AIR FORCE

THE MAGAZINE OF AMERICAN AIRPOWER

November 1955 • 35c

HOW *NOT TO BE* A POW

The Real Story of AF's Survival School

ALSO IN THIS ISSUE:

Tradition Versus Progress

Intelligence for Sale

fine weather for **DUCKS** *and Arma* **"ALL-WEATHERED"** *fighter bombers*

Arma's self-contained integrated navigation and fire control systems will contribute materially to the operational effectiveness and all-weather capabilities of our nation's latest tactical fighter bombers.

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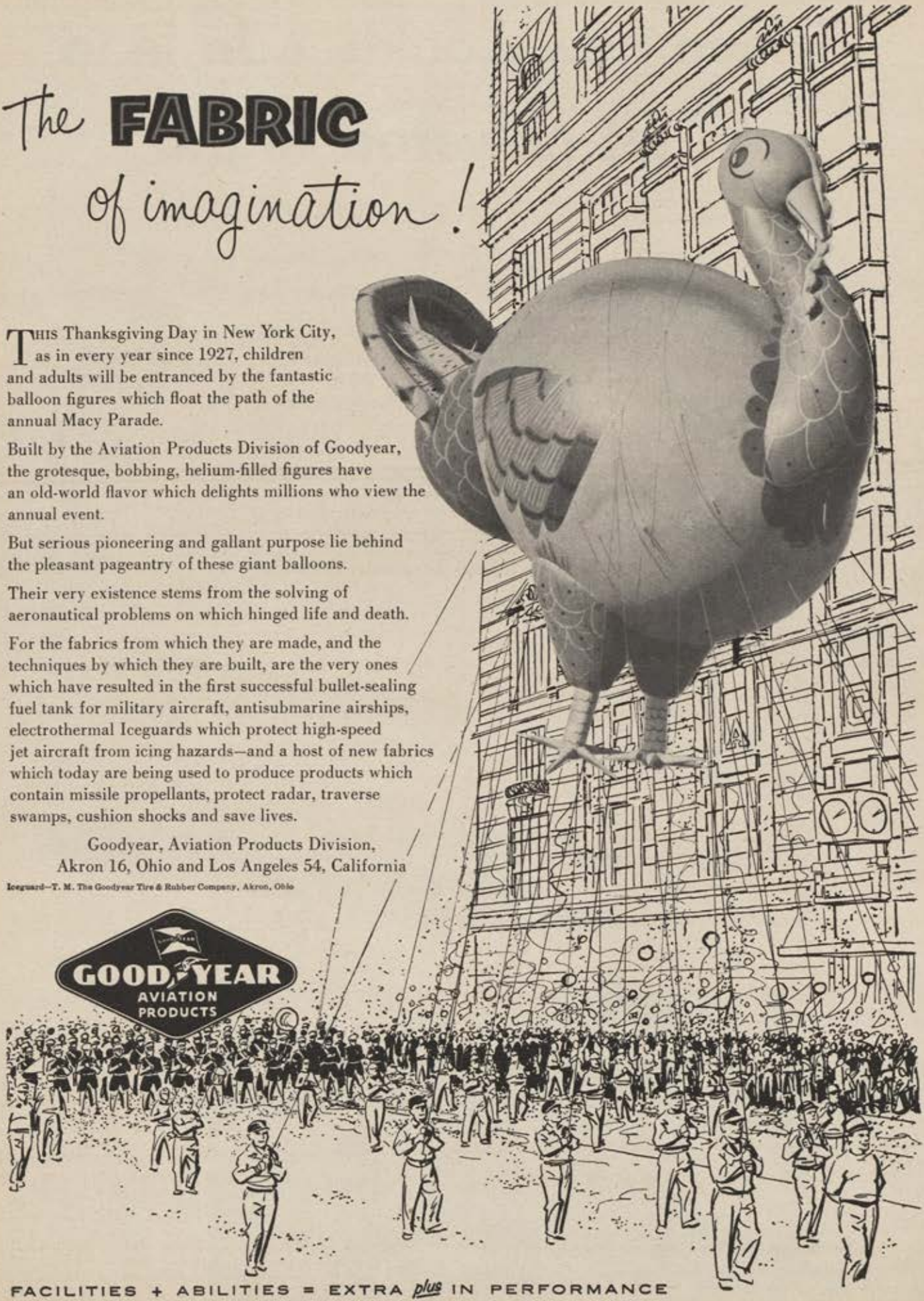
ARTHUR SPEITH

The FABRIC of imagination!



THIS Thanksgiving Day in New York City, as in every year since 1927, children and adults will be entranced by the fantastic balloon figures which float the path of the annual Macy Parade.

Built by the Aviation Products Division of Goodyear, the grotesque, bobbing, helium-filled figures have an old-world flavor which delights millions who view the annual event.

But serious pioneering and gallant purpose lie behind the pleasant pageantry of these giant balloons.

Their very existence stems from the solving of aeronautical problems on which hinged life and death.

For the fabrics from which they are made, and the techniques by which they are built, are the very ones which have resulted in the first successful bullet-sealing fuel tank for military aircraft, antisubmarine airships, electrothermal Iceguards which protect high-speed jet aircraft from icing hazards—and a host of new fabrics which today are being used to produce products which contain missile propellants, protect radar, traverse swamps, cushion shocks and save lives.

Goodyear, Aviation Products Division,
Akron 16, Ohio and Los Angeles 54, California

Iceguard—T. M. The Goodyear Tire & Rubber Company, Akron, Ohio

GOODYEAR AVIATION PRODUCTS

FACILITIES + ABILITIES = EXTRA *plus* IN PERFORMANCE

These new Lockheeds lead in jet-powered flight

America's first prop-jet airliner...first prop-jet combat transport... fastest propeller-driven airliner...first carrier-based jet trainer...and world's fastest jet fighter—all are in production today at Lockheed.

Senior pilots of the world's leading airlines are eagerly looking forward to the day when they will command the exciting new Lockheed Electra—*America's first prop-jet airliner.**

In the pace-setting Electra, surging jet power is combined with proven propeller dependability—enabling this giant luxury airliner to whisk passengers in and out of existing airports with runway room to spare. Aloft the Electra can *loaf* along at 400 mph!

*Purchased in quantity by American Airlines and Eastern Air Lines.

C-130 HERCULES, NEW PROP-JET COMBAT CARGO PLANE—Husky brother of the Electra. A 62-ton carryall, to transport men and materiel farther, faster and at less cost than any other plane! Now in production at Lockheed's Georgia Division, U.S. Government Aircraft Plant No. 6 at Marietta. As shown, a huge 5,000-gallon gasoline tank-truck can be driven up the ramp into the interior of a C-130. In background, Lockheed-built B-47 USAF jet bomber.

