THE KOREAN WAR AT 40,000 FEET – BY OUR TOP ACE

AIR FORCE

THE MAGAZINE OF AMERICAN AIRPOWER

AIRPOWER ISN'T HOMEGROWN

How we depend on our friends around the world for the raw materials of aircraft

C. de M. Barnes 52.

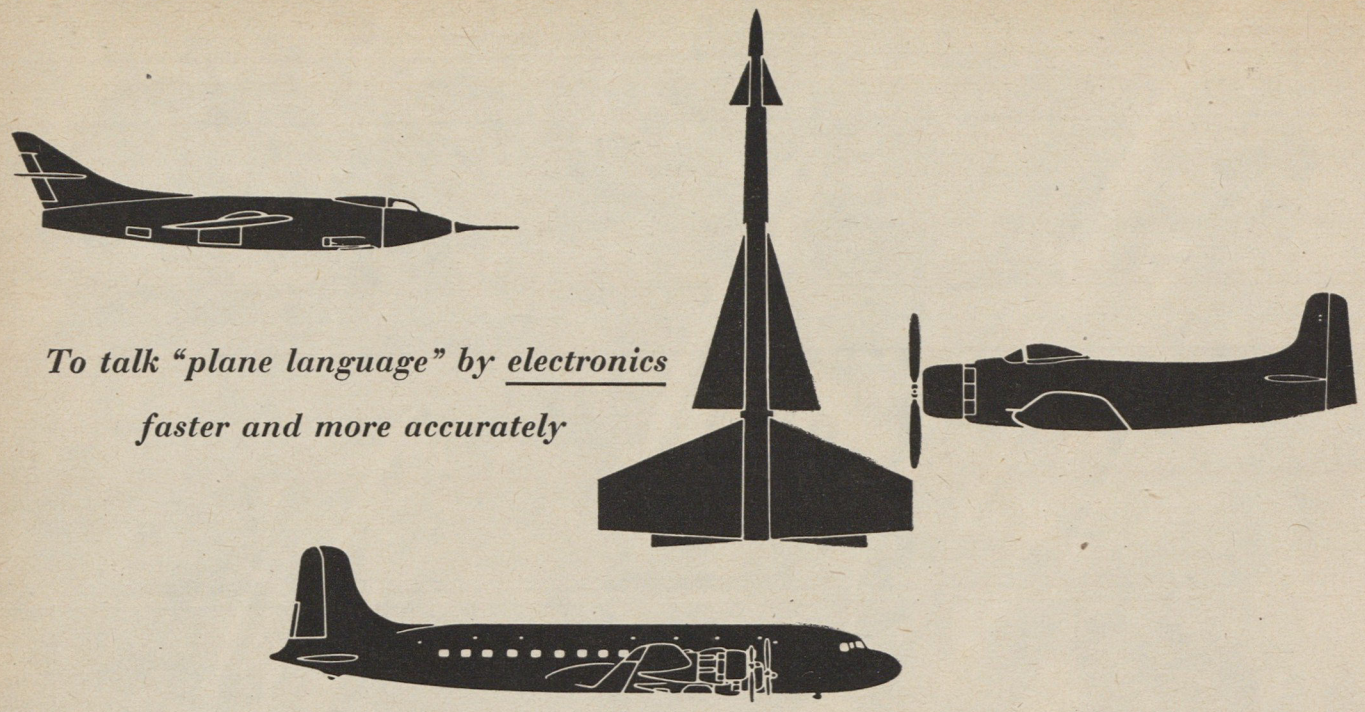
AUGUST 1952 • THIRTY-FIVE CENTS

Wherever Man Flies

Hamilton Standard's long experience as the leader in propeller design and production is also devoted to supplying other equipment for such outstanding airplanes as the North American FJ-2 and F-86D jet fighters for the Navy and Air Force.

HAMILTON STANDARD
EAST HARTFORD CONNECTICUT
A DIVISION OF UNITED AIRCRAFT CORPORATION

PROPELLERS ★ STARTERS ★ AIR-CONDITIONERS ★ FUEL CONTROLS ★ AUXILIARY DRIVES ★ HYDRAULIC PUMPS



To talk "plane language" by electronics

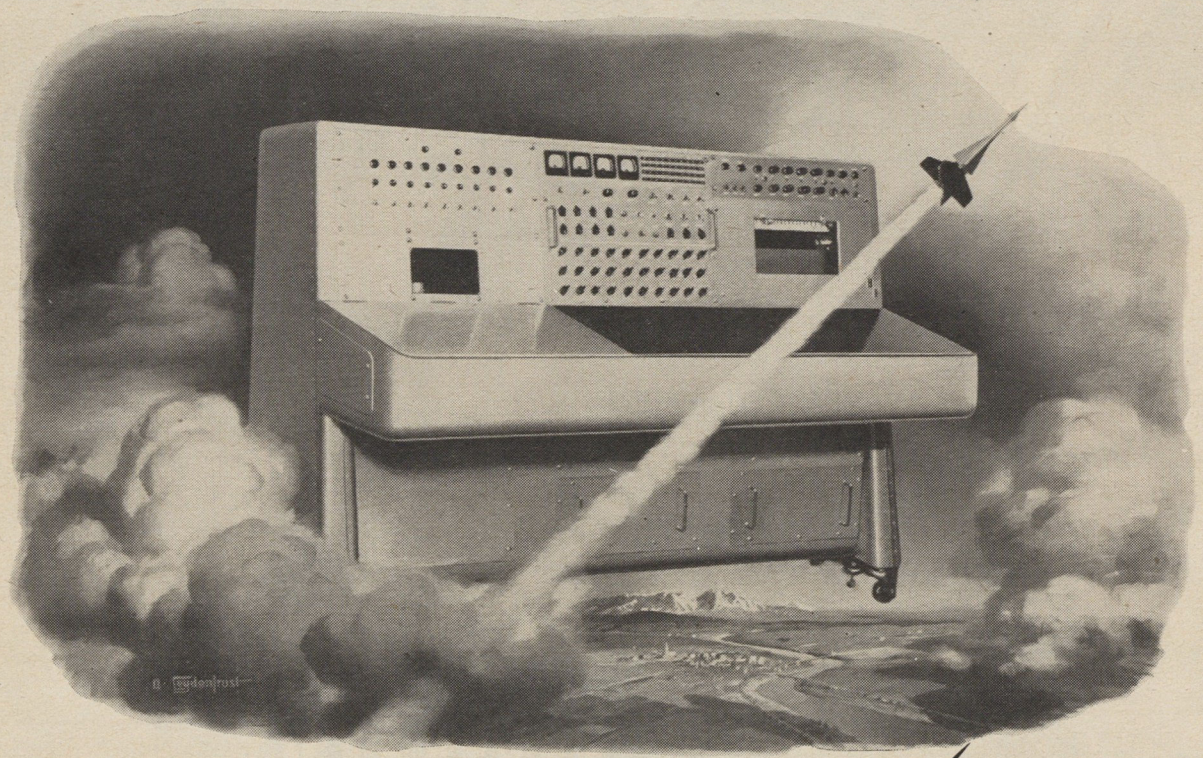
faster and more accurately

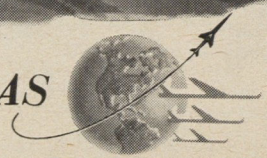
—new Douglas Aircraft Computers

So complex have modern planes become that thousands of hours go into their design. One mathematical problem might take weeks to solve.

To shorten these steps, Douglas has developed automatic computers, analyzers, and measuring devices which work out problems *faster than an engineer can write them down*—codagraphs, iconologs, digital converters. Some take data transmitted electronically, while a plane is in flight, and solve it before the pilot lands—others work with guided missiles. But *all* are designed to simplify engineering problems, and can be used in any industry.

Development of these electronic devices is further proof of Douglas leadership, helps Douglas produce planes in quantity—*to fly further and faster with a bigger payload.*



Depend on *DOUGLAS*  **First in Aviation**

The Aircraft: Lockheed F-94

The Engine: Pratt & Whitney Aircraft J-48 Jet

Fuel Metering: Holley Turbine Control

For More Than Half A Century Original Equipment Manufacturers For The Automotive And Aircraft Industries

HOLLEY Carburetor Co. DETROIT 4

A-13

AIR FORCE

THE MAGAZINE OF AMERICAN AIRPOWER

VOL. 35, No. 8

AUGUST 1952

Shooting the Breeze

Those who have begun reading AIR FORCE Magazine during the past six months, and there are quite a number, may be a little curious as to all the fanfare about the Air Force Association's sixth annual convention and reunion, scheduled for Detroit, August 28-31.

Beside all the obvious reasons for holding an annual get-together, this year's conclave will endeavor to answer some of the questions that becloud our preparedness picture in general and that of airpower in particular.

To that end, Friday, Aug. 29, has been designated "Airpower Preparedness Day." The entire program will be devoted to symposiums on industry, government, and labor, as they relate to our national defense.

The industry symposium will feature reports by some of the nation's top experts on airframes, engines, electronics, and components. The three military services are being asked to report on the status and needs of our defense program. Congress will be given a chance to present its problems and responsibilities in the allocation and supervision of defense funds. Top CIO and AFL leaders will talk on manpower. The automobile industry is being asked to discuss its defense responsibilities.

The symposiums will be held in the Sheraton-Cadillac Hotel and will be open to AFA members, industry representatives, and military personnel. We think some frank sessions will aid the man in the street in resolving the airpower problems that are perplexing him.

FEATURES

DEPARTMENTS

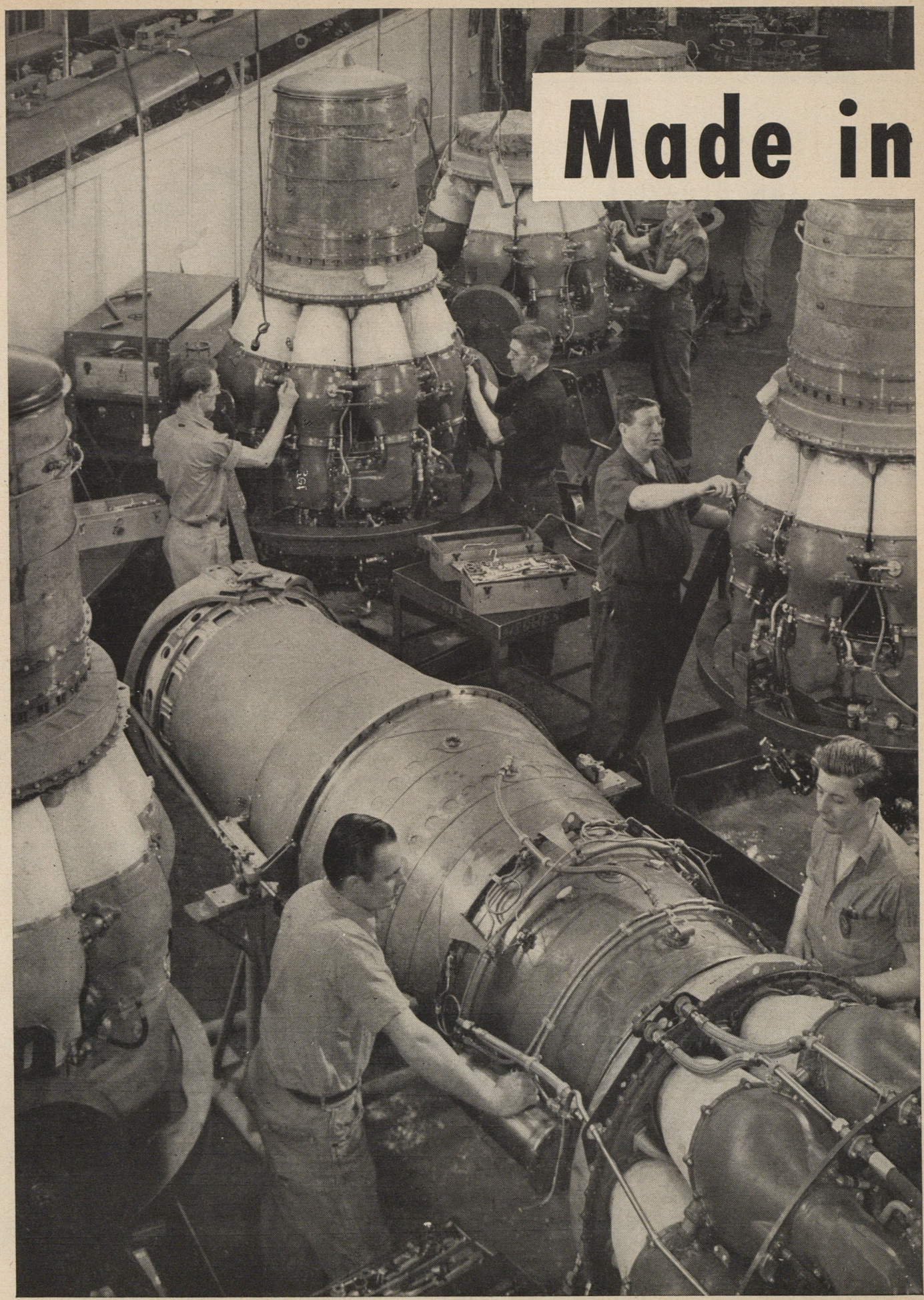
THE COVER

The multicolored aircraft symbolizes the dependence of the US aircraft industry upon overseas sources for much of the critical material that goes into our airpower build-up. The nose section is the French flag, the fuselage the British Union Jack, the left wingtip Turkish, and next to it the Republic of Korea. The right wingtip is the Brazilian flag, next to it that of Peru. The left tail section is the Netherlands, the right, Iran. For the roles these and many other nations play in American airpower, see page 30.

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

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.

298



Made in

"Everywhere"... Produced in Hartford

THE system of distributing a major part of defense production jobs to subcontractors was pioneered by Pratt & Whitney Aircraft—leading designer and builder of aircraft engines. Ever since its founding in 1925, Pratt & Whitney has pursued its basic policy of letting out about 50% of its work.

Actually 90% of the 5,280 companies on the active Pratt & Whitney subcontractors and suppliers list are classed as "small businesses" with less than 500 employees each. These companies are located in 34 states.

This system of subcontracting has many advantages. It allows for faster expansion in periods of national emergency and greater flexibility of factory operations. Further, it develops a basic team of specialists that can substantially reduce the cost of certain items of equipment. Also by sharing its work, Pratt & Whitney stimulates industry by providing its subcontractors an opportunity of engaging in diversified production. Finally, subcontracting helps maintain a balanced labor force by providing steady jobs even when civilian production is curbed.

This year Pratt & Whitney will pay out many millions of dollars for the products of its 5,280 subcontractors and suppliers. Some 200 of these Pratt & Whitney subcontractors have served the organization for 26 years or more. Many of them, like Pratt & Whitney, have grown tremendously during the years of working together. As Pratt & Whitney's business increases, so does its subcontractors' business increase, and this is true even in normal times.

Today Pratt & Whitney is producing quantities of vitally needed aircraft engines for the Armed Forces and bringing the work of National Defense to everybody's door.

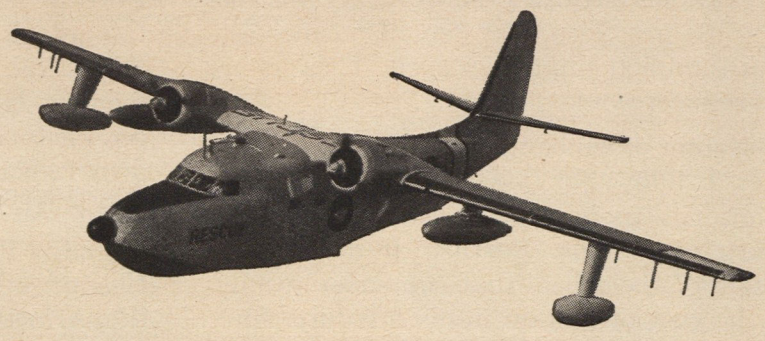
Pratt & Whitney Aircraft

PRATT & WHITNEY AIRCRAFT
DEPENDABLE ENGINES

ONE OF THE FOUR DIVISIONS OF
UNITED AIRCRAFT CORPORATION

MAIN OFFICE AND PLANT: EAST HARTFORD, CONNECTICUT • BRANCH PLANTS: NORTH HAVEN, SOUTHINGTON AND MERIDEN

Today, Guardian Angels Fly an ALBATROSS



Meet two guardian angels on the wing. Ahead, in the night, lives will be saved. Perhaps the survivors of a capsized sailboat on an inland lake, or a bomber crew downed on a hostile shore, or critically injured seamen on a tanker far at sea. Such are the missions performed in every corner of the globe by Air Rescue Crews of the Air Force. The big amphibian they fly is the versatile and rugged GRUMMAN ALBATROSS.

Originally developed for the Navy, the ALBATROSS is now operated by that service, as well as the Air Force and the Coast Guard.

GRUMMAN AIRCRAFT ENGINEERING CORPORATION, BETHPAGE, LONG ISLAND, NEW YORK

Contractors to the Armed Forces

Air Mail

Rude Awakening

Gentlemen: Your article "The Inexcusable Risk" in the June edition scared *hell* out of me. It made me realize that I have been using the same comfortable set of clichés about the present situation that I used up to December 7, 1941—plus a few new ones to cover the atomic situation.

Preparedness? — "Our boys in Washington are taking care of that."

Enemy Airpower?—"We are too far away from Russia."

Surprise Attack? — "They would not dare. Besides, look what happened to Japan."

Atomic Development?—"We are way ahead."

Hydrogen Bomb?—"That will hold 'em off."

Guided Missiles?—"We'll knock 'em off firing from our own backyard."

Espionage?—"Aw, the Russians have all that information anyway."

More Money for Airpower?—"The Air Force is *always* hollering for more money."

Your article destroyed all of my wishful thinking, and for the first time in my life I'm writing a letter to Congress.

John P. Schwede, President
Union Bag & Paper Corporation
de Venezuela, C.A.
Caracas, Venezuela

Regulars vs Reserves

Gentlemen: Congratulations on your excellent editorial "The 'Sit-Down' Strike," in the June '52 issue of AIR FORCE.

It is my understanding that the majority of your members are Air Reserve and Air National Guard Officers. Our publication has had many interesting articles; but frankly, I think it could do a better job in supporting equity and promotions, etc., of the Air Reserve and Air National Guard Officers.

The regular USAF officers, as you know, are doing an excellent job for our country but also in looking after assignments, promotions, and other opportunities for the Regulars.

W. S. Johnston
Lawrenceville, N. J.

Gentlemen: The reason I have delayed sending my dues is because I have been highly disappointed over your attitude and policies favoring the Reserve (recalled) over us Regulars.

In renewing my membership I wish to say that if your past policies continue, the Association is *not* worth $5. In fact, it would be worth many times that to see the organization dissolved.

In sending my remittance, therefore, it is with the ardent wishes and prayers

INFORMATION on positions at NORTHROP

Northrop Aircraft, Inc. is engaged in vitally important projects in scientific and engineering development, in addition to aircraft production. The program is diversified, interesting and long-range. Exceptional opportunities await qualified individuals.

The most responsible positions will go to top-caliber engineers and scientists. However, a number of excellent positions exist for capable, but less experienced, engineers. Some examples of the types of positions now open are:

ELECTRONIC PROJECT ENGINEERS...
ELECTRONIC INSTRUMENTATION ENGINEERS...RADAR ENGINEERS...
FLIGHT-TEST ENGINEERS...
STRESS ENGINEERS...
AERO- AND THERMODYNAMICISTS...
SERVO-MECHANISTS...POWER-PLANT INSTALLATION DESIGNERS...
STRUCTURAL DESIGNERS...
ELECTRO-MECHANICAL DESIGNERS...
ELECTRICAL INSTALLATION DESIGNERS.

Qualified engineers and scientists who wish to locate permanently in Southern California are invited to write for further information regarding these interesting, long-range positions. Please include an outline of your experience and training.

Allowance for travel expenses.

Address correspondence to Director of Engineering, Northrop Aircraft, Inc. 1045 E. Broadway, Hawthorne, California

Devastating armament, advanced search and navigation equipment and high speed make the Air Force's new Northrop F-89 Scorpion a powerful defensive weapon. Like the Northrop Black Widow P-61 of World War II, the Scorpion was designed from the outset to do a specialized job superlatively well. This new all-weather interceptor is another product of the long experience of Northrop's top designers and craftsmen.

NORTHROP AIRCRAFT, INC.
HAWTHORNE • CALIFORNIA

5A8

PIONEER BUILDERS OF NIGHT AND ALL-WEATHER FIGHTERS

of us few Regulars that the next year will see a definite change in your policies and legislation.

Capt. Frank G. Seiverson
Tyndall AFB, Fla.

Ferko's Letter

Gentlemen: I heartily agree with A. E. Ferko ("Air Mail" June '52) that AIR FORCE is getting too much politics in it. It's not nearly so interesting a magazine as it used to be.

George W. Fraser
Memphis, Tenn.

Gentlemen: My opinion exactly.

Roger R. Dudley, Jr.
Sheffield, Tex.

Gentlemen: "One Man's Opinion" in AIR FORCE Magazine of June is 100 percent with me. Why not print unit histories and where, and if they are out?

John J. Allen
W. Roxbury, Mass.

Gentlemen: Re Ferko's letter in the June issue. Keerect! Leave the other stuff to the Space Cadets and the Congressional Record. Tell us what's goin' on.

Laird J. Dunbar
New York, N. Y.

Gentlemen: Reference A. E. Ferko's letter in "Air Mail" in the June issue. I have never before written a "letter to the Editor," but Mr. Ferko has expressed my own thoughts so well that I must cast my vote for his side.

Herbert E. Lewis
Lansing, Mich.

Gentlemen: Regarding "One Man's Opinion" and your "What say, readers?," I find myself less in agreement with his opinion than I am with your past and present editorial policy. However, this only goes to show how AIR FORCE has grown in stature and importance. Mr. Ferko praises your "shorts" on USAF units and they are, of course, interesting to the former members of those units or of units associated with them.

However, the whys of USAF policy and the Air Force point of view on such air matters as strategic air; general and special or close support by tactical air; flying pay, etc., not only make fascinating reading but help those of us who, like Mr. Ferko, are truly interested in the Air Force explaining its position to those who are inclined to oppose and destroy it.

Maj. Gen. Follett Bradley, USAF, Ret.
Garden City, N. Y.

Plug Department

Gentlemen: The May issue of AIR FORCE was terrific. You said many things I would have liked to say but could never organize into the right words. Of all the publications I have read supporting airpower, yours is the only one that is presenting a balanced, well-developed presentation that is surely winning us friends.

Please send me two additional copies. I want to send one to the editor of my home town newspaper and one copy to my Congressman, just to make sure he understands all sides of our story. My personal copy is getting some real use so why don't you send me some membership blanks. Perhaps I can interest some of the people who are borrowing my AIR FORCE in getting their own subscription.

Keep up the good work. We have been taking quite a slapping around these last six months. AIR FORCE Magazine has been about our only ray of sunshine and source of morale raising.

USAFer
New Jersey

Gentlemen: It doesn't seem like six years since I joined the AFA. I won't say your magazine has improved greatly, for I always considered it first rate. But the number of your more important, more serious editorials has increased. It is with pleasure that I note you have consistently had the right slant, in my judgment, during a period when so many seem to have become confused in their thinking.

John P. Costelli
Lexington, Mass.

Cover Protection

Gentlemen: First, I want to tell you that my copies of AIR FORCE are like gold to me. They're just what the doctor ordered to fill my craving for aircraft news.

Second, couldn't those valuable covers be protected somehow in the mail? Being a commercial artist, I value those illustrated covers and would like to receive the magazines intact. Three out of five copies received this year have been mutilated to some extent. Probably other readers feel the same.

Gene Jagmin
Denver, Colo.

• *We appreciate Reader Jagmin's feelings, but mailing the magazine in an envelope, which would solve the problem, would shatter our slim budget.*

—The Editors

Gliders for Youngsters

Gentlemen: I think the Air Force is doing a good job and the Association is really on the ball in a civilian way. But all of us connected with aviation have been and are missing the biggest bet yet right under our noses. Gliding sailplanes. Kids from twelve to sixteen and older haven't the money for powered craft. Even the Air Force, with its huge training commands, could look to the glider to make better pilots cheaper. Gliding should be an accredited high school course, as that's where our future pilots are coming from. It's men like you who have to push gliding so thousands of kids who have no other chance to fly will be thankful for your efforts in their behalf.

Ed Demeter
Saugatuck, Mich.

• *We're all for it too. Take a look on page 57 to see what AFA is doing to promote interest in glider flying.—The Editors*

What about CANADAIR'S MANPOWER

The steady, reliable Canadian 'manpower pool' is without question one of the key factors in Canadair's ability to produce planes.

Canadair is fortunate in being located in an area abundant in skilled workmen . . . workmen who are strongly rooted in their traditions of home and province . . . intelligent, conscientious craftsmen . . . typical of the thousands who man the Canadair assembly lines *today* — and who will be on the job *tomorrow*.

Canadair has gained global recognition through its workers . . . through the honoring of delivery dates . . . through the building of aircraft rendering the maximum of service.

Canadair

LIMITED, MONTREAL, CANADA

A subsidiary of
GENERAL DYNAMICS CORPORATION
(Formerly: Electric Boat Company)
New York, N.Y. — Washington, D.C.

CA52-15UST

AIRPOWER IN THE NEWS

COMMAND AND STAFF: New assignments—Maj. Gen. Norris B. Harbold, Director of Training, USAF; Maj. Gen. John M. Weikert, Ass't Dep. C/S for Operations, USAF; Maj. Gen. Patrick W. Timberlake, heads Air Proving Ground Command; Maj. Gen. Warren R. Carter, commander of Allied AF in northern Europe; Brig. Gen. Gabriel P. Disosway, CG of Flying Training AF; Maj. Gen. Glenn O. Barcus, CG of 5th AF; Col. Stoyte O. Ross, CO of Hq. Command, Bolling AFB; Maj. Gen. Colby M. Myers, special ass't to Gen. Norstad; Brig. Gen. Lee B. Washbourne, Director of Installations, USAF.

