

6-28-51 R-4 CM 7-51  
J S WARNER  
19 CEDAR AVE  
TOWSON  
BALTIMORE 4 MARYLAND

# AIR FORCE



AFA's DOOLITTLE AND COCHRAN  
Harmon Awards for a Decade of Air Leadership

*Exclusive*

A TACTICAL AIR INTERVIEW WITH GEN. MARK CLARK

**DECEMBER, 1950**





# First in SAFETY

How to decelerate the landing run of jet planes on small fields was the problem. Parachutes seemed to be the obvious brake, but the rushing air tore the chutes apart. Then, the Switlik Parachute Company produced a drogue parachute using ribbons of nylon rather than a solid cone. The ribbons permitted some of the rushing air to escape but at the same time supplied sufficient resistance to brake the jet bomber. The chute is stowed at the base of the vertical fin and is released by the pilot from a cockpit control.

Switlik parachute brakes help make it possible for the jet bombers to operate safely from small fields when giving support to ground troops in combat.

One of the Switlik *firsts* from their research for greater safety.

# SWITLIK

PARACHUTE COMPANY, INC.

LALOR AND HANCOCK STREETS, TRENTON, NEW JERSEY, U. S. A.





## ***Travel Queen of 1950***

More Americans have traveled overseas in 1950 than in any previous peacetime year. And the most startling increase has been in the number who have gone by air. More tourists have actually traveled by plane than by ship!\* And nearly a quarter of a million people have flown the oceans in Boeing Stratocruisers.

These great twin-deck airliners, in service only a few months when 1950 began, have established new standards of comfort in travel by air. They are

spacious, with ample room to move about in the main-deck cabin and the luxurious lower-deck lounge. Rest-room facilities are large and well-appointed. Modern galleys permit the serving of hot, tempting meals.

Air and altitude conditioning aboard the Stratocruiser are the finest ever developed for any aircraft. Like the deep, soft, specially designed seats, indirect lighting and soundproofing, they add to passenger comfort—make Stratocruiser

travel not only the fastest, but one of the world's most luxurious forms of travel.

People who can afford to travel as they like, as well as those of modest means, choose the swift, economical Stratocruiser that speeds them over the oceans in hours. But beyond that, they know Boeing's record of staunchness and dependability. They know the integrity that goes into the design, engineering and manufacture of all Boeing airplanes.

\*Based on latest available information from U. S. Immigration and Naturalization Service.

Boeing has built fleets of Stratocruisers for these forward-looking airlines:

**PAN AMERICAN WORLD AIRWAYS • NORTHWEST AIRLINES**  
**UNITED AIR LINES • BRITISH OVERSEAS AIRWAYS CORPORATION**

For the Air Force, the B-50 Superfortress, B-47 Stratojet and C-97 Stratofreighter.

# **BOEING**



# Give Air Power a Lift...



## Give AIR FORCE For Christmas!

**YOU** believe in airpower. **YOU** understand its vital role in keeping America strong. And **YOU** understand that a strong America is the best insurance we have of attaining the kind of lasting peace so closely associated with the Christmas season.

But many others **DON'T** understand.

There couldn't be a better time than Christmas for you to do something about these "others." See that they get the message of Air Power every month during the next year—through the pages of AIR FORCE magazine. Or, if you have friends who are eligible, give them AFA memberships—so that they will get the magazine **AND** all the other Association benefits.

Here's a unique gift—a gift with real meaning—a gift that every air-minded person will welcome, and that will open the eyes of those "others."

Fill in the form below, attach your check, and mail promptly. We'll send handsome cards announcing your gifts—and have AIR FORCE in their hands on Christmas.

**GET THIS ORDER FORM IN THE MAIL TODAY!**

### Christmas Gift Rates

One year subscription to AIR  
FORCE .....\$4.00

Association membership\* .....\$4.00  
(Including one-year subscription  
to AIR FORCE)

\*Only those who have been honor-  
ably separated from the Air Force  
—or are now on active duty—are  
eligible for membership.

My Name Is \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

I enclose \$ \_\_\_\_\_

### ORDER FORM

AIR FORCE ASSOCIATION • 1424 K ST., N.W.

Washington 5, D. C.

Please enter subscriptions to AIR FORCE  
or memberships in the ASSOCIATION as  
marked below:

- ☐ Subscription to AIR FORCE  
☐ Membership in the ASSOCIATION

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

Gift card to read from: \_\_\_\_\_

Please enter subscriptions to AIR FORCE  
or memberships in the ASSOCIATION as  
marked below:

- ☐ Subscription to AIR FORCE  
☐ Membership in the ASSOCIATION

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

Gift card to read from: \_\_\_\_\_

Please enter subscriptions to AIR FORCE  
or memberships in the ASSOCIATION as  
marked below:

- ☐ Subscription to AIR FORCE  
☐ Membership in the ASSOCIATION

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

Gift card to read from: \_\_\_\_\_

Please enter subscriptions to AIR FORCE  
or memberships in the ASSOCIATION as  
marked below:

- ☐ Subscription to AIR FORCE  
☐ Membership in the ASSOCIATION

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

Gift card to read from: \_\_\_\_\_



DECEMBER, 1950 VOL. 33, No. 12

## 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, and to perpetuate the identity and group solidarity of wartime Air Force units large and small.

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, and to stimulate community interest in Air Force activities and installations.

## ITS OFFICERS AND DIRECTORS

**ROBERT S. JOHNSON**, President

**Regional Vice Presidents:** Edward R. Tufts (New England); George Hardy (Central East); Merle Else (North Central); Warren DeBrown (Northeast); Jerome Waterman (Southeast); Thomas Campbell (Northwest); Thomas Baker (South Central); Dr. John Biggerstaf (Midwest); James McCusker (Rocky Mountain); Ray Ireland (Great Lakes); William Hensley (Southwest); Thomas Stack (Far West). **Secretary,** Julian B. Rosenthal, **Treasurer,** Benjamin Brinton.

**CARL A. SPAATZ**, Chairman of the Board

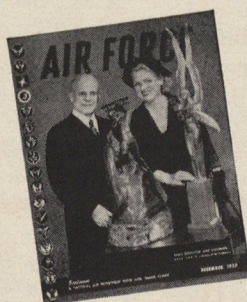
**Directors:** Edward P. Curtis, James H. Doolittle, John P. Edmondson, Meryll Frost, B. E. (Shorty) Fulton, Frank O'D. Hunter, Arthur Kelly, Thomas G. Lanphier, Jr., Roy Leffingwell, Randall Leopold, Dr. W. R. Lovelace, Dr. Paul Potter, Robert Proctor, Mary Gill Rice, C. R. Smith, James Stewart.

## FEATURES

SORTIES BY SERVICES.....	6
SPAATZ TROPHY WINNERS.....	12
AIR FORCE, NAVY FORM RESERVE UNIT.....	20
THE ARMY SPEAKS FOR ITSELF.....	23
What Kind of Air Support Does the Army Want? Gen. Mark W. Clark .....	24
A Statement on Tactical Air Organization. Dwight D. Eisenhower .....	26
THE TURBO STORY.....William S. Friedman .....	27
MR. AND MISS AVIATION.....	30
THE THRILL IS GONE, BUT THE MONEY LINGERS ON .....	32
Bernhard A. Roth .....	32
"GOOP" BOMBS PROVE THEIR EFFECTIVENESS.....	34
CAP TO THE RESCUE.....	38
BIGGEST BELL 'COPTER.....	50

## DEPARTMENTS

RENDEZVOUS .....	8	AFA NEWS .....	40
AIRPOWER IN THE NEWS.....	15	AFA ROUNDUP .....	42
SHOOTING THE BREEZE.....	18	TECHNIQUE PIX.....	48
MOBILIZATION NEWS.....	36	AIRMAN'S BOOKSHELF.....	56



## THE COVER

Informally James Doolittle and Jacqueline Cochran have been recognized as Mr. and Miss Aviation for many years. Last month the identification was solemnized by the President of the United States at White House ceremonies during which the two AFA members were awarded the Harmon Trophies for their air leadership in the past decade.

READ "MR. AND MISS AVIATION" Page 30

## AIR FORCE STAFF

**JAMES H. STRAUBEL**, Editor and Publishing Director

**NED ROOT**, Managing Editor

**ROBERT FLEISHER**, Ass't. Managing Editor

**WILLIAM A. DEAN**, Art Director

**JAKE CULPEPPER**, Associate Editor

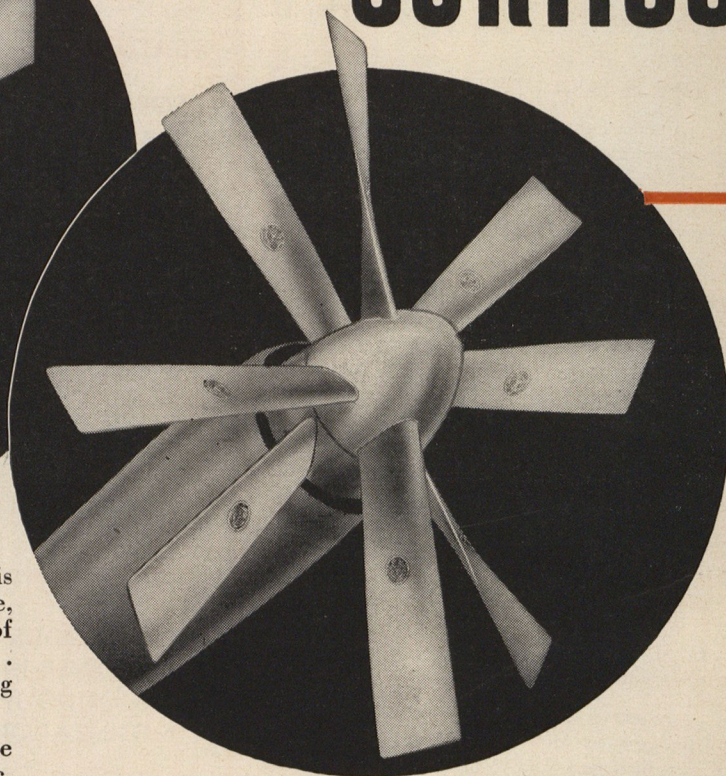
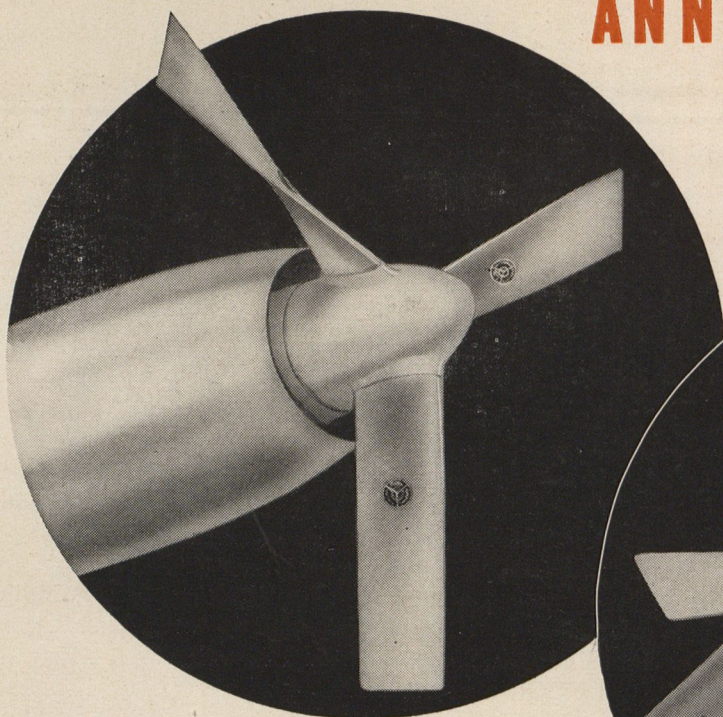
## CREDITS

COVER: Del Ankers. Page 25—Lockheed; Page 26—Acme; Page 27—North American; Pages 28-29—Wright Aeronautical; Pages 30-31—Wide World; Page 40—Calif. and Minn. Wings of AFA; Page 41—Minn. Wing AFA, Milton B. Neuss; Pages 48-49—Consolidated, Northrop, Martin, Piper, North American. Other photos by USAF and Dept. of Defense.

**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: 360 Lexington Avenue, New York 17, N. Y., Murray Hill 9-3817. Sanford A. Wolf, Advertising Manager. Western Area Advertising Manager: David Shawe, 3974 Wilshire Boulevard, Los Angeles 5, Calif., Dunkirk 3-8976. **MAILING:** Registered as second class matter, December 11, 1947, at the post office at Dayton, Ohio, under the Act of March 3, 1879. **SUBSCRIPTIONS:** Membership in the Air Force Association, \$4.00 per year, \$2.50 of which is for 1 year subscription to AIR FORCE. Subscription rate to non-members, \$4.00. Single copy, 35 cents. **REGISTRATION:** Trade-mark registered by the Air Force Association. Copyright, 1950, by the Air Force Association. All rights reserved under Pan-American Copyright Convention. 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.



# ANNOUNCING THE CURTISS



► Here . . . in the Turboelectric Propellers . . . is Curtiss-Wright's answer to the demand for dependable, efficient means of converting the tremendous power of turboprop engines into high performance thrust . . . with precision of control under all aircraft operating conditions.

► Included in this advanced series of propellers are single and dual rotation types . . . subsonic, trans-sonic, and supersonic models . . . engineered to harness effectively turboprops from 2500 to 20,000 horsepower . . . designed to meet a wide range of aircraft installation requirements . . . equipped to provide the same reliability, durability and versatility upon which the world-wide reputation of Curtiss Electric Propellers for piston-engines is founded.

► The development and introduction of the Turboelectric series highlight Curtiss-Wright's leadership as the foremost manufacturer of high capacity aircraft propellers. More than three-quarters of all propellers built today for use with aircraft engines of 3000 horsepower and more are built by Curtiss-Wright. No other organization approaches Curtiss-Wright's demonstrated ability and experience in harnessing high horsepower — ability and experience which, blended skillfully with the results of forward-looking engineering research, have produced the Turboelectrics.

#### MANY SERVICE-PROVED FEATURES

► The Turboelectrics are new only in the sense that they are specifically designed for use with turboprop engines. Most of their major features and components — and the principles of operation on which they are based — have already been proved in service. Like

their piston-engine counterparts, the Turboelectrics are distinguished by:

**Hollow-steel blades** of Curtiss monocoque construction, backed by over 125,000,000 hours of operation in military and commercial aircraft.

**Single-unit forged hubs**, a similarly time-tested design particularly adaptable to the structural requirements of high-speed turboprop engines.

**Simple, dependable electro-mechanical pitch change mechanism**, in which the power to change pitch is taken directly from the rotation of the propeller shaft. Developed and proved with the Curtiss-Wright propeller used exclusively on the B-36 bomber, this system eliminates need for complex hydraulics and electronics and is unaffected by temperature or altitude.

**Automatic synchronization** for multi-engined aircraft.

**The safety and dependability of reverse thrust** for smooth air-cushioned landings and more effective braking. Curtiss-Wright propellers have been reversed over 2,000,000 times in airline use alone.

**Electrical or heated-air de-icing.**

**Rate of pitch change** substantially increased throughout the entire range of reverse to feather.

► For brochure describing the Curtiss-Wright Turboelectric Propellers, write Propeller Division, Curtiss-Wright Corporation, Caldwell, N. J., on your company letterhead.

# CURTISS WRIGHT



# *Turboelectric* PROPELLERS

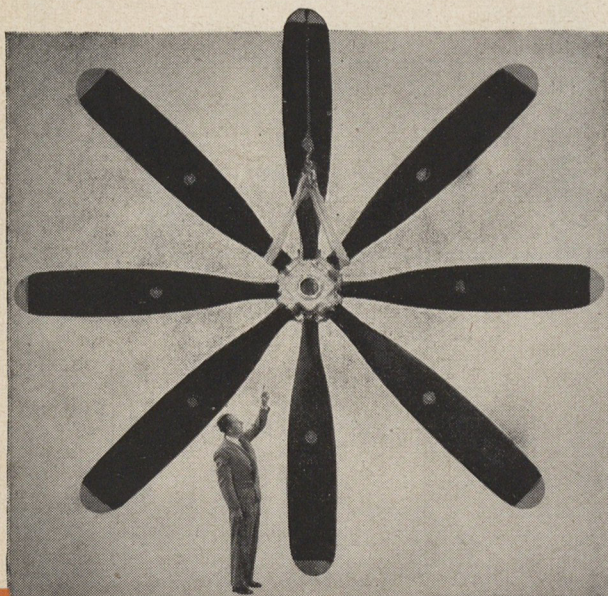
for Turboprop Engines ranging from 2500 to 20,000 Horsepower

## DEVELOPED THROUGH YEARS OF RESEARCH AND ENGINEERING

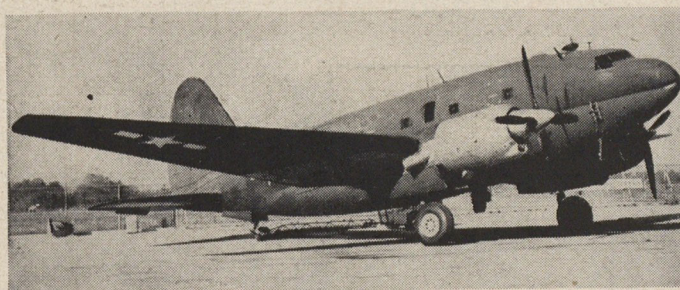
► The refinement and adaptation of these proved Curtiss-Wright features to the special requirements of the turboprop engine were successfully accomplished through an exhaustive research and development program dating back to 1943 ... and marked by gruelling, simulated service and actual flight tests.

► As early as 1946, Curtiss-Wright turboprop propellers were tested on the TG-100 turboprop engines installed in the XC-113 experimental airplane. Two years later, the possibilities of the *Turboelectric* were spectacularly demonstrated by another of its predecessors. Fitted to a T-35 turboprop installed in the nose of a special five-engined B-17 "flying test stand," this propeller flew the airplane with the propellers of the four wing engines feathered.

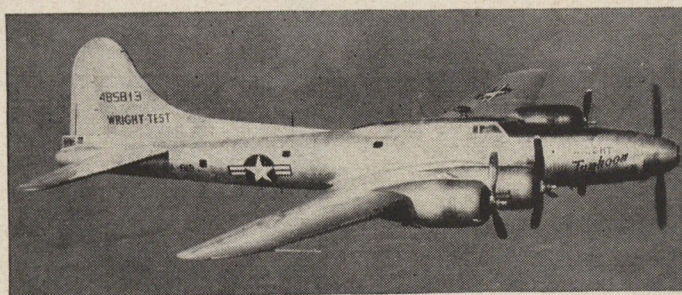
► With the development of the Curtiss-Wright Turboelectric propellers, the aviation industry can look forward to more complete utilization of the gas turbine engine's potentialities.



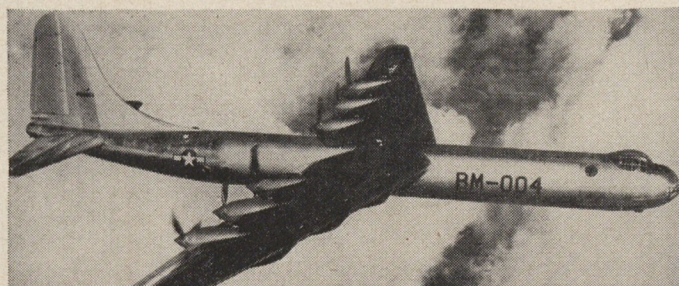
The world's largest and highest capacity propeller is a Curtiss-Wright Turboelectric. Designed for use with an extremely high-powered turboprop engine, this 19-foot diameter, eight-bladed flight model now being tested by the Air Force, employs the dual rotation principle developed by Curtiss-Wright in 1943.



The Turboelectric series is the result of exhaustive research and development of gas turbine engine propellers combined with Curtiss-Wright's years of experience in harnessing high horsepower. Among the early tests of a complete Curtiss-Wright turboprop propeller was one made in 1946 on TG-100 engines installed in the experimental XC-113 airplane shown above.



Propelled solely by a predecessor of the Turboelectric Propellers fitted to a high-powered T-35 turboprop in the nose, this special Boeing B-17 "flying test stand" gave a spectacular flight demonstration with the four propellers of its wing engines feathered.



The distinctive electro-mechanical pitch changing mechanism and other features of the Turboelectric series are based upon experience gained through thousands of hours of operation under extremes of temperature and altitude with the world's largest production propeller built by Curtiss-Wright and used exclusively by the Air Force to equip its squadrons of B-36 Inter-continental bombers.

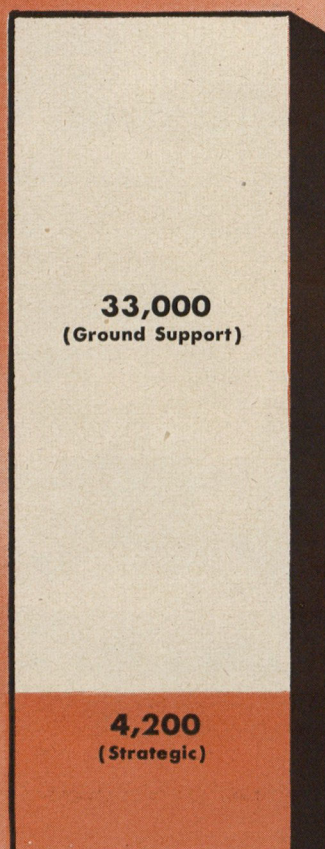


# SORTIES BY SERVICES

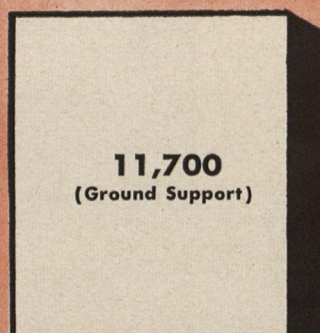
(Through November 10, 1950)



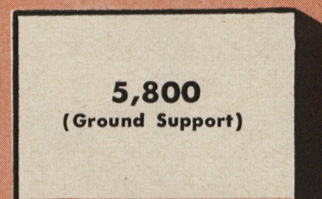
**37,200**  
Total



**AIR FORCE**



**NAVY**



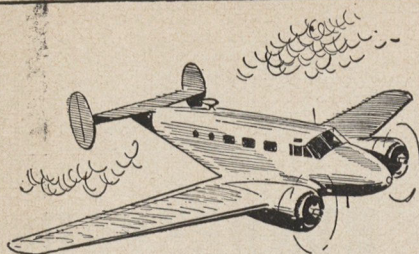
**MARINES**

The US Air Force, damned by some for failing the GIs in Korea, goes on about its task flying better than two ground support missions for every one flown by the combined air forces of the Navy and Marines

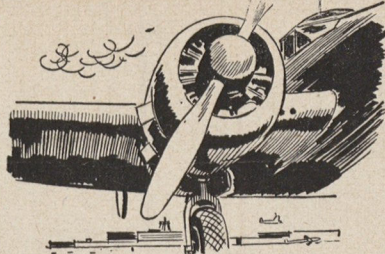
Two months ago AIR FORCE published a chart similar to this for the purpose of correcting erroneous reports that Navy planes were furnishing most of the tactical air support given the hard-pressed GIs in Korea. We said then, and we say again, that it probably doesn't matter much to the GIs themselves whether the planes that come to their aid are Air Force or Navy—so long as they come. We also said then that a statistical report alone couldn't give a true pic-

ture of the effectiveness of the operations. It can't. But since the "inspired" reports persist that the Air Force isn't doing its part, we feel called upon to bring the chart up to date. The Air Force figures are official. The others (not officially available) were gathered from unofficial but reliable sources. If anything they are a little high. The contrast is particularly striking since the Navy and Marines together *now* have about as many fighters in the theater as the Air Force.





**Choose it for speed and performance.** With a maximum speed of 230 mph, you're in a class with the Airlines — and you have unsurpassed mobility of action, too.

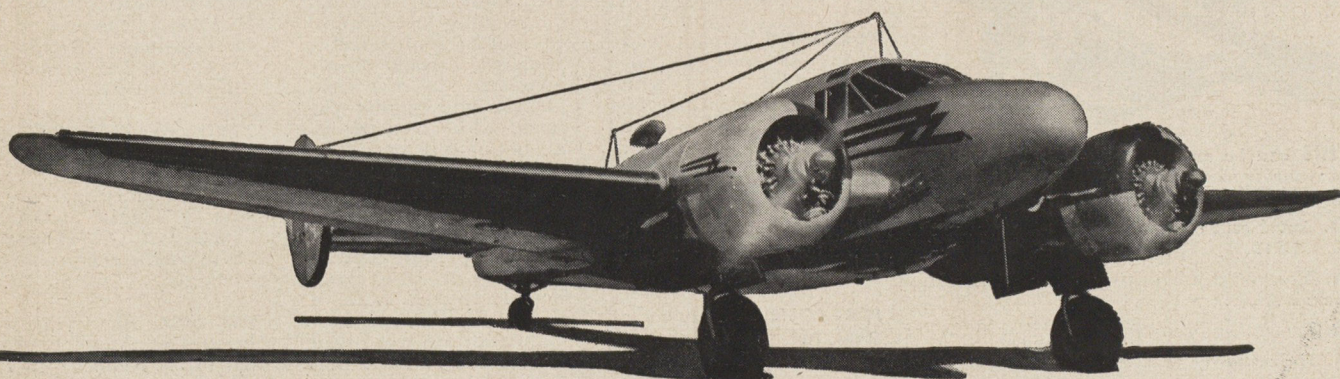


**Choose it for safety.** Twin-engine reliability and outstanding single-engine performance provide an assurance of mental ease when flying in less favorable weather conditions.



**Choose it because it has proved itself.** Wartime versions rolled up hundreds of millions of miles. Today, more than 500 postwar Beech "Twins" are serving leading industries.

## For the ultimate in air transportation choose the Beechcraft Executive Transport



### Features place the Model D18S in a class by itself

- 200-mph cruising speed
- Rate of climb at sea level, 1,200 feet per minute
- Range up to 900 miles
- 20,500-foot service ceiling
- Custom seating arrangement for 7, 8, or 9
- Luxurious, temperature-controlled interior
- Individual reading lights, ash trays, etc.

