AIR FORCE

In This Issue

THE NEW LOOK IN KOREA

An on-the-spot report by AFA's president

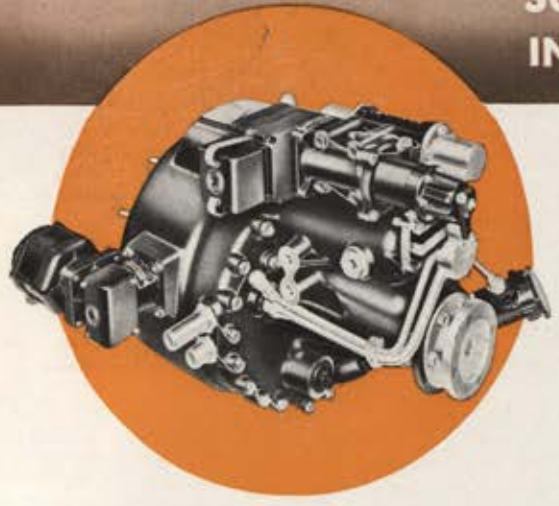
1903—DECEMBER—1951

Forty-eight years ago this month the Wright Brothers introduced man to the flying machine before an unbelieving world. Today scientific progress is taking man out of the machine, and the disbelievers remain. As at the time of the first flight, tradition is still our first enemy.

FIRST ON CONSOLIDATED'S B-36

NEXT ON THE NEW MARTIN P5M-1

SOON...
INTEGRAL PART OF NEW WESTINGHOUSE J-40



Proved reliability increases acceptance of Sundstrand Alternator Drive!

Truth of the old French proverb "Nothing succeeds like success" is once again proved by the rapidly increasing acceptance of Sundstrand's Constant Speed Alternator Drive. On the B-36, more than 6500 hours of trouble-free operation have been logged. Test runs of Martin's new P5M-1 further verify its dependability. And now it is to become an integral part of the new J-40 engine. Other applications are "in the works," utilizing Sundstrand's *reliable* research, *expert* engineering, and *precision* production.

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SUNDSTRAND MACHINE TOOL CO.
HYDRAULIC DIVISION, ROCKFORD, ILL.

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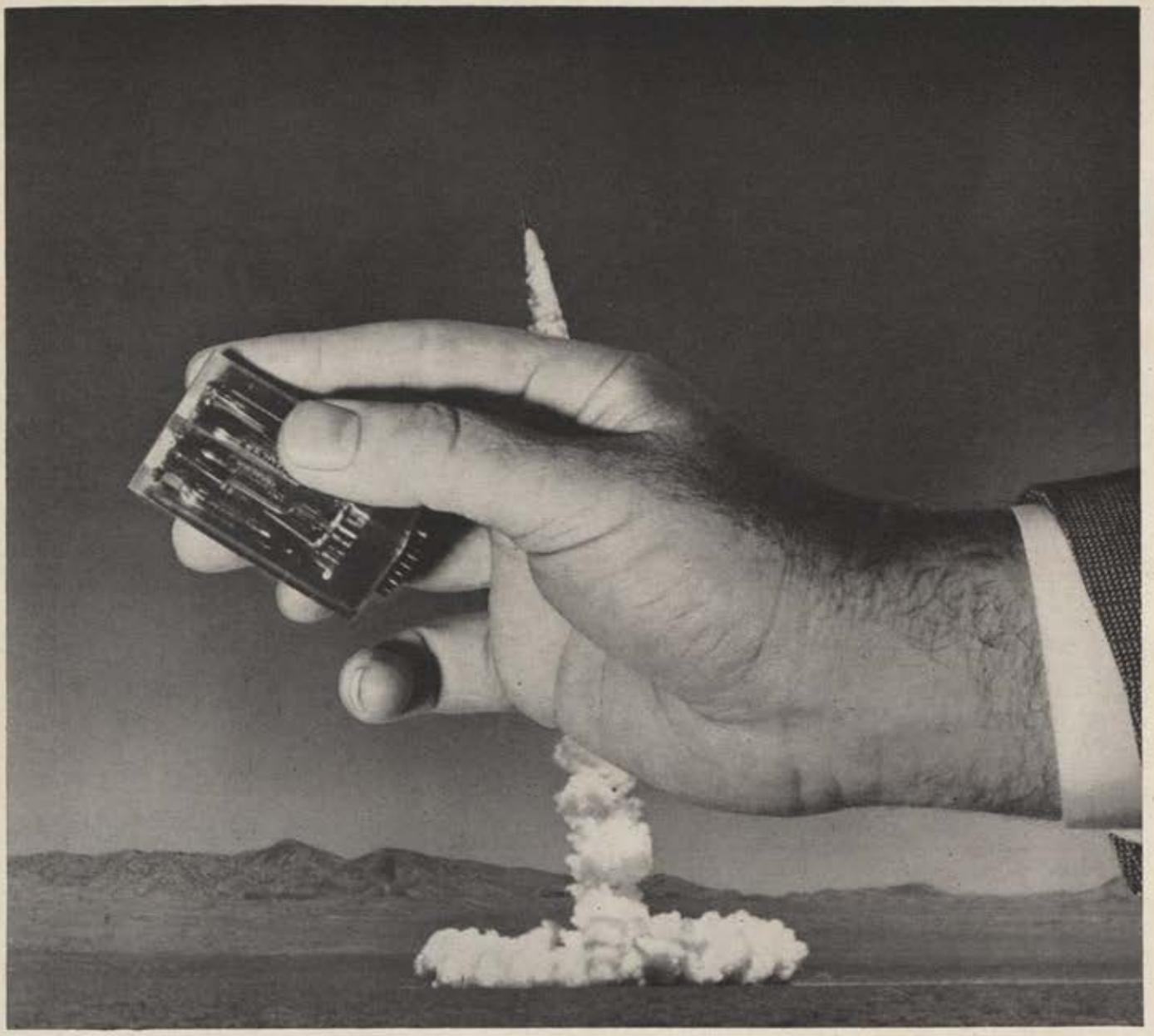

This radio plays deadly music

Here's an important "brain lobe" of a guided missile — a tiny radio amplifier unit no bigger than a matchbox. It's a vital part of the complex electronics equipment which guides these pilotless weapons to their target with deadly accuracy.

Boeing initiated one of this country's first active guided missile programs authorized after World War II. From it have evolved newer and more advanced projects to which are assigned a substantial number of Boeing engineers and research scientists. All of these major activities are shrouded in secrecy.

An interesting phase of their development work concerns the "miniaturizing" of electronics equipment. Tiny vacuum tubes, condensers and other components are assembled in minute "packages" to save weight and space. They must be tough to stand the shock of supersonic missile flight. They must be highly accurate and dependable.

Boeing's missile projects, like those of other aircraft manufacturers, are a part of an over-all, comprehensive program designed to help build America's defenses.

For the Air Force, Boeing builds the **B-47 Stratojets, B-50 Superfortresses and C-97 Stratofreighters;** and for the world's leading airlines, Boeing has built fleets of the new twin-deck Stratocruisers.

BOEING

Sir Isaac never dreamed of anything like this!

Back in the 17th century, even Newton couldn't have foreseen the day of automatically controlled flight. Yet the principles he expounded make it possible for this plane to hold so steady in a bank that a precariously perched glass of water isn't even disturbed!

One of those principles—his first law of motion—is the basis for the formula governing gyro behavior. Honeywell engineers, following this lead, designed a vertical gyro second to none, that is the heart of the dependable Honeywell Autopilot—standard equipment on the B-36 and B-50—that's flying the airplane pictured here. By always knowing which way is up, the gyro vertical, together with other autopilot components, operates the control surfaces to coordinate aircraft turns.

Today Honeywell *specializes* in gyros; is the nation's fastest-growing manufacturer in this important field. Honeywell rate gyros used in the yaw damper control now are installed on six major types of aircraft. Still other Honeywell gyros, some so versatile they measure angular rates as slow as ¼ of a degree a minute and as fast as 45 degrees a second (a 10,800 to 1 range of angular rates), are used in the radar and guided missile programs.

Experiments to improve and find new applications for gyroscopic controls are constantly being made by Honeywell engineers. We are broadening our research in this and other fields of control—because *automatic control* is such an important part of aviation progress. And *automatic control* is Honeywell's business.

Aeronautical Division
MINNEAPOLIS-HONEYWELL • MINNEAPOLIS 8, MINN.

MINNEAPOLIS **Honeywell**

Aeronautical Controls

AIR FORCE

THE OFFICIAL JOURNAL OF THE AIR FORCE ASSOCIATION

VOL. 34, No. 12

DECEMBER 1951

THIS IS AFA

The Air Force Association is an independent non-military, airpower organization with no personal, political or commercial axes to grind; established and incorporated as a non-profit corporation February 4, 1946.

Active Members are men and women honorably discharged from military service who have been assigned or attached to the US Air Force or its predecessor services, or who are currently enrolled in the Air Force Reserve or Air National Guard. **Service Members** (non-voting, non-office holding) are men and women currently assigned or attached to the US Air Force. **Associates** (non-voting, non-office holding) are men and women not eligible for Active or Service Membership who have demonstrated an interest in furthering AFA's aims and purposes, or in proper development and maintenance of US airpower.

ITS OBJECTIVES

To preserve and foster the spirit of fellowship among former and present members of the Air Force.

To assist in obtaining and maintaining adequate airpower for national security and world peace.

To keep AFA members and the public at large abreast of developments in the field of aviation.

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FEATURES

DEPARTMENTS

THE COVER

When the Wright Brothers were experimenting half a century ago, the prime stumbling block was the requirement that an aircraft be able to carry a man. Today the cycle has gone full circle. The problem is how to dispense with the pilot and make flight fully automatic. On how well we solve it depends the destiny of the Free World.

READ "The Kill Devil Story" page 11, and "The Four Freedoms of the Air Force" page 32

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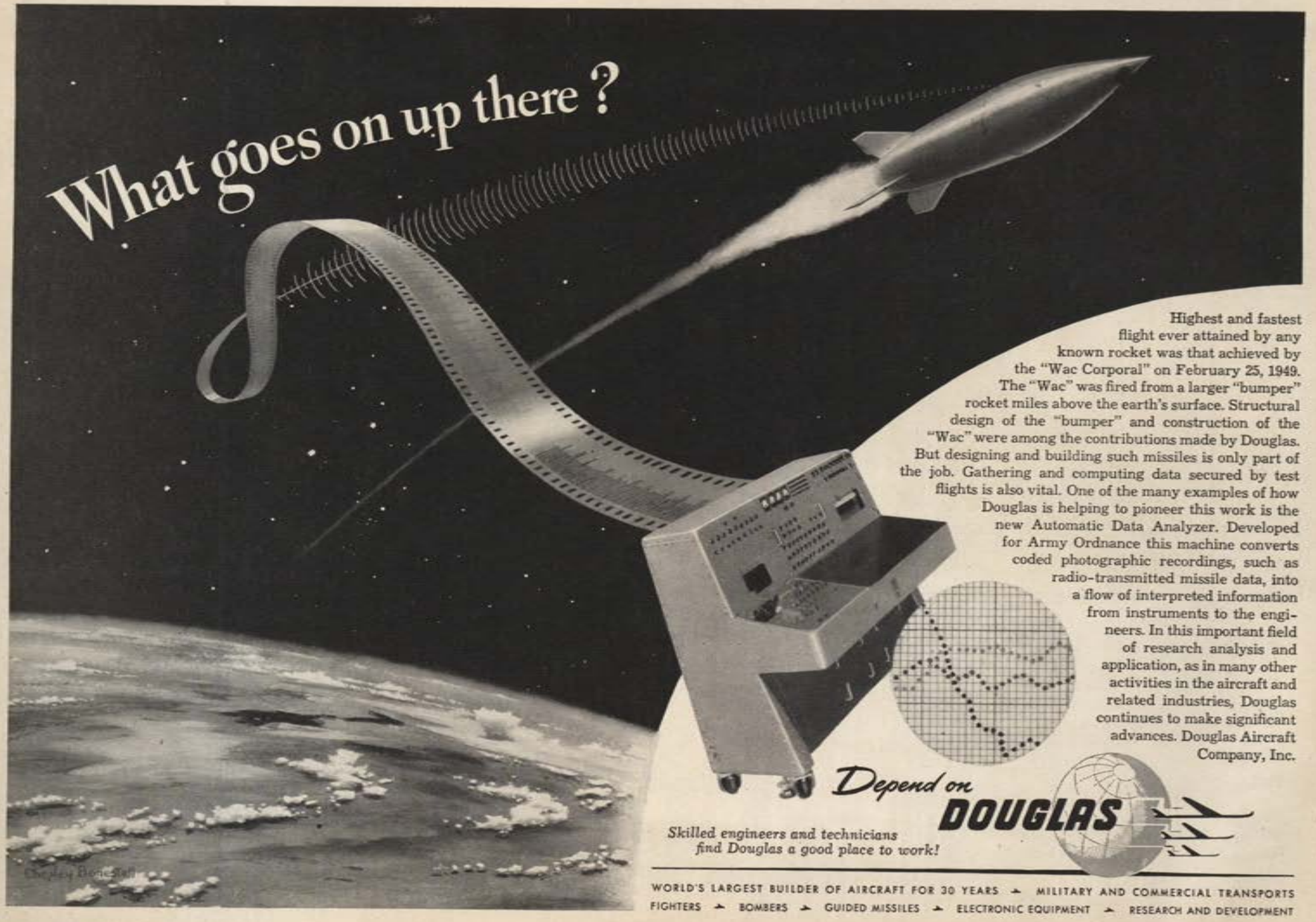
AIR FORCE MAGAZINE is published monthly by The Air Force Association at McCall Street, Dayton 1, Ohio. **EDITORIAL OFFICE:** 1424 K St., N.W., Washington 5, D. C., Sterling 2305. Publisher assumes no responsibility for unsolicited material. **ADVERTISING OFFICES:** Main Office: 114 East 40th Street, New York 16, N. Y., Murray Hill 9-3817. Sanford A. Wolf, Advertising Director. Pacific Coast Offices: Keenan and Eickelberg, 638 S. Van Ness Ave., Los Angeles 4, Calif. Dunkirk 2-8458; 235 Montgomery St., San Francisco 5, Calif. Douglas 2-1323; 333 S.W. Oak St., Portland 4, Ore. Broadway 3210. Mid-West Office: Urben Farley, 120 S. La Salle St., Chicago 3, Ill. Financial 6-3074. **MAILING:** Re-entered as second class matter, December 11, 1947, at the post office at Dayton, Ohio, under the Act of March 3, 1879. **SUBSCRIPTIONS:** $4.00 per year. Single copy, 35 cents. **REGISTRATION:** Trademark registered by the Air Force Association.

Printed in U.S.A. **CORRESPONDENCE:** All correspondence pertaining to editorial matter and change of address should be sent to Air Force Association, 1424 K St., N.W., Washington 5, D. C.

What goes on up there?



Highest and fastest flight ever attained by any known rocket was that achieved by the "Wac Corporal" on February 25, 1949. The "Wac" was fired from a larger "bumper" rocket miles above the earth's surface. Structural design of the "bumper" and construction of the "Wac" were among the contributions made by Douglas. But designing and building such missiles is only part of the job. Gathering and computing data secured by test flights is also vital. One of the many examples of how Douglas is helping to pioneer this work is the new Automatic Data Analyzer. Developed for Army Ordnance this machine converts coded photographic recordings, such as radio-transmitted missile data, into a flow of interpreted information from instruments to the engineers. In this important field of research analysis and application, as in many other activities in the aircraft and related industries, Douglas continues to make significant advances. Douglas Aircraft Company, Inc.

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FIGHTERS ➤ BOMBERS ➤ GUIDED MISSILES ➤ ELECTRONIC EQUIPMENT ➤ RESEARCH AND DEVELOPMENT

Air Mail

Training Aid

Gentlemen: For several years I have been a constant follower of AIR FORCE Magazine and have found it to be very reliable in reporting on developments and changes in USAF policies, etc. I am now back on active duty, as the Liaison NCO to this VART squadron.

One of my duties is writing a general "information sheet monthly." This is not an official Air Force publication, and it is distributed only to squadron members and to our Group Headquarters in Kansas City, Mo. The information contained in your magazine under "Airpower in the News" and "Mobilization News" is often referred verbally to the members of the squadrons at the unit meetings.

May I have your permission to extract items of particular interest for our information sheet?

M/Sgt. George W. Nixon
Hq., 9722d VART Sqdn.
Springfield, Mo.

• *Permission granted—The Editors.*

A Wife on Housing

Gentlemen: First may I say that as the wife of an airman, I very much enjoy your magazine. My husband says practically nothing about his daily routine (naturally) and AIR FORCE helps me to keep up-to-date with many matters, especially those that directly concern airmen's families.

The housing problem as detailed in the October issue was very interesting and I would like to add a few comments:

Like many other service folks, we live in a house trailer, and find that many bases do not yet have sufficient, if any, trailer space available. While in Washington, D. C., we had to find trailer space miles away from anywhere, since zoning laws in D. C. do not permit trailer parks in the city. (We were lucky enough to move on to Bolling Field Trailer Park and enjoyed our stay there—it is very well run by a committee of the men themselves.)

In Dayton, Ohio, the trailer park at Wright-Patterson Field (I can't remember which one) was small and could not accommodate very many, and I couldn't understand why someone didn't arrange for another large trailer park to be allotted space (there's so much of it all around!).

I know the trailer owners would be very glad to dig their own ditches and help lay sewage and drainage lines, etc. (we've done it in new trailer parks outside when paying much higher rentals!), and perhaps just the mention of this

(Continued on page 6)

from someone like yourselves would get some central committee busy arranging trailer parks at all air bases. Many more service people would buy their own trailers, I am sure, and it wouldn't cost the Government anything eventually as the cost of pipes, etc., would soon be paid for after a few months' rent had been collected.

At depots like Maywood, and Middletown, Pa. (the only other two bases I have been near in this country), there is no provision at all for trailers (and in fact at Maywood none for barracks, etc., either, so I imagine nothing could be done here—L. A. is rather a difficult place to arrange things like this!).

I have expressed myself very badly and in very rambling style, but perhaps from wading through you can make out the gist of my remarks and may be able to mention the matter where it will do the most good.

Mrs. John J. Fulton
Maywood, Calif.

Where's AFR 45-15?

Gentlemen: What personnel genius shelved AFR 45-15, based on education and military service, in favor of the dubious virtues contained in the OCS and AROTC programs?

AFR 45-15 at least read more sensibly than any other procurement method for officers, including our national service academies.

E. J. Carlin, Jr.
Philadelphia, Pa.

The 433d Replies

The following comments on the story "Help for Ike from Air Reserve" were passed along to us by author Bill Key —The Editors.

Dear Mr. Key: On behalf of all wing members, I want to express appreciation for the splendid article which you wrote for the October issue of AIR FORCE Magazine.

I have received numerous favorable comments from wing members about the big spread. I am certain that your excellent report on wing activities and problems will contribute to the *esprit de corps* of the wing.

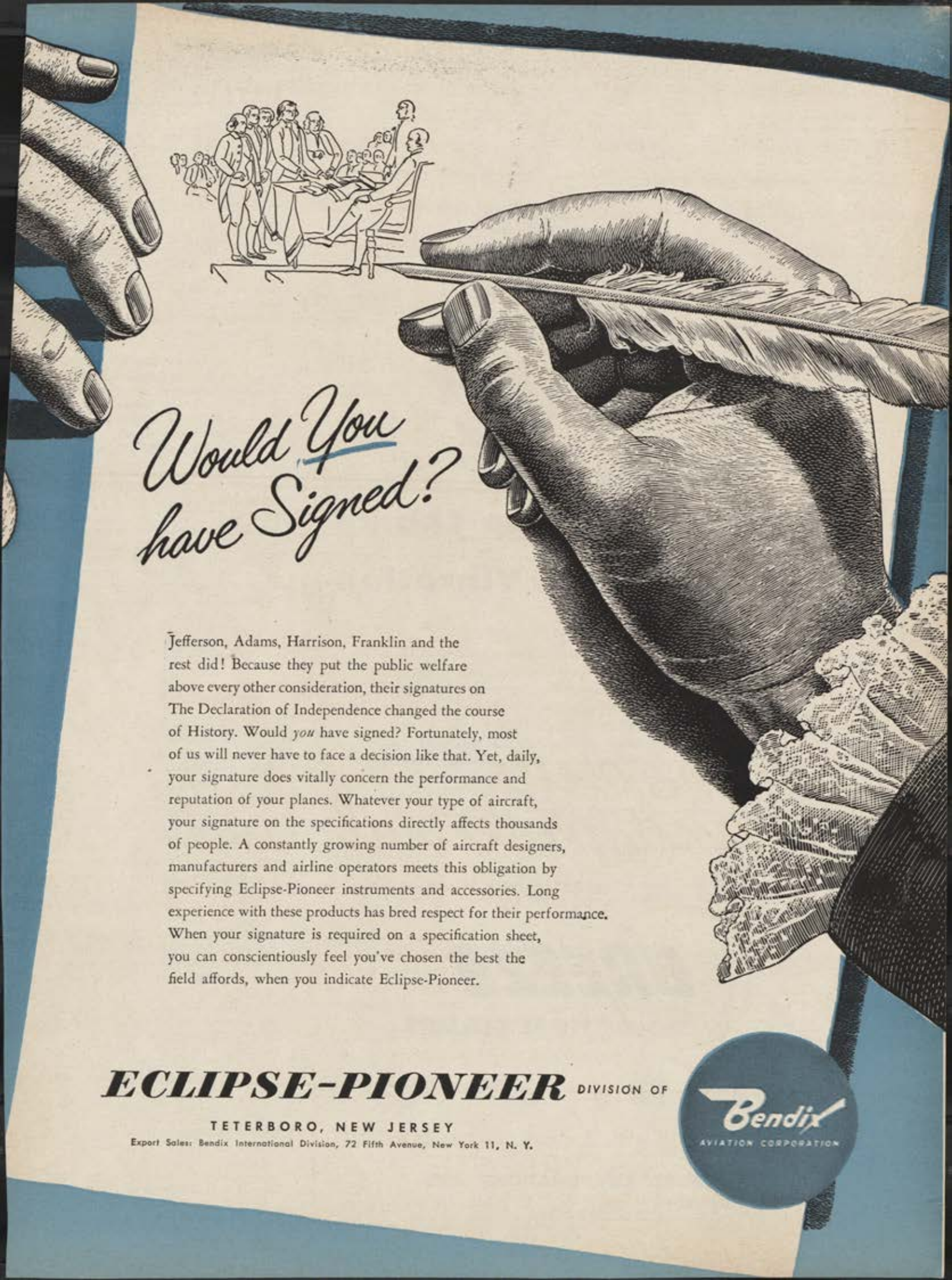
A pat on the back from an outside source means a great deal to us. We know we have a good organization—but to have outsiders point this out is pleasantly encouraging.

Col. Harry W. Hopp
Commander, 433d Troop Carrier Wing (M)
APO 13, USAF

Dear Mr. Key: Lt. Colonel Boetcker stopped in my office yesterday with a copy of AIR FORCE Magazine and asked, "When will this publicity stop?" He was quite impressed with your article. Colonel Hopp was equally pleased with the story and many wing members commented on the excellence of your article.

We were particularly pleased with

(Continued on page 8)



Would You have Signed?

Jefferson, Adams, Harrison, Franklin and the rest did! Because they put the public welfare above every other consideration, their signatures on The Declaration of Independence changed the course of History. Would *you* have signed? Fortunately, most of us will never have to face a decision like that. Yet, daily, your signature does vitally concern the performance and reputation of your planes. Whatever your type of aircraft, your signature on the specifications directly affects thousands of people. A constantly growing number of aircraft designers, manufacturers and airline operators meets this obligation by specifying Eclipse-Pioneer instruments and accessories. Long experience with these products has bred respect for their performance. When your signature is required on a specification sheet, you can conscientiously feel you've chosen the best the field affords, when you indicate Eclipse-Pioneer.

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the thoroughness of the article and the accuracy with which you reported the many complex problems of the wing before and after its call to active duty. And, as important as the description, of problems, was your report on solutions.

Capt. Eugene T. Bonk, PIO
433d Troop Carrier Wing (M)
APO 13, USAF

Help for the British

Gentlemen: Will you kindly send me two copies of the issue of AIR FORCE Magazine in which the article "How Old Can You Jet?" appeared.

The copies of this article have been requested by the British, and I would therefore appreciate it if you could have the issues sent promptly.

Col. Kenneth E. Pletcher
Assistant Air Attache (Medical)
US Navy 100, FPO, New York

• *Copies of our April 1951 issue have gone to Colonel Pletcher and the British —The Editors.*

Look to the Women

Gentlemen: Reference is made to the article in your September issue entitled "Look to the Women." This is one of the best articles I have seen to date on a problem of particular concern to me in my assignment as recruiting officer for the WAF in this district.

Capt. Virginia D. Harmon
Northern N.Y. Recruiting District
Syracuse 2, N. Y.

Command Staff Chart

Gentlemen: I wish to take this opportunity to express my opinion of your magazine. Your editors are certainly to be congratulated on their selection of stories and articles. I find your magazine very interesting and enjoy reading it from cover to cover.

1st Lt. Robert B. Cowan
Adjutant, 92d Maintenance Sqdn.
Fairchild AFB, Wash.

Gentlemen: From your anniversary issue, I understand that a certain Air Force chart is presented as a public service by the editors of AIR FORCE Magazine.

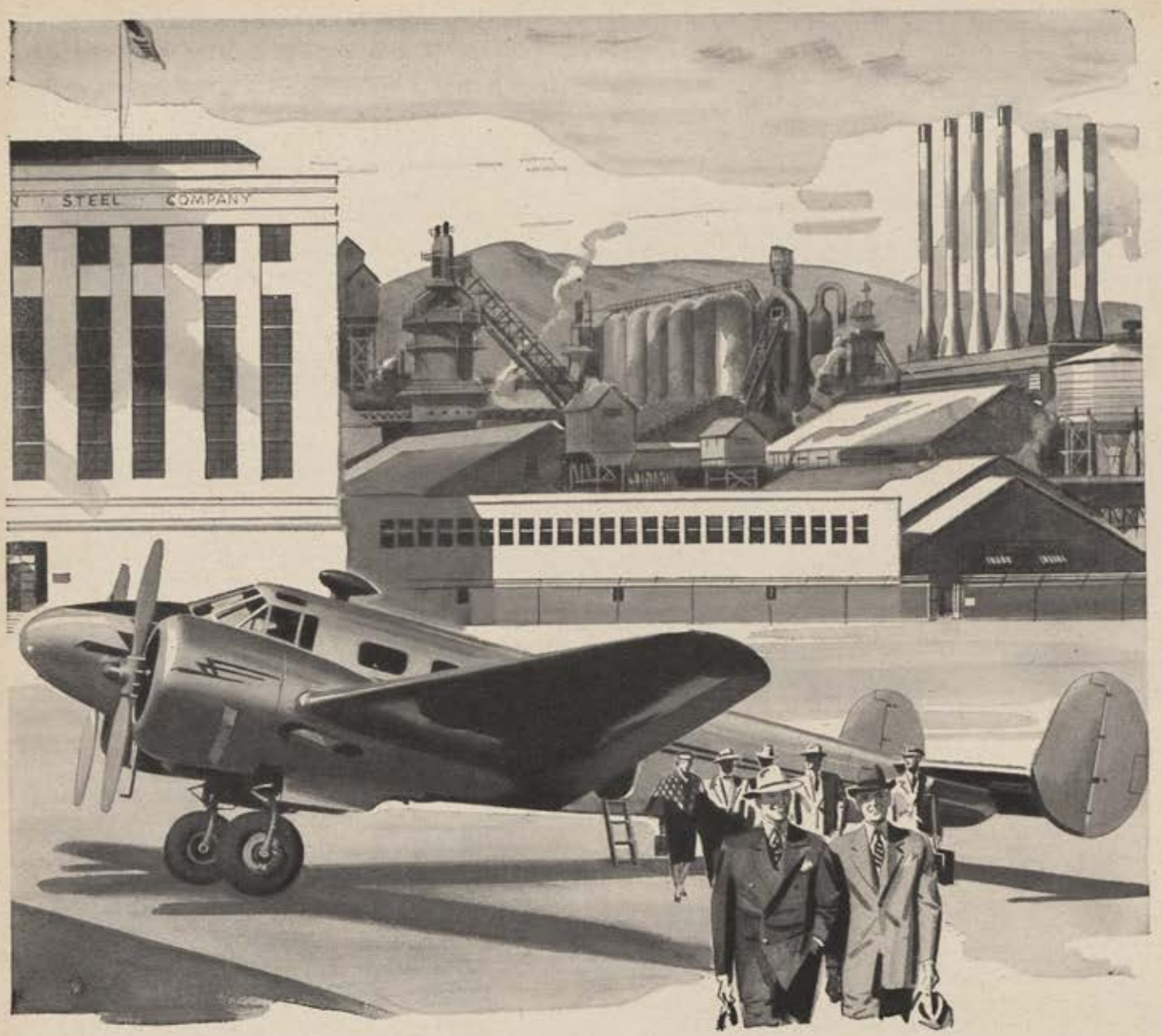
This office is very interested in this reference material. Will you kindly send me two copies of the Air Force chart to keep this office well informed on personnel in the USAF?