T/O&Es, which specify number of personnel assigned to each type of unit by grade and job, and items of equipment authorized, have been replaced by two separate tables, Table of Organization and Master Equipment Authorization List. New T/O will use AFSC instead of MOS and in some instances will make slight changes in personnel assigned to units.

29,423 AF civilian employees in ZI are physically handicapped. Of total, 12,963 are veterans with preferential employment rights. . . No AF personnel will be trained by Army Food Service Schools during FY '53. . . By mutual agreement, Army, Navy, AF, and Marine Corps have eliminated prior inter-service agreement which prohibited enlistment of men who had received pre-induction exam. . . Selective Service has received call for 450 Priority I physicians during August. Of total, 100 will be assigned to Army and 350 to AF.

MORE than 3,000,000 veterans and dependents of deceased veterans will receive increases in compensation and pension payments under Public Law 356, May 23 '52. Increases were effective July 1 and will be reflected in checks received early this month. . . Furlough rates for military personnel traveling in uniform will be continued through Jan. 31 '53.

ARDC plans European Research Office to begin operations in September. . . One of first guided missile training programs on West Coast has been started at Northrop Aircraft, Inc., for 90 civilians and officers and men of USAF. . . Prototype of the GA5, world's first operational delta aircraft, chosen as Britain's super priority defense weapon against atom bombers, crash landed and partially burned on a test flight in England when elevator controls failed. Ground crews saved the plane from total loss. . . Aircraft spotting posts in US coastal and border states were ordered on round-the-clock duty beginning in mid-July. . . Atlantic Division, MATS, will soon convert its 1253d and 1257th Air Transport squadrons from C-54 equipment to new Douglas C-118Cs. . . Twenty B-36s of SAC recently made a 10-day training flight from Carswell AFB to England. . . Scott AFB's "Four Teens" were selected as national champions for this year by Barbershop Quartet Society.

NEW national headquarters of US Flight Instructors Association is in Suite 9, 308 East Capitol St., Washington, D. C. . . Eddie Rickenbacker has resigned as director of Air Transport Association. . . Dr. Allen V. Astin, new director of National Bureau of Standards, has been named NACA member. . . Andrew H. Berding, former information director of Mutual Security Agency, has been appointed Director of Information for Defense Dept. . . Capt. John P. O'Brien, member of Skyblazers jet aerobatic team, was killed during recent exhibition over Germany.

Wing Tips

Last year for the first time the domestic airlines of the US accounted for more travel than railroad Pullman.

* * *

The airlines' 10.5 billion passenger miles were accomplished by only 800 planes. Pullman's 10.2 billion passenger miles demanded 6,668 parlor and sleeping cars, plus locomotives.

* * *

The scheduled airlines of the world, excluding China and the Soviet Union, fly a billion miles a year. The airlines of the US account for about forty-eight percent of this total.

* * *

The Soviet airline Aeroflot flies more miles than any other airline company in the world, with 1.7 million miles scheduled each week. It is the only scheduled commercial airline in the Soviet Union. US airlines combined cover nearly 10 million miles weekly.

* * *

America's airlines are the busiest in the world, but they weren't the first to get started. The early bird, and the first company to stay in business, was Denmark's DDL, which took off in 1918.

* * *

Although the first helicopter flight in the western hemisphere took place only a little more than a decade ago, these new air vehicles are performing a wide variety of useful work. Helicopters are used to patrol power lines in the high Sierras, and they guard against forest fires in the mountains of Montana, Wyoming, Idaho, and Utah. When there is danger of frost, they are used to keep the air moving in orange groves, and when moisture and hot sun threaten the cherry crop, the helicopter may be called in to blow the fruit dry.

* * *

In Ohio the helicopter has been pressed into service to spray rock salt on the highways to melt ice, and in Los Angeles and Chicago it flies the mail from scattered suburban areas into the downtown sections. Methods of flying the mail have come a long way since the first air mail was carried from Lafayette to Crawfordsville, Ind., in 1859, by balloon.

* * *

Travel by air is now routine for elephants, snakes, monkeys en route to zoos, and for lobsters on their way to your dinner table. Race horses, baby chickens and newborn calves are seasoned air travelers.

* * *

Light planes are used regularly for business by brewers, funeral directors, meat packers, mushroom growers, and manufacturers of cheese, lawnmowers, and monuments.

* * *

On the farm or ranch you'll find the light plane rounding up cattle, chasing coyotes, planting rice, checking fences, and bombarding grasshoppers. There are nearly as many pilots dusting crops as there are airline pilots.

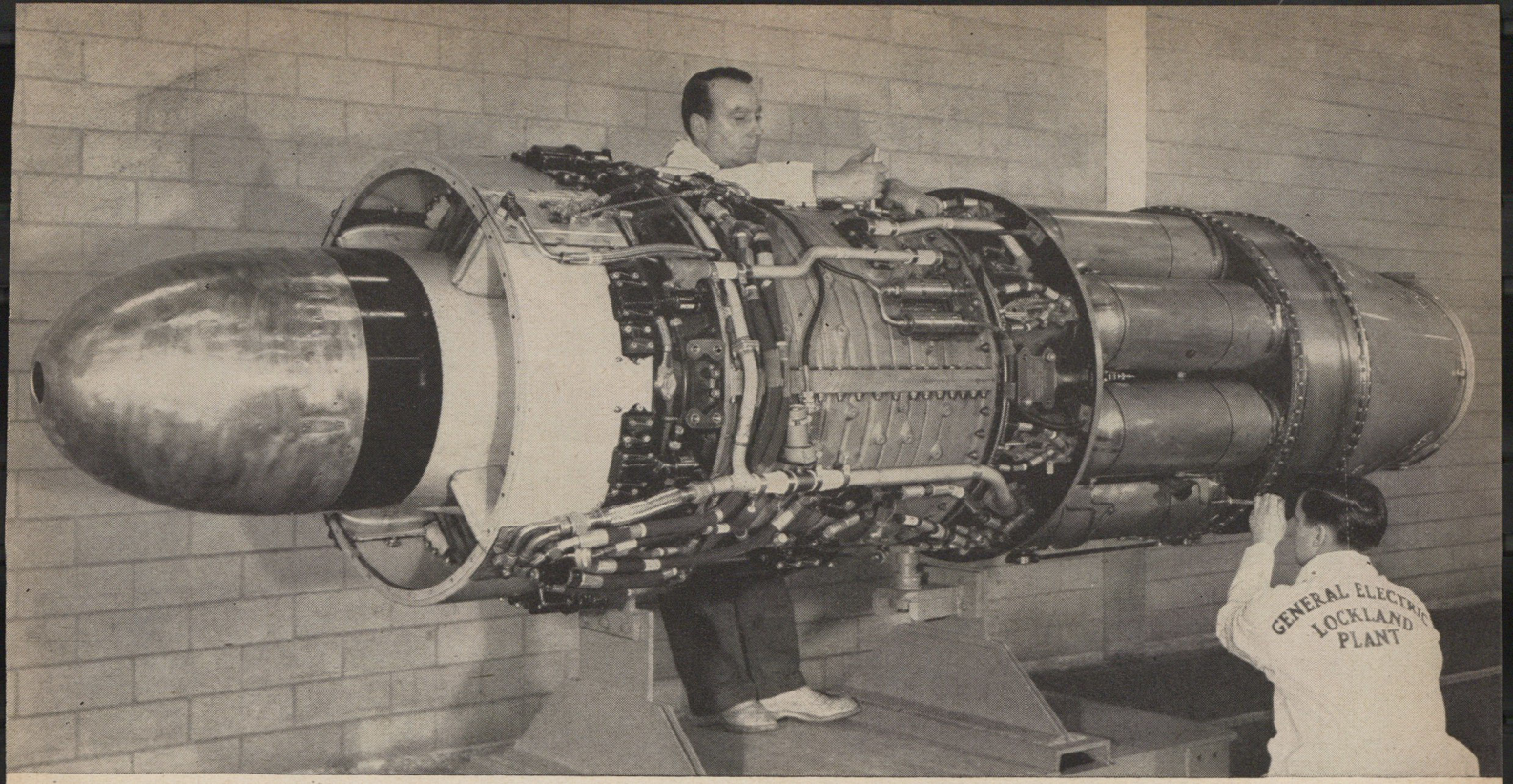
* * *

New names in the flying business include: Chattahoochee Dusters, Mountain Air Spray, Precipitation Control Co., Signs In Flight, and Wegger's Seeding and Dusting.

* * *

Eight out of ten planes flown by the airlines of the world were manufactured in the US. The United Kingdom is the second largest aircraft producer, accounting for thirteen percent of the planes now flying for the world's airlines.

—By Wilfred Owen



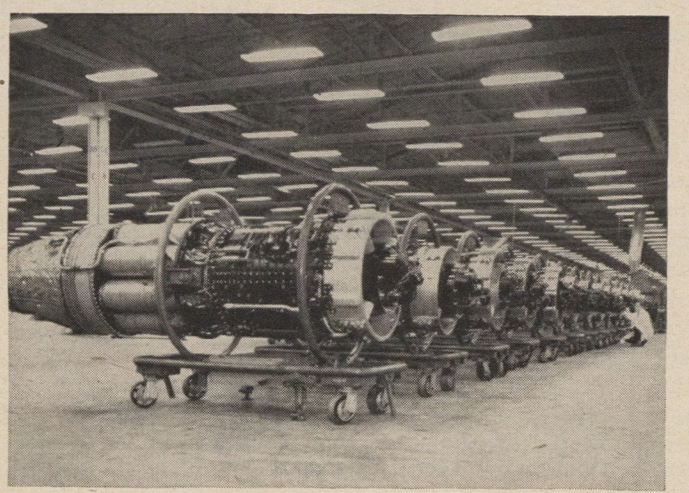
THE J47-GE-27, newest production model in G.E.'s "all-weather" J47 series, will power the North American F-86F Sabre. A modified -27 will power the Navy's FJ-2 Fury, carrier version of the F-86. Sister engines, the -23 and -25, are powerplants for the Boeing B-47B Stratojet.

NEWEST "ALL-WEATHER" ENGINE IN PRODUCTION

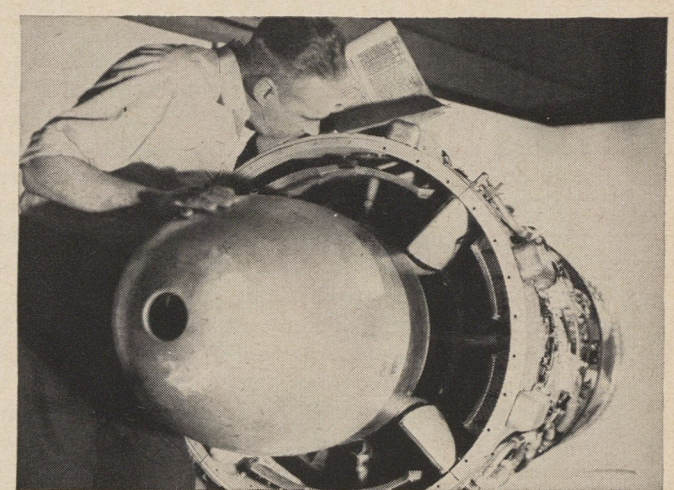
J47-27 Has 10% Greater Thrust Than Present F-86 Engine, Lower Fuel Consumption Without Size or Weight Increase

By incorporating a more efficient compressor, heated inlet surfaces and retractable air screens, the new high-performance J47-27 is capable of operation under extreme conditions of weather. An improved combustion system with high-voltage, opposite polarity ignition and larger crossover flame propagation tubes allows automatic starts to above 40,000 feet.

Constant product improvement is standard practice at General Electric with all aviation equipment. The benefits of this policy can be yours by calling on your G-E Aviation Specialist or writing the *General Electric Company, Schenectady 5, N. Y.* 210-27



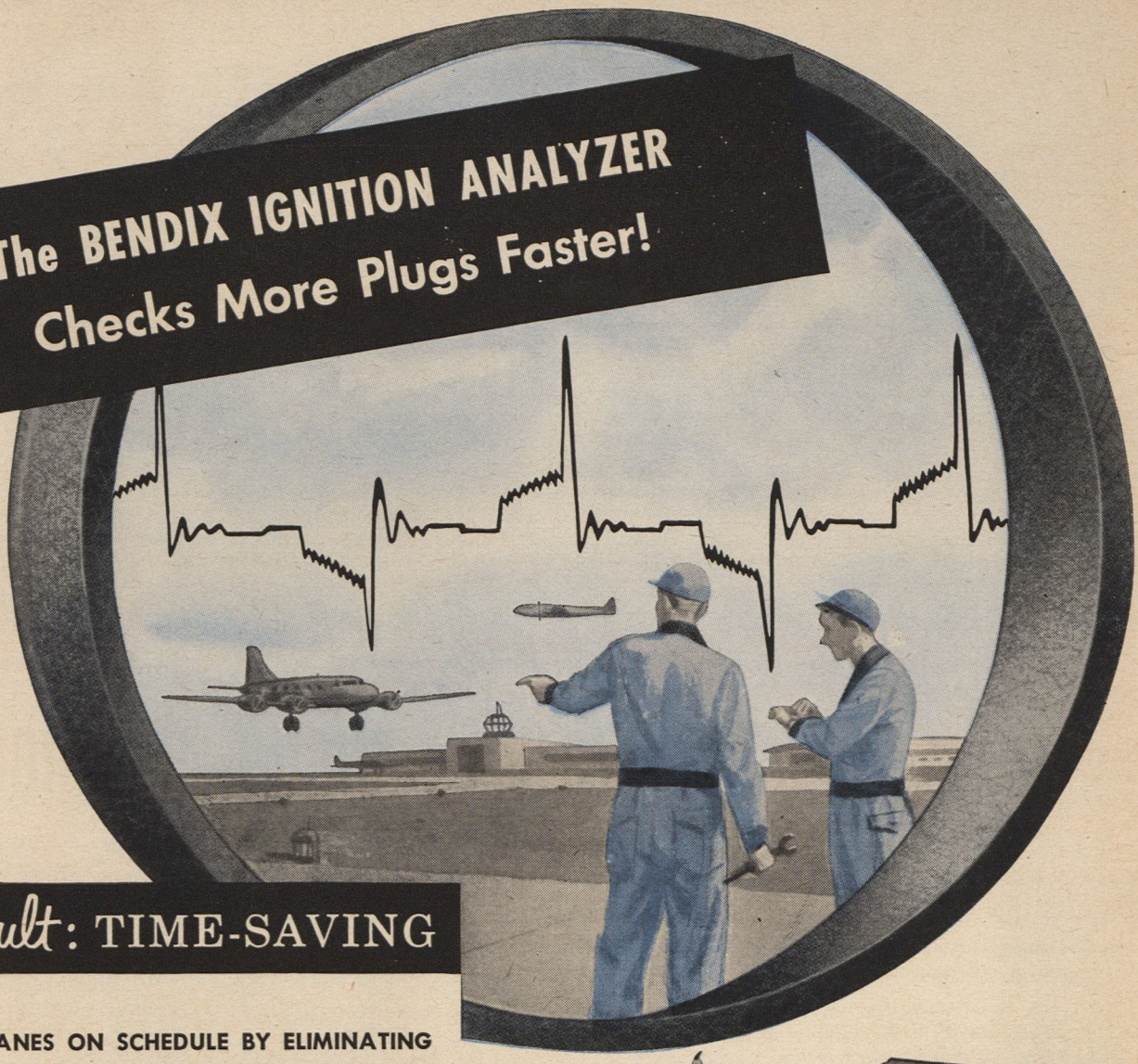
NOW IN PRODUCTION at Lynn, Mass., and soon to roll off the line in quantity at the Lockland, Ohio plant, the J47-27 is the third in G.E.'s series of all-weather engines. In addition, two major automobile manufacturers will start producing the -27 this year under license.



"HOT NOSE" PREVENTS ICING on the -27. Hot air bled from the compressor warms hollow parts of the nose, inlet vanes and struts. Inlet air screens retract at the touch of a button to eliminate the last icing problem. The retraction of the screens also eliminates a loss of thrust.

GENERAL ELECTRIC

The BENDIX IGNITION ANALYZER Checks More Plugs Faster!

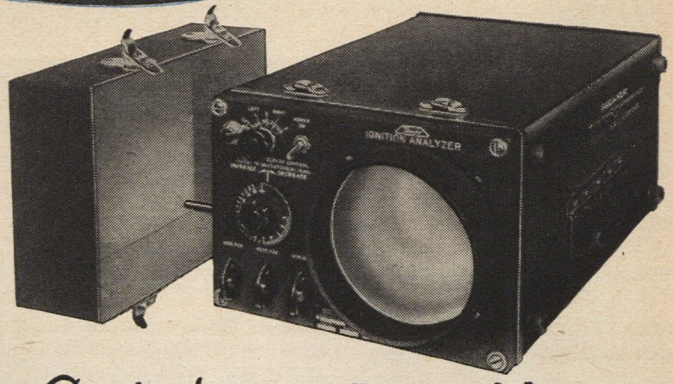


Result: TIME-SAVING

KEEPS PLANES ON SCHEDULE BY ELIMINATING HIT AND MISS TROUBLE SHOOTING

Even before the wheels touch the runway, the ignition fault has been pin-pointed and a maintenance crew stands by to make a fast repair. Minutes later the ship departs *on schedule*. The fast, certain repair job was possible because the trouble shooting was done in flight, by the operator of a Bendix Ignition Analyzer. While making a routine check of several plugs the scope reading showed a trouble pattern. The operator quickly analyzed the location and seriousness of the trouble and the word was radioed ahead. Meanwhile, the pilot reduced power of the malfunctioning engine to cool it in flight and ready it for maintenance. Just such a case as this is the reason why one airline has reduced turn-around time by 18% with the Bendix Ignition Analyzer. It can do the same for you and much more besides.

Write us for free literature concerning the Bendix Ignition Analyzer.



Costs Less—Does More

The Bendix Ignition Analyzer is available for either airborne or portable-airborne installations. It can be used with either high or low tension magneto or battery ignition. It is the ignition analyzer that can predict spark plug failure before it occurs . . . make an efficient check of more than one spark plug at a time and do so on a large, easy to read screen . . . yet it costs less than comparable analyzers.

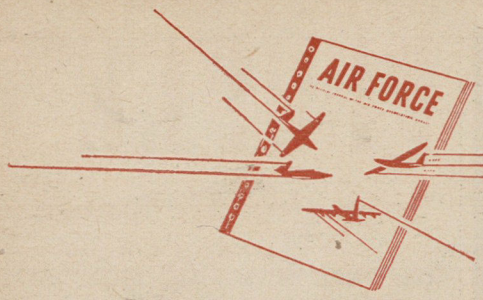
Bendix

SCINTILLA MAGNETO DIVISION OF SIDNEY, NEW YORK

Bendix AVIATION CORPORATION

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

FACTORY BRANCH OFFICES: 117 E. Providencia Avenue, Burbank, California • Stephenson Building, 6560 Cass Avenue, Detroit 2, Michigan
Brouwer Building, 176 W. Wisconsin Avenue, Milwaukee, Wisconsin • 582 Market Street, San Francisco 4, California



RENDEZVOUS

Where the Gang gets together

SHORT SNORTER: I have a short snorter (Hawaiian dollar) belonging to William Harvey, West Pacific Charter. He would probably like to have it back so if anyone can give me Bill's address I'd be glad to return it to him. *George R. Hutton, 218 E. Sargent, Litchfield, Ill.*

CALLING SORENSON AND KRIM: Where's Dick Sorenson, thirty-year man who had been at Wright Field but was in the South Pacific during World War II? He was in my outfit and I'd like to hear from him and others of the 5th AF. Russ Krim is another buddy I'd like to hear from. *Ralph E. Murphy, 1339 Fourth Ave., East, Kalispell, Mont.*

THE FOLLOWING POEM, sent in by *Lester W. Hall, 1035 E. 100th St., Seattle 55, Wash.,* was found scratched on a prison wall in Bulgaria during the last war. The author is unknown.

A PRISONER'S PRAYER

Lord, guard and guide the men who fly
Through the spaces of the sky.
Protect them as they take to air,
In morning light and sunshine fair.

Eternal Father, strive to save,
Give them courage and make them brave.
Protect them wheresoe'er they go,
From shell and flak, fire and foe.

Most loved member of the crew,
Ride with them up in the air.
Drop their bombs upon the foe,
But shelter those whom thou dost know.

Guide them well upon their way,
Grant their work success today.
Lord, guide and guard the men who fly
Their lonely ways across the sky.

487TH BOMB GROUP, 838TH BOMB SQUADRON: I'd like to hear from anyone who served with the 838th Bomb Sqdn., 487th Bomb Gp. (H), 8th AF, during the latter half of '44 and early part of '45. Also, does the 487th ever anticipate having a reunion? *Emile K. Mogannam, 81 Oak St., Binghamton, N. Y.*

RECENTLY a notice appeared in a service publication that a 2d Lt. Joseph Bartley had died at Langley AFB, Feb. 29, 1952. Does anyone know if this is the former T/Sgt. Joseph Bartley of the 308th Recon. Gp. (Wea.) at Fairfield-Suisun (now Travis) AFB, Calif., and the cause of his death? *George D. Manwaring, 206 Sharon Park Dr., Folcroft, Pa.*

WHERE'S HIGGINS? Would like to contact George Harrison Higgins, whose home was either upper New York state or Asbury Park, N. J. We were last stationed together in Gulfport, Miss. *Herman (Tiny) Feldman, 226 Roseneath Rd., Richmond, Va.*

REUNIONS

58TH AIR SERVICE GROUP: The fifth annual reunion of the 58th Air Service Gp., 5th AF, will be held at the Hotel Park Sheraton, New York City, over Labor Day weekend. For reservations contact *Ray A. Wilkins, Box 832, Morgantown, W. Va.*

98TH BOMB GROUP (H): World War II vets of the 98th Bomb Gp. (H) are having a reunion September 27-28, at the Hotel Statler, New York City. Write *Robert Hopper, 45-31 Utopia Parkway, Flushing, N. Y.*

WORLD WAR I VETS: I'm interested in locating fellows who served at Rich Field Aviation School, Waco, Tex., in 1917-19. We're having a reunion in Philadelphia August 8-9. *William E. Beigel, 312 Northcrest Dr., Kansas City 16, Mo.*

HOBBS AFB VETS: The seventh annual reunion of former Hobbs Army Air Base members and their wives will be held at the Forty & Eight Veterans Club, 214 University St., Seattle, Wash., on August 16, 1952. Those interested contact *Granville Shannon, Sec'y, 6855 No. Atlantic Ave., Portland 17, Ore.*

UNIT HISTORIES

448TH BOMB GROUP: Has a history of the 448th Bomb Gp. ever been written? I'm particularly interested in the 712th Bomb Sqdn., 8th AF. *George L. Schadt, 51-17 Skillman Ave., Woodside, N. Y.*

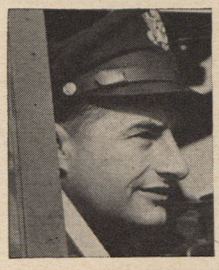
483D BOMB GROUP (H): Anyone know anything about a history of the 483d Bomb Gp. (H), or the 817th Bomb Sqdn. attached to the 483d? Stationed near Foggia, Italy, this was a B-17 outfit and part of the 5th Wing attached to the 15th AF. *Al Dragoo, 404 Circle "G," Spencer Park, Hastings, Neb.*

To insure appearance in a given issue, Rendezvous items should be in this office approximately six weeks prior to publication. For example, copy for September issue should be in our hands by July 15.—The Editors

PEOPLE

In The Air News

Capt Phillip W. Browning, 41-year-old combat cameraman, MIA in Korea since last September when his B-26 failed to return from a night mission, who has been awarded the National Headliners Club's Medal of Valor for his photo coverage of the Korean war. He also flew 60 missions over Europe as a photographer in WW II, later ran a radio shop in Port Huron, Mich.

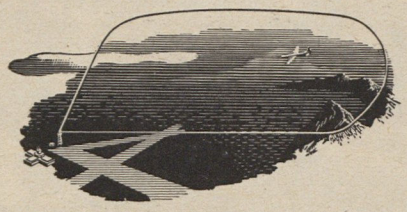


2nd Lt. James F. Low, who became the 17th jet ace of the war a scant six weeks after being assigned to Korea, recently got his sixth MIG near the Yalu. The 26-year-old Sabre pilot is the first second lieutenant among the jet aces. Low, from Sausalito, Calif., has been described by Col. Francis Gabreski as typical of the promising "younger generation" now battling MIGs in Korea.

Brig. Gen. Albert Boyd, who has taken over as CG of ARDC's Wright Air Development Center at Wright Field. He'd been vice commander of WADC since February. Earlier he headed the Muroc bug chasers at Edwards AFB. Few men have flown more types of aircraft than Boyd, and few know more of what to expect from new planes.

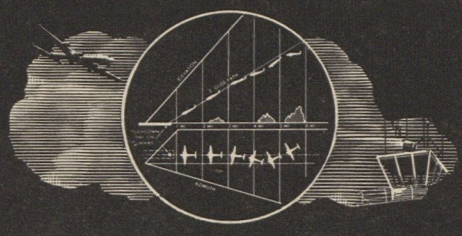
Max Conrad, who hedge-hopped the Atlantic in a tiny Piper Pacer to prove to his ten youngsters that flying is just as romantic as being a cowboy. He reached Norway by way of Greenland, Iceland, and Scotland a week after leaving Washington. "My kids," said Conrad, "think about nothing but cowboys. I wanted them to know about the romance of flying."

Only Gilfillan GCA Radar Has All These Advantages!



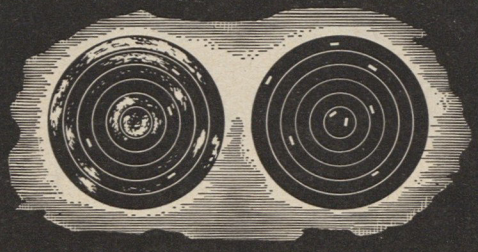
HIGH-POWERED SEARCH

New Gilfillan GCA extends search coverage to 10,000 feet altitude over a 50-mile radius. Early GCA was limited to solid surveillance 18 miles out and 4,000 feet up. This *twenty-fold* increase of original GCA coverage was developed exclusively by Gilfillan—a "bonus" vital to air traffic control.