● For full information contact your nearest Beechcraft distributor or write on your company letterhead today to Beech Aircraft Corporation, Wichita, Kansas, U.S.A.

# Beechcraft

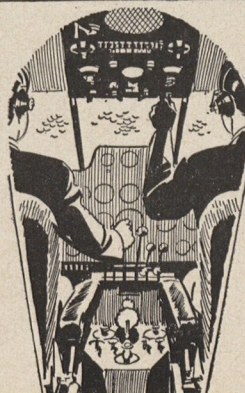
## EXECUTIVE TRANSPORT



**BEECHCRAFTS ARE THE AIR FLEET OF AMERICAN BUSINESS**



**Choose it for luxury.** Several custom-interior plans available. Sound-proofed cabin, restful seats, wide windows. You'll feel no travel fatigue here!



**And it's the choice of pilots.** Extremely efficient instrument and control layout, with major operating units conveniently located on central pedestal.



# NEW FACTS CONCERNING YOU AND AVIATION TRAINING



**THIS** can be an extremely important moment in your career. Read the answers to these questions—and see if they don't apply to YOU.

**Q.** Am I still eligible for training under the G. I. Bill?

**A.** Yes, you still have time to participate. But time is short!

**Q.** Is aviation a good field?

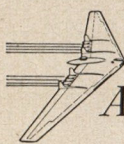
**A.** It has never offered greater opportunity! Demand for graduates of Northrop Aeronautical Institute in the aviation industry is far greater than the supply! Hundreds of NAI graduates are on their way to Security and Success in Aviation—the Number One essential industry, now and in the future!

**Q.** Won't my aviation training be wasted if I am called into the service?

**A.** The trained man gets ahead—gets the promotions—whether in civilian or military life. You become more valuable with proper training!

**Q.** Where can I get more facts on this subject?

**A.** Send the coupon today. You will receive the Northrop catalog describing training courses available in Aeronautical Engineering and in A & E Mechanics, and you will also receive additional factual data regarding the possibilities of a career in aviation for you NOW.



**Northrop**  
Aeronautical Institute  
Division of Northrop Aircraft, Inc.

1545 E. Broadway, Hawthorne, Los Angeles County, Calif.

## SEND COUPON FOR DETAILED FACTS

**NORTHROP AERONAUTICAL INSTITUTE**  
1545 E. Broadway, Hawthorne, Los Angeles County, Calif.  
Please send Graduate Employment Report, Catalog, and schedule of starting dates of classes. I am interested in: ☐ Aeronautical Engineering ☐ Aircraft & Engine Mechanics

NAME \_\_\_\_\_ AGE \_\_\_\_\_  
ADDRESS \_\_\_\_\_  
CITY \_\_\_\_\_ ZONE \_\_\_\_\_ STATE \_\_\_\_\_  
Check one: ☐ VETERAN ☐ NON-VETERAN



# RENDEZVOUS

Where the Gang gets together

**BILL HAUCH:** Does anybody know the whereabouts of Bill Hauch, who used to live in Celina, Ohio? I knew him in Italy where he was a radar observer. John H. Gilhooly, 27 Peach Avenue, Providence, R. I.

**FOR SALE:** I have on hand about 500 booklets containing 36 pages with text and more than 50 pictures of Italy. The books cost me 80c each, but I am only asking 25c plus 3c postage for anyone who is interested. Charles F. Wagner, 3031 Indianola Ave., Columbus, Ohio.

**LOST POEM:** Can anybody send me a copy of the "Ode to a Bombardier"? The only place I ever saw the poem was in the Officers Club at Herrington, Kansas. H. Wayne George, 202 Greene St., Cumberland, Md.

**DISABLED:** Because of a disability received in the service, I am forced to limit my current activities, and I am, therefore, planning to set up a business of sealing pictures, identification cards, and other documents of any size. This process will be done by means other than lamelating. Anyone interested in this service please contact Andy M. Kmetz, 2433 S. Kinnic Avenue, Milwaukee, Wisconsin.

**HEY HARRY:** Would like very much your assistance in locating a M/Sgt. Harry Paul. He was stationed in Italy in the 759th Bomb Sq., 459th Bomb Gp. (H). I have some pictures which he would like very much to obtain. I believe he was from New York or New Jersey. Thanks. M/Sgt. William R. Neese, Box 326, Randolph Field, Texas.

**WHERE'S BARNEY?** I would like to locate Lt. "Barney" Manning, Sig. C. Communications Officer of the Service Group attached to the 21st Bomber Command which was stationed at Smokey Hill Army Air Field, Salina, Kansas—later shipped to Saipan and possibly Okinawa. I would greatly appreciate hearing from anyone who knows the home address or whereabouts of this man. John B. Kiernan, 42 3rd Ave., Rm #1, Mineola, N. Y.

**828:** I am trying to obtain the present address of one of my crew members, Herbert F. Little of the 828 Bomb Sqdn. Last known address was Broad Brook, Connecticut. Also I would be interested in hearing from any former members of the 828 Bomb Sqdn. and would like to obtain pictures of B-24s in action. Carl P. Gigowski, 344 Eola St., S.E., Grand Rapids 7, Michigan.

**MOVIE ACTOR:** Does anyone have the present address of Capt. William Stewart who was in the movie "The Big Lift"? We flew together in Biak during the war. K. B. Shafer, 284 Castro St., Apt. 11, Hayward, Calif.

**SWAP:** Am looking for anyone with an extra M.A.A.F. shoulder patch. Also anyone who wants to trade shoulder patches. Bob Sanders, Palo Pinto, Texas.

**YALE BOYS:** Like to hear from some of the boys from 3510th AAF Base Unit, Yale University, New Haven, Connecticut. Thomas Lake, 612 Milwaukee Avenue, Deer Lodge, Montana.

**PEN PAL:** I am an ex-member of the R.A.F. and a veteran of two

world wars. I would like to exchange letters with a member of your organization and also to pass on our monthly magazine to anyone who is still interested in past memories, especially someone who saw service in England during the past war. H. Freedman, 15 Gilton Road, Catford, London S.E. 6, England.

**770TH:** Would like to hear from anyone who was in the 770th Bomb Sq. 462nd Bomb Gp. overseas in India and on Tinian. B. G. Young, 1270 Junction, Plymouth, Michigan.

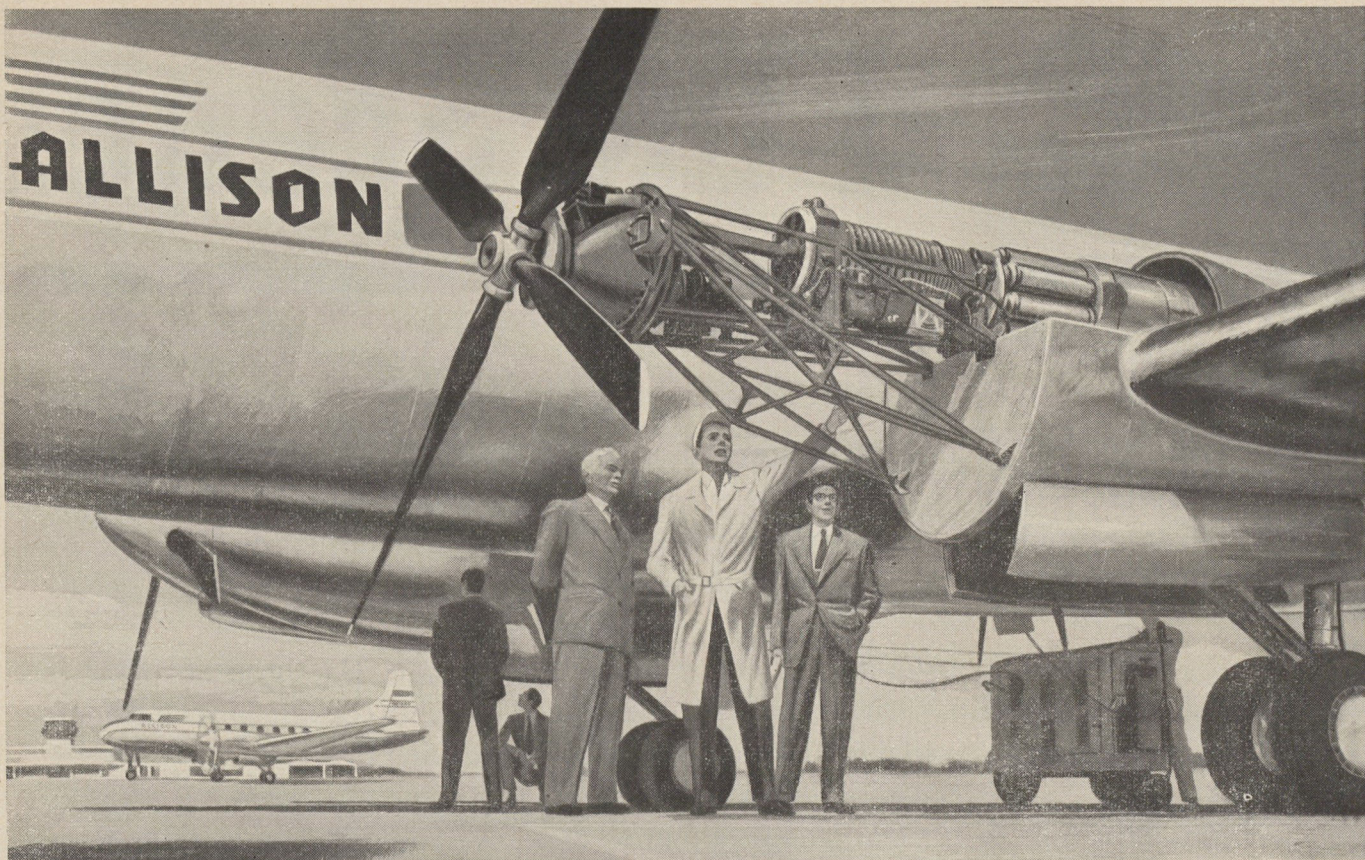
**HEY DICK:** Am trying to locate Dick Mote, an old pal from Ponca City, Oklahoma. We went through basic training together at Lackland AFB, Texas from 1 Oct 48 to 30 Dec 48. I heard he was going to be shipped to Kelly AFB, Texas from basic, but he shipped out before I could contact him and I haven't been able to reach him since. Cpl. William C. Rapp, 418 Cayuga Road, Buffalo 21, N. Y.

**ROSTER:** I would like to know how I could get a roster of the 23rd Bomb Sq., 5th Bomb Gp. with whom I served for 3 years, since I would like to contact some of my former buddies. D. C. Nolan, 1032 Evelyn, Albany 6, California.

**URGENT:** To establish a service connected disability, must contact anyone who served with me in the 440th Bomb Sq., 319th Bomb Gp. at Okinawa 2 July 45 to 12 Sept. 45, especially Capt. Harold Yok who knew all facts pertaining to my case. Please contact John S. McAlpine, Jr., 10 Garfield Ave., Cranston 7, R. I.

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





Allison "501" Turbo-Prop engines fit in nacelles of present commercial transports.

## *A new kind of Air Travel is in the making*

**New Navy engine—  
soon to undergo first tests  
in civilian transport—promises  
smoother, faster, quieter,  
more pleasant air travel**

WITHIN a short time the first American commercial airliner powered by turbine engines will be delivered to the Allison Division of General Motors.

The power plants in this Convair are the new Allison Model "501" Turbo-Props—commercial version of the Navy T38 engine. They are geared to new-type propellers especially designed and built for high-engine-power characteristics by the Aeroproducts Division of General Motors.

The "501" is lighter, smaller, smoother and quieter than any other propeller-type engine of equal horsepower. It develops 2,750 horsepower and weighs only 1,250 pounds!

As soon as this experimental Turbo-

Prop transport is received, General Motors-Allison engineers will start putting it through a comprehensive series of flight tests.

In cooperation with the airlines it will be flown under all types of operating conditions—in all kinds of weather. It will be given the works, checked and rechecked many times over, until all its performance characteristics are definitely evaluated.

Such an all-out test program may take a year or more. But it will be well worth it, in view of the fact that present military experience indicates that Turbo-Prop power should bring the following benefits to commercial aviation:

*Smoother, quieter operation—for more comfortable travel; also lower maintenance and overhaul costs.*

*Ability to use low-cost, low-octane fuels, without increased consumption.*

*Faster speed — up to maximum limit permitted by airframe design.*

*Very low engine weight—less than half—increasing range or pay load.*

*Much improved take-off and climb—permitting use of shorter runways, with greater safety and better schedules.*

*Usable in present aircraft—no costly modifications in changing over to turbine power.*

When General Motors is satisfied with its tests of these engines and they are approved for commercial use by the C.A.A., it will be possible to convert present airliners to smoother turbine power without further delay—giving America very high-speed, low-cost, regular airline service.

The development of the Allison Turbo-Prop engine, America's first axial flow propeller-type turbine engine, together with Aeroproducts Propellers, is another example of General Motors progress—and who serves progress, serves the nation.

*Your key to  
Better Power*



# GENERAL MOTORS

"MORE AND BETTER THINGS FOR MORE PEOPLE"

ALLISON AIRCRAFT ENGINES • AEROPRODUCTS PROPELLERS • CHEVROLET • PONTIAC  
OLDSMOBILE • BUICK • CADILLAC • BODY BY FISHER • GMC TRUCK & COACH



# Behind the Scenes

---

Hamilton Standard is known throughout the world as one of the foremost designers and builders of airplane propellers. Not so well known, perhaps, is the rapid progress Hamilton Standard has made in a new field — air conditioning for turbine-powered aircraft.

Yet, starting from scratch only two short years ago, Hamilton Standard has come up with what we honestly believe is the best cockpit air-conditioning system now available anywhere for high-speed aircraft.

This unit is efficient, compact and light in weight. It is comparatively low priced. Most important of all, it has overcome to a marked degree the problem of limited service life that has plagued all such systems to date.

These results were not easily attained. Small as the air conditioning unit is, and basically simple as it appears in operation, the skills required to design, develop and produce it are equal to those demanded in any of the highly technical branches of the aircraft industry.

In solving the problems of aerodynamics, thermodynamics, vibration, balance and metallurgy involved in this new product, we were able to draw on 31 years of related engineering work in the propeller field. Beyond this, our extensive laboratory and test facilities were almost ideally suited for this work. From a production standpoint, the new product required utilization of the same basic machine tools and manufacturing skills already available at Hamilton Standard.

This background of engineering skills, laboratory facilities and manufacturing techniques represents an investment of millions of man hours and millions of dollars. It has played a vital part in helping us bring through successfully this new development in record time.



# at Hamilton Standard

## WHAT DOES THIS AIR CONDITIONING UNIT DO?



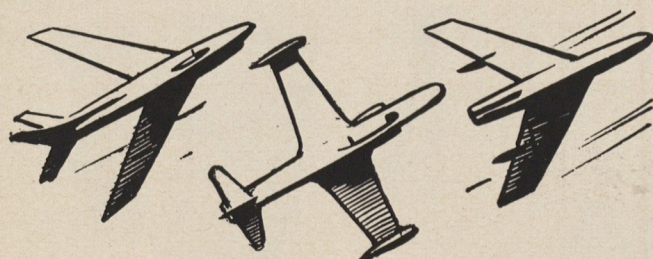
Expressed in the simplest terms possible, this air conditioning unit takes in 240 cubic feet of air every minute at a temperature of 600°F. and delivers it to the cockpit at just below the freezing point. If that sounds easy, it is comparable to the work done by a refrigerator that could turn out 13 tons of ice cubes a day! Yet the entire system weighs only 20 pounds. The heart of the system is a tiny axial-flow turbine wheel only 3 inches in diameter, turning at 60,000 RPM and driving a radial fan on the same shaft. Hamilton Standard engineers have found that this combination of axial flow turbine and radial fan is highly efficient, relatively simple to manufacture, and lower in cost.

## WHY WILL IT HAVE LONGER SERVICE LIFE?



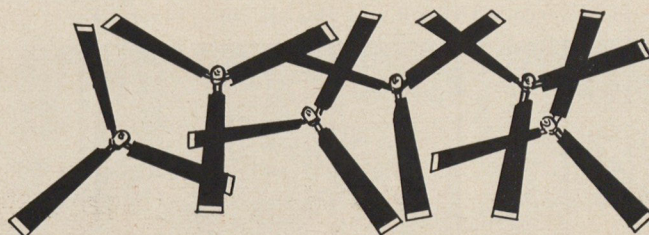
It is literally true that until Hamilton Standard entered this field, cockpit air conditioning systems had to be checked after every flight, and their service life was limited. This was primarily due to the difficulty of properly lubricating the turbine shaft running at extremely high speeds and often under heavy loads caused by vibration and unbalance. Hamilton Standard went straight to the heart of the problem by developing an entirely new system of shaft lubrication — so superior that test units have repeatedly run more than 1,000 hours without maintenance of any kind. Skillful manufacturing techniques to minimize vibration and unbalance have still further improved these results.

## HOW MANY NEW TYPES OF AIRCRAFT WILL USE IT?



Probably the best measure of the outstanding performance of this Hamilton Standard air conditioning system is its prompt acceptance by the aircraft industry. Production orders have already been received for its installation in three of the nation's top fighters — the Air Force North American F-86D and Lockheed F-94 and the Navy Vought F7U "Cutlass".

## WILL OUR PROPELLER PRODUCTION BE AFFECTED BY THIS NEW ACTIVITY?



The Answer is No. In selecting the air conditioning system as its first venture into the aircraft accessory field, Hamilton Standard was guided by the policy that the new product must be well suited to its engineering and production talents and equipment, and must not interfere in any way with the development and production of propellers. Actually, Hamilton Standard is gearing up toward its biggest propeller production program since World War II days, and at the same time is increasing its engineering efforts in the propeller field.

# HAMILTON STANDARD

EAST HARTFORD, CONNECTICUT  
ONE OF THE FOUR DIVISIONS OF UNITED AIRCRAFT CORPORATION







Maj. Gen. Earl Hoag presents Spaatz trophy to Lt. Col. Robert Gould, CO, 104th Maryland Sq.



New Jersey ceremonies featured, left to right, General Hoag; Gil Robb Wilson, aviation editor, General Spaatz himself; Governor Driscoll and Maj. J. Zink, 119th CO.



Spit 'n' polish by Pfc. Leonard Buchanan, 125th Ftr. Sq., Okla.

## Spaatz Trophy Winners

Each year the outstanding fighter squadron in each Air National Guard wing is awarded the coveted Spaatz Trophy. Named after our former Chief of Staff, the trophy goes to the squadron with the best record in flying efficiency, low accident rate, and training of personnel. The following squadron winners for 1950 have just been announced by USAF Hq: Maryland's 104th; Georgia's 158th; Kentucky's 165th; Washington's 116th; California's 195th; Oklahoma's 125th; Michigan's 172nd; Massachusetts' 131st; Indiana's 113th; South Dakota's 175th and Hawaii's 199th. Pictures of some of the presentation ceremonies appear here.

General Hoag presents trophy to Lt. Col. Joseph Turner, former CO of Oklahoma's 125th. Looking on is current boss, Maj. S. C. Austin right, and Maj. Gen. George Finch, former Air National Guard CO.





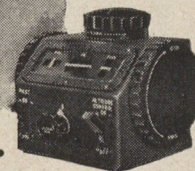
RIGHT FOR THE Stratocruiser . . .



RIGHT FOR THE Stratojet . . .



**the SPERRY A-12 Gyropilot\* . . .**



is Boeing's and the U. S. Air Force's choice for the B-47B Boeing *Stratojet*, because of its ability . . . already proved on the Boeing *Stratocruiser* . . . to provide smooth, precise *automatic* flying under all flight conditions.

- The Gyropilot does for the pilot of the B-47B . . . a military jet of 600-miles-per-hour speed and over 2000-mile cruising range . . . what it does for the pilot of the commercial airliner.
- It gives him complete automatically-stabilized control of his aircraft through all weather even at high speeds and high altitudes . . . enables him with the automatic approach control to make automatic approaches through low weather ceilings in rough air.
- Today, many leading airlines . . . in continuing efforts to improve schedule reliability and make service increasingly independent of weather . . . are using the Sperry A-12 Gyropilot to supplement their flight personnel's skill and experience.

\*Trade Mark Reg. U. S. Pat. Off.

**SPERRY** *GYROSCOPE COMPANY*

DIVISION OF THE SPERRY CORPORATION, GREAT NECK, NEW YORK • CLEVELAND • NEW ORLEANS • NEW YORK • LOS ANGELES • SAN FRANCISCO • SEATTLE



# Bolt for the blue...

***pre-tested!***

**B**olt...supercharger...or complete wing assembly—every Douglas spare part carries at least one inspector's stamp. This stamp is the hallmark of quality workmanship—your guarantee of precision fit!

Genuine Douglas spares reflect the latest engineering changes. Replacements are made swiftly and easily. No time or revenue is lost because of grounded planes.

Over 60% of all Douglas spares are available for immediate shipment. Our customer liaison men give personal attention to your procurements. In addition, Technical Data and the assistance of Douglas Field Representatives are provided to help you realize maximum utility of all your Douglas aircraft.

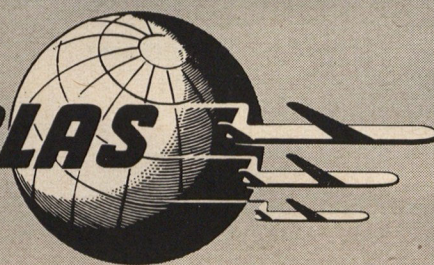
DOUGLAS PARTS SALES DIVISION

DOUGLAS AIRCRAFT COMPANY, INC., SANTA MONICA, CALIFORNIA



## DEPEND ON DOUGLAS

30<sup>TH</sup> ANNIVERSARY YEAR





# AIRPOWER IN THE NEWS

VOL. 33, NO. 12

WASHINGTON, D. C.

DECEMBER, 1950

MACKAY TROPHY was presented last month to Capt. Jim Gallagher, pilot, and T/Sgt. Robert C. Davis, flight engineer, representing the 14-man crew of the USAF "Lucky Lady II," for the "most meritorious flight" of 1949. The crew flew a Boeing B-50 round-the-world, non-stop, early in 1949. . . The Gorgas Medal was received by Maj. Gen. Malcolm C. Grow, USAF (Ret.), former surgeon general of USAF, at the annual dinner of Association of Military Surgeons of U. S. in New York's Hotel Statler on November 10. Gen. Grow was cited for his "distinguished service to our military forces in furthering the conservation of fighting strength of AF combat crews."

MAJ. GEN. ORVIL A. ANDERSON has been appointed Commanding General of the 3750th Technical Training Wing, Sheppard AF Base, Tex.

AF'S AIR RESEARCH AND DEVELOPMENT COMMAND, established as a planning unit last January, is scheduled to begin operating as an independent, major USAF command by May 15, 1951. Interim headquarters will be located at Wright-Patterson AF Base, Dayton, Ohio.

GREENVILLE AF BASE, a World War II flying training base at Greenville, Miss., will be rehabilitated and reopened as a basic flight school within a few weeks, USAF has announced. . . Fairfield-Suisun AF Base, Calif., will be renamed Travis AF Base in honor of Brig. Gen. Robert F. Travis. . . Spokane AF Base, Wash., will be redesignated Fairchild AF Base in memory of Gen. Muir S. Fairchild. . . Camp Kilmer, N. J., an overseas replacement center in World War II, has been reopened as a transportation base by Army.

CONTINENTAL AIR COMMAND will be reorganized by USAF with two new major air commands being established. Tactical Air Command, previously an operational headquarters under ConAC, will become a major command under Lt. Gen. John K. Cannon and maintain its headquarters at Langley AF Base, Va. An Air Defense Command will be established under the command of Lt. Gen. Ennis C. Whitehead with headquarters to be located next year at Colorado Springs. Continental Air Command, which has its headquarters at Mitchel AF Base, will remain as one of the three commands and retain its responsibilities for the administration and training of USAF civilian components, under its New CO, Maj. Gen. Willis Hale. ConAC's four regional air forces will remain unchanged.

AIR NATIONAL GUARD wants approximately 17,000 officers and men to bring all non-alerted units to full strength in conjunction with its conversion to the USAF combat wing base plan. Current strength of the Air Guard is approximately 36,500 officers and men. The net increase of 17,000--including about 15,000 airmen--will bring the Air Guard to a combat strength of 53,000. This does not include units now on active duty with the AF. . . Army National Guard has vacancies for approximately 300 pilots. Eligible for the flying positions are former pilot officers of Army, Navy, AF, Marine Corps and Coast Guard. . . Federalized ground and Air Guard units will be trained intensively as air-ground combat teams in accordance with present training programs, a recent joint AF and Army announcement has revealed.

A COMMITTEE TO STUDY LONG RANGE RESERVE PLANS AND POLICIES has been appointed by Sec'y Marshall. USAF representatives include Maj. Gen. George C. Finch,

(Continued on page 16)



## AIRPOWER IN THE NEWS

CONTINUED

ANGUS, and Brig. Gen. Robert L. Copsey, USAFR. The eight-man committee, headed by Edwin H. Burgess, vice-president and general counsel of B&O Railroad, will continue the study of orderly and effective calls of civilian components to active duty and will recommend policies designed to eliminate any uncertainties and inequities that may have arisen under present system.

AIRLIFT TASK FORCE organized to speed vital supplies and troops to Japan during Korean crisis has completed its job and was disbanded on Nov. 16, MATS has announced. American casualties in Korean war up to October 27 numbered 27,610. Of these 3,934 were KIA, 19,346 were wounded, and 4,330 were missing. USAF sustained 197 casualties. Maj. Gen. Earl E. Partridge, CG of 5th AF, was presented Silver Star by Gen. Stratemeyer for conspicuous gallantry in action in Korean campaign on October 19 and 20. Maj. Gen. Emmett "Rosy" O'Donnell, Jr., CG of US FEAF Bomber Command, has received Distinguished Service Cross from Gen. MacArthur's headquarters for personally leading three important B-29 combat missions over enemy targets.