NEW JET-POWERED SUPER CONSTELLATION. Achieved by substituting prop-jet power for piston engines—a remarkable increase-in-speed transformation made possible by the rugged construction and advanced basic design of the time-tested Lockheed Super Constellations. Result: the fastest propeller-driven airliner in the world! The USAF C-121F and the U.S. Navy R7V-2 are now undergoing exhaustive flight testing.

T2V-1, CARRIER-BASED JET TRAINER. The world's safest jet plane. Embodies Boundary Layer Control and aerodynamically actuated slats on wing's leading edge.

F-104, STILL-SECRET JET FIGHTER. (Photo restricted.) A top USAF officer said: "This is a fighter pilot's dream. We feel confident that it is the fastest, highest-flying fighter in the air, anywhere."

THE BRIGHT FUTURE OF FLIGHT. At Lockheed's Missile Systems Division and at other Lockheed research centers, over 2,000 scientists are deeply engaged in projects involving rocket power, ram-jet engines and nuclear energy.

Lockheed

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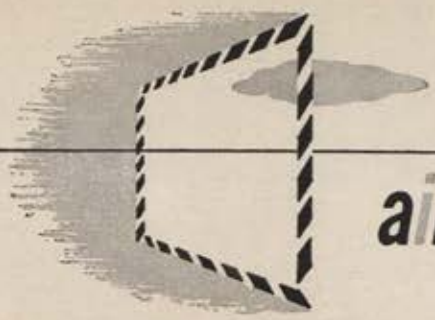
LOOK TO LOCKHEED FOR JET LEADERSHIP, TOO



air mail

Forty It Is!

Gentlemen: I'm miffed! September issue, page 49. I spent several years with the Fifth Air Force, doing special stories on the Fifth's aces, who led all our air forces. Dick Bong officially wracked up forty kills, *not* thirty-eight, to become our top ace (49th FG). Second top man was Maj. Thomas B. McGuire, who got thirty-eight planes.

Incidentally, speaking of the old Lightning, were you aware that our two top aces were P-38 pilots, and that of the ten leading aces of the war, four were P-38 pilots?

Martin Caidin
Rego Park, N. Y.

Not Entirely Unanswered

Gentlemen: Many thanks for publishing part of my long letter in the September issue. But still unanswered is the *big question:*

What does the military intend to defend and what will the military defend if we do not have a good, effective civil defense?

Robert E. Ream
Greenville, Ohio

• *We think the speech by Brig. Gen. Thomas Phillips, on page 60, of the October issue sheds some light on the subject.—The Editors.*

Missing the Boat?

Gentlemen: A this time, I'd like to express an opinion concerning AIR FORCE Magazine—it seems to me that the editors are missing quite an opportunity in not running a section entitled "Court of Last Resort" for those Air Force members who have had raw deals in the service, and have no other means of recourse.

Airman
AFB, Calif.

Housing Correction

Gentlemen: Reference is made to the information on housing at Ernest Harmon AFB, Newfoundland, in the September '55 issue.

Government housing is limited; however, private housing has improved considerably in recent months, and a determined individual can find housing within one or two months. There are three trailer parks available in Stephenville, and trailer owners can also arrange for trailer parking space on the grounds of private homes.

Rents in Stephenville range from $60 to $85 for unfurnished housing, and utilities average $22 per month in summer and $50 per month in winter.

It is possible that your housing compiler confused the Ernest Harmon area with that of Pepperrell AFB, which is near the metropolitan area of St. John's.

Maj. Robert B. Moore
Ernest Harmon AFB
Newfoundland

More Winners

Gentlemen: In your story entitled "Silver Medal Winners" which appeared in the September issue of Air Force, you indicated that you might publish the names of additional AFA Medal winners. Therefore, we would like to advise that here at New York University we had two medal winners, Cadet Lt. Col. Lawrence Jackman and Cadet Lt. Col. Brendan P. Foley.

Please accept our apology for not having sent this information to you sooner as well as our thanks for the awards.

Capt. Robert E. Brunke
New York University
New York, N. Y.

Survey

Gentlemen: Being a member of the USAF Recruiting Service and having kept up with your fine magazine for the past several months, I would like to request through you a favor of your readers.

As a recruiter-salesman, I share the responsibility of contacting former airmen for reenlistment. This is not the easiest duty in the Air Force, but we must keep selling and contacting daily. During my tour of duty with the recruiting service, there have been some pretty awful things stated about the service to me, and then by the same token, after this same former airman has been out of the service for an extended length of time, he completely reverses his opinions and cannot qualify for reenlistment.

To attack this problem, the Air Force has taken drastic steps to make service life more attractive for both the airman and his dependents. Among these are higher reenlistment bonuses, a longer time allowed after discharge to retain much of his former rank, and many other privileges that directly affect the family. These things are doing much to help us with the program, but there appears to be an element missing still. This is the answer I would like to get from the former airman, since it is he who did not reenlist and he must have some of the answers.

If I can get enough response to this letter concerning the personal opinion of this all-important former airman, I am going to evaluate the information and see if something cannot be done about it through my Group Commander. I believe, and I am sure a lot of people will go along with me, that we must hit this problem where it should be hit, and that stems from the individual himself.

Please include your rank at discharge and your date of discharge in your reply, and center your letter around the subject: "Why I Did Not Reenlist." Address your answers to:

T/Sgt. Rupert B. Kea
USAF Recruiting Station
Merced, Calif.

DEW

Gentlemen: Every generation has its

(Continued on page 7)