In addition, I want to tell you that I am a constant and cordial reader of AIR FORCE Magazine, and I have high admiration for it.

Maj. Yu Wei,
Nationalist Chinese Air Force
Air Liaison Officer
Taipeh, Formosa

Gentlemen: Request two reprints of the Command & Staff Chart for use in instructing personnel of this unit in the organization and structure of the USAF.

Maj. Nils K. Jorstad,
Royal Norwegian Air Force
Gardermoen Flystasjon, Norway



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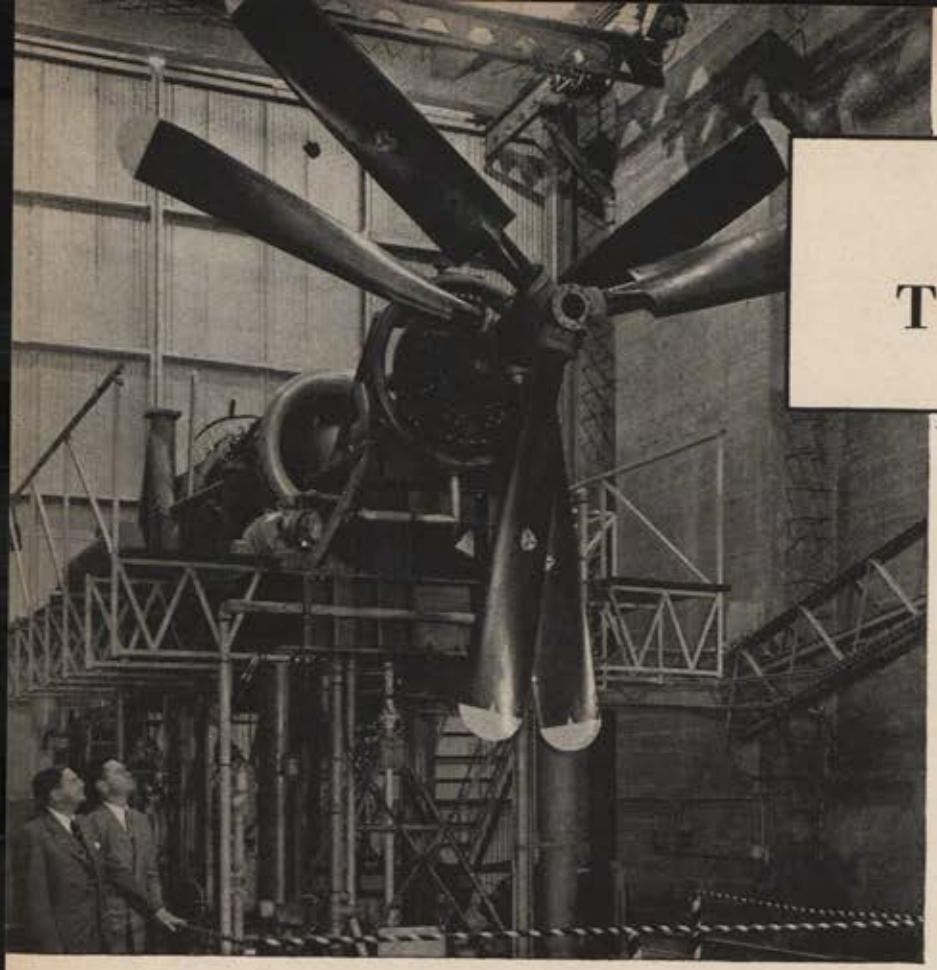


IN THE NEWS

TURBOPROPS

The Turbodyne, most powerful propeller-type aircraft powerplant in the country, delivers more than 8000 horsepower in addition to an undisclosed amount of thrust. Here, Jim LaPierre, manager of G-E's Aircraft Gas Turbine Divisions, and Virg Weaver, in charge of the Turbodyne project, take a look at the engine on the stand where it is undergoing rigorous tests.

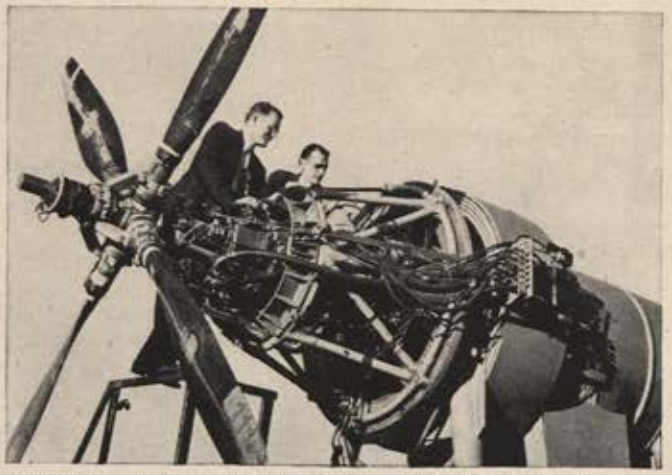
Ten years ago, in July, 1941, G-E engineers started work on a new type aircraft powerplant—an axial-flow gas turbine driving a propeller. This was the TG-100, the first turboprop in the country and the forerunner of future powerful engines.

General Electric engineers today are experimenting with the Turbodyne, a Northrop development. Although larger than required for today's transport needs, the Turbodyne presents an ideal vehicle for testing new ideas and methods.

New and improved turboprop engines are in the books at General Electric. Light weight and high powered, these engines will someday be lifting new aircraft to new uses and new records.

When you're considering powerplants, call in the company that pioneered the aircraft gas turbine industry. Telephone your General Electric aviation specialist, or write General Electric Company, Schenectady 5, N. Y.

Convair XP-81, first turboprop-powered aircraft to fly in U.S., powered by TG-100, first American turboprop.

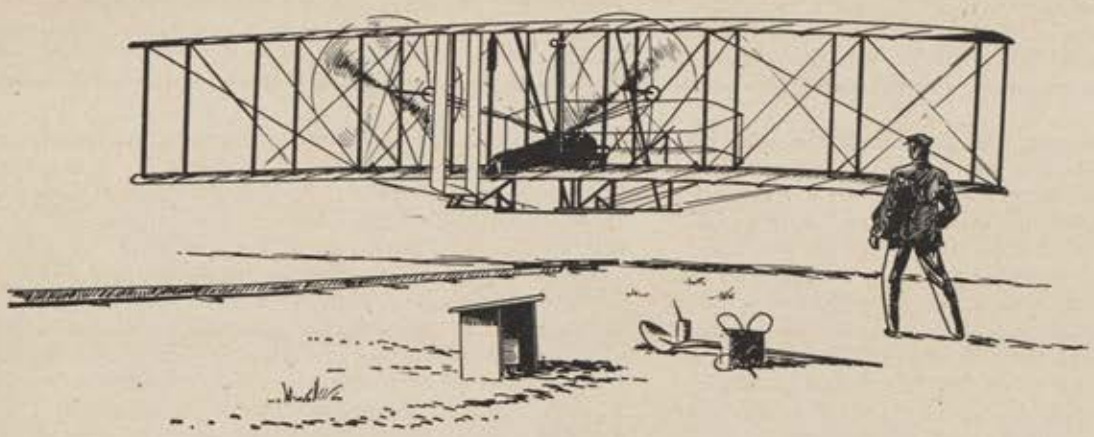


Design engineers Alan Howard and C. J. Walker, inspect an early TG-100 turboprop on test stand in Schenectady.

AIRCRAFT GAS TURBINES

GENERAL ELECTRIC

210-22



THE KILL DEVIL STORY

A unique local group, mindful of the part its community played in man's conquest of the air, expands nationally to celebrate the 1953 Golden Anniversary

By Aycock Brown

THE LARGE dune of yellow sand on a peninsula of yellow sand seemed destined for permanent obscurity. It was named Kill Devil Hill, according to legend, after a brand of rum so potent it could "kill the devil." Here even the seagulls were at the mercy of a devil-killing wind.

In 1900 two brothers from Dayton, O., needed just such a wind, needed it to translate into actuality their dream of flight in a man-carrying, power-driven machine. With the air currents in their home-made wind tunnel they had tested more than 200 types of wing surfaces. Now they were ready for the test of the machine itself.

This would require a wind they could depend on, and the Wright Brothers sought the advice of the US Weather Bureau. They were directed to a barren little finger of land off the eastern tip of North Carolina, where, so the Bureau reported, the north wind was strong and steady.

Orville and Wilbur Wright went first to Kitty Hawk, midway out on the wind-swept peninsula. Here, in October 1900, they set up a camp and began to experiment with a machine which they flew as a kite.

The next year the Wrights moved their camp to the flat, sandy field near the big dune known as Kill Devil Hill, five miles south of Kitty Hawk. Here for two years they tested and studied their theories of flight by launching gliders from the slopes of the hill. Next came the biplane with its pusher-type propellers and little gasoline engine. To test it they erected a sixty-foot monorail track up the side of Kill Devil, 150 feet of track laid on a nine-degree slope. After tossing a coin to see who would take the controls, the Wright Brothers began their tests. Then, on the morning of December 17, 1903, in the face of that cold lashing wind off the Atlantic, the Wrights made history—and Kill Devil Hill became the birthplace of man's conquest of the air.

This towering granite pylon marks the site at Kill Devil.

It was not until December 17, 1928, on the silver anniversary of the first flight, that Kill Devil Hill's historic significance was marked for posterity. On this date the National Aeronautic Association unveiled a granite boulder at the site of the event.

A year before, however, the citizens of the area had begun a movement which would memorialize the achievement and site on a continuing basis. They began the formation of an organization which, each year on December 17, would pay tribute to the Wright Brothers at Kill Devil Hill.

There is an element of poetic justice in the fact that the movement got its start from a newspaper publisher, for only six or seven newspapers in the nation had carried notices of the first flight and, so widespread was the disbelief, that these reports were discounted as fantastic.

The newspaper publisher who set out to rectify this oversight was W. O. Saunders of Elizabeth City, N.C., some fifty miles from Kill Devil Hill. Saunders stimulated the formation of the organization now known as the Kill Devil Hill Memorial Association. Working closely with him in this movement was the Honorable Lindsay C. Warren, now Comptroller General of the United States, then the Congressional representative from this district.

Among the early members of the Kill Devil Hill Memorial Association were John T. Daniels, one of the five witnesses of the first flight; A. W. Drinkwater, the telegraph operator who flashed the historic message of the flight to the world; and W. J. Tate, with whom the Wright Brothers lived during their trips to the area. Other early members included Melvin R. Daniels, Horace A. Dough, C. S. Meekins, I. P. Davis, and D. B. Fearing.

In the year of its founding the association was successful, through the efforts of Representative Warren, in having the Kill Devil Hill National Memorial authorized by an Act of Congress, approved March 2, 1927. A segment of the national park system, the memorial area encompasses 314 acres centered on Kill Devil Hill. Here the massive dune of shifting yellow sand has been anchored (but not until it had shifted some eighty feet from its position in 1903) by seeding it with special grasses adapted to the sandy soil. Here is erected the Wright Memorial Shaft, a sixty-foot high triangular pylon of gray granite.

Each year since 1927 the little band of association members has journeyed to the monument on December 17 to pay their respects to the Wright Brothers. In later years, the observance has included a banquet at nearby Nags Head, a resort center. The celebrations haven't always been elaborate but they always have been conducted with a family air of sincerity and dignity. Notable personalities attend from time to time, military aircraft normally are overhead, and the high school band of Elizabeth City plays a prominent part in the ceremonies.

The Kill Devil Hill Memorial Association, chartered by the state of North Carolina, with Allen H. Watkins of Greensboro its first president, has continued for twenty-four years as a local organization—the only group dedicated to commemoration of the first flight at the site of the event. Its president and driving force in recent years has been Miles L. Clark, a prominent oil man of Elizabeth City.

Looking ahead to the Golden Anniversary of Flight in 1953, and conscious of the need for a national structure, the association recently decided to re-organize on a national basis, including changing its name from Association to Society, and invited Air Force Association to assist in this effort and co-sponsor the yearly observance of the first flight. In 1949 the Association served in this capacity and, as part of the commemoration program, sponsored a record-breaking round the world flight by scheduled airline. AFA will begin its new relationship with the Society this month by co-sponsoring the Anniversary program at Kill Devil Hill, with Maj. Alexander P. de Seversky as the principal speaker.

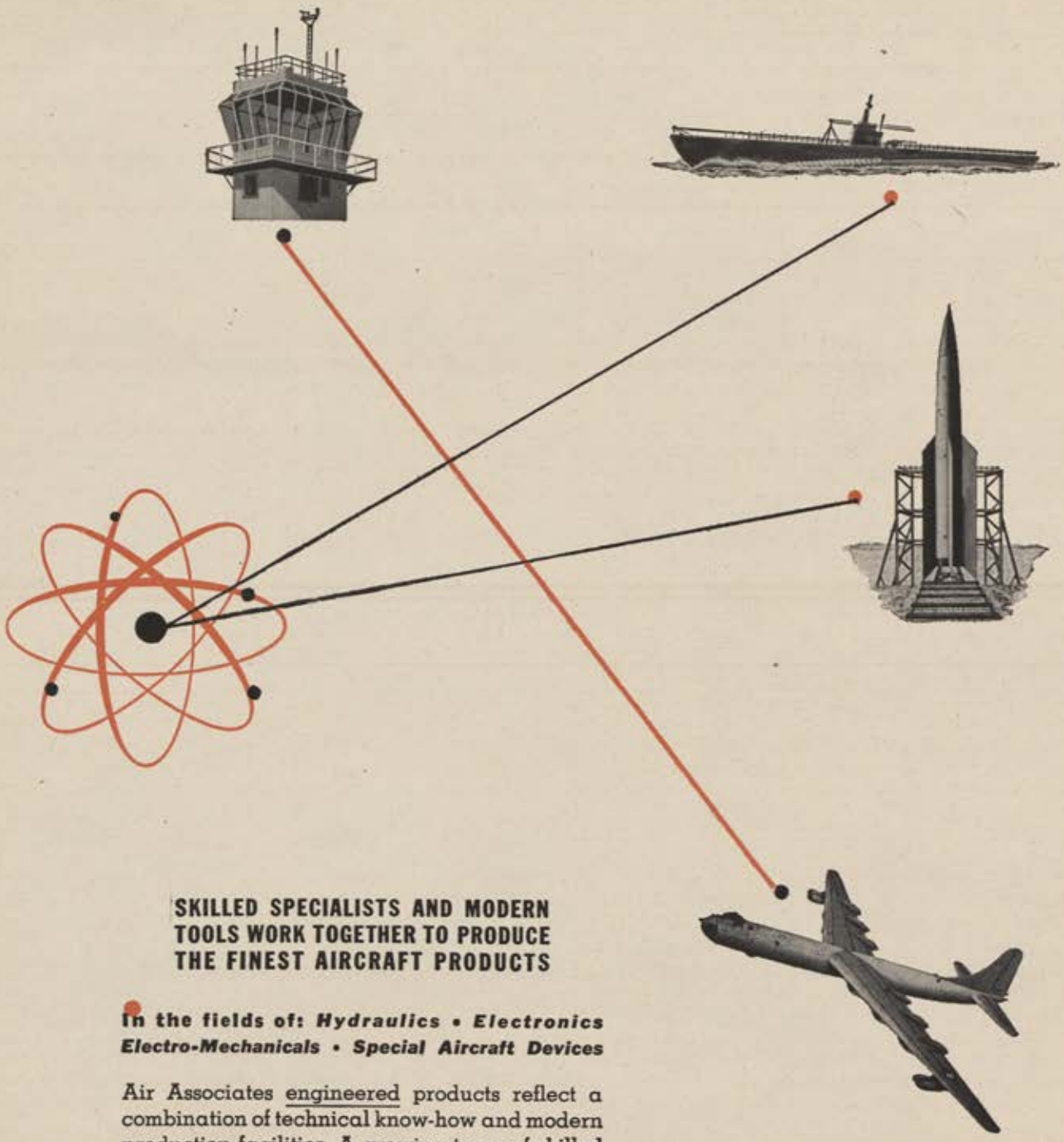
Tentative plans for the new national structure of the Kill Devil Hill Memorial Society call for three types of memberships: Active ($5 for five years; $25 for life), open to everyone interested in aviation; Sustaining ($500 for five years), open to interested organizations and firms, and Honorary (no dues), open by selection to individuals who have made outstanding contributions to aviation.

Leadership will center in five officers, twelve directors and forty-eight councilmen (one from each state at the recommendation of the governor), and elections are to be held each year on December 17 during the anniversary program. Primary control of the Society will remain in the hands of North Carolinians, with the majority of the members of the governing body, the Executive Committee (composed of the officers and directors) to be state residents. The headquarters and mailing address of the Society will be Kill Devil Hill, N. C.

Target date for completion of the reorganization is December 17, 1953, the fiftieth anniversary of the Wright Brothers' achievement. This Golden Anniversary of Flight, to be celebrated nation-wide throughout the year, is expected to be the outstanding observance in the history of aviation. It will, of course, be climaxed on a barren strip of land in North Carolina where the shifting sands have been anchored by vegetation, but the winds still blow strong and steady as they did for Orville and Wilbur Wright.

Standing l. to r., G. C. Meads, Aycock Brown, Elmer Brothers, Jr., Ralph Whitener of AFA, Maj. Gregory Carpenter, A. W. Drinkwater. Seated l. to r., Mrs. Rascoe Hunt, S. Wade Marr, Miles L. Clark, Melvin Daniels, and Elton Aydlett.

Johnny Moore, trapper and guide, is the sole surviving witness of the flight. He was then a boy of seventeen.



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► Minimum tie-ups of valuable manpower and equipment . . . realistic training in navigating and tactical procedures . . . individual instruction of trainees are the results of the speeded up training program in the new Convair T-29 flying classrooms.

► Students have finger-tip access to Sperry equipment which helps them solve involved navigational problems—even extremely difficult ones met over unchartered polar areas.

► Sperry navigational facilities provided are the Gyropilot*, its standard accessory, Automatic Approach Control, and flight instruments for attitude and direction. Fourteen repeaters . . . one at each student station . . . are controlled by the Master Gyrosyn Compass. Thus Sperry—by providing the very latest aids to navigation—helps the U. S. Air Force develop new "men of precision."

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AIRPOWER IN THE NEWS

VOL. 34, NO. 12 WASH'NGTON, D. C. DECEMBER 1951

JOINT CHIEFS OF STAFF recommendation for AF expansion to 126 combat groups, reported last issue, is understood to have approval of Defense Dept., National Security Council and White House, but not without opposition. Surprising no one, it came from within the Defense Dept. itself at the asst. sec'y level from the same budgeteer who influenced the Johnson regime of starving military appropriations. It carried the same old label--national economy demands cutback in military funds and military cutback means slashing AF. It's the guns-vs-butter issue again, business-as-usual wrapped in a new set of procurement mathematics. With this philosophy still plaguing the services, Congress may still have to unravel the economic gobbledegook.

EDWIN V. HUGGINS, executive vice president of Westinghouse, on October 19 received a recess appointment as Ass't. Sec'y of AF for installations and materiel procurement, replacing Roswell Gilpatric, who is now Under Sec'y.

ALMOST as many general and flag officers are now assigned to Pentagon duty as at close of WW II. Senate Preparedness Subcommittee wants to know why 361 were stationed there on Sept. 30 of this year when only 397 had such assignments on April 30 '50. . . Because of heavy demands for qualified students from USAF air crew schools to meet FEAF requests, major command quotas for staff officers to get jet training at Williams AFB have been canceled. This transition course is not expected to be available to staff officers until 1953. . . By directive of Senate Committee on Appropriations, services cannot increase number of chauffeurs for passenger vehicles during FY '52 over chauffeurs on rolls during FY '51.

FIRST Boeing B-47 Stratojet has been delivered to SAC at MacDill AFB, Fla. . . First B-36 belly landing was skillfully accomplished recently at Kirtland AFB by Capt. L. W. Brockwell. . . First rocket-powered helicopter ever built has been announced by Navy. . . In first unification action under provisions of Uniform Code of Military Justice, three JAGs of USAF's Northeast Air Command recently were made available to Navy for purpose of trying Navy general court-martial cases in Newfoundland, where Navy had only one qualified law specialist in the area. . . First WAF officer of USAF to command an Air Weather Service unit is Brooklyn's Maj. Jean Armstrong, who now heads 52nd Weather Detachment in Germany.

FORMAL international approval and acceptance have been received of 100 kilometer jet plane record set by AF Col. Fred J. Ascani in F-86 Sabre on Thompson Trophy course in '51 Air Races, Detroit. . . AF has ordered production of two advanced models of sweptwing F-86. . . A Russian-made MIG-15 jet aircraft is being studied at Wright-Patterson AFB, Ohio.

TOTAL of 624,493 contracts in amount of $8,879,903,000 was awarded during FY '51 by AF installations, world-wide. Domestic: Small businesses got 379,500 totaling $860,624,000; other contractors received 156,031 contracts totaling $8,041,175,000. Overseas AF installations awarded 27,351 contracts which totaled $72,871,000. . . USAF was allocated $2,071,200,000 by Military Public Works Appropriation Act of '52, which was signed on Nov. 1. . . Audit teams, one from each of AF's six procurement districts, are completing inventory audits of 48 major contractors to determine their degree of compliance with current regulations regarding inventory limits of con-

(Continued on page 16)

trolled materials (aluminum, copper, steel). . . Ceramic coating of engine components, permitting increased durability and a substitution of non-critical for critical-type stainless steel, is being applied on mass production basis.

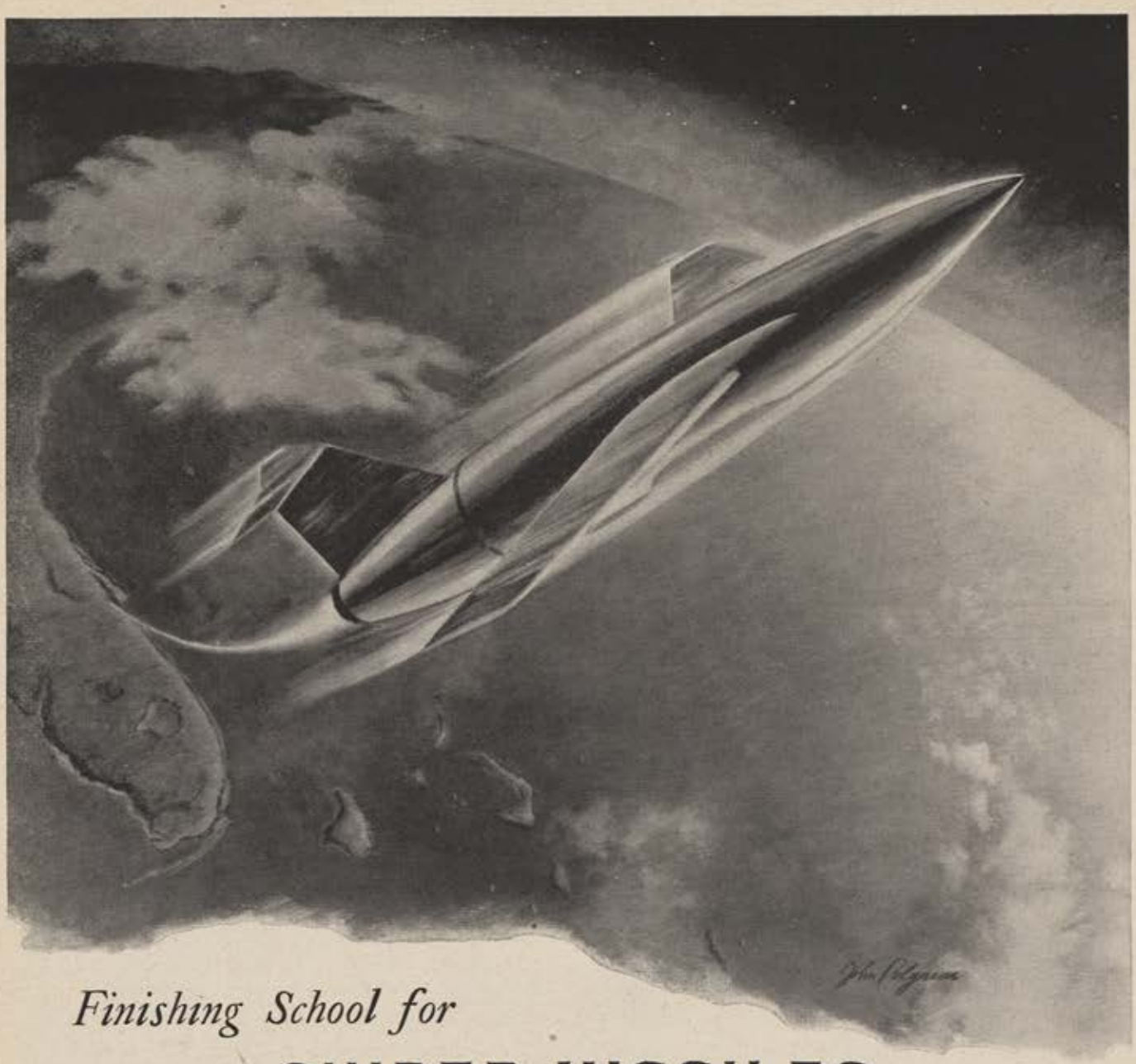
USAF MORALE: In another month Davis-Monthan AFB airmen will be looking at base buildings painted in delicate pastels of green, blue, yellow, gray, sand. . . Facilities at recently-completed permanent barracks, Erding Air Base, Germany, include orderly, supply, and day rooms, plus shower rooms and barber shop. . . Snack bar on wheels furnishes both hot and cold snacks or meals to Great Falls AFB personnel without leaving their sections. . . Vance AFB airmen are "serenaded" at dining hall (mess) each Wednesday noon by 34-piece 685th AF Concert Band. . . "The finest NCO club on the Isthmus," which is being constructed at Albrook AFB, C. Z., is a low, white and green trimmed building, situated on a Canfield Ave. knoll overlooking the Albrook runways. . . New brick permanent dining hall, costing in neighborhood of $400,000, is slated for Mitchel AFB. . . New program has been announced to restore qualified AF prisoners to duty. . . Airmen are to receive a new, gray, wardrobe-type clothes locker, designed to give airmen in open-bay barracks or partitioned barracks the clothes storage space comparable to that of built-in closets planned for new airmen's dormitories . . . The old basic drill instructor is now officially titled, "Tactical Instructor."