AF REGULATION 45-19, which permitted certain ex-first three graders, warrant officers and flight officers to apply for commission as second lieutenants in USAFR has been discontinued by USAF. . . Regulations whereby medical officers of Army, Navy and AF, including reserve components, may transfer from one of armed services to another, as authorized under Public Law 779, 81st Congress, has been announced by Defense Dept. AF officers who wish to transfer should submit a letter of request through customary command channels to Hdqtrs, USAF, Dep. Chief of Staff, Personnel, Attn: Director of Military Personnel AFPMP-1-R, Washington 25, D. C.

DEPENDENCY REQUIREMENT for parents claiming POW allowance due deceased son has been removed. . . War Claims Commission processes approximately 1,000 claims a week and are presently in the 26,000 group.

SEN. DICK RUSSEL (D., Ga.) is expected to take over the chairmanship of Senate Armed Services Committee, replacing Millard Tydings who was defeated in November election.

LARGEST TRANS-ATLANTIC FLIGHT OF JET FIGHTERS was recently completed by USAF pilots of 27th Ftr. Wg., Bergstrom AF Base, Texas. 180 Republic F-84E "Thunderjet" aircraft were ferried to Germany in two increments of 89 and 91 planes each.

A NEW JATO AIRCRAFT BOOSTER ROCKET, which uses smokeless powder and weighs considerably less than present models, has been developed for Navy. Army and AF also contributed funds for development of units, and all three services plan to use them. . . Navy has developed first successful automatic pilot for helicopters. The new automatic pilot will make possible normal instrument flight, and will decrease pilot fatigue during long flights. . . AF planes in trouble soon will be able to call for help with a chain of automatic distress signals by means of an emergency keyer which has come out of the laboratories of AMC, Wright-Patterson AFB, Ohio. When a plane equipped with the new keyer gets into difficulty, the pilot must only flip a simple switch. With the new keyer the distress signal sequence can be transmitted during the time the crew is readying for a crash--transmitted automatically and without further aid of a radio operator.



# *Gilfillan*

LOS ANGELES, CALIFORNIA

## FOREMOST NAME IN GCA AND RADAR

MAY--1942. Gilfillan Engineers called by Office of Scientific Research Development to Radiation Laboratory, M.I.T., to develop the first experimental GCA.

JULY--1942. Gilfillan awarded the first GCA development contract.

DECEMBER--1943. Gilfillan developed the first production model GCA--AN/MPN-1.

1944--1945. Gilfillan developed, produced and delivered 102 complete GCA's to the United States Air Force exactly 12 months after receiving the production order.



***Gilfillan***

built the first GCA, the largest number of GCA's and delivered them in the shortest time.

***Gilfillan***

is the only company to develop GCA for the USAF, USN, and for the CAA.

***Gilfillan***

is the only company to operate GCA training schools for the USAF, RCAF, and the CAA.

One hundred Gilfillan field engineers supervise the installation, maintenance and operation of GCA equipment at military and civilian bases around the world.

***Gilfillan***

GCA is used by the USAF, USN, the CAA, the RCAF, the RAF, the Republic of France, and by all of the scheduled air lines throughout the world.



***Gilfillan***

is now producing large quantities of the latest GCA equipment for the USAF and for various foreign nations.

Today's GCA includes all the latest GCA features first developed by Gilfillan, including a reliable, drift-free MTI; long-range, high-altitude search coverage; desk-size, remoted tower consoles; non-parallax (distortion-free) scopes; the AZEL three-dimensional scope; air transportable GCA; single operator GCA; and the new, completely automatic GCA.

***Gilfillan***

has become the foremost name in GCA because it has kept GCA paced to the growing and intricate needs of all types of air travel--transports, bombers and jet fighters. Because of its GCA record, Gilfillan continues as the foremost developer and manufacturer of GCA.

Dec. 1, 1950

N. B.—Quotation not permitted. Material must not be reproduced in whole or in part in any form whatsoever.



# SHOOTING

As Korea has jolted the nation out of its "business as usual" approach to international relations, so has it introduced elements which could bury us with a "war as usual" attitude toward military preparedness.

Should this attitude predominate, Korea may well represent a greater catastrophe than Pearl Harbor. Even if this innocuous strip of Asia did not now threaten to become a bottomless pit for our manpower and material, even if we could realize our fondest hopes and get our boys out by Christmas, this danger would still exist, perhaps in greater measure.

Pearl Harbor, which brought disaster from the air, helped to unshackle us from years of traditional servitude to an ocean complex, and gave us the drive and perspective needed to create the land-based and carrier-based airpower which proved essential to victory in World War II.

Korea, with its almost complete lack of hostile airpower, may be stimulating a false emphasis on surface warfare, a revival of the ocean complex, and consequently, a loss of perspective which, under the propulsion of misguided public opinion, could develop into a disastrous influence in our military build-up.

Certain individuals and agencies are eagerly directing public sentiment toward a return to the military past. Quite unintentionally they are helping to create the very conditions Russia fosters within a target nation: disunity among the services, uncertainty among the people, waste through mobilization of outmoded equipment and misused manpower.

In the face of this situation it is more important than ever that we restate, and repeat over and over again, these basic truths about security and freedom under arms:

- Our strategic airpower, as a defensive counter-measure of atomic violence, is the only force capable of preventing Russia from bypassing the Koreans and striking what she knows to be her only real obstacle to world domination, the United States. In effect, it becomes the difference between a periphery war in Asia and war in our own backyard.

- Our strategic airpower and its threat of atomic retaliation has prevented Russia from intervening directly in this periphery war, especial-



# THE BREEZE

Force has failed to support properly the Army in Korea.

We feel impelled to disregard the pressure talk of those surface campaigners who would grab tactical aviation from the Air Force and return it to the Army, and take greater stock in the opinion of Army leaders like General Mark Clark, Chief of Army Field Forces, who has gone on record with an emphatic "No" to this suggestion, and of General of the Army Dwight D. Eisenhower who has long since documented his "No" in a classic statement on the subject (see pages 23-26 this issue).

At the same time, it would be folly to contend that the Air Force's support aviation in Korea, especially in the early phases of the war, was of the best. The planes were not designed for the job, training had been inadequate, coordination with the Army was weak, communications were even weaker, and on the Air Force organization chart tactical aviation was under-ranked and under-privileged. There is no question that the Air Force's tactical aviation needed tuning up. And it would have been most surprising if the Marines, who have specialized and concentrated on close support aviation, had not proved superior in this type of operation; indeed, if this were not the case, there'd have been something wrong with Marine aviation.

It is equally true that the Air Force has learned a lot in Korea; its jets have proved out beyond all expectations in their first combat test, coordination and communications have been strengthened, the Tactical

ly with her powerful air force and, in so doing, has permitted the forces of the United Nations to wage surface warfare under enemy-free skies—a situation virtually unknown in World War II and quite unlikely in full-scale war today. Any ground veteran of World War II will explain the significance of this situation, as have North Koreans who have survived it (Nov. *Air Force*, page 29).

- Our land-based tactical airpower of the Fifth Air Force, as ground generals in Korea have amply testified (see October *Air Force*, page 21) and with all due respect to the superb tactical airpower of our Marines and Navy, was the force which prevented the out-numbered ground army of the United Nations from being swept off the Korean peninsula in the early stages of the conflict.

Any current discussion of our airpower or surface power, in or out of Korea, must begin with these basic truths and take it from there.

In these terms we answer the oft-repeated lie that Korea, lacking in strategic targets, has disproved the top priority role of strategic airpower in our military structure (a priority established and constantly reaffirmed, incidentally, not by the Air Force alone, but by unanimous decision of the Joint Chiefs of Staff).

In these same terms we approach the most talked about airpower question of the moment: that the Air

## LOS ANGELES SITE OF 1951 REUNION

AFA's fifth Air Force Reunion and National Convention will be held August 24-26 in Los Angeles.

This will be AFA's first national meeting west of the Mississippi, and it promises all the popular events of past Reunions *plus* the incomparable vacation atmosphere of sunny California.

The convention committee promises accommodations ranging from motels to pool-side bungalows, and special attractions appealing to the average vacation budget.

As convention events crystalize, they will be announced in **AIR FORCE**.



Air Command now sits on the top shelf in the Air Force, and a new co-ordinated training program is under-way with the Army.

So also has the Joint Chiefs of Staff profited by the Korean experience. Under the pressure of low budget ceilings and high priority items, the JCS has consistently held Air Force tactical aviation to a secondary position on the military budget. Now the JCS, as the responsible allocating agency, must attempt to work out a way to rebuild support airpower. Once the money becomes available, the Air Force can, for the first time since World War II, properly develop its tactical effort to the high state of perfection achieved then.

Should the JCS, however, develop tactical air to the neglect of strategic airpower, it would justify the condemnation of the free world. For it is on the Air Force's unique ability to retaliate with atomic power that we must depend for containment of Russia, for prevention of all-out war, or should that war develop, for the decisive body blows against the enemy. This basic military truth cannot be compromised at any price, by tactical aviation or by flush deck aircraft carrier. This we must never forget. Nor must we assume our strategic airpower is a static force. It needs and will continue to need expansion and modernization. Its technological progress is the key to our military strength.

This is the crux of the problem, for strategic airpower is costly and, lacking an alternative, we must somehow bear the cost. Big armies and big navies are expensive too. If in our frantic quest for military security we merely buy more of everything, balance one force against the other, dollar for dollar, we will critically drain our resources without achieving dominant striking power, for we can hardly expect to become mightier than Russia on land, on sea and in the air. We must achieve military balance based on the enemy's true capabilities, and therefore keyed to airpower, rather than political balance based on the enemy's diversionary aggressions, keyed to tradition and service loyalty.

Korea has provided the test. If we let Korea become our model for military preparedness, if we deviate even a few degrees in our development of a true strategic airpower concept, if we succumb to the false precepts of outdated strategy, regardless of our successes on the battlefield, Russia will have won a victory in Korea.

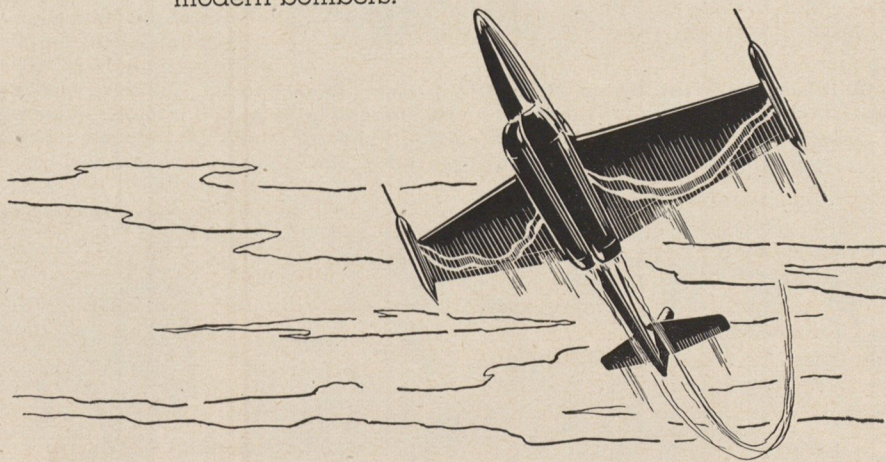
This is the story that must be told and retold in every corner of America. Our survival as a nation may depend on it.—J.H.S.

# Sentinels . . .



## for America's first-line defense!

These U. S. Air Force Scorpion F-89s, now going into production, are fast-climbing air destroyers designed and built by Northrop Aircraft's experienced engineers and craftsmen as worthy successors to the famed Black Widow F-61s of World War II. With electronic search equipment, heavy armament, rapid climb and very high speed these new all-weather interceptors can defend our homeland against attack by modern bombers.



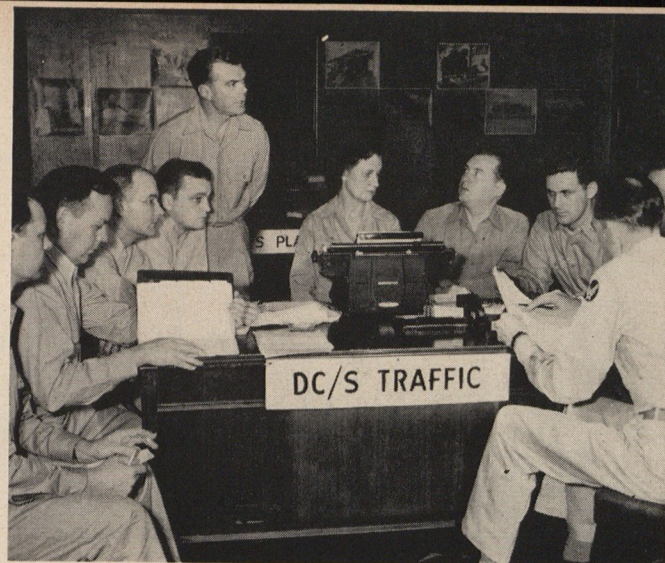
**NORTHROP AIRCRAFT, Inc., Hawthorne, Calif.**







Regular MATS Air Force and Navy officers worked with the Southern California Reserve Department during its formative stages.



Trying to do something new usually means working around the clock. There were many night sessions like this one.

## Air Force, Navy Form Reserve Unit

**A**irlift's dramatic role in United Nations strategy has thrown a spotlight on the nation's first joint Air Force-Navy reserve group, the Southern California Reserve Division of the Military Air Transport Service.

A handful of top-notch veterans of the Air Transport Command, Naval Air Transport Service, Army ground forces, and Marine Corps, most of them now prominent in civil aviation, formed the unit on an experimental basis more than a year ago.

For an evaluation period of six months the outfit functioned as the Western Experimental Division, MATS, in the hope that its performance would result in the granting of full reserve status. Despite its unofficial, non-paid status, meetings were held regularly, and attendance of its 125-man staff was nearly perfect.

Lt. Gen. Harold L. George, one of the world's outstanding experts in air supply, and currently general manager of Hughes Aircraft Co., was requested by the group to accept its command and serve as its monitor.

The headquarters staff was to study mass airlift, scheduled air transport and ferrying missions. Basing these studies on utilization of latest type transport aircraft, the group was to analyze the countless problems of operations, supply, maintenance, and personnel, and then turn over its detailed solutions to MATS.

When the division's experimental period ended in January 1950, Maj. Gen. Laurence S. Kuter and Maj. Gen. Earl S. Hoag, assistant to the chief of staff for reserve forces, approved the unit and designated it as the Southern California Reserve Division of MATS, after a two-day inspection.

In recommending approval, General Kuter declared, "The ingenuity and spirit of this organization indicates that we may have found a new and effective way to utilize the indispensable store of know-how held by people outside regular Reserve units."



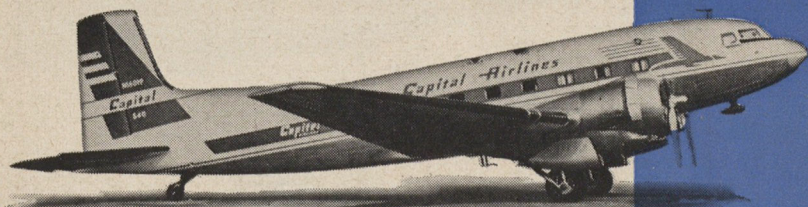
Above, Maj. Gen. Lawrence Kuter, MATS CO, presents banner to Lt. Gen. Harold George thus making group an integral part of the organized reserve. Below, left, staff sections and an "on loan" Western Airline Convair. Right, George takes the floor.





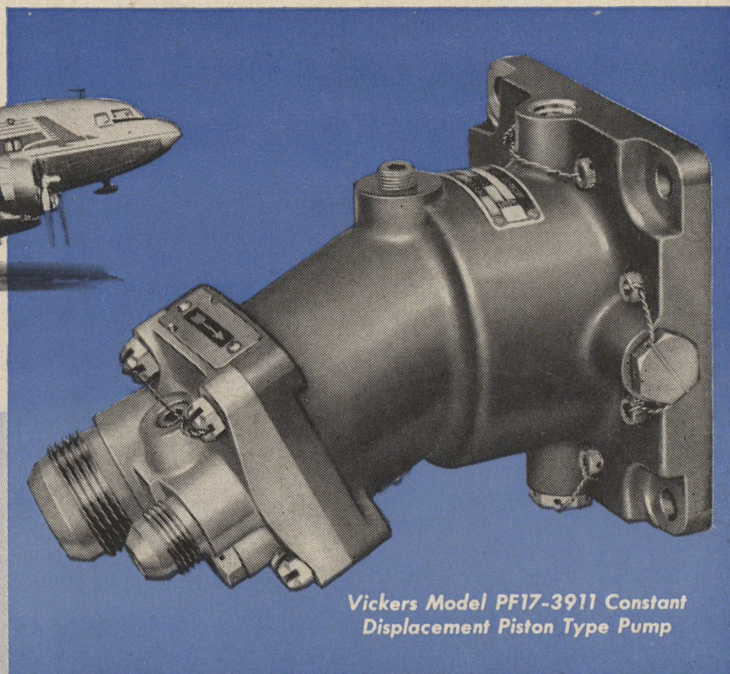


# *Specifies* **VICKERS PUMPS** for its fleet of **SUPER DC-3's**



## **REASON:**

**"The performance and exceptionally low overhaul costs of Vickers Pumps on our fleet of DC-4's" —Capital Airlines**



*Vickers Model PF17-3911 Constant Displacement Piston Type Pump*



The superior performance record of Vickers Constant Displacement Piston Type Pumps on their twenty-five DC-4's is the reason why Capital Airlines specified these Vickers Pumps for their new fleet of Super DC-3's.

Important among the characteristics of these Vickers Pumps are: (1) exceptionally high volumetric and over-

all efficiency, (2) very low weight per horsepower, (3) outstanding dependability and unusually long life. Other significant considerations were the importance of standardization and low overhaul costs.

Ask for Bulletin 49-53, "The Most Complete Line of Hydraulic Equipment for Aircraft."



**VICKERS Incorporated** • 1526 OAKMAN BLVD. • DETROIT 32, MICH.  
*Division of The Sperry Corporation*

4136

**ENGINEERS AND BUILDERS OF OIL HYDRAULIC EQUIPMENT SINCE 1921**





# "UMBRELLAS"

**...FOR A RAINY DAY!**

"Umbrellas" represent one of the first lines of a complete national defense system!

Above these hundreds of silken parachutes fly Fairchild planes...the best equipped "to-do-the-job" aircraft in the skies.

Fairchild leadership in the development of tactical airplanes is now playing a vital part in the vast production mobilization program. Like the airborne trooper, the C-82 Packet, the

C-119 Improved Cargo and Troop Transport and the C-120 Detachable Fuselage Transport are parts of the United States Armed Forces Team.

Only this type of coordination between air and ground units could have given the word "Airlift" to our vocabulary. Whether it is generators for the lights of Berlin, trucks, guns or highly trained paratroopers for Korea—Fairchild Airplanes are ready, willing and able to deliver the goods...no matter what sort of weather lies ahead.

 **ENGINE AND AIRPLANE CORPORATION**  
**FAIRCHILD** *Aircraft Division*  
HAGERSTOWN, MARYLAND

Fairchild-NEPA Div., Oak Ridge, Tenn. • Fairchild Engine, Guided Missiles, AI-Fin and Stratos Divisions, Farmingdale, N.Y.



# **THE ARMY SPEAKS FOR ITSELF**

Once again the Air Force is under fire, not only in Korea but in the press and on the air waves here at home.

The question is whether or not the Air Force has concentrated unduly on strategic air-power to the neglect of ground support aviation.

This may become a subject of inquiry by the House Armed Services Committee.

If so, it is to be presumed that the air support of ground troops will be studied in relation to the policies and priorities which have dominated our military strength since World War II.

Meanwhile, the "experts" are at work again, just as they were before the B-36 investigation of last year, some of them purporting to speak for the Army, or at least presenting the viewpoint of the ground men.

On the following pages AIR FORCE gives the Army an opportunity to speak for itself—through an exclusive interview with Gen. Mark Clark, Chief of Army Field Forces, and in a 1947 statement by General of the Army Dwight D. Eisenhower, which still stands as a basic document on the subject.

Without regard to our own views, we commend both statements to our readers.





# What Kind of Air Support Does the Army Want?

## An Exclusive *AIR FORCE* Interview with **GEN. MARK W. CLARK**

*Chief, Army Field Forces*

**Q.** General Clark, there has been considerable discussion in recent years of making the army completely air transportable. Obviously, such an objective is not one hundred percent practical. How far do you believe we should try to go in this regard?

**A.** The air movement of an entire army with all equipment is entirely possible. However, our economy could hardly stand the cost of constructing the necessary number of heavy aircraft. Within the foreseeable future, economy will require that reliance be placed upon surface transportation for the movement of tanks and heavy engineering equipment.

**Q.** Do you believe that present Air Force equipment, that is, present type transports, ground fighters, and troop carriers are adequate? What modification would you suggest? With the dollars available to the Air Force where would you rather see the emphasis placed, in support fighters, transports, or troop carriers?

**A.** The present troop carrier aircraft are excellent. However, their range is limited to 500 nautical miles. I believe that a detachable cargo compartment arrangement on the C-119 (Fairchild) aircraft will have great advantages, and I am eagerly awaiting the evaluation of two designs of this improvement. The C-124 (Douglas) heavy troop carrier is ideal although it does not carry our medium tank. Its high cost and airfield requirements may relegate it to SOS roles, however. We have a number of good gliders and assault transports, including the G-18 (Chase) and G-20 (Chase) gliders, and the C-122 (Chase) 123 (Chase) and 125 (Northrop) assault transports, and we are presently evaluating them with the idea of standardizing one or more of them. The present jet fighter bombers are good although they are not designed primarily to support ground units.

The aircraft which is to provide close tactical support should be designed specifically for that mission and not be compromised by a primary requirement to engage in air to air battles. We agree that the aircraft should be able to "live in the air," but this should not be the deciding factor in the design of close tactical aircraft. The aircraft we want must be able to perform its mission, and it should be able to defend itself. However, an aircraft should not be rejected on the basis that it does not have complete immunity from danger. Certainly we would not reject an artillery design because it was vulnerable to counter battery fire.

To produce a balanced force, you can't place emphasis on one aircraft over another any more than you can empha-

size trucks over artillery pieces.

**EDITOR'S NOTE:** In answer to further questions, General Clark made these additional notes:

The US Army wants no part of aircraft procurement. What it wants is a larger voice in designing the airplanes in the first place. Ideally, the General believes, tactical support designs should be the coordinated effort of both ground officers (who can state the "requirement" just as they would state the requirement for an artillery piece) and air officers (who can reconcile these requirements with engineering limitations). At the present, the General says, the Ground Force—the using agency—has nothing to say about the size, shape or capabilities of the planes built for its support; this to them seems like tailoring a suit without knowing the measurements of the man.

A "good" fighter-bomber plane, in General Clark's estimation would:

- a.) carry a 9,000 lb. load of ammunition—bombs, rockets, bullets, etc.
- b.) have sufficient accuracy and stability to hit the target.
- c.) have adequate communications with ground officers directing their strikes.
- d.) carry enough fuel to give it at least two hours over the battle area.
- e.) take off in 3000 feet.
- f.) operate in any kind of weather, day or night.

**Q.** It has been mentioned that, for ground support purposes, reciprocating fighters are as good or better than jets. What is your opinion?

**A.** The weakness of jet aircraft as compared to the conventional aircraft is purely a matter of range and time over the target, in both of which the conventional types has a decided advantage. I am satisfied that the engineering genius of the United States can correct this deficiency in jet types if funds will permit the desired development. Jets also require long improved runways and cannot (as yet) operate from short, unimproved fields.

**EDITOR'S NOTE:** General Clark has flown in both reciprocating and jet fighters to evaluate to his own satisfaction their respective capabilities. So far as striking the target, he said in elaboration of the above answer, he was convinced that the jet could do just as good a job as the piston-type plane. The trouble, he guessed was that too many jet pilots refused to slow their planes down long enough over the target area to get the required accuracy. It wasn't that they couldn't slow down, it was just that they preferred to get in quick and get out of there.

**Q.** Do you feel that adequate emphasis is being placed



**In The First Place, Says General Clark, the Ground Force Wants a Little More to Say About The Design of Fighter Aircraft Built by The Air Force for Support Purposes. Furthermore, the Army Needs Closer Supervision over Tactical Air Units in the Field. The General Does NOT feel, Though, That Tactical Aviation Should Be Taken from The Air Force and Once Again Made a Part of the Army**

on the all-weather operation of ground fighter units?

**A.** The air action in Korea points out limitations that weather places upon close air support. Here again I'm sure that our engineers can lick the problem if funds will permit the development of devices that will permit the pilot to "see" through all conditions of weather. But, weather is not the main limitation. Korea has proven that fighter bombers can't do their job unless they have trained tactical air control parties on the ground and/or airborne controllers in the air to guide them.

**Q.** Do you believe an aerial invasion of major proportions (such as the one simulated in Operation Swarmer) is theoretically practical at this time?

**A.** The logistical implications of an operation of this type are tremendous. Complete air superiority must be maintained over the objective area and the air column as well. The limitations of our present cargo aircraft would permit our airborne assault only light artillery and no armor or heavy engineer equipment. This would relegate the assault to one of limited offensive capabilities against a modest objective. Reliance would necessarily be placed upon early link-up with surface forces.

**Q.** There have been hints in recent months of establishing a separate air force for the Army, patterned after the Navy's separate air arm. Do you feel that such a move is desirable or necessary?

**A.** No, unless the Air Force indicates that it cannot provide the desired air support. I consider the unification under the National Defense (sic) Act of 1947 sound, and, further, the economy of the country will not permit an additional air organization with overlapping functions. However, there certainly exists a primary mission for the Air Force to provide adequate air support for the Army.

**Gen. Clark in the rear seat of a Lockheed T-33 jet trainer.**



**Q.** What kind of program could be adopted to bring about closer air-ground cooperation both in training and in operation?

**A.** Our recently inaugurated program of Close Tactical Air Support training for all Field Force battalion combat teams is designed to do just that. Experts from the Joint Operations Center at Fort Bragg are assisting Army commanders in a plan that will give each battalion combat team realistic joint training in this field. The Air Force is actively participating in this training which covers the procedure of requesting and getting fighter bomber support and permits the soldier to actually witness the delivery of air strikes against enemy targets.

