ROTARY WING PIONEERING



A Kellett takes off vertically, lands practically anywhere. Air speeds—from practically 0 to 120 MPH.

1944 marks the fifteenth year during which Kellett has been producing rotary wing aircraft. Each year the path of progress in this branch of aeronautical science has been extended by additional Kellett in-the-air accomplishments.

All wartime production of Kellett's advanced types of rotary wing ships is in cooperation with the United States Army Air Forces—details may not be given now.

But among many, even *pre*-war indicators of postwar opportunities to save time and cut costs for industry, commerce and agriculture, is this historic Kellett record: completing 2,607 flights in a single year, on a daily timetable, between airport and the Philadelphia post office roof, month after month, in all seasons.

When the war has been won, Kellett looks ahead to opportunities for its expanding corps of forward-looking engineers to apply their accumulated rotary wing experience to producing aircraft for patrolling electric power lines and oil pipe lines, spraying and dusting crops and orchards, oil and mineral prospecting, forestry fire prevention, transporting mail and passengers directly to urban centers. Kellett Aircraft Corporation, Upper Darby (Philadelphia), Pennsylvania.

KELLETT

OLDEST ROTARY WING AIRCRAFT MANUFACTURING COMPANY

VOLUME 1 • NUMBER 24

Aviation News

McGRAW-HILL PUBLISHING CO., INC.

JANUARY 10, 1944

T. P. Wright Traces Plane Program; Forecasts 110,000 Aircraft in 1944

Warns aviation industry that it must meet accelerated program next year and says we dare not adopt philosophy that the war is nearly over; December output of 8,802 planes raises year's total to 85,946. The 1944 plane valuation will be 25 billion dollars.

By T. P. WRIGHT

Director, Aircraft Resources Control Office

The war is not over! We still have a long way to go! More aircraft of larger and larger size are urgently needed. There is little prospect that there can be substantial resumption in the production of civilian goods during this year. In fact, too much agitation in that direction—premature post-war planning—may very well lengthen the war. Although one can be completely optimistic as to our aircraft production program, both from the standpoint of past accomplishments and of future prospects; and, although one can be similarly optimistic on the ultimately successful outcome of the war, I nevertheless cannot believe there is justification for extending that optimism to an early termination of hostilities, even in Europe.

Only the occurrence of some unpredictable, psychological factor can bring that about. Just as, in the early stages there was no substitute for time in really getting under way in our aircraft program, similarly now there is none in overcoming the tremendous military obstacles which confront us, and in neutralizing the tremendous advantage-of-position which the enemy holds. Aside from the stirring effort and telling blows which the Red Army is inflicting on the German Wehrmacht, we as yet have little opportunity to strike except from the air. In the case of Japan, the situation is "even more so." Hence the vital necessity for the continuation of our air program to higher and higher goals.

BACKGROUND

Status in July, 1940—For the sake of background, I will recall the time when I came to Washington early in June, 1940. The National Defense Advisory Commission was just being organized, with Gen. Knudsen at its head, so it is appropriate to consider production in the month of July, 1940, as a base from which to gauge the progress that has subsequently been made. The increase during the first half of 1940 was substantial in percentage, the year having started with January production of 250 airplanes. However, that increase, and therefore the foundation of our war effort, must be credited to the early orders of the French and British, which made possible the establishment of some new facilities and some practice in acceleration on the part of the industry. In July, 1940, there were delivered 572 airplanes, of which approximately 40 percent were training planes.

Working with the National Defense Advisory Commission, the first job of the Services during the summer of 1940 was to select the types that were sufficiently established to justify putting them into production, and then to build up a program around them. This stage, plus the accompanying job of selecting the managements that were competent to carry out the expansion program, took up most of the remainder of 1940. Facilities expansions were started and were continued at an ever increasing rate, greatly stimulated during 1942 by "Pearl Harbor," and reaching a peak early in 1943. However, even now, there are some uncompleted facilities necessary to attain our 1944 objectives.

Tools and Materials—Machine tools caused one of our first bottlenecks, as the tremendous acceleration of the facilities program increased the production of the old line tool companies many hundreds of percent over their past peak output. By late 1942, however, the tool bottleneck had been eliminated and materials came to the front as the major problem requiring solution both as to shortage and balanced distribution. The material situation was bad during the last third of 1942 and the first half of 1943. It got off to a poor start because of the reliance on a priority system. It was not until the CMP plan was introduced that real hope of correcting the situation could be entertained. The allotment of critical materials to approved programs under CMP, plus very real success in efforts at conservation by substitution of less critical materials, had the desired effect, so that by the third quarter in 1943 signs of improvement were at hand, and by the fourth quarter the bottleneck in all critical materials was definitely broken.

Manpower—No sooner had the material situation appeared to be in hand, than the manpower problem

Highlights of Mr. Wright's Report

- We build 157,000 warplanes from July, 1940, through 1943.
- Output in 1943 increased 133 percent in weight, from last January to Dec. 31.
- We have overcome a 5-to-1 production lead by Germany in 1936 to assume a 3½-to-1 lead over the Nazis at the end of 1943.
- Average airframe weight increased from 6,000 pounds to 8,000 pounds from January to December, 1943.
- Horsepower output rose from 21,000,000 in January to over 35,000,000 in December, or 67 percent.
- Heavy bomber output is now well over 1,200 a month, and rising.
- Output per employee gained almost 60 percent in 1943.
- Allied production output is now more than three times that of the enemy.
- This year we shall attain a rate of 10,000 planes a month and will exceed a weight output of airframes and spares of 110,000,000 pounds per month, with the program still increasing in December.
- Our new super-bomber will reach large monthly outputs.
- Our large cargo planes and long-range fighters will continue to increase by big percentages each month.
- The aircraft program will move from about a fifth of the munitions total in 1943 to a third in 1944.
- The 1944 output will be valued at 25 billion dollars.

became predominant. Labor was a real bottleneck during the last half of 1943. Here again, strenuous effort was made to get at the real causes of the trouble, and by the close of the year the situation had stabilized, and programs, for the most part, were "back on the beam." During the last quarter of 1943 great emphasis has been placed on improvement of manpower utilization, accompanied by better distribution of labor, by more liberal deferment programs, by reduction in turnover rates, by better community action to help out local services, and by general build-up of morale. All combined, they were effective in bringing about the present relatively satisfactory manpower condition. This condition is threatened, however, by an ominous homefront unrest marked by threats of strikes in several vital war industries, only arrested so far by appeasement, a policy just as unsound in internal as in international affairs. To me, the solution is National Service legislation which places on all citizens an equal legal and moral duty to serve in the common effort where best fitted.

157,000 Planes—At the outset, I mentioned July, 1940, with an acceptance of 572 airplanes as a good starting point for considering statistically just what has been accomplished. From the first of July, 1940, through December 31, 1943, we have built 157,000 military airplanes. This represents, in numbers of planes produced, a rate of increase each month (compounded) of greater than 7 percent. This means a percentage of production increase for December, 1943, compared to July, 1940, of over 1,400. But of course this is not the true measure of productive output, which should be weight of aircraft supplied. Because of the increase in average airplane unit weight, the above percentage figures in terms of pounds of output are more than 9 percent per month. The increase between months at the extremes of the period mentioned was 3,700 percent. In achieving this phenomenal rise, employees engaged in the aircraft industry have gone up 1,200 percent.

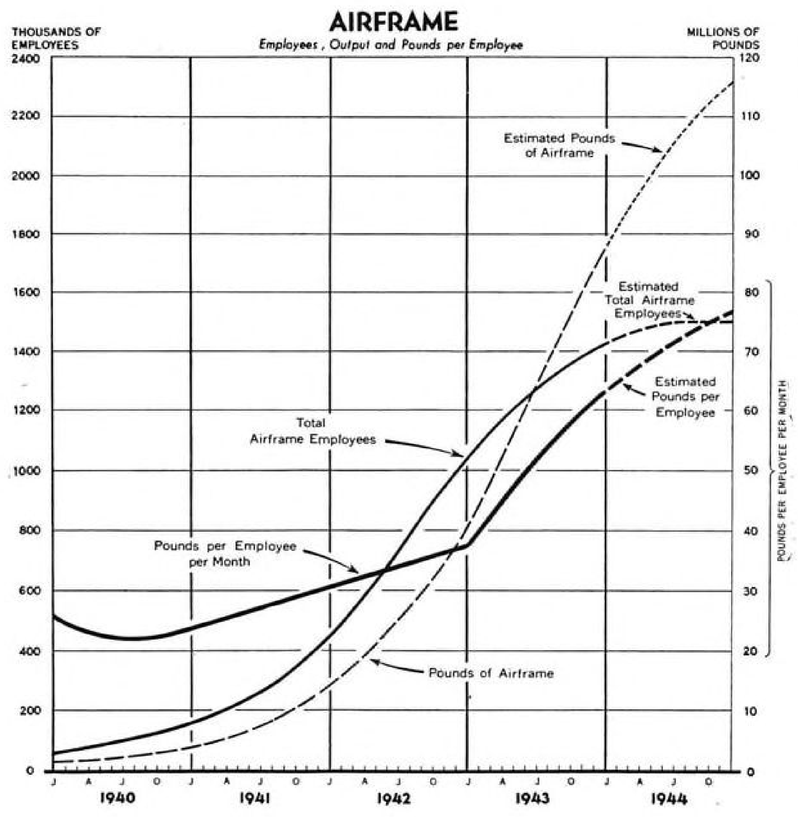
Production figures such as these appear so astronomical that one often hears the perfectly natural question "where are all these airplanes?" Properly to answer this question, it is well to go back three or four years, and explain the stages of use to which it was necessary to put them before production at home would be reflected simultaneously in corresponding increased activity at the front.

Where the Planes Went—First we had to supply planes to our Allies who were "holding the fort" during the early stages of the war. Thus substantial proportions of our deliveries went out to England, Russia, and China, under lend-lease. The numbers are now greater than formerly, though the proportion is less. Then we had our own training program to get under way and to accelerate. This was a herculean task as anyone will at once realize when, flying over the country, one notes the myriads of training fields dotting the landscape. This phase includes not only the primary and advanced training stages, but also the operational training units in which tactical planes, fully equipped, are used.

In addition, there is a long pipe-line to fill, including modification centers for needed changes, delivery center activities, actual transport to advanced bases, squadron activation and, finally, combat missions. It is a little like a hydraulic brake system; so long as a bubble of air exists in the line pressure of the brake pedal merely causes the fluid to occupy the air space, not to contract the brake bands at the other end. So any void in the pipeline between factory and front-line has to be filled by airplanes before factory deliveries are felt immediately at the front. Now we have the pipe-line filled and our production reported each month at home is felt by our eight or ten front-line commands in terms of equivalent numbers of planes to make possible an acceleration of activity and to fill squadrons depleted by losses while carrying on against the enemy every hour of every day.

7 Firms Make Props

Seven companies now are producing propellers for the nation's aircraft program, according to Washington officials. These are: Aeroproducts Division of General Motors Corp.; Canadian Propellers, Ltd., Curtiss Propeller Division of Curtiss-Wright Corp., Frigidaire Division of GMC, Hamilton Standard Propellers, United Aircraft Corp., Nash Kelvinator, and Remington Rand.



1943 ORGANIZATION

Let us now consider the calendar year 1943, first starting with organization in Washington. It was toward the end of 1942 that the Aircraft Production Board was formed. This was a tremendous step forward, as it brought representatives of the government agencies most vitally interested in production and most responsible for carrying out the air program into one group. This Board, under the able leadership of Mr. C. E. Wilson and consisting of four other members: Lt. Gen. William S. Knudsen, Maj. Gen. O. P. Echols, Rear Admiral E. M. Pace, and the writer, has brought about complete cooperation between the agencies represented, and has attacked aggressively and, I believe, successfully every problem, large and small, that has come to its attention. It has met regularly every Monday since its formation and has dealt with problems of materials, manpower, labor utilization, the achievement of balance between components and finished aircraft, and numerous others. Its one and only aim has been to make available all necessary production tools: that is, facilities, materials, and manpower, so that the aircraft industry could accelerate its production to the extent necessary to attain our objectives.

OBJECTIVE

Early in 1942 the President established objectives for the air program, which made necessary an all-out expansion of facilities and which, it is believed, set our sights substantially higher than there was any real prospect of hitting. Nevertheless, during this period, the military Services at no time permitted their sights to drop from these goals. However, after a year and a half, it became increasingly apparent that continuing too high a goal might actually result in a smaller number of airplanes delivered because of resulting unbalance in facilities and components. Therefore, in September 1943, the Aircraft Production Board established a scheduling policy which has been instrumental in bringing about the very rapid increases in production which the last three months of the year have seen. This policy might be called selective incentive scheduling; selective both as to the service need for a particular type and as to the degree of overscheduling. Thus we get only the exact numbers required of trainers and certain older models, and all we can possibly make of the most urgently needed combat types. It is confidently expected that this scheduling policy will permit the 1944 deliveries to meet programs.

QUANTITY

A few statistics for 1943 may prove of interest. The total acceptances for the year were 85,946 military airplanes —an increase from 5,013 in January to 8,802 in December, (a 75 percent gain). This represents for the year, just over 5 percent monthly acceleration. Here again however, the story should be told in terms of airframe weight, the real measure of productive effort. Including spares, the output for the year increased 133 percent from about 36,000,000 pounds in January to over 84,000,000 pounds in December or greater than an 8 percent monthly gain. (Incidentally, it should be mentioned that on top of the above airplane program was superimposed a glider program of no mean magnitude which, when augmented by aircraft engines exported to foreign countries for installation in foreign built airframes, has had the effect of increasing the actual productive effort by about 5 percent.)

The accompanying bar chart shows the yearly output of military airplanes for the period 1940 through 1943, with the trend in 1944 indicated. Spot checks on prewar outputs are given in a footnote. The upward trend in the proportion of tactical types to trainers is also given. Of particular significance and vital importance is the indicated climb of heavy bombers, a trend still continuing. The manner in which we have overcome the impressive and almost fatal lead of Germany, from a 1 to 5 position in 1936, to 3½ to 1 in 1943, is shown. This preponderance in production makes possible the superiority in the air on all fronts that is now winning the war and will bring ultimate victory.

Holiday Slump

A slump in production in the last ten days of December, due to Christmas and New Year's, probably cost the nation's war effort 500 combat planes.

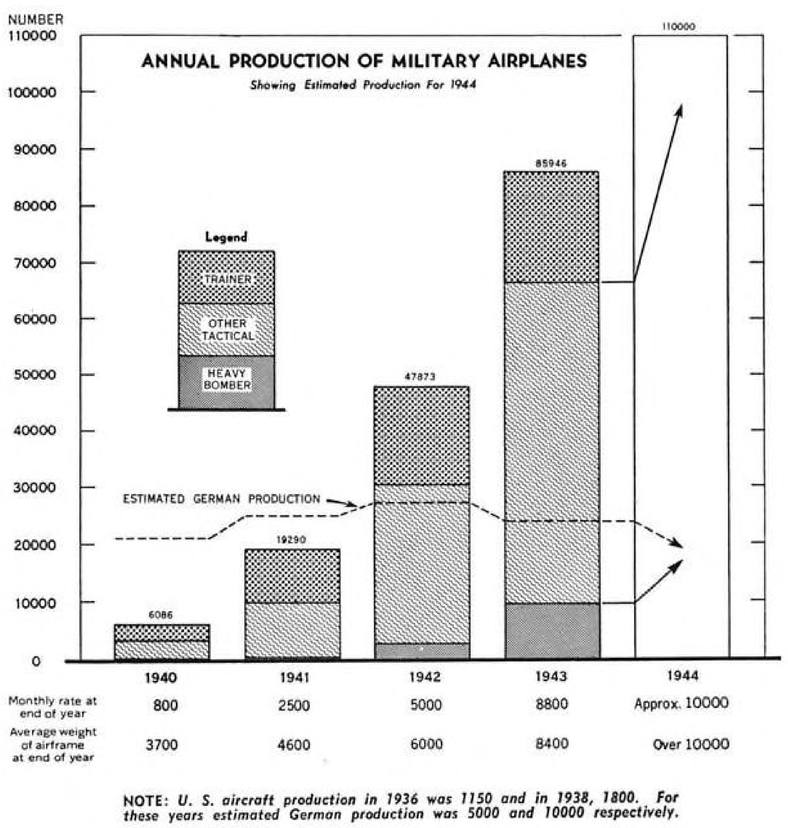
All indications up to Dec. 20 pointed to a new monthly record of approximately 9,300 planes, government officials said. Output thereafter dropped off sharply and the December total was actually about 500 fewer than expected.

Production of heavy bombers and of first line fighters, however, did not share this decline. The month's heavy bomber figure set a new record.

The average airframe unit weight increased from about 6000 pounds in January to 8000 pounds in December. This increase is brought about by the decrease in the proportion of training planes and by the increase in percentage of heavy bombers, accompanied by an upward trend in size in all types. Actually, present trainer output is only about 15 percent of the total, which, allowing for small liaison types of planes, means that combat and transport planes together are now approximately 80 percent of the total output, with combat alone at 71 percent. One other measure of output is the total horsepower of engines delivered. This figure rose from approximately 21,000,000 hp. in January, 1943, to over 35,000,000 in December, a 67 percent increase.