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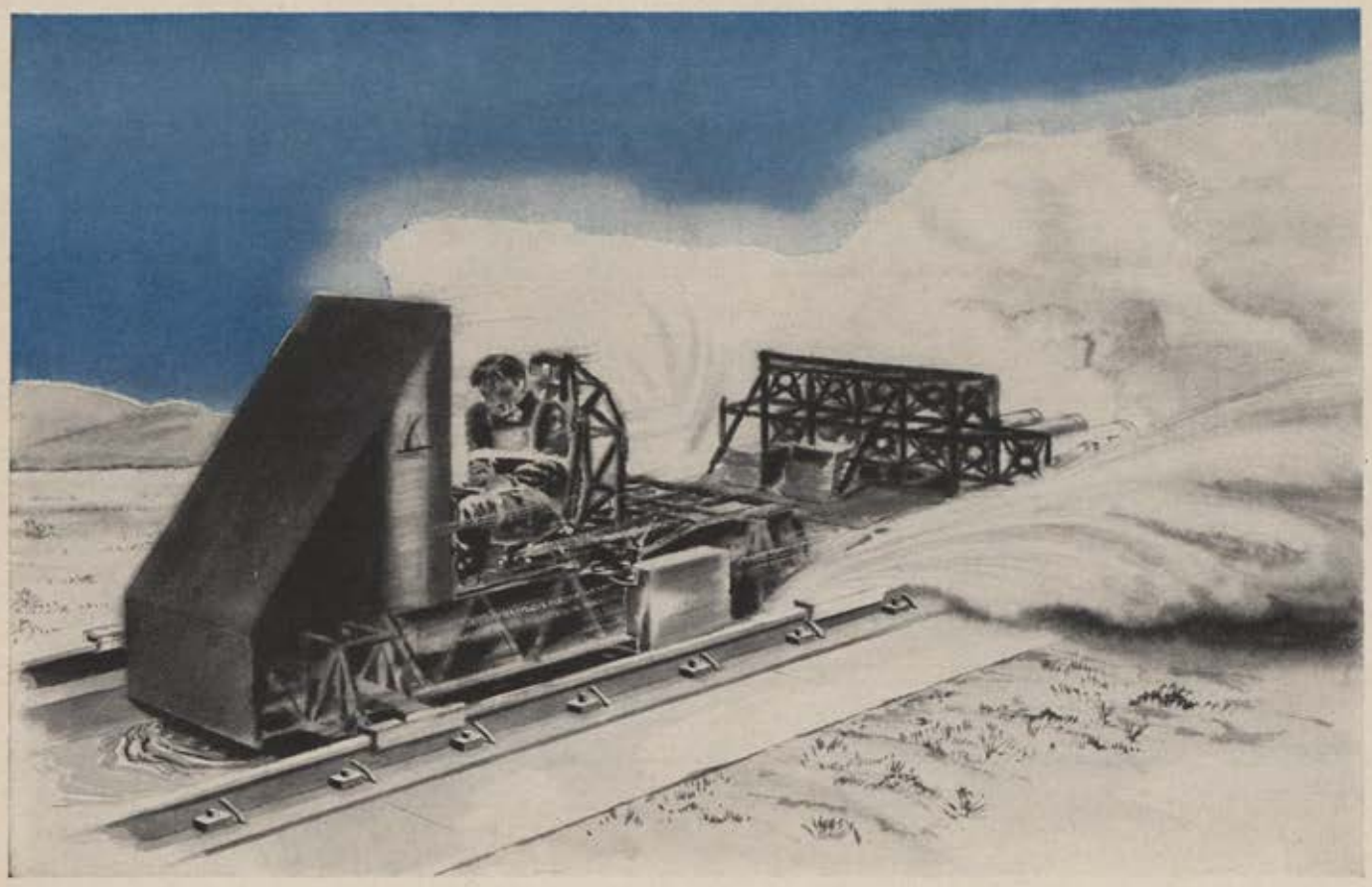

- SOLID- AND LIQUID-PROPELLANT ROCKET POWERPLANTS FOR MISSILE AND AIRCRAFT APPLICATIONS
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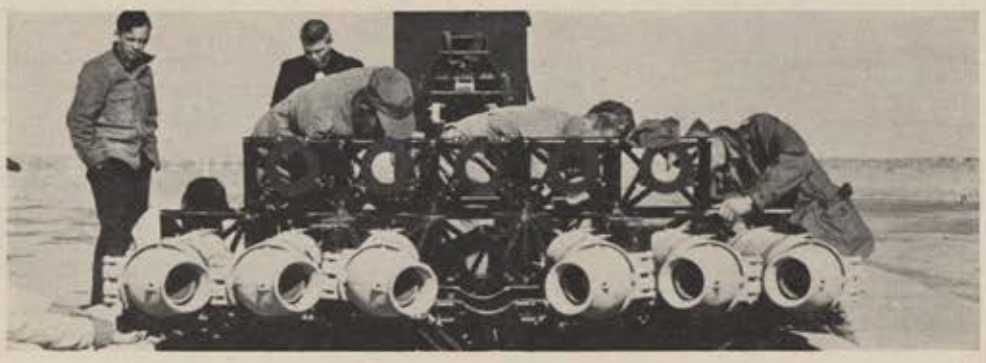
AEROJET-GENERAL NEEDS:

Chemical Engineers
Chemists
Electronic Engineers
Mechanical Engineers
Physicists and
Aeronautical Engineers

The high degree of safety and reliability of Aerojet-General solid-propellant rocket powerplants has been demonstrated by their repeated use on manned test sleds. Shown here is the Northrop sled which received widespread attention during deceleration tests conducted at Holloman Air Development Center, with Lt. Col. John P. Stapp, USAF, subjecting himself to deceleration rates up to 35 G's!

Power for the sled comes from six 5KS-4500 Aerojet-General JATOs, providing 4500 pounds thrust each for five seconds. Actually developed and produced for assisted-takeoff of heavy carrier-based aircraft, the use of the 5KS-4500 on the Northrop sled typifies the variety of applications for which the many existing types of Aerojet-General JATOs may be used.