**EDITOR'S NOTE:** In Korea, said the General, the UN's ground forces might well have found themselves in the South China Sea in the first desperate days of the war had it not been for the magnificent arresting action of the Far Eastern Air Forces. However, he added, such an uncomfortable reflection should in no way detract from the heroic stand made by the UN's pitifully outnumbered doughfeet. Neither air nor ground forces could have done the job alone, and so it was rather pointless to try to divide up the credit like marbles after a game. Teamwork did the trick, he said, and this reminded him of another subject which obviously had been close to the surface from the first—responsibility of command.

Matching the commander to the campaign (putting a ground general in command of an operation fundamentally "ground" in nature, or an air general where air is the predominant factor) is not a new notion. It was done extensively, and for the most part successfully, in the last war. Today, as an extension of the theory, there is an air general in command of all ground, sea and air forces in Alaska—an "air" theatre, while ground generals command all the forces in Europe and the Far East. But the point Clark now made of it indicated that the theory of unified command was in need of a little attention. The General didn't deny the implication.

The problem, he thought, had its roots in the hesitancy of air, sea and ground commanders to relinquish sovereignty over their particular instruments of war to a higher commander who might not have full appreciation of their weapon's capabilities and limitations. This, said Clark, was wrong. If he, for example, was given command of a "ground" campaign, he would demand the employment of air and sea forces as he saw fit. If, on the other hand, he was placed in command of ground troops subordinate to an air commander he would expect to utilize his forces as the air general directed.

The argument, Clark and his staff say, is not with the AF's willingness to help—something which has never been questioned—but with an arbitrary and unyielding order of priorities the Air Force has established in its book of ground support rules—a list again compiled without reference to ground needs. The first Air Force rule, as it appears to the Army, is to stay alive in the air, which is why the Air Force insists on high performance jets for the job, when so far as the ground men are concerned, planes with less air performance would do just as well. To the guy on

*(Continued on Page 52)*



# A Statement on Tactical Air Organization

By

**Gen. Dwight D. Eisenhower**

(Quoted from the semi-annual report of the Secretary of the Air Force)

**EDITOR'S NOTE:** *The following is an extract from a memorandum submitted by General Eisenhower to the Secretary of Defense in 1947. It was quoted in the semi-annual report of the Secretary of the Air Force, submitted to the President of the United States on March 31, 1950. In referring to the memorandum, the Air Force report said, "Regarding tactical air support of the Army, General Eisenhower reiterates today the views he expressed in his 1947 memorandum to the Secretary of Defense. General Eisenhower remains fully convinced of the soundness of the principle complementary roles and consequent interdependence of the three components of the armed services. However, he is also firmly convinced that this principle is sound only if the principle of a unified command is likewise applied whenever elements of two or more services are supporting one another". The Eisenhower memorandum follows:*

**T**he Army concept of the land, sea, and air principle of organization of the armed forces is well known; this Service accepts without reservation the concept of complementary roles—air, ground, and sea—and consequent mutual dependence of the three components of the armed services. Under this three-service concept, it is axiomatic that no single service should acquire forces or equipment necessary to accomplish joint missions singlehanded, if such forces or equipment unnecessarily duplicate those characteristic of either of the other two services.

The experiences of this war have indicated that in many operations, if not in the majority, the task was of necessity accomplished by contributions from two or three

**Gen. Eisenhower explains his views on military organization.**



services acting under the principle of unified command. Furthermore, the welding of the forces resulted in the greatest possible concentration of combat power at the decisive point, while at the same time permitting the greatest economy of force on lesser tasks.

Battle experience proved that control of the air, the prerequisite to the conduct of ground operations in any given area, was gained most economically by the employment of air forces operating under a single command. This assured a maximum of flexibility, providing a command structure under which all forms of available air power could be concentrated on tactical support missions or on strategic missions, as the situation demanded—in other words, it permitted the maximum concentration of combat air power at the decisive point at the decisive time. Throughout the war, the Army depended on the necessary tactical air support from a practically autonomous Air Force. This type of close, accurate, and effective support of the front-line fighting units was provided and proved an essential element in the achievement of the Army objectives.

The case for the concept that tactical air units belong under the Air Force rather than under the Army is supported by the abundant evidence of World War II, but does not rest on this evidence alone. Basically, the Army does not belong in the air—it belongs on the ground.

Planes are but a facet of the over-all problem, which is basically much broader and includes responsibilities now involving approximately one-third of the Air Force. Control of the tactical Air Force means responsibility, not merely for the fighters and medium bombers themselves, but, as well, for the entire operation establishment required to support these planes. This includes the requisite basic air research and development program necessary to maintain a vital arm and the additional specialized service forces to support the arm; for example, air maintenance units, aircraft warning units (radar, DF stations), tactical air communications nets, etc. In short, assumption of this task by the Army would duplicate in great measure the primary and continuing responsibilities of the Air Force.

To the foregoing, I would add one final thought.

The question of whether or not the tactical Air Force should be included within the Department of the Army was thoroughly explored in both the House and Senate hearings on Public Law 253, National Security Act of 1947, and solutions which would have placed this function under the Department of the Army were rejected by the Army, by the Air Force, and by the Congress. To include now within the Department of the Army the tactical air units required for support of the Army would, to my mind, be contrary to the letter and spirit of the National Security Act.

I have full confidence that the Air Force can and will furnish with full effectiveness this vital support to the Army. I, therefore, recommend adherence to the proved and accepted concept that the Air Force furnishes tactical air support to the Army.





# The TURBO STORY

**British Engines Will Improve US Planes, But They Leave**

**Unanswered the Riddle of Our Own Turbo Shortcomings**

**By William S. Friedman**

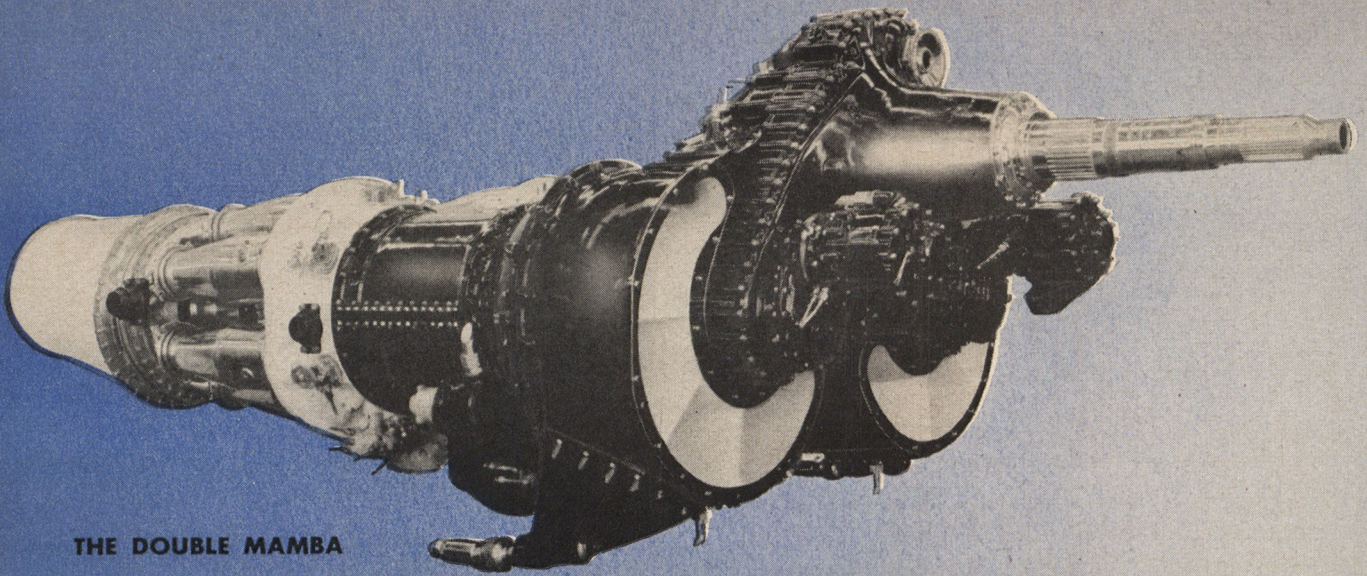
**T**he recent announcement by Wright Aeronautical that it had consummated a long-term agreement with two English firms (Armstrong Siddeley Motors, and Bristol Aeroplane Co.) which would give Wright production licenses on four English turbine engines plus technical advice and assistance on turbine development in the years ahead, has been received in the Pentagon with what dramatists term "mixed emotions". From an immediate standpoint, it was a good deal; the new engines will give American aircraft now in production or scheduled for production

at an early date, performance characteristics far and away superior to what they would have if they were dependent on available US engines. The sour part of the deal is the fact that the US is in the unhappy position of having to turn to foreign designs to begin with.

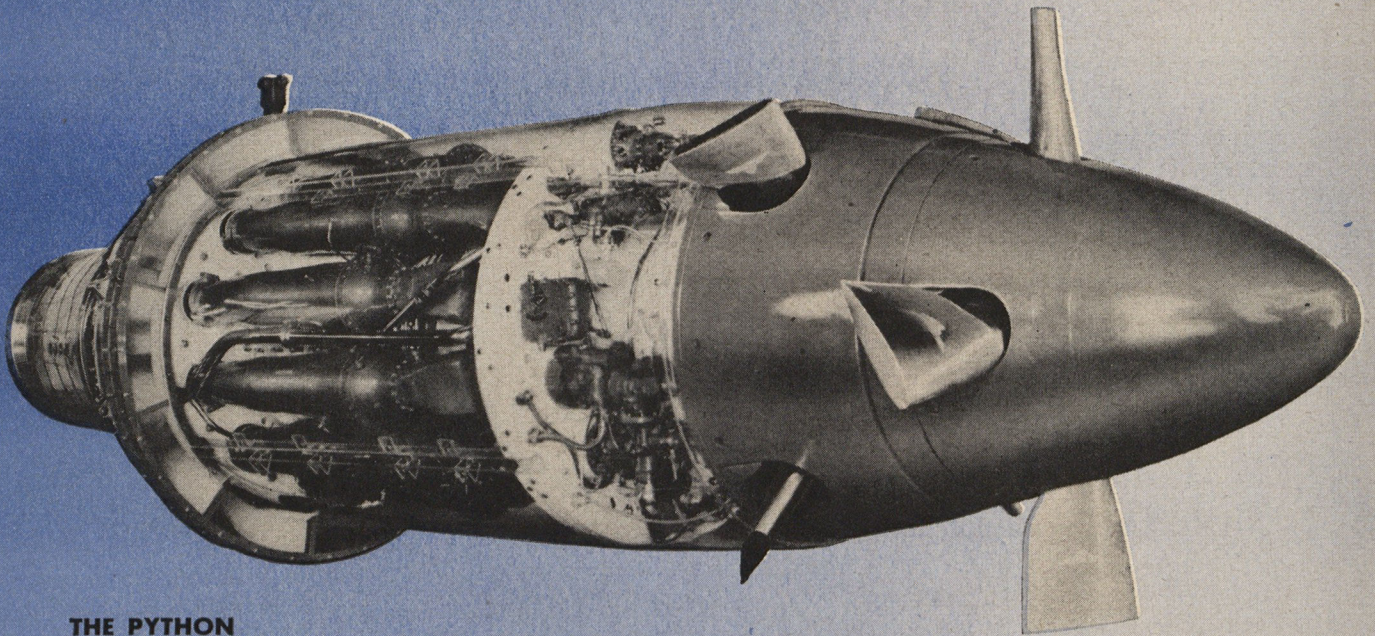
The initial package from Armstrong Siddeley contains—  
a.) both the single and the double Mamba turboprop units (both of which are well-tested and widely used)—  
b.) Britain's largest turboprop in current operation, the

*(Continued on page 29)*

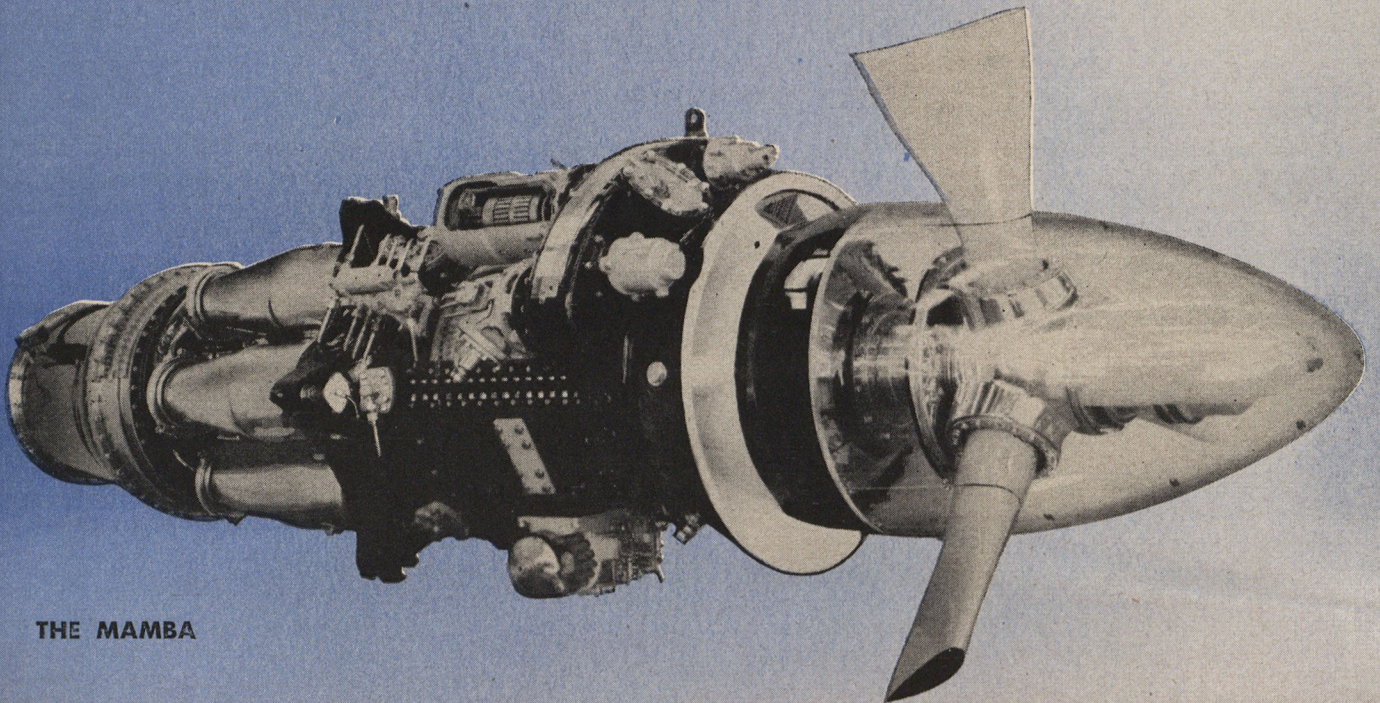




THE DOUBLE MAMBA



THE PYTHON



THE MAMBA



## THE TURBO STORY

CONTINUED

Python, and c.) the newest and probably the best of her turbojet engines, the Sapphire. The latter power plant is regarded by most experts as the treasure of the lot.

From Bristol, Wright has acquired rights to three turboprop and one turbojet engines. The turboprops are— a.) a 1975 hp Thesus, b.) the new 3200 hp Proteus and c.) the twin Proteus rated at 6400 hp. The turbojet is the Bristol Olympus, a radical engine featuring a twin-axial compressor system and rated at over 9,000 lbs static thrust. This unit is expected to be ready for flight both in England and the US by 1952.

Wright Aeronautical's contracts with the British organizations differ from those previously entered into by American companies, in that they cover complete collaboration on matters of engineering and production over a long period of time. The agreement between Pratt & Whitney and the Rolls Royce company, for example, covered only the Nene and the Tay engines.

The Armstrong Siddeley acquisitions are by no means speculative items. The Single Mamba, for example, is in operational use in both civil and military aircraft in England. This unit ran its first block tests in April of 1946, and by February 1948, it had passed its British Official Type tests. Currently it is being tested in a special version of the Boulton-Paul Balliol and in the Avro Athena military trainer, in a program to collect basic operational cost figures. The Mamba-powered trainers are being flown against piston engines of like output in the same airframe. Results of this program will become available in 1951. Mambas also power two transports, the four-engined Armstrong-Whitworth Apollo and the twin-engined Handley-Page Marathon.

The design of the Mamba comprises a ten-stage axial-type compressor which, with a twin-stage, twin-disc turbine and reduction-gear drive shaft, form a single rotating assembly. Air is fed straight through an annular intake directly behind the propeller spinner into six pre-vaporizing combustion chambers. The Mamba weighs 770 lbs dry. Including the spinner and tailcone, the engine is a little under 80 inches long. Maximum diameter is 29 inches. The power output at zero speed-sea-level is 1320 hp.

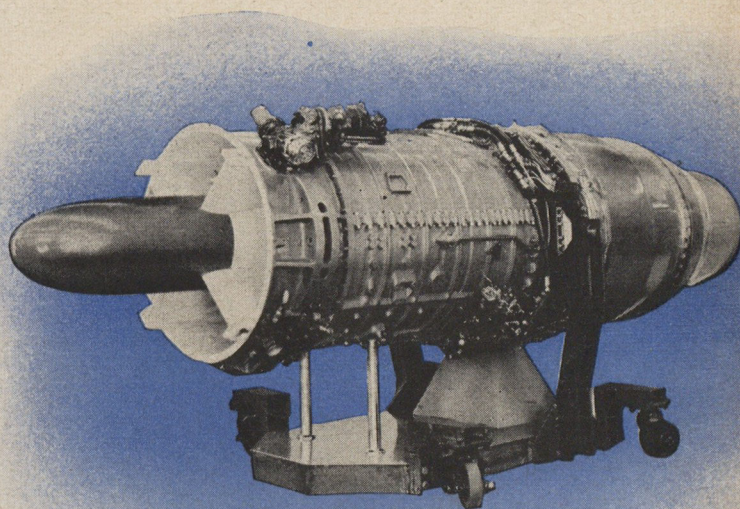
The Double-Mamba is, in effect, two of these units, coupled through a common reduction-gear system, driving a co-axial contraprop. The sea-level zero speed output of this engine is 2660 hp. It is currently used in both the Blackburn and Fairey carrier-type anti-submarine planes. At 400 mph, due to the ram air intake, the engine can produce 3140 hp. at sea level.

The Python turboprop is the largest unit of this class currently in use in England. This engine has a fourteen stage axial-type compressor, that feeds eleven vaporizing-type combustion chambers. The turbine is the two-stage type. A reverse-flow system takes the air in from a point well back from the spinner. The 7.4:1 reduction gearing system delivers power to a contrarotating propeller. The Python is currently being used on the Westland Wyvern, a carrier-type strike-fighter. The engine is rated at 4550 hp at take-off. It weighs 3485 lbs dry, and has an overall diameter of 54.5 inches.

Most US engineers, examining the immediate results of the Wright-Armstrong Siddeley collaboration, see the greatest immediate effect stemming from the use of the Sapphire engine. This new unit, which was first flown in the outboard nacelles of the test-bed Lancastrian last January, has already been flown in the Gloster Meteor fighters. At the RAF show this past August, the Sapphire-Meteor climbed to 30,000 feet in the remarkable time of three minutes and one second, and skilled observers state that this was by no means a maximum effort.

The Sapphire was originally designed by Metropolitan-Vickers in 1947. It was developed to its present state as the world's most powerful turbojet by Armstrong Siddeley. While technical details have not as yet been officially revealed, the unit is described as an axial-compressor type, using an annular type combustion chamber, instead of the multiple system of combustion chambers or "cans" commonly used.

The Sapphire weighs 2550 lbs dry, is a bit over 133 inches long and yields 7220 pounds of static thrust. Its leading feature is the lowest specific fuel consumption yet recorded for a turbojet engine, 0.907 pounds of fuel per hour for each pound of static thrust. This is quite a drop from the average 1.1 pounds typical of most axial types in use here and in England. The effect of using this engine on existing US military aircraft could be quite startling. For example, the Sapphire weighs the same as the J-47 engine that powers our F-86 Sabre fighter. The Sapphire is



THE SAPPHIRE

a little shorter in overall length, (133.85 inches as against 144,) the Sapphire's frontal area is 6.78 square feet as against the J-47's 7.35 square feet. Thus, installation of the new power plant would impose no major problems.

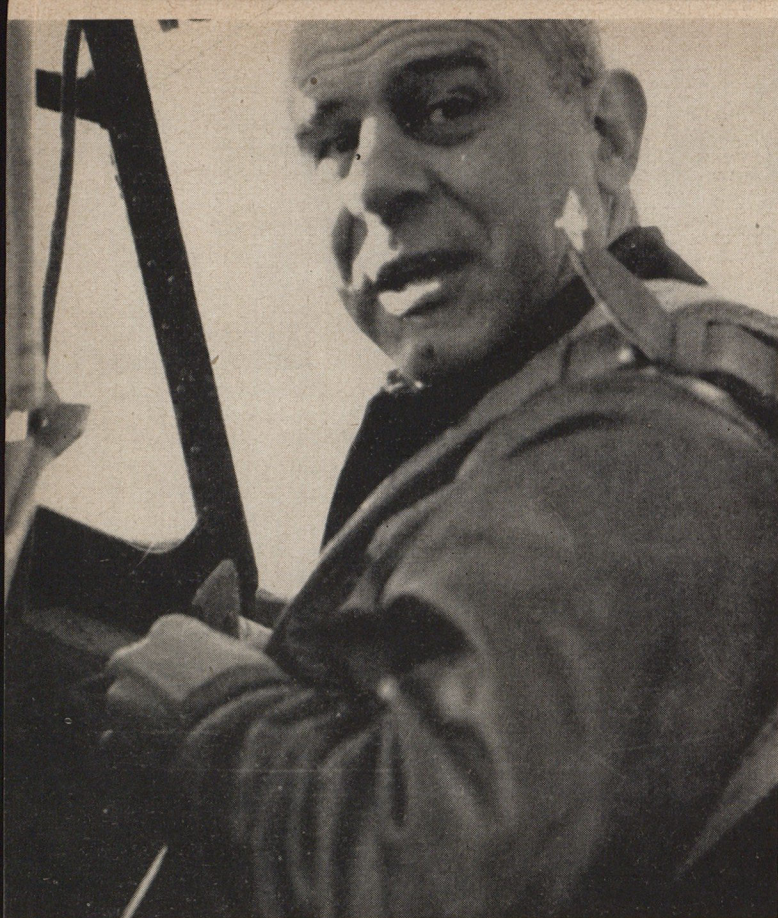
The improvements effected in the Sapphire engine are not a variety of "getting something for nothing." Turbojet design technique is still a relatively young science, and the problems of specific fuel consumption are still far from solved. In judging gas turbines of any kind, one factor must be considered. At the present stage of the science, for every hundred horsepower delivered to the propeller, or every hundred pounds of static thrust pushed through the tailpipe, three hundred must be furnished by the burning gases and the turbine to run the compressor. For that reason, any improvement in compressor efficiency can have a telling effect on the overall performance of the whole turbo engine.

The Sapphire's use of one of the best designed annular chambers, plus a highly advanced type of compressor, accounts to a large degree for its singular efficiency.

While considerable satisfaction has been expressed over the improvements in our battery of available turbo power plants effected by these agreements with the British companies, some rather pointed questions are being asked around Pentagon, chiefly concerning the long technical lead that the British appear to have over us.

(Continued on page 54)





Above, Gen. Doolittle in 1943 as Commander of the 12th Air Force in North Africa. Below, B-25s of historic Doolittle Tokyo raid parked on flight deck of Hornet in April, 1942.



Late in 1943 Doolittle was assigned as CG of the 15th. On Jan. 1, 1944 he became CG of the 8th. Below, he and Gen. Carl Spaatz exchange "Short Snorters" at an 8th AF party.



# MR. and AVIA

"In recognition of his great leadership and airmanship"

**T**wenty years ago, when aviation was at least a lot younger, and perhaps a little more robust than it is today, there were no more treasured prizes among airmen than the annual Harmon International Awards, established by the late Clifford B. Harmon in 1926.

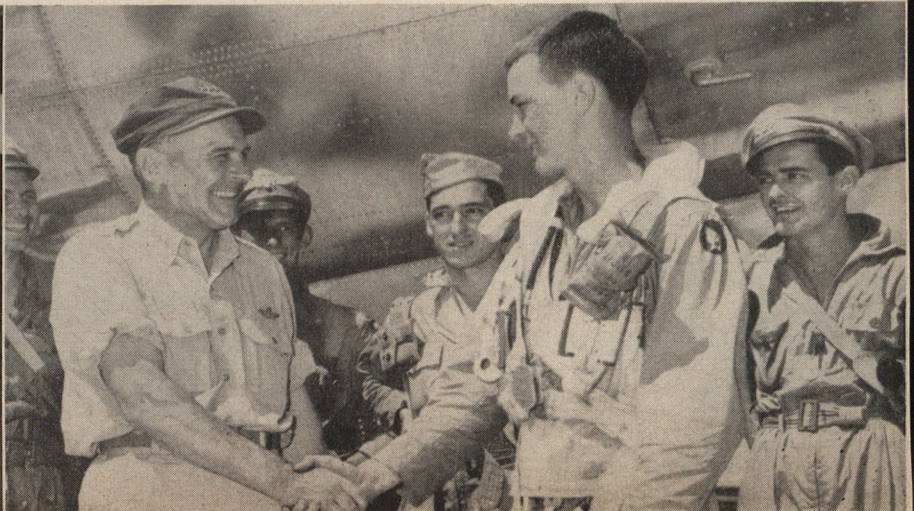
In 1939 the awards were discontinued temporarily while the world's airmen turned their attention from winning trophies to winning the war.