HEAVY BOMBERS

One interesting story which should be told is that of the heavy bomber program. It was on May 4, 1941, that the first directive was issued from the White House, calling for an output of 500 heavy bombers per month—a figure then seemingly impossible to attain. Later during the year, this objective was raised to 1,000 per month, to be reached by June 1944. This determination to "reach for the stars" in the most important offensive weapon we have, the four-engine heavy bomber, has



NOTE: *U. S. aircraft production in 1936 was 1150 and in 1938, 1800. For these years estimated German production was 5000 and 10000 respectively.*

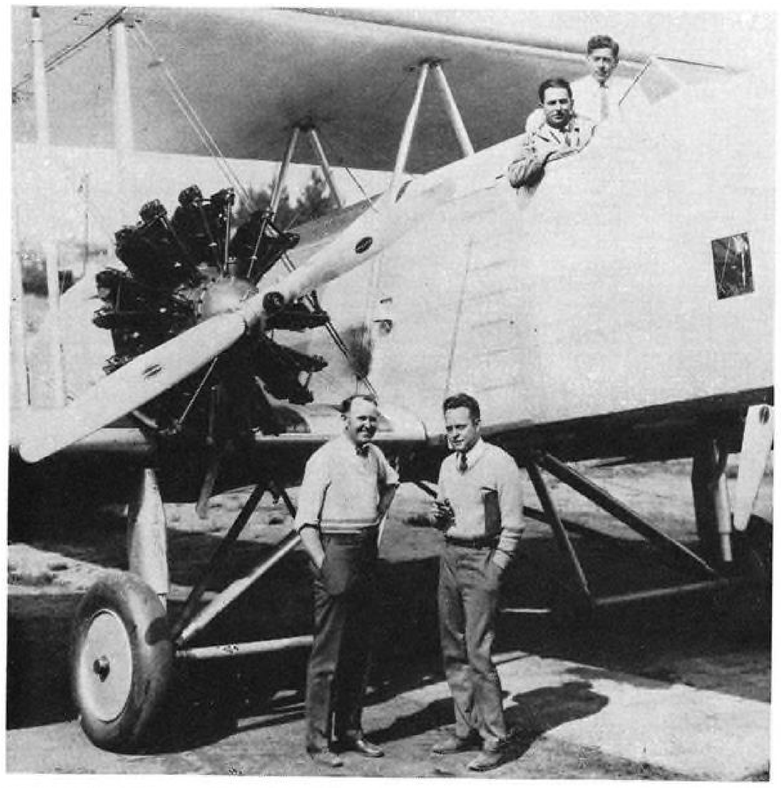
decreased the mere number of planes that might have been attained otherwise, but as the objective is to win the war and not to get into a numbers racket, the proper course has undoubtedly been followed and will continue.

QUALITY

Coincident with the achievement of the quantity increases mentioned above, has been a steady improvement in quality. Throughout the program, production has been sacrificed where necessary in order to introduce needed changes discovered from battle usage. For example, if from combat experience a vulnerable spot is found in a bomber, immediate steps have been taken to protect that particular spot by additional armament or armor. It is not easy to break into production and make such changes, but where they are necessary from the standpoint of safety or for gaining a substantial military advantage, they have always been made and, under such conditions, let it be said, they always will and should be made. As our output has been increased, our front line squadrons have rightly demanded that the combat effectiveness of the equipment be raised. In other words, as one officer stated, "At the outset, back in 1941, they were glad to get anything that we could turn out —now they are more 'choosy'."

Insofar as changes of types are concerned the emphasis must now be placed on planes of greater range and greater fire power with as much accompanying performance increase as possible. This means detailed changes in existing types in many cases, but in many others it means the need for taking out of production those types which have become semi-obsolete and of introducing new and better equipment. We may therefore look forward to program changes based on the introduction of new types from time to time.

However, it must not be assumed from this that the types we are now building and using in combat are in any way inferior to enemy equipment. The calculations made early in December by Peter Masefield, an English journalist, who had occasion to visit most of our larger factories this Fall, and has had actual contact with our fighting squadrons at the front, are most interesting. His appraisal places American aircraft at the head in 15 out of 22 categories of fighting planes listed; the more gratifying when it is recalled that we did not get into the war effort until two or three years after our Allies, and seven or eight years after our enemies had started their air expansions!



"DUTCH" KINDELBERGER HONORED:

J. H. "Dutch" Kindelberger, president of North American Aviation, was honored by presidents of all West Coast aircraft companies at a luncheon marking his 25th year in the aviation industry. Photograph above, taken in 1926, shows Kindelberger, right, standing, with T. E. Springer, then a test plot for Douglas, now a Douglas factory manager. Kindelberger was formerly vice-president of Douglas.

EFFICIENCY

A word should be said about production efficiency, particularly from the standpoint of more effective utilization of manpower. In the middle of 1943, the Aircraft Resources Control Office prepared an Index of Efficiency to measure this factor in terms of pounds-of-output per-employee per-day, corrected to a common denominator of unit weight and production rate. Monthly reports have been issued since, so that an appraisal can now be made of the job the industry has done in improving its efficiency. During this six months period the index has risen from 4.1 to 4.6, an increase of .5 for the period. At first sight, this might not be considered a very large improvement. However, it must be appreciated that each one tenth of a point index increase represents the saving of 20,000 people required for producing the airplanes delivered. This means that for a five-tenths increase, which has actually occurred in this six-months period, there has been an equivalent of 100,000 persons saved; or, in other words, had this increase in efficiency not been accomplished, there would have been necessary an additional 100,000 people in the airframe industry. Because of the general manpower shortage which existed during that period, that number would not have been available and therefore our program would not have been so well met. Actually, for the overall aircraft program (which includes many low production types not reported in the index analysis) the improvement during the year 1943 in output-per-employee has been almost 60 percent. We fully anticipate that this rate of increase in utilization improvement will continue through 1944, so that the overall manpower drain to the air program will be relatively small. The trends in terms of output, employees and manufacturing efficiency (output per employee) is shown in the accompanying graph.

THE WAR

It is now appropriate to see where the United Nations stand in the war. Our superiority in the air has been established on every front. This has been made possible to an important extent by the tremendous drive in the production program in this country. Although we are not entirely certain of the production of some of our Allies and, of our enemies, it can be fairly stated that the production output of the Allies is now more than three times the enemy nations, and that the output of the United States alone is greater than 2 to 1 compared to that of the Axis, and greater than all the rest of the world combined.

The present bombing of Germany (soon, as Gen. Arnold stated, "to be on a '360°' as well as 24-hour basis"), and the future bombing of Japan will prove how right we have been in placing such great emphasis on aircraft output, as striking from the air is the one way we can get at our enemies and make less costly the ultimate invasion. The box scores which various publications have from time to time mentioned, have continued to prove the superiority of our equipment by showing losses of our enmies, compared to our own, ranging from 2 or 3 to 1 in the European theatre, to 5 or 6 to 1 in the Far East.

1944

The statistics listed above will now be considered from the standpoint of a 1944 forecast. First of all, it must be made absolutely clear that there is no cutback in the air program—quite the contrary. There will be some increase in numbers during 1944, but in weight of output, particularly, the upward trend will continue unabated. It is anticipated that during this year we will reach approximately 10,000 planes per month and will exceed a weight output of airframe and spares of 110,000,000 pounds per month, with the program still increasing in December! The average unit weight of equipment will also continue to increase, reaching possibly 10,000 pounds each for airframe weight by the end of the year. (It was 4,000 pounds in 1940!) Our heavy bomber program will continue to accelerate and our new super bombers which Gen. Arnold recently discussed will reach large monthly outputs. Our program of large cargo planes will continue to increase by big percentages each month, as will also our long range fighters. It is on the production of these heaviest types in the combat and cargo classes that full emphasis will be placed.

It is interesting to note that, in dollar value, the part played by aircraft in the munitions production program will move from about one-fifth of the total in 1943 to one-third of the total in 1944. Twenty-five billion dollars worth of airplanes will be delivered this year!

Accompanying the increased production output during the year will be an increase in manufacturing efficiency represented by possibly a 26 percent gain in pounds-of-output per-employee per month.

To sum up, we are going to build more airplanes, bigger airplanes, and better airplanes—the planes that will win the war.

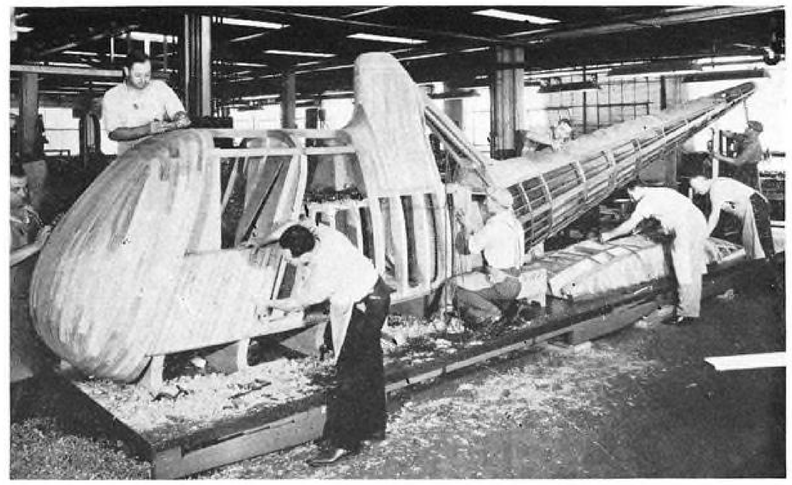
▸ **Conclusion**—Again, however, I must close with a word of warning. The tremendous job that has been accomplished during the past year, together with the tremendous task that will be accomplished in 1944, does not mean that we can relax our efforts, or that the war is now won. We have a hard, bitter and bloody fight ahead of us. It is absolutely essential that the people of our country in general, and of the aircraft industry in particular, thoroughly appreciate this fact and, with complete singleness of purpose, accept the challenge of the accelerated aircraft production program for 1944, and by a sustained determination make this scheduled output available to the squadrons on our many fighting fronts.

I will close with a thought provoking quotation taken from an advertisement which I recently ran across. It showed a picture of a workman with his sleeves rolled up and a determined look on his face as he bent over his task. He is saying, "For me, this war will be over when my boy comes back home—not when we take another enemy island outpost!"

Pogue Renamed

L. Welch Pogue and Edward Warner have been redesignated by the President as chairman and vice-chairman respectively of the Civil Aeronautics Board.

Pogue is starting his third year as chairman. Warner is beginning his second consecutive year, but was vice-chairman previously. The two posts are filled by presidential assignment at the first of each year.



HELICOPTER MOCKUP:

Working from blueprints, under an arrangement with Sikorsky Aircraft division of United Aircraft Corp., workers at Nash-Kelvinator plant in the Detroit area are putting together a mahogany mockup for use in meeting their contract with the Army for helicopter production. The rotary wing ship, the R-6, is a military type.

New Fastener

Elastic Stop Nut Corp. has acquired world rights to a new lightweight fastener of rugged construction, particularly suited for engine cowlings. The spring-lock device was invented by Dr. E. L. Mack, and perfected by Aircraft Parts Development Corp. under direction of D. C. Hungerford. Tests by the Army at Wright Field and by the Navy Bureau of Aeronautics show it meets their specifications.

Delta Air Lines Doubles 1942 Mark

Aided by Army's return last August of a DC-3, Delta Air Lines ran up 1943 totals for air mail and air express more than double those for 1942.

Mail pound miles were 1,355,881,897 compared with 537,594,140, an increase of 152.2 percent. Air express was 230,928,859 pound miles, against 112,667,778 for 1942, an increase of 104.9 percent.

▸ **Seats Used for Cargo**—R. Stanley Webber, general traffic manager, said the increases meant that on frequent occasions planes had to fly with empty seats to offset mail and cargo loads. At other times the seats were used for storing overflow cargo.

The company's revenue passenger miles in 1943 reached a new high of 43,500,567, or 30.4 percent above 1942's 33,357,957. Average load factor for the system was 88.76, as against 71.5 for 1942. Passengers increased 11.4 percent, from 106,336 to 118,463, average passenger haul being 366 miles, compared with 315 in 1942.

24,566 Airplanes Built in 1943 By East Coast Members of AWPC

Companies producing at rate of $8,000,000 a day at close of year set all-time dollar volume record of $2,225,000,000.

A total of 24,566 airplanes, weighing with spares, in excess of 180 million pounds—not including engines, propellers or parts—was delivered by member companies of the Aircraft War Production Council, East Coast, during 1943.

Production in dollar volume was approximately $2,225,000,000 and, while the member companies compiled an all-time record of dollar volume at the rate of $6,000,000 a day last year, the companies were producing at the rate of $8,000,000 a day at the close of the year.

▸ **Mostly Fighters**—While the majority of airplanes turned out were Army and Navy fighters, many were long range fighter planes now escorting four-engine bombers over the heart of Nazi Europe. The Council members also built hundreds of medium bombers, torpedo and dive bombers, Navy patrol bombers, cargo and transport planes and primary and advanced trainers.

During the last four months of 1943, the companies delivered an estimated 77½ million pounds of airplanes and spare parts as compared with 64,227,000 pounds during all of 1942. Similarly, more airplanes were built by these aircraft companies from Aug. 15, 1943, to the end of the year than in the 12 months of the previous year.

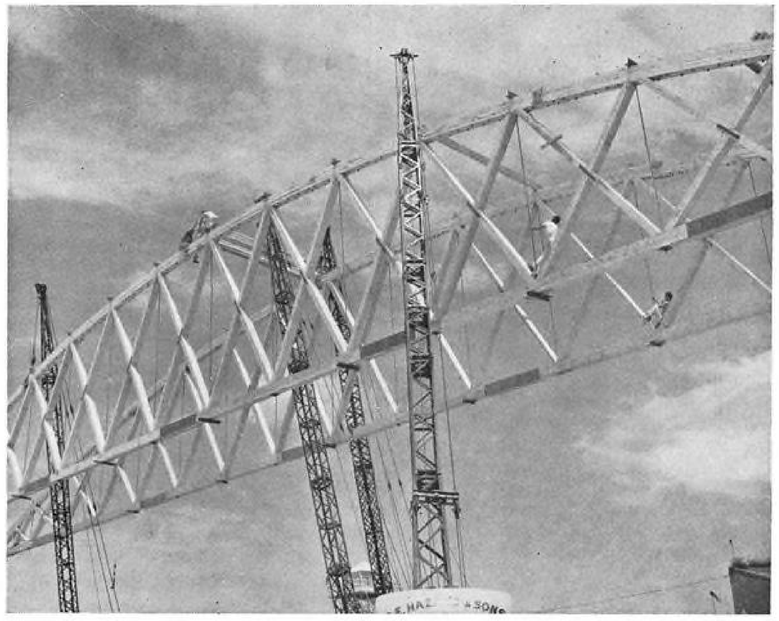
▸ **Records**—Member companies include: Aviation Corp.; Bell Aircraft, Brewster Aeronautical; Curtiss-Wright; Eastern Aircraft Division, General Motors; Fairchild Engine and Airplane Corp.; Glenn L. Martin Co., and Republic Aviation. The engineering, production, and conservation and reclamation committees of the Council, exceeded all records in number of information exchanges during the last four months, those in the engineering committee alone numbering about 600.

▸ **Key Personnel Needed**—Surveys made on manpower and labor utilization express the need for key personnel. The utilization survey is being made available to all war production manufacturers, regardless of whether they are council members.

The Council Board of Directors noted General Arnold's report, which said 145,000 airplanes must be built in the next 15 months.

▸ **Cites Need of Speed-Up**—L. C. Goad, head of Eastern Aircraft Division, named president of the Council for the next four months, acknowledged increases made thus far, but warned that if current percentages prevail, the rate of increase must be stepped up even more.

"Our part of the job in 15 months will mean building approximately 43,000 airplanes weighing 120,000 tons," Goad said. "That means we will have to do in the next 15 months about what we have done in the last two years."



BIG RYAN SPAN:

Believed to be the longest ever built are the 200-foot span clear wood trusses in Ryan Aeronautical Company's final assembly building at San Diego. Rated as unique in the construction field, the big wooden "bowstrings" facilitated construction, with minimum use of metal, of a single-room building 570 ft. long, 200 ft. wide, and 35 ft. high beneath the trusses.

NWLB Shift Creates New Plane Wage Panel

Summary of federal actions includes Goodyear—DPC contract.

National War Labor Board's announcement of revision of the jurisdiction of its National Airframe Panel in effect creates for the aircraft industry a specialized group to pass on wage problems, and centralizes the authority in a national group located in Washington.

Previously disputes other than on the West Coast area were taken up by Regional War Labor Boards and recommendations sent to the National Board for final decision. This resulted in frequent delays.

▸ **Recommendations** — The panel of aircraft wage specialists will recommend only to the Board, but decisions will be carried out more uniformly throughout the country.

The West Coast Aircraft Committee will continue to function and will make all recommendations to the Panel for presentation to the Board. The Committee was set up last April to handle wage disputes in that area.

▸ **Membership**—Thomas H. Eliot is chairman of the panel and members are Garry Cotton, AFL., Ed Hall, CIO, John Meade of Bell Aircraft Corp., and Charles R. Hooks, Jr., of Rustless Iron and Steel Corp.

Jurisdiction is limited to wage or salary issues in major dispute and major voluntary cases, which substantially affect either the general wage structure of the airframe companies or the wage stabilization policy of the airframe industry.

▸ **Major Cases Handled**—Only major cases involving those companies in the industry whose names appear on a list to be approved by the Board are to be handled by the Panel. This list will be made available to the Regional War Labor Boards and to the National Board's New Case Committee.

Experts say the result of this panel may be to raise salaries in many plants, since all decisions will have an overall flavor and wages will be equalized throughout the country.

A summary of other federal actions last week follows:

▸ **Appointments** — Recent appointments to the National War Labor Board include Lloyd K. Garrison, executive director and general counsel to be an alternate public member, to sit as a voting member when called on by the Board. Jesse Freidin, associate general counsel, becomes general counsel; Theodore W. Kheel, chairman of the Second Regional Board in New York, was appointed executive director; Frederick H. Bullen, disputes director of the Fifth Regional Board at Cleveland, becomes deputy executive director; and Thomas L. Norton, vice-chairman of the Second Regional Board in New York, becomes acting chairman of the New York Regional Board.