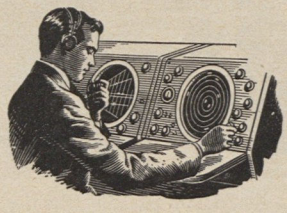
3-DIMENSIONAL AZEL SCOPE

Gilfillan's three-dimensional Azel scope changed GCA from a five-man to a simplified one-man operation. Now, the exact position of approaching aircraft is seen clearly and accurately in 3 dimensions—altitude, azimuth, range. The Azel scope is exclusively the product of Gilfillan research.



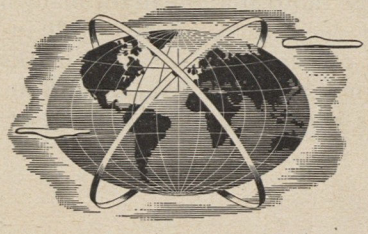
ELIMINATION OF GROUND CLUTTER

There is no ground clutter on either the Search or Azel Scope thanks to Gilfillan's Moving Target Indicator. Tracking and identifying aircraft no longer requires the tedious concentration of a special radar operator. Exact bearing and range of aircraft are now seen instantly by all tower personnel. Only Gilfillan has developed a reliable, drift-free range-selectable M T I.



COMPACT TOWER CONSOLE

Gilfillan's desk-size one-man GCA console is in startling contrast to the 22-ton, five-man wartime trailer. By remoting radar data to control tower, air traffic personnel now sees accurate plane positions instantly. Consolidation of all GCA features into a compact console can be credited entirely to Gilfillan design and long-term experience.



WORLD-WIDE SERVICE

Over 100 Gilfillan factory-trained technical experts supervise GCA operation and maintenance throughout the world. Gilfillan GCA schools also train personnel of the CAA, the USAF, USN, USMC, RCAF and NATO. Supervising all phases of GCA the world over is an exclusive Gilfillan service.

ONLY GILFILLAN GCA RADAR
is proven and in operation at U. S. civil airports.

ONLY GILFILLAN GCA RADAR
is standard equipment among the 24 nations of the free world.

Gilfillan
LOS ANGELES
GCA

ON THE "FRONT LINE" IN COMMUNICATIONS

The rich experience and vast facilities of Delco Radio are again at the service of the nation!

Delco Radio has a major part in the current rearmament program . . . is currently producing advance-type radio equipment for many branches of the military. Delco Radio products serve equally well in civilian communications . . . in millions of passenger cars and trucks . . . in untold numbers of homes. Yes, in peace as in war, Delco Radio is on the front line in communications with on-time production of *superior* products. See for yourself!

DELCO RADIO

DIVISION OF GENERAL MOTORS, KOKOMO, INDIANA

LEADER...

IN PRODUCTION

Delco Radio is the world's largest builder of automobile radios . . . the leader in production and assembly of component parts.

LEADER...

IN ENGINEERING

Delco Radio developed many of the most important advances in automotive radio . . . has unsurpassed experience in this field.

LEADER...

IN QUALITY

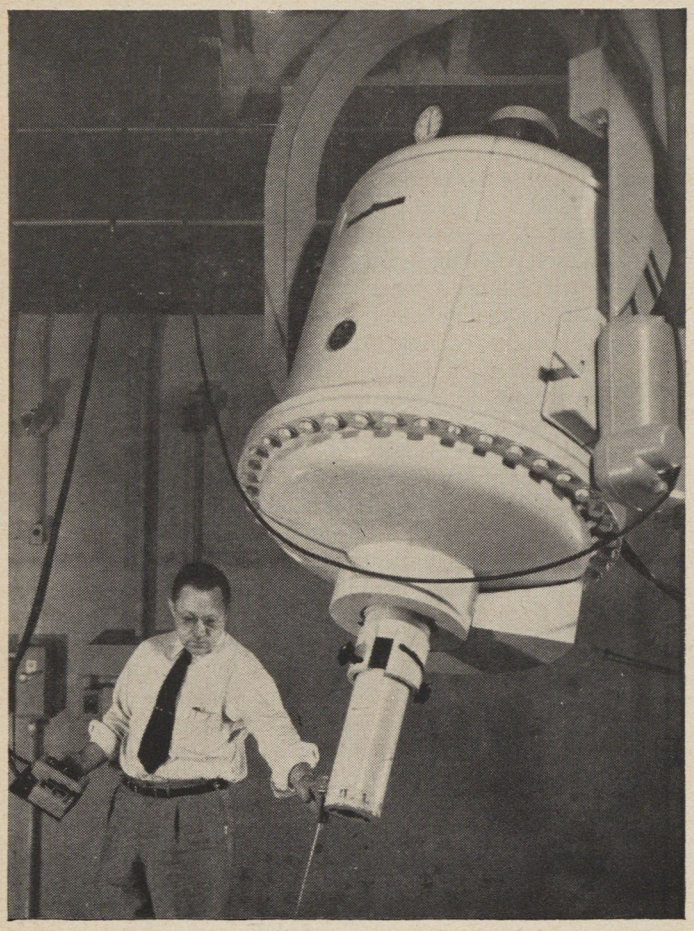
Every step in the manufacture of Delco Radio products is closely supervised to maintain high, uniform product quality.

LEADER...

IN MANUFACTURING

Completely integrated for efficient production, from raw material to finished product, Delco Radio meets any customer need.

Inside look at Air Power



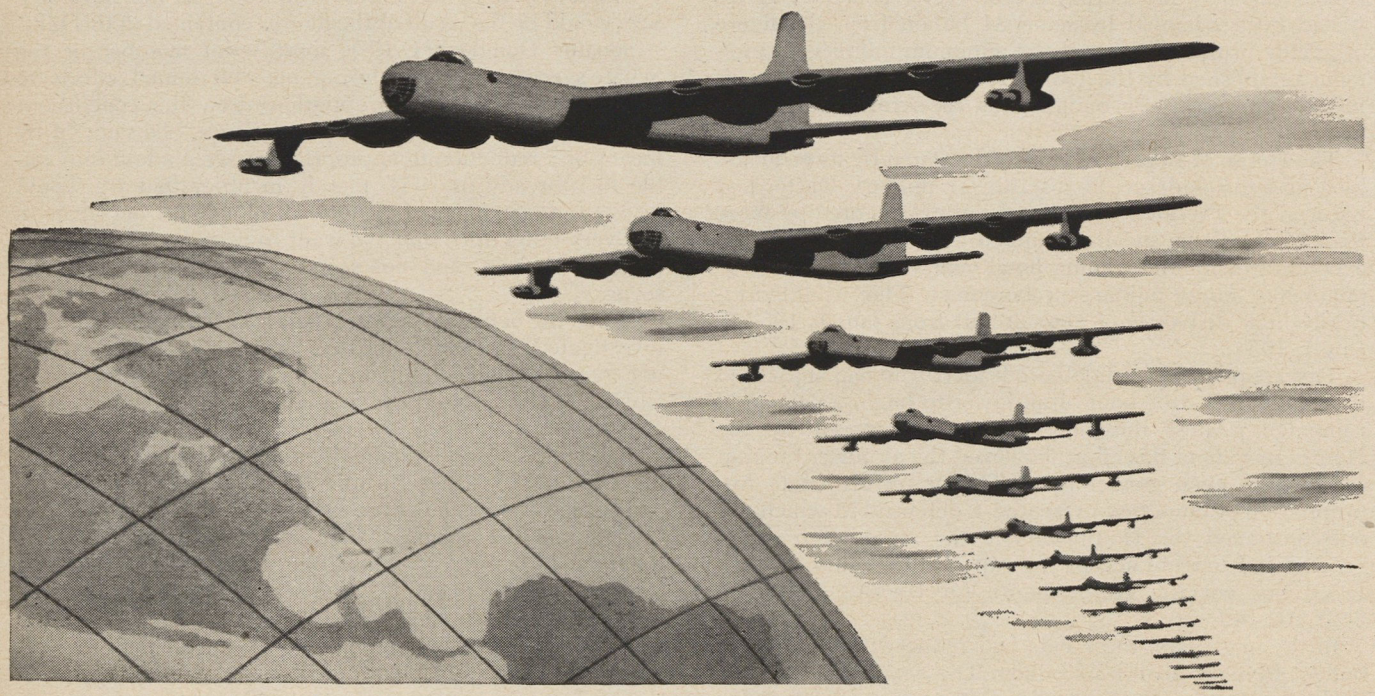
X-ray inspection guards International Harvester quality

This 1,000,000-volt X-ray machine is a part of the equipment used by International Harvester to insure high-quality production. With it, IH research engineers check flaws in metal parts . . . observe internal behavior of metals . . . insure quality production all along the line.

Research, rigid inspection, the finest in machines and plant installations . . . combine these with a fine staff of engineers plus skilled and experienced men on the machines, and you have the answer to International Harvester's ability to keep *precision* manufacturing on a *mass production basis!*

For well over a century our business has built an ever-increasing variety of machines and equipment to serve agriculture, industry and transportation.

Today, we are engaged in another vital activity; contributing to America's growing air power by producing equipment that becomes an integral part of the most advanced aircraft.



INTERNATIONAL HARVESTER

A REPORT ON THE AIRPOWER

FOR SOME TIME now airpower has been measuring up to Mark Twain's classic remark about the weather. Everyone has been talking about airpower. Few have been doing anything about it.

Last month as the multi-billion-dollar defense budget for the 1953 fiscal year approached a showdown vote in Congress, the analogy became more pronounced. Both the sweltering heat and the airpower talk were excessive, even for Washington at budget time, and there was no relief in sight.

Airpower talk poured into the Capital from presidential and congressional aspirants on the stump, and it poured out of Washington from the White House and from the Congress. Everyone, it seemed, had backed a 70-group Air Force, as if this were the burning issue of the moment.

Meanwhile, the issue before Congress was an Air Force of 143 wings, and the budget designed to provide this strength was progressing from bad to worse. Indeed, the way things were going, an Air Force of seventy modern groups, far more than are now available, began to look appealing.

The 143-wing program, of course, had been compromised in the Pentagon and in the White House long before Congress had seen the new airpower budget. By executive action the stretchout of aircraft production schedules had been in effect for some six months, and the time and the planes lost as a result of it could never be regained. Along the rugged budget trail the 143-wing Air Force had been stripped of reserve aircraft necessary to offset combat attrition; first-line aircraft had been dropped from the programs for the Air Guard, Air Reserve and MATS, and some first-line aircraft had been eliminated from the regular force. Before the new Air Force budget ever reached Congress it had been trimmed by some $4 billion from the figure originally projected to meet the minimum military requirement established by the Joint Chiefs of Staff. Despite this history, the airpower budget was receiving further cuts at the hands of Congress.

The House of Representatives, stimulated by its economy bloc and the widespread distaste for military waste, had reduced the President's budget for the Air Force by more than $1.6 billion, and had slapped a ceiling on Air Force expenditures for the coming fiscal year which further curtailed long-range military procurement. This would drastically limit deliveries of new aircraft from Jan. 1, 1953 to July 1, 1954.

This action prompted defense leaders who had supported the President's stretchout of airpower to begin a concerted campaign against this new stretchout imposed by the House. In spite of this effort, however, the airpower buildup received an even greater blow. The powerful Senate Appropriations Committee presented a defense bill which not only sustained the House cuts in the airpower program (though refusing to accept the expenditure ceiling for FY 1953) but cut the House figure for the Air Force by $428,301,142.

In the aggregate, these cuts had reduced the Air Force budget by more than $2.1 billion. The Senate committee's slash, said the Air Force, would eliminate some 700 planes from the program, and push back the delivery date for 143 wings to about mid-1956. In addition, it said, this latest cut would "play hob with current aircraft production schedules which have been subject to spurts, stops, shifts and readjustments too numerous to mention."

It was at this point that the Air Force Association, in a statement to each Senator from AFA President Harold C. Stuart (see AIR FORCE July 1952), called upon the Senate to "hold the line" against the stretchouts and provide the airpower needed to meet the military requirement. From throughout the country AFA leaders added personal appeals to their elected representatives in the Senate.

The dozens of letters received from Senators in reply to this effort testified to widespread Senate support of airpower as the first priority for national defense, to a new awareness of the threat imposed by Russia's growing air strength, and to a desire to take corrective action. This could, of course, have been more "airpower talk," but the tone of the letters indicated that, with strong leadership on the floor during the budget debate, the Senate was prepared to help salvage the declining 143-wing program.

This inspired leadership came in the person of Senator O'Mahoney (D-Wyo.), chairman of the military subcommittee of the Senate Appropriations Committee, and floor manager for the huge defense bill, ably supported by Senator Johnson (D-Tex.), chairman of the Senate's important preparedness subcommittee, and by Senator Humphrey (D-Minn.) whose challenging airpower statement was one of the highlights of the budget debate.

"The issue before the Senate," said Senator O'Mahoney, "is whether we shall obtain 143 wings by the middle of the calendar year 1954, as the Joint Chiefs of Staff have recommended, or by the middle of 1955, as the Budget figure is estimated, or by some period in 1956, as the Air Force says would be the result of the figures contained in this bill."

Senator Douglas (D-Ill.), most vocal member of the Senate's economy bloc, during his determined efforts to reduce the Air Force appropriation, drew this conclusion: "I would hate to have it on my conscience," he said, "if by means of a reduction in appropriations we made it impossible to be ready in 1954, merely in order that we would be ready in 1956. So I believe all of us find ourselves in this very cruel dilemma. We want to preserve the long-run financial security and not sacrifice our short-run military security."

When the Senators had cast their final votes on the much-investigated and much-debated defense budget they had not met the 1954 target date recommended by the Joint Chiefs of Staff, nor had they burdened their collective consciences with an airpower stretchout to 1956. They had split the difference and provided funds for an Air Force buildup to 143 wings by mid-1955.

The Senate had, however, been instrumental in breaking the hold of the economy bloc on airpower expenditures for the next fiscal year. It had overruled many of the decisions of its Appropriations Committee. And it had restored some $600 million which the House had slashed from the President's budget figure of $11 billion for the procurement of aircraft and related equipment.

This latter action, vital to the 143-wing program, was not easily accomplished. Indeed, it was achieved only after

BUDGET

Senator O'Mahoney, against the majority opinion of the Senate Appropriations Committee, of which he is a member, had proposed that the Senate provide the Air Force with $11 billion for aircraft procurement by appropriating $3 billion in cash and $8 billion in contract authority for this purpose, the latter to be paid for out of future military appropriations.

In gaining the support of his colleagues for this complicated measure, Senator O'Mahoney had his difficult moments. At one point he enjoined the Senate in these words: "Do we believe," he demanded, "as every candidate for President upon the stump today says, that we ought to have airpower capable of meeting that of Soviet Russia? Or are we playing tiddledy-winks with the defense of the United States?"

After prolonged debate the Senate voted 79 to 0 for this aircraft procurement amendment, jointly sponsored by Senators O'Mahoney and Johnson. The unanimous vote indicated that, while some Senators vigorously opposed the Air Force buildup in the committee room and on the Senate floor in debate, none was prepared to go on record against airpower in the face of the Russian air threat.

The Senate also voted, 49 to 30, to reinstate the Air Force research and development fund in the budget to the $525 million figure in the President's budget and approved by the House, but cut by the Senate committee. This action was sponsored by Senator Johnson, and was vigorously supported by Senator Humphrey.

When the big defense bill was sent to conference to resolve the differences between House and Senate versions, the House conferees—as fully expected by everyone—objected strenuously to the Senate's provision for $8 billion in contract authority for aircraft procurement. They agreed, however, to bring the cash total for this item up to the $11 billion figure, and Senate conferees led by Senator O'Mahoney agreed to substitute cash for contract authority. After some give and take on other procurement items, the defense budget in its new version was sent back to the Congress. On the Fourth of July weekend, as Congress rushed out of Washington, the budget received the final approval of the House and Senate. Passage by the House, which overruled its own decisions of a few weeks before, testified to this chamber's fundamental belief in airpower, as has been amply demonstrated in the past, and to the leadership of such strong airpower supporters as Congressmen Rayburn, Vinson, Mahon, McCormack, Roberts, and many others.

When the smoke had cleared, the Air Force had received for the 1953 fiscal year a total appropriation and new contract authority totaling $21,118,361,770 (which included $1,730,378,770 in cash for the liquidation of prior year contract authority). This was $1,312,017,000 less than the total prescribed for the Air Force in the President's budget, $365,948,858 more than the original House budget, and $4,000,000 less than the original Senate budget.

Measured against the President's budget, the Air Force received its full request for procurement of aircraft and related equipment (all $11 billion of it in cash) and its full request for research and development; sixty-nine per cent of its request for major procurement other than aircraft; eighty-two per cent of its request for maintenance and operations; ninety-seven per cent of its military personnel requirement request; ninety-two per cent of its reserve personnel requirement request; ninety-one per cent of its Air National Guard request, and seventy-five per cent of its request for contingencies.

All in all, the Air Force should, by tightening its belt, be able to build toward 143 wings of more or less first-line planes (less reserve aircraft for attrition and first-line planes for Air Guard, Air Reserve and MATS) by July 1, 1955, or near that date.

This is hardly what the Joint Chiefs of Staff had in mind when they asked for 143 modern wings by July 1, 1954, as a minimum security requirement. Nor is it the type of program the Air Force Association has had in mind in leading the fight against the airpower stretchout.

However, it cannot be ignored that in the heat of this election year, and up to the last minute in the defense budget debate, the airpower program seemed destined to be short-changed and stretched-out in disastrous proportions, far beyond the provisions of the defense bill just passed by Congress. On these terms alone, and in light of the alternatives which stared the Air Force in the face, this last-minute action by Congress can be considered an airpower victory.

In his Senate statement, Senator Humphrey posed this thought: "In the years ahead we must live with the question of whether we did everything in our power—back in 1952—to prevent a series of Koreas or a full-scale clash of arms."

Only history, of course, will provide the answer. At the moment it would seem apparent that all was not accomplished in 1952 that should and could have been accomplished to provide adequate airpower for our security, and, at the same time, that more was achieved toward this end than appeared probable up to the final bell of the 82nd Congress.

One thing is sure: That the Senate, which the Air Force Association called upon to assume a position of leadership in the fight for airpower, rose to the occasion and provided that leadership.

If the defense budget for fiscal 1953 is the turning point for American airpower, as Air Secretary Finletter has stated, the history books should reserve ample space for one Senator O'Mahoney of Wyoming, whose intelligent grasp of the complex airpower problem and skillful direction of the huge defense budget demonstrated statesmanship which is deserving of the highest praise by all our citizens. Equally deserving is Senator Johnson of Texas, whose brilliant investigations of the defense establishment provided the foundation of valuable military facts to help guide this difficult legislation through Congress.

Meanwhile, the defense budget for the 1954 fiscal year is now being prepared in the Pentagon, and the same people who helped frame the airpower stretchout are again at work applying arbitrary ceilings on Air Force budgets, ceilings which would compromise whatever gains have been made in the airpower buildup these past few months. And so we look forward to another airpower fight, as we do every year, same time, same station.

Airborne BELLYFUL for HILL 206

What's it take to cut a hill down to surrender-size? Supplies . . . men, guns, drugs, plasma, completely assembled equipment. And getting them there *without fail* is the Fairchild C-119's job. Tough terrain can't baffle these battle-proven "Flying Boxcars." They deliver in a quagmire or a tangled jungle, by parachute or on iron matted runways.

Fairchild designed these rugged aircraft for speed, stamina, versatility. Tribute to Fairchild's engineering skill is that the C-119 "Flying Boxcar" is the number one all-purpose transport for military airlift operations of the U. N. forces in Korea, and for other airlift operations in Europe and the United States.

ENGINE AND AIRPLANE CORPORATION

FAIRCHILD *Aircraft Division*

Hagerstown, Md.

Other Divisions: Engine Division, Farmingdale, N. Y. • **Stratos Division,** Bay Shore, L. I., N. Y. • **Guided Missiles Division,** Wyandanch, L. I., N. Y.

Gabreski, in the classic pose which is almost mandatory for the fighter pilot in these days of the ubiquitous camera.

OUR TOP ACE TALKS SHOP

America's leading living ace, Col. Francis S. Gabreski, gives* AIR FORCE *readers the word on MIG Alley combat

FEW PEOPLE WERE surprised when "Gabby" Gabreski got his fifth MIG over North Korea last April 1 and became the eighth US ace of the jet air age as well as the leading living combat pilot, in terms of aerial victories, in the USAF. Official Air Force records credit Gabby with thirty-one planes shot down in the ETO while with the 8th Air Force. Gabreski modestly sets his own World War II total at twenty-eight. But there is no doubt that he got 6½ MIGs over North Korea. He recently returned to a thunderous West Coast welcome (see pictures on following pages) and is due to report to Hq, Flying Safety Command, Norton AFB, San Bernardino, Calif. As deputy commander of the 4th Fighter-Interceptor Wing and later CO of the 51st Fighter-Interceptor Wing, Gabreski can tell you as much about MIG Alley as any man alive. At least that is what we figured when we cornered him in the Pentagon for the following interview.

—THE EDITORS

WELCOME HOME, WEST COAST STYLE

Every pilot returning from Korean combat deserves this kind of welcome—ticker tape, parades, bands, civic celebrations—the complete treatment. That's impossible, unfortunately, so AFA squadrons on the West Coast did the next best thing when they honored Gabreski. For this modest man, who has shot down more enemy aircraft than any living American pilot, is a prime example of the American dream. Born in Oil City, Pa., thirty-three years ago of Polish immigrant parents, Gabreski rocketed to fame in World War II when he became a leading ace in the ETO. He was shot down over Germany and finished the war in Stalag Luft I. A Reservist, he went to work in Santa Monica for the military sales department of Douglas Aircraft. In 1947 he volunteered for active duty and later obtained a regular commission. When he volunteered for Korean service a year ago his wife was expecting their fourth child. In combat Gabby picked up where he had left off against the Luftwaffe, got 6½ Migs in 100 missions and returned to a welcome which he describes as "more than a tribute to one individual. It is a tribute to the thousands of Americans who are carrying the fight to the enemy in the skies over North Korea."

(More about Gabreski's homecoming on page 34)

Gabby meets Mrs. Gabreski and Djoni at San Francisco . . .

The luncheon, Charles Morgan, SF AFA speaking . . .

On to Los Angeles, AFA's Art Kelly greeting . . .

Q. *Do we actually have air superiority over North Korea or do we have it only at the sufferance of the Reds? Couldn't they, by sheer weight of numbers, take air superiority from us any time they might wish?*

A. Up to the time I left Korea we had air superiority. By that I mean that the F-86 pilots had complete control of the air, which in turn gave complete freedom of action to the fighter-bombers, the F-84s and F-80s, which are charged with the interdiction effort.

If the Commies decided to unleash their entire air effort it is a preconceived notion that they would have air superiority in numbers. However, I'm sure that, because of the training and experience of our fighter pilots, we could still remain masters of the air. But this could be determined only in an all-out effort which could be termed an "Asiatic Battle of Britain."

Q. *What about the caliber of Red pilots? Some say we are winning in MIG Alley largely because of superior flying skill. Do you agree?*

A. F-86 pilots have a great deal of respect for Communist tactics and equipment. I think the record speaks for itself in determining who is most qualified as the best in the fighter business. For every eight aircraft we have destroyed we have lost one in air-to-air combat. It is my personal opinion that the Saber is comparable to the best aircraft that the Communists have. However, I certainly believe our advantage lies in the training, background and experience of our pilots.

Q. *Is there any steady improvement noted in the quality of Red pilots?*

A. It is a foregone conclusion that the Commies are using

At City Hall with Mrs. Hap Arnold and Mayor Robinson . . .

In the official car, with Maj. Gen. Hall, 4th AF . . .

Guests of the Ambassador . . .

Santa Monica Squadron gets the lowdown.

MIG Alley as a training school. At the outset, the Commie pilots enter MIG Alley in large formations with the object of observing the Saber formations. They then quickly return to their Manchurian sanctuary. This continues for several days until the MIG pilots feel ready and able to engage the Saber forces. It is at this initial moment of the Communist training cycle that the F-86 pilots try to destroy as many MIGs as they can. And it is usually during the first part of a training cycle that the Reds take their highest losses.

It is quite evident that, if the Communist forces decide to let their experienced pilots fight the air war in Korea, our losses would be much greater and the victory-loss gap would be much narrower.

Q. *Do you think any of the Red pilots are Russians? Or Germans or Japanese, as has been reported? Have you ever heard any Communist radio conversations which might be interpreted as Russian?*

A. It is quite obvious that initially the use of Russian equipment would require Russian technicians, specialists and pilots to get the Korean air operation under way. It is also highly reasonable to assume that some of the instructor pilots are Russian right now. However, this has never been confirmed through any official source.

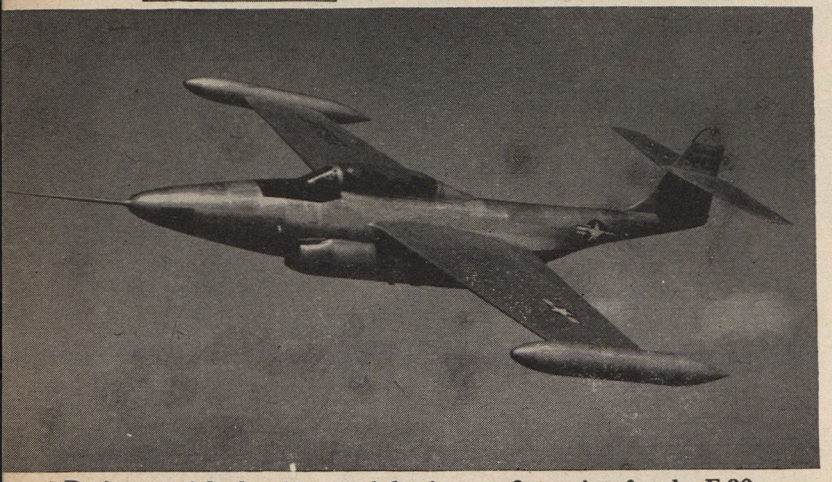
Q. *Speaking of equipment, how does the F-86 compare with the MIG?*

A. Maybe it would be better to turn that question around. The F-86 in my opinion is one of the top fighters in the world today. The MIG compares with it very favorably. It's a good

(Continued on page 34)

FUNCTION ... not

by John K. Northrop



Designers picked a thin, straightwing configuration for the F-89.