Now, however, presentation of the coveted awards has been resumed with traditional White House ceremonies. Only this year (to cover the lapsed decade) they were given recipients voted by the Harmon committee as the outstanding airmen in their field for the full ten year period between 1940 and 1950. There was no report on how long the committee debated the accomplishments of the numerous nominees, but their final election came as a surprise to no one—except, per-

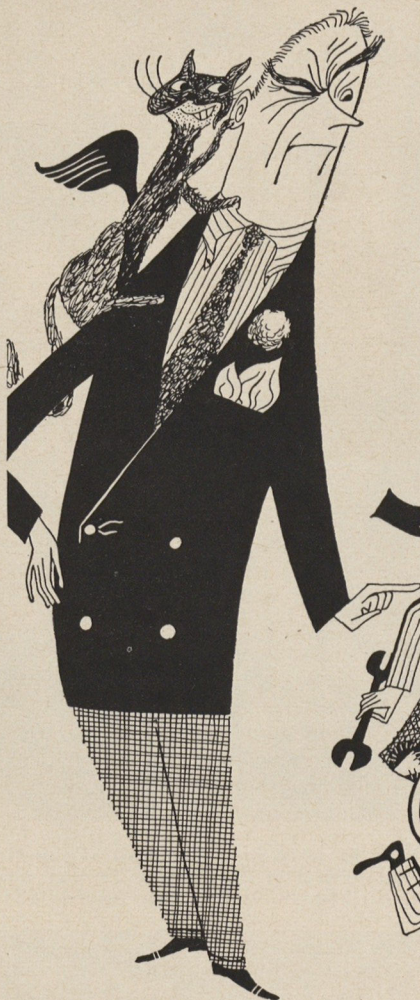
A month after the Tokyo raid Gen. Doolittle was awarded the Congressional Medal of Honor by President Roosevelt. Gen. Arnold, Mrs. Doolittle and Gen. Marshall stand by.



When the 8th moved from Europe to the Pacific Doolittle was in command. Below he welcomes crew of the "Baby Doll Too," the first B-29 to arrive at the 8th's Okinawa base.







# The THRILL is Gone But the MONEY Lingers on

Private aviation once meant  
flying by your pants seat.  
The wallet is now in charge

By Bernhard A. Roth

**T**hey have certainly beaten aviation down into its socks. I don't know just who *they* are, but I strongly suspect that new breed of cat called the public relations counsellor. Some time during the past 10 or 15 years, they really lowered the boom on the fun, romance and adventure of flying.

Coincidentally, although the coincidence has apparently not yet been noted, they killed the goose that was straining its pooper to lay the golden egg—a skyfull of American private planes hell-bent for pleasure and enterprise.

As everyone knows, private flying currently has an advanced case of rigor mortis; there are now about one-third the number of privately-owned planes that were on hand in 1940. Just run out to your local airport and take in the morgue-like atmosphere. You'll get the point.

To really see modern aviation public relations in action, go to a metropolitan air terminal. Busy?—Fairly. Interesting?—Well, if you can see over or through the fashionable chain link fence, you may observe "activity" as soul-stirring as the Clapham Junction freight yard when the sheep hides arrive from North Anglia.

Or pick up any aviation magazine on the stands. Does it make you want to fly, for the sheer fun of it—or for any other reason? As you wade through column after column of block tests on the latest Super-Pooper 12½ cylinder engine, the performance figures on the newest feeder-liner, the number of Fzz-298's that have been delivered to the San Marino Air Force, what Madame Lazonga wore on her flight from

Xingu to Metropolitania, and countless pictures of executives shaking hands—do you really get the urge to explore man's newest dimension, UP?

Personally, I used to get more itchy for the stick and rudder bar when I read the flying pulps of twenty-odd years ago: . . . "*Von Schlepperman's lips slid back in a mirthless grin as he pressed the trips of his twin Spandaus. Rat-a-tat-tat! Flaming lead! Butch McGurk felt the little Spad lurch sickeningly as the control cables. . . .*" Right off the cob, without a doubt, but, there was a *sensation of flight* in that purple prose.

Even if you didn't fly, the pre-war airports were fun to hang around. You could drive right up to where the old crates bounced in on the sod. On any summer night you would find a half-dozen young fledglings in an old converted barn-hangar, lovingly tuning up their ships. And someone was bound to be getting a few loops and snap-rolls out of his system, up around 5,000 feet.

Usually you would find an Eagle-rock or Commandaire doing a lively passenger-hopping trade. They would keep it up as long as the crowd





# MISS TION

**"In recognition of great piloting skill  
and aeronautical accomplishments"**



haps, the unassuming winners themselves.

The outstanding aviator of the decade, decided the Harmon group, was AFA's founding president and eloquent supporter, James H. Doolittle. The outstanding aviatrix of the period was AFA's great good friend Jacqueline Cochran. Miss Cochran was the first woman to join AFA after the WASPs of World War II became eligible for reserve commissions and thus eligible for AFA membership. She was also the winner of AFA's 1948 airpower award for distinguished civilian service "toward the peace and air defense of the United States."

A third Harmon winner was Vice-Admiral Charles E. Rosendahl, voted aeronaut of the decade for his work in dirigible design.

Although they are an inadequate record, the pictures on these pages highlight some of the events that were considered in naming the two AFA winners.

Below, "Jackie" in 1943 with a group of the WASPs she trained for flying duty during the war. In all, 1074 WASPs were graduated from the Sweetwater, Texas, school.



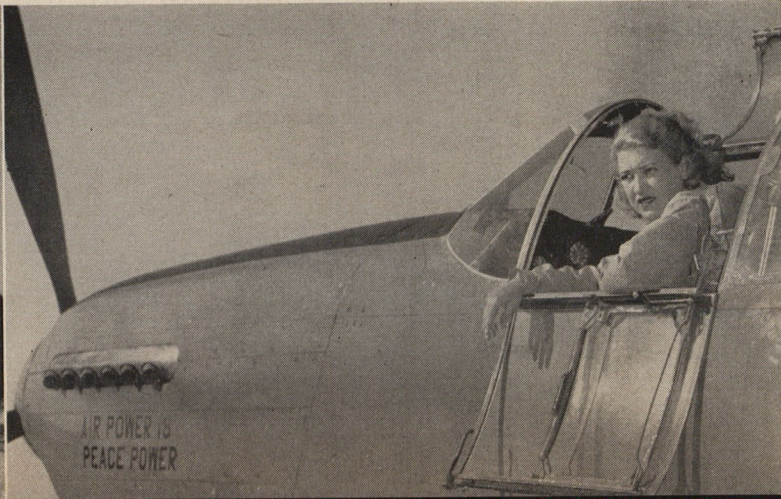
Above, Miss Cochran in 1946 in the cockpit of the Mustang in which she placed second in the Bendix Trophy race. She was the first woman to finish. Her average speed: 421 mph.



In 1948 the country's leading aviatrix was the only woman to finish in the Bendix race, but she was not at all pleased, below, because two men finished ahead of her.



Below, Miss Cochran climbs out of her F-51 after establishing a new 100 kilometer closed course record for women of 469.549 mph. Among others, Jackie also holds altitude record.



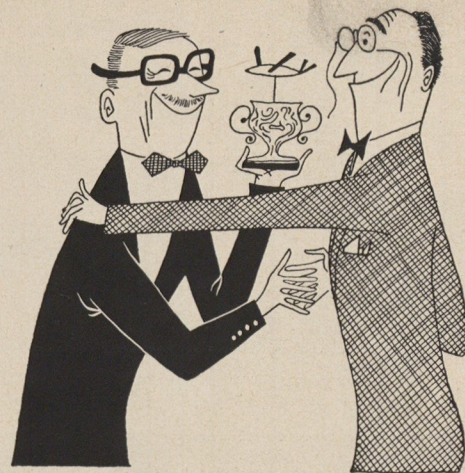


Today, at these same airports you are routed to a tidy little parking space—about a league from the runway and flight-line. Picking your way through the maze of No-Trespassing-Beyond-This-Point signs, you may find a couple of sad-looking mechanics bumbling around in a near-vacant hangar. Gone, and forgotten, are the young men who used to work on their own crates.

So the folks who used to hang around the 'port now became customers with a capital C—no longer aviation enthusiasts who might become infected with the urge to buy a plane, take instruction or, better still, become life-long ambassadors of

The next step, the public relations boys reasoned, was to make people forget. Forget the swash-buckling early days of flying. Forget that Lindbergh ever landed in cow-pastures by the light of a bonfire. Forget that Ben Eilsen pioneered Alaska by flying through snowstorms in an open biplane with no radio and damned near no instruments. Erase from the public mind the memory of such pioneers as Kingsford-Smith and his old tub, the Southern Cross.

Well, they certainly did a job. The allure of aviation for the average Joe has risen to such colorless, "big business" heights that many of the ex-service pilots and most of the would-have-been Pappy Boyingtons who



If flying is that un-adventurous and expensive, they reasoned, what's the sense of wasting time driving several miles to an airport, dodging chain-link fences and *verboden* signs and shelling out \$12 or more in order to shoot a few landings and take-offs?

Let's get back to Von Schlepperman and his mirthless grin.







**1** A napalm bomb strikes the ground and rolls at 1500 degrees into its target. Note plane in pull out at right.



**2** A second later the white-hot mist has spread in characteristic pear shape to completely envelop Russian tank.



**3** The tank's oil and rubber catch fire and send up great black clouds all but smothering the first white mist.

**4** After burning furiously for several minutes, smoke from napalm fire lifts revealing a charred, worthless hulk.



## "Goop" Bombs Prove Effective Against Russian T-34 Tanks

The use of fire as a weapon of war goes back to the early days of the Greeks and Persians. One of the earliest such weapons, it is reported, was a hollow log from which was blown by means of a bellows, the flame of a fire burning at the "firing" end. The log was aimed much in the manner of a rifle to give direction to the fire. Pictured on this page is a refinement of this early weapon—a napalm bomb. The photos were taken during a recent test by officials of the 5th Air Force in Korea, to determine the effectiveness of napalm against enemy tanks.

Carefully gauged, photographed and observed, the test proved the jellied substance to be quite effective against even so formidable a target as the Russian T-34. One 100-pound bomb covers a pear-shaped area about 275 feet long and 80 feet wide. Dropped at minimum altitude, napalms are ignited by a sparking of the tank on a hard surface, by fuse grenades, or by fighter aircraft strafing the area. Upon ignition, the bombs burn at 1500 degrees heat.

Napalm gets its name from the coconut and naphthenic acids which make up 75% of the bomb's content—"nap" for the naphthenic acids and "palm" from the fatty acids of coconut. In addition to these two ingredients, a napalm bomb has about 25% oleic acid.

A napalm bomb is primarily an antipersonnel weapon and should not be confused with incendiary bombs. The idea of the fire bomb originated from World War II combat reports describing how partially filled jettisonable gasoline tanks were dropped by homeward bound low flying planes, and then ignited by tracer ammunition. The improvised fire bomb was improved by using thickened gasoline to provide better target effects, and by white phosphorus-filled igniters which functioned on impact with the ground. The most commonly used fire bomb in World War II was based on the 165 gallon jettisonable gasoline wing tank.

The effectiveness of incendiary bombs was demonstrated early in the last war by the German attacks on England. The Germans used a 2-lb. magnesium bomb. The US developed a 4-lb. magnesium bomb based on a British design. Production of the bombs had hardly begun before it became apparent that the supply of magnesium would not meet vital war requirements. To circumvent this shortage a steel cased thermit filled bomb was developed by the CWS and used by General Doolittle in his historic raid on Japan.

**5** Closeup of smoldering T-34 as scene clears. Except for the rear wheel, everything combustible has burned.

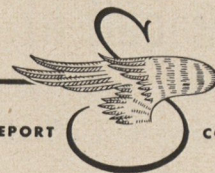




# SIKORSKY *Helicopter* NEWS

## SIKORSKY AIRCRAFT

ONE OF THE FOUR DIVISIONS OF UNITED AIRCRAFT CORPORATION



BRIDGEPORT

CONNECTICUT

The dependable performance of Sikorsky helicopters in Korea has earned rotary wing aircraft a permanent, indispensable role in modern military operations.

Here are some of the essential tasks Sikorskys have been performing with distinction, day after day, on missions flown by the Navy, the Marine Corps, and the Air Rescue Service of the Air Force:

- Rescuing the wounded and flying them back to rear-line hospitals
- Detecting mined waters
- Providing quick liaison between ship and shore
- Snatching downed pilots from behind enemy lines
- Fishing airmen from the sea
- Guiding isolated troops to safety
- Enabling spotters to trace enemy infiltration movements
- Transporting medical personnel and supplies to battle areas
- Carrying vital messages to and from mountain outposts
- Flying reconnaissance patrols over enemy lines

Many of the tasks assigned to Sikorskys are impossible for any other vehicle - ground or air - to accomplish. Others are jobs that helicopters can complete in a fraction of the time needed by ground transportation. Still others are brand-new military assignments made possible by the helicopter's special capabilities.

In short, the military potential of the helicopter is expanding every day. Sikorskys, the only helicopters to serve in World War II, are again demonstrating their versatility in a war zone where their proved maneuverability, ruggedness and adaptability really pay off.

SIKORSKY AIRCRAFT

Bridgeport, Connecticut



# Involuntary Recall at Virtual Standstill

**Air Force moves rapidly to put teeth in Marshall memorandum calling for an "orderly and effective mobilization procedure"**

Most important development during the last month with respect to recall to extended active duty of members of the USAF Reserve, was Secretary of Defense, George C. Marshall's memorandum to the various defense departments calling for an "orderly and effective procedure for further mobilization of the nation's military reserve forces."

The Secretary's memorandum came on the heels of widespread reports of hardships and inequities being suffered by reservists who were unsure of their status and were being refused jobs and promotions by employers who didn't want to take a chance on their uncertain future availability.

Marshall's order increased to 30 days the period between the date a man is ordered to active duty and the date on which he must report. It further ordered the various services to anticipate their manpower needs sufficiently so that a reservist will know four months in advance, barring radical changes in the international situation, that he will or will not be called within that period. Marshall also ordered provisions made for the release of involuntary reservists now on extended active duty only until they were adequately trained and qualified replacements were available.

The Marshall order and the degree to which it could be carried out, was admittedly dependent upon a number of imponderables, chief of which was, and still is the ever-changing "international situation." While all services moved rapidly to put the order into operation, no one could say for sure that the final word had been said. Indeed, Gen. Omar Bradley, Chairman of the Joint Chiefs of Staff, very recently called for a sweeping new program to bulwark the National Guard and other reserves as a result of what he called the "bruising and shocking fact" that the Korean war has stripped us of adequate power to face a possible general attack at any other point.

The Air Force, however, wasted no time in putting teeth into the Marshall directive. Within three days USAF headquarters had instructed Continental Air Command to:

1. Discontinue *immediately* the involuntary recall of Reserve Forces enlisted personnel.
2. Confine involuntary recall of Reserve Forces officers to those possessing critical skills not available from voluntary procurement or training sources.
3. To discontinue immediately the involuntary recall of all personnel with four or more dependents and to release all those already involuntarily

recalled upon application.

4. Begin a canvass of all Reserve and National Guard personnel on active duty who were involuntarily recalled to determine their desires as to retention in service or separation. Relief from active duty will be granted those desiring separation as soon as trained replacements are available.

5. Expand the USAF Regular Officer appointment program with a view to building Regular officer strength more rapidly to the authorized ceiling of 27,500. This program is designed to attract junior reserve and ANG officers to volunteer for active duty in order better to compete for these regular commissions.

Supplementary to this action, the Air Force is rushing through a survey of the Reserve Forces designed to insure the mobilization potentiality and availability of its Organized Reserve and Air National Guard. The Air Force wants assurance that all Reserve and ANG personnel are proficient in their skills, qualified in their grades, physically fit, and available for military service when needed.

With the discontinuance of involuntary recall, the Air Force is placing additional emphasis on obtaining volunteers. To augment this program, all recalled airmen will be permitted to enlist in the regular USAF in the grade they currently hold if recommended by their unit commander. All recalled officers likewise will be permitted to volunteer for continued duty. The Air Force will also support Reserve Officer contract legislation providing for specified term contracts for active duty, with adjusted compensation in the event an officer is released from active duty prior to the termination of his contract.

On the working level, it took a scant two days for First Air Force to formulate an SOP for its processing centers at Langley AFB and Fort Dix. Nonvolunteer airmen who had complied with recall orders but had not yet left the processing station for duty station were given the option of remaining on extended active duty or of requesting immediate relief from extended active duty and being returned home. Those wanting out were processed through classification procedures and given a final complete physical examination before receiving their "go home" orders.

This, then, was the overall picture at press time. The Air Force made it clear that its new policy did not mean retrenchment, but was instead an effort to meet its increased strength requirements through voluntary service. The

stated Air Force objective during this period is to develop and maintain an active Air Force in being, manned to the maximum possible extent by long-term volunteers, and backed by a well-equipped, adequately trained Reserve and Air National Guard, ready for immediate duty in event of acute crisis.

That reserve recall policy has not jelled, and probably will not jell while the international situation remains so uncertain, can best be illustrated by the short-lived "point system" which the Army put into operation and which the Air Force had under study. Under the Army system, which was a direct result of the Marshall directive, enlisted reservists were given a certain number of points for each year of age over 20; each year of Reserve service; each combat award; each year of active Federal service; each year of overseas service; and each dependent. Men with the lowest scores were to be the first sent overseas and those with the highest were to be the first relieved from active duty. The Army found the plan unworkable and it was discontinued in a matter of weeks. There is no immediate probability that the Air Force will put a similar plan into operation.

## Strength requirements of reserve units outlined

Regulations governing the formation of new Air Force Reserve units have recently been modified and such units will now be considered fully organized for pay purposes even though they may be well below their authorized strength.

Under the new regulation (AFR 45-50) a unit must have 25 percent of its authorized officer strength—including a qualified commander—and 10 percent of its authorized enlisted strength at the time of its activation. The expansion of each such unit to its maximum strength may be phased over a two year period. At the end of the two year period, the unit must have 90 percent of its officer strength and 70 percent of its enlisted strength.

A unit which does not comply with minimum strength requirements at any time during its first two years of existence will be placed on probation. If the unit remains understrength at the end of the next phased period, the major air command responsible for the unit is required to make appropriate recommendation to USAF headquarters for the modification, relocation of activation of the unit.

If a USAFR unit falls more than 10 percent below its minimum strength after the initial two-year period, it will be placed on probation and may be relocated or inactivated if the personnel deficiencies are not overcome within three months.



# Details of Air Reserve Program Clarified

## Pentagon Meet Explains Delay in Distribution of Identification Cards, but Fails to Answer AFA Inquiry as to Purpose of Reserve

A recent Pentagon meeting of high Air Force officials and representatives of three veterans organizations, including Air Force Association, has clarified certain details of the Air Reserve Program, but has shed little or no light on the broader questions of the reserve's mission and objectives, according to AFA representatives in attendance. Called by Asst. Air Secretary, Hal Stuart, the meeting considered a dozen questions submitted by the reserve organizations. Among them were these:

**Q.** Can you state the objectives of paragraph 17, Air Force Regulation 45-5 pertaining to age restrictions on Air Reserve Officers? It has occurred to some of us that these restrictions are overly severe especially in view of the Air Force's continued requirement for exceptional skills that require unusual training and that are not necessarily subject to deterioration with age. (Submitted by AFA)

**A.** The objectives of par. 17, Air Force Regulation 45-5, pertaining to age restrictions on Air Reserve Officers may be stated as follows:

- (a) To insure a vitalized Air Force Reserve organization by providing for a flow of young Reserve Officers through Reserve units.
- (b) To align the USAFR officer structure, as regards age and experience, as closely as practicable with that of the active duty component.

There is no evidence on hand to indicate that current age-in-grade criteria are precluding utilization of critical personnel, except in the case of a few mobilization assignees in Air Materiel Command for whom age-in-grade requirements have been temporarily waived. In fact, the age-in-grade criteria established for non-rated officers in the Organized Reserve is considered to be quite liberal (Lieutenant 36; Captain 42; Major 48; Lieutenant Colonel 55; Colonel 60). In the Volunteer Air Reserve, the only age-in-grade restriction is a maximum of 60. Those officers who reach the maximum age-in-grade prescribed for the Organized Reserve may be continued in their Organized Reserve capacity for a period of one year, provided:

- (a) They are qualified for promotion but cannot be promoted because of the lack of position vacancy.
- (b) They require less than one year in grade to complete minimum service in grade provisions.

**Q.** Can you give the Air Force's reason for failing to provide rations for airmen of the Organized Reserve during week-end training? It has been indicated to us that this has been one of the primary reasons reserve airmen have failed to attend week-end training schedules. It is therefore, a matter of some signifi-

cance in the building of an efficient Air Reserve. (Submitted by AFA)

**A.** Rations may not be provided reserve airmen who are on pay status, as a matter of law. Both the Air Force and the Department of Defense supported legislation to permit this but the legislation was not submitted to Congress at this session because of objections raised in the Bureau of the Budget.

**Q.** Can you make a statement regarding the progress in the adoption of an Air Force Regulation making specific provisions for the promotion of enlisted reservists? (Submitted by AFA)

**A.** The promotion of airmen in the USAFR has been taking place since 1946. Criteria have been particularly loose; there being no Air Force-wide age-in-grade, or time in grade factors, but merely the requirement of a position vacancy and the approval of the appropriate Air Force commander. However, there is currently ready for publication a new regulation to govern the promotion of USAFR airmen. Publication has been suspended due to restrictions on USAFR promotions.

**Q.** State what is the flying status of Reservists who are being recalled to active duty.

**A.** There is, at present, no change in the policy to which reference has been made. Instructions have been issued to ConAC to suspend from flying status those rated officers who are being recalled to active duty to serve in a skill other than their flying skill.

**Q.** What will be the Draft Board policy in drafting enlisted men?

**A.** By agreement of the three Armed Services with the Selective Service System, the induction of persons in the following category shall be postponed in accordance with Local Board Memorandum No. 20, issued by the National Headquarters, Selective Service System:

- (a) Enlisted members of Reserve components who are in good standing either as members of or as members associated with Regular drilling units (includes

National Guard units, Organized Reserve units and Volunteer Air Reserve Training Units). However, in order to conform with the intent of this agreement, the Air Force has established the policy that those individuals who have been classified as 1-A will not be accepted for enlistment in the Reserve.

**Q.** What progress is being made regarding new type identification cards for reservists?

**A.** Officers' cards have been distributed over the past year; airmen reservists have not been issued cards to date. There is a current shortage of material. It is anticipated that a TWX will be sent to the field stating a priority for issue, as follows: (a) officers and airmen on active duty, (b) officers on inactive duty, (c) National Guard, (d) Airmen on inactive duty.

But then came the \$64 question submitted by Air Force Association:

**Q.** AFA has always made a clear delineation between problems of the Air Force Reserve and problems of the Air Force Reservist. One, it has seemed to us, has to do with national security; the other quite bluntly, with personal convenience. Obviously there are areas in which the two overlap—where the efficiency of the Reserve is materially affected by regulations pertaining to the individual—but I must emphasize the point that AFA is of a firm mind that the advantage of the individual must always be made subordinate to the efficient functioning of the Reserve as a fighting force. We believe there may have been too many instances in the past where the Reserve's effectiveness has been gauge by the personal benefits it has afforded, or failed to afford, its members. We believe the Air Reserve will never be capable of fulfilling whatever mission is assigned it so long as this preoccupation is allowed to exist. This then is our first question. What is the Air Reserve supposed to do? Where does it fit in the overall program of national defense? And how can AFA be of assistance in accomplishing the Air Reserve's mission?

The answer to that:

**A.** "The scope of these questions (is) beyond the purpose of the discussion planned—and answers—(must) be deferred."

## SPECIAL ANNOUNCEMENT

### HOW DOES PL 267, 64th Congress, AFFECT YOU?

The 4th edition of **PENSION & RETIREMENT BENEFITS**, due off the press about 20 November will explain the provisions of this law, enacted *exclusively* for officers and men of the Army Reserve and the **AIR FORCE RESERVE**, whereby widows of Reservists who die while on active duty, are entitled to 45% of his pay. Widows of other Reservists and of Regular Service personnel are entitled *only* to \$60 monthly. Your widow may be entitled to as much as \$350 monthly.

Order your copy of the 4th Edition without delay as the stock will not last very long. Price \$1.00. Order from Book Dept., **AIR FORCE Magazine**, 1424 K St., N.W., Washington 5, D. C.





# CAP to the Rescue



**T**he minute man has given up the musket in favor of the reciprocating engine. Unlike the embattled farmer who stood ready to defend his land in the village square, today's CAP roams far and wide on missions of rescue and mercy and stands ready to throw its resources of 125,000 men, women and cadets and 3,500 planes into any national emergency.

High on the list of CAP activities is its work in conjunction with MATS' Air Rescue Service. Last year the CAP was credited with 6,000 hours of air rescue missions and this year's record promises to exceed that.

The 100,000 senior members of CAP (those over 18 years of age) serve purely on a voluntary basis and receive no compensation. They furnish most of their planes themselves, but when on rescue and search missions or officially approved training missions, their gasoline is furnished by the Air Force, which may also lend them special planes, such as helicopters, for particular missions.

There are CAP wings in each of the 48 states, District of Columbia, Alaska, Puerto Rico and Hawaii. During the summer months many of these wings engage in OPERATION SARCAP (Search and Rescue—Civil Air Patrol), illustrated here. Here techniques are perfected and the various members get practice in their assigned emergency roles. Mechanics ready planes, paradoctors drop to give first aid to crash "victims," and others carry on as if this training operation were the real thing. Their splendid record in times of emergency was reflected last year when CAP was credited with 65 percent of the successful rescue projects.

Poultry farmer Frank Mitchell gets orders to report.



Above, women CAP members check in personnel reporting for Pennsylvania's OPERATION SARCAP. Below, paradoctors give aid to "victim" of a simulated crash.



Above, the advance party at the scene of the "crash" sends up a signal flare. Incoming helicopter lands and, below, loads injured man who is returned to search headquarters for medical treatment.





# TAKE TO THE AIR FORCE



## There's a Man's Job for **YOU** in the U. S. AIR FORCE!

When you choose the U. S. Air Force as your service, you're choosing top technical training for war or peace in 42 career fields. You'll enjoy good pay, with additional pay for flying. You'll be assigned to specific duty according to your aptitudes. And you'll know the pride that goes with being *one of the best*, in a topflight outfit!

Take to the Air Force . . . for an interesting, rewarding and exciting life. Come war or peace . . . choose the Air Force way. Visit your nearest U. S. Army and U. S. Air Force Recruiting Station today for complete information.

***Get On Top . . . Stay On Top . . . With The U. S. Air Force***



# U. S. AIR FORCE



### AIR FORCE TRAINED SPECIALISTS:

If you're a former Air Force specialist, with one or more of 200 most essential MOS skills, you can re-enlist in the Reserve for three years in your old grade at last honorable discharge . . . for direct assignment to a year of active duty. Reservists can go back on active duty in present grades. Civilian jobs are protected under Selective Service. You are needed . . . NOW!