Aerojet-General CORPORATION

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THE GENERAL TIRE

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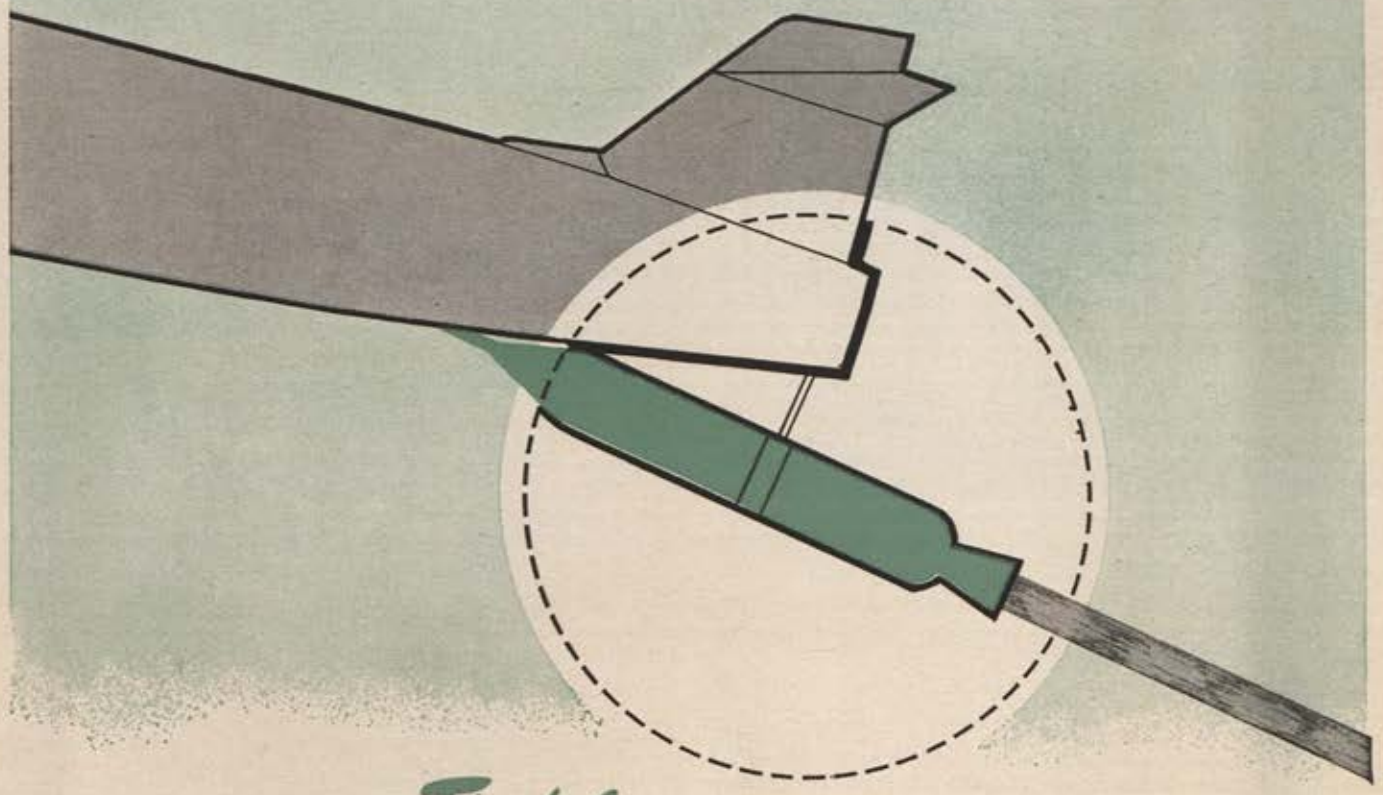
MORE POWER FOR AIR POWER

Focus on the Booster for Zero-length Launching



. . . a Thiokol® rocket motor

Much attention has recently been focussed on boosters required to launch missiles and aircraft in zero-length. "Thiokol" rocket motors can deliver the high performance required of boosters for these systems.

With "Thiokol" rocket motors, a broad range of thrust level and duration is available to fit virtually any zero-length launching system. The motors are practical for field use. They are of simple and rugged construction and will withstand rough handling, aging and temperature extremes without impairment of performance characteristics.

Advanced rocket motors suitable for zero-length launching are among the many achievements resulting from coordinated chemical research, design, fabrication, development testing and manufacture conducted by Thiokol's rocket development and manufacturing team.

Solid Propellent Propulsion and Power Units for:

ALL TYPES OF ROCKETS	GAS GENERATORS
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BOOSTERS	SHORT DURATION POWER PLANTS

ENGINEERS AND CHEMISTS

Become a member of Thiokol's rocket development and manufacturing team! We welcome inquiries from mechanical engineers, chemical engineers and chemists interested in the rocket field.

Thiokol projects include participation in development programs on the Hughes "Falcon" and many other classified projects.

Thiokol Chemical Corporation

SYNTHETIC RUBBERS • PLASTICIZERS • CHEMICALS • ROCKET MOTORS

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Elkton Division, Elkton, Md. • Redstone Division, Huntsville, Ala. • Longhorn Division, Marshall, Tex.

believers in the "Maginot Line" theory. Today many folks are counting on the DEW line to protect them. May I quote a few choice facts to those people from the "Handbook on Guided Missiles of Germany and Japan"? This Military Intelligence Division report of Feb. 1, 1946, shows this box score of the German V-2 missile:

Launched against England...	1,115
Reached target area.....	517
Number destroyed	0
Launched against Continent..	1,524
Reached Antwerp alone.....	650
Number destroyed	0

It doesn't take much figuring to see the large number of missiles produced, the fifty percent strike factor, and the utter failure to defend against the V-2. All this took place over ten years ago. I'm sure the Russians can do as well today. With the same number of missiles, the same fifty percent striking average, and only an increase in range they could knock out every one of our retaliatory SAC bases at one push of a master control button. Now where would that leave us?

Ernest F. Boruski, Jr.
Los Angeles, Calif.

Wastebasket Historian

Gentlemen: With the integration of two wings on this station recently, I witnessed an officer and an NCOIC looking at the first entry in each of a pile of manila folders from the deactivated unit, and complacently tossing the unwanted ones in a wastebasket. It was my sad need to ask permission to go through the container in search of any data that might be used in the Wing History. Upon observing my unusual conduct, a high-ranking officer asked if I got all my information in that manner. How could he know how nearly correct his question?

I have even found it necessary to request NCOICs to turn over to me the material already placed in their "Burn Log Folders" so that it is not destroyed through ignorance of its importance or laxity in using it in the supporting documents of the Monthly Histories.

It has become apparent to me that many Air Force personnel do not realize the need for, or the importance of, military history until such a need for it arises in the small confined world of each. When they find it non-existent in such time of need, there is a tendency to at once blame the Historian, not realizing that the latter is dependent upon them for the initial material from which to compile the history.

Furthermore, it is evident that higher echelons of the USAF need "teeth in the historical program." Personnel responsible for compilation on the lower levels of command are helpless without the support of their commanders and their higher headquarters.

I believe, as a former Army officer, as both an added-duty and full-time Historical Officer, and as an individual, that the Air Force can learn some lessons from the years of experience of the Army, Navy, and Marine Corps in terms of historical writing. The historical program now in use with the Air Force is nearly identical to that I used in Headquarters Seventh Army in Europe in 1952 and 1953. It sufficed at that time, and I see no reason why it cannot for the Air Force today. It is a service that has so much to tell, record, and be proud of. Why is it not used to the best of our abilities?

Richard A. Long
APO, San Francisco, Calif.

We're Against 'em, Too!

Gentlemen: On face value and what the Association represents, I will go along with the majority and say "job well done." On the other hand, I have looked very hard for some article in the newspapers or on the radio or TV where we as the Air Force Association stand on this infiltration of Communism. All the other veterans' organizations have come out flat-footed against the Communist party in our great country. We have sat back and said nothing. That is my big gripe against the Association.

Monroe Schaff
Tampa, Fla.

Not Exactly New

Gentlemen: Old CBI hands will not see anything new in the "new summer uniform" pictured in your August 1955 issue.

Bushcoats, shorts, and pith helmets had almost official recognition as the approved uniform in the jungles of Assam in the late war.