THERE HAVE BEEN a number of articles recently on transonic flight, and in particular transonic warfare, which claim that only sweptwing aircraft can survive in MIG Alley, and that warfare at the speed of sound would not be possible had it not been for the development of the sweptwing! A quick rebuttal is, "It ain't necessarily so!"

These claims and catch-all phrases like "It's a sweptwing air war" create an illusion that swept wings have some talismanic quality, some special magic that makes airplanes go faster, and therefore, are a simple and entirely satisfactory configuration for all transonic and supersonic airplanes. Such statements are somewhat misleading. They are an oversimplification of the theory of sweep and are based on false conclusions that there are not other methods of achieving low wing drag. Further, the statements tend to create a "fashion" consciousness that rejects other configurations as outmoded, regardless of function.

To dispel such a misconception one needs only to recall that in 1947 the Bell X-1, an airplane without sweep, first exceeded Mach 1, the speed of sound. Subsequent flights of the same straightwing airplane, manned by various pilots, duplicated the supersonic feat. These flights contributed greatly to transonic flight research.

When an airplane design is started, thorough investigation is needed to determine which wing will best fulfill the planned mission of the airplane. Function, rather than fashion or glamor of shape, determines its final configuration.

The benefits of sweep have long been recognized by aircraft designers. Engineers at Northrop Aircraft used moderate sweep back in the development of the family of Flying Wing airplanes with eminently satisfactory results. And, as far as we know, the YB-49, an eight-jet flying wing, still holds the world's long distance record for unrefueled jet flight. We were fully aware when building the Flying Wings that the aerodynamic characteristics of swept wings were not all a designer could desire. But, with the advanced design of the Flying Wing, sweep was practical. Later, during the immediate postwar period, knowledge of the characteristics of swept wings was further increased by the development and utilization of the Northrop X-4 sweptwing flying laboratory which concentrated on the study of sweep.

When the swept wing was first recognized as a means available for high speed drag reduction, it was considered by some to be the ultimate solution to transonic and supersonic speed problems. Now, more timely and advanced knowledge has eliminated many of its supposed advantages. Even today, with this knowledge of sweep available, sweptwing airplanes sometimes require a great many gadgets and more than ordinary pilot skill to return them to the runway right side up. It is known that at high Mach numbers, above 2, sweep becomes ineffective. At lower Mach numbers, if the degree of sweep comes within the angle of the Mach wave, the drag of the swept wing at supercritical speeds is less than that of a straight wing of equivalent airfoil thickness measured in the direction of flight.

For a given aspect ratio and airfoil section, increasing sweep means increasing the effective length of the wing panel in bending. This longer lever arm, for a given load, means an increase in root bending. Therefore, to alleviate the root bending, heavier construction is necessary. Thus, the weight of the aircraft for the same thickness of wing profile is increased. Conversely, if the weight of the aircraft is to remain the same, the thickness of the swept wing must be increased, thereby offsetting the reduction of drag gained by sweep. Consequently the drag characteristics at high speeds are often the same for swept wings and straight wings of the same weight.

Returning to the geometry of sweep, the "component" theory considers that the aerodynamic characteristics of lift, drag, etc., are determined only from the component of air flow at right angles to the wing axis. According to the theory, an airplane with a sixty degree swept wing, flying at 500 mph, would have an effective airflow velocity over the wing of only 250 mph insofar as drag is concerned. Thus, a hasty conclusion would be that the airspeed over the wing is reduced fifty percent and that an airplane with a sixty degree swept wing could attain double the speed of the straight wing without locally exceeding the speed of sound and its attendant compressibility effects. Experiments have demonstrated that this conclusion is not the case; that full realization of the fifty percent reduction in drag effect as contained in the geometric theory is not

The straightwing X-1 was the first plane to fly faster than sound.

Fashion

A noted Aircraft Designer discusses Configuration

reached. The reduction in drag obtained through sweep is actually somewhat below fifty percent.

The use of wing sweep is drag reduction at a price. In some cases the price is worth paying; in others it is not. The decision must be made each time a new design is proposed. Some designs fall almost naturally into the sweptwing class; others into the straightwing configuration. However, there is still another design situation in which a wing of either shape, or perhaps even a third type such as the delta, would prove proper.

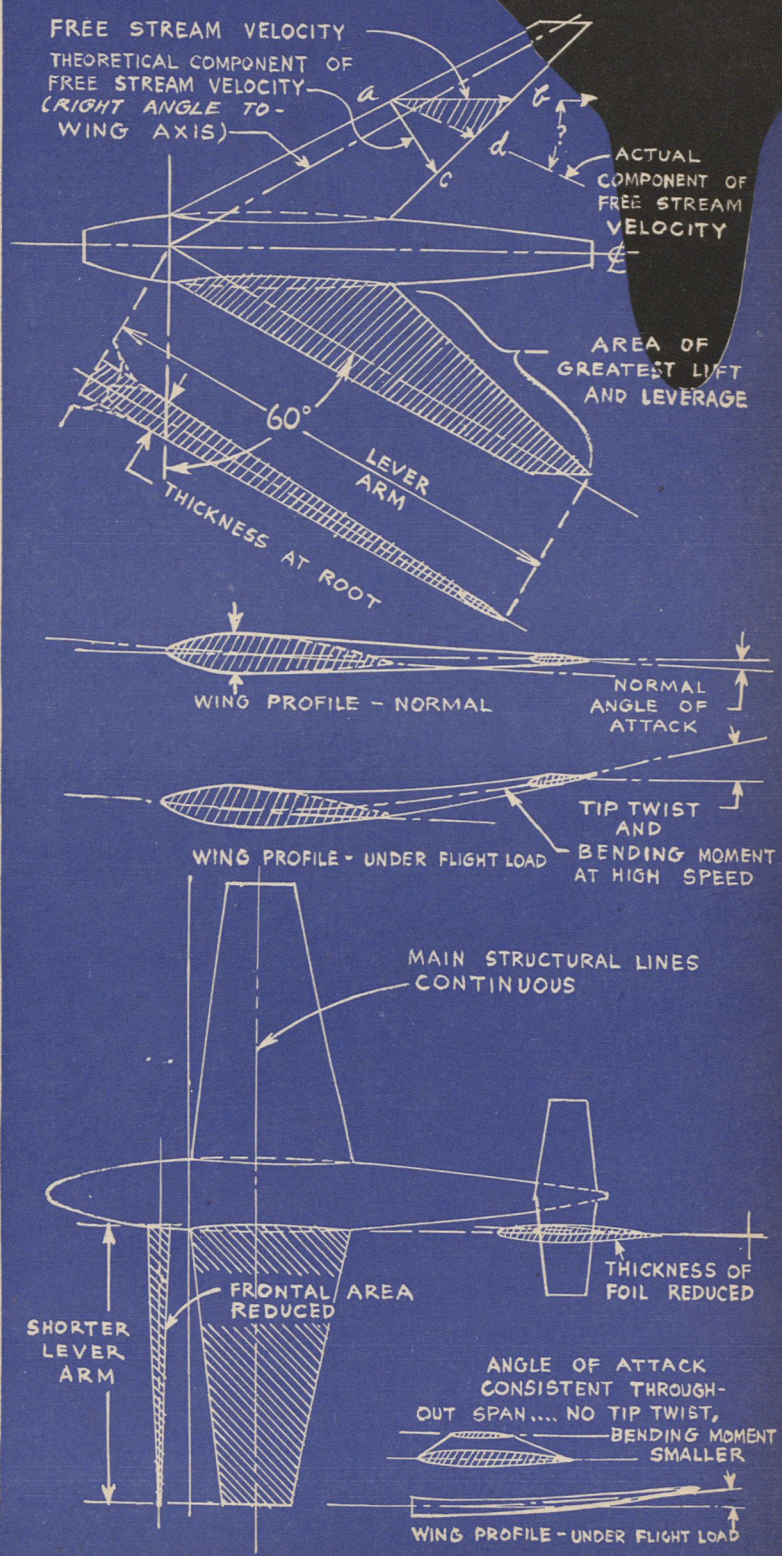
Let us take a hypothetical case and assume that a new airplane is required. Its mission or primary purpose is that of a fighter. It must fly at high altitude, at high speed, and at short range. Such an airplane must be small and light. Its mission would suggest a clean configuration; no external appendages such as fuel tanks or outboard rockets. Its fuselage would be long and thin. There would be no requirement for target-finding devices or other weighty equipment. An evaluation of the purpose of this type craft would probably suggest the swept wing, even though the sweep would require a lengthened wing panel, and therefore, a thicker profile. The profile thickness would help reduce the twisting effect that would also be prevalent in the swept wing. But, with this type aircraft, the wing thickness would not be detrimental, for it would neatly house the fuel tanks, the landing gear, and possibly some armament without disturbing the sleekness of the airplane. Further, the drag of the thicker wing would be reduced by sweep to that of a thinner straight wing profile. However, this hypothetical sweptwing airplane would have an inherent tendency toward tipstall at high angles of attack, and it would be necessary to alleviate the tendency by adding such gadgets as slots or leading edge slats. Performance for take-off, landing, and coordinated turns at low and high altitude would still not be all a pilot could desire. Some adverse characteristics would be the price of sweep. The aircraft so designed would probably accomplish its fighter purpose admirably, despite the predisposition of swept wings toward aileron reversal and roll-off. Pilot skill would have to minimize the latter effects.

Now let us take an actual case and illustrate an entirely different requirement for a fighter airplane.

Aerial warfare during World War II (and subsequent engagements) indicated that another such war could not be won without an efficient all-weather airplane as part of the US air arsenal. Recognizing this, the USAF established the specifications for a new all-weather interceptor. It had to be fast, maneuverable, with tremendous firepower, and a high ceiling. The specifications were released on a design competition basis. The Northrop F-89 Scorpion is now in production as a result.

One of the high points of the design, and one that evinced much speculation, was the thin straightwing configuration of the F-89. At the time the trend was toward sweptwing designs. However, the straightwing configuration of the Scorpion was the result of the functional demand on the completed airplane, as well as experience and research. The swept wing was rejected purely on the basis of efficiency.

When the design was planned it was found that the price



Merry-go-Round of Aircraft Design

of sweep was too high to be practicable. The range, electronic equipment, and armament dictated by the primary function of the airplane were such that load distribution counted heavily against sweep. To have utilized sweep in the Scorpion design would have meant hanging fuel tanks and rockets under the wing close to the fuselage where interference drag is greatest, for construction characteristics and balance requirements of sweptwing designs are such that they do not lend themselves readily to external load at the tip. To put the load inside the fuselage would have meant an enlarged fuselage cross section, which also would have meant drag increase. Therefore, the function favored a smaller fuselage and an external load toward the wing tip where drag is less. Outer wing loading was further enhanced by the necessity for keeping the residue of fired armament from entering the engine intakes. Function again ruled when it dictated maneuverability and high ceiling. The sweptwing inclination toward tipstall and twist made sweep even more impracticable.

Fortunately previous research had shown there were several methods other than sweep for solving the problem of rapid drag rise created by compressibility. One solution shown by research was that wing thickness has a pronounced effect on wing critical Mach number, and that a reduction in thickness would result in an increase in critical Mach number. Therefore, the wing of the F-89 was reduced in profile thickness parallel to the air flow, resulting in a very thin wing. Another solution to drag rise was the use of low aspect ratio. Experience has shown that a reduction in aspect ratio provides an increase in the critical Mach number. The F-89, when compared with other airplanes, has a low aspect ratio. The combination gives the straight wing on the Scorpion the same drag alleviation that would be obtained by using a sharply swept wing. Thus, it is illogical and untrue to say the straight wing is outmoded.

The thin, straight, symmetrical wing of the F-89 Scorpion has proved to be very efficient. As the angle of attack increases, the thin airfoil develops a higher lift co-efficient at high Mach numbers. This feature contributes to the high altitude maneuverability and high ceiling that is required by the primary mission specifications.

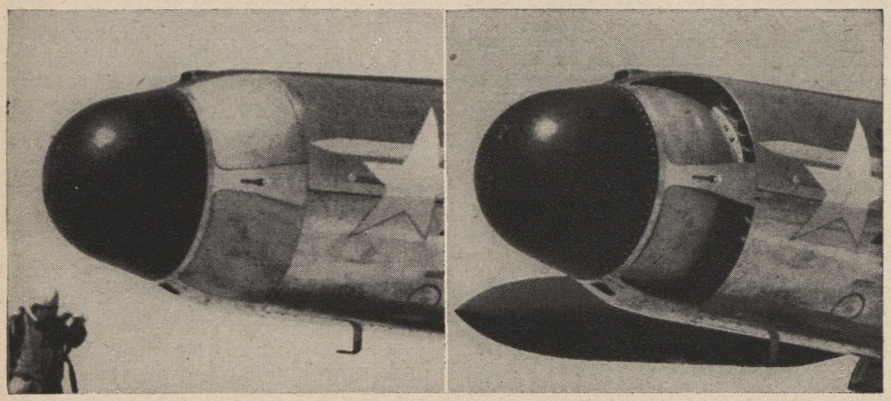
The F-89 wing is not considered to be the ultimate in high speed wings, nor is the F-89 airplane considered to be the entirely satisfactory solution to all-weather flying; however, it is considered to be the best all-weather weapon available. The air defense pilot will be borne on its thin straight wings for some years to come, and under him he will have a fine competitive high speed airplane. He need not look enviously at a swept wing, for functionally this straight one is better. He will also find that the turning radius of the F-89 is smaller than that of a comparable sweptwing fighter, and that there is less loss of speed in the turn. Consequently, the airplane is better able to accomplish its interception mission through attaining its attacking position quicker after the target is sighted.

It is a grave responsibility to provide a primary defense weapon for the US air arsenal. It means continued design progress, for the spiral of increased requirements for military aircraft seems never ending. It cannot be presumed that a design functioning well in one area of operation will necessarily function well in others, for dimensional proportions that are best at certain speeds are less efficient at others. Multi-purpose aircraft are difficult to design and are expensive and necessarily heavy. The use of many specialized aircraft of single purpose means many and varied types of airplanes and compounding costs. But, multi-purpose or specialized, the configuration of the wing will always be the result of the job the airplane is to do. The $64 question in military aircraft design: "Are the gains in comparison to the drawbacks beneficial from a tactical and economic standpoint?" remains the rule of thumb. END

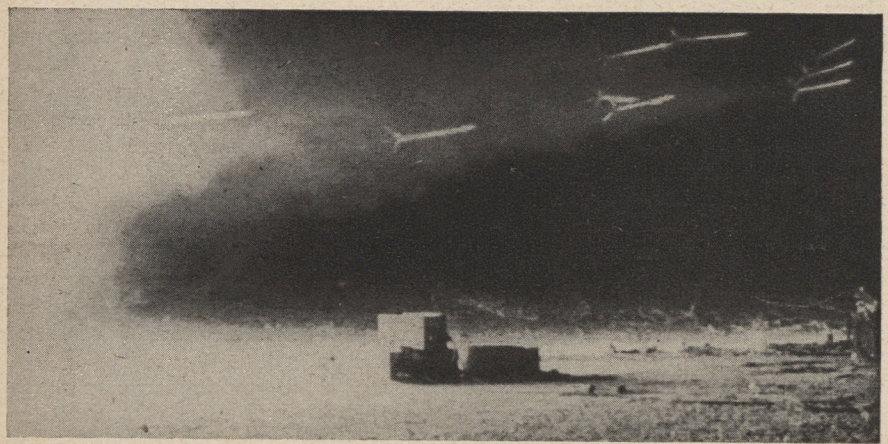
ANOTHER STEP TOWARD AN ALL-WEATHER FIGHTER

Until our goal of a fully automatic interceptor is attained, planes like F-94C will fill gap

THE quest for the truly automatic "all-weather" interceptor continues. Latest entry in the all-weather derby is Lockheed's F-94C. Dubbed the Starfire, the F-94C features an extremely thin straight wing and mounts no machine guns or cannon. Instead it is armed with twenty-four 2.75-inch rockets, housed in a ring of firing tubes around the nose. More rockets can be carried in armament pods on the wings. It is a two-seater, like its "all-weather" predecessors, the 94A and B. Second man is the radar operator. The F-94C is powered by the new Pratt & Whitney J-48-P-5, which delivers 6,250 pounds of thrust, not including afterburner augmentation. Other gear on the new interceptor includes Westinghouse's new autopilot and the Sperry Zero Reader flight director.



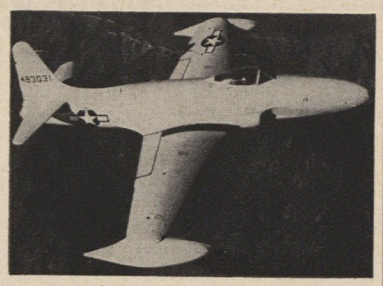
Rocket doors, above right, snap open only at the instant of firing. Ribbon parachute in tail slows plane for landing on short airstrips.



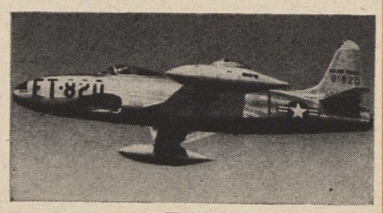
Starfire's twenty-four 2.75-inch rockets streak forth from a burst of flame and smoke as the new armament is tested at Edwards AFB, California.

FAMILY AFFAIR

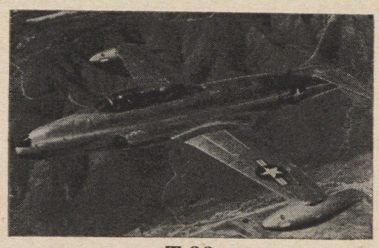
Lockheed has parlayed the original P-80, our first operational jet, into quite a family. F-80 was stretched out three feet to become T-33, two-place jet trainer. Another 2.4 feet, plus afterburner, electronic gear and armament, resulted in F-94 series.



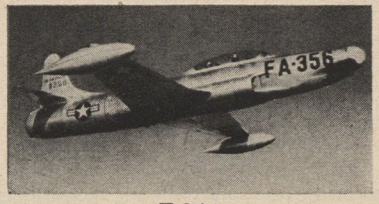
P-80



F-80



T-33



F-94A

AIRPOWER ISN'T HOMEGROWN

Modern aircraft gobble up critical materials. We must conserve what resources we have, find new deposits, and depend more and more on our friends around the world.

by Wilfred Owen

WHERE DO AMERICA'S jet planes come from? Farmingdale? Fort Worth? East Hartford? Seattle?

Well, not exactly. Our jets also come from Angola, Uganda, Bolivia, and Southern Rhodesia. In dozens of countries all over the world people who never heard of afterburners or sweptback wings are providing the metals and minerals it takes to produce airpower.

What America puts into the air depends a great deal on what America's faraway friends take out of the ground.

We still hear it said that our industrial supremacy assures us that no other nation can match the United States in economic strength, and therefore in military strength. That is a rash statement. The key to America's might is not simply its industrial capacity but the ability to keep its industries fed with a wide assortment of vegetable, animal, and mineral products.

A good balanced diet for the nation's industrial giants today calls for two-and-one-half billion tons of materials per year. That grocery list has us scouring the world for the industrial vitamins we need to stave off economic malnutrition. The implications of this growing pressure on our limited supplies of vital materials (from the standpoint of our civilization and our survival) have just been set forth in a five-volume report of the President's Materials Policy Commission, whose chairman is William S. Paley.

The warning that the President's Commission has sounded after studying the materials problem for a year and a half had better be taken seriously if we expect to hold an edge in the air over the long run. We've been skimming the cream off our resources at a merry rate until today we have to ask ourselves a question that would never have occurred to us a few years ago.

Can we get enough materials to keep us going?

The reason we're looking so much like a have-not nation cannot be charged to the demands of the military alone. It is true that World War II and the current defense effort have pushed us closer to the depletion point for some critical materials. But the autos and refrigerators and washing machines are just as much to blame. Even before Korea we were consuming 560 percent more aluminum, 266 percent more cobalt, 108 percent more copper, and 96 percent more iron ore than we consumed in 1939.

The military situation, of course, has complicated the problem. With jet planes generating temperatures approaching 4,000 degrees, the stresses and velocities and heat that have to be resisted are introducing large-scale requirements for materials that were only laboratory curiosities just a few years ago. We need columbium, cobalt, tantalum, nickel, tungsten, and chromium for alloys that can take the punishment of today's aircraft. They have to be tough, hard, and heat resistant. And as firepower increases and armament grows heavier, we have to have more copper, zinc, lead, tin, manganese—more of everything. An F-94C, for example, takes twice as much steel, twice as much copper, and two-and-one-half times as much aluminum as an F-80. The other services are contributing their share to the enormous use of material resources. There's enough steel in a medium tank to produce thirty automobiles. A submarine requires 1,600 tons of steel, 300 tons of lead, 200 tons of copper, and seven tons of aluminum. An aircraft carrier consumes more than 30,000 tons of steel, 650 tons of copper, and more than thirty-five tons of aluminum. To fire a one-minute salvo from the battleship *Missouri* requires more than two-thirds of a ton of copper and brass, almost fifty tons of alloy steel, and half a ton of carbon steel.

We have turned the corner from our heyday as the world's greatest exporter of materials such as copper, lead, and zinc, to the world's largest importer of these materials. There are only two metals—magnesium and molybdenum—for which we are not partially dependent on foreign supplies. We are now solidly in the position of consuming more than we produce.

There are no domestic sources of chromite, tin or natural rubber, and practically no sources for nickel or cobalt—all used in the manufacture of aircraft. We need coconut oil from Indonesia for lubricants and incendiaries, and feathers and down from Asiatic waterfowl for sub-zero flying suits. Korean tungsten is needed for electronic tubes. We have to have mica from India for our radar, long staple catton from Sudan and Iran for airplane fabric, and castor oil from Brazil is needed for brake fluids and parachutes.

The supply lines that stretch out to gather in the world's goods for America's strength are long and tenuous. Our concern over the possibility of being cut off from these vital supplies in time of war, or through hostile control of the producing areas, has led to gigantic stockpiling operations in the United States. In vaults and warehouses, caves and tank farms, we're preparing a $9-billion hedge against the disaster of being caught short.

For aluminum, the basic ore at the present time is bauxite. It is not the only source of alumina, but it's the only source that's feasible if we don't want to go broke. Two-thirds of the

MADE IN USA, BUT WHERE DO JETS COME FROM?

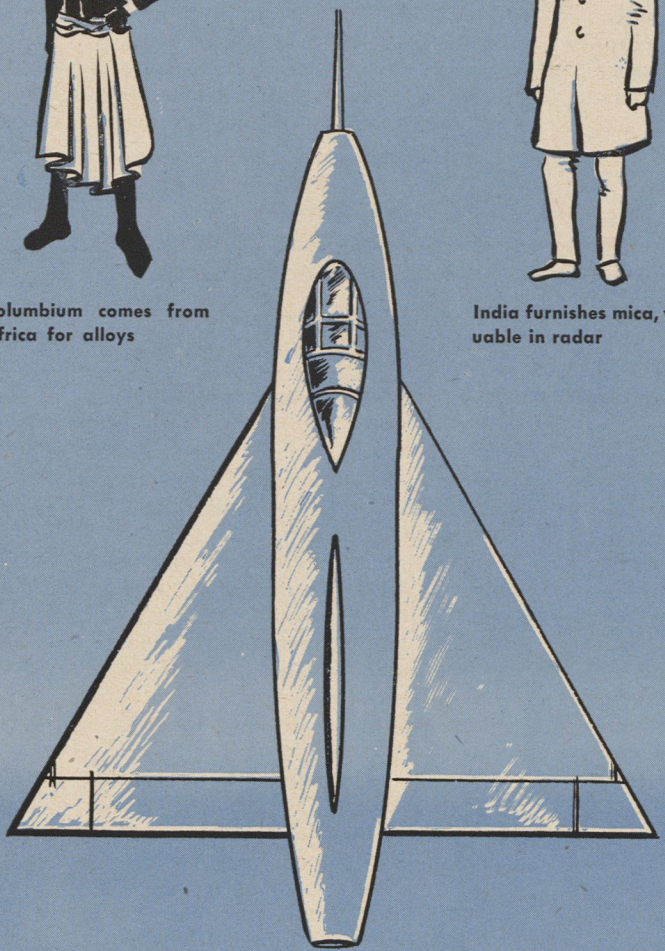
The day of the homegrown airplane is past. Today, what we put in the air depends in large measure on what our friends take out of the ground. Here are some of the nations we do business with to get the makings of modern airpower. We rely on them and others to keep our aircraft flying today and tomorrow.

Brazilian manganese is used in making steel

Columbium comes from Africa for alloys

India furnishes mica, valuable in radar

Spanish mercury is used in instruments



Tungsten for electronics comes from South Korea

The Belgian Congo sends cobalt for alloys

Indonesian coconut oil is used in incendiaries

Tin from Bolivia is used in armament

Iranian long staple cotton becomes airplane fabric

bauxite we use comes from Surinam and British Guiana.

Asbestos is a mineral fiber with high heat insulating properties, used in gaskets and for pipe covering in airplanes. We depend heavily on foreign sources for asbestos, especially Southern Rhodesia.

For every ton of steel we make, we need thirteen pounds of manganese, of which only half a pound is available from domestic mines. The Soviet Union used to be our principal supplier. Now we do business with India, Africa, and Brazil.

Nearly ten percent of our steel production nowadays is alloy steel, which in its various forms is an indispensable ingredient of airpower. For chromite, which occurs in only meager quantities at home, we turn to Turkey, the Union of South Africa, and New Caledonia. About ninety-five percent of the free world's production of columbium comes from Nigeria, and columbium is highly important for the high-temperature alloys needed in jet engines and rockets.

Some eighty-five percent of the world's cobalt is found in the Belgian Congo, and the quartz crystals so essential to electronic communications equipment are ninety-nine percent Brazilian. Another essential component of electronic devices, mica, is principally the product of India, Brazil, and Madagascar. Tungsten is found primarily in China, and with Chinese sources closed to us we now rely on imports from Spain and Bolivia to add to limited supplies at home. In South Korea, too, the Sang Dong mine is one of the world's greatest tungsten deposits.