**THE U. S. AIR FORCE NEEDS MEN  
for these and other fields:**

**RADIO AND RADAR  
MAINTENANCE  
AIRCRAFT AND ENGINE  
MAINTENANCE  
WEATHER  
ARMAMENT SYSTEMS**





## AFA NEWS

### Association Wings Hold Annual Meetings

**California, Minnesota and New Jersey Wings Combine Airpower Forums With Business Sessions, Reunions, and Parties**

An added attraction in the form of Airpower Forums highlighted the annual conventions staged during the early fall months throughout the Nation by Wings of the Air Force Association. AFA members together with leading aeronautical authorities and high-ranking military representatives combined preparedness discussions with the annual business sessions, reunions, banquets and celebrations.

#### **California Unit's Conclave Held at Swank Resort Hotel**

Combining a sunny vacation with a packed convention agenda proved a happy arrangement for the California Wing, AFA, when they staged their third annual convention recently at swank Arrowhead Springs Hotel, near San Bernardino. With over 100 delegates from every squadron in California in attendance, the conclave was the most brilliant and most successful show the Wing has yet staged, according to Tom Stack, AFA Vice President.

Dave Barrows, commander of the San

Bernardino Squadron, was general chairman in charge of arrangements for the affair. Art Kelly, former wing commander and current member of AFA Board of Directors, was toastmaster for the third annual Airpower Banquet, attended by more than 250 guests who heard AFA's Executive Director James H. Straubel deliver the principal address.

Distinguished guests at the banquet included the Honorable Harold C. Stuart, Assistant Secretary of the Air Force; Robert S. Johnson, President of AFA; John Morgan, Medal of Honor recipient; Tom Stack; Maj. Gen. Victor E. Bertrandies, Director of Flying Safety, USAF; Brig. Gen. O. F. Carlson, Deputy Director of Flying Safety, USAF; Brig. Gen. L. R. Parker, Commanding General of Norton AF Base; Brig. Gen. L. W. Sweetser, Commanding General of the 452nd Bomb Wing from Long Beach AF Base; Brig. Gen. A. E. Boyd, Commanding General of Edwards AF Base; Col. George McCoy, commanding officer of George AF Base; Col. H. M. Estes, commanding officer



**Benjamin Belfer, left, Minnesota's new Cmdr., chats with Gen. Gates.**

of March AF Base; and Hon. J. E. Cunningham, Mayor of San Bernardino.

Winners of the annual California Wing Airpower Awards went to Bob Johnson, AFA's Man of the Year, while Hon. Harold C. Stuart received the Wing's "Distinguished Public Service" trophy. The Wing's Air Science Award was given to Col. James Gaylord, commanding officer of the USAF Lookout Mountain Laboratory. Tom Lanphier, of NSRB, received the Wing's Flight Award, and Howard Vandemann, of the Aviation News Beacon, won the Wing's Aviation Journalism Award. M/Sgt. Hartley Caldwell, of the Armed Forces PIO, received the Wing's Public



**The Hon. Harold Stuart, Assistant Sec'y of AF, picks the winners of the raffle at the Dawn Patrol Breakfast held in conjunction with California's recent AFA Wing Con-**

**vention. In the Hawaiian shirt at Stuart's left is Mike Kavanaugh, commander-elect of the Wing, and at Kavanaugh's left is Joe Nadel, past commander of the California Wing.**



Relations Award. James Straubel won the Wing's AFA Achievement Award for his management of Air Force Magazine.

Five of the leading members of the California Wing were singled out for their extraordinary efforts during the year in behalf of AFA. For their outstanding leadership and contributions to the aims and purposes of the Association, annual Wing Airpower Awards were made to: Augie Ong, commander of the East Bay Squadron; Dave Barrows, commander of the South Coast Group; Bud Riley, commander of the Santa Monica Squadron; Stew Reed, chairman of the San Francisco Squadron Airability Committee, and Jim McDivitt, commander of the San Gabriel Valley Squadron.

Assisting Barrows on the convention committee were Bert D. Lynn, Bob Enger, Bill Tobias and Bernard Barrett.

After two business sessions in which several resolutions urging the admission of Alaska and Hawaii as states were passed, the delegates elected Mike Kavanaugh of San Francisco, California Wing Commander for the 1950-51 term. He succeeds Joe Madel of Van Nuys.

The following panel of officers were elected to serve with Kavanaugh: Augie Ong, Oakland, North Coast Group Commander; Larry Lawler, Stockton, Valley Group Commander; Mike Pisani, San Francisco, Metropolitan San Francisco Group Commander; Bob Overly, Manhattan Beach, South Coast Group Commander; Jim McDivitt, San Gabriel, Metropolitan Los Angeles Group Commander; Bernard Barrett, San Jose, secretary; L. C. "Bud" Riley, Santa Monica, treasurer; and Irv McElliot, Montebello, sergeant-at-arms.

### CG of Chanute AF Base was Honor Guest at Minn. Affair

Air superiority and Airpower helped bring about the stable defense in Korea which prevented the Communists from winning in the early weeks, Brig. Gen. Byron E. Gates, Commanding General of Chanute AF Base, told delegates to the Minnesota AFA Wing convention at their first annual Airpower Banquet held at Minneapolis' Dyckman Hotel recently.

General Gates, who was introduced by Minnesota's Governor Luther Youngdahl, explained to the group what the Air Force has done in Korea and stressed the need for both strategic and tactical units in the Air Force.

Recipients of the Wing plaques for 1950 were Benjamin Belfer, new Wing Commander; Jack Kancauk, commander of the St. Paul Squadron; John McIlvaine, past commander of the Minneapolis Squadron; Merle S. Else, regional Vice-President of AFA and retiring Wing Commander; Mary Mallery, secretary, Minneapolis Squadron; and Burda Wexseth, treasurer of Minneapolis Squadron.

At the opening session of the Convention, Wing Commander Merle Else gave a report on the National AFA Convention held in Boston in August. During the forums which followed, Mr. Les



Gen. Gates, second from left, is shown with winners of Minnesota Wing's awards. Left, standing, Ben Belfer, new Wing Cmdr.; Gen. Gates; Jack Kancauk, St. Paul Sq. Cmdr.; John McIlvaine, Mpls. Sq. past Cmdr.; Merle Else, AFA vice pres.; seated, Mary Mallery & Burda Wexseth, sec'y and treas. of Minneapolis Sq.

Schroeder, Minnesota Commissioner of Aeronautics, discussed the Airability Program. The "general information for veterans" discussions were handled by E. R. Benke, manager, VA Center, Ft. Snelling; Herb Gish, a director of VA insurance for five states; Arnie Hamman, director of claims service; and George Janda, GI Loan guarantee representative. Gen. Gates headed the active duty and recall panel.

Benjamin Belfer, 2311 Humboldt Ave., S. Minneapolis, was elected commander of the Minnesota Wing, AFA, for 1950, as the Wing ended its first annual convention with a Dawn Patrol breakfast.

Other new officers elected were: Henry Bull, St. Paul, vice commander; Ruth McCline, St. Paul, secretary; and Burda Wexseth, Minneapolis, treasurer.

### Miss New Jersey Wing, AFA, Named at N. J. Convention

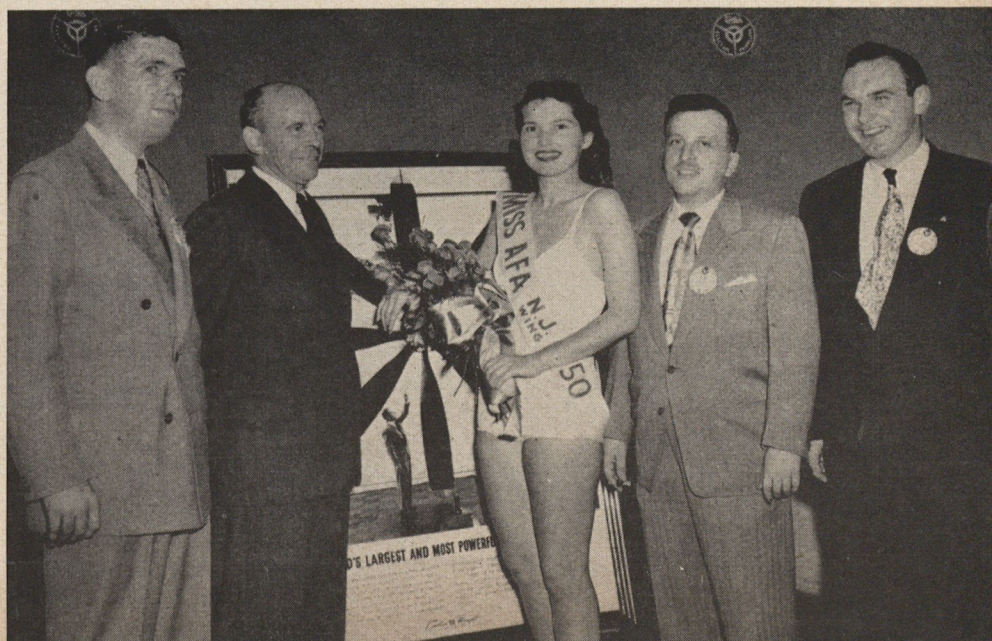
The "careless and ill-considered abandonment of the peacetime power essential to our security" was scored by the New Jersey AFA Wing in a statement of policy issued at their second annual conclave which was held at the Berkeley-Carteret Hotel, Asbury Park, N. J., on October 14.

The New Jersey convention was officially opened with the showing of several films on current topics.

During the Airpower forum which followed, Lt. Col. Donald Strait, who heads the aviation division of the New Jersey National Guard, spoke on the Air Guard program; Sgt. Robert Thompson

(Continued on page 44)

Miss Evelyn Joyce, Miss Television of 1949, was designated "Miss New Jersey Wing, AFA, 1950" at the Wing's annual convention. Shown with Miss Joyce are: l. to r., Warren De Brown, 1949 Wing Cmdr.; Theodore D. Parsons, Att'y Gen. of N. J.; Irving B. Zeichner, convention chairman; & John Currie, new Wing Cmdr.





*An Announcement  
of Singular Interest  
To All Collectors  
of Western Americana*

Through special arrangement with the publisher, Mr. Carl Hertzog, of El Paso, Texas, the Air Force Association is pleased to offer a highly limited edition of

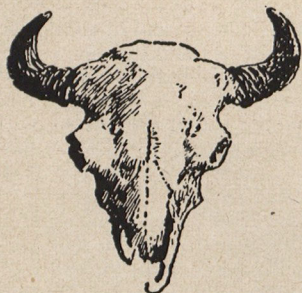
## SEVEN DRAWINGS

by

## CHARLES M. RUSSELL

Plus an additional drawing by Tom Lea, and an essay on the eight pictures by J. Frank Dobie.

All reproduced in original size 15½ x 22 inches and brought together in magnificent portfolio, suitable for framing.



### THE PICTURES

*By Russell*

- Before This He Had Only Wolves, Broke to Pack, or, Drag a Travois
- To Fort Union to Trade
- The Pony Express
- Freighting from Fort Benton
- The Stage Station
- The First Fire Canoe Nears Fort Union
- The Iron Horse Comes to the Upper Missouri

*By Lea*

- The Airplane

Only 675 prints have been made of these remarkable drawings by two of the most famous western artists in American history. Each portfolio is individually numbered, and additional printings are not anticipated. Here, truly, is a rare collectors item.

**SPECIAL PRICE \$25.00**

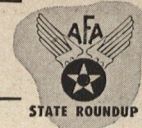
### AIR FORCE ASSOCIATION

Dept. R-1  
1424 K St., N.W.  
Washington 5, D. C.

SORRY NO COD'S

*Additional description of the portfolio and drawings upon request.*

## AFA STATE ROUNDUP



### NEW JERSEY

*Montclair:* Mr. Charles L. Morris of Helicopter Industries was guest speaker at a recent meeting of the Montclair-Essex Squadron, AFA at the Public Health Building, Montclair. The speech was accompanied by color moving pictures of helicopters in action.

The lecture and film were followed by open discussions on helicopters. Questions from the floor were answered by Mr. Morris.

Mr. Morris was introduced by A. N. Cochran through whose instigation Mr. Morris appeared.

Refreshments were served following the meeting.

George M. Parr, Jr., 106 Edgemont Rd., Upper Montclair, is commander of the Squadron.

### NEW YORK

*New York City:* An attractive Year Book has been published by the New York City Squadron No. 1 (WAC). The publication is a 24 page booklet containing 10 large illustrations and 56 individual photographs of the Squadron members. It covers activities from the signing of the original charter on December 26, 1946 to the third Anniversary Dinner at the Beverly Hotel on January 13, 1950.

The price of the Year Book is \$1 for the first copy and 50 cents for each additional copy. Copies may be obtained by sending a check or money order to Peg Mitchell, 415 Bergen St., Brooklyn, N. Y., or Clara Haubrich, 9107 Second Avenue, North Bergen, N. J. Checks or money orders should be made payable to NYC Squadron No. 1 (WAC).

Men of the New Jersey Home for Disabled Veterans at Menlo Park will be entertained by the Squadron members at a party at the home on December 9, 1950.

Committee chairmen for the event are Edna Schenk, refreshments; Ruth Stern, decorations; Beverlee Cohen, gifts and door prizes; and Emma Meister, entertainment.

The Fourth Anniversary Dinner of the Squadron will be held on January 13, 1951 at the Hotel Beverly. The price will be \$5.50 per person.

Arrangements are being handled by the recently enlarged program committee which is headed by Mildred Buck. The committee now consists of Mary Bator, who is in charge of the dinner, Florence Ross, Terry Csizi, Peggy Carr, Ella Rosenbach, Odelie Burgunder, Betsy Evans, Helen Chingos and Billy Eggud.

Twenty-five members of the Squadron attended a session of the United Nations General Assembly on November 25.

*Staten Island:* Major Robert E. Moist, USAF, was guest speaker of the Staten Island Squadron, AFA, at a recent meeting in the New York National Guard Armory. After speaking on the USAF Reserve, Major Moist answered questions from the floor on the recall program.

Squadron member Marthinus P. Leth is Civilian Defense Director on Staten Island and will be helpful to the Airability Program, Squadron Commander

*(Continued on page 44)*



General Nathan F. Twining, recently appointed USAF Vice Chief of Staff, signs charter of 15th Air Force Society during a recent meeting of the air fraternity in Philadelphia. Witnessing the signing is Major General Dean C. Strothers, left, Asst. Deputy C/S for Personnel, and David R. Odenath, Society President.



## Systems Engineering

**Guided missiles experience aids Martin in implementing this airplane design concept**

Guided missiles were the first aircraft to attain supersonic speeds—the first to acquire fully automatic control—and the first to require the close design integration of components which The Glenn L. Martin Company calls *Systems Engineering*. Today, with piloted airplanes also passing the sonic barrier and being assigned increasingly difficult missions, it is essential that they, too, be designed as integrated air-borne systems, not merely as flying vehicles whose sole goal is speed.

With a background of demonstrated accomplishments on top level missiles projects, and continuous growth in this field . . . The Glenn L. Martin Company has carried over *Systems Engineering* from its missiles experience to its airplane designing. The Martin engineering staff has been shaped and manned to provide proper emphasis on all three of the basic types of functional elements involved in the production of a modern airplane—airframe and power plant—electronic flight and navigational controls—and military armament or passenger facilities.

Martin *Systems Engineering* recognizes that the immediate problem of aeronautical engineering is not to concentrate exclusively on airframe performance, but to integrate the necessary electronic and mechanical systems into the airframe design to produce a truly effective military weapon. And, whether the weapon is a manned airplane or a guided missile, it is imperative that the complete development be so scheduled that the end product represents a completely coordinated system. There is no advantage in having an airframe ready for flight testing while the guidance system, which may necessitate airframe changes, is still a gleam in the designer's eye.

That is Martin *Systems Engineering*. That is why radar, servo-mechanism, automatic control, automatic computer and antenna experts—as well as aerodynamicists, structural engineers and electrical, hydraulic, armament and power plant installation specialists—are all part of the well-integrated engineering team. The Glenn L. Martin Company offers its customers today.

## Martin Ads Tell Air Power Story

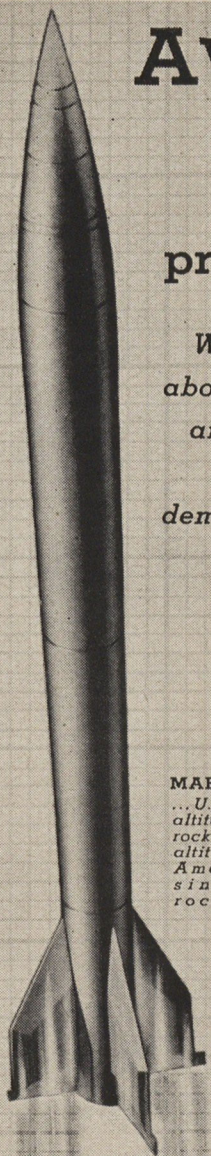
Reaching millions of informed, alert American magazine readers, Martin advertisements like this one highlight air power's important role in our country's preparedness program. And survey after survey has demonstrated that their fiction-style appearance attracts an extremely high readership.

The general public and business circles are reached through the pages of *Time*, *Newsweek* and *Business Week*. The men and women who write and edit the news are kept abreast of latest developments through *Editor & Publisher*, *American Press* and *Publisher's Auxiliary*.

# AVIATION ENGINEERING

**probes a new UNKNOWN!**

*With the Martin Viking rocketing 106 miles above the Earth at 3600 m.p.h. . . with piloted aircraft passing the sonic barrier . . . man's physical limitations create new problems, demand new methods of aeronautical designing.*



**MARTIN VIKING**  
... U.S. Navy high-altitude research rocket... holder of altitude record for American-built, single-stage rocket!



**MARTIN KDM-1**  
... U.S. Navy target drone... ramjet-powered, radar tracked, radiocontrolled.

**Martin**  
**AIRCRAFT**

Builders of Dependable Aircraft Since 1909

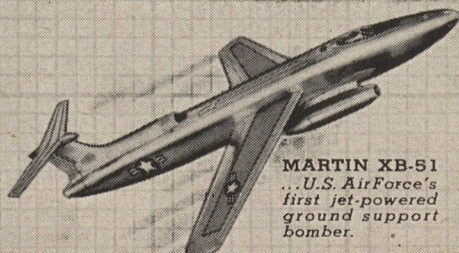


**Manufacturers of:** Military aircraft • Martin airliners • Guided missiles • Rockets • Electronic fire control and radar systems • Precision testing instruments. **Developers and Licensors of:** Mareng fuel tanks (to U. S. Rubber Co.) • Marform metal-forming (to Hydropress, Inc.) • Honeycomb construction material (to U. S. Plywood Corp. and Aircraft Die Cutters) • Structural adhesives (to U. S. Plywood Corp. and Bloomingdale Rubber Co.) • Permanent fabric flame-proofing (to E. I. duPont de Nemours & Co.) • Hydraulic automotive and aircraft brake **Leaders in Building Air Power to Guard the Peace, Air Transport to Serve It.**

**MAN IS BUILT** to move at 3 m.p.h.—to see and hear for only short distances—to react in painfully slow tenths of a second—to live in an oxygen atmosphere with very narrow pressure and temperature bands. When he must fly in extreme temperatures and pressures at supersonic speeds—make decisions in thousandths of a second—bomb unseen targets, shoot down enemy invaders in zero-zero weather or sink submerged submarines—he must have the aid of mechanical and electronic senses, muscles and nerves!

To meet this challenge, Martin engineers are designing aircraft as integrated airborne systems, not merely as flying vehicles whose sole goal is speed. Whether planning a U.S. Navy Viking rocket, a jet-powered Air Force XB-51 or a modern airliner . . . Martin engineers work with all three elements of airframe and power plant, electronic flight and navigational controls, and military armament or passenger facilities. And design work is so scheduled that the end product represents a completely coordinated system. For there is no point in having an airframe ready for flight testing while the electronics system, which may alter the airframe, is still a gleam in the designer's eye.

This is Martin *systems engineering*—a new beacon to pierce the blackness of the unknown—developed from Martin's background of far-reaching advances on top level missiles projects. This is why radar, servo-mechanism, automatic control, automatic computer and antenna experts—as well as aerodynamicists, structural engineers and electrical, hydraulic, armament and power plant installation specialists—are all part of the well-integrated engineering team Martin offers its customers today! THE GLENN L. MARTIN COMPANY, Baltimore 3, Maryland.



**MARTIN XB-51**  
... U.S. Air Force's first jet-powered ground support bomber.





BETTMANN ARCHIVE



Taking the measure of atmospheric pressure dates back to Torricelli's mercury column in 1643.

Subsequently, the aneroid—or fluidless—barometer was developed. But while it offered a much higher degree of portability, there was also a corresponding sacrifice of accuracy.

In fact, not until the advent of the first sensitive altimeter—engineered by Kollsman—was the aneroid diaphragm recognized to be an extremely reliable gauge of pressure differential.

The pointer of the Kollsman 80,000-foot Sensitive Altimeter accurately indicates a change of fifty feet while the positive diaphragm movement is only one ten-thousandth of an inch.

This outstanding example of precision engineering and careful manufacturing technique typifies Kollsman leadership in the fields of aircraft instrumentation, optics and electro-mechanical controls.

**KOLLSMAN AIRCRAFT INSTRUMENTS**

PRODUCT OF



## ROUNDUP

CONTINUED

Richard Lasher, 15 Ruth St., Staten Island, has announced.

**New York City:** AFA's Mitchel Squadron is now meeting at the Roosevelt Inn, Roosevelt Field, Old Country Road, Mineola, L. I., New York, Squadron Commander George D. Griffin, 238 N. J. Ave., East Hempstead, Long Island, has announced. The meetings are held on the second Thursday of each month.

**Manhattan No. 1:** Four officers from Mitchel AF Base were guests at a recent dinner sponsored by the Manhattan Squadron No. 1., AFA, at the Princeton Club, 39th and Park. The guests were Col. Knoll, Col. Topaz, Maj. Stickle and Capt. Englebright.

After a short business meeting, Col. Knoll gave an informal talk on the phase the Air Force has played in mobilization and procurement during the present situation.

After the meeting the members renewed old ties and joined together in drinking beer. There were 28 present out of 66 active members.

The Squadron meets the second Thursday of each month at the Princeton Club at 8 p.m.

Don MacAusland, 510 East 23rd St., New York City, is secretary.

**Brooklyn:** Lt. Col. Frank Hyler from Floyd Bennett AF Base was guest speaker at a recent meeting of the First Brooklyn Squadron, AFA, held at 160 Pierrepont Street. Col. Hyler discussed the USAF Reserve and conducted a forum on the recall program.

### OHIO

**Dayton:** Dayton Squadron No. 1, AFA, will be host to the 1951 Ohio Wing Convention which will be held for two days sometime in July next year, Dr. J. H. Meyer, commander of the Squadron, has announced.

Dr. Meyer, 1814 Wabash Avenue, has been appointed Group Commander for all AFA squadrons in southwestern Ohio, and has announced that plans are being prepared for closer cooperation between the units in that area.

The November Squadron meeting featured a program by Mr. and Mrs. Ed Edmiston, both of whom testified recently before the House Un-American Activities Committee on their experiences as undercover agents for the government in the Dayton-Cincinnati area before the war.

## AFA NEWS

CONTINUED

of Watson Laboratories, Eatontown, talked on AF Reserve activities; Dr. Allan B. Crunden, Montclair physician, discussed the medical aspects of an atomic explosion; and Ralph V. Whitener, AFA's Organizational Director, gave a report on the Airability Program.

The convention's guest of honor, N. J.'s Attorney General Theodore D. Parsons, who was a flier in World War I, presented the New Jersey Wing Airpower Award for 1950 to a representa-



tive of the propeller division of the Curtiss-Wright corporation of Caldwell at the Airpower Banquet.

The much-coveted trophy, awarded annually for outstanding engineering development in aviation industry, was presented this year to the Curtiss-Wright corporation for its development of the "turboprop," believed to be the world's most powerful prop.

The award was accepted for the corporation by George W. Brady, director of engineering.

Irving B. Zeichner, Atlantic Highlands, convention chairman, introduced the speakers at the banquet. Seated at the guest table were the newly-elected officers and Miss Evelyn Joyce, Irvington, Miss Television of 1949, designated at the convention as "Miss New Jersey Wing, AFA, 1950."

## Signal Corps Film on Korea Available to AFA Squadrons

A film entitled "First 40 Days" (Misc. 7761) has been produced and distributed by the Signal Corps, Department of the Army. This 24-minute, 16-millimeter black and white public information film is available for public non-profit, theatrical and television showings.

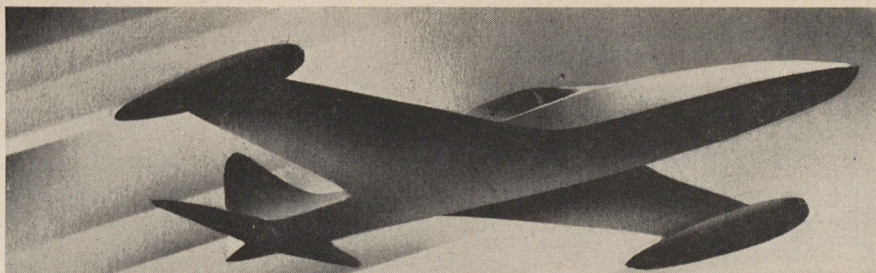
"First 40 Days" is a report of a GI in the early days of combat in Korea and a dramatic documentation of the delaying action which was necessary to establish and secure a foothold against North Korean forces. It features the role of the Army in combat during the first 40-days of the Korean crisis. All of the footage contained in this film is authentic and was photographed in the combat zone.

Sequences in the film show troops arriving in Korea and becoming acquainted with the terrain; supplies and equipment being unloaded; GI's digging fox-holes; combat scenes of General Walker and General Dean; replacement units and supplies being received; combat action in Taejon; units blowing up bridges behind them to delay the advance of North Korean forces; and the establishment of a line of defense against great odds.