▸ **WPB**—Inventory Direction 14 under CMP Regulation 2, has been issued by the War Production Board and extends inventory limitations on aluminum forgings, pressings, upsettings and impact extrusions from 60 days' to 120 days' supply. This will eliminate short production runs by fabricators, the Board said.

NEW POWERED GLIDER:

Following tests last summer with Franklin 130-hp. engines on the Waco CG-4A glider, Army Air Forces have put one other test model in operation. On left is the PG-1, with Franklin power, while on right is the new PG-2, with two 175-hp. Ranger *engines. The latter cruises about 100 mph., according to Waco officials, and is being used as an air taxi between Wright Field and the glider base at Wilmington, Ohio. Each engine assembly is a complete unit with propeller, gas and oil tanks, which can be mounted or dismounted in about an hour. Further development of powered gliders by the AAF is not now anticipated.*

▸ **Anti-Friction Bearings** — WPB amended Preference Order E-10 to define more strictly the type of prime or subcontractor to whom surplus anti-friction bearings may be sold. Only a prime or subcontractor who will incorporate the bearings into a product he manufactures or will deliver them as spare bearings with such a product are included in the amendment.

▸ **DPC Loan** — Goodyear Aircraft Corp. of Akron, Ohio, has executed a contract with the Defense Plant Corp. to provide additional equipment at a plant in Summit County, Ohio, at a cost of approximately $120,000, resulting in an overall commitment of about $13,600,000.

▸ **AAF Specialized Depot** and the Government Furnished Equipment Depot at the Maywood Supply Depot, Los Angeles, have received an initial authorization of $2,000,000 to provide 1,390,800 square feet of covered storage space, auxiliary buildings and utilities.

▸ **Petroleum Administration for War** expects the 22 additional 100-octane aviation gasoline plants planned for 1944 construction to be completed early. Already the engineering is three-fourths complete and the purchasing of building materials more than 80 percent completed.

There are 163 plants throughout the country now contributing to the manufacture of aviation gasoline, and although 100-octane is still tight, PAW expects to close the program with the completion of the 22 new plants.

WMC Chairman Paul V. McNutt announced that nearly all the 30,207 apprentice training programs in the U. S. extend opportunities to returning veterans. Age restrictions and other limitations have been lifted to allow veterans to train for skilled work.

Krug's WPB Power Raised by Order

Officials see no effect on aircraft production program.

Powers heretofore vested only in WPB Chairman Donald M. Nelson and Charles E. Wilson, executive vice-chairman, have been extended to J. A. Krug, program vice-chairman under an amendment to War Production Board Regulation 1.

The amendment has no particular significance, so far as the aviation industry is concerned, according to Krug's executive assistant, who said it merely gives Krug the power to sign directives to other government agencies, including officials of the WRB in its regional and district offices, officials of the Aircraft Resources Control Office, or the Aircraft Scheduling Unit, all operating arms of WPB.

▸ **Equal Authority**—Thus, Krug has equal authority with Nelson and Wilson in these and all other matters assigned to the War Production Board. The aircraft production program was especially assigned to Wilson by the President, and has been Wilson's prerogative without interference even from Nelson. He is expected to retain full control of this program as long as he remains with WPB.

OPA Announces Price Ceilings For Used Planes, 500 hp. or Less

Formula worked out is based on Oct. 1, 1941, value, depreciated at uniform rate of 8 percent a year up to ten years.

Used airplanes powered with a single engine of 500 hp. or less have been placed under a price ceiling by the Office of Price Administration. The formula worked out by OPA for sales is based on the Oct. 1, 1941, price of the plane when new, depreciated at the uniform rate of 8 percent per year for ten years, with a like depreciation being applied to the extra, special or optional equipment, based on the plane manufacturer's list price for such equipment.

▸ **Invalidates L-262**—The action was taken at request of Civil Aeronautics Administration and concurred in by the War Production Board. Until now, WPB's L-262 order provided the only way a used plane could be sold. L-262 becomes invalid under the new ruling.

Nearly all sales of used airplanes since the war have been made to CAA for training purposes, but under the OPA price ceiling, used planes may be sold to civilian buyers.

OPA's regulation follows:

SEC. 6.34. *Used airplanes*—(a) *Coverage.* This section applies to all sales (except those made to the War Department or the Department of the Navy) of any airplane, powered with a single engine of not more than 500 horsepower, that has been used other than for the purpose of sale.

(b) *Maximum prices*—(1) *How to determine the maximum price.* The maximum price for any used airplane covered by this section shall be determined as follows:

(i) The seller shall first determine the base price as follows:

(*a*) The seller shall first find the price listed in paragraph (d) for the airplane when new. If no price is listed in paragraph (d) for the airplane, the seller shall find the price listed in paragraph (d) for the nearest equivalent new airplane of the same make. An "equivalent airplane" is one that is similar to the one being priced in size, equipment, power, condition and ability to function. If no price is listed in paragraph (d) for an equivalent airplane of the same make, the seller shall find the price listed in paragraph (d) for the nearest equivalent airplane of a different make.

(*b*) The seller shall then add to the price determined under (*a*) above the airplane manufacturers' installed list price (determined in accordance with subparagraph (2) for any extra equipment which was installed in the airplane on the date of its acquisition when new by the original purchaser or whose date of installation cannot be determined. "Extra equipment" means any equipment which would normally be furnished only at an additional cost with the airplane listed in paragraph (d), which is used as a basis for pricing under (*a*) above.

(*c*) The seller shall then deduct from the resultant price the airplane manufacturer's installed list price (determined in accordance with subparagraph (2)) for any item of equipment with which the airplane is not equipped on the date of sale and which the manufacturer furnished at no extra cost with the airplane which is listed in paragraph (d), and used as a basis for pricing under (a) above.

(ii) The seller shall then subtract from the base price an amount for depreciation. This amount shall be determined by multiplying 8% of the base price by the number of years from the date of acquisition by the original purchaser for use of the airplane when new to the date of sale. In measuring that period of time, the number of years is to be calculated to the nearest quarter of a year and the airplane shall be deemed to be not less than one nor more than ten years old.

(iii) The seller shall then add to the resultant price the depreciated value of extra equipment installed after date of acquisition of the airplane when new by the original purchaser for use. "Extra equipment" means supplementary equipment normally furnished to the purchaser at an extra cost when he purchases the type of airplane in question. The depreciated value of extra equipment shall be determined as follows: The seller shall subtract an amount for depreciation from the airplane manufacturer's installed list price (determined in accordance with subparagraph (2)) of the extra equipment. The amount for depreciation shall be determined by multiplying 8% of this installed list price by the number of years from the date of installation of the extra equipment to the date of sale. In measuring that period of time, the number of years is to be calculated to the nearest quarter of a year and the equipment shall be deemed to be not less than one nor more than 10 years old. If the seller cannot determine the date of installation of the extra equipment, he may not add the depreciated value thereof to the depreciated value of the airplane. In such case, the extra equipment is taken into account in determining the base price in accordance with (i) above.

(iv) The seller shall then deduct an amount for the number of hours of normal engine wear since the last overhaul. This deduction shall be determined by multiplying the number of hours of use since the last overhaul of the engine by the amount set forth in the following table for an engine of the same horsepower:

Horsepower:	*Amount*
Less than 50	$0.20
50 to 89, inclusive	.40
90 to 145, inclusive	1.20
146 to 225, inclusive	1.45
226 to 500, inclusive	2.00

(2) *Installed list price.* The "installed list price" of any equipment shall be the first applicable of the following:

(i) The October 1, 1941, installed list price, or lacking that, the latest installed list price of the manufacturer of the airplane for the same equipment installed in the same airplane;

(ii) The October 1, 1941, installed list price, or lacking that, the latest installed list price of the manufacturer of the airplane for similar equipment installed in the same airplane;

(iii) The October 1, 1941, installed list price, or lacking that, the latest installed list price of the manufacturer of another airplane for the same equipment installed in a similar airplane;

(iv) The October 1, 1941, installed list price, or lacking that, the latest installed list price of the manufacturer of another airplane for similar equipment installed in a similar airplane; or

(v) If none of the above is applicable, the maximum price of the used airplane must be determined under paragraph (c).

(3) *Example of determination of maximum price.*

1. Price listed in paragraph (d) for the same or nearest equivalent airplane. (See subparagraph (1) (i) (a))	.....
2. Sum of airplane manufacturer's October 1, 1941, installed list prices for extra equipment installed in airplane at time of original delivery or for which installation date cannot be determined. (See subparagraph (1) (i) (*b*)).	.....
3. Item 1 plus item 2.	.....
4. Sum of airplane manufacturer's October 1, 1941, installed list price for standard equipment with which airplane is not equipped at time of sale. (See subparagraph (1) (i) (c))	.....
5. Item 3 minus item 4 (Base price)	.....
6. Depreciated value of item 5. (See subparagraph (1) (ii)).	.....
7. Sum of the depreciated values of extra equipment installed after date of delivery to original purchaser. (See subparagraph (1) (iii)).	.....
8. Item 6 plus item 7.	.....
9. Deduction for hours of normal engine wear since last overhaul. (See subparagraph (1) (iv)).	.....
10. Maximum price. Item 8 minus item 9.	.....

(c) *Specific authorization of a maximum price.* The maximum price for any used airplane, covered by this section, that cannot be priced under paragraph (b) shall be a price, in line with the level of maximum prices established by this section, specifically authorized by the Office of Price Administration. Any seller seeking such an authorization shall file an application with the Office of Price Administration, Washington, D. C. If the seller does not file under this paragraph, the Office of Price Administration may establish a maximum price of its own accord. This price will be in line with the level of maximum prices established by this section.

ACC Opens Personal Aircraft Department

Operations started to further development of non-scheduled civil aircraft activity.

Importance of private flying in the postwar aviation picture is emphasized by the opening of the Personal Aircraft Department of the Aeronautical Chamber of Commerce, trade association of the aircraft industry.

The department was authorzed some weeks ago and James P. Murray, Boeing vice-president and president of the Chamber, has now formally announced it has started actual operations to further the development of non-scheduled civil aircraft activity.

▸ **Objective**—John E. P. Morgan, manager of the new department, listed among the main objectives: provision for adequate landing facilities for personal aircraft, refinement of federal and state regulations affecting personal aircraft and education of the public in respect to effective use of aircraft as vehicles for business and pleasure purposes.

"In view of the inevitable expansion in the employment of personal aircraft in the postwar years," Morgan said, "the time has come to launch preparations that will assure maximum utility of private planes in the hands of their owners."

▸ **Committee**—The new department is being operated under the guidance of the Chamber's personal aircraft committee, of which Joseph T. Geuting, Jr., vice-president of General Aircraft Corp., and William A. Mara, of the Stinson division of Consolidated Vultee Aircraft Corp., are chairman and vice-chairman, respectively.

Morgan is widely known in aviation as an inveterate advocate of personal aircraft. He has been serving for some time as Washington representative of Piper Aircraft Corp., Taylorcraft Aviation Corp., and Aeronca Aircraft Corp.

▸ **Developed Artillery Spotting**—He is a veteran of the last war, having served as a lieutenant on convoy duty on a destroyer after his graduation from Harvard in 1917 and since then has had wide business experience. He performed outstanding service in the development of the use by the Army of light planes for artillery spotting and observation.

Arnold Reveals Progress of AAF To Present Total of 2,385,000 Men

General's 20,000 word report cites expansion of aircraft production and discloses new details of U. S. war program.

Starting from the blue prints of American air power before Pearl Harbor, Gen. H. H. Arnold, in his report to the Secretary of War, traces the rise and development of the United States Army Air Forces to the position in which it is "now in the process of fulfilling an historic and decisive mission."

The report of the AAF's commanding general, is detailed in its 20,000 words and liberally illustrated with charts, but charts, graphs and strategy would mean nothing as Gen. Arnold emphasizes "without the devotion, anger and bitter pride of our men."

▸ **Totals 2,385,000 Men**—Gen. Arnold discloses that as of Jan. 1, 1944, the Army Air Forces number 2,385,000 officers and men, as was planned two years ago and, reminiscing a bit, adds that only a few years ago the commanding general knew literally every man in the Air Corps "and at one time in the earliest days, the present commanding general constituted exactly one-third of all Army flying personnel."

Gen. Arnold touches on the assets and liabilities of the Air Forces, its prewar expansion and growing pains, preparation of the aircraft manufacturers for their tremendous growth, aid given civilian schools in the training of Army pilots, establishment of cold weather testing stations and then on to what we learned in Europe, through observers abroad and other means. Other pre-Pearl Harbor topics included the beginning of military routes across the seas, announcement of the 50,000 aircraft goal by the President, changing demands of air war and acceleration for war in 1941.

▸ **Assembly Line**—Under the building of an air force, Gen. Arnold discussed the "assembly line" production in the training system, technical training, training policies and results, flying safety, growth of the Air Transport Command, WASP, WAC, Air Service Command, Aviation medicine and evacuation of the wounded and the movement of hospitals by air and other details of the air force building period with emphasis on airplane production.

Gen. Arnold says that since the last war the Air Corps has followed two policies in relation to the aviation industry, having always endeavored to nourish the industry with experimental and sustaining orders and added that the Air Corps also followed the policy in contrast to foreign nations, of having two or more companies endeavor to develop the same general type of plane, believing in competition and individual enterprise.

Adel Enters Diesel Equipment Field

Interest in the postwar possibilities of diesel power has launched Adel Precision Products Corp., of Burbank, Calif., into an intensive diesel research and development program.

The disclosure was made by Adel's employment of Wing Comdr. J. G. Goodenough, an internal combustion engineer of wide experience, to head a diesel and engine equipment division of the firm.

▸ **Diesel Patents Studied**—Ray Ellinwood, president of Adel, said the decision to enter the diesel equipment field was made after a study of various proprietary items for which Adel's precision equipment is suited to production, and after a two-year study of American and foreign patents in the diesel field.

The fact that another West Coast aviation firm, Airesearch Manufacturing Co., of Los Angeles, recently announced its plan to manufacture diesel engines indicates the existence of a strong potential market for diesel equipment.

▸ **RCAF Engineer**—Goodenough was associated for many years with H. R. Riccardo, widely recognized authority on internal combustion engines, and recently was in charge of power plant development for the Royal Canadian Air Force. Before joining the RCAF, he was general manager of Dorman, Long and Co., Ltd., British engineering firm.

Adel's postwar interest in developing hydraulic and pumping equipment is assured by the recent appointment of Raymond J. Kirkby, for the past three years chief engineer and manager of research and development of Tokheim Oil Tank and Pump Co., Ft. Wayne, Ind., as special research and development engineer on hydraulic and pumping equipment projects.

FAIRCHILD GUNNERY TRAINERS:

Lined up on the field at Burlington, N. C., are four Fairchild Gunners, *advanced trainers for aerial gunners, awaiting delivery to the AAF, which will fly them to training centers throughout the country.*

THE AIR WAR

COMMENTARY

Flying Leathernecks Spearhead Allied Drive in South Pacific

Offensive operations by Marines eventually may be carried out by squadrons equipped with new Curtiss *Helldivers.*

The Marines have landed. The situation is well in hand. In the campaign to slough off some of the tentacles of the Nipponese octopus the traditional part played by the *landing* Marines on Guadalcanal, the Russell Islands, Munda, Bougainville is well known. What is not so well understood is the vital part which has been played by the *flying* Marines.

After more than 18 months of almost unprecedented triumphs in the air, it is still rare to hear the Marine hymn properly rendered in its new official version:

"From the halls of Montezuma,
to the shores of Tripoli;
We fight our nation's battles,
in the air, *on land and sea."*

Marine Aviation Growing — The Marine organization is in itself ideally adapted to the development of "combined operations," one of the outstanding features of World War II. The Marines are soldiers, sailors, airmen, trained as specialists in landing operations. As a matter of law, the Marine Corps must make up 20 percent of the total strength of the Navy.

The Marine Air Arm is still small but under the present expansion program is expected to equal approximately 30 percent or more of the total Marine Corps.

Marine Fighter Squadrons—In the early months of the Pacific fighting, the flying Leathernecks operated from their landing fields carrier-type Grumman *Wildcats* (F4F). Although out-climbed and out-maneuvered by the Jap Navy *Zero* (*Zeke*), the ruggedness and fire-power of this ship enabled it to turn in an outstanding performance against the Nipponese flyers. More than any other single factor (unless it be the no less heroic air transport service of the Douglas R4D's), the *Wildcats* saved Guadalcanal. In those desperate days, a handful of *P-400's* (export version of the *Airacobra*) also proved their mettle, frequently being the only fighters which the Marines or Army pilots could get to take off from the deep mud of Henderson Field after a tropical rainstorm.

The "Corsair" Comes to Bat — Early in 1943, Marine flyers got their hands on the new Vought *Corsair* (F4U), also a carrier-based type but equally effective from landing strips. This ship gave them the added speed, ceiling and climb they needed, and the 1943 record against *Zeke* and the improved Jap fighters *Hamp* and *Tony* has been tops. More recently, some Marine squadrons have been outfitted with the Grumman *Hellcat* (F6F), a fighter in the same league as the *Corsair*, and if anything a bit more maneuverable.

Dropping the Eggs and Tin Fish— For offensive operations there are a few Marine squadrons equipped with Douglas *Dauntless* dive-bombers (SBD's) and Grumman *Avenger* torpedo bombers (TBF's). It is not unlikely, as in the case of the Navy, that eventually the dive-bombing (pioneered by the Marines in Haiti in 1919 and perfected by them in Nicaragua in 1927) will be largely carried out by the new Curtiss *Helldiver* (SB2C), as this ship has greater speed, fire-power, range and bomb-load than the *Dauntless*.