L. F. Brautigam
Tomball, Tex.

Chart Correction

Gentlemen: I would like to call your attention to an inaccuracy in the Photochart appearing on pages 84 and 85 of the September 1955 issue.

Although this material is listed as having been corrected to August 1, 1955, the Assistant for Operations Analysis is omitted from the line attached to the Deputy Chief of Staff, Operations. This position is occupied by Mr. LeRoy A. Brothers, who has been head of the Air Force's Operations Analysis program since 1946. He has occupied this position since 1954.

Hugh J. Miser
Actg. Asst. for Operations Analysis
DCS/O
Washington, D. C.

A Family Affair

Gentlemen: This $4 check for a one-year subscription represents the allowance and grasscutting wages of my thirteen-year-old son who is jet-happy and who cannot understand (1) why the Air Force won't take thirteen-year-olds and (2) that there is anything good or necessary about the A . . y, N . . y, or M . . . . . s (profanity deleted). His younger brothers and baby sister spend a disproportionate amount of their waking hours waving their arms and making ear-shattering noises. Sir, you have overdone this blue yonder thing.

Your letterhead states the Air Force Association is "an independent, nonprofit, airpower organization." So is my family. We should get along well.

Kingsley R. Smith
Clarksburg, W. Va.

Good Reference

Gentlemen: Being a member of the USAF and being continually questioned by friends and relatives, and especially my immediate family, about the location and general make-up of the various Air Force bases throughout the world, I was extremely pleased to see your September issue publish the information and map contained on pages 127 through 142. I took the magazine home and spent considerable time with my wife reading the information about the various bases and then locating them on the map.

I have just recently been assigned to the AF-ROTC program at Southern Methodist University, Dallas, Tex., and I would consider a reprint of this information a wonderful tool of leadership and counciling. A brochure containing such information could be used to great advantage in counciling prospective enlistees.

M/Sgt. Donald L. Harlow
Dallas, Tex.

Defections

Gentlemen: I believe your strength should be put in force to stop this practice of allowing scientists and other highly technical men in our defense setup to leave the United States and go to the Reds and give them the results of our many successful experiments—such as a headline the other day of a professor leaving for Russia.

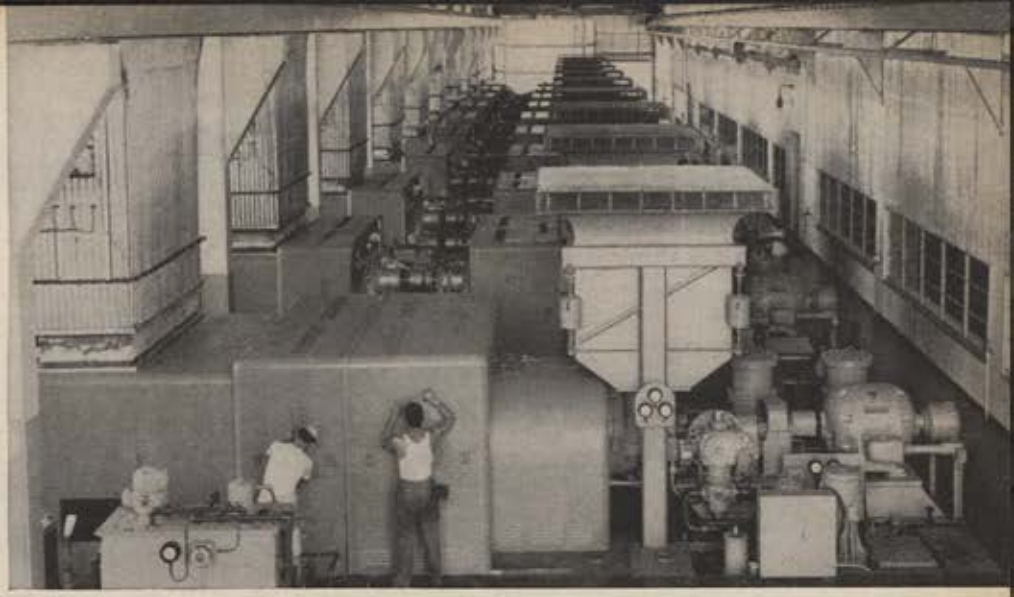
Lt. Jack Richmond
Hollywood, Calif.

CELESTIAL NAVIGATION—Link Aviation's high-speed, high altitude celestial navigation trainer; only such trainer capable of simulating trans-Polar flight. Trains navigators in techniques of guiding planes by the stars.

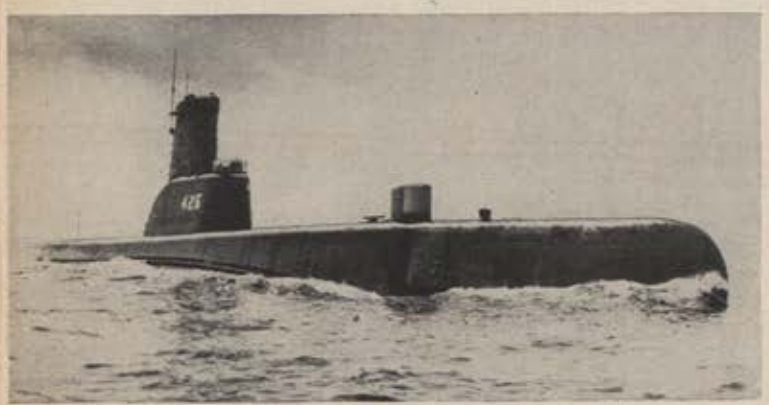
Vital Controls

The controls on the world's fastest submarine; the most advanced airborne navigation system known to exist; other similarly advanced military systems and equally advanced industrial equipment and control systems are outstanding examples of the work of the producing companies of General Precision Equipment Corporation. More than a dozen major industries are served by instrumentation and systems designed, developed and produced by GPE Companies.

Ten of the companies in the GPE Group—notably Askania, Kearfott, Librascope and Link Aviation—devote substantial resources to the development and manufacture of instruments, servos and controls. These are used in equipment and systems developed by these companies



PROCESS CONTROL—Askania controls regulate speed of the ten turbines which develop compression to maintain gas suction pressure in Creole Petroleum Corporation's giant, pile-supported oil drilling operation on Lake Maracaibo, Venezuela.



SUBMARINE OPERATION — Controls developed and produced by Askania Regulator Company are utilized to govern operation of U. S. Navy's modern Guppy type submarines.

MISSILE GUIDANCE —One of the many guided missiles equipped with Kearfott basic gyro reference systems, the B-61 Matador—U. S. Air Force's first successful ground-to-ground tactical weapon.