For loan, address the Signal Officer at the following headquarters: Commanding General, First Army, Governors Island, New York 4, N. Y.; Commanding General, Third Army, Ft. McPherson, Ga.; Commanding General, Fifth Army, Chicago, Ill.; Commanding General, Second Army, Fort Geo. G. Meade, Maryland; Commanding General, Fourth Army, San Antonio, Texas; and Commanding General, Sixth Army, San Francisco, California.

Prints in 16 mm may be purchased from United World Films, Inc., 1445 Park Avenue, New York City.

At a business session, John Currie, Paterson, was elected Wing Commander, to succeed Warren De Brown; John Hagerstrom, Maplewood, first vice commander; Maurice Ojserksis, Atlantic City, second vice commander; James A. Doler, South River, secretary; and Vincent Mango, Long Branch, treasurer.



# Alodine®

## BONDS PAINT TO ALUMINUM AND PROTECTS THE METAL

### EASY TO USE

Process is foolproof and chemical solution can be applied by dipping, spraying, brushing or flow-coating.

### ELECTROLESS

Alodizing is a chemical conversion process.

### ECONOMICAL

Low chemical cost, short coating time and low temperature keep overhead down.

### EFFECTIVE

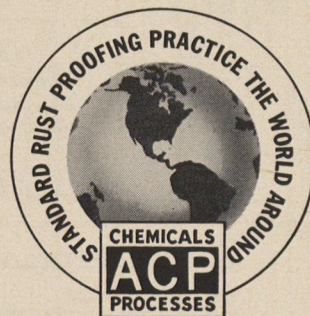
The tough, durable Alodized surface makes paint stick to aluminum and resists corrosion. "Alodine" meets these Service specifications: MIL-C-5541; MIL-S-5002; AN-E-19; AN-F-20.

## Brush Alodine®

Brush "Alodine" is easily and quickly applied to assembled aircraft in the field, shop, or hangar. Cleaning and coating chemicals for Brush Alodizing are shipped in bulk or in the convenient Brush "Alodine" Chemical Kit No. 1. This Kit contains enough chemicals to treat about 1000 square feet of surface and is an ideal package for use at airfields of commercial airlines or of the Armed Services anywhere.

**Use "Alodine" and Alodized Aluminum for Maximum Product and Finish Durability!**

**Write for Descriptive Folder.**



Pioneering Research and Development Since 1914

**AMERICAN CHEMICAL PAINT COMPANY**

**AMBLER, PA.**

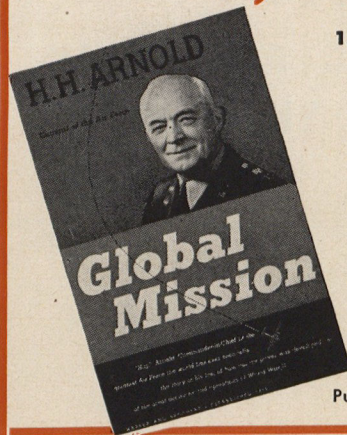
Manufacturers of METALLURGICAL, AGRICULTURAL and PHARMACEUTICAL CHEMICALS



# AFA's GALA CHRISTMAS

We've combed the market to bring you fine books for every member of your family at rock-bottom, non budget-wrecking prices. ORDER YOURS NOW!

## Bargains in Books



### 1. GLOBAL MISSION

By Gen. H. H. "Hap" Arnold

By Special Arrangement, we are pleased to present one of the most important Air Force books published since the end of the war: The Old Man's own story, "Global Mission," is also the inside story of the growth of American Airpower from the Wright Brothers to the end of World War II. Here is the lowdown on Billy Mitchell's courtmartial, Hap's own exile and how America invented the buzz bomb in 1917. Here is an ideal Christmas gift at a smashing 50 percent discount.

Pub. at \$5.00

**NOW ONLY \$2.50**

### 2. AIR FORCE DIARY

Edited by James H. Straubel

WHILE THEY LAST! Publishers overstock of Air Force Diary. Brand new books without dust jackets are being offered to AIR FORCE readers at remarkable savings. Here, in permanent form, are the best stories of your wartime Air Force Magazine. All theaters and all Air Forces are represented.

Pub. at \$3.75

**NOW ONLY \$2.00**

### 3. ADVENTURE PACKAGE

THE WRATH AND THE WIND, By Alexander Key  
CUTLASS EMPIRE, By F. Van Wyck Mason  
VERMILION, By Idwal Jones

Pub. at \$9.00

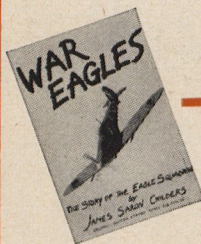
**ALL THREE BOOKS ONLY \$2.75**



### 4. COOK BOOK PACKAGE

SOUPS, STEWS AND CHOWDERS, By Lily Wallace  
MACARONI MANUAL, By Crosby Gage  
GASTRONOMICAL ME, By M. F. K. Fisher

**ALL THREE BOOKS FOR \$2.50**



### 5. WAR EAGLES

By James Childers

In the early days of the war when England was standing alone against Nazi Germany, the American Eagle squadron blazed a glorious trail across the Channel skies. This is their story, excitingly written by one who knew them well.

Pub. at \$3.75

**NOW ONLY \$2.00**

### 6. JUVENILE PACKAGE

THE OLD SAILOR  
THE KING'S BREAKFAST  
WINNIE-THE-POOH, and other selections from A. A. Milne

**ALL THREE BOOKS FOR \$1.00**

### 7. THE MECHANICS' ENCYCLOPEDIA

Edited by William L. Schaaf

Nearly a thousand pages and more than 700 diagrams covering every possible aspect of wood-working, machine shop practice, electrical work as well as practical mathematics, physics and chemistry.

Pub. at \$3.95

**NOW ONLY \$2.75**

## still great buys

### 8. THE YOUNG LIONS

By Irwin Shaw (a best-selling war novel)

Pub. at \$3.95

**Now only \$2.25**

### 9. THE OFFICIAL PICTORIAL HISTORY OF THE AAF

By the Historical Officer of the AAF

Pub. at \$10.00

**Now only \$3.95**

### 10. THE AAF AGAINST JAPAN

By Vern Haugland

Pub. at \$5.00

**Now only \$1.50**

### 11. THE GERMAN AIR FORCE

By Asher Lee

Pub. at \$3.50

**Now only \$1.50**

### 12. AIRCRAFT INSTRUMENTS

By Manuel Stieri

Pub. at \$1.50

**Now only \$ .95**

### 13. AIR VICTORY

By Harold Hinton

Pub. at \$5.00

**Now only \$1.50**

### 14. AIR TRANSPORT AT WAR

By Reginald M. Cleveland

Pub. at \$3.50

**Now only \$1.50**

### 15. WE'LL SAY GOODBYE

History of the 307th Bomb Group

**Now only \$3.00**

### 16. NONE SHALL SURVIVE

By Burton Graham

**Only \$1.75**

### 17. A RESEARCH IN MARRIAGE

By Dr. G. V. Hamilton

"A report originally published for professional readers only, made under the same auspices as the Kinsey report, covering emotional and sexual behavior of married men and women." 570 pages.

Pub. at \$5.00

**NOW ONLY \$3.00**

## Books are Best for Christmas Gifts



# BOOK SALE!

Here are the newest books of top interest  
to Air Force vets and friends of airpower

## 18. AIR POWER: KEY TO SURVIVAL

By Alexander P. de Seversky

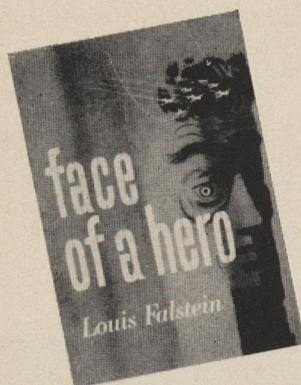
Here is the most important book on airpower as an instrument of war since "Victory Through Air Power" written by the same author nearly a decade ago. It is daring, brilliant and defiant in its approach to the very personal problem of survival in the age of absolute weapons. You will find it one of the most challenging books you have ever read.

Simon and Schuster

\$3.50

## 19. FACE OF A HERO

By Louis Falstein



The war novel of 1950 is definitely FACE OF A HERO and it's Air Force all the way. The author, himself a veteran of the 15th Air Force in Italy, has written a powerful saga of an air crew struggling to complete its 50 missions. The language is rough: not recommended for a maiden aunt.

Harcourt, Brace and Co.

\$3.00

## 20. THE ARMY AIR FORCES IN WORLD WAR II

Volume IV, by Craven and Cate

\$6.00

## 21. ACROSS THE RIVER AND INTO THE TREES

By Ernest Hemingway

\$3.00

## 22. MacARTHUR: MAN OF ACTION

By Kelley and Ryan

\$2.00

## 23. THE AIR OFFICER'S GUIDE

\$3.50

## 24. THE AIRMEN'S GUIDE

\$2.50

## 25. JET AIRCRAFT SIMPLIFIED

By Charles Edward Chapel

\$3.75

## 26. THE ARMY AIR FORCES IN WORLD WAR II

Volume I

\$10.00

## 27. THE ARMY AIR FORCES IN WORLD WAR II

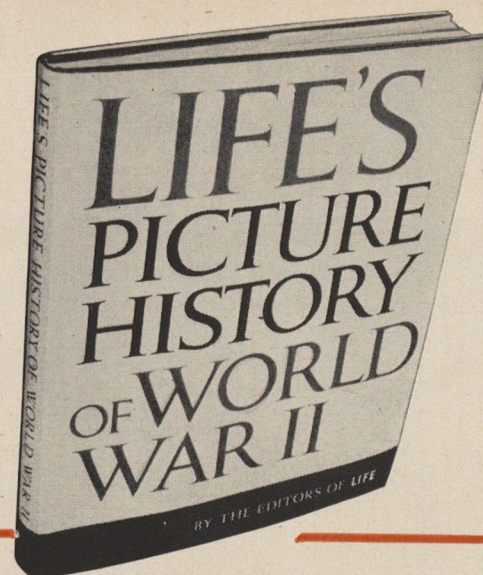
Volume II

\$6.00

## 28. THE STORY OF ERNIE PYLE

By Lee Miller

\$3.95



## 29. LIFE'S Picture History of the War

For that very special Christmas gift, this beautiful book is your best bet. Life's photographers took thousands of fine pictures during the war. The cream of the crop plus 75,000 words of text have gone into this book.

Simon and Schuster

\$10.00

Air Force Book Department, BD-2  
c/o AIR FORCE Magazine  
1424 K Street N. W., Wash. 5, D. C.

Please send me the books I have circled below:

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15  
16 17 18 19 20 21 22 23 24 25 26 27 28 29

Name.....

Street.....

City.....Zone.....State.....

Please send, as a gift from me, book numbers.....to:

Name.....

Street.....

City.....Zone.....State.....

Also please send a "Do Not Open Until Christmas" gift card with my name on it ☐.

And send book numbers.....to:

Name.....

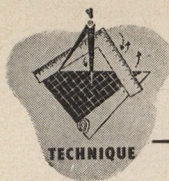
Street.....

City.....Zone.....State.....

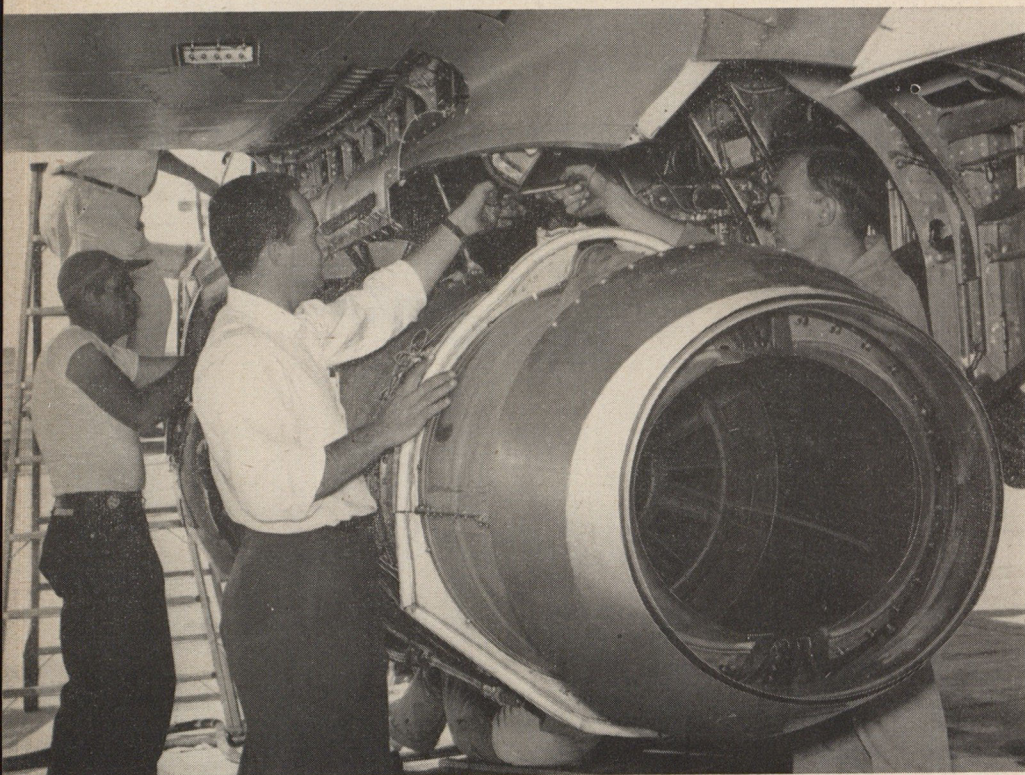
Also please send a "Do Not Open Until Christmas" gift card with my name on it ☐.

I enclose check or money order for.....  
SORRY, NO CODs





## TECHNIQUE PIX



### Scorpion's "Swing Out" Engines Shown

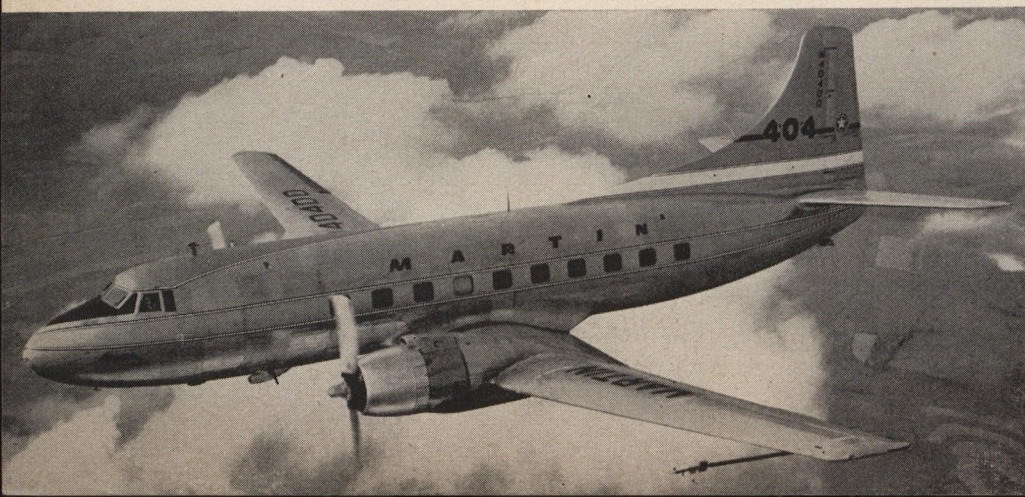
Engine maintenance time on the AF's new Northrop Scorpion has been cut to a minimum by the unique engine "swing out" device shown above. After cowlings are removed engines are swung out and

down to give easy access to engines without ladders, or without disconnecting controls, plumbing systems or electrical wiring. Built-in hydraulic hoist returns engines to nacelles when work is done.

### Martin 404 Makes Initial Test Flight

First flight of this country's newest commercial airliner, the Martin 404, was announced recently by Glenn L. Martin Company. New ship, which will be delivered to TWA and Eastern in quantity

next year, has payload of 10,205 pounds including 40 passengers. Power is supplied by two 2400 hp. Pratt & Whitney engines. Maximum range will be 2,575 miles, while top speed will be 312 mph.



### H-19 Now Amphib

Pontoons have been added to the AF's Sikorsky H-19 helicopter to make it operable as a rescue, search, liaison or medical evacuation plane either on sea or on land. Evolved from the smaller H-5H, the H-19 can carry ten passengers or eight litter patients and an attendant plus a crew of two. Its cargo compartment is ten feet long, five and a half feet wide and six feet high. The plane's all-metal, three-bladed rotor is driven by a Pratt & Whitney radial engine rated at 600 hp. at takeoff. Dimensions are: rotor diameter, 49 feet; length 39½ feet; height, 12 feet, four inches.



### Where's the Bar?

Here is the latest in AF life saving equipment. Replete with everything but a bar and a roulette wheel, this new raft has a 20-man capacity and weighs only 49 pounds. An accessory kit weighs an additional 89 pounds. Included in kit is a pump, pliers, oars, buckets, anchor, signals, rations, mirror, fishing kit, knives, "and countless other items."



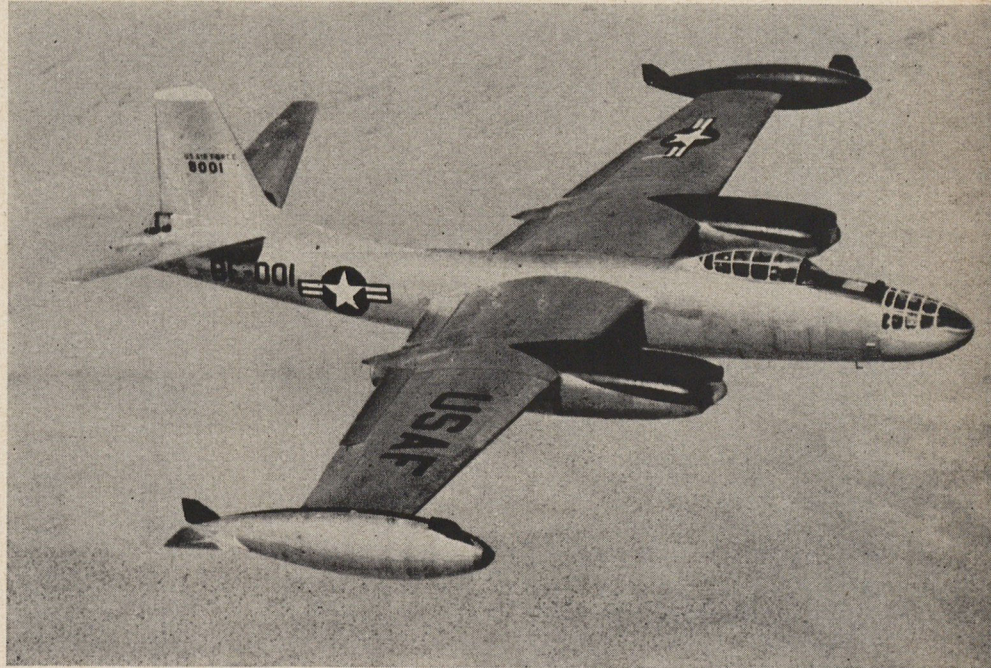
## Piper Shows Pacer

A new plastic covering which is non-flammable and greatly prolongs the life of a plane's finish is feature of the new Piper Pacer, unveiled last month. The new finish is Piper's answer to the all-metal personal planes which have become increasingly popular since the war. According to Piper the "Dura-clad" material, which is applied over the welded steel fuselage and the aluminum wing structure, provides the best possible weight/strength ratio. The 1951 Pacer comes in two models, the "125", and the "135". Both are powered by 125 hp Lycoming engines, but the former has a cruising speed of 125 mph, while the "135" cruises at better than 130 mph. The difference is in the 135's controllable propeller.



## More Range for 45

Greater reach has been given to the powerful North American B-45 jet Tornado with the addition (in the "C" models now in production) of the bomb-finned fuel tanks pictured at right. The capacity of the new tanks and the exact number of miles they will add to the bomber's operating radius has not been announced by the Air Force, but it is assumed that the plane's previous striking radius of 800 miles will be bettered by at least several hundred miles. The B-45 is the first jet bomber to become operational in the USAF. The first Tornado squadron was activated under the 3rd Light Bomb Group over a year and a half ago. Today the 3rd Bomb Group has two 45 squadrons, both stationed at Langley Field, Va., and two B-26 squadrons, both in Korea. The 45 is powered by four J-47s which produce a maximum takeoff thrust of 20,000 lbs. Its gross weight is 82,600 lbs.



## Night Operations

The USAF's intent to have the good right arm of its Strategic Air Command in the best possible fighting trim at the earliest possible moment is graphically illustrated in this picture of night operations at Consolidated's factory in San Diego. The planes are B-36s of the 8th and 15th Air Forces called in from their operational units to be equipped with four General Electric J-47 jet engines to supplement the six Pratt & Whitney piston engines. All ten engines will give the mighty intercontinental bomber a total of more than 40,000 hp at takeoff. Eventually all B-36s now in use (including the RB-36 recon model) will be jet-modified. The Air Force has not indicated when the program would be completed.





**a  
Great Name  
Carries On..**

**WARNER!**

**F**OR years, the Aviation Industry has respected the name "Warner" in aircraft hydraulics.

Always it has meant *quality* and *precision work* of the highest calibre.

Now, reorganization has breathed new vitality into its research, management and production.

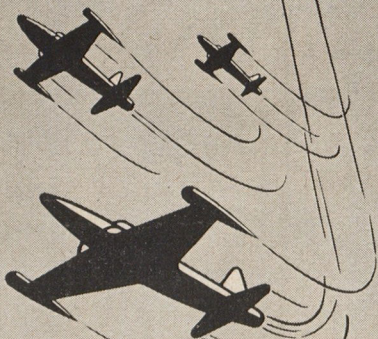
*Warner is in the Aviation Industry to stay.*

It continues as always to make its famed Hydraulic Valves.

Besides this new leadership, the only change is from the name Warner Aircraft Corp. to Warner Division, Clinton Machine Company.

You can expect even greater things from Warner—sound improvements, finer products—

*Products worthy of carrying on the great name they bear!*



**Warner**  
DIVISION  
Clinton Machine Company

20263 Hoover Rd. • Detroit 5, Mich.



An eight-man infantry patrol saves itself much shoe leather by hitching a ride.

## Biggest Bell 'Copter



An inside hoist with a 400 pound capacity makes rescues like this easy.

**L**ike the bomber and the fighter, the Air Force's helicopters are getting bigger and bigger. Latest "giant" is the Bell H-12 which has just completed extensive tests under simulated combat conditions, with troops from the 174th Infantry Regiment, New York National Guard taking part. The demonstration showed the 'copter's versatility which enables it to carry eight fully-equipped infantry-men or six litter cases with a medical attendant and to perform rescue missions normally associated with helicopter operations.

The H-12 weighs approximately 7,000 pounds, has a cruising speed of 85 miles per hour and a top speed in excess of 120 miles per hour. The craft is powered by a Pratt and Whitney R-1340 600 horsepower engine and with its normal fuel capacity and useful load of more than a ton, it has a range of 500 miles. The H-12 can easily be converted from a troop assault, litter or passenger configuration to a cargo carrier.



This is how casualty litters are loaded into the helicopter. The craft can take six standard Stokes litters and still have enough room left for a medical attendant.



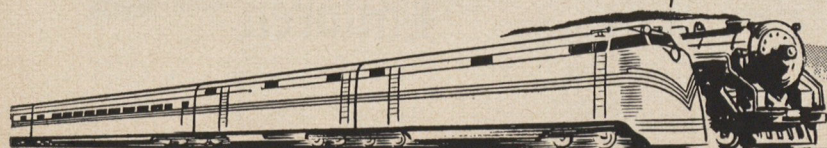


*Three more good reasons why*  
 \_\_\_\_\_ Train Travel is \_\_\_\_\_  
***FIRST with the SERVICES!***

Only the railroads can handle  
 the big transportation job the services require.  
 When men or materiel are on the move,  
 remember . . .

You can always depend on

**THE  
 RAILROADS  
 OF THE  
 UNITED STATES**



**MEMO**

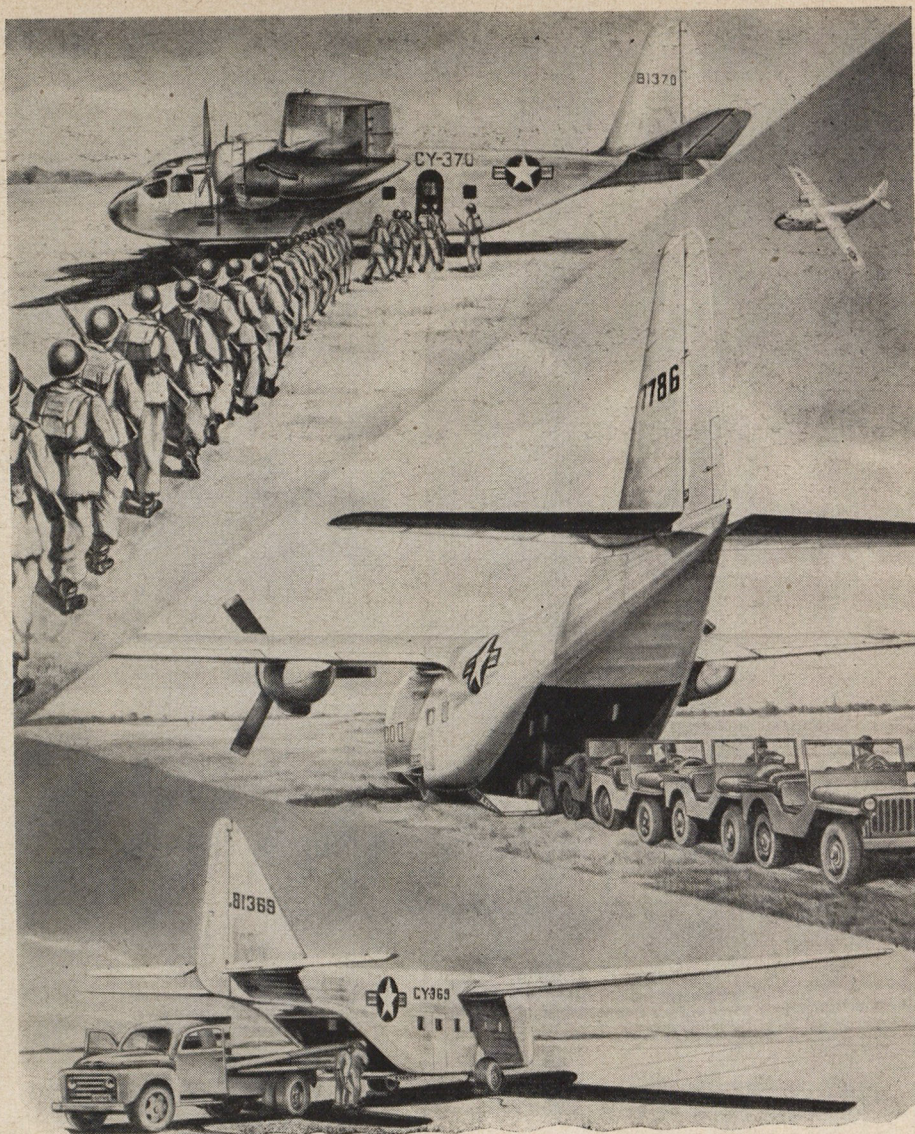
**TO TRANSPORTATION OFFICERS**

Your people deserve the best of care.  
 When you route them by rail, they get real  
 beds, real meals, and really dependable  
 schedules. Remember . . .