657 FIRES at 71 AF bases, exclusive of aircraft operational accidents, during FY '51 caused estimated monetary loss to buildings and contents totaling $1,275,638, 26 reported injuries, and one death. . . Pilot exchange program authorized by USAF, will be launched between MATS and SAC beginning this month. Move is aimed toward satisfying SAC's requirement for four-engine pilots with experience in flying heavy-type aircraft. . . Ninth AF celebrated its ninth anniversary on November 10, at Pope AFB, N.C.

EXPEDITION to Africa and Saudia Arabia will be sent by AF to observe total solar eclipse which will occur there February 25. . . It will cost USAF an estimated $451,000 at Okinawa and $671,000 at Guam to restore remainder of facilities damaged by typhoons. . . After seven years, last two remaining Japanese holdouts on Guam surrendered recently to an Air Policeman at Anderson AFB.

D. W. RENTZEL, former Civil Aeronautics Administrator and chairman of CAB, has resigned as Undersecretary of Commerce for Transportation; he hinted that he would head a government-controlled, jet transport program. . . Jackie Cochran, member of AFA's Membership Committee, was honored in NYC at recent State dinner tendered by The Lotos Club. . . Maj. Gen. Harry G. Armstrong, USAF Surgeon General, was installed as president of Military Surgeons Association last month. . . Maj. Gen. William H. Tunner, of Berlin Airlift fame, has been reassigned as Deputy CG of AMC.

AWARDS: Col. Dave Schilling was awarded 1951 Harmon Trophy. . . Annual National Air Council Awards for aviation research and experiment were received this year by USAF Maj. John Paul Stapp and Navy Capt. Walter S. Diehl. . . USAF Daedalian Award was received by MATS last month for achieving lowest aircraft accident rate in AF during 1950. . . Dr. Harold R. Mehrens, Washington, D. C., has been named to receive the "youth aviation" Frank G. Brewer Trophy at Wright Memorial dinner this month. . . Dr. Theodore Von Karman is to receive England's scientific Kelvin Gold Medal Award.



Finishing School for
GUIDED MISSILES

The Air Force Missile Test Center, used by all our military services as a long-range proving ground, stretches thousands of miles from Florida, out over the Bahamas, into the South Atlantic.

A pilotless bomber roars away from its launching stand, picks up speed, zooms into the blue. Setting its course for a far-off target in the ocean, it rockets over a chain of tiny islands where men and machines check its flight, its behavior, the operation of its guidance and control systems. It's a vital part of our air power of the future—aeronautical research and development laying the foundation for continued U. S. air supremacy!

Operated by the USAF's Air Research and Development Command, the Missile Test Center is geared up to test the wide variety of missiles, rockets and pilotless aircraft vital to modern air power. It reached its full stature with the recent completion of down-range observation stations. And the dramatic B-61 pilotless bomber, the Matador, designed and produced by Martin as part of its diversified missiles program, was the first to use the completed range. THE GLENN L. MARTIN COMPANY, Baltimore 3, Maryland.

Martin AIRCRAFT

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Illustration is artist's conception of Air Force B-61 Matador pilotless bomber.

DEVELOPERS AND MANUFACTURERS OF: Navy P5M-1 Marlin seaplanes • Air Force B-57A Canberra night intruder bombers • Air Force B-61 Matador pilotless bombers • Navy P4M-1 Mercator patrol planes • Navy KDM-1 Plover target drones • Navy Viking high-altitude research rockets • Air Force XB-51 developmental tactical bomber • Martin airliners • Guided missiles • Electronic fire control & radar systems • **LEADERS IN** Building Air Power to Guard the Peace, Air Transport to Serve It.

Marines prove new assault tactics — Late in September a fleet of big ten-place HRS Sikorsky helicopters flew an entire company of battle-ready U. S. Marines to an important objective atop a 3,000-foot mountain peak in Korea. In this single action—first of its kind in the world—helicopters abruptly and dramatically introduced revolutionary tactics in warfare over difficult terrain.

The entire operation, including the landing of 228 fully-equipped Marines, ammunition, almost nine tons of food, and the laying of telephone wire back to command headquarters, took just four hours—two days less than it could have been accomplished afoot. This paved the way for a far larger airlift less than a month later—the flying of a full battalion of Marines, amounting to about 1,000 combat-ready fighting men, to front line positions on a Korean mountain.

These achievements in actual combat were the pay-off for almost four years of training and research by Marine Corps planners, and of even longer effort by Sikorsky engineers and technicians. And it established the helicopter as a tactical weapon of first rank . . . reason enough why today Sikorsky engineers are hard at work developing even more advanced helicopter designs to meet the increasingly important military and civilian tasks of the future.

SIKORSKY AIRCRAFT

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ONE OF THE FOUR DIVISIONS OF UNITED AIRCRAFT CORPORATION

General Bradley Says . . .

"In spite of the fact that airpower alone can never be decisive in total war, the air battle must be won if a war is to be won."

• • •

"In spite of the new developments in the field of atomic energy and the various military applications, the airplane continues to be the best method of projecting the power of the atom to the battlefield, and to the heart of any large land-mass nation."

• • •

"Our need for balanced effective forces equal to the tasks that the enemy's capabilities could thrust upon us, finds our present Air Force assuming more than its share of the calculated risk.

"To prevent disaster, our Air Force must have, in combination with Canada, an improved warning network and a fighter-interceptor system to meet possible atomic attack. This effort can be most effective when coupled with a strong Civil Defense Program.

"At the same time, the Air Force will be called upon to win the air war. The responsible leaders of our Air Force look at the potential air strength of the enemy, and are aware of the size of the task which could confront them. Day by day, they have to live with the problem of meeting several thousand tactical aircraft in the air over any battle zone.

"Every day they have to face the problem of being ready to strike back hard and immediately if we are attacked at home, or if our friends in Western Europe are attacked."

• • •

"As the Joint Chiefs of Staff reviewed the air requirements, we considered the share of our calculated military risk which the Air Force faced. It was agreed that we must greatly increase our combat airpower. Our recommended program will accomplish this with the help of American industry."

• • •

From an address by General of the Army Omar N. Bradley before the American Petroleum Institute, Chicago, November 8, 1951.

SPECIAL DELIVERY IN A RICE PADDY

Pin-point delivery in a Korean rice paddy... paratroop units with complete, fully-assembled equipment and supplies are ready for instant action... where no roads or airfields exist – tough, battle-proven Fairchild C–119's provide "Special Delivery."

Speed, stamina and versatility – key points of Fairchild engineering and design – have made the rugged, dependable "Flying Boxcars" the all-purpose transport for military airlift operations of the United Nations forces in Korea, and for other airlift operations in Europe and the United States.

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AIR FORCE
DECEMBER 1951

THE NEW LOOK IN Korea

To the man in the foxhole it remains the same dirty mess, but war in Korea is changing. Here, for the first time, are the facts of the case:

- ✓ 1. The front is threefold—land, sea and air.
- ✓ 2. Army could advance, is holding the line—by choice.
- ✓ 3. Invasion and occupation no longer are worthy objectives.
- ✓ 4. War of attrition replaces war of movement.
- ✓ 5. Army agrees to less close support, more interdiction.
- ✓ 6. General Van Fleet rations daily close support sorties.
- ✓ 7. Marine leaders seek half of available close support.
- ✓ 8. Aerial interdiction becomes the order of the day.
- ✓ 9. All of the offensive is being applied through the air.
- ✓ 10. Airpower is reversing China's "swallow-up" tradition.
- ✓ 11. A new tactical concept is in the making.
- ✓ 12. A significant advance in air warfare may result.

A SPECIAL REPORT BY AFA's PRESIDENT

THE NEW LOOK in KOREA

By Harold C. Stuart

PRESIDENT, AIR FORCE ASSOCIATION

TO THE man in the foxhole it is the same dirty war, and, with another winter ahead, the same cold war.

And yet, war in Korea is changing. A major shift in tactical concept is in the air—literally.

To see the change in its proper perspective it is necessary to recall some of the major conclusions which have come to light regarding the role of airpower in Korea.

We have seen, for example, that the conflict has been unreal in the sense that air superiority has been achieved by default of the enemy rather than defeat of the enemy; that the diplomatic barrier at the Yalu, protecting the source of enemy action, has prevented the full employment of airpower; that the United States Air Force, still suffering from lean budget years, has not possessed the air capability to satisfy all of the requirements of close support, interdiction, and air superiority.

Despite these limitations, we also have conclusive evidence that airpower was the decisive force in permitting the UN to stay on the peninsula of Korea; that the joint Army-Air Force doctrine of tactical aviation, evolved in battle during World War II, has again been proved in battle in Korea, and finally, that airpower has become the predominant destructive force against ground forces in the field.

To the readers of AIR FORCE Magazine these conclusions are not new. Over the months they have been presented in this publication, usually for the first time, in the face of confused and ill-advised statements to the contrary in the public press. At the same time, this magazine repeatedly has urged caution in projecting the results of Korea to all-out war against a major power such as Russia and, in fact, against even another satellite opponent. I think these reservations have been well-advised. I believe, however, that it is now possible to exercise less caution in interpreting the results of the war in Korea.

The first basic fact to be understood is that the entire strategy of the Korean war is based on continued air superiority. Our ground units remain, as they have since the start of the conflict, sitting ducks for concentrated enemy air attacks. Our trucks still travel bumper to bumper in broad daylight. Our troops, untested in camouflage and dispersion, have yet to see hostile planes overhead.

The "front line" in Korea is not generally understood or appreciated. Actually, there are three fronts. The ground front extends across the peninsula along and above the Thirty-Eighth Parallel. A second front extends vertically from tree-top level to 40,000 feet, horizontally from Pyongyang north some ninety miles to the Yalu, including that well-publicized bit of air-space known as MIG Alley. A third front exists off the shores of Korea, where the Navy controls the sea lanes.

In the air and on the sea we have no alternative but to hold. There is no place to go. Military objectives are lacking on the water, and the objectives accessible by air across the Yalu are barred by diplomacy. On the ground, however, we have had a military objective—the rugged terrain of

ABOUT THE AUTHOR

Harold C. Stuart, president of Air Force Association and formerly Assistant Secretary of the Air Force, marked down a trip to the Far East war zone as the first order of business after his unanimous election to AFA's top job at the recent California convention. Leaving the States on September 25, he spent a month in the area.

En route to Tokyo, he stopped off in Hawaii and met with AFA's aggressive leaders on the Islands, and became the first Association president to pay a visit to these units. In Tokyo he assisted in the establishment of an AFA squadron and was the principal speaker at its organization meeting (see page 55). He spoke to airmen of the 3d Wing, to all Reserve and Air National Guard officers of the 314th Air Division headquarters, to members of the 315th Air Division, and was interviewed by *Stars and Stripes*, the official military newspaper. On all occasions,

The soldier's back figures largely in Red logistics.

Red trucks haul heavy equipment over roads like this.

North Korea. And we have had an alternative to holding action—a military concept based on a ground war of movement.

In its ground advance north to the Yalu, and the subsequent retreat to below the Thirty-Eighth Parallel, the United Nations applied this concept of movement and found it wanting—found it costly in manpower and equipment and, by virtue of diplomatic circumstances, offering little to gain and much to lose.

Such conclusions did not materialize without a mental struggle on the part of our military leaders. Over the years our strategy of invasion-and-occupation has become an accepted pattern. In fact, we continue to plan our defenses and expend our war resources according to this philosophy. The defeat of Japan without invasion (though not so planned, since the greatest amphibious effort in history was underway when Japan capitulated) was the first classic example of a departure from orthodox strategy, but it did not for a moment deter our planners from their orthodoxy. The Korean war, up to recently, was no exception.

Today in Korea—after considerable trial and error—there is evidence of a break from this thinking. Today our ground units could advance deep into North Korea—could invade and occupy according to the traditional procedure. The top military commanders in the theater have testified to that. But our ground commanders are content to merely hold the line. Let us consider their alternatives.

Advance on the ground would immediately extend our supply lines and simultaneously shorten those of the enemy. It would force us to repair the bridges, the rail lines, the highways, the buildings and the airfields we have destroyed. It would confront us with utterly desolate real-estate, a land of rugged terrain and unholy weather, a land totally lacking in strategic objectives (since our bombers eliminated them early in the war). It would drain our manpower for the huge occupation task and face us with prolonged and bitter guerrilla action. It would hamper effective use of our airpower by eliminating its elbow room, thus restricting its freedom of movement. Most important, it would bring our ground forces within range of enemy airpower and radically reduce our combat effectiveness.

The alternative, which we have begun to accept in recent months, is a war in which our ground force, with

UN interdiction has practically knocked out rail net.

Air Force Association was his favorite topic. At left Stuart is shown chatting with Lt. Col. Charles Lelbach and Lt. Col. Fred Bigelow of the 437th Troop Carrier Wing.

One of his primary missions was to obtain a special report on the war situation for AIR FORCE Magazine. In gathering the first-hand exclusive information presented on these pages, President Stuart visited all fighter and bomber units in Korea, talked with the leading commanders in the theater, and flew on several combat missions.

In addition to his experience in the Air Force top command in Washington during recent years, Harold Stuart is especially qualified, by virtue of World War II experience, to evaluate the tactical air effort in Korea. As a combat intelligence officer with the 9th Air Force in Europe, he assisted in the organization of many tactical air procedures which are bearing fruit in Korea today.

minimum close support aviation, holds the line and maintains pressure on the front. Our sea force, together with carrier-based planes, continues the blockade of the Yellow Sea and the Sea of Japan. A portion of our Air Force holds the aerial front—and the bulk of our Air Force, with the remainder of naval aviation, carries the war to the enemy. This is more than mere holding action, more than a purely defensive war. This is a war of attrition. This is offensive action based on airpower.

Today in Korea the entire military offensive of the United Nations is being applied through the air.

This unprecedented circumstance—historic in its implications—took effect early this fall when General Van Fleet, the UN ground commander in Korea, agreed that a program of aerial interdiction should get top priority.

The objective was increased attrition of enemy ground forces. To accomplish it, only a limited number of aircraft were available and many of these were on call to ground

At a tactical briefing in Korea. Army Chief of Staff Gen. J. Lawton Collins, Far East Commander Maj. Gen. Frank F. Everest, Eighth Army Commander Gen. James A. Van Fleet.

commanders for close support missions. General Van Fleet weighed the situation and agreed to release the aircraft from their support assignments. With the full support of General Ridgway, he limited close support missions to approximately 100 sorties a day across the Eighth Army front, with the provision that should an emergency arise, he would receive maximum air support where and when he wanted it.

Thus was begun a new program of aerial interdiction and a new tactical concept.

From the viewpoint of the man in a foxhole, friendly planes overhead are incidental or vital depending on his personal situation. If the ground action is rough, the planes must have only one target—the enemy soldier or tank staring him in the face. If the sector is quiet, the airpower targets are rather academic. To the infantrymen and Marines who have taken the punishment on the ground, such reasoning is logical, and must be appreciated.

Their commanders, on the other hand, need a broader viewpoint. But with few exceptions, they have failed to rise above the traditional philosophy. In the early days, when UN forces were beaten back to the gates of Pusan, the ground leaders could justify their orthodox thinking solely out of concern for their men. Ground units were short of everything but guts. Planes were used like hand grenades, and all air action was in support of the troops. As the ground situation improved and ground units gained in manpower, in experience, and in organic artillery, the justification lessened. Yet the screams for air support and more air support continued. A few ground commanders, among them veterans of the hardest fighting in Korea, began to express the belief that such screams were out of line. It was high time, so they argued, that our ground leaders got over being "spoiled by close support aviation" and got back to basic ground fighting. Such expressions, unfortunately have been few and far between.

It is enough to add that, although Korea today represents only a start in airpower education, more and more of our planes are passing up the immediate battle area for more lucrative military targets, and more and more of our ground commanders are waving them on. And in General Ridgway and General Van Fleet we find ground leaders who are highly enlightened in the role of airpower.

General Van Fleet's decision to curtail close support sorties and give priority to interdiction has been carried out with relatively few problems. Navy airmen, for example, have jumped into the new role with outstanding support and efficiency along the east coast of Korea.

To my knowledge, the only major reaction against the new program has come from leaders of the First Marine Division. To appreciate it, one must understand the nature of the Marine operation. Designed and trained as a separate force for specific short-range missions, the Marine division has had to fit into the pattern of the military structure in Korea. This pattern has had no place for separate forces and, except for the Inchon landing, no specific missions. The Marines have had to settle down to prolonged, dug-in warfare, and integrate their actions with other divisions. The transition has not been easy.

The First Marine Division, for example, has relied heavily, and exclusively, upon support from its organic air component, the First Marine Air Wing. In hit-and-run beachhead operations, this relationship has proved effective. In the stalemated warfare of Korea, it has become a decided handicap to the over-all military effort.

In Korea the First Marine Division is but one of five line divisions of the X Corps, which is but one of several combat corps of the Eighth Army. The entire close support operation must be coordinated and controlled for the benefit of all ground units. This is accomplished through a Joint Operations Center, composed of members of all the services, and the JOC follows target priorities established by the Eighth Army. The close support effort is shifted as needed and aircraft are kept on alert, over and above pre-planned support, to fill specific requests.

Normally, in this type of operation—which was conducted successfully on a much larger scale by the 9th Air Force in Europe during World War II—aircraft are assigned to support ground units solely in the light of the military situation. But as a concession to the Marines' specialized type of organization, the Army field commander has assigned Marine aircraft to support Marines on the ground whenever possible. During September, for example, about seventy percent of the close support sorties supplied the First Marine Division were furnished by the First Marine Air Wing. Marine leaders, however, have complained strongly that *all* close support for the First Marine Division should be supplied by the Marine air component, despite the fact that the tide of battle and the over-all shortage of aircraft often have resulted in a need for Marine air in other sectors of the battle area.

An even greater problem is posed by the volume of air support required by the Marines, regardless of who provides it. During September, for example, the First Marine Division received forty percent of all the close support

(Continued on page 64)

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SORTIES BY FEAF

Fighters	135,227
Light Bombers	20,064
Medium Bombers	10,621
Reconnaissance	10,422
Cargo	85,823
Miscellaneous	20,826
Total	282,983

WHAT THEY DELIVERED

Tons of Bombs	126,302
Rounds of Ammunition (in hundreds)	1,158,422
Number of Rockets	294,510
Tons of Napalm	30,531
Tons of Freight (Cargo only)	205,214
Number of Passengers	472,288
Evacuees	175,936

WHAT THEY ACCOMPLISHED

Enemy troop casualties	130,154
Buildings destroyed or damaged (housing enemy troops or supplies)	143,384
Aircraft destroyed, probably destroyed or damaged	542
Locomotives destroyed or damaged	1,039
Railroad cars destroyed or damaged	20,041
Tunnels destroyed or damaged	547
Highway & rail bridges destroyed or damaged	1,783
Motor vehicles destroyed or damaged	50,848
Tanks destroyed or damaged	1,773
Gun positions silenced	3,575
Major strategic targets neutralized	18

WHAT IT COST

Killed	263
Wounded	289
Missing	483
POW	3
	1,038

As of September 30, 1951

CONTINUED

Harold Stuart's Notes on the Air War

The Reserve Angle

Of the six B-26 squadrons specializing in night interdiction, key to the new air offensive in Korea, four came directly from the Air Reserve.

Reserve and Air Guard retreads are giving an excellent account of themselves. Their critical MOSs are firmly integrated with the "regular" units. But how irregular can you get? Almost three-quarters of Air Force personnel in the Far East are reservists or guardsmen.

The 452d Bomb Wing, originally an Air Reserve unit from Southern California, is carrying a major load in the night interdiction effort. When I visited this B-26 outfit all of the reserve combat crews had been rotated out of Korea after having completed their missions. But the ground crews are the original reserve crowd, doing a beautiful job. Aborts for mechanical failure are few and far between.

The 136th Fighter-Bomber Wing, an Air National Guard unit composed of men from Arkansas and Texas, flies close support, interdiction, escort, and flak suppression—the latter an especially rough job which entails going in ahead of the B-29s to knock out antiaircraft emplacements with rockets and frag bombs. The 136th flies F-84s.

I visited the 136th on the day of the annual football game between the University of Arkansas and the University of Texas. Texas, represented by two squadrons in the 136th, was highly favored over Arkansas, which had one squadron in the outfit. But the Arkansas boys took all bets, and when Armed Forces Radio announced an Arkansas victory, they won all the Won, if you'll pardon the pun, and the Yen (the two types of currency used).

The 136th, under the able leadership of Colonel Albert C. Prendergast has been praised for its high state of combat readiness. I was shocked recently to learn of Col. Prendergast's death. According to published reports he was leading a formation home from his twenty-seventh mission when he received word that the field at Taegu was all but socked in and planes were stacked up. The colonel led his men to another field, saw them all land safely but ran out of fuel himself when too far away to belly in. He jumped but was too low. His men found him in his partially opened chute. He was a fine airman and a good citizen.

Col. Robert S. Israel greets Stuart (center) and Theodore Rinehart.

The other two retread units in the Far East are the 116th Fighter Wing, an Air National Guard unit from Georgia, Florida and California, which is stationed with two ground divisions of the Guard on an island off the northern tip of Japan, and the 437th Troop Carrier Wing, a reserve outfit from Chicago.

Jock Henebry

The man who brought the 437th from Chicago to Korea is Brig. Gen. John P. Henebry, now commanding the 315th Air Division and the top combat cargo commander in the Far East. Jock Henebry, a recalled Reservist who many call the outstanding low-level bombardment leader in World War II, is doing an unusually brilliant job.

The mission of the 315th Air Division varies from routine carrier service to dropping paratroops behind enemy lines. The Division has pulled two major drops, each of some 4,000 paratroops, from C-119s and C-46s. Jock gets his knowledge at first-hand, and on one of these drops he went over the side himself.

As a logistics leader he has introduced important new techniques in the handling of air cargo. Some time ago, when an air unit was preparing for airlift to Korea, he took a team of specialists to the departure point where they took over the planning, packaging, and loading. By employing improved methods, the team saved an equivalent of sixty-one C-54 loads on this one mission. Jock's teams now advise each unit due for airlift to Korea.

"That's a fine tie you're wearing, mister," said Pfc. Charles E. Scott, infantry veteran of Korea fighting. "Take it, son," said AFA President Stuart, who had flown into Korea on the same C-124 that took Scott and his 2d Division buddies back to Japan for five precious days of rehabilitation leave.

Airlift to the Front

It was a great pleasure to have Jock as pilot on the plane that took me from a rear base to the forward area in Korea. What's more, I went in style, if you can call it that when your only companions are hand grenades—30,000 pounds of them.

But it is real style when you travel in the Douglas C-124 Globemaster II, regardless of the cargo. This big transport, the second largest now in service, was being tested by the Combat Cargo Command during my stay in the Far East, and was the only plane of its type in the theater.

We landed at a frontline strip, only a few miles from the Thirty-Eighth Parallel. Operations of the big Globemaster off this strip have proved that it can go anywhere its smaller brother, the C-54, can, and, in the process, can carry three-and-a-half times the cargo. Only two days before, this plane had evacuated from another forward strip in Korea a total of 102 litter patients, sixty-three ambulatory patients and thirty-five other passengers.

As we came into the strip we saw more than 100 soldiers lined up for the outgoing flight, all of them veterans of the ground war who had been granted five days of precious leave time in Japan. Among them were soldiers of many different nations.

High Command

I was impressed by the high quality of Army and Air Force leadership in the Far East, and the excellent relationship between top commanders of the two services. In Tokyo I found General Ridgway and General Weyland working closely together, and in Korea I found the same relationship between General Van Fleet and General Everest. I found this healthy situation existing all the way down the line.

Air Superiority

At the moment we are outnumbered about six to one in the F-86s we can put into the air against enemy MIGs. Yet we hold a ten to one advantage in air victories. The answer lies in the men who hold the "air front" in Korea for the United Nations.

Individual pilot proficiency, as pointed out in this magazine last month, certainly is a big part of the answer. Superior gunnery and superior tactics are contributing factors. And an unpublicized element is our superior air discipline. Flight leaders and wing men work together as a team in a manner that has been seldom achieved previously in air combat.

Listening in on a Mosquito. On Stuart's right are Brig. Gen. James Ferguson, Fifth AF, Col. Timothy F. O'Keefe, CO 6147th Gp., Col. James Van Meter, Fifth AF, and Mr. Rinehart. Left is Lt. Col. Robert A. Tremont of 6147th.

B-26 crew with which Stuart flew a combat mission over North Korea—l. to r. 1st Lt. Arnold H. Clark, pilot; 2d Lt. Darwin Golden, navigator; Stuart; 1st Lt. Joseph Rosdal, shoran operator, Cpl. Richard L. Wehrer, gunner.

When I visited the 4th Fighter Wing, the F-86 outfit facing the MIGs, the pilots explained they were getting too few kills for the hits they were scoring. Their combat photos explained what they meant. Our .50 caliber bullets poured into the MIGs, and chunks of enemy aircraft filled the air, but, as every pilot knew, those damaged MIGs would return to base. The 4th Fighter boys want and deserve better armament.

On this visit I learned that the presence of Russian-speaking pilots in the air over Korea, as reported recently by General Vandenberg, is more than an isolated case. Numbers of enemy airmen are heard speaking Russian over their radios, and the whole enemy effort has the distinct odor of a combat training program for Russian jet pilots.

I cannot praise too highly our jet pilots who meet the MIGs over Korea. But it must be reported that air superiority is being maintained by other Air Force units as well. The B-29 outfits, for instance, by their relentless bombing of Communist airfield sites in North Korea, are keeping enemy jets off the backs of our ground troops and making it easier for our air units.

The 29s are the "bait" which draws the MIGs up for battle with our jets. It's a rough assignment. The surprising thing, it seems to me, is not how many but how few B-29s we have lost over Korea. For we are pitting World War II bombers against World War III fighters. An obvious gap in our air capability—directly traceable to the starvation diet which the Air Force has been on since World War II—is our lack of operational jet bombers. Yet, our bombardment accuracy is far superior to anything we knew in World War II, and our radar bombing is much improved.

Another important factor in the

(Continued on page 68)

Hawker P.1067

BRITAIN'S CALCULATED RISK

England's postwar designs are brilliant but the harsh, depressing fact is that they exist largely in prototype, not in potent numbers

By Charles Corddry

United Press Aviation Editor

BRITAIN for the first time in her history, has given airpower highest priority in an armament program.

From the recently rejuvenated British aircraft industry has come a series of flying marvels now being hotly publicized to the world. These will be the new fighters and bombers of the Royal Air Force and Navy.