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● Manufacturing
●● Manufacturing and product development
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PRECISION MECHANICS, OPTICAL DEVICES, CERAMICS	●●●	●●	●●	□●●	●●	●●●	●●	●●●	●●	●●	●●	●●●
ELECTRICAL EQUIPMENT and COMPONENTS	●●●	●	●			●●●	●●●	●●	●	●●	●	●●●
ELECTRONICS	●●●	●●	●●●	●●●		●●●	●	●●		●●●	●●	●●●
HYDRAULICS, LIQUIDS PROCESSING, HEAT EXCHANGE		●●			●●●					●●●		
TELEVISION Studio, Theatre, Educational, Business, Industrial	●	●		●●●		●				●		
INSTRUMENTS, SERVOS, CONTROLS Hydraulic, Pneumatic, Magnetic, Electronic	●●●	●	●●	□●●		●●●	●●	●●		●●●	●	●●●
AIRCRAFT and MISSILE GUIDANCE, CONTROL, SIMULATION	●●●	●		●●●		●●●	●			●●	●	●●●
AUTOMATIC COMPUTERS and COMPONENTS	●●●	●	●	□●●		●●●				●●●		●●●
RADAR, MICROWAVE, ULTRASONICS	●●●	●	●●	●●●		●●		●		●		
MOTION PICTURE and AUDIO EQUIPMENT		●●●		□●●			●●	●●●	●●●		●●●	
NUCLEAR POWER COMPONENTS and CONTROLS	●●●				●●					●●		●●●
SYSTEMS ENGINEERING Aeronautical, Naval, Industrial	●●●			●●●	●●●	●●●				●●●		●●●

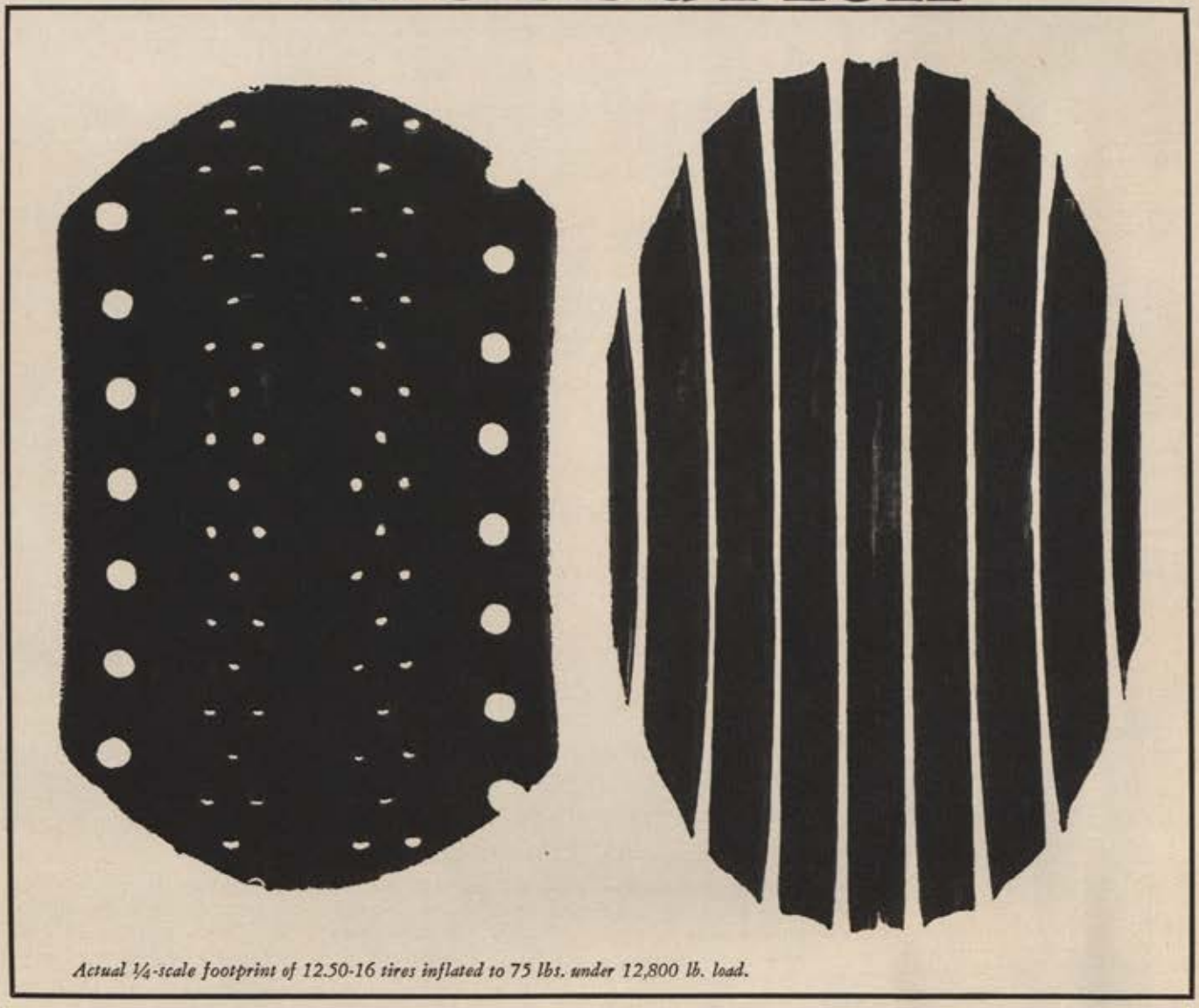
themselves, as well as in systems and equipment developed and produced by other manufacturers of advanced technological equipment.

All GPE Producing Companies work in the advanced areas of highly specialized fields and are engaged in the design, development, manufacture and sale of equipment which is closely related from a technical point of view. It is all precision equipment; it derives from similar fields of technical competence; it saves labor, increases productivity or achieves results which cannot be achieved with even limited use of on-the-spot manpower. The chart here shows the specialized fields in which the key GPE Producing Companies work.

In addition to specialization in its particular products and fields of technical competence, each of these companies has at its command, as required, the facilities and specialized techniques of the other GPE Companies in their respective fields. Interrelation of their resources is achieved through GPE's basic operating policy, GPE Coordinated Precision Technology. In all areas in which GPE Companies work, this coordination has been responsible for a wide variety of precision equipment of superior design and performance, embodying new, advanced principles.

A brochure relative to the work of the GPE Companies and GPE Coordinated Precision Technology is available. Address your request, or specific inquiries, to: GENERAL PRECISION EQUIPMENT CORPORATION — 92 Gold Street, New York 38, N. Y.

RESEARCH KEEPS **B.F.Goodrich** FIRST IN RUBBER



Actual ¼-scale footprint of 12.50-16 tires inflated to 75 lbs. under 12,800 lb. load.