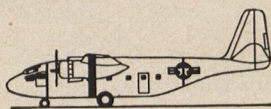
**10% DISCOUNT**

from regular passenger fares is allowed by the railroads  
 for all personnel of the Department of Defense traveling  
 on transportation requests.





# Adaptable



AVITRUC—designed for adaptability to any transport need. Center of gravity limits permit a flexible distribution of cargo, simplifying loading. Safe delivery is assured—whether of troops or vehicles, weapons or supplies.

AVITRUC—designed for the job •



**AIRCRAFT CO., Inc.**  
WEST TRENTON, NEW JERSEY



## GEN. CLARK

CONTINUED

the ground it doesn't make much sense for a fighter bomber to come within a few miles of its target only to jettison its bomb load and go upstairs to fend off an attacking fighter force. Once committed to a task, say the ground men, the fighters should stick with it to the end, just as an artillery brigade would, or just as the bombers did through flak and fighters in the last war. If protection from enemy fighters is needed, send along a few jets *without* bomb load for that purpose, but first of all see that the support planes stick with the assignment rather than a rule book.

Second on the Air Force list of combat priorities is to gain air superiority. Yet, say the groundlings, how could air superiority possibly be attained in Europe today, for example, where we have only a few planes that could be outnumbered by the enemy anytime he chose? Wouldn't it be more logical to assign the airplanes to something they *could* do in support of ground action?

In short, say General Clark and the Army, it is a mistake for ground support airmen to enter ground campaigns with a set of commandments from which they will not be persuaded *regardless of the ground job that has to be done*. Basically, Gen. Clark has no quarrel with the Air Force's precepts, but he feels strongly that they should be made subordinate to the dictates of the theatre commander, whether he be ground, air or sea.

All in all, the situation, said Clark, was forty percent better today than it had been three months ago—and getting better all the time. Perhaps the rift was healing in direct proportion to increased appropriations for the Air Force, but of this the General made no comment.

## AERONAUTICAL ENGINEERING

Design Aircraft & Components — Study with Jets & Rockets — Great Future — Advanced Aeronautical Subjects — World-Wide Enrollment — Fully Accredited — Est. 1929 — Approved for Vets — CAL-AERO grads in heavy demand.

WRITE TODAY for Special Information

### CAL-AERO TECHNICAL INSTITUTE

GRAND CENTRAL AIR TERMINAL  
GLENDALE 1, CALIFORNIA

Dept. AF

- ☐ Aeronautical Engineering ☐ Master Aviation Mechanics  
☐ JET ENGINE Maintenance & Overhaul

Name \_\_\_\_\_ Age \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

Good  
Health  
to  
Children



For the sake of your children,  
buy and use Christmas Seals.





## SELECT THE INSURANCE suited to your own status



### CLASSES A-1 and A-2

Designed especially for pilots and other flight crew members of the **REGULAR** military services, who are engaged in military flying activities as a full-time occupation. A-1 covers accidental death and loss of sight or limb from any cause, including military or civilian accidents, on land or sea or in the air, world wide. A-2 offers the same accidental death coverage as A-1 but does not cover loss of sight or limb.



### CLASSES B-1 and B-2

Designed especially for pilots and other flight crew members in the **RESERVE** military services, whose flying activities are part-time (generally limited to weekends and the two-week annual military service period). B-1 covers all types of accidental death, whereas B-2 is limited to death from aviation accidents only. B-1 also has broader loss of sight and limb benefits than B-2 (see chart).



### CLASS C

Designed for all persons who are not flying personnel and whose participation in aviation is limited to traveling in aircraft as passengers or to working in or around aircraft on the ground. Death or injury from every type of non-aviation accident, and from certain types of aviation accidents, is covered (see chart).

# For Your Security and Peace of Mind: **AFA Accident Insurance**

**LOW-COST PROTECTION FOR  
MILITARY AVIATION ACTIVITIES PLUS**  
general accident insurance—including private and commercial flying  
*issued by Lloyd's of London*

**H**ERE'S A NEW insurance plan which protects you and your family, day and night, at home or away, on land, on sea, and in the air, any place in the world, even while you pilot—or are a passenger in—military aircraft, and even while you are on active duty with the Air Force.

AFA Accident Insurance requires no physical examination. It pays off for loss of sight or limb, as well as

for accidental death, in certain categories. No other accident insurance offers you—at such small cost—comparable military and civilian air and ground protection. Available in units of \$1,000—up to a maximum of \$10,000—AFA Accident Insurance is exclusively for members or associates of the Air Force Association. Annual premiums per \$1,000 of insurance range from \$3 to \$15. See chart below.

## HERE'S EXACTLY WHAT YOU GET AND WHAT IT COSTS

*Premiums payable annually, semi-annually, or quarterly*

CLASS OF POLICY	PERSONS ELIGIBLE: All AFA members and associates (other than paratroopers and air- borne infantry) except as follows:	SCOPE OF POLICY COVERAGE (indicated by ✓)						ANNUAL PREMIUM PER \$1,000
		Death Benefits			Loss of Sight or Limb Benefits			
		Military Aviation Accident	Civil Aviation Accident	All Other Accidents	Military Aviation Accident	Civil Aviation Accident	All Other Accidents	
A-1	No exceptions	✓	✓	✓	✓	✓	✓	\$15.00
A-2	No exceptions	✓	✓	✓				13.80
B-1	Flight-rated REGULAR military personnel not eligible (see note 1)	✓ (see note 2)	✓ (see note 2)	✓		✓ (see note 2)	✓	7.20
B-2	Flight-rated REGULAR military personnel not eligible (see note 1)	✓ (see note 2)	✓ (see note 2)			✓ (see note 2)		4.80
C	FLIGHT-RATED Regu- lar and Reserve mili- tary personnel not eli- gible (see note 1)	✓ (see note 3)	✓ (see note 3)	✓	✓	✓	✓	3.00

NOTE 1: "Flight-rated personnel" means pilots, co-pilots, navigators, flight engineers, radio operators, bombardiers, aerial gunners, and similar flying personnel of the military services or their reserve components.

NOTE 2: Class B-1 and Class B-2 policies expire with respect to aviation accident coverage if the insured person serves 120 days, consecutively or non-consecu-

tively, on active military duty during the policy period; but Class B-1 coverage continues in effect thereafter for other types of accidents.

NOTE 3: Class C coverage does not apply to accidental death of the insured person on an aircraft unless he is on such aircraft as a passenger or in the course of his employment as ground crew or administrative personnel.

## CLIP AND MAIL TODAY

### AIR FORCE ASSOCIATION

1424 K ST., N. W. • WASHINGTON 5, D. C.

Please send complete information about AFA Accident Insurance, together with schedule of optional means of payment, and application blank.

Name.....

ADDRESS.....

CITY.....ZONE.....STATE.....



## THE TURBO STORY

CONTINUED

The initial defense offered by the US engine builders, one that had some weight up to now, was that the British invented the first practical turbojet engine; that English engineers were busy developing facilities and techniques for the design of gas turbines while US engine builders were still busy building piston engines to defeat the Axis. They point out, furthermore, that the first turbojet contracts in the US went not to engine builders, but to companies with experience in the construction of turbine generators and turbo-superchargers.

This, the critics argue back, may cover two or three years, but the last five years should have been adequate time for us to catch up, considering the amount of money spent by the US armed forces to effect this improvement. The engine builders answer that they haven't done as badly as some people claim. For example, in the turboprop field, in which funds were once cut off in the middle of development programs, the US product stacks up quite well against Britain's best, in spite of the vacillating attitude that the Air Force adopted about turboprops, when policy was to drop all propeller development in favor of jets.

As far as superior expenditure goes, neutral experts point out that development costs in the US are close to three times that of Great Britain. For example, the chief designer of the leading English turbojet builder gets about 3000 pounds per year (about \$7,000) while any third-string department head in a US plant does better than that. A British master gagemaker, with a quarter of a century of experience, gets about 2000 pounds per year. Any semi-skilled lathehand in the US can match that. On the scale of what the money will buy by way of brains and skill,

the US investment has not been as generous as the dollar figures would indicate. One official in an engine company recently stated off the record that on a sheer dollars-and-cents economy viewpoint, it would pay us to permit the British to do the development work, and to buy proven packages, ready for production. To which defense officials reply that this procedure would cripple our ability to produce new machinery, and that our technological superiority, our sole hope for military survival, would vanish in a decade, if this were to be permitted as anything more than a temporary expedient.

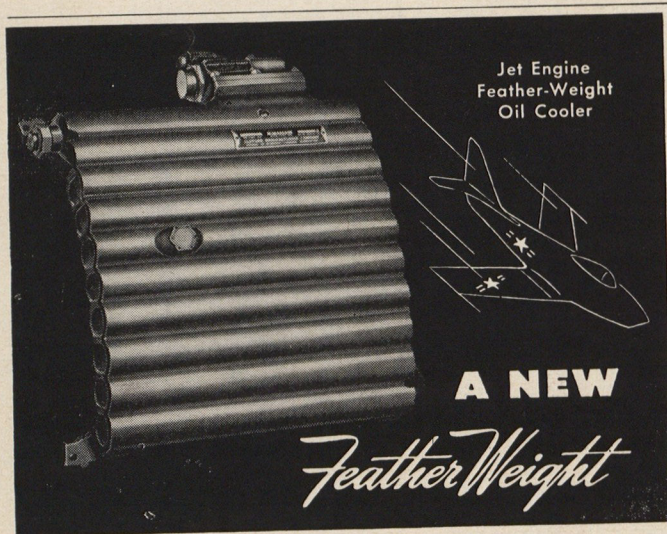
One thing is certain; we, in the US are behind in the matter of straight turbojet power. We are behind the British, and probably about on a par with the Russians. This is roughly how the situation stands on the matter of first-line power plants between the major powers.

Engine	Rated (lbs thrust)	Status
Class 5500 to 6500 lbs. thrust; completion 1950		
Allison J-33	6,350	Service testing
GE J-47	5,500	Production
P & W J48	6,250	Production
DeHavilland Ghost	5,500	Production
Rolls Royce Nene III	5,500	Production
Rolls Royce Tay	6,250	Production
Chelomey (USSR Nene) VI	5,500	Production
Chelomey VIII	6,250	Production
Class 6500 to 8000 lbs. thrust; completion 1951		
GE J47 (Modified)	6,500	Testing; service
Westinghouse J40	6,500	Testing; service
Wright TJ-31	7,200	Development
A-S Sapphire	7,200	Flight test
Rolls Royce Avon	7,000	Production
Avro Orenda (Canada)	7,000	Flight test
Rateau SRA-101 (France)	7,200	Flight test
ASH-012 (USSR)	6,600	Testing; service
ASH-018 (USSR)	7,700	Development

Class 8000 to 10,000; completion 1952		
Allison J-35 (450-E1)	9,700	Service tests
GE J-35	9,000	Service tests
P & W J-57	9,000	Development
Wright TJ-31 (improved)	9,000	Development
Bristol Olympia	9,000	Development
DeHavilland	9,000	Development
Luliuick (USSR)	9,000	Development
Rolls Royce AJ-85	8,500	Development
Rolls Royce AJ-105	10,000	Development

There are critics of the US engine builders who indicate a strong belief that US manufacturers slowed down turbojet development until they were sure that their investments in piston-engine production were well on the way to being liquidated. This viewpoint has been denied by at least two major engine builders, who point out that since the government is the major engine buyer, they, as suppliers, must provide the customer with what he wants.

In defense of our body of engineers, one technical observer who, for the time being prefers to remain unnamed, indicates that the engineering staff of a US company had a power plant on paper in 1947 that looked enough like the Sapphire to be a direct lift. This happened, despite the fact that there was no known contact between the engineering personnel of either company to have permitted any transfer of ideas. The Armstrong-Siddeley unit got the government go-ahead to produce the power plant, while the US design, lacking sanction, remained on paper. What this fellow was trying to prove was not so much that the government was lax, but rather that any competent set of engineers, saddled with the same problem, and furnished with similar facilities, are likely to come up with highly similar results.



More and more aircraft of all types—both jet propelled and conventional—are depending on Clifford Feather-Weight all-aluminum oil coolers. Individually designed to meet specific requirements, these oil coolers are thoroughly pre-tested in the Clifford wind tunnel laboratory... largest and most modern in the aeronautical heat exchanger industry. CLIFFORD MANUFACTURING COMPANY, 108 Grove Street, Waltham 54, Massachusetts. Division of Standard-Thomson Corporation. Offices in New York, Detroit, Chicago and Los Angeles.



# CLIFFORD



ALL-ALUMINUM OIL COOLERS FOR AIRCRAFT ENGINES

HYDRAULICALLY FORMED BELLOWS AND BELLOWS ASSEMBLIES



★

# MOBILIZED, FOR PEACE OR WAR

★



BEING READY to aid the military forces is nothing new for the scheduled air carriers; to them it is only a matter of degree. Constantly we are becoming better prepared to provide the air transport element of National Air Power.

It is a matter of great pride that we of American Airlines, Inc. participated in the Hump Operation, over the Himalaya Mountains, from India to China; in the Berlin Airlift and, more lately, in the Korean Air-

lift. That experience and the tremendous capabilities of American Airlines, Inc. are and always will be available, for the important and difficult tasks ahead.

More than \$15,000,000 is now being expended by American Airlines, Inc. for new and better aircraft. In the Spring there will be a new fleet of larger and faster Flagships; to provide service for your requirements in time of peace and prepared to fulfill other obligations in time of emergency.

★

AMERICA'S LEADING AIRLINE **AMERICAN AIRLINES** INC.

★



## CLEAR COMMUNICATION OMNI NAVIGATION

WITH  
A.R.C. **VHF**  
EQUIPMENT

**Fly Directly  
in Less Time—  
Keep All Signals  
STATIC FREE!**

Get static-free communication and the added reliability of omni range navigation by installing A.R.C.'s Type 17 2-way VHF Communication and Type 15B Omni Range Navigation Equipment. With the 15B tuned to the VHF omni stations now covering the country, you fly directly in less time. You can receive weather broadcasts simultaneously with the navigation signals—*static free!* The 15B takes the work out of navigation and provides long, trouble-free life. The Type 17 provides an independent communication system for use while the 15B is busy providing navigational information. Other A.R.C. equipment provides LF range and broadcast reception, and rotatable loop navigation.

All A.R.C. Airborne equipment is Type Certificated by CAA. It is designed for reliability and performance—not to meet a price. Installations for both single and multi-engined planes are made only by authorized service agencies. Write for further details or name of your nearest A.R.C. representative.



**Aircraft Radio Corporation**  
BOONTON, NEW JERSEY

# ALLISON RADAR

**FOR  
MULTI-ENGINE  
AIRCRAFT**

**Military • Airlines • Executive**

**MODELS E ES ESB**

**58-65 LBS. OVERALL WEIGHT**

1. Long range. 80-150 miles.
2. Exclusive scanning method.
3. Compact. Sturdy.
4. Easy to operate. Pilot control.
5. Simplicity of Maintenance.
6. Gyro-stabilized.
7. JAN components.
8. RACON beacons.

**ALLISON RADAR CORPORATION**

11 West 42nd St., New York 18  
PEnn 6-5811-12

## The Airman's Bookshelf

### Volume IV of The Army Air Forces in World War II

Edited by Wesley F. Craven and  
James L. Cate  
University of Chicago Press, 825 pp., \$6.00

Just as the strategy employed by the commanders at the Battle of Gettysburg during the Civil War is still studied and discussed today by students of military tactics, so the exploits of the Air Force during the last war will come in for close scrutiny whenever military strategists, amateur or professional, gather. And when the inevitable "Look it Up" sounds as a man tries to prove his point, the chances are that he will turn to the seven volumes which will eventually comprise the complete story of The Army Air Forces in World War II.

Volume I, dealing with Plans and Early Operations and Volume II, which concerns itself with the early phases of the air war against the Axis in North Africa, Sicily and Italy as well as over the occupied countries and Germany itself, are already firmly established as the basic books on the subject. Published this fall was Volume IV which deals with the Pacific Theater.

Nowhere have the special problems of the Air Force in the Pacific been pointed up to better advantage than in this book. The Pacific was primarily a "Navy" theater. The intrusion of the then Army Air Forces into what the admirals considered their private war, created problems in command and supply which were not found in other theaters. Then, too, the Pacific was fairly low down on the aircraft priority list. Only the fact that Air Force leaders like General George C. Kenney were able to perform near miracles with the equipment they had, enabled the Air Force in the Far East to carry out its diversified assigned missions which ranged all the way from airlifting the Hump, to neutralizing Jap strongholds.

### YOUR AIR FORCE CIGARETTE LIGHTER

THE HANDSOME, WINDPROOF  
ZIPPO LIGHTER IN CHROME  
WITH YOUR CHOICE OF  
ANY NUMBERED AIR FORCE CREST  
AND/OR  
AIR FORCE STAR OR  
WING & PROPELLER

Wing & Prop Superimposed on Rich Air Force Blue Enamel. Numbered Air Forces in Jewel-Fine Miniature Crests. Full Colors. Sparkling Lustre Finish. Permanently fitted to Chrome Case.

Lighter with one Insignia—\$3.50—with two Insignia—\$4.00.

CHECK, MONEY ORDER, OR C.O.D.

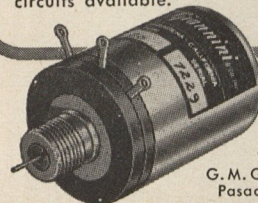
CREST PRODUCTS

100 BARR BLDG., WASHINGTON 6, D. C.

## Butterfly POWER...



● MICROTORQUE Variable Resistors and Potentiometers require as little as .003 in. oz. torque to operate. This unique feature makes the MICROTORQUE invaluable for applications where the position of instrument pointers, gyroscopes, and delicate instruments in general must be recorded, transmitted or indicated at a distance, and Giannini are the sole makers of MICROTORQUE Potentiometers. A variety of resistance values and circuits available.



Write for booklet.  
G. M. Giannini & Co., Inc.  
Pasadena 1, California

**giannini**

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACTS OF CONGRESS OF AUGUST 24, 1912, MARCH 3, 1933, JULY 2, 1946.

OF AIR FORCE, published monthly at Dayton, Ohio, for December 1, 1950.

DISTRICT OF COLUMBIA, ss.

Before me, a Notary Public, in and for the District of Columbia, personally appeared James H. Straubel, who, having been duly sworn according to law, deposes and says that he is the editor of AIR FORCE and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management, etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, as amended by the Acts of March 3, 1933 and July 2, 1946 (section 537, Postal Laws and Regulations), to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business manager are: Publisher, Air Force Association, 1424 K St., N.W., Washington 5, D. C.; Editor, James H. Straubel, 1424 K St., N.W., Washington 5, D. C.; Managing Editor, Charles E. Root, 1424 K St., N.W., Washington 5, D. C.; Business Manager, James H. Straubel, 1424 K St., N.W., Washington 5, D. C.

2. That the owner is: (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding one per cent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a firm, company, or other unincorporated concern, its name and address, as well as those of each individual member, must be given.) Air Force Association, 1424 K St., N.W., Washington, D. C., a nonprofit corporation having no stockholders.

3. That the known bondholders, mortgagees, and other security holders, owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: None.

4. That the two paragraphs next above, giving the names of the owners, stockholders and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; and also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds or other securities than as so stated by him.

Sworn to and subscribed before me this 25th day of October, 1950.  
(SEAL) JAMES H. STRAUBEL, Editor  
MELVIN MENES.

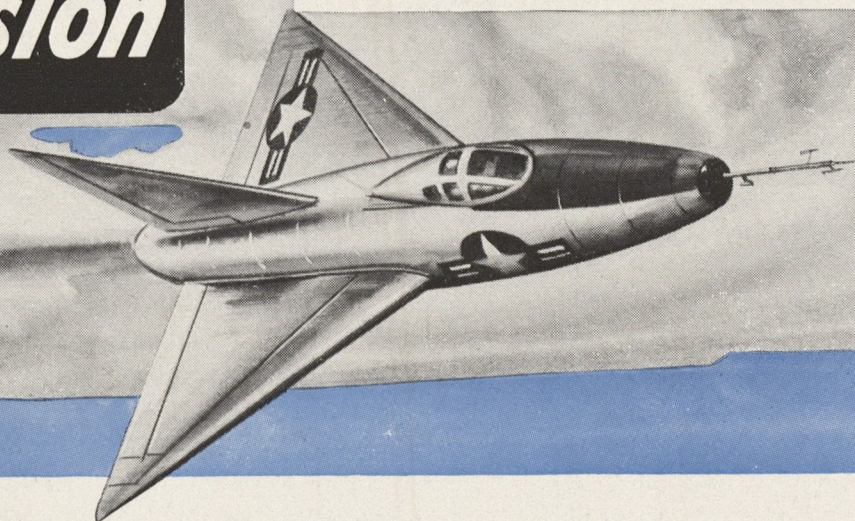
(My commission expires Dec. 14, 1954)



# Bendix Products Division

FIRST IN

FUEL METERING



## Where Creative Engineering Masters Your Every Problem!

The many contributions to aviation progress, made by the Bendix Products Division of Bendix Aviation Corporation, have resulted from a unique combination of creative engineering and quality production in two highly specialized fields. It is no exaggeration to state that any problem in fuel metering or landing gear can best be solved by Bendix Products

—first in fuel metering and leader in landing gear.

If you have a special problem in the development of new and more efficient carburetion, fuel metering, shock absorbing struts, wheels or brakes, or if your requirements are merely for standardized equipment of this type, you will find Bendix Products the one source best qualified to serve your needs.

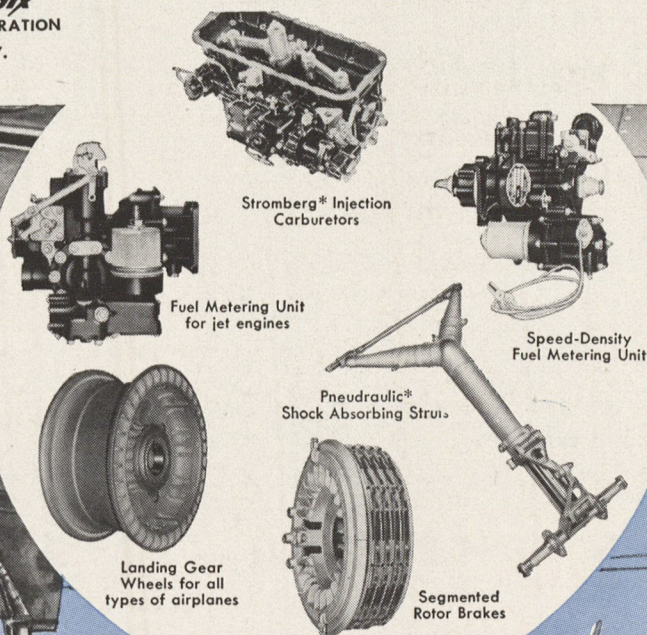
**BENDIX** · PRODUCTS DIVISION · SOUTH BEND



Export Sales: Bendix International Division, 72 Fifth Avenue, New York 11, N. Y.

LEADER IN

LANDING GEAR

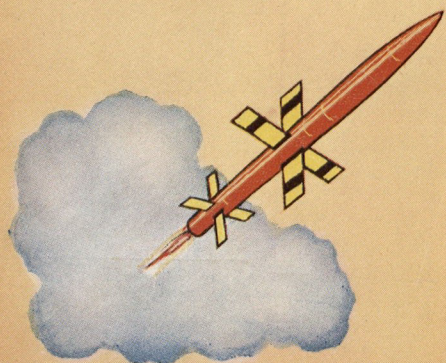


\*REG. U. S. PAT. OFF



*There's More* TO THIS BUSINESS OF BUILDING  
AIRPOWER THAN THE BRINGING TOGETHER OF  
MEN, MACHINES AND MATERIALS.

*For Example:*



— COMPELLING  
REASONS WHY  
THE CONVAIR  
PRODUCTION  
LINES PAY OFF  
IN WHAT  
AMERICA  
NEEDS MOST.



**ENGINEERS** • Convair's engineers are unsurpassed in translating ideas into realities . . . creating unbeatable airpower for America.



**FACILITIES** • Convair's plants, tools and other equipment are standards of the industry . . . custom-gearred for production.



**TEAMWORK** • Convair's team of more than 25,000 men and women work together with care and conscience . . . a hallmark of integrity ingrained in the organization.



**QUALITY** • Each Convaircraft is the end product of hundreds of skills. Nothing that flies is better built.



**EFFICIENCY** • Thoughtful planning saves more than dollars in aircraft production. Convair also is expert in conserving time.



**EXPERIENCE** • The building of superior airpower, land and water based, has been Convair's business for more than a quarter-century.



**PRODUCTION** • Convair sets the pace for airframe production, in peace or war . . . for super bombers or luxury transports, flying boats or fighter planes.

*Security Has Wings!*

IN THE AIR -- IT'S

CONSOLIDATED VULTEE AIRCRAFT CORPORATION  
SAN DIEGO, CALIFORNIA      FORT WORTH, TEXAS