The picture is not all black, of course. For while nature has been fickle in parceling out the earth's riches, the United States has by no means been a stepchild among the nations of the world. Of the more than 100 mineral materials we use, about one-third are fully supplied here at home. Another third we get partly from domestic sources and partly from abroad—materials like iron ore, petroleum, lead, copper and zinc. The remaining third are in the category of what we get almost entirely from other lands and these are preponderantly the kinds of things that modern technology demands—the things that have to be added to get the kind of military force that our security demands.

A nation such as ours, which accounts for nine percent of the world's population, and eight percent of its land area, yet produces forty percent of the world's goods and services, is bound to be faced with the danger of running out of materials. Especially when we cannot escape the indictment that we've made spendthrift use of many of the resources once so plentifully at our command here at home.

Without crying over spilled milk, we must nevertheless acknowledge that we are a raw materials deficit nation, and we're going to have to answer the question that the President's Commission posed for itself: "How long can this go on?"

The facts about materials have bared the fallacy of thinking that America can withdraw from the world, relying on homemade airpower to stave off any threat to our security and survival as a nation

The Commission's answer minces no words: "If the United States were forced to live within the rigid structure of its present materials position, its future outlook would be bleak indeed."

Fortunately we do not need to contemplate so dark a picture. What we have to worry about is "not that we will wake up to find the last barrel of oil exhausted or the last pound of lead gone. . . . We face instead the threat of having to devote constantly increasing efforts to win each pound of materials from resources that are dwindling both in quality and quantity." And we have to find the ways and means, therefore, of avoiding so ruinous a rise in the cost of maintaining our standard of living as well as our military security.

What can we do about the situation? The first step is to get hold of more of the materials nature has given us by rolling back the technological barriers and other obstacles. For example, for a long while we've been exploring the earth's surface to discover new deposits of minerals. But geologists hint that under a mantle of younger rocks near the surface there may be vast hidden riches right in our own basement. Improved methods of geophysical and geochemical prospecting methods must be developed to help us take a new look at what we have.

And we can start to do some serious conservation. Enough natural gas was wasted in 1950 to meet the needs of eleven million homes during the year, and more sulfur goes up the smokestacks of industry than industry consumes. Half the petroleum in the average pool is left behind in the process of production, and we lose a pound of copper for every ten pounds we find.

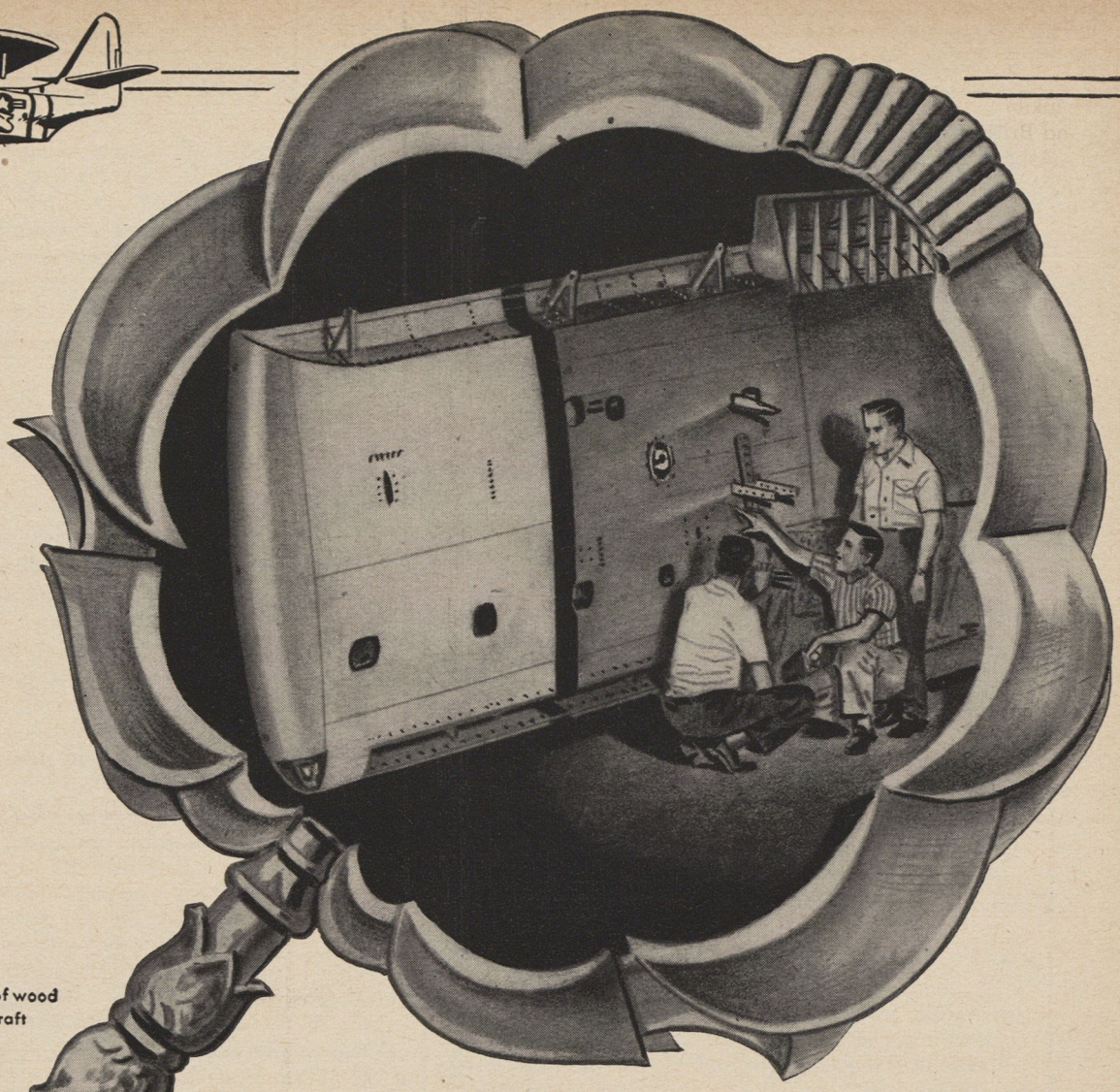
The Commission made special reference to the responsibilities of the armed services to substitute plentiful materials for scarce wherever it is possible to do so without sacrificing combat strength. It recommended that the Secretary of Defense, jointly with the Secretaries of the Army, Navy and Air Force, undertake a thoroughgoing review of existing conservation efforts, and that the Research and Development Board should give continuing attention to how the military establishment can contribute to improving the nation's materials position.

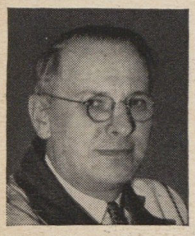
Third, it's clear that we will have to depend more than ever before on the other free nations of the world to help us get the materials we need in such volume and variety. That means we're going to have to supply them in turn with the materials that we have in abundance, and with the finished goods they need.

Coloring everything the Commission has to say on the subject of America's resources is this interdependence of nations and the conviction that it takes a lot of friends throughout the world to keep America strong. That means that some of us in the United States will have to give up our dreams of self-sufficiency and isolation, which in these days amount to nothing more than "a self-imposed blockade."

The facts about materials have bared the fallacy of thinking that America can withdraw from the world, relying on homemade airpower to stave off any threat to its security.

Of all the arguments for isolation, the airplane provides the least convincing case. Airpower has its roots in the steaming jungles of the Congo, the towering ranges of the Andes, and the muddy river beds of Indonesia. It isn't easy to feel this global impact when you're back home in East Hartford or Seattle. The problem of getting the infinite variety of scarce materials we need to build our airpower is going to be global for a long time.—END





Steven Chojnacki, general foreman of wood tools and dies, has been in the aircraft industry almost since its inception. Starting with the famous Flying Jenny he has spent 37 years in the industry, over 6 of them with Twin Coach.

Here's how Twin Coach helps lock Davey Jones's locker

GRUMMAN UF ALBATROSS amphibians have established remarkable records in rescuing downed airmen from Korean waters, often behind enemy lines.

Twin Coach was selected to build, in quantity, the massive center panel and wings for this important air-sea rescue craft. In addition to fabrication and assembly, Twin also installs all wiring and tubing, ships complete sections ready for final assembly.

Twin Coach plants, among the best equipped in the nation, are also in volume production on assemblies for helicopters, attack, and search planes. Modern facilities, modern equipment, and *experienced* manpower make Twin Coach a dependable source for every type of major airframe assembly.

A-5850

FAGEOL TWIN COACH AIRCRAFT

TWIN COACH COMPANY *Aircraft Division* **BUFFALO, N.Y.**

TWIN COACH PRODUCTS:

AIRCRAFT ASSEMBLIES • MOTOR COACHES • TROLLEY COACHES • SUPER FREIGHTER CARGO TRUCKS • FAGEOL GASOLINE AND PROPANE ENGINES • FAGEOL-LEYLAND DIESEL ENGINES

HERE'S HOW

IT IS DIFFICULT in limited space to pay adequate tribute to all the hard-working West Coast AFAers who made the Gabreski homecoming a rousing success. Perhaps the best way to indicate the magnitude of a job well done is through this brief description:

On Monday, June 16, Gabreski flew in from Korea and was met at Hamilton AFB by Maj. Gen. Wm. E. Hall, CG of the 4th Air Force; Tom Stack of San Francisco, AFA director and chairman of the welcoming committee; COs of all Hamilton units, and the Hamilton Band. Later the same day Gabby met his wife Kay and six-year-old daughter Djoni, who flew in from Battle Creek, Mich.

On Tuesday, June 17, San Francisco rolled out the municipal red carpet. Through showers of ticker tape, a seven-mile parade moved through the city to the Civic Center. Besides the Gabreski family the open cars heading the parade held Gen. Hall, Charles O. Morgan, Commander of the San Francisco AFA Squadron; Brig. Gen. Hugh Parker, Deputy CG of the Western Air Defense Force; Mrs. Hap Arnold, Tom Stack, Majors Donald Adams and James Raebel, two of Gabby's squadron COs from the 51st Wing who had returned with him; former war correspondent Marguerite Higgins who now is Mrs. Hall, and Arthur F. Kelly, nominee for president of AFA.

At the Civic Center Mayor Elmer E. Robinson presented the traditional key to the city. Following these ceremonies the group proceeded to a civic luncheon at the St. Francis, sponsored by the San Francisco Squadron and the Bay Area Aviation Committee. Later that afternoon Gabby visited wounded from Korea at Letterman General Hospital.

On Wednesday, June 18, the Gabreskis flew to Los Angeles, to be greeted by Art Kelly and Lloyd Tabor, assistant to Los Angeles's Mayor Bowen.

Next night, Thursday, June 18, after a round of press conferences, radio and TV interviews and Gabby addressed a combined meeting of the Los Angeles, Pasadena, Santa Monica and San Diego Squadrons at Santa Monica's Joslyn Hall. There was a capacity crowd and people had to be turned away.

On Friday Gabreski toured the North American plant and talked with the men who designed and built the F-86 he flew in Korea. A relaxing weekend in Santa Monica and the Gabreskis departed on Monday, June 23—Mrs. Gabreski and Djoni for Battle Creek, Gabby for Washington, D. C.

Spotted strategically through this schedule of events was a spate of press conferences, radio and television appearances, newsreel shots and tape-recorded interviews. The events received hundreds of column-inches of coverage in the West Coast press and, through the facilities of the wire services, spread the story of Gabreski and of AFA across the nation. In San Francisco alone an estimated 200,000 persons witnessed the parade. From a public relations point of view it was as big as anything AFA had ever done on a local level.

It was a striking example of what hard work and cooperation among AFAers can do.

TOP ACE TALKS SHOP — CONTINUED

airplane, make no mistake about it. Someone said, I think it was in your magazine *[It was.* AIR FORCE, *April 1952.—The Editors.]*, that the MIG may be a better flying machine but the Saber is a better fighting machine. That's about the size of it. The F-86 is rugged. I've seen the wings shear off a MIG or a tail disintegrate but I've never seen an 86 come apart in the air.

Q. *Do the Russians have anything better than the MIG over North Korea?*

A. They do have an improved version of the MIG in action. It's not an entirely new design and the difference isn't apparent to the eye but you can tell when you come across one. It has better performance, seems sturdier and more maneuverable, holds together better. Its tail doesn't come off. And it has a better rate of climb than the original MIG. It probably has a more powerful engine.

Q. *Is the kind of war you fought in Korea any tougher than the combat in World War II?*

A. Personally, I do not think you can compare World War II with the Korean conflict. It appears to me that you had more tangible and more obvious goals in World War II than we have in Korea. However, every member of the UN forces feels he has a job to perform and I am sure that every one of them is performing his duty to the best of his ability.

As for aerial warfare, our primary mission in World War II in the ETO was to furnish escort for the heavy bombers, B-17s and B-24s, deep into enemy territory. However, in Korea, our primary mission is to gain and maintain air superiority over the very small area known as MIG Alley. This, at times, requires close escort for the fighter-bombers. At other times it calls for aerial support, which means driving the Commie aircraft out of the target area. The Korean war at present is confined to a very small area compared to World War II. However, the ultimate results of the engagements of World War II were not less destructive and devastating than the combat encounters in the Korean conflict.

Q. *Don't you find it a little frustrating to have to wait on your side of the Yalu for the Reds to attack at their pleasure? Wouldn't you like to chase them home?*

A. To fight a more effective war, it would appear to me that it would be less costly to our forces to attack the enemy at his home bases. But due to political considerations, our only recourse is to attack the enemy forces after they cross the Yalu River and make a determined effort to disrupt our fighter-bomber operations.

Q. *How about the job our fighter-bomber pilots are doing?*

A. The basic job of the 5th Air Force in Korea is to keep the flow of Communist supplies from reaching their front lines. This is being accomplished by the fighter-bomber pilots. Their mission is an extremely difficult one and they get no glory, no publicity. In my estimation the job of the F-84 and F-80 pilots is much more dangerous and much more helpful to the UN cause than is the air-to-air combat over MIG Alley. The fighter-bombers have both ground fire and MIGs to contend with, whereas the F-86 pilots worry only about MIGs. The fighter bombers are much slower aircraft, which makes them more vulnerable to ground fire as well as to interception. I have the deepest respect and admiration for the job done by the fighter-bomber pilots.

Q. *It has been said that it is the "old pros" who are holding the line in MIG Alley. What about the young replacements who are coming through?*

(Continued on page 37)

The World's FASTEST Long-Range Transports

Selected by These Leading Airlines to Open a New Era in Fast Long-Range Air Travel

Air France
Air India
American Airlines
Avianca (Colombia)
Braathens–S.A.F.E.
Delta Air Lines
Eastern Air Lines
El Al (Israel)
Iberia (Spain)
KLM (Royal Dutch Airlines)
National Airlines
Pakistan International
Qantas (Australia)
Seaboard & Western
Trans-Canada
United Air Lines

These advanced superspeed airliners fly 4,000 miles and more non-stop . . . with 80 to 90 passengers, plus baggage . . . at fares within the reach of millions for business or pleasure.

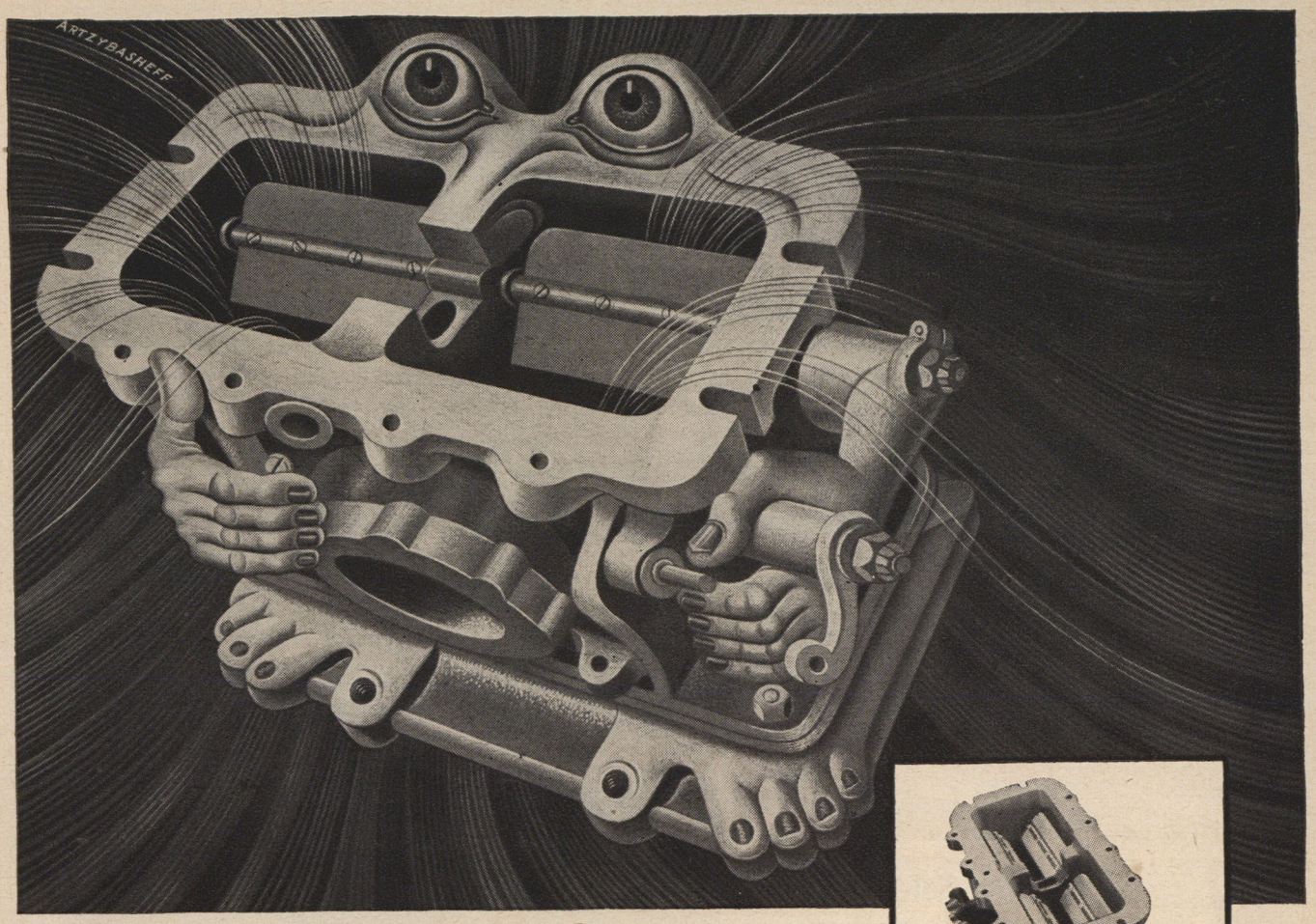
FOUR *Wright Turbo Compound* ENGINES

develop 13,000 horsepower for superior take off, climb, cruise, and landing operations – yet use only .38 pounds of fuel per horsepower-hour to make possible high speed over long range with economy.

★ ENGINEERS ★
Outstanding opportunities NOW at Curtiss-Wright.
Send us your name and field of engineering. Resume helpful.
Dept. ERB— 44
Attn: Mr. Leo Sweeney

Wright Aeronautical Division
Propeller Division
Electronics Division
Columbia Protektosite Company
Marquette Metal Products Company
Metals Processing Division

CURTISS-WRIGHT
CORPORATION
WOOD-RIDGE • NEW JERSEY

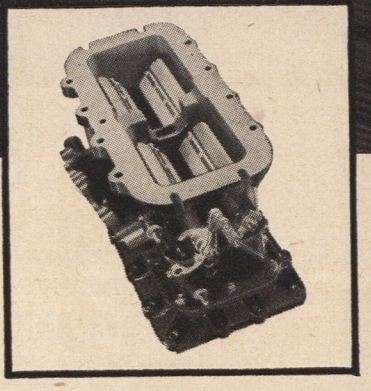


Watch a plane's "lung" take a deep breath

An aircraft engine gulps *15 times* more air than fuel. To control this air flow—adjusting perfectly to frequent changes in speed and altitude—requires a precision-machined "lung" that never leaks, never coughs. Producing a part so precise typifies Lycoming resourcefulness and skill, long famous in the aircraft field—increasingly in demand throughout *all* American industry.

Whether you require precision machining, high-volume production, product development—or air-cooled power for aircraft or ground applications—Lycoming offers extensive facilities and experience.

Whatever your problem—look to Lycoming!



To inhale 30,000 pounds of air every hour, a plane needs good lungs. For a fuel-injection body that "breathes steady," **one of America's leading aviation corporations calls on Lycoming precision production.**

For a more complete story on Lycoming's varied abilities and facilities, write—on your company letterhead—for the interesting, illustrated booklet "Let's Look at Lycoming."

AIR-COOLED ENGINES FOR AIRCRAFT AND INDUSTRIAL USES • PRECISION-AND-VOLUME-MACHINE PARTS • GRAY-IRON CASTINGS • STEEL-PLATE FABRICATION

LOOK TO **LYCOMING** FOR RESEARCH FOR PRECISION PRODUCTION

LYCOMING-SPENCER DIVISION, WILLIAMSPORT, PA.
BRIDGEPORT-LYCOMING DIVISION, STRATFORD, CONN.

AVCO MANUFACTURING CORPORATION

A. The old pros have seen their better days and the young, vigorous, enthusiastic fighter pilots are more than willing to take over. Recently we have been receiving a good flow of excellent young pilots in Korea. A good example is Lieutenant James Low—a young pilot who became an ace within six weeks after he reached the Korean theater. To me he more than proves what can be accomplished with good training and the enthusiasm of a pilot who believes sincerely in the cause for which he is fighting.

Q. *Isn't it a tough job to break in a green pilot over MIG Alley?*

A. There is little difficulty encountered in introducing a young pilot who has successfully completed his combat training course at Las Vegas. The pilot is fully aware of the capabilities of his aircraft and is familiar with air-to-air gunnery. It's a matter of only a few days before he familiarizes himself with the tactics of his organization. A few flights over the local area, along with thorough intelligence briefing, make him eligible to join forces with the number one combat teams in Korea.

Q. *How about you old-timers? Did you find that fighting at transonic speeds took a bit of getting used to?*

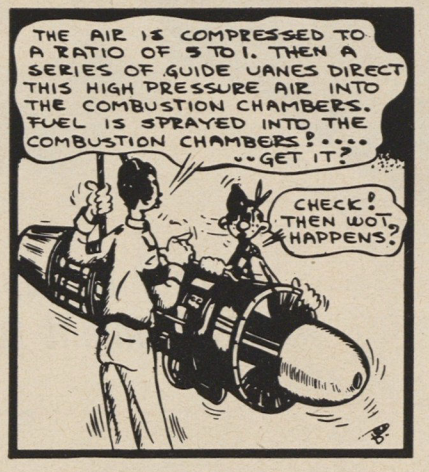
A. Yes, it does take some getting used to. There is a remarkable difference between combat in conventional type aircraft and that in jets. The main difference is the high operational altitude of the jet aircraft and the tremendous speed at which it moves. The handling characteristics of a jet at 45,000 feet are very unlike those encountered at lower altitudes where the air is dense. At low altitude you have more positive and definite control of your aircraft under all conditions. However, at altitudes above 35,000 feet the pilot must be very careful about exerting excessive gravitational or centrifugal forces on the aircraft for fear that it will stall and fall into an uncontrollable spin.

Q. *Did you find the physical strain*

(Continued on page 41)

AIR FORCE ALFIE

BY RAY BECK



THIS IS AFA

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

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

ITS OBJECTIVES

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

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

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

ITS OFFICERS AND DIRECTORS

HAROLD C. STUART, President

Regional Vice Presidents: William H. Hadley (New England); Warren DeBrown (Northeast); George Hardy (Central East); Jerome Waterman (Southeast); Frank Ward (Great Lakes); Merle Else (North Central); Dr. John Biggerstaf (Midwest); W. H. Stovall (South Central); Thayer Tutt (Rocky Mountain); T. Edward O'Connell (Northwest); Thomas Campbell (Southwest); Bert Lynn (Far West). **Secretary,** Julian B. Rosenthal. **Treasurer,** Benjamin Brinton.

THOMAS G. LANPHIER, Jr.,
Chairman of the Board

Directors: Edward P. Curtis, James H. Doolittle, Frank O'D. Hunter, Robert S. Johnson, George C. Kenney, Randall Leopold, Dr. W. R. Lovelace, Dr. J. H. Meyer, Ray S. Miller, Msgr. Patrick E. Nolan, Mary Gill Rice, C. R. Smith, Earl Sneed, Jr., General Carl A. Spaatz, Tom Stack, James Stewart, C. V. Whitney, Morry Worshill.

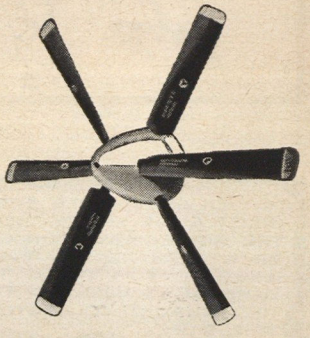
NATIONAL HEADQUARTERS STAFF

Executive Director: James H. Straubel
Organizational Director: Ralph Whitener
Service Director: Jake C. Culpepper
Circulation Director: James O'Brien
Organizational Assistant: Gus Duda

The U.S. Navy's newest and mightiest

BATTLESHIP OF THE SKY

another turboprop assignment for AEROPROPS



The Navy's newest turboprop powered airplane, the North American XA2J-1 is equipped with two Aeroproducts dual rotation turbine-propellers. This airplane of undisclosed range and bomb load capacity is one of the Navy's most formidable weapons. And again the Navy has selected Aeroprops for the largest and most powerful carrier-based aircraft in the world today.

These Aeroproducts turbo propellers convert the tremendous horsepower of the two Allison T-40 engines into the thrust which carries this A-bomber to its target.

Aeroproducts engineers—the same men who developed the propellers for this giant Navy plane—are ready to help you with any propeller problem.