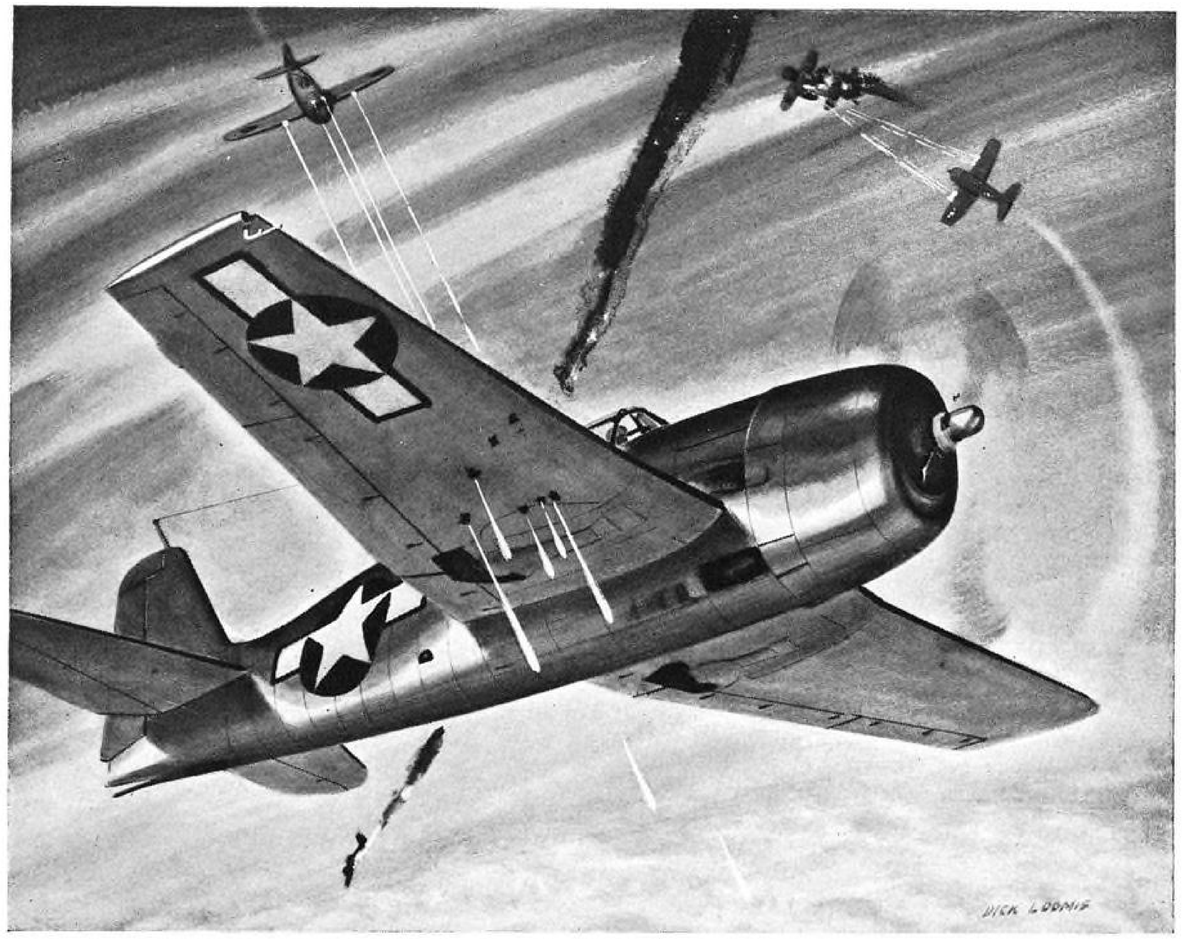
Central Solomons Push — All through last June the air activity over Jap outposts north of Guadalcanal was stepped up in preparation for the drive which began on June 30. While Marine and Army ground troops landed at several points on New Georgia, the combined team of Army-Navy-Marine flyers kept the skies clear of enemy aircraft and dropped hundreds of tons accurately on ground objectives.

The important air base at Munda was neutralized within a few days and captured within five weeks. Landings on Treasury Island, Bougainville and New Britain have followed in succession, and Rabaul seems nearly ripe for the final drive. No wonder Tojo has reported that the situation looks serious, with air and naval superiority now on the other foot.

—NAVIGATOR

NEW EMBLEM FOR FLYING TIGERS:

The Flying Tigers, legendary nickname of the American Volunteer Group which wrote air history in China before the United States entered the war, has been adopted as the official emblem of the AVG's successor, The Flying Tigers of the U. S. Army 14th Air Force, in China. The emblem is shown as it was presented to Maj. Gen. Claire Chennault, commanding general of the 14th, center, by Sergt. Howard Arnegard, its designer, right, and Sergt. Robert Naves.



Wright Pilot Gets DFC

Maj. Perry J. Ritchie honored; back broken in jump.

In peace, Wright Field's test pilots are the most publicized flyers in the Army Air Forces. Since Pearl Harbor, although they have continued their strenuous and often dangerous flight tests, in new and untried types of planes, their work has been overshadowed by the spectacular combat missions flown by service pilots in the various theaters of war throughout the world.

The fact that the combat missions would not have been possible if it were not for the equipment and planes developed and tested by the Materiel Command, has not been entirely overlooked by the War Department, however, as indicated by the award last week of a Distinguished Flying Cross to Maj. Perry J. Ritchie, "for extraordinary achievement and outstanding heroism," in his test flights with the Republic P-47 *Thunderbolt* fighter. The award was conferred by Maj. Gen. Charles J. Branshaw, Materiel Command chief.

Made Dive Tests—Testing recovery from terminal velocity dives, Ritchie made more than 20 dives with the plane last June at Wright Field, all from more than 38,000 feet altitude, in addition to numerous other flight test maneuvers. His next-to-the-last dive ended disastrously for the plane and himself, however, when at the *Thunderbolt's* ceiling, just before he began another dive, fire broke out in an exhaust duct, and Ritchie was forced to bail out.

Wearing only a thin summer flying coverall, and without the bailout bottle equipment standard for high altitude jumps, Ritchie took a last drag on his fixed oxygen mask, unfastened his canopy and felt the slip stream jerk him out of the cockpit, narrowly missing the tail assembly of the plane.

Delayed Opening Chute—He made a delayed-opening jump in order to get down quicker into warmer temperatures than the 50 below zero at 38,000 feet, and held his breath as long as he could, to use up his last breath of oxygen.

Finally he pulled the rip cord at about 28,000 feet, but his velocity was still so great that the jerk of the opening chute broke his back and he lost consciousness. He believes he had dropped to about 8,000 feet altitude when he regained consciousness to find his eyelids frozen shut, but warmer temperatures thawed the ice, and he regained vision as he reached the ground, landing in a field near Greenville, 70 miles from Wright Field.

Hospitalized for several months with his vertebrae injuries, he is now back on duty and expects to be back on flying status soon.

Test Pilot Wins DFC: *Maj. Perry J. Ritchie, Wright Field test pilot who recently was awarded the Distinguished Flying Cross for his test flight work, indicating the importance the Army places on this unheralded flying without which many combat missions would not be possible. Maj. Perry is shown getting into the cockpit of a Lockheed P-38* Lightning.

DC-3's Move Wounded

Some 1,250,000 American battle casualties have been evacuated by air to hospital bases since Pearl Harbor, according to Maj. Gen. N. W. Grant, Air Surgeon, who advised Douglas aircraft employees that the great majority of these wounded were transported from combat zones by Douglas planes.

Gen. Grant reported that more than 25,000 soldiers were evacuated by air during the Tunisian and Sicilian campaigns and that the planes were flown a total of 8,000,000 miles in this task.

"In every theater of operation, Douglas C-47 *Skytrains* and C-54 *Skymasters* are transporting battle casualties from combat zones to receive medical treatment in safety in a fraction of the time required by land and sea," said Grant.

He said that in Africa, New Guinea and Sicily, Douglas transport planes have been called upon to move entire field hospitals hundreds of miles.

Heads Navy Air Unit

The new naval air training command, with supervision over primary, intermediate and operational training, will be headed by Rear Admiral George D. Murray, directly under Vice-Admiral John S. McCain, deputy chief of naval operations for air.

Veteran Flyer — Admiral Murray has been commandant of the naval air intermediate training command at Pensacola, Fla., and under the new assignment of training duties the intermediate command will be moved to Corpus Christi, Tex., under Rear Admiral C. P. Mason.

Admiral Murray, a veteran navy flyer, holds the Navy Cross for saving his ship, the *USS Enterprise,* from serious damage during a heavy attack on Feb. 1, 1942.

Air Sciences Group To Meet in New York

12th annual parley to be held at Columbia U. Jan. 24-27

The Institute of Aeronautical Sciences will hold its 12th annual meeting in New York Jan. 24 to 27 with all technical sessions at the Pupin Physics Laboratories, Columbia University.

Discussion sections and chairmen on the agenda include; aircraft production, Fredric Flader, airplane divisions, Buffalo plants, Curtiss-Wright; structures, Walter Ramberg, National Bureau of Standards; Air Transport, John C. Leslie, Pan American Airways; materials, George W. DeBell, consulting engineer; aerodynamics part I, Richard H. Smith, Massachusetts Institute of Technology; aerodynamics, Part II, R. P. Harrington, Brooklyn Polytechnic Institute; radio and instruments, Alan G. Binnie, Kollsman Instrument Division, Square D Co.; power plants and propellers, George W. Brady, propeller division, Curtiss-Wright; airplane design, Charles J. McCarthy, United Aircraft Corp.; meteorology, session prepared in cooperation with the American Meteorological Society and rotating wing aircraft, R. H. Prewitt, Kellett Aircraft Corp.

Record-Breaking Plane Production Attributed to Industrial Teamwork

Curtiss-Wright's President Guy W. Vaughan credits cooperation all along line for all-time high output of approximately 86,000 warplanes in 1943.

By SCOTT HERSHEY

Teamwork between all branches of the aviation industry and automobile manufacturers and subcontractors building aircraft parts and planes under license is exemplified in the record-breaking 1943 performance of the industry which produced approximately 86,000 warplanes.

Guy W. Vaughan, president of Curtiss-Wright Corp., in commenting on the year's output, noted that the industry produced only 2,141 military planes in 1939, as an indication of the progress made, and added that "the results are reflected in the daily war communiques describing how Germany is being weakened through bombing of its munition and communication centers and Japanese forces are being rolled back steadily in the Far East.

▸ **2,500 Percent Increase** — Vaughan said a survey of his own company showed that Curtiss-Wright's three manufacturing divisions produced 26 times as many warplanes, engines and propellers during the first eleven months of 1943 as during the 1939 period, an increase of 2,500 percent. The units involved were the Curtiss-Wright Airplane division, Wright Aeronautical Corp. and the Curtiss-Wright Propeller division, the organization's plants being in New York, New Jersey, Pennsylvania, Ohio, Indiana, Kentucky and Missouri.

Coincident with Vaughan's year-end statements was one made by Myron B. Gordon, vice-president and general manager of Wright Corp., who predicted that the firm's 1944 output of radial engines would about double that of the last twelve months, with production of *Cyclone* 18's of 2,200 hp. increasing 750 percent over 1943.

▸ **Forrestal Lauds Grumman**—At the same time, James V. Forrestal, Under-Secretary of the Navy, at a ceremony in connection with the completion of the last of the Grumman *Avenger* torpedo planes, said Grumman had stepped up its production faster than any other plant in the country.

Forrestal acknowledged the information reported in AVIATION NEWS Dec. 20 that Grumman is now producing more aircraft than any other plant unit. He added that in December the output of the Navy's new *Hellcat* fighter would be at least 450. A total of 2,291 *Avengers* have been built by Grumman and since Pearl Harbor the company turned out 6,249 airplanes of all types.

▸ **Quota Completed**—Grumman facilities are now devoted exclusively to the production of *Hellcats* and the *Avenger* is being manufactured by Eastern Aircraft division of General Motors.

In connection with year-end reviews, Alfred Marchev, president of Republic, announced that his firm had completed production of its yearly quota of P-47 *Thunderbolts*, high altitude fighter and escort for long-range bombings.

▸ **Poundage Rate Up**—The Curtiss-Wright Airplane division, which makes *Warhawk* P-40 fighters, *Commando* C-46 transports, *Helldiver* SB2C dive-bombers, *Shrikes* A-25 attack bombers and *Seagull* SO3C scout-observation types, manufactured 40,353,352 pounds of airframes and spare parts during the first eleven months of last year, an increase in weight of 58 percent over the output of the corresponding period in 1942. In November, the division produced approximately 5,000,000 pounds more airframes than the total Curtiss aircraft production in 1939.

Wright Aeronautical, Vaughan reported, increased its production of *Cyclones* and *Whirlwind* engines to a point where it is now 36.6 times as great as its horsepower volume when the war started. Since the invasion of Poland, Wright has produced 140,042,000 hp. Now producing engines at a monthly rate of 3,000 percent more than its volume in September, 1939, it is increasing the output so that its 1944 figure will be about double that of 1943.

▸ **Propellers**—The Propeller division, Vaughan reported, produced during 1943 propellers capable of accommodating engines totaling approximately 67,500,000 hp. This is an increase of 50 percent over 1942's output and a gain of 1,300 percent over the 1941 production.

In connection with his report, Vaughan devoted attention to the Curtiss-Wright Development division, set up last year to undertake special research, to handle problems relating to the development and production of aircraft engines and propellers for the war program and also to anticipate the development of postwar markets.

Curtiss-Wright claimed a record for the production of one type of aircraft, with the completion of its 10,000th P-40 *Warhawk* in late August. The report said that, in the 42 months ended Nov., 30, 1943, its production, exclusive of spare parts, of P-40 fighters "established an all-time production record in the American aircraft industry."

Commando Production Scale Largest Ever Launched: *In quantity production in the Crutiss-Wright plants at Buffalo are Curtiss C-46* Commando *transports, the world's largest twin-engine cargo plane. Hundreds of* Commandos *are being built at this plant and they also are being produced in the St. Louis and Louisville plants of Curtiss-Wright and by Higgins Aircraft at New Orleans.*

AAF STUDIES A JUNKERS:

Wearing Yankee insignia, this Junkers JU-88 bomber is shown at Wright Field where it is undergoing comparison tests with U. S. warplanes. Built in June, 1943, it had only 50 operational hours when captured undamaged after a forced landing. Its 1,300-mile range was stepped up to 2,000 miles by extra tanks, and flown from Cairo in 5½ days by AAF pilots who used German instruments except for an American radio-compass.

Deadline on Coast Deferments Extended

Services have till Jan. 15 to certify as to need of aircraft workers.

Army and Navy representatives in West Coast aircraft plants have been granted an extension of time from Jan. 1 to Jan. 15 in which they may certify as to the necessity of aircraft workers whose deferment is sought by their employers.

The time extension merely gives the representatives an additional two weeks to file certification in line with the original plans when the West Coast program for increased aircraft production was announced in November.

▸ **Services Back Plants**—At that time it was determined that the Army or Navy representatives in aircraft plants in California, Washington and Oregon, should support employers' claims for deferment of workers by joining with the employer in certification of the necessity and the request for deferment in those cases where the representative believed the employee to be a necessary man.

While the aircraft companies were not losing a large percentage of men to the armed services, they were losing key men including technicians. Deferments have been granted to meet this situation.

CONVAIR GETS P-51 MODIFICATION ORDER:

North American Mustangs *are being modified at the Tucson division of Consolidated-Vultee, with addition of auxiliary fuel cells to increase combat range. To the right is shown a line of B-24's in the 700-ft. hangar.*

▸ **Technicians Returned**—In view of the fact that the Army already has sent several hundred aircraft technicians back to the plants, it appeared unlikely the aircraft companies were in immediate danger of losing this type of personnel.

Several thousand soldiers from approximately 500 stations throughout the country have been ordered to the Kearns air base near Salt Lake City for examination and assignment to aircraft plants. Those accepted are given honorable discharges and placed in the enlisted reserves.

Lt. R. W. Hewitt, 18th Replacement Wing Adjutant explained that former employees might be returned wherever possible to a specific company, but employees of one company in excess of its needs may be returned to another company lacking manpower.

▸ **AWPC Names Christy**—In connection with the program, the Aircraft War Production Council has named Dwight Christy to represent them at the Salt Lake City base to handle allotment of men, transportation to aircraft plants and other related items. Only men who wish to return will be sent to a plant and they will be subject to recall to the Army in case of necessity. No commissioned officers are to be released.

It was expected that between 100 and 150 men a day will be released from the Army until the full quota of this initial plan has been reached, which is expected around March 1.

Ballard Moves to N.Y.

Ballard Aircraft Co., formerly Hoosier Aircraft Co., of Elkhart, Ind., has transferred its main offices to 331 Madison Ave., New York City and its engineering department from Arthurdale, W. Va., to New York.

S. M. Revness, president, said expansion of activities made the move necessary. This concern was founded with the long range purpose of manufacturing civilian airplanes in plastic-bonded plywood.

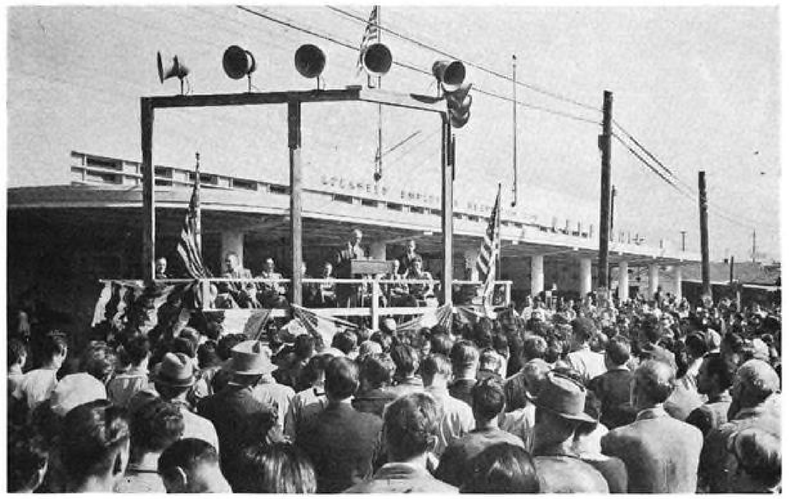
32,000 Wasps Made By GM Buick Branch

Total output since war started is enough to power 8,000 *Liberators*, company reports.