Which tread gives more landings... Dimpled or ribbed?

YOU CAN JUDGE a tire by its footprint. The B. F. Goodrich tread pattern on the left gives 10% more landings before recapping, on the average, than the ribbed design on the right!

Why? First, take a good look at the more compact, more rectangular footprint of the B. F. Goodrich Dimpled Tire. That's the result of an overall improvement: the tread profile of the Dimpled Tire is designed to put more tread rubber to work and to spread the load more evenly—shoulder to shoulder. Unlike the conventional ribbed tire which places most of the load on the center ribs, the shoulders of the BFG Dimpled Tire bear their fair share of the load.

Second, notice the most significant difference between the tread patterns—the use of cup-like indentations in the B. F. Goodrich Tire. This unique design further reduces wear because the tread rubber around each dimple is compressed under load—making it more stable and much more resistant to cuts and tears.

Like the first high-pressure Tubeless Tire and the first 300 mph Tubeless, the Dimpled Tire is another example of B. F. Goodrich leadership in research and engineering. Latest example: the first aviation Tubeless Tires in commercial service are Dimpled. *The B. F. Goodrich Company, Tire & Equipment Div., Aeronautical Sales, Akron, Ohio.*

B.F.Goodrich
AVIATION PRODUCTS

Tires, wheels, brakes • De-Icers • Heated rubber • Fuel cells • Avtrim • Pressure Sealing Zippers • Inflatable seals • Rivnuts • Hose, accessories

INDEX TO ADVERTISERS

AIR FORCE

THE MAGAZINE OF AMERICAN AIRPOWER

Volume 38, No. 11 • November 1955

FEATURES

DEPARTMENTS

THE COVER

The two men in the rugged surroundings on the cover are students at the AF survival school at Stead AFB, Nev. Because of all the recent publicity about the school, we feel that Ed Mack Miller's story (see "Hike of the Horrible Hunger," page 35) is especially significant right now. Miller has concentrated on the most important function of the school—learning how to survive and avoid capture. The cover art is by Lou Nolan, of the staff of Jack MacLeod, our art director.

AIR FORCE MAGAZINE STAFF

By Wilfred Owen

There are now 30,000 rates and fares in effect for traffic moving on the world's scheduled airlines.

• • •

The trip from Los Angeles or San Francisco to Europe can now be made via Trans World Airlines without changing planes. The one-stop service, using New York for refueling, takes twenty-one hours.

• • •

There were 3,010 small plane accidents in the United States during 1954.

• • •

A joint Industry-Government Tall Structure Committee (referred to in Washington as JIGTSC) has been established to help resolve the competition for air space between aviation interests and the broadcasting industry.

• • •

Last year Pan-American's transatlantic passengers in-

cluded 6,000,000 chickens, 2,000,000 canaries, 2,700 dogs, two hedgehogs, and one bull.

• • •

When an animal goes traveling on Seaboard and Western Airlines his cage is tagged with a special label: "Handle With Love."

• • •

CAA radio communications in Alaska are being converted to a higher frequency band to eliminate sun-spot interference from police and fire department radios in the United States. Every twelve years these signals, bouncing off ionized layers in the upper atmosphere, head back to earth and raise havoc with other radio signals in the same frequency bands thousands of miles away.

• • •

The new Federal Airport Aid Program in effect for the next four years will provide for airport construction of approximately $500 million, including state matching funds.

• • •

Last year private aircraft owners in the United States flew more than a billion miles.

• • •

To taxi a jet bomber from the warm-up ramps to the end of the runway for take-off requires 300 gallons of fuel.

• • •

The CAA predicts that by 1965 the domestic airlines of the United States will be carrying 70,000,000 people per year, more than double the 1954 figure of 32,000,000.
—END

This small plant helps build the world's mightiest bomber

Sounds impossible? It's a fact. This small, neat plant does a big and important job in protecting national security. It is Plasteck, Incorporated, which produces illuminated panels of laminated plastic for the Boeing B-52, mightiest of the world's global jet bombers. The Poteau, Oklahoma, factory employs 125 workers, making it a small business by definition of the Federal Government.

But this plant could as well be a tool-and-die works in Indiana . . . a small and highly specialized manufacturer of aircraft fasteners in Alabama . . . a fabricator of sheet metal parts in California. It could be any one of about 3,500 small businesses, each employing fewer than 500 workers, which are subcontractors and suppliers for the B-52. There are also nearly 1,000 larger firms supplying everything from rivets to complete subassemblies for this "long rifle" of the Air Force.

Many of the small suppliers and contractors for the B-52 also furnish parts and assemblies for other Boeing planes: the B-47 jet medium bomber, the KC-97 aerial tanker, and the forthcoming KC-135 jet tanker-transport. But there are many *additional* suppliers, too, for these planes. Again, roughly three-quarters of them are small businesses.

This network of suppliers—small and large—skilled in aircraft work, provides Boeing, and the nation, an unique flexibility in undertaking new projects, and for quick expansion in the event of a national emergency. In addition, other manufacturers supply equipment for the B-52 and other Boeing airplanes under separate Government contracts: engines, radio, radar, autopilot, armament, and so on. In many cases these manufacturers, too, have their own small-business subcontractors and suppliers throughout the land.

B-52s are now being delivered to Strategic Air Command. As one of the most powerful protectors of our country's security, it is fitting that the B-52 should be a nation-wide project. Small, medium and large businesses in 35 of our 48 states help produce it.

BOEING

which do you want?

Money or the moon?

It was reaching for the moon which resulted in the development at Martin of one of the most dynamic engineering team operations in the whole new world of flight systems development.

Most of the people on that team are young and moving ahead fast. Do *you* know what's happening at Martin...and what tomorrow may hold for you here in the fields of aircraft, missiles, rocketry, nuclear power and space vehicle development?

MARTIN
BALTIMORE

AIRPOWER IN THE NEWS

By Lee Klein

■ **Defense Secretary Charles E. Wilson** has defended the Air Force's **SAGE—Semi-Automatic Ground Environment System**—project. The project, which the AF estimates will cost the government **$240,000,000 annually,** would give the Air Force a much-needed communications network for air defense. Wilson sent a letter to **Comptroller General Joseph Campbell** urging him to withdraw his "stop" order on the plans for the privately owned air defense communications network system. Campbell had ruled that the AF could not contract for the network in advance of regular Congressional authority. Wilson said Congress had, in effect, approved the project by voting money for its equipment.