But Britain desperately needs time to carry out the expansion and modernization of her airpower. The harsh, depressing fact is that the planes which government and industry daily proclaim to be the world's best exist only in negligible numbers, sometimes in no more than one of a model. None of the flashier jobs that have captured so much newspaper space is yet in squadrons, and it will be one to two years before the RAF has them in even moderate quantities. And that is assuming that the new Conservative government will discover in some way how to surmount the formidable manpower, machine tools, and materials problems which admittedly threaten the three-year, $13,160,000,000 armament drive.

If war came today, Britain's airpower would be in about the same situation as it was in 1939. In those days the Hurricane and Spitfire, later to earn the world's unqualified admiration in the Battle of Britain were like their present descendants, the Hawker P.1067 and Vickers Supermarine Swift. They were brilliant designs. But you don't win with brilliant designs alone that air mastery which Winston Churchill says is "the supreme expression of military power." They must be produced, in quantity, and aviation authorities in England admit that production is not as yet in stride.

Describing the air show at Farnborough last fall, the editors of *Flight*, official organ of the Royal Aero Club, pointed out that "one of the things people tried to forget was that the majority of the new military aircraft were still prototypes with, at best, a production order, but no production line, to back them." But, in characteristic British style which makes you feel that answers somehow will be found, the magazine says, "It was encouraging, nevertheless, to have prototypes of the kind and quality to merit immediate production."

While it waits for the ultra-modern craft, the RAF, with its paramount mission of defending the British Isles and its commitment to contribute to NATO air forces, is flying equipment inferior to America's and, far more important, to Rus-

Vickers Valiant

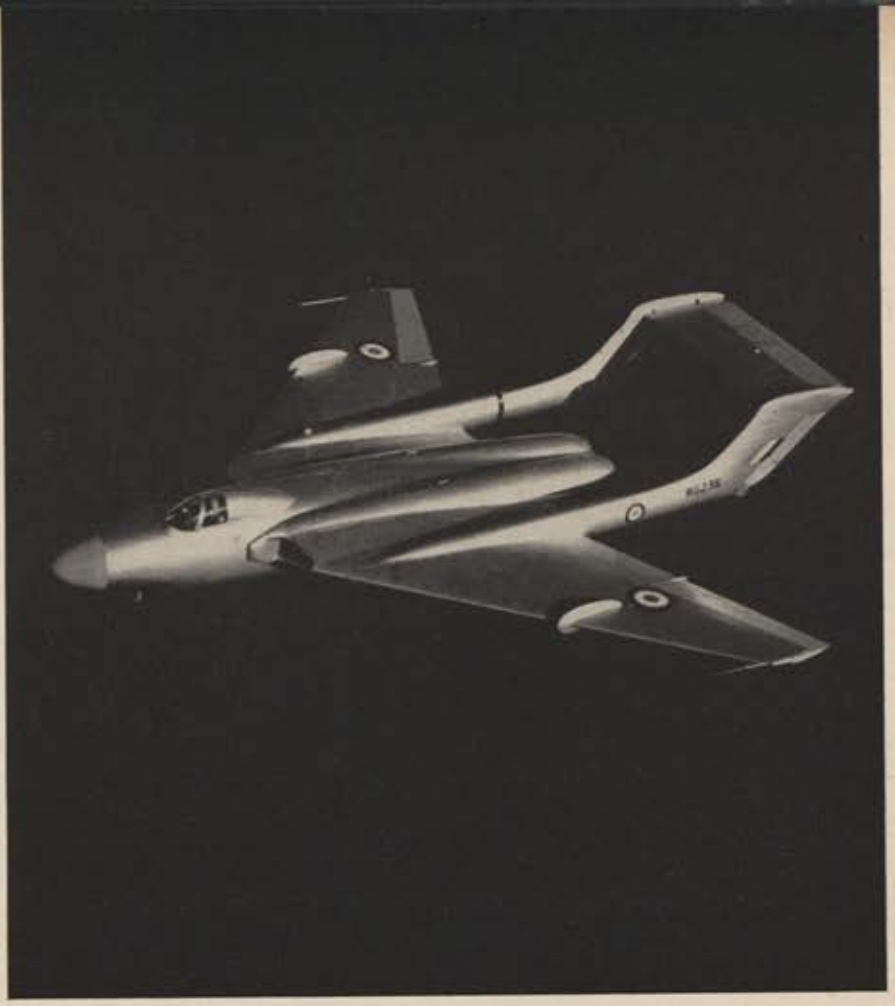
sia's. The standard fighters today are Vampires and Meteors which are contemporaries of the F-80. In October, British newspaper readers read anguished reports that Meteors in Korea were not equal to Russian MIGs. In September they had read that the new Hawker was superior to either the MIG or the F-86. The trouble with that simplified claim was that production F-86s were then successfully engaging MIGs day after day, while there was only one Hawker in all the world, in which even an experimental armament installation had not yet been made.

The question could then logically be raised whether the Hawker, the Swift, and all the rest would still be the world's best fighting planes on the distant day when Britain's military services have them in quantity. Britain has gambled that such will be the case.

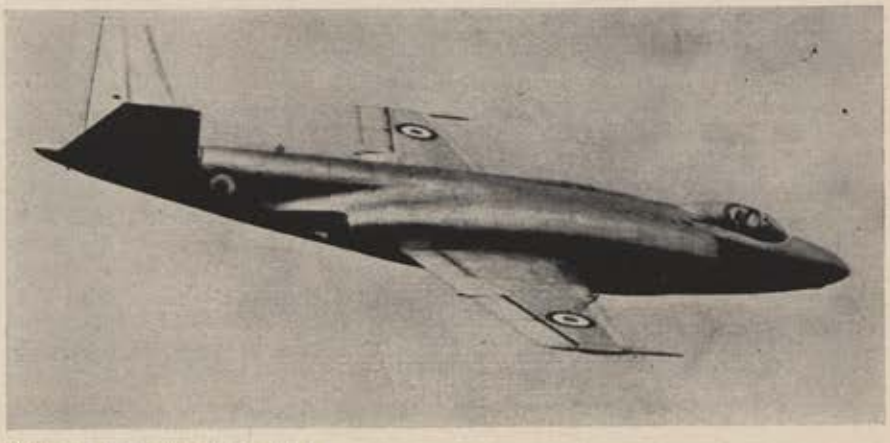
Because of her economic situation and of her calculated risk that war would not come again for a half dozen years or so, Britain decided at the end of World War II to skip over "intermediate" types of aircraft development like that in progress in America and Russia. She went straight from immediately postwar types like those now in operational squadrons to "ultimate" types like those that burst upon the air world this past spring and summer. Only prototypes, far too numerous to mention, were built in the interim; there was no production.

Time will disclose whether the risk paid off. But the Korean war and urgent British requests for F-86s from both the United States and Canada for the defense of England suggest that there has been a close call, at least.

A measure of Britain's grave concern over atomic age defense is the fact that she has now assigned first place in her military spending to airpower. The armament plan was put into effect last April, and be-



DeHavilland 110



Vickers Supermarine 508

Vickers Supermarine Swift

Short Brothers & Harland S.A. 4

Gloster Meteor, ground attack version

English Electric Canberra

fore it is completed the RAF will be receiving a larger share of money than either the Army or Navy. Were anything resembling a repetition of the Battle of Britain in prospect, horrible though that was, the concern would be less. The nature of Britain's task today is best summed up in the words of a high RAF officer:

"The atomic bomb is not a development. It is a revolution. There is no comparable revolution on the side of the defense."

The Battle of Britain was won although only 6.5 percent of attacking German bombers were successfully intercepted. That hardly would suffice against an atomic force, any one bomber of which would have the destructive power of 3,000 wartime Lancaster sorties.

According to the RAF officer, the American Strategic Air Command is the saving factor in the situation today. For it is not enough to wait passively for Red bombers and try to pick them off one by one with fighters and antiaircraft artillery. The number one job would be to knock out the Red air force on its home ground, hitting its bases, installations, and factories.

To play its eventual part in this mission, Britain has developed the four-jet Vickers Valiant bomber. But Britain's bombers now are late World War II Lincolns and a few B-29s. There is only one Valiant flying; the model has been ordered into production straight from the drawing board.

One of the severest problems confronting manufacturers of Britain's new aircraft is that of obtaining labor. The industry now employs 160,000 or one-tenth its World War II peak, and it needs that many more by the end of 1952. At present trends, it will be fortunate to get a third that many, the experts assert.

There is virtually no pool of unemployed labor in England and workers are diffident about transferring from present jobs to employment that ebbs and flows like the aircraft industry. Moreover, the government faces a dilemma in the fact that shifting labor to military aircraft plants means the likelihood of cutting down manufacture of export goods. And exports are vital means of paying for the raw materials needed in defense production.

Finally, there are the matters of increasing production efficiency and training manpower for entirely new jobs. The British require several times as many man-hours to turn out one of their jet engine types as does the US company building the same engine, according to American sources who have visited English plants.

Withal, Britain has let it be known that short of actual war she intends to continue her effort to top the world in commercial aviation. The manufacture of jet-propelled Comet transports and turbine-propeller Viscounts is being pressed, and orders are being invited from abroad, especially from countries in the coveted dollar area.

Pertinent details on Britain's new military aircraft follow:

BOMBERS

1. **Vickers Valiant.** First flew May 18, 1951. The RAF's first four-jet bomber, classified a heavy although its gross weight is under that of the USAF's B-47, classified a medium. Powered by Rolls-Royce Avon engines, developing 6,500 pounds of thrust at 7,800 rpm at sea level and having a fuel consumption of .865 pounds per pound of thrust per hour. Engines imbedded in wings, each pair having common air intake. Performance details are secret but the plane is considered capable of flying at altitudes well above 40,000 feet and at a speed on the order of 600 mph. Operation radius will probably be about 2,000 miles. Carries crew of five. Has no armament. Features include all electric controls, sliding bomb bay doors, and a landing gear weighing about one-sixth that of a Lancaster. Substantial production order has been placed.

2. **English Electric Canberra.** Twin-jet light bomber also being manufactured by the Glenn L. Martin Co., Baltimore. A photo-reconnaissance version, powered by two Avons, is in production in England. American version has two British Sapphire engines, rated at 7,200 pounds thrust.

3. **Short Brothers & Harland S.A. 4.** First flew August 10, 1951. Classified a heavy, it is powered by four Avons, spans 109 feet and is 102 feet long. Prototype.

4. **Avro Shackleton.** RAF Coastal Command patrol bomber now in service. Four piston engines drive six-bladed contra-rotating props.

FIGHTERS

1. **Hawker P.1067.** First flew this summer. An interceptor powered by one Avon engine. Exceeded 700 mph in low level passes at Farnborough display. Swept wings, long, slender fuselage, elevated tailplane. Claimed by British government officials to be

Snarler auxiliary engine, said to double Hawker's thrust, is rocket that can be turned on and off in flight.

"faster in level flight than either the MIG-15 or the F-86." Ordered "in quantity" direct from the drawing board.

2. **Vickers Supermarine Swift.** First flew this summer. Swept wing interceptor, companion of P.1067, as fast or faster, single-seat, single Avon engine. Prototype.

3. **Vickers Supermarine Type 508.** First flew August 31, 1951. Carrier-based fighter powered by two Avons. Claimed to be "fastest and most powerful carrier-borne fighter in the world." Features a "butterfly tail." Prototype.

4. **Gloster Meteor** ground attack conversion. First flew in August 1951. A private venture, specifically for ground support operations. Powered by two Rolls-Royce Derwent engines rated at 3,600 pounds thrust at sea level. Mounts four 20mm cannon and can carry four 1,000-pound bombs with two 100-gallon tip tanks or 24 rockets with two tanks. Prototype.

5. **Meteor N.F.11.** First flew a year ago. One attempt to overcome the problem of night interception. Two-seat, radar-equipped plane powered by two Derwents. In production.

6. **DeHavilland 110.** New type night fighter which first flew September 26, 1951. Carries pilot and radar/navigator and features extremely rapid rate of climb. Other details unavailable.

ANTI-SUBMARINE AIRCRAFT

1. **Fairey Firefly Mark 7.** First flew May 27, 1951. Single piston engine. Three-seat, carrier-borne plane in production for the Navy. Spans 44 ft., 6 in. and is 37 ft., 11 in. long.

2. **Fairey Gannet.** First flew two years ago. Powered by Armstrong Siddeley Double-Mamba turbo-prop engine driving contra-rotating props either of which can be shut down in flight. Three-place, carrier-borne plane. In production for the Navy.

AND RESEARCH

1. **Avro 707A and B.** Experimental delta wing ships which may be forerunners of bombers. The 707A has air intakes in leading edge of wing, 707B on top of rear fuselage. Powered by one Derwent.

2. **Boulton Paul P.111.** Another high-speed delta wing research craft, powered by one Rolls-Royce Nene engine rated at 5,000 pounds thrust.

3. **Hawker P.1072.** Test bed for Armstrong Siddeley Snarler rocket motor. Snarler, which delivers 2,000 pounds thrust at sea level, runs on liquid oxygen and water-methanol with an endurance of three minutes. Can be switched on or off at pilot's discretion.

Training exercise like this prepare CAP for emergency duties.

CIVIL AIR PATROL HAS TENTH BIRTHDAY

Maj. Gen. Lucas V. Beau

JUST six days before Pearl Harbor, on December 1, 1951, the Civil Air Patrol came into being by executive order of the late President Roosevelt. Its wartime missions of antisubmarine spotting and border patrol were well accomplished and widely acclaimed. Not so well known, however, is the postwar CAP, a long-pull mission aimed at a broad training program for an air-minded America. Under Gen. Carl A. Spaatz, USAF Ret., chairman of its national executive board, and Maj. Gen. Lucas V. Beau, USAF, its national commander, the CAP has become a going, and growing, concern. Of prime significance is the new CAP cadet program. More than 40,000 members have been attracted by cadet encampments, drill competitions, including an international meet, and a comprehensive international cadet exchange program. The past tenth anniversary year has found this cadet program booming. Membership rose at the rate of nearly 2,000 per month. From June through August, the encampment schedule attracted more than 4,500 cadets for summer training at twenty-six camps. Fourteen countries cooperated with the US in the biggest exchange to date. From here 110 boys went abroad and 110 air-minded youths from other countries visited the US. At anniversary time the CAP box score showed 1,564 units, broken down into 52 wings, 160 groups, 649 squadrons, 703 flights. CAP planes and pilots totalled more than 4,000 and 13,000 respectively. Cadet strength stood at more than 40,000, senior strength at 35,000. For further information, write to HQ, CAP, Bolling Air Force Base, Washington 25, D.C.

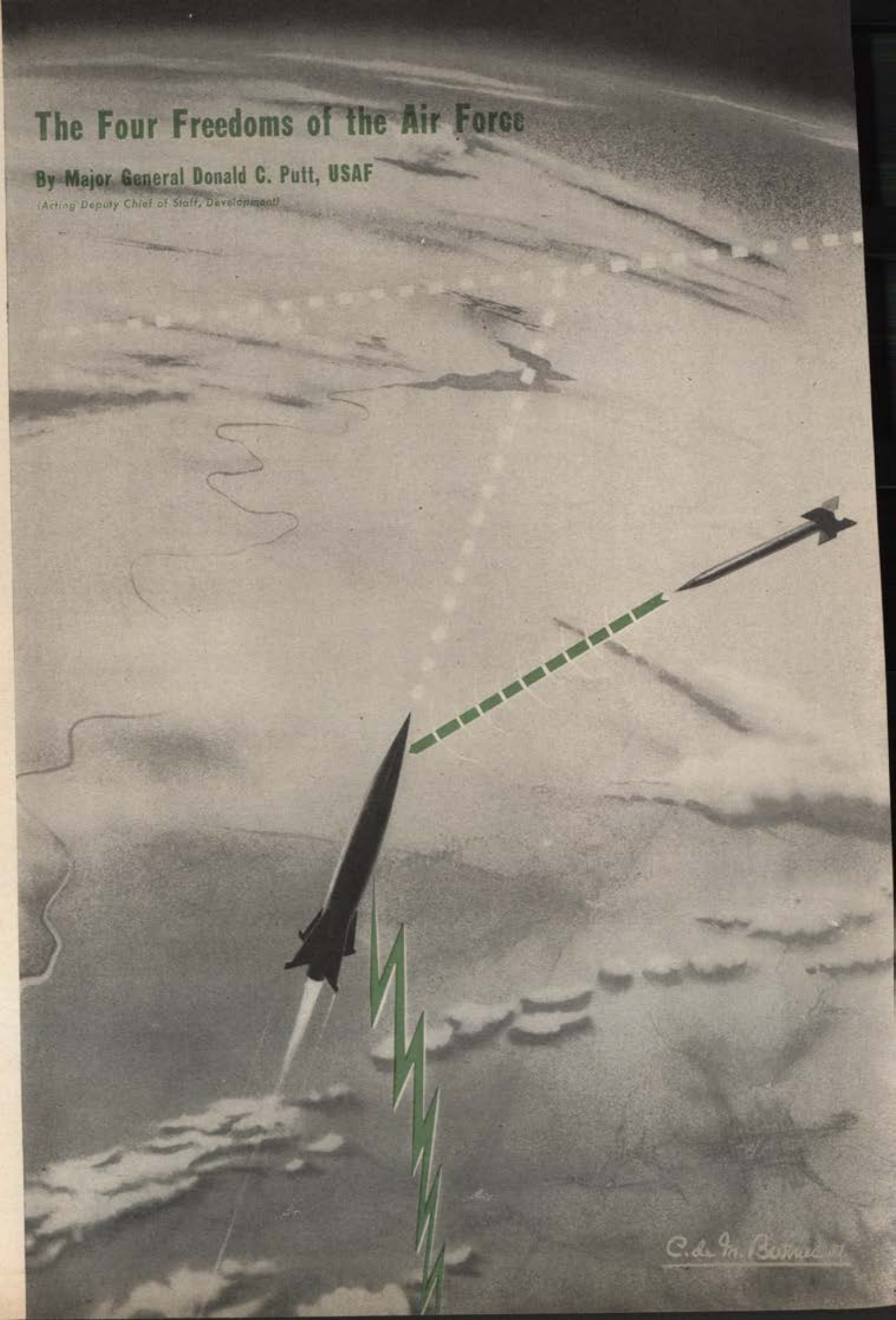
Drill competition begins on flight and squadron level, works up to international event. Here Cadet Lt. Norman Pils, Lawrence, Mass., accepts state award for squadron.

International CAP cadet exchange program brings foreign cadets to US, sends Americans abroad. These youngsters are briefed on soaring at a Swiss airport.

The Four Freedoms of the Air Force

By Major General Donald C. Putt, USAF

(Acting Deputy Chief of Staff, Development)



Freedom from ENEMY INTERFERENCE

The enemy must be outwitted; he must be deterred; he must be denied the element of surprise; if he attacks, he must be destroyed. These are AF research and development goals

EDITOR'S NOTE—*Soviet Russia has demonstrated its determination to impose upon the world the four "freedoms" of Communistic imperialism—freedom to worship Lenin, Stalin, and whoever comes next; freedom to repeat what the state says—or to be silenced; freedom to sweat and toil in return for a life of near-poverty, freedom to fear betrayal by countless state spies. The combined spiritual, economic, political, psychological, and military power of the Free World must parry, counter, and—if attacked—destroy this modern tyranny. In this struggle, airpower must play a commanding role. To perform its mission, the Air Force must command the air. To command the air, it must pursue its own "four freedoms"—from Natural Barriers; from Enemy Interference; from Want and Waste; from Human Frailty. Last month, General Putt outlined the progress being made to free airpower from natural barriers. In this article he describes, within the limitations of security, some of the contributions research and development is making to help insure Freedom from Enemy Interference for the Air Force.*

Outwit the Enemy.

Aeronautics is a science; war is an art. Progress in aeronautics depends upon the acquisition of a better understanding of the unchangeable laws of nature. Victory in war, on the other hand, depends in great part upon the unpredictable behavior of men. The Luftwaffe might have seriously challenged Allied air supremacy with the first operational jet in history—the Me262. Instead, Hitler committed the blunder of using this airplane where it was least effective—as a low-altitude fighter-bomber. Thus, science can supply better implements of warfare, but it can hardly replace the uninhibited genius of the sound strategist and tactician. Even less can it replace the courage of fighting men.

In the Air Force our technicians must live with these limitations of science in the art of war. For this reason, our research and development work which might help outwit the enemy has been aimed simply at providing operational people with a better grasp of the complex factors upon which they must base every decision.

USAF research and development aims at giving operational people a better grasp of the factors which influence decisions.

Consider, for example, three of the basic decisions the Air Force must make: which aircraft and weapons systems to buy; how to get these produced and train operational units in their use; how best to use these aircraft and weapons against an enemy. Each is extremely complicated, involving complex relationships between such factors as the speed and size of aircraft versus their vulnerability to enemy defenses; aircraft production needs for materials, tools, and skilled manpower versus the national capacity to meet those needs; and the cost of various aircraft weapons versus their potential ability to do damage to the enemy.

The possible alternative solutions in each case literally number in the hundreds of thousands. In some instances using normal methods of calculation and computation, it would take longer to determine *what* to do than to do the job itself. To help with these complex decisions, we are developing and using high-speed electronic computing machines.

Some of these can perform addition or subtraction problems in about fifty millionths of a second (fifty microseconds), and can multiply or divide in some 2,500 microseconds. This permits the solution of important computational or statistical problems which couldn't possibly be otherwise solved in any reasonable period of time. Thus, in military planning and programming, research and development has provided Air Force operators with a new and powerful tool. True, the electronic computing machine does not insure that we will outwit the enemy. But to an increasing degree, it is helping the Air Force make sound decisions more quickly, and this time element in itself is of great importance.

Deter the Enemy.

For six years the deterrent force of the USAF's strategic striking power has kept the cold war from becoming hot on a global scale. Confronted by this power, communistic imperialism has tried to further its objectives in a series of "limited maneuvers," such as the Berlin blockade and the Korean aggression. The last has resulted in a limited but nevertheless very real and bloody war. USAF striking power has deterred the Russians from initiating World War III. Can it also now make the Korean-type of conflict so unprofitable that the USSR will be forced to refrain from pulling more "little strings?"

Senator Brien McMahon (D., Conn.) recently told the Senate that massive atomic deterring power can win us years in which to wrench history from its present course. He spoke of an atomic air force capable of seeking out and destroying, with atomic weapons, the enemy's industrial sinews of war; of visiting atomic fury upon the very airfields from which an aggressor would strike against our cities; and of hurling atomic weapons at enemy troops, supply dumps, and transportation choke points. Senator McMahon also mentioned that the sky is the limit on the number and variety of atomic weapons which the United States can produce.

Secretary Finletter has recently confirmed that we are approaching an era of atomic plenty. And the Chairman of the Joint Chiefs of Staff, in issuing a call for a larger Air Force, has underlined the fact that airpower is the most effective method of delivering atomic explosives.

There is solid foundation for these hope-inspiring statements. Atomic Energy Commission research, development and production work have brought us a new order of atomic power. The AEC and the USAF have worked closely together to insure the development of an adequate choice of bombs in both size and shape. Finally, the Air Force is developing aircraft and tactics which will insure the accurate delivery of this new "family" of atomic explosives. Thus, the AEC revolution in atom bomb technology is being matched by USAF progress in developing methods of delivery.

A CALL FOR PIONEERS

"It is very often said that those of us who have something to do with the Armed Forces have a habit of preparing for the last war, the war that is just over. To some extent that charge is true. There is a natural conservatism among human beings.

"At this moment, however, by reason of the revolutionary position which the United States is taking in world affairs, we must recognize fully the crucial importance of airpower.

"The only possible way we can be attacked is through the air, and the only possible way we can retaliate is through the air. We cannot face down the hordes of Russian tanks, men and airplanes unless we produce techniques which are very definitely superior to theirs and which are centered in airpower.

"And yet there is a failure to look forward sufficiently to the kind of weapons we are going to have and the methods by which we are going to deliver them. We are thinking too much in traditional terms.

"Place yourself on the side of innovation, imagination, pioneering. Stick your nose into anything that is going to foster the good of the Air Force. Barge into anything. What we want is the keenest kind of initiative and foresight.

"There is the greatest opportunity and the greatest responsibility to see to it that the Air Force is able to take the leadership in creating this new kind of warfare in the defense of the Free World.

"The task you have before you is as crucial a one as this country has ever had to face."—

From remarks by Secretary Finletter to new staff officers at Headquarters, USAF.

In turn, our improved bomb delivery decreases the vulnerability of our aircraft over enemy territory, helps our bomber defenses, increases our ability to locate enemy targets and, provides more accurate bombing equipment.

Greater speeds, higher altitude performance, smaller size, and improved passive measures all help to deter the enemy by reducing the vulnerability of our aircraft to his defenses. Last month I discussed the problems of operating at extreme altitudes, one of our natural barriers. With regard to speed, the jet bomber will push up to 500-600 knots—into the high, subsonic Mach number region—and we know it is possible to build supersonic bombardment aircraft. By 1955, supersonic fighters should be operating at speeds of more than 1,000 miles per hour. We must assume that enemy interceptors will have the speed-performance edge unless our bombers can attain interceptor speeds, which by the way, is a distinct possibility.

And there are other answers to bombardment superiority. The air-to-surface missile, carried part way to the target by a mother-airplane, promises to provide one answer to this problem of fighters versus bombers. There is no fundamental reason why a missile, the Matador for example, could not be air launched. The control and guidance problems are formidable, but certainly not beyond the ingenuity of American scientists and the American aircraft industry. The air-to-surface missile will travel at extremely high speeds and, in addition, will be much smaller in size since its range will be considerably less than that of the launching aircraft. The long range trend, of course, is toward what we expect will be the primary strategic attack weapon of the future—an intercontinental guided missile of supersonic speed and equipped with an atomic warhead.

Basic research in aerodynamics and propulsion decreases drag and increases fuel efficiency, so that with each new cycle of aircraft—*for the same performance and job*—a smaller airplane would do the trick. For example, the new Pratt and Whitney J-57 Turbo Wasp will get far more thrust per pound of fuel than the most efficient jet engine which has been flying up to now. We can now foresee engines which will develop thrust in the 20,000 to 30,000 pound range.

Passive measures used to decrease aircraft vulnerability involve such factors as the proper location and protection of fuel, and armor plating critical portions of propulsion units. Extensive studies and actual firing tests on full-scale modern aircraft are conducted to increase our knowledge in this direction.

The McDonnell XF-85 parasite fighter was one of the early steps taken toward improving bomber defenses. Under development now are integrated bomber defense systems of advanced design to insure the highest probability of successful accomplishment of the bomber's primary mission. Needless to say, air-to-air rockets—both guided and unguided—play a prominent role in some of these developments.

To improve our ability to locate enemy strategic targets, we are developing long distance self-contained airborne navigation equipment which requires no ground installations as part of the system. Radar techniques are being applied to give the Air Force the capability of terrain mapping in all types of weather. For tactical work, airborne moving target indicator equipment is being developed to detect convoys, tanks, and vehicles, particularly at night. This will deny the enemy—by virtue of superior equipment as well as superior flying skill—his Korean-type movement of supplies during the hours of darkness.

Improvements are constantly being sought in the accuracy and operational reliability of our bombing systems. Here again, the trend is toward an increasing degree of automatic operation.