Enough Pratt & Whitney twin row Wasps to power more than 8,000 *Liberator* bombers—more than 32,000 engines—have been produced by the Buick division of General Motors since the war started and approximately 75 percent of these were manufactured in the past twelve months.

▸ **Output Triple**—Harlow H. Curtice, General Motors vice-president and chief executive of the Buick division, said this work of the bomber engine plants in Flint and Melrose Park, Ill., fulfills the aim of the company to triple output of this item during 1943.

He said it places Buick division in the category of the leading producers of aircraft horsepower in the world and the largest producer of Pratt & Whitney 1,830 engines for the *Liberator* bomber program.



NEW COMMISSARY SERVES 60,000 MEALS A DAY:

Sixty thousand hot meals a day are being served aircraft workers in a $500,000 model commissary, a gift by the management to the Lockheed Employees' Recreation Club. Believed to be the largest ever installed in the aircraft industry, the commissary features a cafeteria seating 1,500, a quick breakfast soda fountain, four private dining rooms seating 40 each and one seating 80, and a jewelry novelty shop. It is staffed by 450 persons.

WINS 72 CHECKS:

Jack Peslin, left, who works on the Lightning *P-38 fuselage in a Lockheed plant at Los Angeles has received 72 awards for work simplification. Here, Peslin is receiving eight checks in one batch from F. F. Trygg, superintendent of Lockheed's Plant No. 4. Peslin has received $1,524 and has 105 new suggestions up for consideration. Last year Lockheed paid $270,000 to employees for 5,500 production ideas.*

Industrial Leaders Given Data on War

Army and Navy officials hold two-day session in Los Angeles.

A confidential analysis of military problems and developments was given West Coast leaders of management, labor and public opinion at a conference at Los Angeles, Jan. 7 and 8, sponsored jointly by the War and Navy Departments.

High ranking officers and officials of the Army and Navy presented the two-day program to about 600 representative businessmen and industrialists, labor and newspapermen from California, Oregon and Washington.

▸ **Operations** — The discussions focused on a factual exposition of current and future military operations. Details of combat were disclosed by officers with first-hand experience on the battle fronts. Global warfare in its other aspects, including logistics and supply, were depicted.

The conference at Los Angeles was analogous to the conferences sponsored by the Army last Septem-

MARSHALL INSPECTS DOUGLAS PLANT:

Gen. George C. Marshall, Army Chief of Staff, tells Donald Douglas, president of Douglas Aircraft, about his trip home from overseas in a Douglas C-54. The general stopped off in southern California on his way to Washington and inspected Douglas' Long Beach plant, which is turning out C-47 Skytrains *and B-17* Flying Fortresses.

ber in Washington, which were attended by many West Coast and other aircraft executives.

AAF to Take Over Modification Center

Maintenance, operations at Dayton unit shifted from Northwest to Materiel Command.

Transfer of maintenance and operations at the Northwest-Vandalia Modification Center at Dayton Municipal Airport from Northwest Airlines to AAF Materiel Command has been ordered, preliminary to turning over all activities at the center to the Army when Northwest's contract terminates on April 1.

In the absence of Lt. Col. Carl A. Cover, chief of the Modification Center Branch Materiel Command, a subordinate declined comment of whether the change was an indication of general Army policy on modification centers operated by airlines.

Army to Take Over—More than 100 soldiers will move to the Vandalia center by Jan. 15, with an equal number being transferred later, if needed, after training at Wright Field, such as Clinton County Glider Base at Wilmington, Ohio.

Northwest's civilian employees now operating the Vandalia base may remain by applying for civil service status as government employees. Gradual transition of control is expected to be completed at the termination of the contract. Under the new setup, when complete, the Wright Field administration will handle such work as plant maintenance, protection, administration and supply, while the Materiel Command Engineering and Experimental Division will plan and conduct technical and experimental work.

Plane-Tank Engine

The Wright Whirlwind engine, which now powers many of the tanks and gun carriers used by American armored divisions is almost identical to the Whirlwind used in aircraft, company officials reveal.

This type has been adapted to use in tanks by the addition of a combination cooling fan and flywheel mounted on the propeller shaft in place of the propeller and by changes in the induction system to supply adequate carburetor air, since the engine is installed behind heavy armor plate in the rear of the tank and since air does not enter the air scoop at the high velocity it does in aircraft.

Wright and Continental-built Whirlwinds powered not only the General Grant and General Sherman tanks, but also the new M-7 self-propelled 105 mm. howitzers which went into action in the African campaigns.

Coast Plants to Plan 60% Increase in '44

Aim at 225,000-ton output against 141,480 last year.

The seven Aircraft War Production Council companies on the Pacific Coast have determined not only to meet but beat their new 1944 quota with an output of 225,000 tons of planes in the next twelve months.

The magnitude of the task which these companies—Boeing, Consolidated Vultee, Douglas, Lockheed, North American, Northrop and Ryan—have laid out for themselves is pointed up by the fact that they produced 282,960,000 pounds of warplanes in 1943 or 141,480 tons. This was a 72.31 percent increase over 1942's total of 164,212,300 pounds.

West Coast plants produced 26,636 warplanes in 1943, compared with 17,694 in 1942, an increase of 50.54 percent, the lower percentage increase in unit terms, as compared with weight, being indicative of the trend to heavier aircraft.

NEW HELMET:

The AAF Materiel Command's flying clothing branch and the Ordnance Department have perfected this new M-4 flak helmet, weighing about three pounds and affording maximum protection to neck and face. The pilot shown is in a B-26 cockpit.

TWA Studying All Aircraft Designs for Post-War Operation

Craft with two, three and four engines, and of all shapes are included in evaluation for future use on local, regional and long-range services.

By ALEXANDER McSURELY

The engineering department of Transcontinental and Western Air, Inc., is exploring possibilities of virtually every type of plane and service that an airline may operate after the war.

J. C. Franklin, vice-president in charge of TWA's engineering department at Kansas City, thumbed through a folder of interesting looking airplane designs as he spoke, and showed a few of them to his interviewer.

Everything Considered—"We are making studies on all kinds of plane designs, from the predominant twin-engine and four-engine conventional planes of today to radical canard types with the tails up in front. We are not forgetting pusher planes or dual rotation propellers, and we are even doing some more studies on the old tri-motor, dressed up in modern streamlining with tricycle landing gear," he continued.

The TWA vice-president who had an important share in TWA's studies leading to the airline's sponsorship of the Boeing *Stratoliner,* and more recently the Lockheed *Constellation,* points out that many problems apparently far removed from actual design of the plane will vitally affect the design.

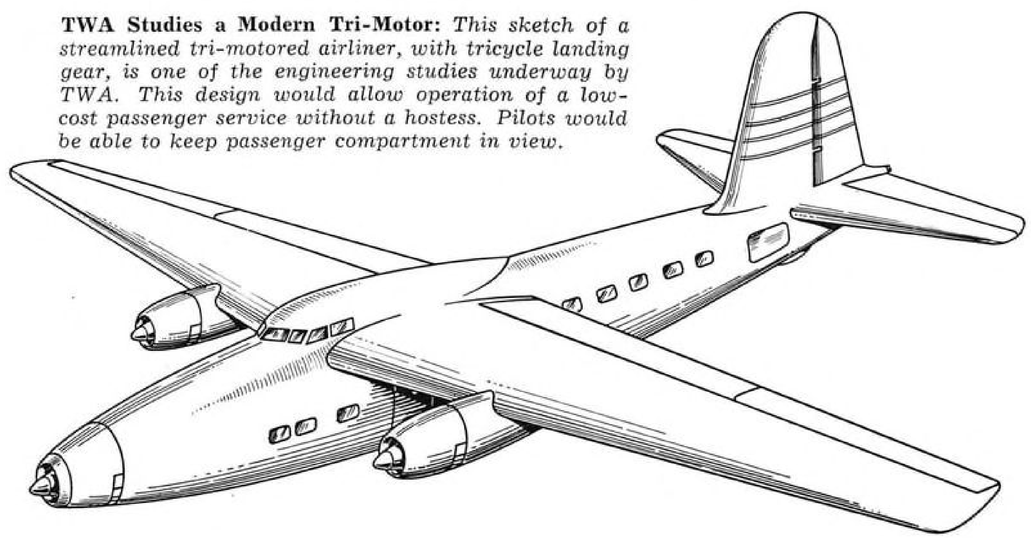
Economy Planned—"For example, one plane design we have drawn would make it possible to operate a low cost passenger service without a hostess. Regulations require that our crew be able to check on the passengers. This would make it necessary to place the pilot's cockpit at a point where the crew could keep the passengers' cabin in view.

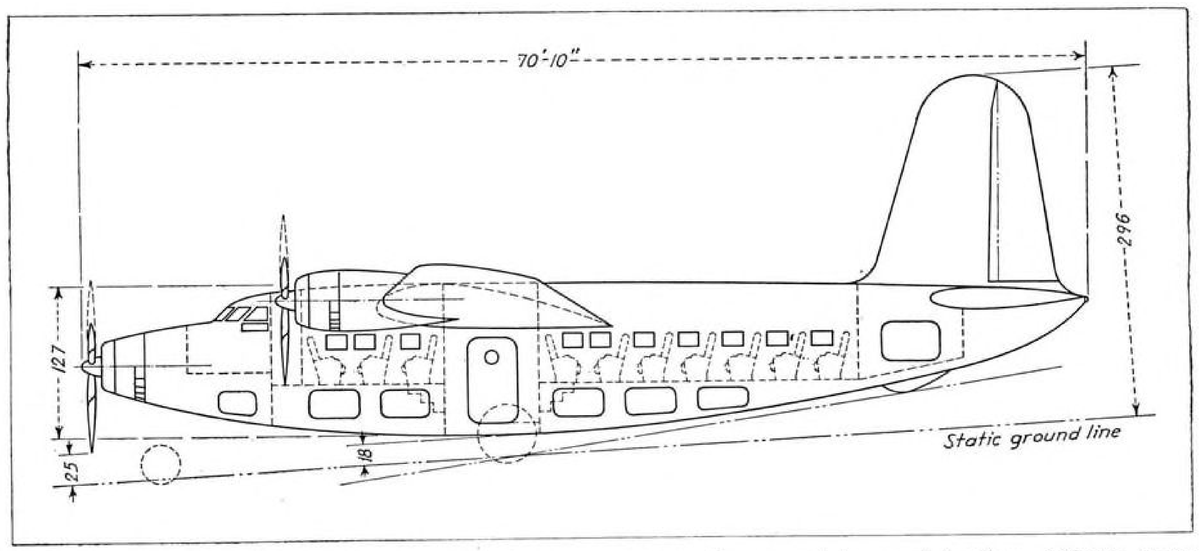
Heads TWA Study: *J. C. Franklin, vice-president engineering for TWA, is leading his company's studies of postwar aircraft.*

The design requires the door to be locked by the pilot or co-pilot, and provides several alternate arrangements for storing luggage inside the passenger cabin to eliminate need for checking it. This would speed loading and cut down dead time on the ground."

The return to consideration of tri-motored aircraft, Franklin said, was brought about by CAB regulations affecting minimum power requirements for an airliner with one engine out. With a twin-motored plane, each engine must have sufficient power to meet this regulation. A tri-motored craft could meet the same requirement with the output

TWA Studies a Modern Tri-Motor: *This sketch of a streamlined tri-motored airliner, with tricycle landing gear, is one of the engineering studies underway by TWA. This design would allow operation of a low-cost passenger service without a hostess. Pilots would be able to keep passenger compartment in view.*





High Winger Design: *TWA's exploration into all types of airliners for peacetime operation resulted in a sketch of this high-wing model, seats as shown, with fuselage nearer the ground to speed loading. Officials make clear this is only one of many sketches drawn thus far of planes to meet postwar transport requirements.*

of two of its engines, making it possible to use smaller engines with greater economy.

▸ **Extra Takeoff Power** — Another factor in consideration of the trimotor is the added "umph" on takeoff which the extra engine gives, particularly important in the design of smaller feeder-type planes, which must operate in small airports with short runways if they are to serve the smaller towns in their territories.

A breakdown on the various sizes of planes which Franklin believes the airlines may operate in the future includes the following:

▸ 1. A 6-to-8 passenger plane for feeder operations equipped with air-mail pickup device.

▸ 2. A plane with 25-to-40 passenger capacity for local runs making stops every 50 to 200 miles. Speed in loading to insure economical operation despite the frequent stops would be a primary requirement of this plane.

▸ 3. A 50-to-60 passenger plane for transcontinental service, making stops every 150 to 400 miles.

▸ 4. A luxury plane of 50-to-60 passenger capacity, with considerably more deluxe accommodations for passengers, and fewer stops, perhaps 750 miles apart, for transcontinental service.

▸ 5. A still larger plane of 80-to-100 passenger capacity, for transoceanic operations of 2,000 to 4,000 miles.

▸ **Air Conditioning** — Improvements of passenger comfort aloft are also being studied. Franklin believes that considerable changes are needed in ventilation and air conditioning.

Devices for electrical precipitation of dust and smoke, already developed for use in homes, can be applied to aircraft with only slight weight sacrifices.

Arrangements to bridge the gap between the time when the air-conditioner unit on the ground ceases to operate, and the plane actually takes off, sometimes a considerable period of time at a busy airport, are also a future requirement, which will probably lead to installation of complete lightweight air conditioning equipment in the plane itself, he anticipates.

▸ **Maybe a Scent**—The air-conditioning equipment may well add a light scent to the air which the passenger must breathe. "I don't mean a reeking perfume to make the plane smell like a lady's boudoir, but a clean fragrant pine scent or something like that," he explained.

Meals served on the deluxe planes of the future probably will be cooked by electricity on the plane, instead of using the pre-preparation method and thermos equipment now the general practice of the airlines.

▸ **Sees High Wingers** — The TWA vice-president agrees with most other present-day aircraft designers that the high-wing airplane will probably replace the low-wing airliners of today because it will bring the fuselage closer to the ground, with economies in loading. His low-cost passenger plane is designed so that passengers step in and out the door without necessity for wheeling up steps to the plane, making another substantial saving in time.

A quick glance at airline history shows that Franklin's studies are of more than ordinary significance in the light of past research and engineering done by TWA.

▸ **Prompted DC-1** — Specifications submitted by TWA engineers in 1931 to the Douglas Co. resulted in the building of the DC-1, parent plane of the now standard DC-3 airliners and their predecessors, the DC-2's. The airline worked in cooperation with the Goodrich Company in developing the rubber boot-type wing de-icer in 1932, and was the first airline also to adopt the Sperry automatic pilot as standard equipment, the first to use wing flaps, the first to use steam heating systems for its passenger comfort.

▸ **Pioneered Other Research**—Among other TWA firsts were: the use of the slinger ring propeller de-icer, the use of the electrical engine synchronization indicator, the anti-rain static homing radio direction finder, the radio broadcast receivers for passenger use, and the first supercharged cabin overweather four-engine transport service.

The high-altitude research flights of D. W. (Tommy) Tomlinson for TWA, made in a single-engine Northrop Gamma stratosphere plane equipped with a supercharger borrowed from the Army in 1936, making observations of weather conditions up to 36,000 feet, and leading to specifications for the Boeing *Stratoliner*, is another research contribution of the airline which must not be overlooked.

▸ **High Altitude Operation** — TWA was able to operate the *Stratoliners* for only 18 months, before they were called into emergency use by the Army in foreign service, but the time in airline operation was enough to give the company a valuable backlog of operational experience for similar postwar operations, Franklin points out.

PAA Merges Units In Latin America

East-West divisions consolidated with headquarters at Miami.

Pan American's anticipation of a heavy expansion of its lines in the Caribbean area and South and Central America after the war is evident in its consolidation early this month of its Eastern and Western divisions into one Latin American division with Miami headquarters.

The Eastern division, formerly supervised from there, covered the west coast of South America as well as Pan American's subsidiaries in Cuba, Brazil, and the Antilles. The Western division, out of Mexico City, consisted of the lines from Los Angeles, Brownsville and New Orleans on down to Balboa. The two divisions had separate maintenance, fleets and pilot operations.

▸ **Directed By Morrison**—The consolidated set-up is directed by Wilbur Morrison, who has been in Central and South America for the last 25 years and with Pan American for ten or twelve of those. Formerly in charge of the Western division, he has been elevated to a vice-presidency, and will now direct all South and Central America and Caribbean operations.

Pan American now has four commercial divisions. In addition to the Latin American division, the Atlantic division, at North Beach and Long Island, covers all trans-Atlantic operations. The trans-Pacific division out of San Francisco now goes to the Hawaiian Islands, New Zealand and Australia. The fourth is the Alaskan division, which has operated through Canada and into Alaska from Seattle since 1940.

▸ **Panagra** — Pan American-Grace, 50 percent owned by Pan American Airways, comes under the new Latin American division set-up, although it has an independent operations arrangement.

Both of the companies, according to Pan American's year-end report, had 150 aircraft in operation at the end of the 1943.

WORLD'S OLDEST MAP:
C. H. Goodwyn, chief pilot of Pan American's Africa-Orient division, holds what the Civil Aeronautics Administration says is the world's oldest map, a clay tablet depicting a city, fort and two rivers. The tablet is part of CAA's "Sky-Roads" exhibit in the Commerce Building in Washington.