Building for today
Designing for tomorrow

AEROPRODUCTS GM

GM GENERAL MOTORS

Aeroproducts

AEROPRODUCTS DIVISION • GENERAL MOTORS CORPORATION • DAYTON, OHIO

Faster
than a cup of coffee

Lockheed Starfires

destroy an air invader

Incredible—but in less time than the few minutes it takes to drink a cup of hot coffee a Lockheed *Starfire* (F-94C) can

Take off from a cold start—

Climb 7 miles up in any weather—

Locate enemy bomber automatically—

Destroy the invader, without ever seeing it.

Furthermore, the 2-man crew need never have seen the bomber they destroyed.

Today these all-weather jet interceptors are being delivered to the U.S. Air Force for 24-hour duty guarding U.S. borders and key cities. It gives the Air Force a fast-climbing jet fighter that is almost automatic—forerunner of planes that may actually fly and fight by themselves.

The *Starfire's* brain center can locate invading bombers on the darkest, stormiest night. Its unique all-rocket armament can destroy the biggest bomber built.

The *Starfire* is another example of Lockheed design "stretch"—an engineering achievement of creating a more advanced model out of an existing airplane. This speeds development and production, also cuts cost. Forerunner of the *Starfire* is the Lockheed F-80 *Shooting Star* of Korean fame. Lockheed is the world's leading builder of jet aircraft.

Lockheed

Aircraft Corporation

Burbank, California, and Marietta, Georgia

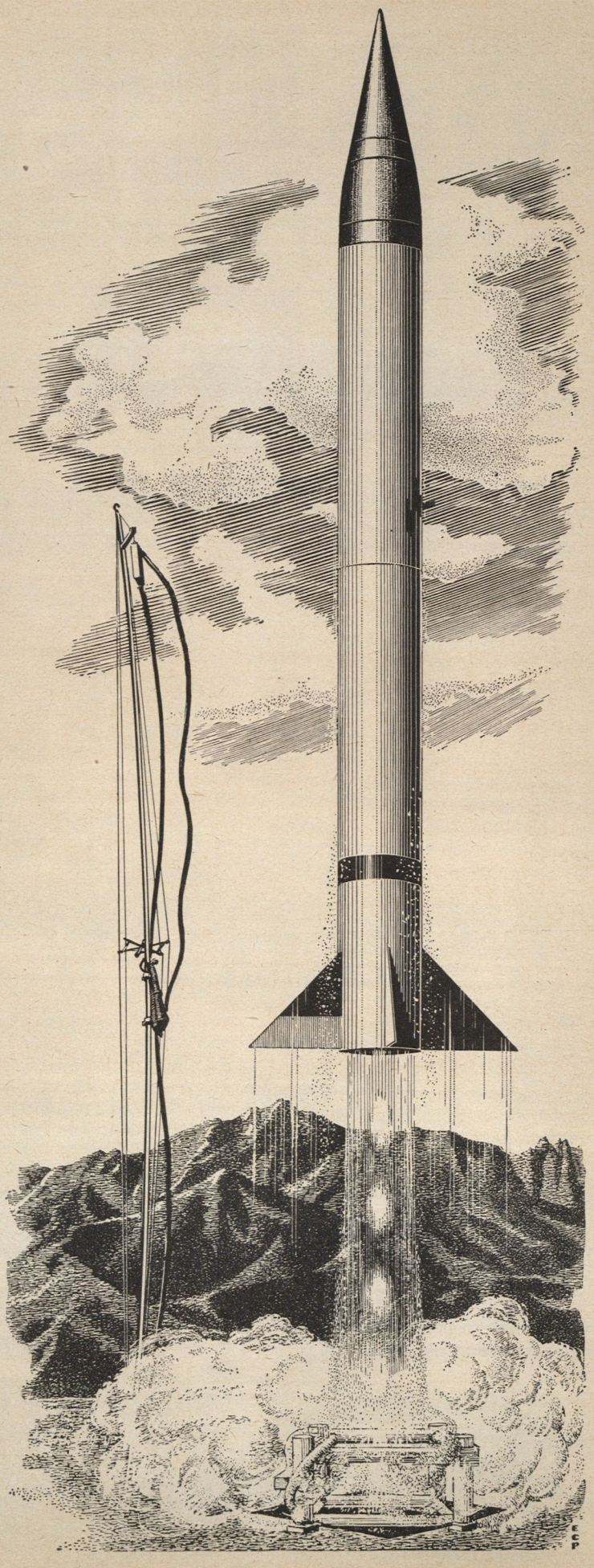
Look to Lockheed for Leadership

Research Rides a Rocket

The Naval Research Laboratory's Viking rocket research at White Sands Proving Grounds, N. M., hunts facts, figures and formulas in the upper atmosphere.

HURTLING far into the blue, Naval Research Laboratory rockets ask questions of the earth's upper atmosphere . . . flash back the answers needed to guide the designers of tomorrow's piloted and pilotless super-altitude systems for peace or war. What are the pressures and temperatures of the earth's atmospheric layers . . . the high-altitude changes in the earth's magnetic field affecting navigational instruments . . . the alterations in radio waves caused by the ionosphere . . . the effects of sun spots on communications equipment out beyond the filtering effects of the earth's heavy atmosphere?

Martin Viking rockets play a major role in this high-altitude flight research program. Last summer, the Viking cracked the world's altitude record for single-stage rockets . . . nosing 136 miles into the heavens at a top speed of 4100 m.p.h. Now, an even more powerful Viking is being readied for launching. The Martin Company is proud to be a partner with the Naval Research Laboratory in these vital activities . . . helping to prove that America's most valuable secret weapon is its scientific leadership! THE GLENN L. MARTIN COMPANY, Baltimore 3, Md.



Martin

AIRCRAFT

Builders of Dependable Aircraft Since 1909

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

of jet combat any more exacting than in World War II?

A. No, I do not think you need be in any better physical condition. To compensate for the excessive G force you have a G-suit which keeps you from blacking out. At altitude you have a pressurized cockpit which helps keep you at relatively comfortable atmospheric pressure.

Q. *How old can you jet? Isn't this more of a young man's war?*

A. Old is a relative term. I do not think anyone is older than he feels. I am thirty-three and I felt no strain. Colonel Harrison Thyng, commanding officer of the 4th Fighter-Interceptor Wing, is considerably older and he certainly shows no signs of strain or fatigue. In my opinion, he is as capable as the best fighter pilot in the Air Force.

Q. *Do you have any squawks about equipment?*

A. A fighter pilot never feels that his equipment is good enough, fast enough, or maneuverable enough. He is always seeking something with a great deal more power to give him greater speed, always seeking lighter aircraft that will give him a better rate of climb. At the same time he wants more maneuverability at all altitudes.

This, of course, does not mean that our present equipment is obsolete. It is my sincere opinion that the best equipment I have flown in the Korean conflict is comparable to the best I have encountered. However, I feel that we have a great deal of room for improvement in our present equipment.

Basically, we must work for simplicity of design, elimination of unnecessary weight and an increase in firepower to accomplish the basic mission of a fighter-interceptor aircraft.

Q. *What about the caliber of the pilots you met in Korea compared with the Luftwaffe pilots you fought in World War II?*

A. This is a very difficult question to answer, principally because our mission in Korea is entirely different than that in World War II. In Korea we are fighting a limited as well as a localized war. There are certain limitations imposed upon the military that prevent the employment of the Air Force and its equipment most effectively. This in turn has a definite effect on our pilots.

(Continued on page 45)

Deep-sea dog fight

Our sea battles of the future may be fought by high-speed submarines on the eeriest battleground of all time—deep beneath the sea. For the first time in naval history submarines are now being designed expressly to track and destroy other submarines while totally submerged.

The detection and missile-guiding systems which make this possible are the result of bringing the magic of electronics to problems of automatic control and computation too complex for rapid solution by man. Working closely with the Armed Forces for 34 years, Arma Corporation has played a leading part in this field in basic research, design, development and production.

Electronics provides a whole new arsenal of defense weapons. In important areas of this field Arma is pacing the developments. *Arma Corporation, Brooklyn, N. Y.; Mineola, N. Y.; Subsidiary of American Bosch Corporation.*

ARMA ADVANCED ELECTRONICS FOR CONTROL

Helping Hand

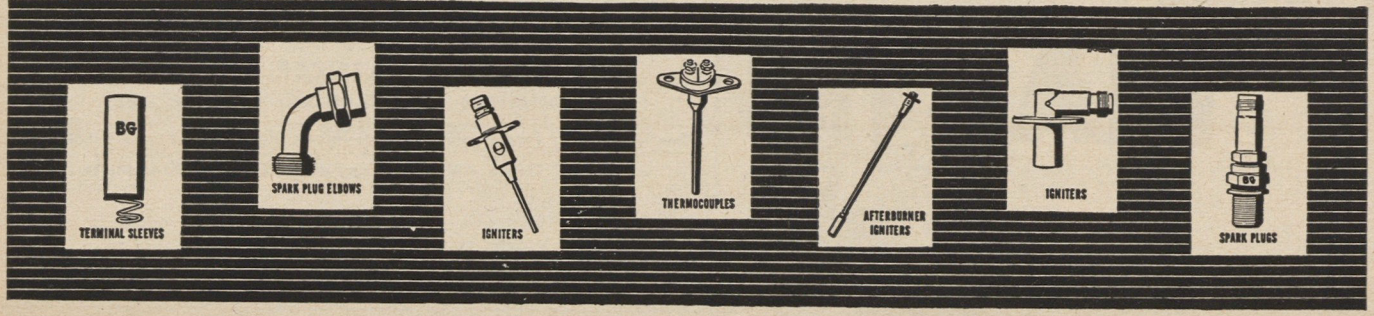
FOR THE PROGRESS OF WORLD AVIATION

BG products are the choice of the engineering and maintenance men of America's Aircraft Engine Industry who naturally insist on quality.

More and more they look to BG for the excellence in design and manufacture that keeps American wings far out ahead. Typical of this is BG's development of the first successful right angle gas turbine igniter.

In both military and civil aviation, BG products are the choice where quality is the criterion.

THE **BG** CORPORATION
136 WEST 52nd STREET,
NEW YORK 19, N. Y.



Maxim-built... in 1894

Designed and developed by Sir Hiram Stevens Maxim, this machine actually got off the ground on July 31, 1894, traveling 500 yards and reaching a maximum speed of 45 miles per hour. Each of the two 17 ft. propellers was driven by a 150 H.P. *steam engine.* With a wing surface of 5400 square feet, the total weight of the machine including 600 lbs. of water and 200 lbs. of naptha, was 8000 lbs. A copy of the rare photograph above (without any advertising message) will be sent on request.

The Maxim interest in aviation has continued to this very day. Below is shown a Maxim Silencer eliminating the roar of a jet engine during run-up tests at the Lockheed plant in Burbank, California. If you have a problem of silencing you will save time and money by consulting our engineering and research departments.

Consult

MAXIM

DR. SHUSH

THE MAXIM SILENCER COMPANY

103 HOMESTEAD AVE., HARTFORD 1, CONN., Dept. W.L.

Gentlemen: ☐ Please send me more information on jet engine silencing.

☐ Please send me a copy of the early airplane photo.

NAME_____

COMPANY_____

ADDRESS_____

MATERIALS ——— CONTINUED

But prior to my departure from Korea, our objective was containment of the enemy. In World War II it was our objective to destroy the enemy at all costs in order to bring about a military victory at the earliest possible date.

From my observations of Red pilots, it is quite evident to me that they are not determined to die for the Communist cause. They are not quite as determined nor as aggressive as the German pilots encountered in World War II. Judging the Communist pilots by the tactics they employ it appears that they are still in a training stage. But they learn very quickly, the end result being that at times we encountered Red pilots who were every bit as good as the Luftwaffe pilots of World War II.

For a while in the past the gunnery of the MIG pilots was out of range, inaccurate and ineffective. Most of this can be attributed to inexperience. Recently, some of them who successfully survived their training period have proved to be quite effective marksmen. As a result, the battle for the control of MIG Alley is becoming more costly for us and perhaps it is beginning to be more difficult to maintain air superiority.

—END

New, More Powerful Allison Jet Engines Put Added Sting in the Scorpions

THE NORTHROP SCORPION F-89C—newest all-weather jet interceptor for the Air Force—gets a big power boost from two new Allison J35 engines.

With take-off thrust in the new J35-A-33 engines greatly increased over previous models in the F-89 series, the Scorpion remains the highest-powered interceptor in production in the world today.

This increased power from the improved Allison engines gives the aircraft faster take-off—higher rate of climb—even with heavier fire power and radar equipment.

Pilots now pack a special Sunday punch in their round-the-clock patrol for any intruders approaching our shores.

Today, Allison engines are depended upon *exclusively* to power the interceptors which guard our shores—a demonstration of confidence based on the unequalled experience of more than 1,700,000 hours in the air—*more time, under all conditions, than all other jet engines combined.*

GM
GENERAL MOTORS

Allison

DIVISION OF GENERAL MOTORS
INDIANAPOLIS, INDIANA

MOBILIZATION NEWS

THE AF named 10,124 officers for temporary promotion to colonel, lieutenant colonel, major, and captain in final cycle of FY '52 program. Of these, 76 percent were non-Regular.

RESERVE officers who are or have been on EAD since June 26 '50 and who are or were serving in temporary grade (exclusive of "spot" hikes) higher than their Reserve grade will, unless relieved for cause, be promoted to next higher Reserve grade than that currently held on completion of minimum years in permanent grade (2nd lt., 3; 1st lt., 2; capt., 4; maj., 4; and lt. col., 3). On release, officers who have not completed time-in-grade requirements and are serving in higher temporary grade (excluding "spots") will be given temporary appointment in grade equal to that held at time of release from EAD. On completion of minimum years, these officers will receive permanent promotions regardless of points earned or positions occupied.

REQUIREMENTS (time-in-grade) for promotion of Reserve officers not on EAD are: 2nd lt., 3; 1st lt., 4; capt., 7; maj., 7; and lt. col., 3. . . Reserve airmen not on EAD will be eligible after meeting these requirements as to time-in-grade and credits accumulated since date of last promotion: to M/Sgt.–12 mo. as T/Sgt., plus 50 points; to T/Sgt.–12 mo. as S/Sgt., plus 50 points; to S/Sgt.–12 mo. as A/1C, plus 50 points; to A/1C–8 mo. as A/2C, plus 38 points; to A/2C–8 mo. as A/3C, plus 38 points; and to A/3C–6 mo. as basic airman plus 32 points.

RESERVE airmen on EAD, after relief or discharge from continuous EAD tour of 12 or more months, may now enlist in Regular AF in permanent Reserve grade provided they do so within 30 days after their discharge from AFR. Airmen holding higher temporary grades when discharged from Reserve will receive temporary promotion to higher grade on date and at place of enlistment in Regular AF.

DELAYS are presently being granted by ConAC to give Reservists and AF-ROTC cadets an opportunity to finish partially completed graduate level studies. Under new policy, an officer may be granted delay based on his participation in graduate studies whether or not they are in primary interest field.

ACTIVE students currently enrolled in AF Extension Course Institute now total more than 40,000 with 60 percent on active duty. Breakdown shows that 24,878 pupils are in AF Reserve, 12,129 are AF Regulars, 2,000 in ANG, about 500 participating in CAP, with balance from other services.

LOCATIONS where Reserve flying training will begin during first quarter of FY '53 and type of training to be given are: Troop Carrier–Atterbury AFB, Ind.; Clinton County AFB, Ohio; Greater Pittsburgh Airport, Pa.; Miami Internat'l Airport, Fla.; New Castle County Airport, Del.; Mitchel AFB, N.Y.; O'Hare Internat'l Airport, Ill.; Olathe NAS, Kan.; Portland Mun. Airport, Ore. Single Engine–Brooks AFB, Tex.; Floyd Bennett NAS, N.Y.; Hensley NAS, Tex.; Scott AFB, Ill. Tactical Recon–Dobbins AFB, Ga.; Long Beach Mun. Airport, Calif. Multiple Engine–Ellington AFB, Tex.; Memphis Internat'l Airport, Tenn. Fighter-Bomber–Gen. Billy Mitchell Field, Wis.; Hamilton AFB, Calif.; Laurence G. Hanscom AFB, Mass.; Minneapolis-St. Paul Internat'l Airport, Minn.; Selfridge AFB, Mich.

ECLIPSE-PIONEER

Dedicated to the design and manufacture of products for the Precision Industries

AUTOMATIC PILOT AND FLIGHT PATH CONTROL EQUIPMENT

AIRPLANE AND ENGINE INSTRUMENTS

Remote Indicating Systems For:
- Fuel Flow
- Fuel Pressure
- Hydraulic Pressure
- Liquid Level
- Manifold Pressure
- Oil Pressure
- Position
- Torque Pressure
- Water Pressure

Fuel Flow Totalizing Systems

Electric Tachometer Systems

Warning Units

In-Flight Refueling Systems

FLIGHT AND NAVIGATION INSTRUMENTS
- Accelerometers
- Airspeed Indicators
- Vertical Gyro Indicators
- Directional Gyros
- Dual Radio and Magnetic Compass Indicators
- Gyro Flux Gate* Compasses
- Magnetic Compasses
- Rate of Climb Indicators
- Turn and Bank Indicators
- Omni Range Components

POWER SUPPLY EQUIPMENT
- A. C. Generators
- D. C. Generators
- Control Panels
- Fault Protection Systems
- Inverters
- Line Relays
- Overvoltage Protectors
- Voltage Booster Dynamotors
- Voltage Regulators
- Power Failure Indicators
- A. C. Transfer Relays
- A. C. Load Contactor

AIR PRESSURIZATION AND ICE ELIMINATION EQUIPMENT
- Electronic and Mechanical De-Icer System Timers
- Oil Separators
- Pumps
- Valves
- Pressurization and Control Units
- Windshield De-Icing Controls

ENGINE STARTING EQUIPMENT
- Booster Coils
- Relay Switches
- Starters

OXYGEN EQUIPMENT
- Oxygen Regulators
- Liquid Oxygen Convertors

MISCELLANEOUS
- Automatic Engine Power Controls
- Actuators
- Differential Pressure Switches
- Gear Boxes
- Flexible Drive Shafts
- Air Turbine Driven Accessories

PRECISION COMPONENTS FOR SERVOMECHANISM AND COMPUTING EQUIPMENT
- Autosyn Synchros (Transmitters, Receivers, Differentials, Control Transformers and Resolvers)
- Amplifiers
- Low Inertia Motors
- Servo Motors and Systems
- Gyros
- Rate Generators
- Stabilization Equipment
- Remote Indicating Systems

FOUNDRY PRODUCTS

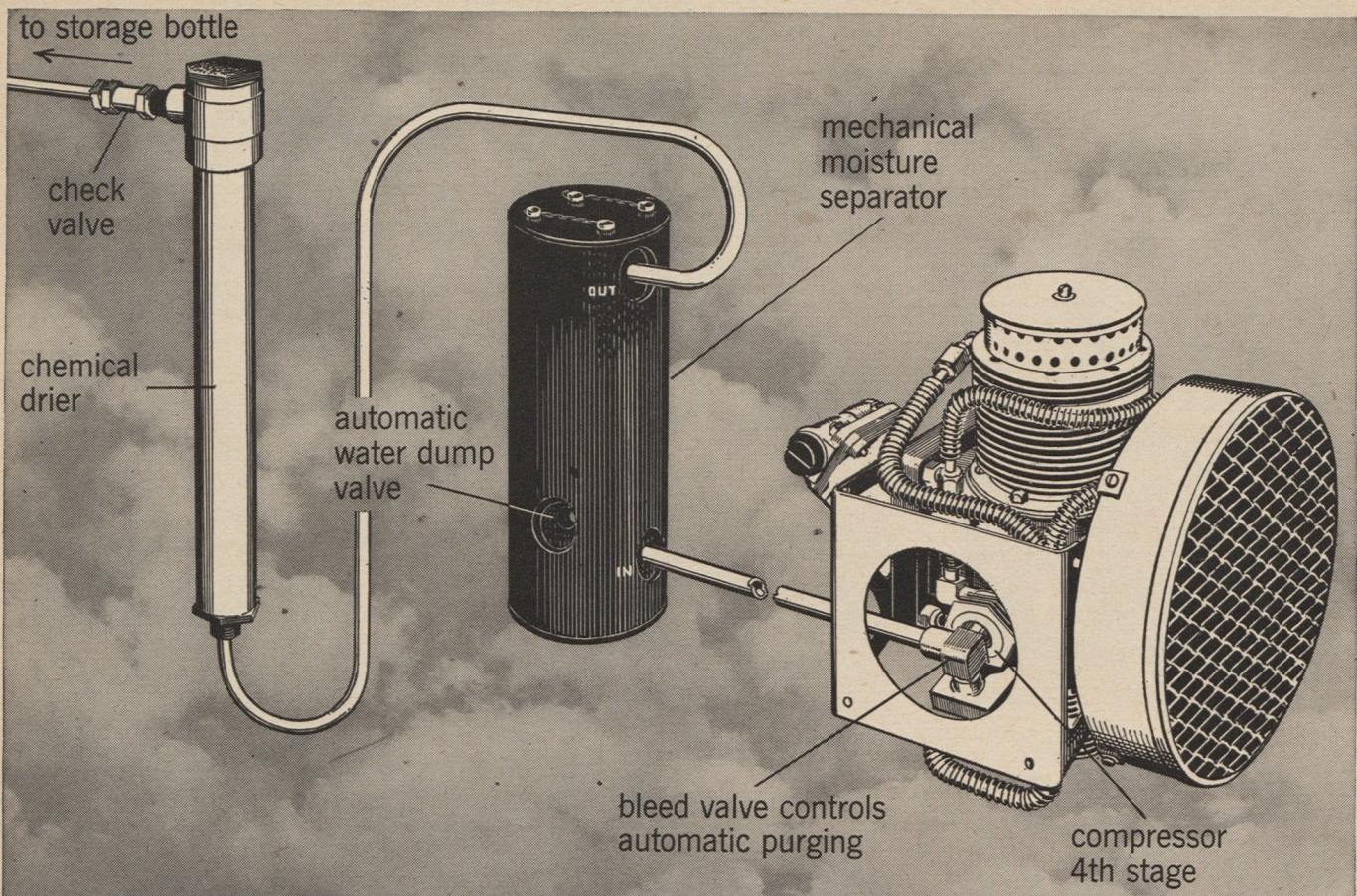
Sand, Permanent Mold, and Die Castings of Magnesium and Aluminum for a wide variety of Aircraft and Industrial Applications. Non-Ferrous Precision Plaster Mold Castings.

*REGISTERED TRADEMARK OF BENDIX AVIATION CORPORATION

ECLIPSE-PIONEER DIVISION OF **Bendix** AVIATION CORPORATION

TETERBORO, NEW JERSEY

Export Sales: Bendix International Division, 711 Fifth Avenue, New York 11, New York



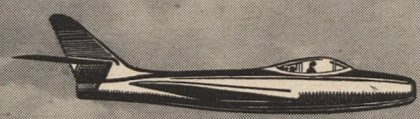
this *KIDDE* dehydration equipment makes pneumatics work at 50,000 feet

Aircraft pneumatics systems don't *have* to freeze—even at 50,000 feet.

Kidde dehydration equipment, through processes of separation and drying, delivers compressed air to the storage bottles with a free air dew point of at least minus 65° F. Saturated air going into the compressor is 99.6% dry when it reaches the storage bottles. The accumulated moisture is released by automatic dump valves. When this happens the entire system from compressor to check valve is purged.

This special *Kidde* dehydration equipment, coupled with the new lightweight *Kidde* four-stage compressor, gives you a "workhorse" pneumatics system even at altitudes of 50,000 feet and through a temperature range of minus 65° F to 160° F.

Write today for full information.

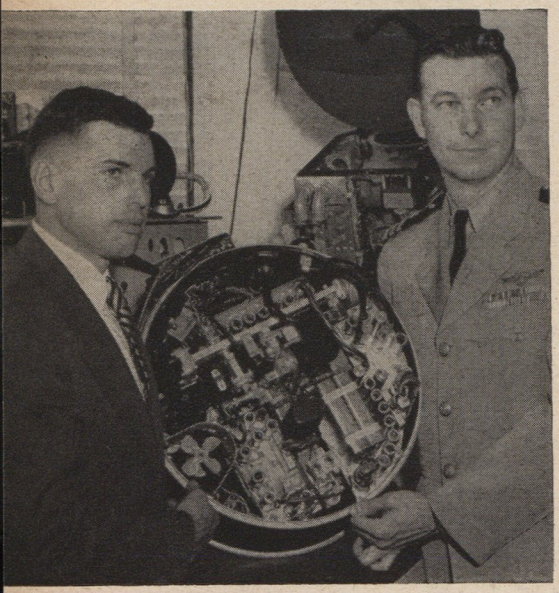


Kidde

Walter Kidde & Company, Inc.
812 Main Street, Belleville 9, N. J.