In connection with this electronic navigation, mapping, and bombing equipment, heavy emphasis is put on reducing weight and space requirements, and on reliability. With regard to the latter, the service life of certain frequently-used vacuum tubes has been increased by a factor of about five. (Last month I explained how the Transistor will gradually replace the vacuum tube.)

The heavy dependence on electronic components (navigation, defensive fire control, bombing, etc.) in bomb delivery systems has led to much work on electronic counter-measures.

With improved ECM techniques we repeatedly are "jamming" our own equipment and thereby are learning how to incorporate anti-jam features in their design.

Deny the Enemy the Element of Surprise.

The Soviet Union is determined to keep the world completely uninformed about activities within its own borders. World control of atomic energy and implementation of President Truman's disarmament proposal are both impossible as long as Russia is unwilling to permit UN inspection teams the necessary freedon of movement within the USSR. By maintaining a high degree of secrecy, the Russian leaders obviously hope to achieve complete surprise if—and when—they should unleash the destruction of an atomic war upon the world. *(Continued on page 71)*

Atomic Energy Commission and USAF have worked together to insure an adequate supply of bombs in both size and shape.

You have to know the weather to bring back weather. Crews learn in pre-flight briefing what conditions to expect along the way and back at base.

Ol' Dog flies best when knowing the engineer's watching gas consumption.

Buzzard Dog Sniffs the Wind

The recon men who take daily readings on North Pacific weather fly their WB-29s over lonesome 3,000 mile tracks, in 14-hour missions.

YOU could set your watch by the Boeing WB-29 Superfort that daily lifts its nose into the early morning cloud bank off Japan's east coast for a 3,000 mile flight over the North Pacific to sniff out tomorrow's weather.

Aboard the aircraft are ten specialists, each a member of a weather reconnaissance team of the USAF Air Weather Service. Their mission, flight "Buzzard Dog," is to make the same meteorological observations in their flying weather station that twenty-five fixed-ground stations would make if spotted along the over-water track the crew flies.

Meteorological data collected along the run is gathered into a composite weather picture and radioed to the squadron's ground station in Japan. There it is edited and flashed over a maze of teletype circuits to weather agencies throughout the Far East and Pacific.

Siberia is the birthplace of nearly all weather in the northern hemisphere, and weather is one item that pays no heed to Iron Curtain boundaries. High and low pressure systems originating in this barren area move eastward across the Aleutians and the Gulf of Alaska. In most cases, they affect the northwestern portions of the US and Canada before hitting the rest of the US.

But there are other good reasons why these fliers make the fourteen hour flight, skirting the eastern edges of the Iron Curtain. The information they garner helps fill a large part of the global Master Weather Charts of the USAF Weather Central in Washington, D.C. Then aircrews flying from Alaska to Japan know what winds and weather to expect. Weather forecasters on the west coast have an idea of what to look for in the next few days when the fronts move east. And staff weather officers of the UN in Korea have a sound basis for scheduling air-ground operations there.

Since at present man can't control or conquer weather, but can only examine it and make certain conclusions, aerial weather reconnaissance has become increasingly important. This was demonstrated during World War II. It also became apparent that a similar peacetime program would be necessary.

By 1947, the Air Weather Service, now under MATS, had four weather recon squadrons. These squadrons, operating from US, Atlantic, Pacific, and Alaskan bases, kept a wary eye on typhoons and hurricanes and brought back first-hand reports from the polar regions.

In early 1950, the AWS program was extended to the Far East when the 56th Strategic Reconnaissance Squadron began operating from Japan. The 56th flies synoptic weather reconnaissance tracks over the same latitude and longitude at approximately the same time each day.

Today's Buzzard Dog leaves the runway and climbs to its first reporting position. Even though the ship may be completely on instruments, the searching finger of radar brings the northern islands of Japan into sharp focus. At the same time the

By
Captain George H. Behrens
and
Captain Martin Krassner

Clouds and fog just aren't there for the radar operator. He works closely with the navigator to keep tabs on Buzzard Dog's position at all times.

The 3,000-mile flight is from Japan to the Aleutians, with a dogleg en route. Crews try to hit observation points along the way at the same time each day.

The dropsonde, a tiny weather station, transmits data while chuting down.

radar operator can spot any dirty weather ahead and guide the plane through the safer part of the storm.

The navigator takes a series of "fixes" during the first hours. This information and other factors in his time-distance calculation tell him the wind direction and velocity at flight altitude. This is part of the information the weather observer includes in his report every hundred miles along the track.

At position six, the aircraft veers to the northwest and heads out to sea. The only further radar contact will be with Ocean Station Sugar, a small UN weather ship maintaining constant vigil over the sea and air lanes between Alaska and Japan.

Up front in the WB-29 are six of the ten crew members. The commander and the pilot work out the endless details that go into making the trip a successful reconnaissance mission: pre-flight planning, crew briefing, equipment checks, in-flight procedures, and getting the crew home safely . . . with the weather and despite it.

Forward, in the "greenhouse," sits the weather observer, where the bombardier sat when the 29 toted bombs. The weather observer is a trained meteorologist, now surrounded by equipment in his specially modified "office." Temperatures, humidities, atmospheric pressures, gradients, winds, charts and graphs, plus a host of other items keep him hopping.

Directly behind the pilot is the flight engineer. The gauges and gadgets on his instrument panels show if "Ol' Dog" is getting tired or if something is out of whack. He and the navigator keep a cruise control chart, showing the amount of fuel each engine is burning as the observation points slip by one by one. This guarantees that, in spite of the winds encountered, the plane will have enough fuel to go to an alternate base if the weather prohibits landing at home.

The navigator and radar operator work together continuously to keep

The dropsonde operator receives coded information about temperatures, humidity, and pressures the instrument passes through in its 18,000-foot descent.

The flight engineer gets periodic reports from scanners back in the ship. They check engines from waist windows where gunners once fought off Zekes.

Ocean Station Sugar—10,000 feet down. The UN weather ship and the Buzzard Dog commander swap weather chatter while the 29 heads for home. When the crew gathers for de-briefing, below, take-off seems more like fourteen days ago than fourteen hours. In a few days, the crew will make another hop.

the plane on its intended weather track and to bring it home in one chunk. They use the sun, moon, and stars for celestial lines of position, and loran, as a man-made supplement.

In the aft section of the flying weather station are the other crew members. The assistant engineer and the dropsonde analyst usually serve as the left and right scanners, the "eyes of the drivers." As scanners, they make periodic checks of the engines and report anything unusual.

The dropsonde analyst releases instruments at pre-determined positions along the Buzzard Dog track. These battery-operated weather reporting gadgets are dropped by parachute from 18,000 feet. While descending through the atmosphere, these dropsondes transmit temperature, relative humidity, and pressure data in Morse code that is received by the operator. From these broadcasts he draws a picture of the vertical layer of air through which the instruments pass. After charting the data on special graphs, the dropsonde analyst sends it forward to the weather forecaster for confirmation and double checking.

"Key" members of the crew are the two radio operators. They are the middle men in the continuous flow of information between the weather observer and the radio ground station. Monitoring a dozen voice and code frequencies, they are constantly in contact with the station in Japan—in-flight progress reports, weather messages, and other pertinent data.

Buzzard Dog proceeds northeast from position six for 700 nautical miles before reaching its next turning point, some 200 miles southwest of Shemya in the Aleutians. Then, at position thirteen, the plane makes a 180° turn and lets down on course to approximately 10,000 feet, for the long trip home. Several hundred miles back along the track, Dog flies over Ocean Station Sugar and they compare notes on the weather.

For the next thousand miles, broken by ten more observation positions, the crew stays busy. By now it's evening and the navigator can use the stars to keep Dog on course. Finally at position twenty-five the aircraft begins its gradual letdown back to its Japanese base and mission's end.

The crew members are buzzard dog tired, ready for a few hours of sleep. Even though the crew considers these missions routine, the importance of the meteorological data collected does not diminish. And the next dawn will see another Buzzard Dog flight taking off on another fourteen hour stint.

WANTED ...MEN o

....As the world's leading aircraft and engine modification, overhaul and engineering organization, Grand Central Aircraft Co. needs high caliber men . . . Grand Central is a "good place to work" in harmony and among friends. No employee has ever lost one hour's work, by reason of a strike, lockout or work stoppage . . . since the company was formed years ago.

GLENDALE, CALIFORNIA

Division

Grand Central Aircraft Co. owns its facilities and airport at Glendale. It currently employs approximately 1500 workers modifying and overhauling C-47 Douglas Aircraft and engines for the Air Force, and airliners, for Eastern, Braniff, TWA, Pacific Northern Airlines, etc.

Grand Central is Western Distributor for Wright Aeronautical and handles their West Coast service. Its engine overhaul and accessory shop is world famous. The company services executive transports, privately owned aircraft, specializes in custom interiors and Airline Radio installations.

Its own airport, Grand Central Air Terminal, was originally built by Curtiss-Wright in 1929 at a cost of approximately $3,000,000.00.

GRAND CENTRA

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Immediate openings are available in both the Tucson Division and the Glendale Division for: Engineers, Draftsmen, Airplane and Engine Mechanics, Aircraft Electricians, Sheet Metal Mechanics, Inspectors, Clerical and many

For information write Personnel Manager, care of Executive

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Full employee benefits, high wage scales and excellent opportunities for advancement are enjoyed in the security of Grand Central's non-union open shop . . . Join our great Grand Central team, where both employees and company go by the Golden Rule — "Do unto others as you would have them do unto you"... *An opportunity for you in a healthful climate.*

TUCSON, ARIZONA
Division

This division of Grand Central is located on Municipal Airport, Tucson, Arizona. The Company holds a long term lease on a magnificent facility consisting of approximately 15 acres of hangar and shop space under roof, plus an additional 118 acres of heavy reinforced concrete outdoor hangar space, piped with utilities and completely lighted for night work. In this healthy climate, more than 3500 are employed de-cocooning, modifying and overhauling B-29's. The payroll here exceeds $1,000,000.00 monthly. The company owns all tools and equipment at the Tucson plant, including completely equipped engine, airplane and accessory shops.

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other classifications. We welcome applications from men of skill and integrity... For a good future with excellent opportunities, why not join up with our growing company. It now has an approximate $50,000,000.00 backlog.

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TUCSON, ARIZONA
MUNICIPAL AIRPORT

H PRECAUTION • PRECISION • SAFETY • INTEGRITY

Demonstrated at the school is the technique of forward air controller.

Seconds after he hits the ground (above), he has his radio set up and is in business, directing air strikes.

APOSTLES OF THE AIR-GROUND TEAM

Here's a new kind of interservice education that is making a lot of sense to a lot of people—the Joint Air-Ground Operations School

By John F. Loosbrock

Brig. Gen. William Gross

IN THIRTY-THREE years' service this is the first time I've seen the Air Force make any kind of sense."

The speaker was a grizzled infantry colonel who had doughfoot-of-the-old-school written all over him. He was speaking to Air Force Brig. Gen. William Gross. That an Army officer of long service and obvious prejudices and predilections made this admission to an Air Force general, who is his junior by an uncomfortable number of years, is significant. But the significance is multiplied by the circumstances.

For General Gross is shepherding an experiment in interservice education that is making a lot of sense to a lot of people. He is commandant of the Joint Air-Ground Operations School at Southern Pines, N.C. Here, in a fast five-day indoctrination course, Army and Air Force officers in all grades get what is for many their first introduction to the knotty problems of air-ground cooperation.

When you visit the school, which is housed in a leased hotel, your first impression is one of relaxation. It's a relaxed place. Nobody is trying to sell anybody anything. You think. Then you prowl around, buttonhole the instructors, talk with the students, soak up the atmosphere.

And you realize that a superb, if subtle, selling job is being done. It is superb because these men have a good product, tested and proved on the battlefield. And as you talk with the most enthusiastic and dedicated group of instructors you've ever seen in a service school, you realize that the "sell" is good because these men know they have a good product. They believe in it because

The Joint Air-Ground Operations School is housed in Highland Pines Inn, a leased hotel at Southern Pines, N. C., close to Fort Bragg and Pope AF Base.

Brig. Gen. Henry J. D. Myer, artillery veteran of Korea, visits the JOC.

Students and instructors quiz the forward air controller at a demonstration.

in most cases they've used it themselves.

"What about this controversy over close support?" you innocently ask a mixed bag of Army and Air Force veterans of Korea. You get stony stares, then grins.

"What controversy? We didn't know there was one until we got back to the States." A stock question and a stock answer, you find, among men who learned together the hard way.

"Let's put it this way," drawled a veteran Mosquito pilot. "When I hit Tokyo on leave, I put up at a hotel full of Army guys. They were just back from Korea. I couldn't buy a drink. Does that sound like controversy?"

"That's right," said a lieutenant colonel wearing the crossed sabers and tank of the armored people. "We were so damned busy trying to stay on the peninsula that we didn't have time to get mad at anybody but the Reds." He was one of the advisory mission that was caught in the original hassle. "Hell, we didn't have to worry about target identification in those days. We just told the Air Force to bomb anything that looked organized. It was bound to be the enemy."

Surprisingly enough, the Army instructors are, if anything, more dedicated to the tactical airpower cause than their Air Force counterparts. Like an earnest young infantry major, veteran of a Joint Operations Center in Korea.

"Show me a ground commander who doesn't like airpower and I'll show you one who doesn't know how to use it," he said. "And he probably doesn't know how to use his own organic weapons, either. Sure, in the early days we used airplanes like artillery. We had to. Each division, thanks to 'economy,' hit Korea short one regimental combat team. Division artillery was short one battery per battalion. And each battery had four guns instead of six. There wasn't any corps artillery.

"So we depended on airpower. And we began to depend on it too much. We forgot that, once our divisions were up to strength, we had enough organic firepower to take care of most frontline targets. For example, few people realize that the weapons of a division, not counting small arms, can dump as much high explosive on a target in a single salvo as an F-51 can in 700 sorties.

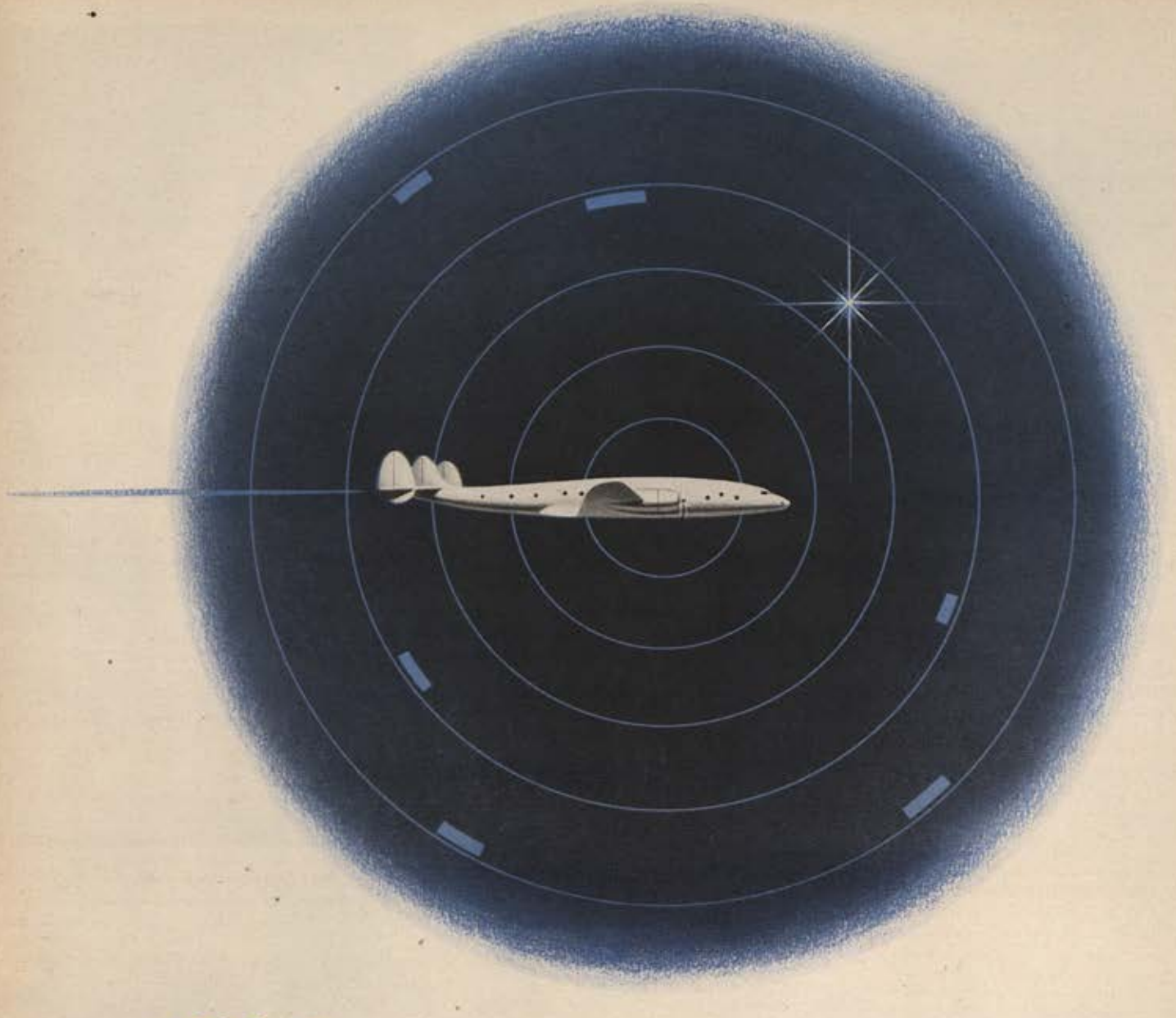
"Use your organic weapons first. If they can't cut it, then call on your air. We like to think we can take care of anything that comes within 1,600 yards of us. Let the Air Force keep 'em from getting that close. That's all right with us.

"Of course, sometimes you need a close support mission and need it bad. Especially if it calls for napalm. We haven't figured out any other way to deliver that yet.

"The people in Korea know all this. But new people are going over every day. And they don't know it. That's one of the reasons we're trying to spread the gospel."

Each week an average of 100 students go through the indoctrination course. They get a quick look at the problems of air-ground teamwork and how they're being solved. The Bible is the Joint Training Directive for Air-Ground Operations,

Sure, it's a maneuver shot, but the idea is here—air and ground together.



Merry Christmas~Happy New Year

The Guiding Star, a radar beam,
Symbols of the Season's theme.
Peace on Earth, good will to men,
Safe return, home again.

This Veteran GCA (AN/CPN-4) has served each Christmas since '48 in trouble spots of the world, guiding air men to safe landings at Norman Wells, Arctic Circle, '48; Tempelhof Airdrome, Berlin, '49; Kimpo Air Base, Korea, '50.

GCA **Gilfillan** *Los Angeles, California*

prepared jointly by Office, Chief, Army Field Forces, Fortress Monroe, Va., and Headquarters, Tactical Air Command, Langley AFB, Va.

The school is run by the Air Force, under the jurisdiction of TAC, but the faculty is about evenly split between Air Force and Army. Once a week a Marine from Cherry Point is invited as guest speaker, to give the pitch on their doctrine. As yet the Marines and Navy are not officially represented on the staff, and only a few have taken the course. The staff would like to see more participation, both in teaching and in the student body, by both the Navy and the Marines.

"But our most important function," said General Gross, "is to get these people together, to let them see that the guy in the different colored suit has neither horns nor hoofs." Gross is a veteran B-17 man, who led the first bloody raid on Schweinfurt in the ETO and who now attacks a tactical aviation problem with the same enthusiasm.

The staff is hand-picked and, if student critiques are any criterion, is one of the best in the business. Two out of every three students say it is the best service school they have ever attended.

The critiques are submitted anonymously, hence are quite revealing. Most are favorable. Wrote one Army lieutenant, "Hats off to the Air Force. If the Army was doing this, we'd be living in pup tents."

None of the staff is a "school man." They're operational people who talk operational language. There are no "school solutions," as you discover at the panel sessions, where a mixed board of Army and Air Force instructors handle hot questions hurled at them from the floor.

There is no cut-and-dried unanimity of opinion among the staff. For example, the knotty question of exactly who should control the tactical air effort and at what level is still a matter of debate. All of the Army people are not completely sold on the present setup. Almost everyone puts his finger on communications as the weak link in close support. The dissident, of course, is the communications expert, who says there is nothing wrong with the equipment—it's the people who use it.

To date the school has graduated almost 3,000 students, about evenly divided between company and field grades. Included are more than thirty general officers of both services. The Joint Air-Ground Operations School is geared to turn out about 5,000 graduates per year, all in all an encouraging start on an extremely tough problem.

Help Wanted

Most USAF installations have openings in the wage board positions listed below. Applicants should apply directly to nearest AF base. Salaries of ungraded employees will be based on prevailing local wage scales.

Aircraft Armament Servicer, Jr. Altimeter Indicator Repairer, Assembly and Disassembly Line Mechanic, Jr. Auto Pilot and Flight Control Equipment Installer, Jr. Airframe Repairer, a/c Armament and Associated Equipment Servicer, Automatic Pilot and Flight Control Equipment Installer, Airspeed and Rate Climb Indicator Repairer, Air Conditioning and Refrigeration Servicer, Auto Equipment Servicer, Auto Upholsterer, Auto Steel Body Repairer, Airframe Components Fabricator and Tester, Auto Electrical Mechanic, Auto Painter, Aqua Fuel Systems Operator.

Diesel Operator (Stationary), Dry Cleaner, a/c Deficiency Specialist, Diesel Locomotive Engineer, Equipment Repairer, Engineering Equipment Operator, Electrician, Electrical Lineman, Engine Build-up Mechanic, Electronics Equipment Repairer, a/c Electronics Instrument Repairer, a/c Engine Accessories Test Operator, a/c Engine Mechanical Controls Repairer and Tester, a/c Engine Turbo Supercharger Repairer and Tester, Electronic Test Equipment Assembler, Electronic Test Equipment Assembler and Operator, Electric Equipment Repairer, Electric Motor Repairer, a/c Engine Parts Repairer, a/c Engine Disassembly Washer, Electrician Electronics Recording Systems Manufacturing, Electronics Equipment Operator, Experimental Rocket Sled Mechanic, a/c Electrical and Industrial Flight Mechanic, Evaporative Cooler Servicer, Extractorman-Tumblerman, Electroplater, a/c Engine Block Tester, a/c Engine Cylinder Repairer, a/c Engine Valve Seat Grinder, a/c Engine Storage Conditioner, a/c Engine Sheetmetal Parts Repairer, Engine Lathe Operator, Electrical Control Repairer.

Fuel System Operator, Firefighter a/c, a/c Fabric and Leather Worker, a/c Fuel and Lubricant Tester, Foreman of Laborers, Flight Control Repairer, Freight Loader, Finishing Worker, Garden Equipment Repairer, Glazier, a/c Gyro Instrument Repairer, Grinding Machine Operator, High-lift and Fork Operator, a/c Hydraulic Repairer, Heating and Equipment Repairer, Heating Operating Engineer, Hand Tool Repairer, Heat Treater.

Landing Gear Repairer, Locksmith, Laborer, Lithographic Pressman, Link Trainer Accessories Repairer, Link Trainer Radio Accessories Repairer, Linotype Operator, Molder, a/c Maintenance Inspector, Machine Shop Foreman, Machinist, Mess Attendant, Mason, Multigraph Operator, Milling Machine Operator, Manufacturing and Repair Inspector, Jr. Machine Tool Repairer, Mobile Crane Operator, Maintenance Worker (General), a/c Magneto Repairer, a/c Metal Surface Repairer, Metal Polisher, Jr. Meteorological Equipment Repairer, Negative Engraver.

Offset Press Operator, a/c Optical Instrument Repairer, Office Appliance Repairer, Operating Engineer Sewage, Oiler, Jr. Oxygen Regulator Repairer, a/c Propeller Repairer, Plumber, Painter, a/c Painter, Doper and Fabric Worker, a/c Propeller Vibration Tester, a/c Propeller Electric Whirl Test Operator, Prototype Test Instrument Manufacturer.

Packers and Craters, Parachute Servicer, Plant Electrician and Foreman, Plate Grainer, Process Platemaker, a/c Parts Magnaflux Inspector, Products Testing Inspector, Powered Equipment Deficiency Specialist, Packer, Pantograph Operator.

Power Collator Operator, Radio and Electronics Equipment Repairer Inspector, a/c Radio and Electrical Flight Repairer, Rocket Engine Repairer, Refrigeration and Air Conditioning Operator, Radio Repairman, a/c Radial Engine Line Assembler, Jr. a/c Radial Engine Sub Assembly, Jr. Radio Electronic Equipment Repairer, a/c Radio Repairer and Installer, a/c Radio and Electronic Repairer and Installer, a/c Reclamation Worker, Spring Maker, Sandblaster, Synthetic Radar Trainer, Repairer, a/c Supercharger Repairer, a/c Service Mechanic, Steamfitter, a/c Sheet Metal Workers, Simulated Weather Equipment Operator and Servicer, Strain Gauge Installer and Equipment Repairer (also helper), a/c Structures Test Mechanic Helper, Supply Inspector, a/c Sheet Metal Manufacturing and Repairing, Salvage Foreman, Sewage Operating Engineer (WB-11), Sign Painter, Statistical Quality Control Inspector, Shipping Spray Painter.

Aircraft Test Instrument Flight Equipment Designer, a/c Turret Servicer, Telephone Repairer and Cable Splicer, Tool, Jig and Fixture Maker, Toolkeeper and Issuer, Unsatisfactory Reports Inspector a/c, a/c Woodworker, a/c Welder, Wind Tunnel Model and Test Equipment Installer, Warehouseman, a/c Welder and Heat Treater, Water Pumping Station Operator and Wheel and Brake Repairer.

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Radio beams never ice. The invisible beam of the RCA Microwave system can provide reliable communication channels through ice storms, lightning, wind, sleet and even amid falling trees.

Repeater stations, usually built on hilltops, spanning distances up to thirty-five miles, provide signal paths over mountains, rivers, swamps and rolling countryside. Each station picks up microwaves from its neighbor and focuses them like a searchlight at the next station. RCA Microwave systems eliminate pole lines, simplify right-of-way problems, eliminate line maintenance expense and cost less per mile than any other type of system with comparable communication facilities.

RCA Microwave with its "multiplexing" system can do many other things than provide two-way voice communication. RCA Microwave can provide for remote control of switchgear, telemetering (transmitting pictures of voltage, current, power and pressure meter readings), teleprinter, facsimile and many other services.

Designed for unattended operation, RCA Microwave can be installed at locations which are inaccessible for periods of several months.

Are you missing a bet on RCA Microwave? It is being used by power and light companies, telegraph companies, highway commissions, game commissions, pipeline companies and many others. RCA Microwave is quick and easy to install. If you need *reliable* communications that can span long distances over any terrain and through all kinds of weather, let an RCA engineer survey your situation. Find out how RCA Microwave can help solve your communication problem. Investigate today.

You'll find RCA Service Engineers with U. S. Air, Land and Sea Forces.

RADIO CORPORATION of AMERICA

ENGINEERING PRODUCTS DEPARTMENT, CAMDEN, N.J.

Mobilization News

RESIGNATION of AF Reserve commissions will be permitted on individual basis for non-EAD officers who meet one of following requirements: (1) undue hardship (2) over-age in grade provided current appointment has been in effect three years (age limits are: Lt., 36; Capt., 42; Maj., 48; Lt. Col., 53; and Col. 55) (3) delay of a year or more in reporting for service. This applies to officers in critical occupations, key personnel, elected officials of government, and those whose withdrawal would affect health, safety or welfare of community (4) eight years in Reserve including two years of active duty if current appointment has been in effect three years (5) ten years in Reserve without active duty if current appointment has been in effect three years and (6) physical disqualification.