During the past year, they flew 65,346,000 miles, compared with 43,939,744 in 1942 and 24,875,951 in 1941. Passengers in 1943 numbered 606,700 against 391,013 for 1941. Passenger miles of 475,470,000 compared with 228,630,621 in the last year before the war. The system carried 49,345,000 pounds of cargo and logged 72,735,000 ton miles in 1943, and the 14,465,400 pound mail load was over four times that of 3,489,619 in 1941.

Just how wartime operations exceed those of peace may be seen from the fact that one of Pan American's war divisions operating for the Air Transport Command crossed the Atlantic more than nine times as often during 1943 as did the entire Pan American system in pre-Pearl Harbor scheduled flights.

▸ **New Records**—Panagra's share in the 1943 operations was such that it exceeded its 1942 records in all categories: plane miles totaled 4,700,000 compared with 4,030,000 in 1942, passenger miles were 57,500,000 in 1943 and 43,000,000 in 1942; passengers carried, 69,000 compared with 56,770; express, 2,000,000 pounds compared with 1,330,000; mail 280,000 pounds compared with 242,000. Personnel increased from 1,600 in 1942 to 2,500 last year.

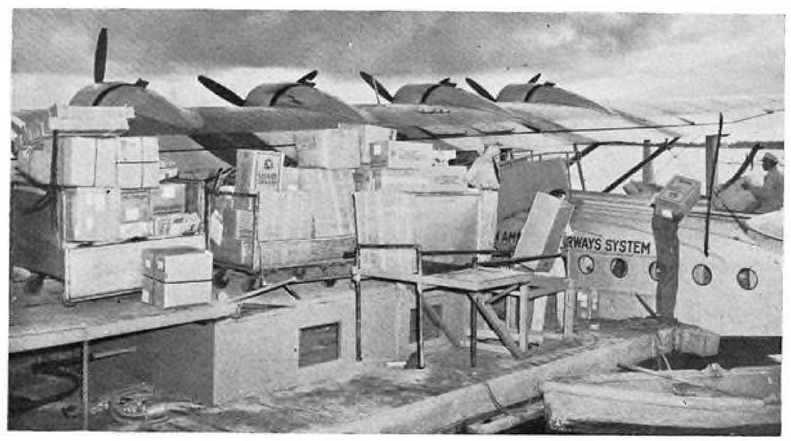
Like Pan American, Panagra has experienced difficulty in obtaining equipment. An important feature of its postwar plans, already advanced, is four-engine equipment to make possible full night operation.

Northwest Financing

Airline files statement with SEC for common stock offering.

Plans by Northwest Airlines for a common stock allotment to finance future expansion have been filed in a registration statement with the Securities and Exchange Commission at Philadelphia.

The plan calls for 139,460 shares of common stock without par value, of which 117,460 will be offered present common stockholders at a ratio of one share of the new stock to each two held on that date. Price is to be set by amendment. Full-



PAA LOADS FIRST ALL-CARGO CARIBBEAN CLIPPER:
Dock view of the loading of the first Pan American Clipper in PAA's new all-cargo service in the Caribbean area. Four tons of express are being loaded for a 1,150-mile trip to Puerto Rico. The service will operate between Miami and San Juan and Miami and Barranquilla, Colombia.

and fractional-share subscription warrants will evidence subscriptions. The warrants will be transferable and will expire at 3 p.m. Jan. 15.

▸ **Underwriting Group**—Members of an underwriting group, headed by Auchincloss, Parker and Redpath, will purchase the unsubscribed portion of the 117,460 shares, if any, and offer them to the public at a price to be named by amendment. The remainder of the 139,460 total will be issued under options.

TWA Opens Course For AAF Mechanics

Selected students sent to Kansas City for training.

By ALEXANDER McSURELY

Hand-picked Army Air Force enlisted men are getting a post-graduate course in aircraft inspection and maintenance under experienced airline personnel supervision at the flight mechanics' school operated by Transcontinental & Western Air for the Air Transport Command at Kansas City.

Graduates of the 60-day intensified transitional training school are qualified as flight mechanics and assigned to four-man operational units, including pilot, co-pilot, navigator and flight mechanic—to haul personnel and critical air cargo in C-46 Curtiss *Commando* and C-47 Douglas transports.

▸ **Selected Students** — The students are selected from enlisted men who have completed a basic air mechanic's course in the Army. Some have had additional specialized schooling in aircraft factories. With this foundation, they study virtually every phase of aircraft engine, propeller, air frame, radio and equipment maintenance.

Students who complete the course satisfactorily can do or direct nearly all first and second echelon maintenance work. Instructional motion pictures play a part in the schooling, but the main method is the cut-and-try plan.

TWA Mechanics Learn Cargo-Loading: *Tie-down procedures for loading air transports are among the operations taught at the Air Transport Command transitional training school for flight mechanics, operated by Transcontinental & Western Air at Kansas City.*

▸ **Radio Men Trained**—Besides the flight mechanic course, the school is instructing a group of army flight radio operators, and ground radio mechanics, as specialists in radio maintenance and repair.

The flight mechanics also receive a 60-day course in physical culture to toughen them for combat duty overseas. Since, because of the nature of their work they may not be armed during an attack, they are taught commando-type hand-to-hand fighting and judo for combat emergencies.

Burke's Resignation Laid to Air Policies

High cost of diplomatic job and inability to express convictions freely also believed factors.

By BLAINE STUBBLEFIELD

Thomas Burke's resignation as chief of State Department's international communications was perfectly amicable, but he did feel that government procedure stood increasingly in the way of his speaking out on his convictions. He told AVIATION NEWS he had been trying to get out for several months. One factor was the cost of maintaining his section of the diplomatic front, which was too much for his salary.

Burke expressed admiration for Secretary of State Cordell Hull, for Gen. H. H. Arnold, chief of the Army Air Forces, and for Gen. Harold George, chief of the Air Transport Command, and said he would continue to serve the State Department and the cause of American aviation abroad.

▸ **May Join PAA**—His interest in international air transport causes observers to believe he will stay in that field. Some think he will join Pan American Airways. Opinion in some quarters is that Burke's espousal of the single-management foreign air service led to his resignation. The difference of opinion on this matter reaches to the very top layer of federal policy makers.

Mr. Burke served in the last war, stumped the United States for Secretary Hull's reciprocal trade program, took a leading part in persuading the Latin Americans to throw out Axis airlines and radio stations, headed negotiations for right-of-way for the Air Transport Command the world around. He was a member of the working subcommittee of the interdepartmental committee on international aviation.

Spirited Session Held On Post-War Aviation

Peace problems in air field discussed at United Nations Forum in Washington.

A spirited panel discussion enlivened last week's United Nations Forum on air transport development and postwar international aviation at Constitution Hall in Washington.

Main speaker was William A. M. Burden, special aviation assistant to the Secretary of Commerce. Panel speakers were Ralph S. Damon, vice president and general manager of American Airlines, Senator Brewster (R., Me.), member of a Senate aviation subcommittee, and Rear Admiral Emory S. Land, chairman of the Maritime Commission, and Burden.

▸ **Interchange**—An interchange occurred between Damon and Brewster. The latter, one of five senators who made a world tour of battle fronts, asked Burden his prediction on post-war international air traffic. Burden said he thought traffic would be heavy but did not believe the same was true of dollar volume.

Brewster then pointed out that Pan American's president, Juan Trippe, who was to have been on the panel but couldn't attend, had said the fare from New York to London would run around $100 after the war. Didn't Burden think, the Senator asked, that such a low fare actually would lead to a big increase in passenger revenue.

▸ **Differ on Figures**—While Burden was starting his answer, Damon chuckled, and Brewster turned to him to ask if Damon did not respect the opinion of the man who built the greatest airline in the world.

"I have the greatest respect for the president of the Senator's favorite airline," Damon replied, "but I do not agree to his figure." Damon, pressed for his opinion, later said after some deliberation, his estimate for the immediate post-war fare to Europe would be closer to $360. He was reluctant to give a figure because all the facts were not available, he said. The one-way fare from New York to London now is $625.

In his prepared talk, Damon said it was reasonable to expect that in 20 years transports may cruise at 400 mph or better, and soon after the war, the pre-war cruising speed of 180 miles per hour for certain types of domestic transport planes will be increased to between 200 and 300 mph. He added that designs will be started soon after victory for commercial transport planes which will achieve 300 mph for long hops.

▸ **Competition**—Damon called for competition in post-war aviation, explaining that the domestic lines sharing this view feel that a better job can be done "under the stimulus of competition than under the questionable blessing of single operation, whether it is called by the high-sounding designation of the 'chosen instrument' or the common garden variety term of 'monopoly.'

"There is no more point in the United States' subscribing to the 'chosen instrument' theory simply because some other countries have adopted it," he contended, "than there is in our subscribing to fascism simply because it is the chosen instrument politically of some foreign nations."

▸ **Foreign Routes**—Burden declared that "we need not fear that the American air transport industry will be overwhelmed by foreign government airlines." Plans must be premised, he asserted, on the principles that the war has transformed international air transport from a government-subsidized experiment into an economically sound transportation industry, that growth of air transport does not constitute a military menace nor does foreign commercial plane passage over a country threaten its security, and that restrictions on international air transport, if imposed, will be for reasons of trade policy.

▸ **Brewster Decries Policy Delay**—Senator Brewster, referring to a survey by the Interdepartmental Committee on Postwar Aviation, explained that he was violating its secrecy "sufficiently to say that I heartily concur with its declaration that delay in determination of a policy results in a steady deterioration in the position of the United States in this most critical field."

He urged that the United States, cooperating with Great Britain, Russia and China, take the responsibility of developing and guaranteeing "a real freedom of the air." It was the Senator's idea that national post-war aviation policy should recognize the fact that monopoly has characterized the international air transport development of foreign nations. Why, he asked, should a similar type of operation not be this country's answer to the situation?

Land thought steamship lines should be permitted to operate supplementary airlines. Despite growth of air transport, more surface vessels will be needed after the war, the admiral said.

Experts Discuss Air Transport's Future: *Following their appearance last week on the United Nations Forum in Washington's Constitution Hall, Ralph S. Damon (left), vice-president and general manager of American Airlines, and William A. M. Burden (right), special aviation assistant to the Secretary of Commerce, broadcast a summary of their views on post-war international air transport. Between them is NBC Commentator Richard Harkness.*

Convair Board Reported Planning Move on Consairways Separation

Directors of parent company expected to vote at next meeting on plan to divest firm of trans-Pacific airline; Matson interested.

Separation of Consairway, trans-Pacific war contract air transport line, from Consolidated Vultee Aircraft Corp. (Convair), of which it now is a division, appeared last week as a definite likelihood. The action would have important post-war possibilities.

AVIATION NEWS was informed that the next Convair directors' meeting will take up and act on the question of relinquishing control of this Air Transport Command operator.

▸ **Matson Interested**—West coast advices are that Matson Navigation Co., of San Francisco, is interested in Consairway to the extent that it has discussed its acquisition with representatives of the line. There is no doubt that Consairway, along with other war contract carriers in that area, is helping to make trans-Pacific operation a big factor in post-war considerations.

Its flights roughly parallel those of United Air Lines, also flying the Pacific for the ATC. In addition to these and ATC's own operations, Pan American Airways is flying the Pacific and the Naval Air Transport Service is making trans-Pacific hops.

▸ **Separation**—One strongly-favored postwar possibility for Consairway has been that it will provide Convair with the latter's own flying service. Such a move, it is believed, would require the divorce of the division from the company, and formation of a separate corporation in which, under federal law, Convair's interest would be limited to 25 percent of common stock.

Managed by Richard Stuart Mitchell, 33, former flyer for United Air Lines and Catalina Air Lines, Consairway's trans-Pacific takeoff point is at Hamilton Field, north of San Francisco. Recently it shortened the distance to its service base from Hamilton Field by moving the former from San Diego to the vicinity of Oakland.

▸ **Schedules Increased** — With ten planes, the line has increased its schedules since its first official trip on April 23, 1942, to approximately one each day. In October, 40 scheduled trips were flown. The 753rd trans-Pacific flight left the United States Oct. 31. Operations started and continue with converted V-24's. The 15 flight crews available at the start of operations have increased to 37, and 15 more are in preparation.

At its Australian terminal at Amberly, Consairways services at least two of its aircraft daily, operating on a three-shift basis. Average lay-over time has been reduced from 24 to 8 hours. One Consairways aircraft recently flew the trans-Pacific round-trip, from Hamilton Field and back, in a record time of 4 days and 43 minutes.

▸ **Costs**—Total expenditures from the time the line started through last October, under Consairways transport and Amberly Field contracts, ran $5,178,189. Costs figured $0.9095 per mile, $180.37 per hour, and $0.2913 per ton mile.

Under the transport contract alone, total expenditures, exclusive of conversions, amounted to $4,418,651, while per factor costs figured $0.7761 per mile, $153.91 per hour, and $0.2485 per ton mile.

Lighter Packaging

How space and money are being saved by substituting lighter packaging for heavy containers for war materials shipped by Naval Air Transport Service is revealed by the Navy Bureau of Supplies and Accounts which estimates that monthly savings through repackaging at the four cargo stations under its jurisdiction amounted to 25,000 pounds each at New York and Miami, 50,000 pounds at San Francisco and 15,000 at Seattle, the total equivalent to 276 fully loaded cargo planes, or a saving to the taxpayers, at an average cost of $1.50 per pound, of $2,070,000 a year.

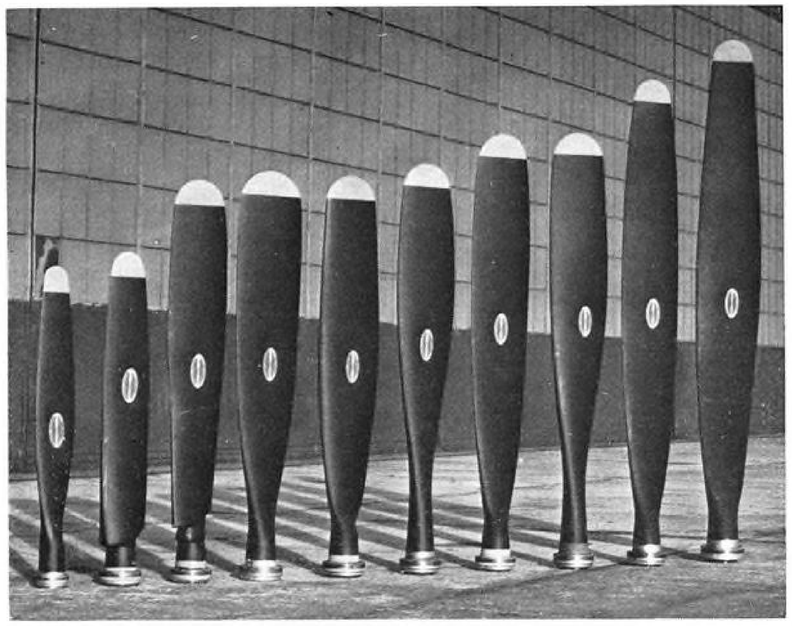
Larger Port Urged

Engineers' survey asks development of Twin Cities Wold-Chamberlain field.

Recommendations in an engineering survey for the Minneapolis and St. Paul Metropolitan Airports Commission would result in development of Wold-Chamberlain field at Minneapolis as a major air terminal for the Twin Cities. Holman field in St. Paul would become a center for express and private flying.

TACA LOADS SILVER FOR U. S.:

This picture from the office of the Coordinator of Inter-American Affairs shows a shipment of silver, destined for the United States, being loaded on a TACA airliner. The company is that in which Transcontinental & Western Air recently invested.



HAMILTON STANDARD "PROP" TYPES:

Ten of the more than 60 different blade types manufactured by Hamilton Standard Propellers are lined up to indicate the wide range necessary for today's airplanes, from trainers to big bombers. More than a million such blades have now been produced by Hamilton Standard and its four licensees—Nash-Kelvinator, Frigidaire, Remington Rand and Canadian Propellers. British licensee, deHavilland, has accounted for probably another half million.

Details of the appraisal of the Twin City area in the commission's jurisdiction are listed in a comprehensive 33-page report submitted recently to Gov. Edward J. Thye of Minnesota.

Airframe, Engine, Propeller Output In 1943 Doubles Value of 1942

Dollar volume of airframes, engines and propellers produced in 1943 is estimated at $11,000,000,000, the Aeronautical Chamber of Commerce, trade association of the aircraft industry, reports, noting that its forecast a year ago was $12,000,000,000.

The revised figure is more than twice the 1942 value of $5,000,000,000 and more than six times the 1941 value of $1,750,000,000. These figures, however, do not represent the total cost of the completed airplane, since there are many items added, such as armament, instruments and other equipment.

▸ **Airframe Weight Up Sharply** — James P. Murray, Boeing vice-president and president of the Chamber, pointed out that the increases in dollar volume are considerably less than the increases in airframe poundage, indicating substantial reductions in unit cost to the government.

"The tremendous increases in aircraft production in 1943," Murray said, "were achieved with increases of only 50 percent in plant area and 45 percent in employees."

▸ **1,400,000 Employees** — Total employees in airframe, engine and propeller plants at the end of the year were estimated at 1,400,000, in the Chamber report, of whom 40 percent are women, compared with totals of 970,000 at the end of 1942 and 423,000 at the end of 1941. An additional 450,000 are now working in subcontracting plants and large numbers in other related industries.

The Chamber report said the American aircraft industry produced 667,000,000 pounds of military airframes in 1943, nearly two and one-half times the weight produced in 1942 and approximately eight times 1941 production.

▸ **Stresses Poundage**—"Poundage of airframes," Murray said, "is the only accurate yardstick of aircraft production for the armed forces. Our 1943 poundage represented frames and spare parts for an estimated output of 86,000 planes, 80 percent more than the number produced in 1942 and four and one-half times as many as in 1941."