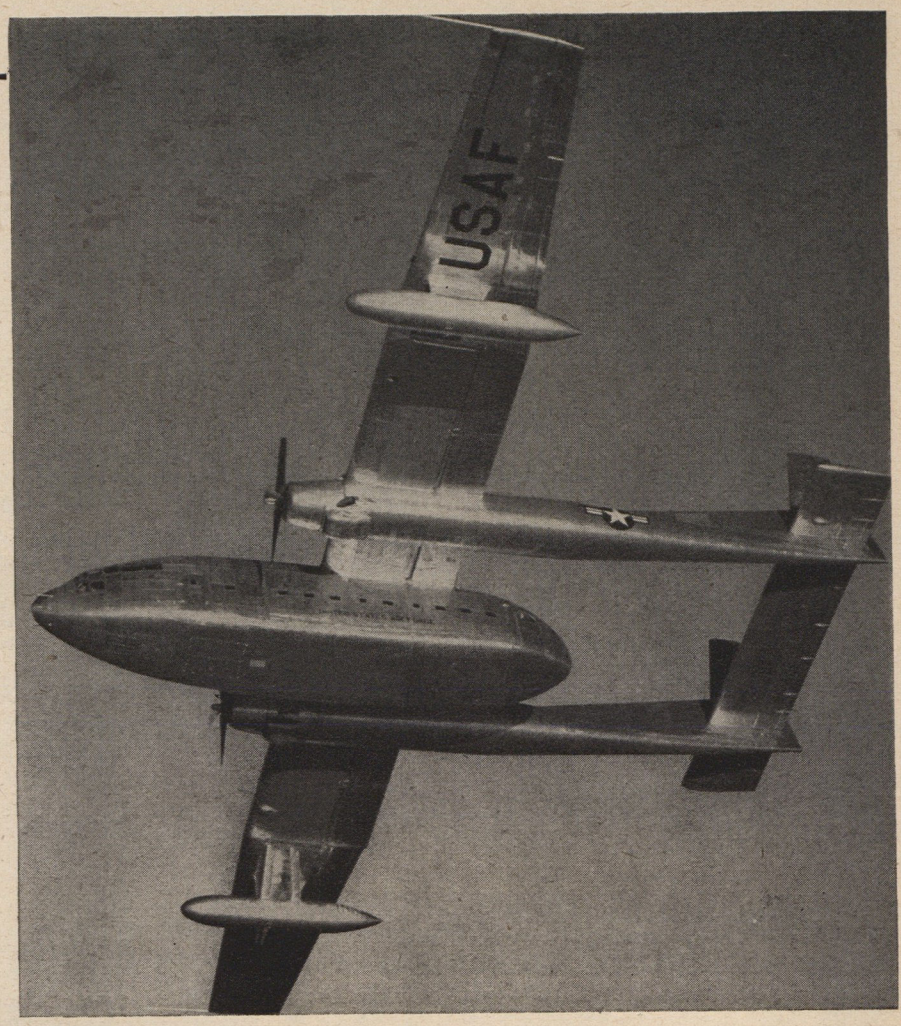
Walter Kidde & Company of Canada, Ltd., Montreal, P. Q.

TECHNIQUE



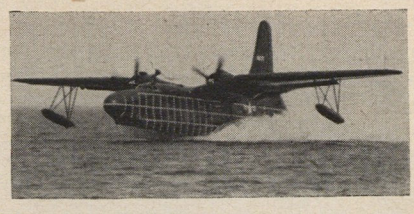
Foul Weather Gear

Mountain peaks and thunderheads in a pilot's path can easily be spotted with this new collision warning radar which maps terrain as far as 200 miles in front of an airplane. The 173-pound apparatus is being made by RCA for the Navy and is scheduled for production under an AF contract. The airlines will have to wait, however, though this system is called the first of its kind to go into production that has both military and commercial application. Above, the AN/APS 42's antenna reflector and stabilizing platforms are over the Navy commander's shoulder, while the control box and indicator scope hood are behind the RCA representative's head. The set has a selector switch that allows the pilot to focus on terrain features five, ten, thirty, 100, or 200 nautical miles from his plane. The signal can be transmitted either as a pencil beam for spotting obstacles up to 200 miles ahead or within a full circle with a 400-mile diameter, or as a vertical fan for mapping and navigational aid. The set, now on President Truman's plane, The Independence, and a MATS C-97, will be installed on other MATS aircraft.



Fairchild's Flying Van Takes the Air

Newest member of the Flying Boxcar family is Fairchild's C-119H, medium troop and cargo transport that recently made its maiden flight. It touched down at sixty-three knots. The H's entire fuel supply is carried in externally mounted Ryan tanks, similar to those on B-47s. These replace twenty-two internal wing fuel cells in other models and save some 600 pounds. The H's two Wright R-3350-30W compound engines develop 3,500 hp. each. Other features include a bigger wing (from 109 to 148 feet, or forty percent increased area), greater payload, longer range, and short-field takeoff and landing characteristics.



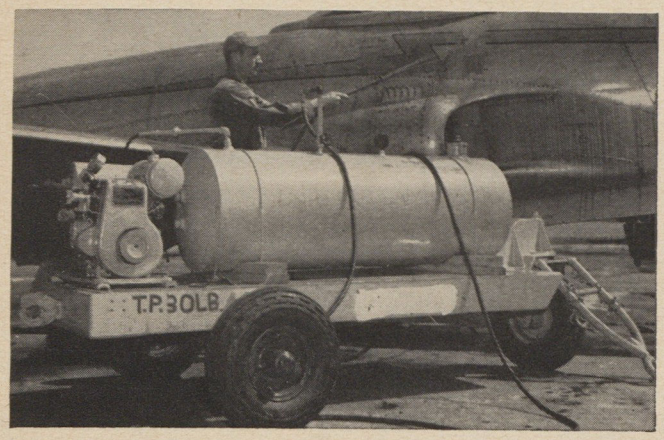
Better Bottom

Martin's research model M-270 skims the waters of Chesapeake Bay near Baltimore in taxi and flight tests. Only the lower part of the hull is new. The wing and crown section were originally built for a PBM Mariner and were later used for the XP5M-1, now the Marlin. The 270's long, slim hull tests a design theory intended to give jet seaplanes of the future greater speed. The M-270's length-to-beam ratio of 15 to 1 is expected to cut down the flying boat's aerodynamic drag, though the hydrodynamic efficiency is little affected. Increasing the length-beam ratio decreases all three of the hull drag parameters — cross-sectional area, volume, and wetted area. The white lines, corresponding to similar lines on a towing tank model, determine the accuracy of earlier tests.

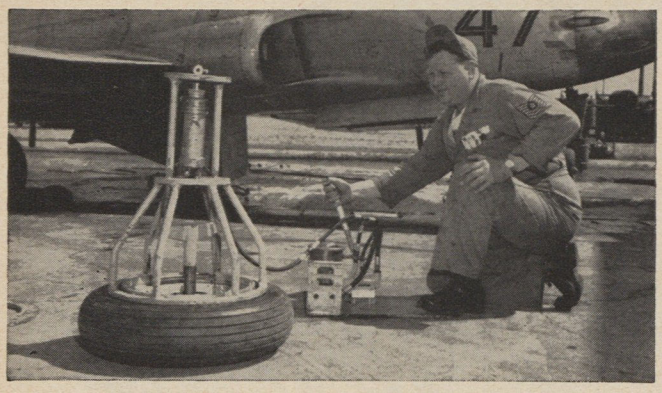
Sweating It Out

Bull Durham-sized research kits, developed by the AF School of Aviation Medicine, were used during the last series of A-bomb tests to measure how much sweating troops did. Soldiers clutched the bags, containing crystals that are blue when dry but turn pink on absorbing moisture. The change of color showed the amount of anxiety.

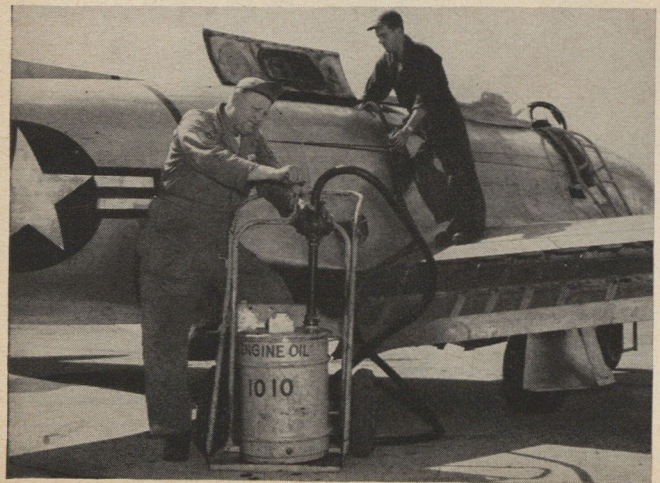
HOW IT'S DONE IN JAPAN



There's an awful lot of know-how in the 35th Fighter-Interceptor Wing, based in Japan. Turn some of this talent loose on the scrap pile and no telling what'll result. One example of this Yankee ingenuity is a portable "gunk" sprayer that knocks the time for cleaning an F-80 from three hours to five or ten minutes. T/Sgt. Clarence Winter built the sprayer from a discarded air compressor, assorted odds and ends, and a small gasoline engine.



Another airman with imagination from the 35th F-I is M/Sgt. Ben Quarles, who built this hydraulic rig for changing aircraft tires. Crew chiefs have for years been whacking tires with sledges, even running trucks over them to break them loose from the rims. But not Sergeant Quarles. He's also dreamed up a handy method (below) for servicing planes with engine oil. His portable oil cart eliminates the need for a servicing trailer and crew.



TECH TALK

By Richard Skinner

Sometimes, when a plane has whipped through a series of violent maneuvers, its gyro becomes confused and momentarily loses its plane of reference—it literally doesn't know which way is up. But when this happens to a newly introduced Minneapolis-Honeywell gyro, the pilot just flicks a switch, say Honeywell engineers, and in two seconds a caging apparatus has the gyro back in business. A special tumbling pin allows unlimited rotation around the outer gimbal axis and plus or minus eighty-five degrees around the inner gimbal axis. Initial production has begun on the unit, which is described as being applicable to autopilot systems, missile guidance, and the stabilization of radar scanning. With modifications, it can be used as a directional gyro.

Titanium, which is as strong as steel but weighs little more than half as much, will be used for the first time in the construction of a commercial airplane—the new Douglas DC-7 superliner, due next year. Sheet titanium will replace aluminum alloy and stainless steel on about eighty-eight percent of the skin of the engine nacelles, a weight-saving of about 200 pounds per airplane. The so-called wonder metal will also be used for some frames, landing gear doors, and in firedoor webs.

The University of Kentucky's aeronautical research lab has come up with a retractable, high impact resistant air inlet screen for jets. In announcing the new protective feature, Wright Air Development Center says that, though the ducts are retracted in the air, they can be closed during combat to keep ammo casings out of the engine. The screens still need about a year of modification.

Jack & Heintz has the nod from the AF to develop a pneumatic starter for turbojet and turboprop engines. The electric starters now used take from a minute to a minute and a half to do the job. J&H engineers believe the pneumatic device will hold starting time below thirty seconds, which means less fuel consumed and less heat developed during starting, and a faster get-away after a scramble signal.

From a dead stop to ninety mph in 1½ seconds is the jolt "test pilots" get in the human centrifuge at the Navy Aviation Medical Acceleration Laboratory. The machine has a spheroidal aluminum gondola at the end of a fifty-foot rotating arm, whirled around by one of the largest (rated at 4,000 hp) vertical DC motors GE has ever built. Developing up to forty G, the machine will be used to evaluate human tolerance to acceleration. One man can control the speed of the arm and the position of the gondola.

The US is rushing to make up lost time on its giant forging and extrusion press program. A seven-man government team has gone to Europe for on-the-spot studies of French and German facilities that can handle 50- to 150-ton steel castings. Some US defense projects may be turned over to these European foundries until next year when the AF's program gets underway. This program calls for nine large extrusion presses and eight forging presses, exerting from 25,000 to 50,000 tons pressure. The limit of present facilities in the US is from 8,000 to 20,000 tons.

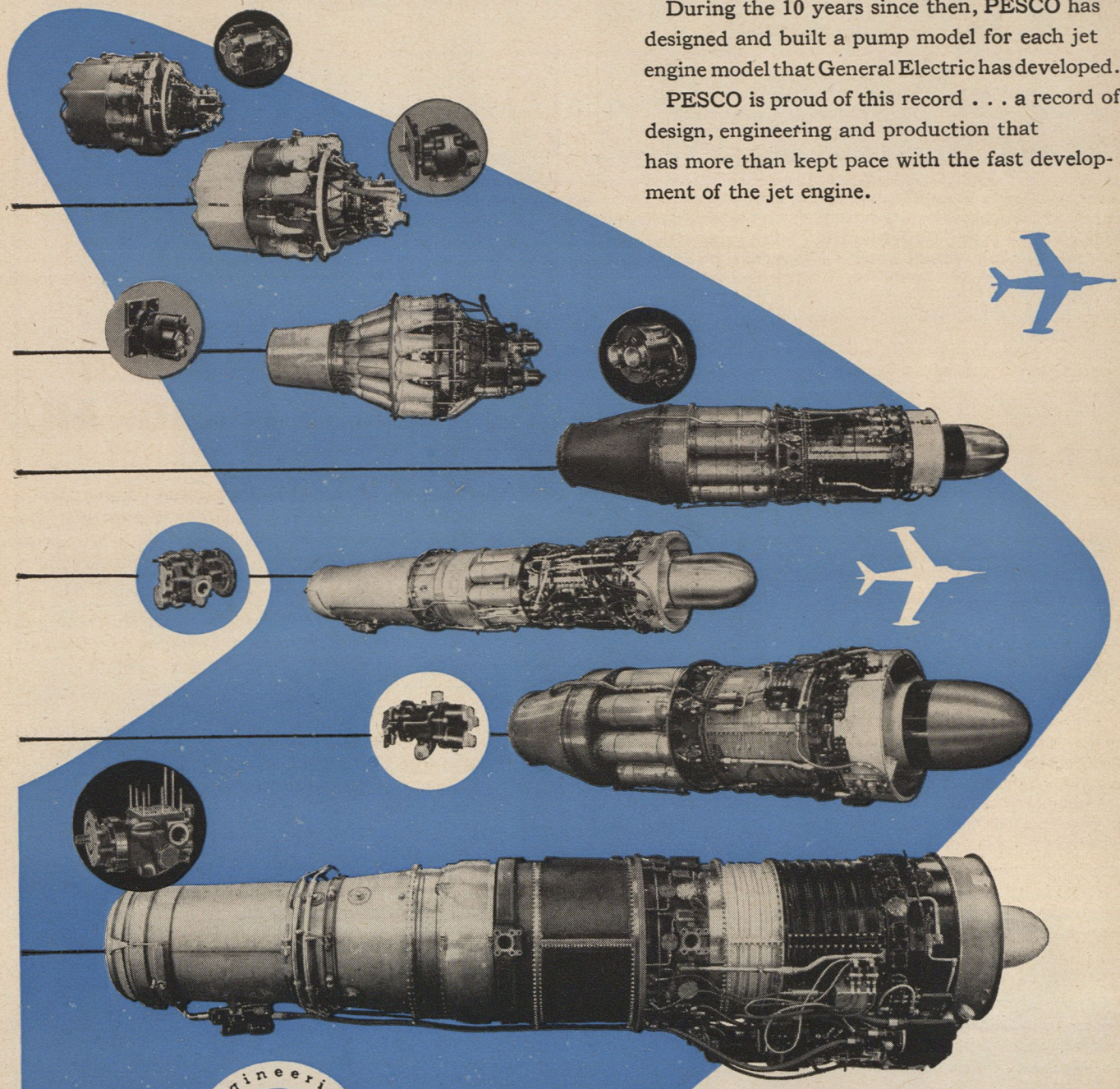
It's been a fast 10 years for PESCO too!

. . . keeping up with G. E. Jet development

When General Electric completed America's first aircraft jet engine in 1942, and jet-powered flight became a reality, a PESCO fuel pump made certain that it was fed all the fuel it needed.

During the 10 years since then, PESCO has designed and built a pump model for each jet engine model that General Electric has developed.

PESCO is proud of this record . . . a record of design, engineering and production that has more than kept pace with the fast development of the jet engine.



engineering Pesco production
PRODUCTS DIVISION

BORG-WARNER CORPORATION
24700 NORTH MILES ROAD BEDFORD, OHIO

"BTO"

-but every hit direct!

using RCA SHORAN

"BOMBING THROUGH OVERCAST"! Yet RCA SHORAN can determine your position "over target" to an accuracy of better than 50 feet in 100 miles or more—*and do it in less time than it takes to tell it.*

Developed by RCA for the Air Force to aid blind bombing during World War II, SHORAN is helping to set astonishing records for pin-point accuracy under conditions where visual bombing would be impossible!

Here's how it works. Two widely separated SHORAN stations on the ground or aboard ship form the base line of a triangle. Your plane is the apex. Pulsed radar signals from your SHORAN are picked up by both ground stations and re-transmitted back to you. On your radar screen you see one "pip" for each station signal. Using calibrated dials, you triangulate these "pips" for your "fix." The operation is done in seconds.

SHORAN development is just one example of the way RCA works in close co-operation with the military services to guarantee U. S. supremacy in electronics. Meet the RCA Engineers and Field Technicians in *your* branch of service.

RCA

RADIO CORPORATION of AMERICA

ENGINEERING PRODUCTS DEPARTMENT

CAMDEN, N.J.

Donna Kime was named Miss Illinois Wing at that state's wing convention in May. At her left is George Anderl who takes over from Morry Worshill as Wing Commanding Officer.

Larry Hastings, new Ohio Wing CO, is congratulated by Col. Luther Bivins. From left are Norman Miller, William Lee Birch, Bivins, Hastings, Dick Girkins, and Larry Murname.

Former Michigan Governor Kim Sigler accepts the Michigan AFA wing's airpower trophy for his contribution to airpower from Frank W. Ward (left) at Michigan Wing Convention.

At the New Jersey wing convention (above), Roy T. Hurley, Curtiss-Wright president, receives airpower trophy from Michael Strukoff of Chase Aircraft. At right is Gill Robb Wilson. Below, at the New York convention, Wing CO Forrest Vosler (left) looks over the program with Wing Sec'y Ruth Stern and Brig. Gen. George F. Smith, Vice CG of EADC.

AFA NEWS

SIX STATE WING MEETINGS

Illinois, Ohio, Michigan, New York, Pennsylvania, and New Jersey Wings Convene

Hotel Sheraton, Chicago, was the scene of the Illinois Wing Convention on May 17 and 18. Highlight of the business sessions was the presentation, for the first time by a wing, of a statement of policy. The statement dealt with the need for a more far-sighted Civil Defense program, the shortage of blood and blood donors, and the seriousness of the present Air Force budget situation which has cut our air striking power to a dangerous low, with further cuts being planned. Retiring Wing Commander Morry Worshill presented several citations for outstanding effort for AFA. Worshill himself received awards from national and local representatives. Richard Schram, a retired Naval Reservist, was the guest speaker.

The Toledo Squadron was host to the Ohio Wing Convention on May 18. Col. Luther Bivins, PAS&T at Bowling Green University, spoke on the value of the ROTC program and its relation to the Air Force. A buffet for the delegates was prepared by the Auxiliary members. Part of the convention was taken up with the formation of the wing Auxiliary, second of its kind in the nation. Mrs. Rita Hastings, wife of the new wing commander, was elected president of the ladies' unit.

In Detroit, scene of this year's national convention and reunion, Michigan held its wing meeting at the Sheraton-Cadillac Hotel. Kim Sigler, ex-Governor of Michigan, was given the wing's Airpower Trophy, for his interest in airpower and his contribution to civil aviation. In its statement of policy, the Michigan Wing called on the state school system to install an Aviation Education Program.

The Fifth Annual Convention of the New York Wing was held recently in Albany, at the Ten Eyck Hotel. Principal speaker at the banquet was Gen. George Smith, Deputy Commander for the Eastern Air Defense Command. Wing Commander Forrest Vosler, who was re-elected to that office, presided at the business sessions.

The Essex Hotel, Philadelphia, was the rendezvous point for the Pennsylvania Wing at its state meeting June 7 and 8. Every active squadron was well represented, as well as a fine delegation from each Auxiliary unit in the wing, which is the only chartered Auxiliary wing in AFA today. Col. Victor C. Swearingen, USAF Headquarters, was the principal speaker and outlined the details of the recently signed German peace treaty. On behalf of the wing, newly elected Commander I. E. Brodsky was instrumental in sending urgent appeals to all Pennsylvania Congressmen, stressing the importance of removing the spending ceiling placed on the defense budget by the House.

In Newark, during the New Jersey wing convention, a reciprocity agreement was responsible for the guest speaker, Gill Robb Wilson, commander of the Manhattan (N. Y.) Squadron. Wilson spoke on the importance of AFA. A former Aviation Commissioner for New Jersey, he keynoted his talk with a typical remark, "Things get done only when someone does them, and there is an airpower job to be done by AFA."

(More AFA News on page 57)

Pennsylvania wing convention brings together (from left) I. E. Brodsky, Wing CO, Gus Duda, Col. Victor Swearinger, Col. Walter Skeele, Perry Campbell, and Lloyd Meredith.

AFA CONVENTION TO FEATURE AIRPOWER PREPAREDNESS SYMPOSIUM

AFA CONVENTION PROGRAM

THURSDAY—AUGUST 28

8:00 AM: Registration (Sheraton-Cadillac & Statler)
10:00 AM: Annual Board meeting (Sheraton-Cadillac)
2:00 PM: First Business Session (Sheraton-Cadillac)
7:30 PM: Second Business Session (Sheraton-Cadillac)

FRIDAY—AUGUST 29

8:00 AM: Registration (Sheraton-Cadillac & Statler)
9:00 AM: Industrial Preparedness Report (Sheraton-Cadillac)
Noon: Unit Reunion Luncheons
2:30 PM: Military Preparedness Report (Sheraton-Cadillac)
5:30 PM: Reunion Cocktail Party (Statler)
7:00 PM: Unit Reunion Parties
10:00 PM: Airpower Ball (Statler)

SATURDAY—AUGUST 30

8:00 AM: Registration (Sheraton-Cadillac & Statler)
9:00 AM: Final Business Session (Sheraton-Cadillac)
Noon: Unit Reunion Luncheons
2:00 PM: Int'l Aviation Exposition (Wayne Major Apt.)
7:30 PM: Airpower Banquet (Masonic Temple)
Principal speaker: Hon. Thomas K. Finletter

SUNDAY—AUGUST 31

9:30 AM: Dawn Patrol Breakfast (Sheraton-Cadillac)
Noon: Adjournment of AFA Convention
All Day: Int'l Aviation Exposition (Wayne Major Apt.)

MONDAY—SEPTEMBER 1

All Day: Int'l Aviation Exposition (Wayne Major Apt.)

NOTE: "The Air Force Rendezvous" room at the Sheraton-Cadillac will be open daily from 11:00 AM to 2:00 AM.

AIR FORCE UNIT REUNIONS

Individual reunions of wartime Air Force units are always a highlight of AFA conventions. These reunions are "little conventions" within themselves and feature cocktail parties, luncheons, dinners, and balls. The following reunions are already planned during the AFA convention:

AIR FORCE CHAPLAINS
Chaplain Francis Quinn
Selfridge AFB, Mich.

AIR FORCE MEDICS
Dr. Cortez F. Enloe, Jr.
500 Fifth Ave., Room 5130
New York, N. Y.

AF PAWLING ALUMNI
Arthur J. Kahn
92-16 Whitney Avenue
Elmhurst, L. I., N. Y.

AIR TRANSPORT COMMAND
James W. Austin
Capital Airlines
1203 Washington Blvd.
Detroit, Mich.

THE NIGHT FIGHTERS
Col. William Odell
1004 Jefferson Street
Arlington, Va.

1ST AIR COMMANDO GP.
Neil Holm
4130 Hawthorne, Apt. 4
Dallas, Tex.

13TH JUNGLE AIR FORCE
Robert E. Enger
2456 Overland Avenue
Los Angeles, Calif.

15TH AIR FORCE
Robert L. Green
5857 N. Lawrence St.
Philadelphia 20, Pa.

451ST BOMB SQUADRON
Mel Paquette
14902 Tracey Ave.
Detroit 27, Mich.

NOTE: Write your reunion contact. If your unit is not listed, write AFA Hq. in Washington for information.

RESERVE YOUR ROOM EARLY FOR THE AFA CONVENTION AND REUNION

CONVENTION REGISTRATION FEE

AFA Members	$15.00
NAA Members	15.00
Mich. Aero Club Members	15.00
RCAFA Members	15.00
All other registrants	20.00
Wives of all registrants	12.00

NOTE: Above registration fees include admission to all functions listed in above program, except private reunions. Fee does not include hotel room.

HOTELS RESERVED FOR AFA CONVENTION

HOTELS	RATES: Single	Double	Twin	Ex Cots
Sheraton-Cadillac	$8.00	$11.00	$12.50	$3.00
Statler	8.00	11.00	12.50	3.00
Detroit-Leland	6.00	8.50	9.00	2.50
Fort Shelby	5.50	8.00	9.00	3.00
Tuller	4.50	7.00	9.00	2.00
Wolverine	4.25	6.50	8.75	2.00
Detroiter	4.00	6.50	8.25	2.00

AIR FORCE ASSOCIATION CONVENTION
HOTEL ROOM RESERVATION REQUEST
August 28-29-30-31, 1952

(MISS / (MRS. (Please Print)

NAME (MR. _____

ADDRESS _____

CITY _____ STATE _____

ARRIVAL DATE _____ HOUR _____

DEPARTURE DATE _____ HOUR _____

NAME OF PERSON(S) SHARING ROOM:

_____

_____

_____

MAIL DIRECTLY TO:
Reservations Manager
(Name of hotel of first choice)
Detroit, Michigan
(Please list three choices of hotels)

CHOICE: HOTEL DESIRED:

First _____

Second _____

Third _____

TYPE ROOM DESIRED

☐ Single ☐ Double ☐ Twin

Extra Cots ☐

☐ Suite—Number of Bedrooms _____

Desired rate per day: $_____*

*Room available at rate nearest that requested will be assigned.

PICTURE OF OUR "FLEX SHOP" IN ACTION!

This flexible shop, a small part of which you see here, is an important part of our aeronautical controls production line.

Completely tooled, it is an integrated setup for the machining of parts, assembly, and inspection.

If we're called upon to get out a rush order for electronic fuel gauges, autopilots, jet engine controls, or any other of our line of aeronautical controls—or if any parts are needed quickly to break assembly bottlenecks, we call on these men and these machines.

Thus, we can handle special orders with a minimum lead time, and without upsetting our regular production lines. That's why we call this plant area our "Flex Shop."

This special shop is a good example of the quality of planning and organization that has gone into all our engineering and production thinking here at Honeywell.

Plans to improve our engineering and production techniques are constantly being made by our staff – because *automatic control* is such an important part of aviation progress. And *automatic control* is Honeywell's business.

MINNEAPOLIS **Honeywell**

Aeronautical Controls

H HONEYWELL

Rudolph Opitz set unofficial records at Dayton in his flying wing glider.

Co-queens of the five-day Dayton Glider Meet, June Anderson (left) and Jeanne Wolfe, present the winner's trophies to grand champion Rudolph Optiz.