EDUCATIONAL REQUIREMENT for Aviation Cadet training has been lowered from two years college to high school diploma for active duty airmen to help meet needs for flying training during latter part of FY '52.

TWENTY-SIX additional Air National Guard support units will be in active service by end of this year. . . 126th Bomb Wing, Light, former ANG unit with squadrons from Illinois and Missouri, left Langley AFB for duty in France . . . States whose ANG organizations have been ordered to active duty have been authorized to organize temporary units to prepare for return of permanent units to State control.

RESPONSIBILITY for operation and administration of AF ROTC program is being transferred from ConAC to Air University, transfer to take place over period of time. . . Estimated 1,100 college students in AF ROTC program with no prior military service who obtain baccalaureate degrees and complete training between Jan. 1 and March 23 '52, will be ordered into active military service within 90 days after graduation. . . Following graduation last June, approximately 5,000 newly-commissioned graduates of '51 AF ROTC class were called into service.

MORE THAN 80 PERCENT of officers on active duty in USAF are from Reserve Forces. As of August 31, percentages of Regulars on active duty as compared with non-Regulars were: Gen., 90.9 to 9.1; Col., 82.7 to 17.3; Lt. Col., 59.1 to 40.9; Maj., 36.7 to 63.3; Capt., 15.4 to 84.6; 1st Lt., 7.0 to 93.0; 2nd Lt., 6.8 to 93.2.

36 PERCENT of rated officers in Voluntary Air Reserve are more than 31 years of age, 39 percent are from 29 to 31 years of age, and 25 percent are less than 29. Only 5 percent are under 26. . . 104,000 members of AF Reserve and 38,000 from ANG were ordered to active duty during FY '51. Of Reserve total, some 53,000 were formerly in Volunteer Air Reserve.

UMT PLANS: USAF plans 26-week program. Exclusive of two weeks needed for induction and discharge, program would be divided into two phases: Basic training for eight weeks and specialist technical training for sixteen weeks. Tech courses would cover both "airmen career fields" and more specialized training in such subjects as intelligence, air traffic control, communications, security, and law enforcement. Some of trainees will take on-the-job training with Regular AF units. When plan is fully operative, USAF would train approximately 186,000 trainees a year.

CIVILIAN MOBILIZATION: Aircraft Industry has relaxed its hiring standards--age restrictions have been softened, experience and physical requirements have

(Continued on page 48)

become less rigid, and more women are being hired, according to late issues of "Manpower and Mobilization." Also, training is growing, although not yet extensive; working hours have been increased; and two and three shift operation is spreading. By June 1951, number engaged in manufacture of aircraft and parts had risen 191,700 above pre-Korea level for total of 447,600, with anticipated 600,000 additional workers to be added by end of 1952. USAF has announced an unsatisfied demand in this increasingly competitive and tightening labor market for engineers of many types--mechanical, aeronautical, electrical, industrial, etc. Draftsmen of various kinds, radar and electronics technicians, machinists, inspectors, office and clerical workers are among those reported again as difficult to recruit. For shortage occupations in USAF wage board positions (hourly or ungraded), see page 45.

SPECIALTIES other than JAG, Chaplain or medical, in which direct Reserve appointments are currently being offered under AF Manual 36-5 are as follows: Electronics Officer, Communications Officer, Research and Development Coordinator, Research Psychologist, Psychological Assistant, Machine Records Officer, Auditing Officer, Topographic Engineer, Weather Officer, Psychological Warfare Officer, Foreign Languages Propaganda Officer, and Procurement Control and Production Officer.

ACTIVATION OF 30 AF Reserve training center wings is scheduled during FY '52, with an assigned strength objective of 23,700. . . Under long range plan, four of the 48 Reserve field offices headquarters have been established at Harrisburg for Pennsylvania District, Indianapolis for Indiana District, Austin to supervise the Texas and New Mexico area, and San Francisco for California District. . . 50 percent of Reservists recently interviewed in motor van stationed in downtown Macon, Ga., had gained additional education or a new occupation since separation from service. . . Test surveys of Reservists not on EAD in Dallas has been completed and survey workers plan to move on to Fort Worth.

CAMPAIGN to recruit 72,000 officers and enlisted personnel for women's services was launched on Armistice Day. Recruiting goal for WAF is 43,906. . . Minimum enlistment period for WAF has been lowered from four to three years. . . Replacement at USAF Headquarters of male airmen by WAF personnel continues. To date, more than 250 male airmen have been released from Headquarters duty and replaced by WAFs.

FOUR fighter bomber wings, all former ANG units, which have been transferred from SAC to TAC are: 131st and 146th, stationed at George AFB: 132nd, Dow AFB; and 108th presently at Turner AFB. 108th will move shortly to Godman AFB, Ky. TAC will assume jurisdiction over George and Dow AFBs. . . USAF plans to activate two additional air bases in near future, one at Kinross, Mich., and one at Victoria, Tex.

PERSONNEL receiving assignments at Craig AFB, Selma, Ala., or Spence Field at Moultrie, Ga., have been warned to leave the family at home. Housing in those areas is reported as almost non-existent and no relief from this situation is expected in near future.

APPROXIMATELY 200 OFFICERS of ADC are receiving special instruction at Aircraft Controller School, Tyndall AFB, Fla., for training and supervision of civilian volunteers of Ground Observer Corps. . . Headquarters is encouraging use of CAP personnel, on voluntary basis, in training exercises for Ground Observer Corps. . . Arrangements have been completed whereby CAP's eligible members may participate in USAF Extension Course Institute.

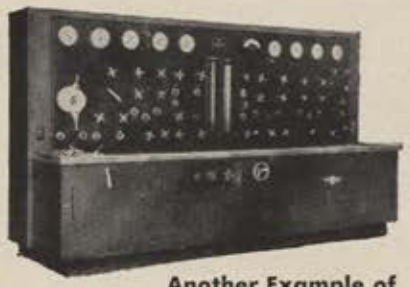
He's banking on the ground crew's know-how

WHEN A BOMBER PILOT circles in to land, he doesn't take time out to wonder if his ship will answer the controls. He knows the safety of his landing was assured before he left the ground—by the careful men of the ground crew and the dependable test equipment they used to check his plane.

The maintenance and testing machines made by Greer are incredibly accurate; they are designed and built to take the human element out of testing. It is precision equipment, famous for simple, rapid, *dependable* operation under all conditions.

Greer equipment is for all types of military aircraft, and for commercial and private planes as well. We are prepared to equip a complete maintenance shop with *standard* Greer machines. In addition, we offer a service for those who require special equipment for special jobs.

Write on your company letterhead or call. Our staff of *creative engineers* will meet with you at your convenience. There is no charge for this service, nor obligation.



Another Example of "Creative Engineering" from Greer

Greer's Standard Hydraulic Accessories Test Machine accurately checks the performance of hydraulic valves, pressure regulators, actuating cylinders, accumulators, hose lines, hand pumps, etc., operating at pressures up to 3400 psi and flow capacities to 20 gpm. A foot-pump circuit is provided for static and leakage tests. Write for complete data sheet.

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230-gallon Fletcher tip tanks on the Lockheed F-94B fighter.

TANKS and TANK BUSTERS

Jet fighters are flying faster, penetrating deeper, aided by wing tip fuel tanks of increased capacity and improved aerodynamic design. As a major designer and producer of these tanks, Fletcher is proud of their stake in the magnificent defense job being carried out by the Air Force.

On the other side of the defense picture Fletcher introduces their FD25 "DEFENDER," a new concept in air-ground fighter aircraft. *Carrying the punch of a heavy tank at one-twentieth the cost of such a tank,* the tiny "DEFENDER" becomes an extremely effective countermeasure against the estimated 40,000* armored units now in the hands of the potential enemy.

*LIFE magazine, May 28, 1951.

The Fletcher FD25 "DEFENDER" shown with the various explosive loading combinations it carries.

U. S. NAVY PHOTO.

Fletcher Aviation Corporation

PASADENA | CALIFORNIA

Pulling Wings FLETCHER AVIATION *on the World*

AFA Queen Janet Nix receives "AFA Week" proclamation from Mayor D'Alesandro with Charles Purcell's approval.

George D. Hardy, left, Regional VP, congratulates Charles W. Purcell after installing him as Wing Commander.

Baltimore Proclaims AFA Week

Largest city in Maryland goes all-out to cooperate with AFA during week-long airpower demonstration in November

"Whereas, the needs for preserving our national strength in the current unrest and uncertainty which grips the world must be recognized by all of our people, and is not only of importance to the City, State and Nation but also to every individual citizen.

"Now, therefore, I, Thomas D'Alesandro, Jr., Mayor of the City of Baltimore, do hereby designate the week of October 29 through November 3, 1951, as Air Force Association Week in Baltimore, and do urgently request all citizens to view the various activities and ceremonies being arranged by the Air Force Association during this designated week . . ."

Mayor D'Alesandro's proclamation touched off one of the most airpower-packed weeks yet sponsored by an AFA unit. Every type of aviation exhibit jammed the administration building at Baltimore's Friendship Airport, attracting thousands of spectators to the six-day display.

Miss Janet Nix, named Miss AFA of Baltimore received the proclamation from the mayor and reigned throughout the week.

A testimonial dinner, given by the Baltimore Squadron on Friday night, November 2, honored outgoing Squadron Commander Charles Purcell. The way civic and government officials defined the aims of AFA, as each man took his turn at the microphone, testified to the effectiveness of the Squadron's efforts during the past year in making Baltimore airpower-conscious.

George D. Hardy, AFA Regional Vice President, administered the oath of office to Purcell, who succeeds John Marshall Boone as Wing Commander of Maryland.

Col. Richard C. O'Connell was toastmaster and Gen. Donald H. Connolly made the welcoming remarks. Col. J. Francis Taylor, Jr., Deputy for Air Defense, ARDC, spoke on the composition and duties of the command.

Ralph Whitener, AFA Organizational Director, reported on the Association and its activities. Chairman Meir Wilensky was assisted by a number of Squadron members.

John Warner, former Squadron secretary, was appointed by Purcell to serve as Squadron Commander during the remaining term of office.

An Airpower Ball at the Fifth Regiment Armory on Saturday night climaxed the week's festivities. The Air Force dance band and Rudy Killians' orchestra played for dancing.

The far-famed AF Ceremonial Drill Team performed during an intermission.

Airpower exhibits at Friendship Airport during AFA Week attracted thousands to the Baltimore terminal.

August "Gus" Duda of Toledo, Ohio, has joined the National Headquarters staff of AFA as Organizational Assistant. Duda is especially qualified to work out of Washington in handling Wing and Squadron liaison. During the past year he was Ohio Wing Commander and had earlier been Commander of the Toledo Squadron. He served with the Fifth Air Force during World War II, as a T/Sgt.

Airman of the Month

AFA leaders in Massachusetts and Rhode Island recently joined forces with officials of Otis AFB in selecting the Eastern Seaboard "Airman of the Month" and seeing that he and his lovely wife got royal treatment for twenty-four memorable hours.

A phone call to New England Regional Vice President Bill Hadley started things off. Maj. Frank Campbell wanted AFA help in boosting the morale of the airmen at Otis AFB. After several such phone conferences, the "Airman of the Month" plan came forth.

The men were asked to consider many factors in naming their top airman. The nominees were reviewed by a special board, and the outstanding man was then tapped for the honor.

M/Sgt. Joseph W. Pennini of Rockland, Mass., was picked as first "Airman of the Month." Almost before he realized what had happened, a special car was carrying the sergeant and Mrs. Pennini to nearby Providence, R. I., where complimentary rooms and dinner awaited them at the Sheraton-Biltmore Hotel.

Afterward the Penninis were whisked off to Loew's State Theater, where Loew's picked up the tab. Next morning they were allowed to sleep as late as they wished and then were treated to the hotel's best breakfast.

Rhode Island Wing Commander Marcello Tropea and Douglas MacLeod, Commander of the Providence AFA Squadron, arranged a luncheon at Hummocks Grille, famed seafood rendezvous in Providence, where AFA units honored the Penninis. Reserved seats at the Brown-Holy Cross football game that afternoon, compliments of Brown University, climaxed the 24-hour "Cinderella Day."

Much credit is due these thoughtful AFA'ers and business firms who contributed so much to the enjoyment of this Air Force couple.

Rhode Island Wing and Squadron officials welcome Eastern Seaboard's "Airman of the Month," M/Sgt. Joseph Pennini, of Otis AFB. It's royal treatment for the sergeant and his wife here at famous Hummocks Grille in Providence, R. I. This was just a sample of the hospitality the couple enjoyed during their twenty-four Cinderella hours as guests of friendly AFA'ers and businessmen of the city.

AFA Helps Toledo

"On behalf of the city of Toledo, the Mayor, and myself, I wish to thank the Toledo Squadron of AFA and its members for their time and effort put forth in acquainting the citizens of our city with the facts concerning the airport bond issue. The results of the voting for this indicates the success of your efforts."

This recent letter from Arnold V. Finch, Toledo City Manager, to Larry G. Hastings, Commander of the Toledo (Joe E. Brown) Squadron, climaxed a long struggle to approve construction of a modern airport for the city.

After closely following developments in modern transport planes, the Toledo AFA unit put its full effort behind the campaign so convincingly that the city will now get its modern airport.

There no doubt are, or will be other cities faced with problems like Toledo's —cities in which there are AFA squadrons.

IN MEMORIAM

The Air Force Association mourns the death on August 28 of Victor U. Bayers, recipient of one of the 1951 AFA Family Awards for outstanding service to the Association and airpower. Mr. Bayers, whose home was Pittsfield, Me., was honored for conducting Phase One of the Association's Airability Program, though he was the only AFA member living in that area. He died before the award reached him, however, and the medal was given to his son, Victor, Jr.

If any AFA unit would like more details of how this Toledo unit helped with its municipal airport bond issue, Larry Hastings will gladly pass on full information upon request. You may write him at 3855 Lockwood Ave., Toledo 12, Ohio.

C. McClain, Assistant District Attorney of Philadelphia, adds his name to the 1,000 signatures obtained by the Philadelphia Squadron for the "Crusade for Freedom." AFA'ers James Gilboy, Elizabeth MacKenzie, and I. Bridsky, Sqdn. CO wait their turn. The Squadron raised $167 for Crusade.

An interstate Hallowe'en party at Chicago Squadron 41's club climaxed the Great Lakes Regional conference. George Anderl, Chicago Group CO, (center) with (l to r.) George Wilson, Squadron CO; Frank Ward, Regional VP; Bill Amos, Michigan Wing CO; and Morry Worshill, Illinois Wing CO.

Some things won't stay hidden

In one respect at least, Delco Radio is like our fine-feathered friend, the ostrich . . . too conspicuous to be overlooked. You see, Delco radios are in use everywhere today . . . in countless thousands of passenger cars, trucks, buses and other vehicles.

Yes, the same assembly lines that turned out vast quantities of radio and electronic equipment in World War II are now producing for peace at an even greater rate . . . nearly 2,000,000 radio sets in 1950 alone!

Our object in telling you this? It's simply to let you know that Delco Radio is better equipped than ever to produce for America's armed forces. Our special talents, rich experience and broad facilities are now, as always, at Uncle Sam's disposal. Delco Radio Division is reporting for duty!

Delco Radio

DIVISION, GENERAL MOTORS CORPORATION
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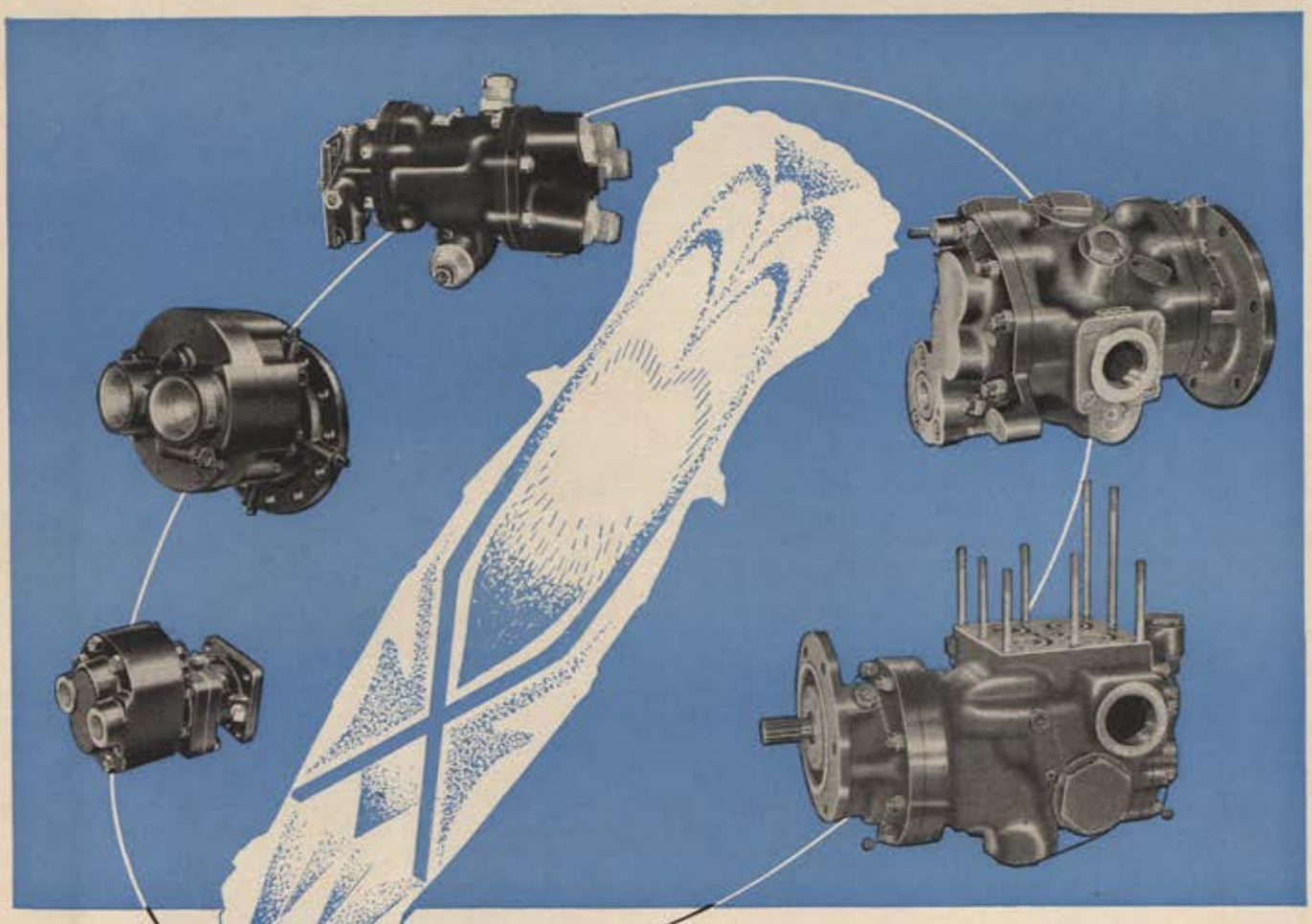

EVERY American Jet engine flying today is equipped with PESCO Fuel Pumps

Ever since the emergency call came in 1941 for a failure-proof fuel pump that would stand up and deliver fuel to jet engines under conditions never before encountered, Pesco has paced the industry in the development of high-pressure fuel pumps.

Pesco designed and built the first fuel pump for the first American-built jet engine, and since then new models have come from Pesco engineering laboratories in rapid succession to meet the fast-changing and exacting demands of the military.

Today, every American jet engine in the air is equipped with Pesco fuel pumps. A few representative models are shown above. They range from the first simple, single element pump that produced 275 gph at 100 psi, to today's double element (main and emergency pump in a single housing) pump that delivers nearly 2000 gph at 1200 psi.

Setting the pace for jet engine fuel pump development is only one of Pesco's important contributions to safer, faster, more dependable aircraft. It is experience that can be of real help to you.

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Lt. G. I. Alberts, recalled Worcester, Mass. AFA'er, discusses plans for Tokyo Squadron with AFA President Harold Stuart during Stuart's recent trip to Japan and Korea.

Frank N. Miller, left, commander of the Lansing, Mich., AFA Squadron, presents the Hays Memorial Trophy to Lt. Col. S. W. Karr, CAP, for outstanding service as commander of "Operation Showdown." Recognition was given in connection with Squadron's Airability program. Squadron Treasurer Bert Brady, second from left, and Col. Lewis Edwards, Michigan CAP CO, seem to approve.

Tokyo Squadron Planned

In a few days, AFA will charter its first Far East unit, a Tokyo Squadron. Oddly enough, not too many years ago some of the organizers of this Squadron were flying bombers and fighters over that city, with a far different purpose from the one they now have—promoting better community acceptance and more enlightened understanding of American airpower.

The AFA organizing campaign in Japan is headed by Lt. G. I. Alberts of the 6003d Base Flight Squadron, FEAF. Lieutenant Alberts was an active AFA member in Worcester, Mass., before he was recalled to active duty some months ago. He looked for a way to extend AFA activities to the Far East.

Lieutenant Alberts seized on the opportunity of organizing the Squadron while AFA President Harold Stuart was visiting recently in Japan and Korea. During that time, Stuart attended several AFA meetings in Tokyo, explaining the aims and purposes of the Association and pointing out the need for a Tokyo Squadron.

Charlotte Knight, of *Collier's* Far East staff, who for several years was AIR FORCE Magazine's Far East Editor, has been very helpful in the organization of the Tokyo unit, and has attended several of the organizational meetings.

Maj. Gen. S. R. Brentnall, vice commander of FEAF and a close friend of Stuart, also attended one of the recent AFA meetings.

Meetings of the proposed Tokyo AFA Squadron are being held the second Wednesday of each month in Room A, Fifth Floor, Ernie Pyle Theater Building.

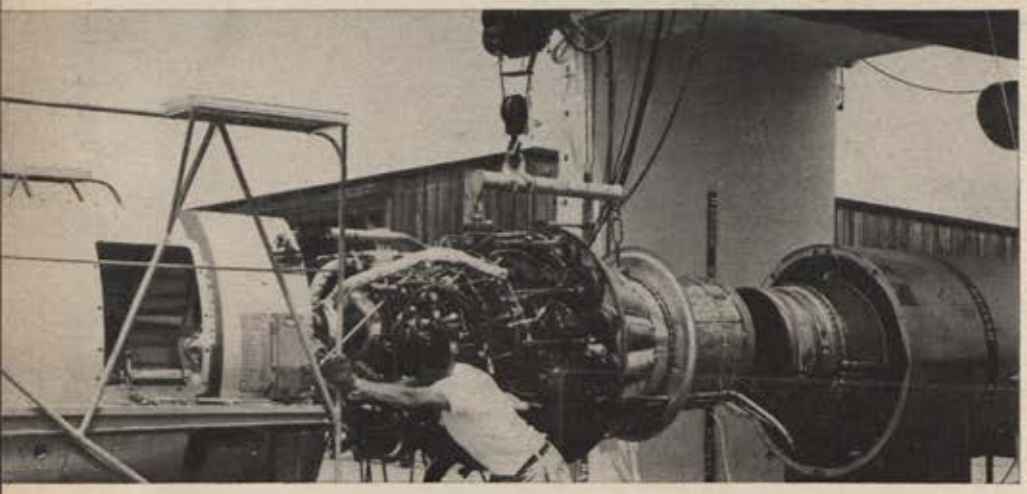
Lieutenant Alberts can be reached at the following telephones for additional information on AFA activities in the Far East: Cargo 462, Haneda AFB (days), and 5799-479, Room 320, Tokyo Electric Building (nights).

Air Force men and women in the Far East are urged to contact the lieutenant and join either the Tokyo Squadron, or one of the other Far East Squadrons which are now being planned by Lieutenant Alberts and his committee.

Rex Lentz, center, Texas Wing Commander, was host at a luncheon honoring Ass't AF Secretary Eugene Zuckert, right. Left, Maj. Gen. Charles E. Thomas, CG of 14th AF.

Pat Hays, left, and Wilbern Williamson, AF ROTC Cadets at Oklahoma A & M College, go into a 45° bank during initiation into Arnold Air Society, a Cadet fraternity.

TECHNIQUE



Stripped Jet Speeds Engine Checks

Flight engineers have made an ugly duckling of a once-proud jet, stripping off its wings, canopy, landing gear, and tail assembly. Lockheed technicians use the earthbound rig to test new jet engines, saving up to three days per aircraft in the manufacturing span for new F-94s and T-33s. Engines can be installed in the pre-flight test unit in minutes.

GI Test Stand

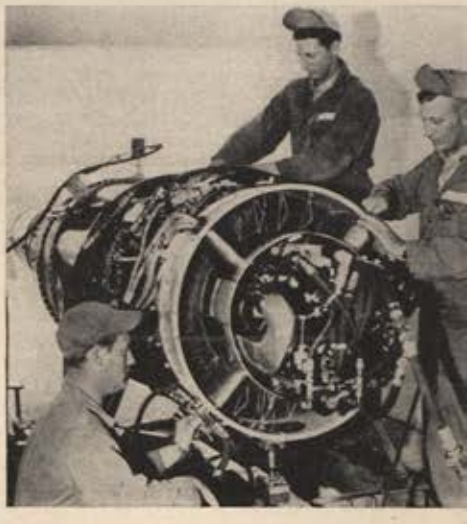
Under the guiding genius of a Langley AFB airman, odds and ends from the scrap heap have turned into a machinegun test stand. The stand allows test firing of .50 calibers before the guns are installed in aircraft. This way malfunctions can be quickly spotted and corrected. T/Sgt. Wesley D. Haworth, parent of the project, spent two years scrounging parts and ironing out bugs before the rack worked as he wanted. A time saving of an hour per gun is claimed for the stand, which has also proved helpful in training armament people. The sergeant has received a group commendation.

High Speed, Night Shutter Snappers

New techniques now enable AF photographers flying at top speeds to snap night photos as good as any taken in best daylight conditions. The Lake St. Clair shore, near Selfridge AFB, Mich., was caught from an RB-45 at 500 mph in a recent test flight. Credit goes to Col. George W. Goddard of Wright Air Development Center, who came up with new shutter and flash gear.

Better MTU Break

Production time for mobile training units like the one for C-119 Flying Boxcars this Fairchild representative is showing airmen has been whittled to less than five months, as against up to 2½ years during WW II. MTUs simulate normal and emergency conditions.



Jet Field-Checking

A three-man test cell crew at Neubiberg Air Base, Germany, now cuts delay and expense of shipping jets back to the US for overhaul, and more than doubles the time engines can be kept in operation before a complete re-do. Field-checking jet engines for bad parts and excessive vibration is part of a program scheduled for AF-wide use.

From Ignition Headquarters

COMES THE

Latest and Most Revolutionary Development

IN JET ENGINE IGNITION!

Once again the Scintilla Division of Bendix sets the pace in ignition for the industry.

No longer must voltages of 15,000 be generated to break down the plug gap. This revolutionary T.L.N. system with its new *shunted surface gap igniter plugs* produces a hotter spark across the bridged gap with only 1000 volts.

Engine starting difficulties due to fuel-wetted plugs or carbon fouling can now be reduced to a degree previously thought impossible due to the *shunted surface gap igniter plugs.*

Other exclusive features include unrestricted length of small diameter, high temperature flexible leads—fewer parts—lighter weight—more concentrated energy in the spark and far greater all-around reliability and durability.