He gave these comparative figures:

	Pounds	Units
1941	83,500,000	19,403
1942	276,000,000	47,694
1943	667,000,000	86,000
Three year totals	1,026,500,000	153,097

"It is significant," Murray added, "that the average weight of planes built in 1943 was nearly double that of 1941. This means a greater proportion of heavy bombers and transports compared with smaller and lighter planes. Total poundage in December, 1943, equaled that of the entire year 1941.

"If we had continued building planes of the 1941 average size, our poundage production in 1943 would have been the equivalent of 155,000 units. Thus, measured by average weight unit, the industry production last year far exceeded the President's program announced in January, 1942."

Airport Heads Plan Fort Wayne Meeting

Sessions to open month after Kansas City talks.

Increasing interest in airport problems, particularly in the midwest, is evident in the announcement that airport managers will meet at Fort Wayne, Ind., next month to talk over common questions.

The gathering will take place about a month after the Jan. 24-25 get-together at Kansas City of city officials and representatives of civic groups from a nine-state midwest area, under sponsorship of the Kansas City Chamber of Commerce, to discuss these same problems.

▸ **Meet Feb. 18-19**—The latest announcement comes from the Board of Aviation Commissioners at Fort Wayne, Ind. Robert T. Schott, manager of the Board, says the meeting there Feb. 18 and 19 was called as an outgrowth of the N. A. T. A. convention at St. Louis, where "it was felt that the airport managers should get together."

Two hundred airport managers in the middle west have been circularized with invitations to the Fort Wayne meeting, to which Schott says, however, "any airport manager in the country is welcome, as well as anyone else in the aviation industry."

▸ **Speakers** — In addition to airline representatives, airport managers and federal airport men will talk. Charles B. Donaldson, head of the airport division at the Civil Aeronautics Administration, will be the principal speaker at a banquet on the opening day of the session.

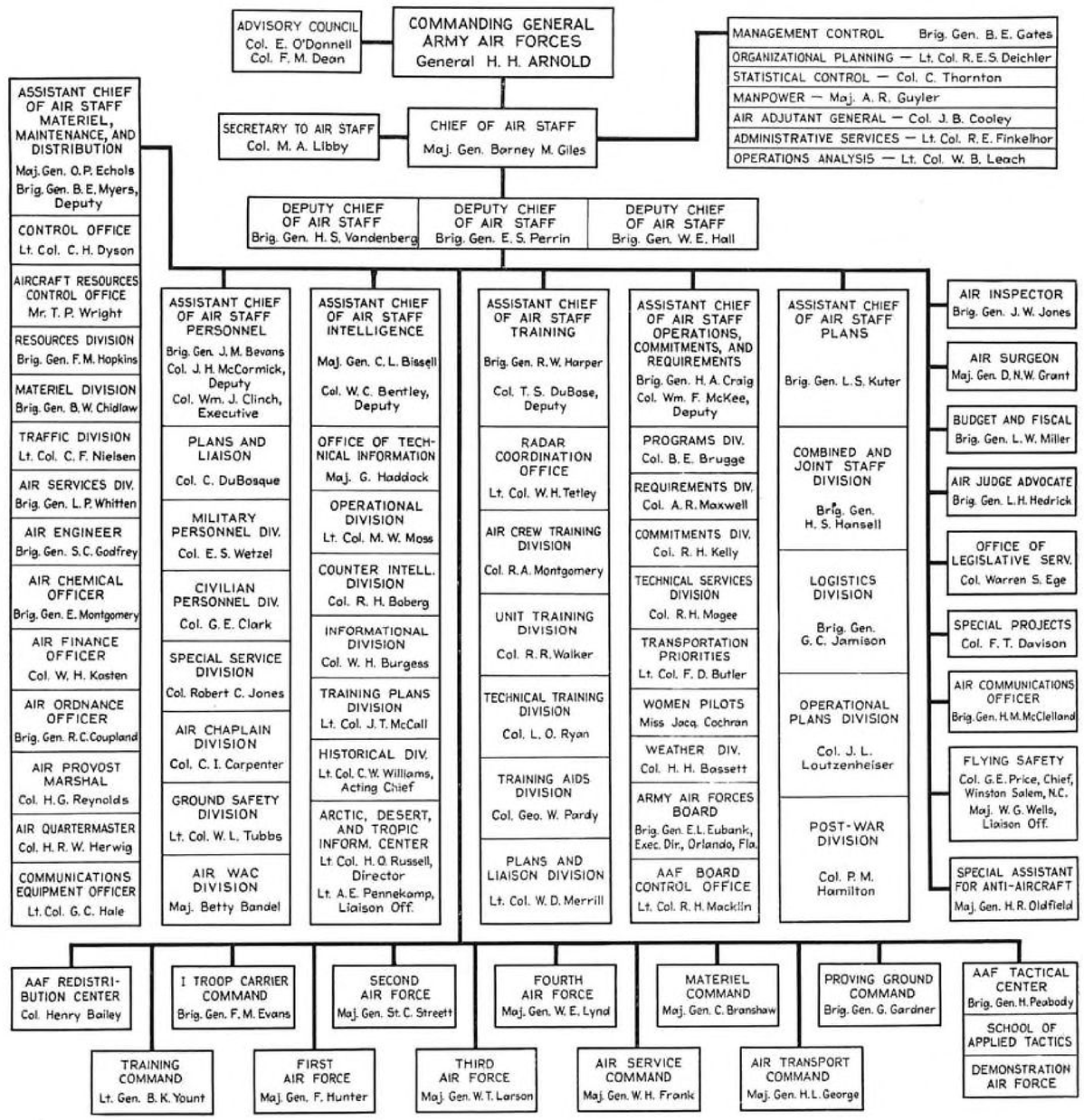
Among questions suggested in the invitation are those of the attention to be given private pilots in postwar airport planning, whether municipal airports can and should operate at a profit, how far the federal government should control airport operations, advisability from a business standpoint of 15 or 20 year leases with airlines, whether airlines should pay the same for all weight planes, after how many scheduled flights airlines should operate free schedules, value of airport office space, and what fixed base operators should pay for airport operations.

Air Express Gains 40 Percent in 1943

Totals 14,000 tons compared with 10,850 in previous year.

The 18 domestic airlines carried about 14,000 tons of air express during 1943, according to the Air Express division of Railway Express

DIRECTORY CHART, HEADQUARTERS ARMY AIR FORCES



HUNTER HEATER READIES MOTOR ON COLDEST DAY IN FEW MINUTES

Quick-on Duct Connections Permit Easy Set-Up of "Cold-Starting" Device

BURNS ANY TYPE OF GASOLINE

CLEVELAND, OHIO—Details of a gasoline heater made by Hunter and Company of this city for preheating aircraft engines quickly to starting temperatures in severe weather have recently been released for general distribution. Advantages claimed for the Hunter device are its lightness, simplicity of construction, the ease with which it can quickly be set up and taken down, and the fact that it operates on any type of gasoline at hand.

The Hunter preheater, weighing approximately 45 pounds, delivers 25,000 B.t.u. per hour and re-circulates heated air through the engine housing by means of flexible ducts. This makes it possible to pump hot air over a cold engine in sufficient volume to bring it to an easy starting temperature in a matter of minutes, even in sub-zero weather.

Flexible ducts are provided which connect the heater to the breather openings of an engine cowl, as shown in the illustration. These are so designed that they can be quickly attached with the aid of a simple harness provided with the equipment. Allowance is made for variation in sizes and types of cowl. Special hoods are available for delivery of heat to radial installations.

Rapid heating and recirculation of the air within the enclosed area assures even heating of all parts of the engine. Thus when the intake manifolds have been brought to proper temperature, the oil sump, cylinders and valves also are preheated to a degree that assures prompt action of the lubrication system when the engine starts.

This simple heater can be detached from the flexible ducts and set inside a plane cabin, or used to blow hot air over an area where mechanics are working in low temperatures, or for a number of special services in addition to its main job.

Complete information on the Hunter Preheater may be obtained by writing or wiring Hunter & Co., 1540 E. 17th Street, Cleveland, Ohio.

(Advertisement)

Agency. The comparable 1942 figure was 10,850.

Daily express cargo over the domestic airline network averaged 45 tons in 5,000 shipments, the average close to 20 pounds and flown 1,000 miles. Estimates are that 1,500,000 shipments were carried during the twelve-month period.

▸ **Foreign Shipments**—Despite wartime restrictions, international air express service averaged 14,000 shipments a month, the division said. Connection points with domestic routes are Miami, Brownsville, Los Angeles, Fort Worth, El Paso, New York, and New Orleans, which became an international airport in July. Trans-Atlantic air express was two years old in December.

Domestically, several flights exclusively for mail and express were started. Three operate between the coasts, a fourth from New York to Miami.

▸ **Rail-Air Express Up 28%**—Rail-air express shipments, moved between the 350 airport cities and 23,000 off-airline express offices, increased 28 percent in the first 11 months of the year. Express charges on them were up 67.4 percent for the same period.

The division's report cited the rate reduction of up to 12½ percent, effective July 15, as "indicative of how increasing air cargo volume will result in savings to the shipper."

20 "Mars" Flying Boats Ordered for NATS

First of giant aircraft expected to be delivered in about a year.

The recent record-breaking flight of the Martin *Mars* has resulted in a Navy order for 20 of the huge flying boats for us in the Naval Air Transport Service.

Secretary Knox, in announcing the placing of the order with the Glenn L. Martin Co., said it probably would be a year before the first of the new ships is completed.

▸ **Built as Patrol Bomber** — In this connection, it should be remembered that the *Mars,* world's largest plane and the only one of its type, originally was designed and built as a patrol bomber. The new planes, on order, will be strictly for cargo transportation and consequently considerable engineering will be involved to make the interior of the boat conform to cargo-carrying demands.

While changes may not be extensive, some are necessary to improve the cargo-carrying facilities of the craft, despite the fact that the *Mars* established four world's records on her first war mission, one of which was a new non-stop air cargo-carrying mark. The *Mars* flew 4,375 miles non-stop to Natal, Brazil from the Naval Air Station at Patuxent River, Md., and then home again by comparatively easy stages.

▸ **Perfect Performance** — Martin engineers and Navy airmen gave the *Mars* a thorough check-up after the flight and found her in perfect condition, although new engines have been installed, since the old ones had been subjected to unusual strain in tests prior to the South American mission, although they were in good condition. *Mars* is powered by four Wright Cyclone engines delivering 2,200 hp. each.

The new flying boats of the *Mars* type will be taken into Naval Air Transport Service duty as they are completed and used primarily for over-water transport of war materials.

Their performance will be closely watched by the aviation industry, with an eye on postwar air passenger and cargo transportation, particularly for transoceanic service.

Lindbergh Field At San Diego Shut

Commercial planes barred from port, held sub-standard, by CAA.

Lindbergh Field, San Diego's municipal airport, was closed to commercial air transportation last week by H. A. Hook, sixth region director, Civil Aeronautics Administration.

Unlike the Civil Aeronautics Board's closing of Philadelphia's airport a week earlier for war security reasons, the Lindbergh Field ban on commercial flying was based on a complaint that the city of San Diego failed to maintain runways and field operation within safety standards demanded by CAA.

▸ **Cites Landing Danger**—"Every landing is a potential crackup," Hook told city officials. He added that his order will stand until one man is made responsible for management and maintenance of the airport, now under supervision of the city harbor commission. No city official, it is said, has been willing to take responsibility for the field's sub-standard 75-foot-wide concrete landing strip or poorly repaired holes in the runway.

Officials of Western, United, and American airlines have indicated pleasure over Hook's action, and see it as a step toward the field's improvement.

▸ **Convair Planes Tested**—Use of the airport for military purposes and testing of Consolidated Vultee planes continues.

ATA Legal Counsel Relinquishes Account

Airline members of association get six months' "notice."

Airline members of the Air Transport Association have been notified that the Association's general counsel, the Washington law firm of Covington, Burling, Rublee, Acheson and Shorb, will no longer handle the ATA account after such time as a successor can be chosen.

The withdrawal, rumored for some time, means that Howard C. Westwood, who, as a member of the firm, has had direct charge of ATA legal affairs, and Gerhard A. Gesell and Charles Davison, who assisted him, will no longer continue in that capacity.

▸ **Six Months' Notice**—The firm's letter suggested that the ATA probably will be able to obtain other counsel by June 30, 1944—in effect a six months' notice. The company has held the association's account since shortly after the latter was formed in 1936.

It also has been doing work for Panagra through close association with W. R. Grace and Co., steamship line which shares Panagra 50-50 with Pan American Airways. These duties were assumed with the expectation there would be no conflict with the work for the association. Now, however, the law firm also is withdrawing from this connection.

▸ **Freedom of Choice Involved**—The letter tendering its resignation from the ATA account explained that the firm desires to be free to determine what cases it should take, without connections with the association.

AVIQUIPO AROUND THE WORLD

SHORTLINES

▸ L. Welch Pogue, chairman of Civil Aeronautics Board, has returned to his desk after a month's absence during which he spoke in Iowa and later underwent a minor operation at Rochester, Minn. His time at the office has been limited, as he is still recuperating.

▸ Civil Aeronautics Administration is offering $525 in war bond prizes for school children's essays on the "Skyroads" theme in connection with its exhibit in the Department of Commerce auditorium. Contest ends Feb. 1.

▸ A shuttle service has been started between Vera Cruz and Tuxpan by Compania Mexicana de Aviacion, Pan American's Mexican affiliate. The service operates daily except Sundays.

▸ Canadian Pacific Air Lines reports for 1943 increases of 21 percent in passenger traffic and 30 percent in mail traffic, and a decline of 6 percent in cargo. Company carried 70,000 passengers, 2,200,000 pounds of mail and 9,100,000 pounds of cargo during the year, its planes increasing their 1942 mileage 15 percent to 6,030,000 miles in 1943. Cargo fell off to some extent after the Alaska highway was completed, and due to declining mining activities.

▸ Officers of Northwest Airlines were re-elected at the annual meeting: Croil Hunter, president; E. I. Whyatt, vice-president and treasurer; K. R. Ferguson, operations vice-president; A. E. Floan, secretary; L. S. Holstad, assistant treasurer, and Camille L. Stein, assistant secretary. Hunter is beginning his seventh year as head of the company.

▸ At St. Martin, Netherlands West Indies, an airport is under construction to make possible replacement of the indirect route from the United States via Curacao, with a direct airline via Puerto Rico and St. Thomas.

▸ Pan American announces that air shipments destined to 31 countries and colonies in Central and South America, the West Indies and the Caribbean, including Mexico, no longer require air transportation priorities. New cargo service is making it possible to accept non-priority shipments, the line says, although normal service is not guaranteed under war conditions, and priority shipments will continue to take precedence over non-priority.

▸ American Airlines' air mail volume totaled 23,667,497 pounds for the first eleven months of 1943—an 83.5 percent gain over the 1942 period, according to John A. Smith, western cargo traffic superintendent. November, 1943, air mail volume was 2,374,684 pounds. For the year to Dec. 1, air express totaled 19,027,056 pounds, or 77.1 percent greater than in the 1942 period.

FINANCIAL

* *

Airline Stocks Chalk Up Gains In '43 as Aircrafts Lose Ground

Final prices show continued advances by all air transport shares while equities in plane manufacturing firms decline further.

By ROGER WILCO

Airline investors did well to retain their equities during 1943. Aircraft equity holders, however, continued to take it on the chin throughout the year. Final 1943 market results show continued gains by all air transport shares, while the aircrafts were being marked down. The table shows the individual market records of the major aviation companies—both air transports and manufacturing.

Net Changes and 1943 Market Ranges

Major Aviation Companies
(In terms of dollars per share)

Airlines	Net Change 1942	Price Jan. 1, 1943	Price Dec. 31, 1943	Net Change 1943	1943 High	1943 Low
American	+8½	55½	60	+4½	76½	52
Eastern	+4⅝	32⅜	36½	+4⅛	44⅝	31¼
Northwest	+5⅞	16½	18	+1½	23½	15⅛
Pan American	+11⅝	25⅝	31⅝	+6	43¼	23½
Penn-Central	+3⅜	10¾	14	+3¼	20¼	9½
TWA	+6⅞	16⅜	18	+1⅝	25⅛	15⅛
United	+8⅛	19¼	23⅝	+4⅜	33⅜	17¾
Aircraft						
Bell	No change	11¾	11	—¾	20½	9⅛
Boeing	—4⅝	15	14⅛	—⅞	21¼	11⅜
Curtiss-Wright	—11½	6¾	5¾	—1	9½	5½
Douglas	—10⅛	56	48¾	—5¾	73½	44
Martin	—5½	18½	16½	—2	24	14¾
North American	—2½	9⅞	8⅜	—1½	14⅛	8
United	—9⅝	25½	27	+1½	40	24¼

Market quotations from: *The Commercial and Financial Chronicle* and *Wall Street Journal.*

It can be seen that each of the airlines shown recorded increases for 1943. Net gains per share range from a minimum of $1.50 for Northwest to a maximum of $6 for Pan American. In percentage, however, the best results were shown by Penn-Central, which finished the year about 30 percent to the good for its holders. While American was ahead $4.50 per share for the year, the gain was but 8 percent and the lowest for the group.

▸ **Record for 1942**—Far greater gains were made by the airline shares during 1942. In that year, these equities were marked up from a minimum of $3.75 a share for Penn-Central to a maximum of $11.625 a share for Pan American. Furthermore, these gains were even more significant percentagewise, as they started from much lower levels.

A study of the 1943 price ranges for the airlines reveals that, in every instance, lows were made, penetrating the levels existing Jan. 1, 1943. These declines, however, were all by small margins. On the other hand, the high marks established (generally around mid-year) are far removed from current levels. In other words, much of the enthusiasm shown during 1943 has since evaporated. For the most part, wide ranges continue to prevail for airline securities. For example, Pan American (the extreme case) fluctuated about 100 percent when it alternately swung between 23½ and 43¼.