Dayton Glider Meet

Rudolph Opitz, former German scientist, now working for the USAF at Wright-Patterson AFB, was the grand champion of the fifth annual glider meet sponsored by the Wilbur and Orville Wright Memorial AFA Squadron. Opitz set an unofficial world's endurance record by staying aloft seven hours and twenty-four minutes in his flying wing glider. In addition, he won the Consolidated-Vultee absolute record with 5,480 feet, the Boeing altitude record with 4,580 feet, and the GE distance record with a flight of 88 miles from Dayton.

The five-day meet was held over Memorial Day weekend at the South Dayton Airport. Winners of the meet were presented with trophies by co-queens June Anderson and Jeanne Wolfe. Opitz won the coveted Lane Trophy for top honors in the contest.

Col. W. C. Lazarus, former aviation director of the State of Florida, now stationed at the Wright Air Development Center at Dayton, directed the glider contest. Arrangements were handled by the Dayton Soaring Society.

At a banquet in Chicago, given in his honor by the Illinois Wing, retired Air Force General George C. Kenney recently addressed more than fifty AFA'ers.

Officers and members of the Cuyahoga Founders Squadron and Auxiliary tally the $400 profits made on a dance the Auxiliary sponsored in Cleveland.

Among the officials of the Ohio Wing and Toledo Squadron Ladies Auxiliaries who gathered at the recent wing convention in Toledo are Mrs. Larry Hastings (front, third from the left), Wing Auxiliary president, and Mrs. Paul Bollinger, (front, extreme right) who is president of the Toledo Auxiliary.

ROTC Competition

Six hundred Air Force ROTC cadets from six southern California colleges and universities recently competed for the Air Force Association-Lockheed trophy. For the second successive year, the Loyola University ROTC unit won top place for academic and drill field achievement.

Institutions competing for the trophy included University of Southern California at Los Angeles, University of Southern California, Occidental, California Institute of Technology, Loyola University, and San Diego College. Each ROTC unit was judged on its home grounds for scholastic achievement, and for drill by five visiting AF-ROTC officers.

Formal announcement of the contest winners was made by California Wing Commander James McDivitt, who served as master of ceremonies at the formal presentation at Spalding Field. Individual awards were presented to six outstanding ROTC cadets by Bert D. Lynn, AFA Regional Vice President.

Lt. Col. Francis J. Pope, Loyola University PAS&T, receives AFA-Lockheed trophy in behalf of his school from Maj. Gen. William Morgan, CG of the Western Air Procurement District. AFA Wing CO James McDivitt watches the presentation.

Passaic-Bergen Meeting

Passaic-Bergen Squadron recently installed its new roster of officers, at a supper. Wing Commander James Doeler stressed the importance of squadrons, as well as the growth of AFA nationally during the year. Other guests were Ruth Stern, Commander of the New York WAC Squadron, and Thomas Elm, County Commander of the American Legion.

Chicago Youth Day

Recently, Chicago Squadron 101 played host to high school students at an "Air Age For Youth Day." Refreshments were served and the youngsters were treated to airplane rides by members of the squadron and Capt. Raymond Mix, American Airlines pilot. Captain Mix explained the qualifications needed to become a pilot, and some interesting sidelights on flying for an airline. Miss Dorothy Baker, AAL stewardess, and Airman Patti Lucas, USAF Recruiting, also spoke.

SQUADRON OF THE MONTH

San Francisco Squadron

San Francisco, California

CITED FOR

planning and carrying out a civic celebration to welcome home Col. Francis Gabreski, World War II and Korean fighter ace. In paying tribute to Gabreski the Squadron also recognized the achievements of all UN airmen who have contributed so magnificently in the fight for world peace.

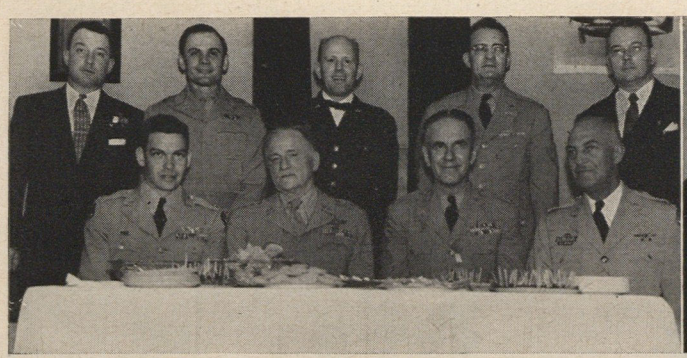
WAC Hospital Party

The New York WAC Squadron recently held another of its hospital parties, this time for the patients at the Base Hospital, Mitchel AFB. Like all their functions, the party brought many notes of gratitude from the airmen in the ward. Most popular of the entertainers were the four artists who sketched portraits of the patients.

Cadets to Olympics

Five of the seven University of Kansas basketball team members scheduled to take part in the Olympic games this summer in Helsinki, Finland, are AF-ROTC cadets. The U of K team this spring defeated St. Johns to become NCAA champs. The Kansas AF-ROTC, now three years old, has grown from a cadet corps of sixty to 940 in this short period.

—END



Blair County, Pa., AFA Squadron and 9540 VARTU officials welcome General Carl A. Spaatz to Altoona for special Memorial Day program. Joe Holland (second from left, rear row), AFA Sqd. CO; Ken Moore (extreme right), Wing CO.

Gill Robb Wilson (second from left) talks over the jet age with fellow officers of the Manhattan, N. Y., Squadron. With Commander Wilson are (from left) Vice Commander Jack Matthews, Treas. Ernest Page, and Sec'y A. Ottengheim.

Don't Guess About Your Future!

U.S. AIR FORCE

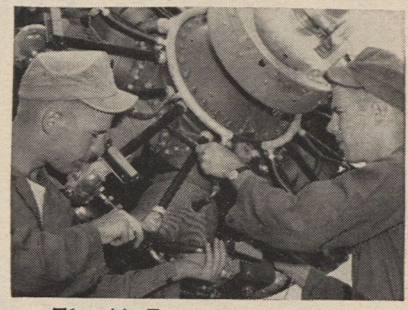
The Air Force needs trained Air Traffic Control Operators

The Air Force needs trained Ground Control Approach Operators

Your United States Air Force is expanding rapidly. It needs *YOU* and your special technical knowledge. Your skill and "know how" can serve your country and yourself to best advantage in today's vital job of national defense.

Eliminate the guesswork from your future and advance in your technical field to more profitable and satisfying rewards with your U. S. Air Force.

The Air Force needs trained multi-engine Flight Engineers



The Air Force needs trained Aircraft and Flight Mechanics

Here Are a Few of the Many Great Air Force Opportunities!

RADIO AND RADAR MAINTENANCE
AIRCRAFT ACCESSORIES MAINTENANCE
WEATHER • ARMAMENT SYSTEMS
FOOD SERVICE • WIRE MAINTENANCE
MISSILE GUIDANCE SYSTEMS
PHOTOMAPPING
INTRICATE EQUIPMENT MAINTENANCE
MUNITIONS AND WEAPONS • SUPPLY
VEHICLE MAINTENANCE • METAL WORKING
FABRIC, LEATHER AND RUBBER • MEDICAL
BUDGETARY ACCOUNTING AND DISBURSING
MARINE • FIREFIGHTING
SECURITY AND LAW ENFORCEMENT
CONSTRUCTION

Act Now!

MAIL COUPON TODAY for Full Information

AIRMAN PROCUREMENT
Headquarters, U. S. Air Force, Washington 25, D. C.

Please send me details about enlisting as an Air Force specialist.

NAME.....

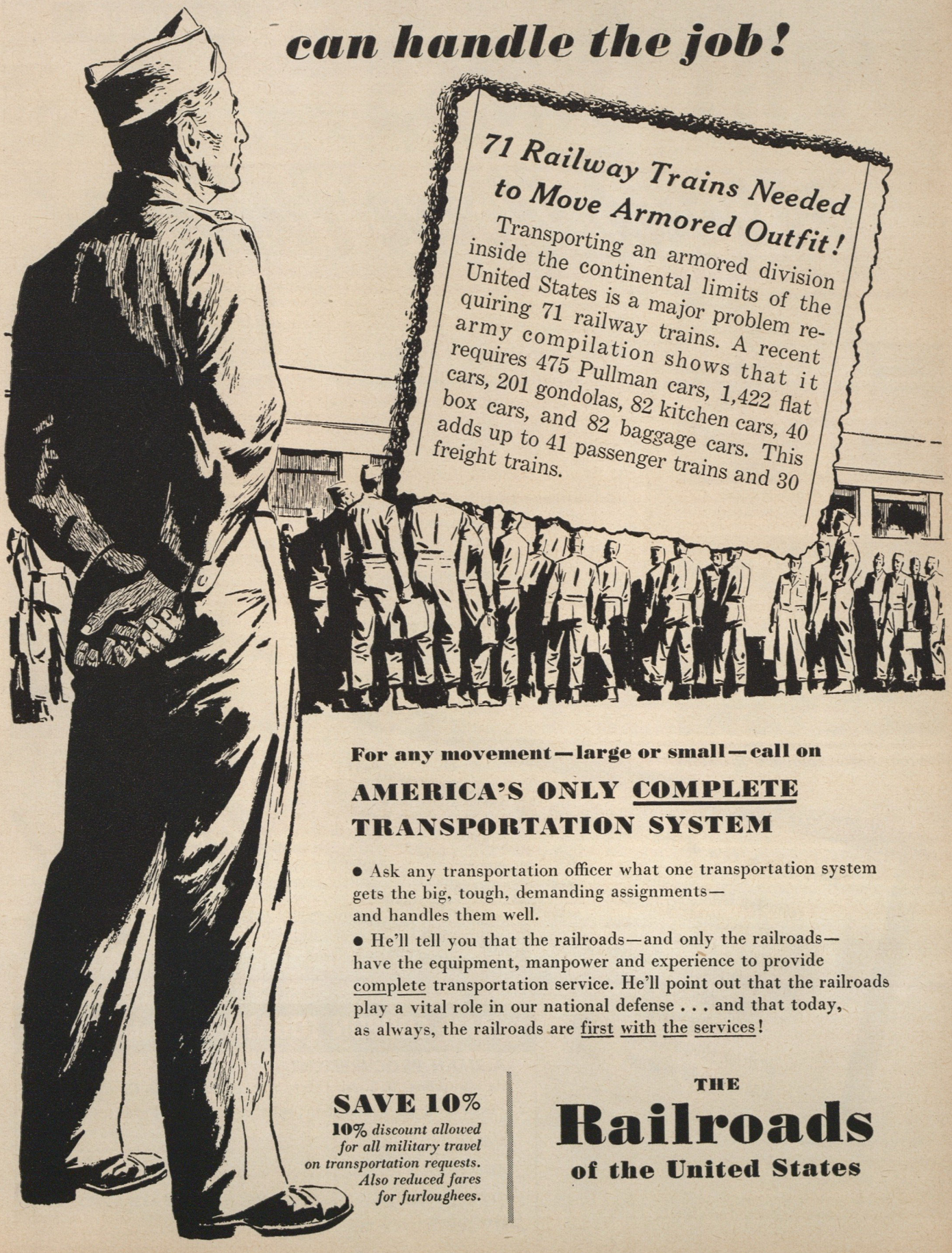
ADDRESS.....

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

MY SPECIALTY IS: .....

ONLY THE RAILROADS

can handle the job!



71 Railway Trains Needed to Move Armored Outfit!

Transporting an armored division inside the continental limits of the United States is a major problem requiring 71 railway trains. A recent army compilation shows that it requires 475 Pullman cars, 1,422 flat cars, 201 gondolas, 82 kitchen cars, 40 box cars, and 82 baggage cars. This adds up to 41 passenger trains and 30 freight trains.

For any movement—large or small—call on

AMERICA'S ONLY COMPLETE TRANSPORTATION SYSTEM

- Ask any transportation officer what one transportation system gets the big, tough, demanding assignments—and handles them well.
- He'll tell you that the railroads—and only the railroads—have the equipment, manpower and experience to provide complete transportation service. He'll point out that the railroads play a vital role in our national defense . . . and that today, as always, the railroads are first with the services!

SAVE 10%

10% *discount allowed for all military travel on transportation requests. Also reduced fares for furloughees.*

THE Railroads of the United States

CREDITS:
Charles de M. Barnes, front cover. Wide World Photos, page 16, Max Conrad. San Francisco Examiner and William H. Walker, pages 24 and 25. Wide-World Photos, bottom page 29. Watson Holley, page 31.

GEE, I'VE had a 'father' for a day, and it was swell!"

Thousands of youngsters from orphanages near AF bases throughout the country—and overseas—have said that and really meant it. Ever since AF bachelors started celebrating Father's Day, a lot of orphans have learned what it's like to have a "dad"—just for a day.

The whole idea of "Fathers-for-a-Day" came from two AACS sergeants in 1949, at Hamilton AFB, Calif. T/Sgt. Herbert Hymer and S/Sgt. Harold Craven of the 1801st AACS Group dreamed up the idea of airmen playing host to the underprivileged children on Father's Day. The program got quick approval from higher headquarters, which not only gave its blessing but forwarded the idea to all AACS units.

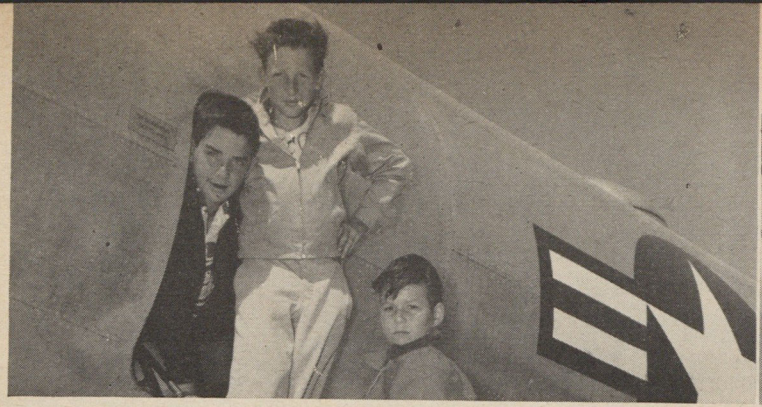
Near-by orphanages are contacted before each Father's Day. It becomes a day of fun, thrills, and entertainment for the kids from the time they arrive in GI buses until they leave. Once each child is teamed up with his "dad," the activities begin.

Hand in hand they tour the base. They visit the control tower, and the hangars. They ride in Link trainers and have lunch in the mess hall. There are movies, games, and prizes.

At one AACS base, a sergeant grinned as his young charge tore off across the grass to see the next event. "Guess I'm getting old. Darned if I can run another step. And if I'm here next year, I'll have to read up beforehand. That kid darned near pumped me dry about planes. Knew things *I* didn't even know!"

Its first year, the reverse twist on Father's Day caught on like canasta. More than thirty AACS units tried it. At Spokane AFB, more than 100 airmen had youngsters assigned to them. At Hamilton, eighty boys and girls from a local orphanage were treated to a day at the base. At Randolph AFB, Tex., two "fathers" became so interested in their "sons" that they raised money to send them to a Boy Scout summer camp.

Last year, two London orphanages sent 139 children to be guests of an AACS Squadron in Bushy Park. The kids got a real American picnic—hamburgers, ice cream, soda pop, and cake. During the afternoon the AACS-men wanted to give out chewing gum to the boys, but the teachers said gum-chewing was against the school rules. Then the supervisors of the orphanages were contacted, and they gave their approval, but only if the chewing was done in the park. The children chewed their way through 3,750 sticks — twenty-seven sticks apiece.—END



Getting checked out in a B-29 is on the program at Travis.

The AACS control tower at Stewart gets the onceover.

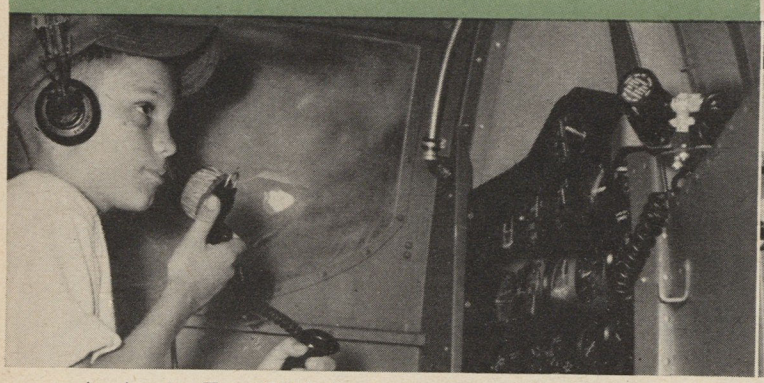
Free movies for the youngsters are a treat at Hickam.

Future pilots explore the cockpits at Hamilton.

FATHERS FOR A DAY

Kids from orphanages near AACS bases take over in a big way on Father's Day

Time out for a little ice cream at Westover AFB.

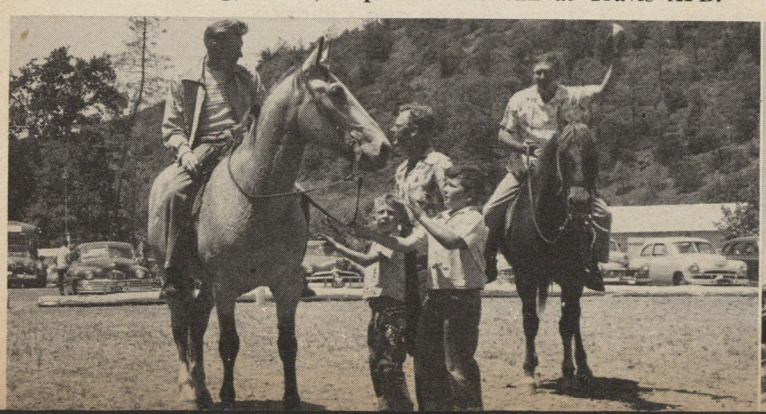


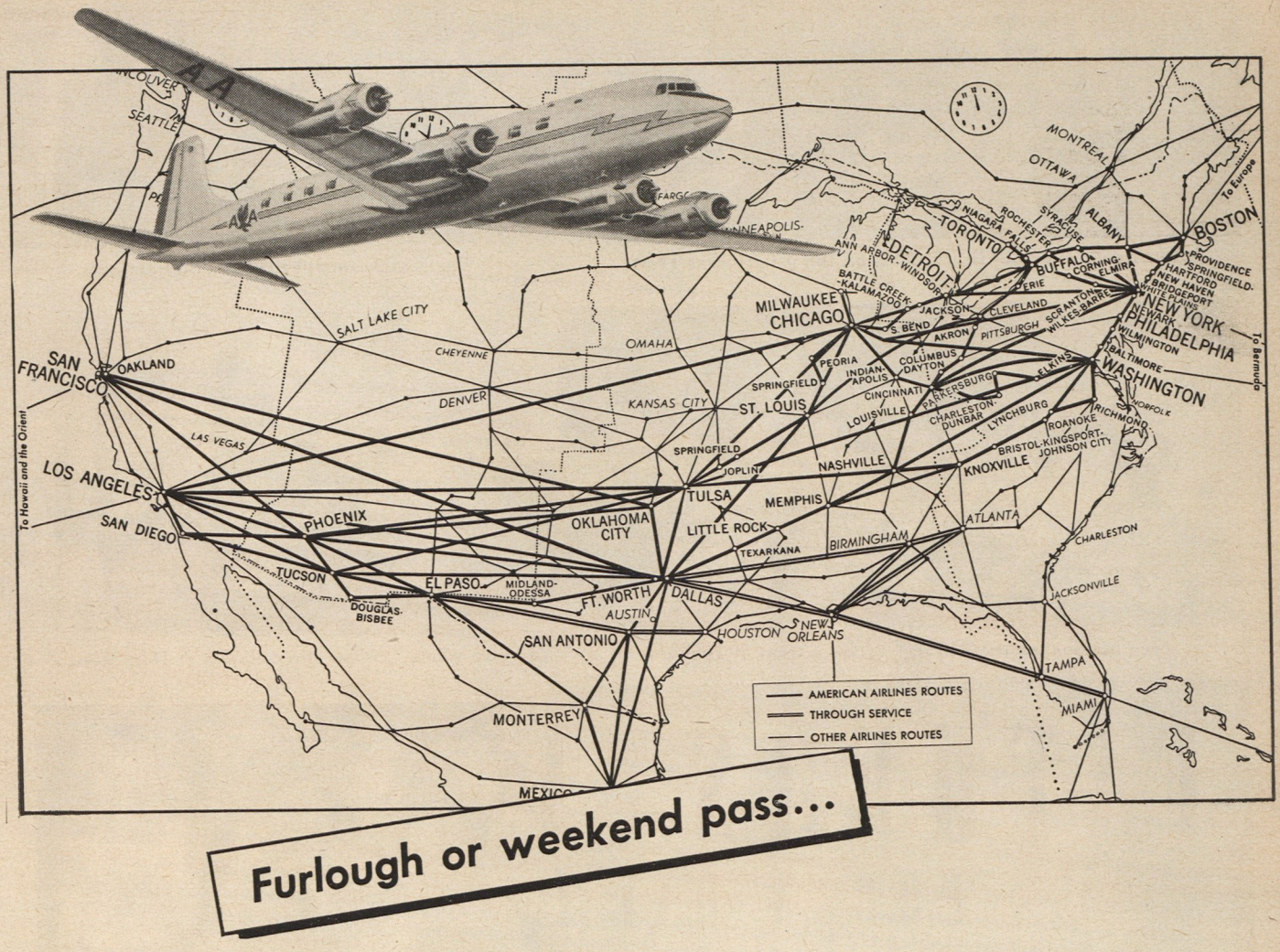
An Austin, Tex., Little Leaguer solos in a Link trainer.

It's chow call for hungry kids at Lages Field, the Azores.

Horseback riding, below, is part of the fun at Travis AFB.

The Hickam base commander, below, goes hard in a ball game.





Furlough or weekend pass...

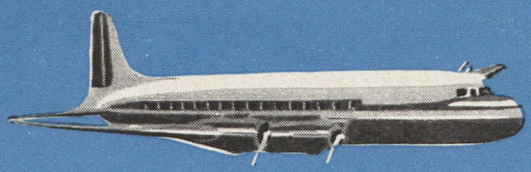
ARRIVE SOONER STAY LONGER ... GO AMERICAN

• When a leave calls for travel, be sure to call American! Gain extra days for pleasure ordinarily lost to slow-moving surface transports. In addition, when you travel American Airlines, you go by famous DC-6 or Convair Flagships with comfortable pressurized cabins. Make your reservations now. You'll be surprised how little Flagship travel can cost... how much more time you can enjoy at your destination.

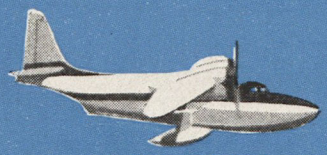
Serving the Leading Cities of the United States, Mexico and Canada

AMERICAN AIRLINES INC.

AMERICA'S LEADING AIRLINE

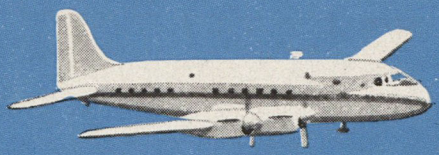


DC-6A Liftmaster



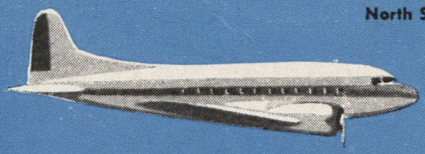
Grumman Mallard

Convair



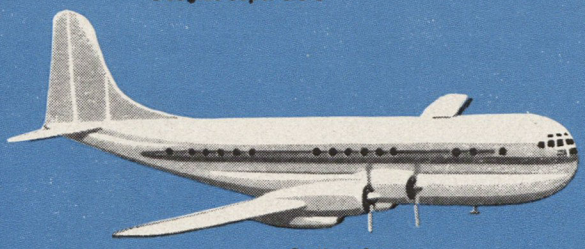
North Star

Super Constellation



Douglas Super DC-3

Martin 4-O-4



Stratocruiser

On the World's Finest Airliners

Bendix IS FIRST IN FUEL METERING, LEADER IN LANDING GEAR

On the great ships that fly the commercial air ways of the world, you will invariably find Bendix fuel metering equipment and landing gear speeding service and adding safety from take-off to landings.

The rigid performance standards set by airline operators and plane builders alike permit no compromise with quality.

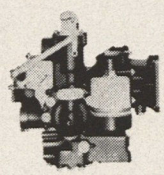
That's why Bendix carburetion, direct fuel injection, shock absorbing struts, wheels and brakes are the choice wherever planes fly.

Bendix is justifiably proud of this overwhelming endorsement of its products and the part these vital components play in helping American aviation lead the world.

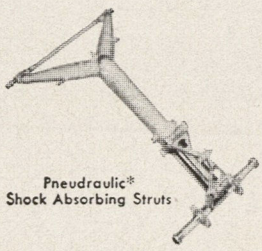
BENDIX • PRODUCTS DIVISION • SOUTH BEND

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

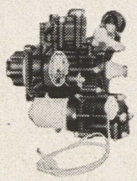
Bendix AVIATION CORPORATION



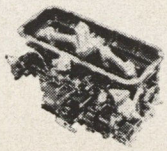
Fuel Metering Unit for jet engines



Pneudraulic* Shock Absorbing Struts

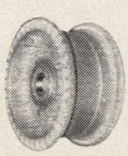


Speed-Density Fuel Metering Unit



Stromberg* Injection Carburetors

Segmented Rotor Brakes



Landing Gear Wheels for all types of airplanes

Bendix Products Division

*REG. U.S. PAT. OFF

O'er the ramparts we watch as we track a guided missile aimed at an attacking enemy or his home base. Yes, missiles may fight tomorrow's battles or prevent them. And Convair, the *only* company developing and building *every* basic type of aircraft, has a guided missile team helping America achieve a weapons system for *every* conceivable mission. Watch for new ramparts of peace, built through engineering that aims at the maximum of power . . . *the Nth Power!*

CONVAIR

SAN DIEGO & POMONA, CALIFORNIA • FORT WORTH & DAINGERFIELD, TEXAS

CONVAIR WILL SOON MANUFACTURE A TYPE OF MISSILE FOR THE U. S. NAVY BUREAU OF ORDNANCE IN POMONA, CALIFORNIA ... AMERICA'S FIRST PLANT FOR THE MASS PRODUCTION OF OPERATIONAL GUIDED MISSILES