PERFORMANCE DATA

INPUT	14-30 Volts D.C.
OUTPUT	1000 Volts D.C. to Igniter Plugs
AMBIENT LEAD TEMPERATURE	500° F
ALTITUDE	60,000 Ft. Plus
WEIGHT COMPLETE SYSTEM	6.5 lbs. Average

This new T.L.N. ignition system complies with all pertinent A & N Specifications, has been exhaustively flight tested and is now in production for service engines.

Complete detailed information on request.

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Automatically increases or decreases volume of oil delivered as required by hydraulic system

Holder of the official world's speed record, the Air Force North American Aviation F-86 Sabre uses the Vickers Variable Displacement Piston Type Pump shown at the left to supply 3,000 psi hydraulic power for the main hydraulic system. This pump automatically regulates its delivery to the volume required by the hydraulic system . . . excess fluid is never pumped and horsepower requirement is minimized. Pre-set system pressure is automatically maintained at all times regardless of volume or rpm variations. Volumetric efficiency (96%) and over-all efficiency (92%) are very high. ● Write for new Bulletin A-5200.

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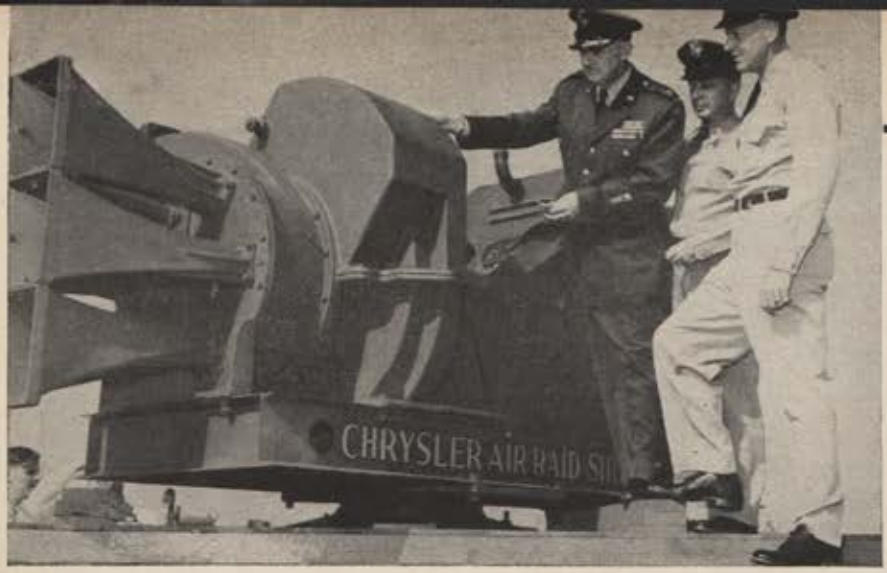

World's Loudest Siren Wails 7½ Miles

On a clear day you can hear this fellow holler 7½ miles away. USAF officers cast a critical eye on the new air raid siren built by Chrysler, and billed as the loudest ever designed. Four have already been accepted by the Air Force for use outside the ZI. The sirens, which speak in a 170 decibel voice, rotate on their bases once each minute and blanket a circular area of 15-mile diameter with their deep-throated roar. A six-bladed rotary chopper, a 140 hp engine, and 3,200 rpm combine to produce this uncivilized racket.

Shake 'Em, Charlie

Working like a giant cocktail shaker, this test tower is used to study vibration effects on aircraft and guided missile components. The tower can shake an object from one to fifteen times a second, with each motion up to five feet in length. Said to be the only one of its kind in the country today, this Bell Aircraft tower at Buffalo, N. Y., is built of structural steel framework and is 40 feet high, 15 feet square. By pre-testing aircraft parts, weighing up to 3,000 pounds, flight engineers get a good idea of the sort of buffeting supersonic craft take at high speeds and altitudes. Test components are hung from shock cords that are attached to nitrogen-driven pistons. One of these is anchored to the base of the tower while the other is suspended from a cross beam at the top of the structure. Such testing saves money and, more important, time.

New Fins for Tanks

Wing-tip tanks with fins on them give added lateral stability to Lockheed P2V Neptunes. The fins also steer the tanks clear when the tanks are dropped from the Navy antisubmarine planes. Production models of the units carry fuel, electronic gear, and a searchlight.

Speediest Pair

No, not a mother plane shepherding her gleaming offspring. Just the fastest known bomber and the speediest fighter in the world—the Boeing B-47 Stratojet and the North American F-86 Sabre. Six GE J-47 jet engines fly the 185,000 pound bomber at more than 600 mph. One of the J-47 units makes the Sabre more than a match for enemy MIGs.

Halogen Hunter

Testing for contaminating vapors in oxygen bottles becomes a routine matter with the pistol-like detector General Electric is now making. The long, thin probe of the detector is inserted into each cylinder, quickly telling the operator which containers should be rejected as unsterile.

Trainees Ride F-51s

New job for the F-51 Mustang is high speed instrument trainer. TEMCO is now delivering converted models of the famous fighter and fighter bomber of both World War II and the Korean war to the Air Training Command. The two-place aircraft is now designated TF-51.

No Room for Bugs in This Set

Vest pocket radar stations, for use in extremely advanced type aircraft are being built by Ryan Aeronautical Co. So small they almost fit into a brief case, these completely automatic radar sets have the same information-gathering and transmitting ability as their huge brothers aboard ships and at military bases. Tubes, resistors, and coils no larger than a paper clip are packaged in a maze of wiring, with some strands as fine as 3/1000ths inches. Electronics men must use jewelers' tools and magnifiers to wire the tiny circuits. Temperature control, vibration, and shock problems were bugs to be overcome before the units became practical.

TECH TALK

By Helena Redmond

Off the classified list is the J-44 turbo-jet engine, a tidy package some six feet long and twenty-two inches in diameter, and able to develop 1,000 pounds thrust. For use by both Navy and USAF, the J-44 weighs only 325 pounds, complete with accessories. Fairchild is now producing the small jet, on which design work began more than three years ago.

When today's aircraft catch fire, it's more a slow-burning explosion than a fire. That's one reason the AF has ordered three types of newly-developed crash fire trucks. These—the O-10 and O-11A (water-foam trucks) and the O-6 (a carbon dioxide rig)—are calculated to get there faster, stand up to the fiercest blaze, and operate equally well from tropics to Arctic. The fully loaded O-10, for instance, can hit 60 mph from a standing start in 61 seconds—about twice the acceleration of the average cargo vehicle. The O-10's pumps can empty the 600 gallon tanks in less than two minutes.

Center-of-gravity mounting points the way toward more completely shock-proofing high precision controls in tomorrow's jets. The new mounting designed by General Electric engineers, working with the Naval Bureau of Aeronautics, is a small platform suspended by a coil spring at each corner. The control to be balanced is fastened on the mount so its center of gravity is an equal distance from each spring, and in the same geometric plane. The springs are metal layers of varying thicknesses, with differing reactions to vibration, and tend to snub out resonant vibrations.

Northrop flight mechanics report a complete jet power plant change in twenty minutes and fifty seconds. The Scorpion F-89 used in the time trial was in flight status at the start and finish of the engine change. Five Northrop men, at Edwards AFB, Calif., made the quick switch, using only regular tools and the special gear that comes on AF delivery with each of the twin-jet, all-weather interceptors.

High altitude stress, pilot-wise, remains a problem, but AF medics keep whittling away at it. New techniques of resistance may result from a device that measures arterial pulse waves. Developed by the School of Aviation Medicine, Randolph AFB, Tex., the mechanism translates the movements of arterial walls into electrical signals, using a gadget originally designed for phonograph pick-ups.

You can't do much about weather *outside* your airplane, but technicians have now moved to eliminate snowstorms and other foul weather conditions *inside* the cabins of high-speed jets. Rain and fog inside, caused by excessive moisture, have long plagued jet pilots. Conditions are worst on hot, humid days, pilots report, up to and down from 10,000 feet. Boeing's "Gushing Gertie," a four-pound centrifugal-type water separator with cyclonic rotor attachment, now eliminates 80 percent of moisture from outside air coming into the cabin.

The increasing use of Aeroprops on Air Force and Navy aircraft has resulted in an accelerated service program. Technical representatives who are qualified service engineers are available and being assigned to military bases at widespread locations.

In addition, the Aeroproducts service program is training military specialists qualified to install, maintain, and operate Aeroprops. Service literature, technical bulletins and parts catalogs keep in step with design and production changes.

This is an expanding program—expanding rapidly to fill the needs of the armed forces. It is a program designed to meet the service needs of the military forces.

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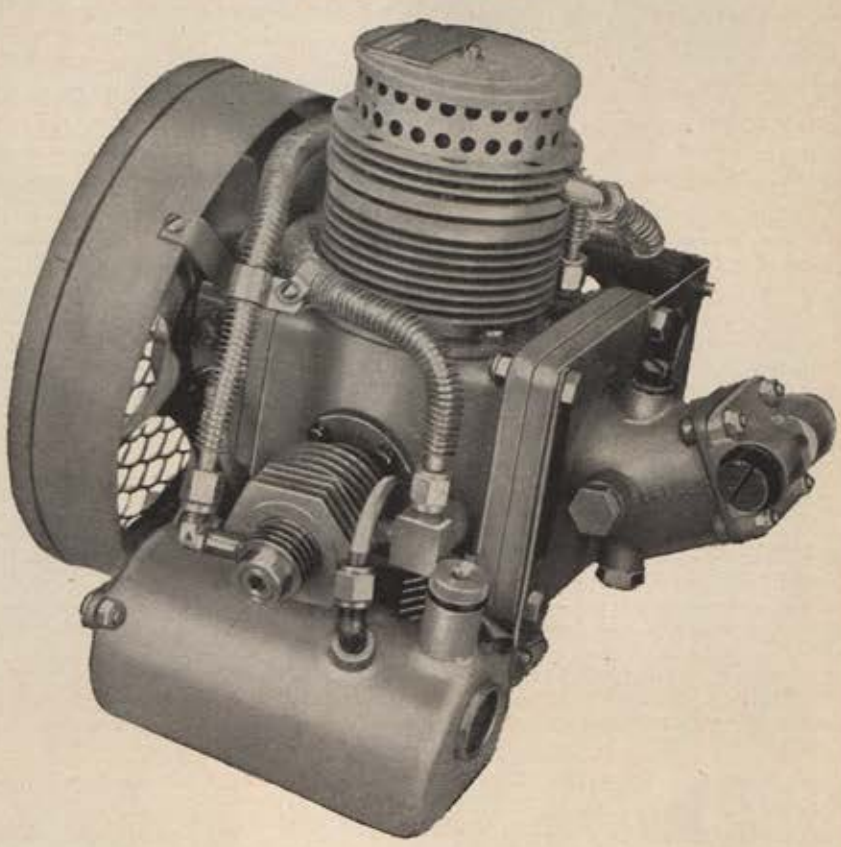
Did you ever see a dream *FLYING?*



Take a look
at the new
Kidde Compressor...

The new Kidde compressor is really the dream of pneumatics engineers come true. It provides plenty of pressure at 35,000 feet (from ambient pressure one cfm of free air compressed to 3,000 psi). At sea level it will deliver four cfm of free air compressed to 3,000 psi.

This powerful new compressor is already being installed in the planes of a leading aircraft company. The above illustration shows it being driven by an hydraulic motor but electric or pneumatic drive is equally effective.

The light weight and reliable performance of this new four-stage compressor make it well worth your consideration. Call us for full data on this or other Kidde pneumatic devices for aircraft use.

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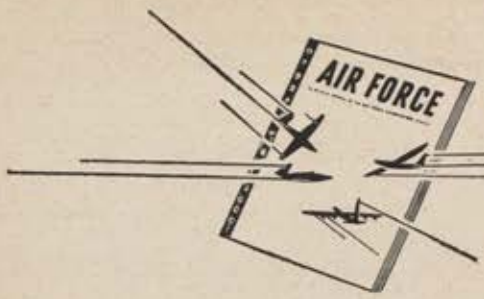

RENDEZVOUS

Where the Gang gets together

LOOKING FOR SOMEONE? ANY ANNOUNCEMENTS TO MAKE? WRITE RENDEZVOUS AND RENDEZVOUS READERS WILL WRITE YOU.

HEY EDDIE! HEY FLOOGIE!: We're trying to get in touch with a couple named either McAden or McEden—Eddie and Ruth. He called her "Floogie." We became friends with them while stationed at Malden AAB, Mo., and think Eddie may have been transferred to the infantry early in 1945. *Wayne and Brownie Reeves, 321 Maypole Road, Upper Darby, Pa.*

INSIGNIA CONTEST: Pfc. William A. Palmer, Hq. Sqdn., 443d ABG, Donaldson AFB, Greenville, S. C., has been named winner of the 18th Air Force insignia contest. Pfc. Palmer's design, selected from some 150 entries, will be displayed on flags, speakers' stands, letterheads, and books published by the 18th. It won't be made into a shoulder patch, however. Here's what the emblem looks like:

WHERE'S SHACK?: Anybody know the present whereabouts of Lt. Ed Shack of Berlin Airlift and "Fassberg Diary" fame? *M/Sgt. Jake Schuffert, Hq. MATS, Andrews AFB, Washington 25, D. C.*

PAGING JOHN H. SMITH: I'm trying to locate John H. Smith, who was a 1st Lieutenant pilot with the 357th Fighter Group, 463d Fighter Sqdn., when I left Germany in 1946. His hometown was Herron, Ill. *Charles E. Parker, 1527 McKinstry, Detroit 9, Mich.*

"IRISH" HUNTING FOR STREANY: I'd like to contact Frank Streany of the 320th Bomb Group. I believe he lives in Croton-on-Hudson, N. Y. *Frank "Irish" O'Toole, 5706 Belmar Terrace, Philadelphia 43.*

MISSING P-38 PILOT: Would any of your readers have any information about my son James A. Bauman, P-38 pilot, who disappeared during gunnery practice off Oceanside, Calif., on Jan. 6, 1943? No trace was ever found of him or the plane, and since it was wartime, many details were withheld. Jimmy enlisted from Illinois and was commissioned at Luke Field in October 1942. When he disappeared, he was stationed at San Diego and waiting for orders to report to Alaska with the 300th Fighter Sqdn. I'll greatly appreciate any news you can obtain about my son. *Alma G. Bauman, P.O. Box 1312, Coolidge, Ariz.*

6TH BOMB GROUP: I'd like to hear from anyone who was in the 40th Bomb Sqdn., 6th Bomb Group, before February 1946. *Pfc. Norman E. Klepper, 73d Motor Vehicle Sqdn., 73d A/D Wing Depot, APO 10, N. Y.*

7TH BOMB GROUP: Kindly tell me how I can find out when my old outfit, the 7th Bomb Group (H), convenes, and also if this organization has ever held a reunion. Many thanks. *Lawrence F. Heuser, 8627 Santa Calara Drive, Dallas, Tex.*

SQUADRON SONG: In the Poets' Corner this month appears the official song of the 91st Air Refueling Sqdn., a catchy ditty that goes to the tune of "The Thing." It was composed by Capt. Robert Hall and 1st Lt. Howard L. Croswhite. Now that we've heard from the pilots, bombardiers, and air refuelers, how about something from navigators, gunners, and mechanics?

(see adjoining column)

UNIT HISTORIES

368TH FIGHTER GROUP: What's the deal on a unit history for the 368th Fighter Group? *Edward E. Vince, Veterans Administration Hospital, c/o Social Service Dept., Roanoke, Va.*

466TH BOMB GROUP: I'd like to know if the 466th Bomb Group (H) of the 8th AF ever published a unit history of any kind? *James Otto Auman, 352 Church St., St. Mary's, Pa.*

310TH BOMB GROUP: I'm not sure if my group, the 310th Bomb Group (M), ever published a unit history. This was a B-25 group in the Mediterranean theater, and I was a member of the 381st Bomb Sqdn. *M/Sgt. W. J. Malloy, 6520th ABG, Bedford, Mass.*

301ST BOMB GROUP: Anybody know if there ever was a group history or a squadron history for the 353d Bomb Sqdn., 301st Bomb Group, and if so where I could buy one? *Vern M. Elston, 3402 Western Road, Unit 152, Flint 6, Mich.*

HELL'S ANGELS: History of 303d Bomb Gp., 427th Bomb Sqdn., will go to press early in 1952. It will be illustrated and will include summary of 303d Gp. as well as 358th, 359th, and 360th Sqdns. Pix will include maintenance, armament flight, and lead crews, and mission summaries. Anyone interested in a copy should write *Robert W. Sheets, 2791 S.W. Montgomery, Portland 1, Ore.*

BOOM BOOM BOOM

As I was flying through the air
One bright and sunny day,
I saw a great big aeroplane
With tanks in its bomb bay.
I flew right up and looked at it
And much to my surprise,
I discovered a BOOM BOOM BOOM
Right before my eyes.

I moved a little nearer
To get a better view
I called the operator
To see what he could do.
He said, "Come on in closer,
I'll fill it up for you—
I'll gas your tanks and check your tires
And wipe your windshield too."

I flew up close and hooked right on
And started in to fill.
I flew a tight formation till.
The gas began to spill.
I tried to make a breakaway,
I was a desperate Schmoe,
But I was stuck to that BOOM BOOM BOOM,
It wouldn't let me go.

It filled the tanks, it filled the wings,
It filled the cockpit too.
It ran all over the goddam crate
And nearly drowned my crew.
The tanker pilot asked me if
I had enough to last.
I said, "Turn off that BOOM BOOM BOOM
I'm up to my ears in gas."

I hit the panic button—
That's SOP, you know.
I told the crew to bail out,
The ground was far below.
And as our silk was rippling,
The tanker cruised away.
As far as I know that BOOM BOOM BOOM
Is gassing to this day.

The moral of this story is,
When gas is low, you find,
And you should see an airplane with
A BOOM hanging out behind,
Don't ever try to hook to it.
That's my advice to you—
You'll never get rid of that
BOOM BOOM BOOM
No matter what you do.

sorties supplied the five divisions of the X Corps, meaning that the other four divisions had to divide the remaining sixty percent of the sorties among them. (In this same period the X Corps received almost five times the number of close support sorties received by any other Corps on the line.) This volume of air support required by the Marines has been far out of line with the military situation, for in recent months the Marines have been no harder pressed at the front than have other ground units, especially those in the X Corps.

In addition, leaders of the First Marine Division have insisted on a set number of close support sorties each day, irrespective of the tactical situation. Now, the over-all inadequacy of fighter bombers for the Eighth Army effort has been well established. Therefore, to assign a given number of sorties to any one division, regardless of the tide of battle, would deprive other divisions of sorely needed air support and would cause the unnecessary sacrifice of American lives. And yet, Marine leaders in Korea strongly pursued their objective even after the new limitation on close support sorties had been ordered by General Van Fleet.

Specifically, the official Marine request called for approximately fifty close support sorties for the First Marine Division per day, about half the total number of sorties now available. This would leave approximately fifty sorties per day to be divided among the approximately nine remaining UN divisions on the line, or an average of five sorties per division. Thus the Marine leaders demanded five times their quota of close support sorties.

Does this mean that the military requirement of a Marine division for air support is five times that of an Army division when the two are fighting side by side under identical conditions? I don't know. It might be worth looking into.

Certainly, this Marine request, if granted, would have meant air support for one unit at the tragic expense of all others. It would have wrecked the over-all military program. Both General Van Fleet and General Ridgway disapproved it, I understand, in strong terms.

The heroic fighting men of the First Marine Division and the First Marine Air Wing have been, I am sure, quite oblivious to this unfortunate situation. My report on it in no way—directly or indirectly—reflects upon their great courage and skill and their fine combat record. The problem has been one of concept, confined to command level. Primarily it was a problem of too few planes for the job to be done—a fact which this magazine has stated again and again.

Apart from this experience, the new air offensive in Korea has had an excellent start.

Heretofore, due to the lack of aircraft, interdiction had been only partially effective. Only particularly lucrative targets could be attacked. No fixed pattern of interdiction could be maintained. As a result, the program could be only partially effective, more harassing than strangling.

In the new unified effort the pressure on enemy supply lines is being applied by our fighter-bombers, jet fighters, B-29s, and B-26s. The objective is to prevent the communists from effectively supporting their units at the front and, therefore, from effectively conducting the war.

North Korea no longer offers the enemy a satisfactory means of support. The Reds can and do live off the land, but the land of North Korea has taken more than its share of punishment, and it can't produce guns and ammunition and equipment.

So the Reds must bring their war-sustaining supplies from Manchuria.

It's a long haul by rail, a long and rough haul by truck, and an almost unbearable haul by foot (though the little men of Red China carry fully loaded drums of fuel on their backs). Army experts estimate that it takes 40 tons of supplies per day per enemy division (each with approximately 9,000 men) or a little over eight pounds per man at the front. That's small by our standards, but a major requirement under the circumstances. It requires about 120 boxcar loads per day or 1,200 truck loads per day.

The enemy supply line to the front employs all conceivable methods—rail, truck, cart, and A-frame. By the end of last summer the enemy's rail net—due to the cratering of his tracks by bombers and fighters—was a series of disconnected short-haul "islands." Between these "islands" the enemy shuttles supplies by truck, laboriously unloading and reloading them. He has been known to shuttle his trains back and forth between bombed-out bridges or tunnels over as little as eleven miles of track. On the other hand, the enemy is capable—with his tremendous manpower—of rebuilding a bombed-out bridge in three days. And he has erected as many as five by-passes around a single bridge. Thus the interdiction effort must be continuous and unrelenting.

With rail travel bogged down, and the heavily-laden peasant unable to provide the heavy equipment needed at the front, the truck and cart must take over. The interdiction battle has become, to a great degree, a duel between plane and truck. And since the enemy has found traveling by daylight a treacherous adventure, the duel is fought at night along winding mountain roads.

The attack is pressed primarily by the B-26 outfits—the 452d and 3d Wings. And the attack goes by the clock. I visited both these units, watched them take off on these night missions, a plane becoming airborne every fifteen minutes all night long, each carrying a pilot, co-pilot, shoran operator, and gunner, and each crew member is an expert at his own particular job.

Four or five aircraft usually patrol the same road night after night at prescribed intervals. When the moon is full, the planes are on the tree tops, for then the trucks risk traveling without lights. But more often than not it's pitch dark, and the trucks need some lights to maneuver the dangerous mountain roads. Perhaps only the convoy leader uses his lights. That makes it tougher for air attack, but the trucks are traveling almost bumper to bumper and the stakes are high. Sometimes the blinking red rear lights, keyed to the brakes, give away the convoy. The Reds have been known to stretch a dummy string of lights along a mountain, simulating a convoy, and we've lost some planes and crews due to this ruse.

We've tried large searchlights on the undersides of our aircraft. They're good for illumination, too good, for the planes become sitting ducks for ground fire and the big lights aren't built for fast flying. Flares are proving out. Our crews drop them on the first pass, do their gunnery on the second. We've tried dropping tetrahedrons, large three-cornered staples designed to puncture tires but the enemy has countered with magnets to pick up these outsized tacks. We use frag bombs, rockets, napalm and strafing, which still is the "old reliable." Our radar takes us to the target area, but from that point the crews are on their own. The fight between plane and truck over the worst terrain on earth is a duel of maneuver that calls for precision flying and precision shooting.

During the two weeks ended September 12, some 40,000 enemy motor vehicles were sighted in North Korea, and more than 7,000 of them were destroyed or damaged by aircraft of the Far East Air Forces.

For want of a better term we refer to this huge effort as "interdiction." That's what the field manuals call it. But they also link it closely to "isolation of the battlefield." And this, we have learned, describes a situation favorable to the advance of surface forces.

But what if we don't choose to advance on the surface, as is the case in Korea today? Here the air offensive is more than "interdiction." No longer are we "clearing the path" for surface movement. This is direct air action against the enemy ground forces. This is war of attrition, waged from the third dimension.

Tactical aviation, as it is being applied in Korea today, is not a weapon of support or an extension of artillery. This tactical air warfare is being conducted along a front 175 miles in depth. It carries the battle to the enemy while the other elements hold the line—protect the base—from which the offensive action originates. Here tactical aviation drains the enemy of his war-making potential.

Continued on page 67

Faster gunnery for our "flat-tops"— through electronics

Constantly faster and more accurate aerial attack upon aircraft carriers can only be answered in kind. Split-second gunnery is urgently demanded – and met through the miracles of electronics. Working closely with our Armed Forces for 33 years, Arma has developed the wealth of engineering experience and production techniques that plays an outstanding part in the production of these complex, compact, accurate instruments.

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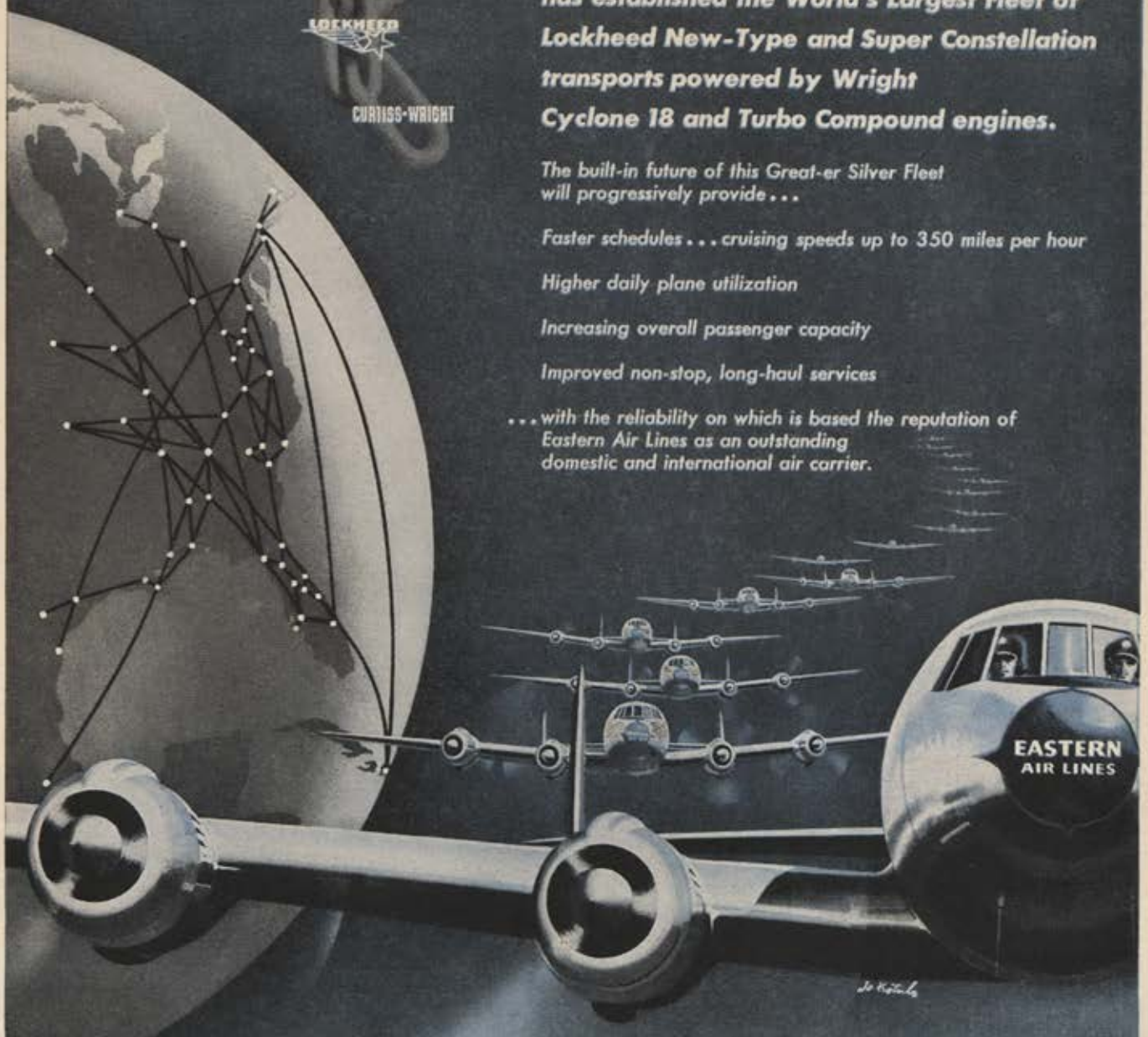

WRIGHT AIRCRAFT ENGINES

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The World's Finest Aircraft Engines

WOOD-RIDGE, NEW JERSEY

It is, to be sure, draining him the hard way—not nearly so difficult as on the battle line with close support aviation, but certainly much harder and less efficient than by striking directly at his war-making potential through all-out strategic air effort. Above all, we must maintain our strategic capability. But in the last analysis, isn't this "interdiction" offensive really short-range strategic airpower—or is the latter really long range "interdiction"? The terms mean little. It is important to consider that against a nation such as China, famous over the centuries for "swallowing up" her opponents, we finally have settled on a "swallowing up" strategy of our own.