▸ **Pace Difficult**—It is also a safe surmise that airline equities are finding it increasingly difficult to continue the same pace of price appreciation they enjoyed in recent years.

The depressing market performance of the aircrafts has been recited at every turn. The accompanying table, therefore, will not disclose any startling developments insofar as they may relate to aircraft share values. The record, nevertheless, remains an interesting one and clues to favorable developments may be discovered by the discerning. With the exception of United Aircraft, all aircraft builder equities show net losses for the year. But these declines, for the most part, are limited and are no longer of the wide scope that prevailed during 1942, for example. Percentagewise, the aircrafts which declined in market value during 1943, lost between 10 to 15 percent.

▸ **United Finishes in Black**—United Aircraft showed a net gain of $1.50 a share for the year and was the only major aircraft company to finish in the plus column. The stability of operations, generally accredited to this company, is responsible for this market action.

Almost every aircraft equity presented in the table shows a range of about 100 percent in market fluctuations during 1943. This is merely a reflection of the erratic position of the industry in the minds of the investing public. It is interesting that at the high mark for each of the companies, excellent opportunities existed to sell aircraft shares at a substantial profit — not only on shares purchased early in the year but in previous periods as well. For example, a price of $73.50 per share in 1943 for Douglas would have more than made up the $10.25 net loss experienced by the stock during 1942.

It is likely that, as long as uncertainties prevail for the aircrafts, wide and sometimes nervous market action may be anticipated. This should be the general pattern for the immediate future and it is during such periods of indecision that opportunities for large profits are likely to exist.

Chambers Heads Underwriters Group

Reed M. Chambers, vice-president of United States Aviation Underwriters, Inc., since its inception, has become president, succeeding David C. Beebe, now chairman.

Albert J. Smith, assistant treasurer, has been named vice-president and financial manager, and Richard S. Anderson, assistant secretary, is a new vice-president and chief underwriter.

In the new executive line-up, Chambers returns to his old company, after a leave of absence to work with Defense Supplies Corp. and Rubber Reserve Corp.

Aircraft Stocks Seen As Overdeflated

A cheerful note is expressed for aircraft equities by a leading statistical service. This appraisal is counter to that taken by virtually every other investment advisory service in the country.

United Business Service, in a current analysis, reiterates its view that aircraft equities are overdeflated. This source, however, concedes that it was premature in advising purchases in this group some months ago.

▸ **Pessimistic Future Noted** — The much-reviewed pessimistic future generally accorded the aircraft industry is also noted by United Business Service. However, optimism is expressed in the hope that Washington will properly recognize the importance of maintaining airplane producing facilities second to none in the world.

As a consequence, however, favorable action is looked for in the matter of both renegotiation and contract termination procedures.

It is anticipated that clarification of some of the major uncertainties should make for better action on the part of aircraft shares. This service believes that, of the companies in its supervised list, United Aircraft is "best fortified with working capital and appears best situated to weather keen postwar competition."

▸ **Strong Position**—"Glenn L. Martin has working capital equivalent to over $15 per share—the approximately present price of its stock. Boeing has over $9 a share of working capital, and the stock is quoted only moderately above this figure."

United Business Service concludes its analysis with the opinion that "the (aircraft) group is close to the bottom of its four-year downtrend. Early settlement of questions now under consideration in Washington should result in higher prices for these stocks."

Investment advisory services differ radically as to the outlook facing the aircraft builders—the preponderant view being a pessimistic one. All are on record, however, and the market will, in due time, prove which prophets will remain with honor.

R. W.

Financial Reports

▸ **Beech Aircraft Corp.** in its report for the fiscal year ended Sept. 30, 1943, reveals that ,after negotiated refunds and provision for additional refunds for the last fiscal year totaling $29,534,438, sales amounted to $97,043,946. Sales for the previous fiscal year were $59,592,953. After all charges, including provision for federal income and excess profits taxes, the company reported net income of $4,035,965, or $10.08 a common share. In the previous fiscal year, final net income after renegotiation refunds settled last September, amounted to $1,802,980, or $4.50 a share.

Regarding the provision for refund of government contracts for the latest fiscal year, amounting to $29,534,438, the report points out that this figure represents the management's idea of a fair refund, but that no agreement had been reached with the Price Adjustment Board.

▸ **Air Associates, Inc.**, reports for the year ended Sept. 30, 1943, net income of $1,135,551, subject to renegotiation, equal to $8.42 a share on 134,904 common, after all charges, including provision for federal income and excess profits taxes of $2,901,200. This compares with $448,401, or $3.32 a share, for the previous fiscal year, when $784,500 was set aside for taxes. Company reported net sales rose to $20,496,576 from $14,396,800 for the year ended Sept. 30, 1942.

BUILT WRIGHTS' FIRST ENGINE:

Los Angeles' celebration of Kitty Hawk Day was flavored by the presence at a Chamber of Commerce luncheon of Charles E. Taylor (center), builder of the engine which powered the first Wright airplane into the sky. With Taylor are Jack Northrop (left), president of Northrop Aircraft, Inc., and Leslie Neville, editor of Aviation, *who was principal speaker.*

PERSONNEL

★ ★

Major Charles C. Bassett, Jr., has become assistant to **Lee H. Smith,** general manager of the Fairchild Aircraft plant in Burlington, N. C. A veteran of two World Wars, Maj. Bassett has recently been put on inactive status for medical reasons. In World War I, he was with the LaFayette Escadrille, before America entered the war. He later joined the Navy as ensign and rose to lieutenant (jg). His rating included that of military pilot and instructor in aerial gunnery and bombing. In World War II, he was commissioned a captain in the Army Air Corps and went on active duty Aug. 7, 1941. He worked as special liaison officer in the Ferrying Command and later was transferred at his request, to the Tactical Command. He flew to England in September, 1942, attached to the 93rd Bomb Group. That year he was promoted to Major. He holds the Navy Cross and French commendations. Between the two wars, Maj. Bassett was connected with the textile industry, concerned with organization, production and distribution.

G. H. Rowe, Jr., has been granted a leave of absence from the Social Security Board to serve Fairchild Engine & Airplane Co. as supervisor of employee services for the duration of the war, plus six months. In his new job, Rowe will be working directly with Labor-Management Committees. Before going to the Social Security Board, he was with Federal Housing Administration for three years. He is a member of the bar in both New York and Maryland and has practiced law in New York.

W. A. Patterson, president of United Air Lines, has been elected a member of the board of trustees of Northwestern University, according to an announcement by **Franklyn B. Snyder,** president.

J. W. Brown and **Steven Martino** have been appointed chief pilot and senior pilot, respecitvely, of the West Coast military air line operated by Southwest Airways. They helped pioneer the air line, which provides feeder service to military depots, a year ago.

Niles-Bement-Pond Co. directors elected **Richard W. Banfield** secretary and **Ernest J. Meuten** assistant secretary at a meeting in West Hartford recently. **Clayton R. Burt,** chairman, also announced the election of three new directors, **Benjamin H. Gilpin** and **Milton E. Chandler,** both of Chandler Evans Corp., of South Meriden, Conn., and **John B. Byrne,** of the Hartford-Connecticut Trust Co.

T. F. Vance, who went to the Louisville division of Consolidated Vultee about three months ago as acting director of Industrial Relations, has been appointed chief of Industrial Relations. **Bud Ainslie** has joined Vance's staff.

Lt. Col. Gerald R. Johnston has been transferred to Wright Field as public relations officer for the Materiel Command, AAF, after holding a similar post with the AAF central Technical Training Command at St. Louis. A native of Sidney Ohio, he has been active in Army public relations work intermittently since 1923, and served in the Navy during the World War. He is also a former Michigan newspaper man and fiction writer. As chief of the command's public relations section, he heads public relations work in the various procurement districts and sub-bases of the command, as well as the public relations work from the experimental center itself.

LOCKHEED CHRISTMAS PARTY IN IRELAND:

About 6,000 American workers of Lockheed Overseas Corp. gave a series of Christmas parties for more than 5,000 children in Northern Ireland. Prime Minister Sir Basil Brook of Northern Ireland attended one of the parties with his cabinet. This photo shows toys manufactured from scrap lumber, made by Lockheed workers. Each man also contributed a half crown and his own candy ration for three weeks.

A. W. Hendrickson, industrial relations director of Kellett Aircraft Corp. for the past year, has resigned to become personnel director of the Farrel, Birmingham Co., with plants in Ansonia, Conn., and Buffalo, N. Y. He will be stationed at the latter plant and, besides personnel work will introduce and supervise an industrial relations division. He is succeeded at Kellett by **Robert Riddle,** recently made assistant to Hendrickson.

Appointment of **Hubert L. Howard** as divisional comptroller for Texas operations has been announced by North American Aviation, Inc., simultaneously with the company's conversion from cost-plus-fixed-fee to fixed price of the company's war contracts in Plant B, Dallas. Conversion of contract form and growth of Dallas production added to the financial responsibility of the Texas Division to an extent that appointment of a comptroller proved desirable, a board spokesman said.

L. G. Boeing (photo), who began his aviation career as a mechanic nursing the Postoffice Dept's pioneer de-Havilland mail planes, is Ryan Aeronautical Co.'s newly appointed executive assistant to **G. E. Barton,** factory manager. Boeing previously directed industrial relations for Consolidated Vultee Aircraft Corp.'s Allentown, Pa., division.

Transfer of **Brig. Gen. Lucas V. Beau, Jr.,** to Chief of Staff of Air Service Command, with headquarters at Patterson Field, near Dayton, from his former post as Commanding General of the San Bernardino (Calif.) Air Service Command, has been announced by **Maj. Gen. Walter H. Frank,** ASC commanding general. Succeeding Gen. Beau is **Col. James G. Taylor,** former chief of the ASC headquarters control division. **Col. Ward Wheelock** replaces Col. Taylor in the control office. Gen. Beau has been in Army aviation since 1917, and served in France in the World War.

Mrs. Mary Blakeney of San Diego, a former seamstress and receptionist, now at the Naval Air Station in San Diego, has designed a device that saves more than 3,000 manhours a year in repairing delicate aircraft instruments. Her device, originated after seven months at the Air Station, is a tool for righting the balance of rotors of the instrument which shows a pilot whether or not his plane is in level flight. She has received an award of $150, second largest sum to be given at the San Diego Air Station.

One of the youngest women in the air transportation industry to hold such a job is **Agnes Anderson** (left), office manager of United Air Lines' Los Angeles office, which requires also management of UAL's Hollywood and Long Beach offices. Mrs. Anderson succeeded **Irving Monroe** (right), recently drafted, who at the age of 21 was reportedly the youngest air line office manager in the country.

Donald R. Wilson was appointed supervisor of training for all branches of Continental Air Lines. He was formerly chief instructor of Continental's Air Transport Command ground school, and before that with Mountain States Aviation in charge of the ground school and CPT training programs, in addition to duties as manager of Hayden Field, Denver. He learned to fly about four and a half years ago and has over 675 hours to his credit. In his new job with Continental, Wilson not only set up curricula for company-wide training programs, but will also work with the Denver Public Schools system, setting up aviation training programs.

Dean C. Smith has joined the executive staff of Fairchild Engine & Airplane Corp. in charge of development activities. A veteran pilot, explorer and aviation sales director, Smith has been director of transport for the airplane division of Curtiss-Wright Corp., for the past several years, and before that was manager of Curtiss' St. Louis airplane division.

Smith began his aviation career in World War I, as a pilot and flying instructor. After the war, he spent some time barnstorming, and then joined the airmail service of the Post Office. He was one of the pioneers in transcontinental flight, developing instrument, night and radio flying. When airmail contracts were let to private companies, he joined the NAT which later consolidated with Boeing to become United Air Lines.

Smith went with Admiral Byrd on his first expedition in the Antarctic and was awarded the Congressional Gold Medal for his services. After his return, he served with American Airlines. He also holds the Distinguished Flying Cross and was awarded the Harmon Trophy in 1934. He and his associates were awarded the Detroit News Trophy and the Collier Trophy for their pioneering in airmail service. He is a member of Explorers Club and Quiet Birdmen.

Berry **Bergmann** **Martin**

E. L. Berry and **Richard F. Bergmann** have been elected vice-presidents of the Link-Belt Co. Berry, who is vice-president and general manager of the Link-Belt Ordnance Co., has been with the company since 1914, and has been concerned chiefly with production and personnel. Bergmann joined the company in 1924, through purchase of Howe Chain Co., and has been chief engineer for Link-Belt for a number of years. Concurrently **John E. Martin,** since Pearl Harbor assistant to Brig. Gen. G. M. Wells, War Dept., Washington, has been appointed manager of Link-Belt Ordnance Co.

Ludwig B. Kalinowski recently joined Kellett Aircraft as assistant to **R. H. Prewitt,** chief engineer. He has been assistant chief engineer for the past five years at the Edo Aircraft Corp., and before that was research engineer for Edward G. Budd Manufacturing Co., where he aided in developing stainless steel for use in aircraft construction. Kalinowski has also been with Brewster Aeronautical Corp. and with Grumman Aircraft Corp. He is a graduate of New York University, holds a Master of Science degree from the Guggenheim School of Aeronautical Engineering at NYU, and holds a diploma in naval architecture and marine engineering from the Webb Institute, New York.

Mr. Wright Looks Ahead

AVIATION NEWS is proud to present in this issue Mr. T. P. Wright's own account of the aircraft production story, both in retrospect and forecast. It speaks for itself. Any hint of his own accomplishments in coordinating and planning is missing from Mr. Wright's report, however. Most top industry officials know how much he has done to bring order out of chaos. Too few other Americans do.

T. P. Wright is an exceptionally able engineer and one of the few scholars of aircraft production this country has. Of equal importance in Washington, he has the ability to get along with people. Without offending the civilians of Washington, he has managed to get along beautifully with the military. His idea was to get out more planes. Not to question who ran what.

It was about 1940 that Ted Wright wrote in *Aviation* magazine that airpower could win the war and that it would be primarily British and French airpower plus American production. France fell and some of our best known aviation spokesmen, including Lindbergh, said Britain was beaten. Like Lindbergh and Rickenbacker, Mr. Wright had seen the German aircraft plant before the war broke.

But his ability to work with figures and a slide rule—his careful analysis of German and British floor area, manpower, and other factors—brought no words of doom. The autumn of 1940 proved Wright was correct and that others were wrong. The RAF beat the Luftwaffe once it got it to fight in the air and not just as an attachment to a tank corps.

In another article he maintained his thesis of victory for Allied Air Power and prepared charts showing what the U. S. could do in 1941 and 1942 if we acted fast. We did. Production indeed went up just about following the mathematical formula of possible floor space and possible manpower on which his estimates were calculated.

And to clinch his uncanny ability, we repeat the story told to us, and we believe it. Last January someone asked T. P. Wright what his private guess was on 1943 aircraft production. Wright said he'd guess about 85,000. The final figure Mr. Wright gives in his article today—85,946.

A Precedent for Industry

ANNOUNCEMENT that the Personal Aircraft Department of the Aeronautical Chamber of Commerce has already emerged from promotional and organizational stages and has settled down to work is the single bright spot in the Chamber picture.

Selection was unanimous of John E. P. Morgan as manager of the department, and of Joseph T. Geuting, Jr., and William Mara as chairman and vice-chairman of the Chamber's Personal Aircraft Committee. The appointments were unanimous in an industry which is seldom unanimous in anything tied in with future policy. This is a singular compliment to all three men. It reflects the confidence they have won as a result of intelligent discussion and planning in recent months.

Fortunately for personal aviation, the light plane manufacturers—even though well loaded with war contracts—have the vision, ability and the will to unite for the future. Their big brothers, with vast stakes, still dawdle over reconstructing a single, strong trade association with authority to speak for the entire industry. There are unpleasant rumors gathering momentum that there will be no revitalized Chamber as long as the aircraft councils are flourishing, but AVIATION NEWS does not believe there is any basis for them.

A Remarkable Document

DESPITE THE PAPER SHORTAGE the U. S. government is still printing scores of pamphlets and official documents, few of them of interest to the public.

If our Government Printing Office displayed the same spirit of public service as the British Stationers Office it would print a cheap edition of Gen. Arnold's great report to the Secretary of War and would distribute it throughout the country for sale to the public at hardly more than cost. The report should be read by every citizen. Fortunately, however, the nation's newspapers are lavishing much space on the document, and some are running it as a series of articles.

The reporting in itself is a masterful presentation of the subject—building the greatest Air Force of all time and waging the world's first air war. It comes at the threshold of a new and crucial stage in which air power will be told it must outdo even its recent remarkable performances. The report in itself is important, but its effect on political air policy in the next six months will be far greater than most government officials now realize.

ROBERT H. WOOD

Tryout with Tracers

Not all laboratories are housed in buildings. This lonely ravine, for example, occasionally is used as a laboratory, when G-E engineers want to test electric equipment for aircraft turrets under actual firing conditions. Here is one of the famous Martin turrets going through its paces while engineers check the performance of the G-E turret-control system.

Today, a considerable portion of our vast research and engineering facilities is at work on new products and systems for aircraft. Soon, many new G-E devices will take their places in the fight for freedom alongside their well-known predecessors—turbosuperchargers, Martin turret controls, aircraft transformers, capacitors, relays, motors, control, etc.

Whether you fly planes or build them, you can depend on the products that carry the G-E monogram. They are expertly engineered and precisely built, to give long life and reliable operation under severe combat conditions on every fighting front. *General Electric Co., Schenectady, New York.*

PRECISION PRODUCTS AND ENGINEERED SYSTEMS FOR AIRCRAFT

Every week 192,000 employees purchase more than a million dollars' worth of War Bonds

GENERAL ELECTRIC

674-12-8872

Hear the General Electric radio programs: "The G-E All-girl Orchestra" Sunday 10 p.m. EWT, NBC—"The World Today" news, every weekday 6:45 p.m. EWT, CBS.