The argument will be made that I am drawing general conclusions from a specific and unreal situation. But is it so unreal? We hear that Korea has presented unnatural barriers to our military effort. But are they unnatural in this day and age? Considering our world-wide diplomatic commitments, isn't it more probable that we will be faced—in other parts of the world—with Yalu barriers in one form or another? Aren't we, for good or ill, committed to opposing communist aggression with "one arm tied behind our backs"?

The new tactical concept in Korea—forced upon us by trial and error—may not yet be apparent even to the field commanders and to the Pentagon planners who have watched it evolve, but it may hold some valuable answers. It is preposterous to think of applying the orthodoxy of invasion and occupation in an all-out war against Russia, although the temptation of our orthodox leaders to march to Moscow, Napoleon notwithstanding, probably will remain for some time to come a threat to our security and a barrier to our peace of mind. And now the rage for atomizing the battlefield paints more false signposts on the Road to Moscow.

Come what may, our strategy must encompass political as well as military objectives, must husband our resources, must exploit our technological advantage, and must—in the long run—become a "swallow-up" rather than an "occupy" concept of security under arms. With our strategic trigger always cocked for immediate blows, we can do worse than study the new tactical concept in Korea in terms of its potential application elsewhere in the world—and its effect on our "balanced force" military budgeting here at home.

Korea, despite its tragic toll in manpower, may be a crucible in which we can forge a realistic military approach to communist aggression in the face of diplomatic restrictions to orthodox military action. Korea should open our eyes to the dangers of the old invade-and-occupy concept and can—if we let it—be the birthplace of a new concept of surface stalemate and air offensive. In so doing, the casualties of Korea may yet prevent many thousands of needless casualties in the years ahead.

NOTES ON THE AIR WAR

CONTINUED

air superiority struggle is our reconnaissance capability. Our recon planes really "case the joint" with endless photographs of the front lines, of enemy airfields abuilding, of bomb damage, target reports, roads, bridges, and a host of other subjects. Key to this effort is the 67th Tactical Reconnaissance Wing, flying F-80s. The day I visited this outfit they had processed, under rugged field conditions, 21,000 prints of assessment for Intelligence. The 67th is based on a field which also houses an RCAF squadron. This unit flies Meteors and has found by a rough process of trial and error that these planes are no match for MIGs.

Air superiority is a wonderful luxury. Twice I flew in T-33s over enemy territory, and each time I marveled at the complete freedom of movement within only a few hundred yards of our front lines. In fact, the front could be marked by vehicles and tanks which made no effort to stay under cover, and the headquarters of our forward units were doing business out in the open, with vehicles parked around them like Saturday night at the country club.

Our target on the first mission was a company of communist dug-in, World War II style, in saw-tooth trenches around the crest of a hill just north of the Thirty-Eighth Parallel. We rendezvoused with F-51s of the 18th Fighter Wing (our T-33 was attached to the 8th Wing) and after seven or eight passes we silenced their guns. At all times we had complete confidence in our command of the air. It was quite different from my World War II experience over Europe and it would be much worse, I'm sure, in an all-out World War III.

Rotation

Under current policy, ten percent of all Air Force personnel in Korea are rotated each month. This adds up to a 100 percent turnover every ten months. It's a popular policy with the men but, in all honesty, it may well prove excessive for the military requirement. It is hard to run an air force or a private business with a turnover of this magnitude unless, of course, you reduce your operational effectiveness. This can't be permitted to happen in Korea. The rotation policy might be sound, militarily speaking, if we had an adequate pool of adequately trained men for the Air Force. But, as we all know, this is not the case, and our training problems are huge and complicated. I don't see how this ten percent per month rotation rate can be maintained.

Air Rescue

Probably the most important morale factor of the Korean air war is the remarkable work of the 3rd Air Rescue Squadron. This outfit—with its Boeing SB-17s, Boeing SB-29s, Grumman SA-16s, Convair L-5s, and Sikorsky H-5 helicopters—actually saves three out of every four crewmen who go down behind enemy lines, some of them more than 100 miles deep into enemy territory. To date there have been 3,260 saves, mostly by 'copter, including 776 from behind enemy lines.

Behind the Headlines

One of the most unpublicized air units in the Far East is the 314th Air Division based in Nagoya, Japan, under Brig. Gen. Delmart Spivey. This organization is responsible for the air defense of Japan, the training of fighter crews, search and rescue missions over a vast area, air reconnaissance, installations and new construction on Japan, and close support for the XVI Corps—a tremendous responsibility wonderfully handled.

Considerable credit also must be given to the US Navy air forces operating in the theater. Though not functioning under the operational control of FEAF, the Navy has accepted responsibility for certain important air tasks and this, in turn, has freed FEAF for more extensive interdiction operations.

Another organization which deserves more credit than usually comes its way is the Far East Air Materiel Command, located at the old Tachikawa aircraft plant near Tokyo and operating under the brilliant leadership of Brig. Gen. Jack Doyle. FEACOM stocks more than 155,000 items, ranging from nuts and bolts to two-and-a-half ton trucks. I was particularly impressed with its depot facilities and its capability for major airplane overhaul.

The Mosquitos

T-6 Mosquitos, which guide our planes to their close support targets, are the pride of the theater. Their direction of aerial firepower through voice communication and the firing of smoke rockets give our pilots the target data required and insure the safety of friendly troops.

The crews of these light, unarmed planes deserve top billing. Each plane carries an Air Force pilot and an Army observer. The day I visited the 6147th Tactical Control Group, which flies the Mosquitos, I witnessed the presentation of a DFC to Col. Timothy F. O'Keefe, CO of the outfit, for outstanding combat flying. It was an award well deserved.

The Mosquito is a relatively new development in tactical warfare. Flying in one of them along the Korean front, watching our artillery units lob their shells over the hills under direction of aircraft spotters, and our own fighters scoring direct hits on enemy strongholds, I couldn't help wishing we had had these aerial direction finders in the 9th Air Force during World War II.

We flew over the peace camp where negotiation was in progress between representatives of the United Nations and the Communists. No one knew just how these meetings would turn out, but it was certain that superior UN airpower had played a major role in this get-together, and was prepared to play an even more important role should the negotiations fall apart.


First in
SAFETY
Getting urgently needed equipment and supplies to troops in difficult terrain has always been a decisive factor in warfare. Stanley Switlik and other pioneer parachute manufacturers reasoned that the materials could be dropped with properly designed parachutes. Then began the experiments with cloth and design from which grew today's cargo chutes. Thanks to this research and development, it is now possible to safely drop delicate equipment, medical supplies, food and other materials.
Another *first* through research for greater safety.
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Announcing the CONTINENTAL-TURBOMECA Family of GAS TURBINE ENGINES

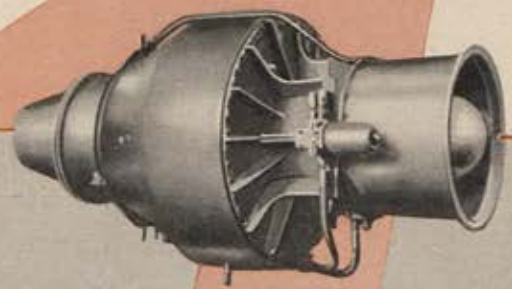
Continental Motors, pioneer in power for business and utility aircraft, announces another major pioneering step — its purchase of the exclusive United States manufacturing rights to a series of gas turbine models developed by the Societe Turbomeca, under sponsorship of the French Air Ministry.

The agreement with Turbomeca, climaxing months of technical work, testing and negotiation, in this country and in France, brings to the United States a far broader and more diversified line of turbines, in the 200-to-1,100 h.p. range, than has been available heretofore. Characteristics forecasting their widespread use include:

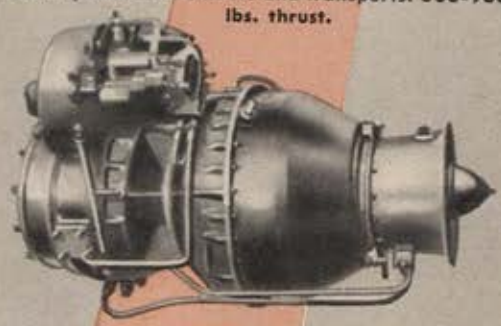
- Small size and low weight in relation to power.
- Adaptability to all fuels, including those of low grade.
- Long life expectancy due to absence of reciprocating parts.
- Minimum use of critically scarce materials in their manufacture.
- A high degree of parts interchangeability among various models.
- Versatility. Useful power is delivered in any of four different ways.

Continental Motors sees this Continental-Turbomeca family of engines as supplementing, rather than displacing, power plants of conventional design. The four basic models and their variations are expected to find wide acceptance, not only in military applications, but in many commercial fields as well.

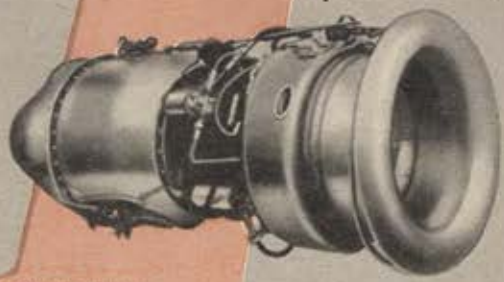
The Continental-Turbomeca family of gas turbines has been exhaustively tested in actual use. Plans for manufacture soon will be announced. Meanwhile, inquiries are welcomed. Please address Continental Motors Corporation, 1500 Algonquin Avenue, Detroit 14, Michigan—Attention Mr. Whitney Collins.



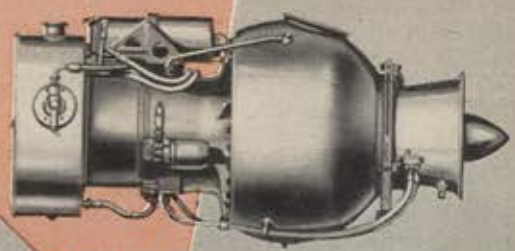
JET POWER for target and trainer aircraft or as booster power on bombers and transports. 300-900 lbs. thrust.



SHAFT POWER especially suited for helicopters, utility aircraft, electric generators, etc. 225-400 h.p.



DUCTED FANS with wide potential utility as means of increasing speeds of small and medium-sized military and civilian utility aircraft. 500-800 lbs. thrust.



AIR COMPRESSOR supplying up to 2,000 cu. ft. of air per minute at 50 lbs. psi. Useful as starter for large aircraft turbines, as portable heater, or for operating pneumatic tools, particularly where lightness and compactness are required.

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Continental Motors Corporation

DETROIT AND MUSKEGON, MICHIGAN

FREEDOM FROM ENEMY INTERFERENCE

CONTINUED

It is too much to expect that the Soviet mania for secrecy exists to hide *good* intentions. We must therefore do all in our power to develop the means of conducting intelligence and reconnaissance activities which would deny the enemy the element of surprise in the event of war.

Our research and development work in this area includes some of the USAF's most carefully guarded secrets. Needless to say, however, that the frontiers of knowledge in optics, sound, electromagnetic radiation, and other branches of physics are being pushed back daily by American scientists who seek to prevent an atomic Pearl Harbor.

Destroy the Enemy—if He Attacks.

Should Russian leaders decide to commit national suicide by initiating a war, unprecedented destructive power will be directed against their war making potential. Initially, when our stockpile of atomic bombs was relatively small and the bomb sizes relatively large, our entire atomic offensive would have had to be aimed at the enemy strategic air force, at vital enemy war industries, and at his essential transportation and communication systems. Thus, our strategic air offensive was virtually synonymous with the atomic offensive. Now, however, the potential capability of the atomic offensive has improved markedly with improvements in bomb technology and delivery techniques.

To the strategic offensive, American research and development work has now added the capability of conducting a tactical atomic offensive. The vast destructive capacity of atomic power can now be brought to bear upon enemy tactical air and ground forces, making it virtually impossible to concentrate such forces decisively. The significance of this fact is of prime importance in the defense of Western Europe. At the same time, we must not be led into the mental trap of over-dependence on tactical operations, regardless of the explosives employed. The strategic offensive will remain the major deterrent to enemy aggression.

In discussing destruction of an enemy —if he attacks—it is important to understand that our potential enemy is a government and its war-making machine. Our enemy does not include enslaved civilian populations who have suffered much under the heel of communistic oppression. This is the fundamental reason for Air Force insistence on high bombing accuracy in going after industrial targets. In addition, the Air Force is sponsoring research work on the warning of civilian populations in target areas. This is an extremely complex problem. The warning of civilian populations must not endanger our own strategic bomber forces by giving an advantage to enemy defenses; and it must consider the question of whether or not skilled workmen in factories are as much a part of the enemy war machine as troops in the field. In spite of these complexities, this work is going steadily forward and the Air Force attaches great importance to it.

In the event of war, our air defenses must be ready to cope with enemy air attack. Since the Russians know well that American production turned the tide in the last war, they will certainly try to deliver an appreciable portion of their atomic stockpile on our industry.

In the field of air defense, research and development work has been concentrated on several major problems; improved means for the rapid collection, transmission, processing and display of information on the air situation; adequate early-warning and tracking capabilities even on aircraft at minimum altitude; airborne radar equipment to give interceptors the ability to locate, track, and intercept targets flying at minimum altitude over land; and practical ways of getting adequate offshore early warning.

The truth implanted in the minds of the peoples enslaved by Communism could prove as important a factor in preserving the peace as the atomic bomb in the hands of the peoples of the Free World

The field of air defense affords an excellent example of the responsiveness of the scientists and universities of the nation to the needs of the armed forces. Let me cite just one example. Since the fall of 1949, Dr. George E. Valley, Jr., professor of physics at the Massachusetts Institute of Technology, has served as chairman of the Air Defense Systems Engineering Committee of the USAF Scientific Advisory Board. In this capacity he has been the leader of a group of distinguished scientists and engineers engaged in the development of a modern air defense system for the continental United States.

His initiative and interest in Air Force problems were primarily responsible for the establishment of this project, shortly after the announcement of the Soviet A-bomb explosion. His committee has taken critical stock of the current design and operation of air defense and has recommended a series of important changes and improvements. Working nights and weekends, the ADSEC group has begun the development of a system which promises to revolutionize the entire concept of continental air defense. Dr. Valley has been chiefly responsible for guiding and sponsoring this new program, and he himself has contributed several basic ideas in the field of continental air defense. *(For his work, Dr. Valley was awarded the AFA Science Award for 1950—The Editors.)*

The work of ADSEC has now grown into a full-time major effort—known as Project LINCOLN—under the management of the Massachusetts Institute of Technology. Sponsorship of the project now includes all three military departments and other agencies, and the research program has been broadened to include much of the field of electronic warfare. Some of Project LINCOLN's work undoubtedly will find application in the electronic battle of the cold war. This fact is of considerable significance.

Russian success in jamming the Voice of America broadcasts are impressive, and there is no reason why she shouldn't be as successful in jamming operations over all portions of the frequency spectrum which are of military interest. In a sense, the VOA jamming can be considered a major battle of the cold war —the battle for the minds of men. The recent Report by the President's Communications Policy Board states in part: "One of the bulwarks of a free society is freedom of communications. . . . One of the hopes for a peaceful world rests upon the ultimate possibility of extending this same freedom of communications beyond all barriers. War begins in the minds of men, and in the minds of men must be engendered the will for peace."

The Politburo—subjugating hundreds of millions of people to its will—does not dare let down the barriers to free communication. The Russian people must not see what is going on in the world, and the world must not see what goes on behind the Iron Curtain. Herein lies one of the greatest challenges to the scientists of the free world. It should be impossible for any nation to insulate its people from accurate knowledge about the true state of affairs in the rest of the world.

Electronic control of the air is as vital in the cold war as it would be in a hot one. In the cold war, it insures delivery of the truth to the enslaved Russian and satellite peoples. In a hot war, electronic control of the air would insure delivery of the atomic bomb against the enemy war machine, without any interference. So, as we prepare to *outwit the enemy, deter the enemy, deny the enemy the element of surprise,* and *destroy the enemy—if he attacks,* we should remember one basic fact: in the long run, the truth implanted in the minds of the peoples enslaved by Communism could prove as important a factor in preserving the peace as the atomic bomb in the hands of the United States.

The Airman's Bookshelf

They Fought With What They Had

by Walter D. Edmonds
Little, Brown, 532 pp., $5.00

Members of the AAF in the Philippines during the dark days after Pearl Harbor fought with what they had. They didn't have much.

In his new book, Walter Edmonds has done a remarkable job of recounting those days. He's gone back into the archives, dipped deep into the files, sifted through bales of background. He's visited the actual scenes and has talked with the men who were there, and to the families of men who died on Bataan or afterwards in Jap prison camps. He's interviewed those who somehow survived the Death March and years of concentration camps.

In a scholarly but dramatic treatment of this mass of hard-come-by material, Edmonds, who some years back wrote best-selling *Drums Along the Mohawk*, now comes up with an hour-by-hour account of the Japanese campaign against the Philippines.

Here's a writer who doesn't alibi the virtual destruction of the fledgling Filipino Air Force—and our own airpower—hours after war commenced. Edmonds looks at facts and tells facts, and his is the story of Americans outgunned, outnumbered, and outbombed, but never outfought.

And his is a story sparked by personal history and self-sacrifice of the highest order. Such men as Emmett (Rosie) O'Donnell—then a major—and Eugene L. Eubank and "Pappy" Gunn and their exploits figure prominently in making this story one worth retelling time and again.

Beautifully written and superbly documented, *They Fought With What They Had* is essentially a story of defeat. We had the wrong planes and too few of them. Too many of those who manned what we had weren't prepared for war. Their thinking simply wasn't geared to combat.

Now you can re-live those days with the men who coaxed a shot-up B-17 the last 100 miles to a cratered strip, or those who suffered because some overambitious supply man in Frisco thought that P-40s in the Philippines wouldn't need a cooling fluid.

We came through the crucial days of '41 and '42 but at a terrible cost. We learned, learned fast, and put our knowledge to good use, but the headmaster was an exacting one of the old school and the tuition was outrageous.

What happened then in the Philippines—and elsewhere—must never happen again. This is the lesson implicit in *They Fought With What They Had*, and this is just one of the reasons this book is a *must* for those concerned with the how much and the how little of airpower today.

Miracle at Kitty Hawk

The Letters of Wilbur and Orville Wright
Edited by Fred C. Kelly
Farrar Straus and Young, 482 pp., $6.00

December 17 marks the 48th anniversary of aviation and seems a particularly fitting time to take a fresh look at the letters of air pioneers Wilbur and Orville Wright.

Miracle at Kitty Hawk, containing these letters as well as notes, and extracts from Orville's diary, and letters *to* the Wrights, reveals two men far more friendly and warmhearted than earlier material on them had indicated. The book covers the period from 1891 to 1946.

Happily, their father, Bishop Wright, had a streak of packrat in him and stashed away all the early letters he received from "the boys." These form the first part of this excellent book.

Wilbur was the more voluble of the brothers. He wrote most of the material describing how he and Orville worked out flight principles and then applied their discoveries to building and flying the first heavier-than-air craft. But Orville always got full measure of credit. In fact, later, when Wilbur was touring Europe demonstrating the new machine before World War I, he turned down a number of awards and decorations—including the French Legion of Honor—that weren't offered to Orville too.

A good deal of Wilbur's correspondence, particularly discussions of technical details, was with Octave Chanute, the pioneer navigation engineer who died in 1910. Wilbur died two years later, and the balance of *Miracle at Kitty Hawk* is in Orville's words.

The account of the first flight is electric, but the reader exults more than the Wright Brothers did. They weren't surprised at all that their plane flew; they'd designed it that way.

Then the Wrights, trying to share their discovery with the nation, tangled with a bullheaded War Department which wouldn't realize that it was getting something for nothing. This was just one of the knobby problems that the Wrights found themselves up against in the early days of the aviation age.

The excellent editorial work on the book, by Fred C. Kelly, the authorized biographer of the Wrights, makes *Miracle at Kitty Hawk* as exciting as it is informative.

(Continued on page 73)

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Ride the Railroads

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- Travel the dependable way—via America's only complete transportation system.

THE MILITARY COMMITTEE OF THE

Railroads of the United States

BOOKSHELF CONTINUED

Boxcars in the Sky

by Richard Malkin
Import Publishing Co., 288 pp., $4.75

Boxcars in the Sky is by a man apparently sincerely dedicated to the cause of air transportation. Air transportation for everything from bolts to blood, from lettuce to pure bred cattle, and to anywhere in the world. The idea is better than the book.

Author Malkin, an aviation writer of some stature (among other things he's the managing editor of *Air Transportation Magazine* and he created *The Air Shippers' Manual*), has gathered a bushelful of anecdotes about the carrying of all kinds of air freight. The book catalogs the problems and profits in various payloads: vegetables and seafood, newspapers and magazines, live animals from baby chicks to elephants, newly created Paris gowns, exotic flowers, machinery, military airlift, and right on down to workaday airmail and parcel post packages.

In an effort to do a down-to-earth job on a mile-high topic, Malkin works a little too hard at being chatty. The result is an at times forced style that comes perilously close to outweighing the impressive amount of research that has evidently gone into the book. The question is whether or not unadulterated anecdote does the job this book sets out to do. It's pleasant enough reading but falls a bit short of being thoroughly a professional job.

The Reds Take a City

by John W. Riley, Jr., and Wilbur Schramm
Rutgers University, 210 pp., $2.75

Seoul becomes a community of real people, not too unlike the people of St. Louis, Detroit or San Francisco, in *The Reds Take a City*. Too many Americans, those who haven't seen the rubble of Korea at first hand, think of Seoul only as a faraway place where funny little people—men with scraggly chin whiskers and tall peaked hats, and women in wrap-around kimonas—have been chased out of the city and back again a tiresome number of times.

But this book, written by two members of a USAF team which studied the effects of the 3-month Communist occupation in the summer of 1950, makes Seoul believable and makes the problems of its citizens the problems of people anywhere under aggression.

The USAF team moved into Seoul when the city was recaptured after the Inchon landing. Its job was to measure the effectiveness of the Communist program on the minds and lives of the people. The terrifying conclusion of the book is that the Red program, blueprinted far in advance and put into immediate practice, was effective indeed.

Secret police, iron control of all key positions, and a simple and well-enforced propaganda line constantly drummed into the heads of the people: these things produced—even in three months—an apathetic spirit that destroyed the will to resist in all but an uncompromising few.

Just before the Reds re-occupied Seoul after the Chinese intervention, the USAF team found books telling the experiences of prominent Koreans who survived the occupation. These statements, dramatic, first-hand accounts of the deadly efficiency of the Reds, form the bulk of this book. It isn't pleasant reading, and many of the stories are indeed stranger than fiction. *The Reds Take a City*, as a glimpse behind the Iron Curtain, is bitter but potent medicine.

The Forrestal Diaries

Edited by Walter Millis
Viking, 581 pp., $5.00

During the last five years of his life, James Forrestal, the nation's first Secretary of Defense, kept detailed notes on his correspondence, meetings, conversations, and reports. Carefully sifted and well edited after his death in 1949, this mass of sporadic and many times unconnected memoranda now appears as one of the year's most important books.

While not actually a "diary," the book is revealing as a public document that goes far in explaining this strangely brilliant man who during the period covered (July 4, 1944 to March 2, 1949) was in almost constant intellectual struggle with himself.

Concern for the safety of his country is the theme that recurs consistently throughout *The Forrestal Diaries*. During the critical years after World War II, first as Secretary of the Navy and later as Secretary of Defense, Forrestal was in constant struggle with men who differed with him on this problem. His desire to see all sides of this and other questions and his fear that he—and indeed the human race—would prove inadequate in finding solutions were among the conflicts that drove him finally to suicide.

The book chronicles Forrestal's fight to relegate domestic political factors to a minor role at a time when he felt the safety of the country was at stake. He saw state and military leaders alike allowing events to shape their policy instead of forming policy to govern events.

Walter Millis, an editorial writer for the New York Herald Tribune, has done a fine job of whittling down the "diaries" into book size and writing the necessary explanatory text to bridge the Forrestal entries. But the book remains, as it should, essentially Forrestal's story, and an engrossing one.

A Foreign Policy for Americans

by Robert A. Taft
Doubleday, 127 pp., $2.00

Two of the big guns that political foes of Robert Taft have leveled at the Senator from Ohio have been that he has no positive foreign policy and that he is wont to reverse his thinking on

(Continued on page 78)

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The book is concerned mostly with the Russian menace. Taft lingers on his now familiar arguments against concentrating a large American force in Europe (it will overtax our economy, he feels, and could also encourage Russia, fearing imminent invasion, to launch new war). Taft surprises no one by hacking away at the administration every chance he gets, and comes out strongly against extending the power of the presidency.

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Capsule Reviews

GOVERNMENT IS YOUR BUSINESS, by James Keller; Doubleday, 362 pp., $2.00—timely and highly readable.

LEADERSHIP, compiled by William Russell White; two volumes, Meador Publishing Co., 2,238 pp., $20.00—a weighty and unreadable pair of volumes.

MANPOWER RESOURCES AND UTILIZATION, by A. J. Jaffe and Charles D. Stewart; John Wiley & Sons, 532 pp., $6.50—a study of the US labor force.

OFFICIAL AIRLINE ROUTE AND MILEAGE MANUAL, Air Traffic and Service Corp., $22.00—now current through Sept. 1, 1951, this manual describes the US air network by segments, routes, and systems, giving conditions and restrictions named in CAB certificates. Texts and the more than 100 route maps are revised every 60 days or oftener.

POGO, by Walter Kelly; Simon & Schuster, 182 pp., $1.00—a comic book for adults.

THE NEW YORKER 25TH ANNIVERSARY ALBUM: 1925-1950; Harper, $5.00—a collection of the best *New Yorker* cartoons of the past 25 years.

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Page 35—WIDE WORLD

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