■ **Pan American World Airways** has placed orders for **forty-five jet airliners** costing $269,000,000. The planes—the first commercial jet passenger aircraft ever built in the United States—should cut the transatlantic run to about six hours. **Boeing** of Seattle has signed a contract which calls for twenty **707 jet stratoliners** and **Douglas** has contracted to do twenty-five **DC-8s.**

■ From his bedside in Denver, **President Eisenhower** drafted and signed **a letter to the Russian Premier.** In it he stated that he was **"encouraged by the Russian consideration"** of his proposal at Geneva for exchange of military blueprints and mutual aerial inspection. The President said this country would be **willing to accept the Soviet proposal** of stationing inspection teams at key points in the two countries, **provided they would agree to his own proposals** of aerial inspections and exchange of military information.

■ Publication of **a joint Army-Air Force pamphlet** entitled "Transportation and Travel, Official Table of Distances, Foreign Travel," **caused a flurry of excitement** at the Pentagon. Intended to give military personnel **information regarding payment of travel allowances,** the pamphlet pin-pointed all US Air Force bases in Europe and Japan. Issued without any security classification, the document was hurriedly stamped **"for official use only,"** to prevent its being widely distributed. It has long been the policy of the Administration not to publish comprehensive lists such as this because it is felt that while the bases may have been mentioned individually in the press, a complete list would be of value to a potential enemy.

■ On October 3, **Dudley C. Sharp** was sworn in (*see cut*) as Assistant Secretary of the AF for Materiel, replacing Roger Lewis who returned to private life. He is **a native of Houston, Tex.,** and was president of the Mission Manufacturing Co., there before his appointment. In his new job, Mr. Sharp will be responsible for matters pertaining to procurement, renegotiation, industrial resources, transportation, communications, civil aviation, and AF participation in the Mutual Defense Assistance Program.

■ The world's **longest underwater telephone cable**—1,575 miles long—has been laid by **Western Electric Co.** for the AF. For use on the AF's guided missile test range, the cable will transmit signals from Cape Canaveral, Fla., through the Bahamas to Mayaguez, Puerto Rico.

■ Competition for **appointments to the Air Force Academy's second class** has begun. The AF announced that **members of Regular or Reserve** components should submit applications to their organization commanders **before November 30. Congressional nominations** must be received **by January 31, 1956.** Candidates must be at least seventeen and less than twenty-two years old as of July 1, 1956, and **must be physically qualified for flying.** The class starts next July.

■ Running a complicated organization such as the Air Force imposes a great **strain on key personnel.** Feeling that the health of these key personnel is **vital to the mission of the AF,** Headquarters USAF announced **a new policy aimed at maintaining physical fitness.** Members of the Air Staff have been told to see that the people under their command are given an opportunity **to participate in some form of physical exercise** about once a week. Major commanders will be authorized to grant **half-day exercise periods** to selected personnel. Primary targets will be officers who are approaching middle age whose duties and responsibilities impose a heavy burden. Key officers have also been urged to take their full leaves of absence.

Dudley C. Sharp, left, is sworn in as Assistant Secretary of the AF, Materiel, by AF Secretary Quarles. Mrs. Sharp and AF Chief of Staff, Gen. Nathan F. Twining look on.

■ **AIRPOWER NOTES.** . . . Unofficial reports indicate that **The Glenn L. Martin Co.** has landed a Navy contract to design and construct the **launching gear for the proposed man-made satellite.** . . . In one measure taken by the AF to cut its costs, **thirteen B-47 Stratojets have been dropped** from this fiscal year's delivery schedule. . . . **TAC's 450th Fighter Wing at Foster AFB,** Victoria, Tex., will be the first to be **equipped with F-100C Super Sabres.** Delivery is scheduled to begin in July 1956. . . . AF Secretary Quarles **has approved new architectural plans for the new AF Academy,** with the exception of the controversial Chapel. . . . Production is to begin immediately on a **new four-engine turboprop airliner by Vickers-Armstrongs, Ltd.** The new plane—named the Vanguard or Vickers 900—will carry ninety-three passengers at a **speed of 400 mph.** This exceeds the speed and capacity of the Vickers Viscount. . . . **Gen. Alfred M. Gruenther,** Supreme Allied Commander in Europe **says NATO is not yet ready to stop an all-out attack,** but that it could make any aggression "unprofitable" in a few years. . . . Because of the **delay in construction** of its permanent Academy at Colorado Springs, the AF **will enlarge the temporary facilities** at Lowry AFB, Colo., and limit classes to 300 cadets. The move, originally scheduled for 1957, has now been pushed back to 1958. . . .

(Continued on following page)

Federal Civil Defense Administration engineers foresee **a warning system in American homes** to supplement the present siren warning system. . . . **Lockheed** has received an order in excess of $100,000,000 **for new F-104A jet fighters** for the AF. . . . **AF Secretary Donald A. Quarles,** speaking before the **Aviation Writers Association,** said that "the most dangerous thing" confronting the nation today is that peace can be attained by relaxing our defense effort. . . . According to the Atomic Energy Commission, **the Russians are continuing their tests of nuclear weapons.** They recently set off another nuclear explosion. . . . **The Mackay Trophy for 1954** has been presented to **SAC's 308th Bombardment Wing, Hunter AFB, Ga.,** for a 10,000 mile-non-stop flight made by two of the unit's B-47s from Hunter to Europe and return. . . . The **17th Tactical Missile Squadron** was recently formed by TAC at Orlando AFB, Fla. This is the **fourth TM-61 Matador squadron.** Two squadrons were deployed to Germany last year and the third is in training at Orlando. . . . Marshal of the RAF, **Sir William Dickson,** has suggested that American and British Air Forces be combined in a war under one head. Sir William indicated that he felt having the **supreme command in the hands of an American** would be logical in view of the preponderance of US airpower. . . . Some 30,000 airmen and 800 aircraft are scheduled to take part in **the joint Air Force-Army exercise Sage Brush** in Louisiana. The operation—the largest such maneuver since WW II—was due to begin this month and end December 15. The **F-100 Super Sabre,** the **F-84F Thunderstreak** and the **B-57** tactical bomber will participate in the Tactical Air Operations. Maneuver Director and Unified Commander is **Gen. O. P. Weyland,** commander of the Tactical Air Command.

■ PERSONNEL NOTES. . . . **Qualified Airmen** can now volunteer for duty with the **Ground Observer Corps** as instructors or in other assignments. If selected they will be **assigned to three-year tours** at detachments in the US in localities of their choice when possible. Pertinent facts on qualifications are found in interim change number three to **AFM 35-11.**

■ This month, the AF initiated **a new policy making air movement the primary method of overseas travel** for AF personnel and their dependents. Some members will continue to travel by surface means, and **dependents may elect to travel by surface,** but officials estimate that by January 1957 at least eighty percent of AF members and dependents will be travelling by air. The policy **will mean a saving in time lost** from duty assignments.

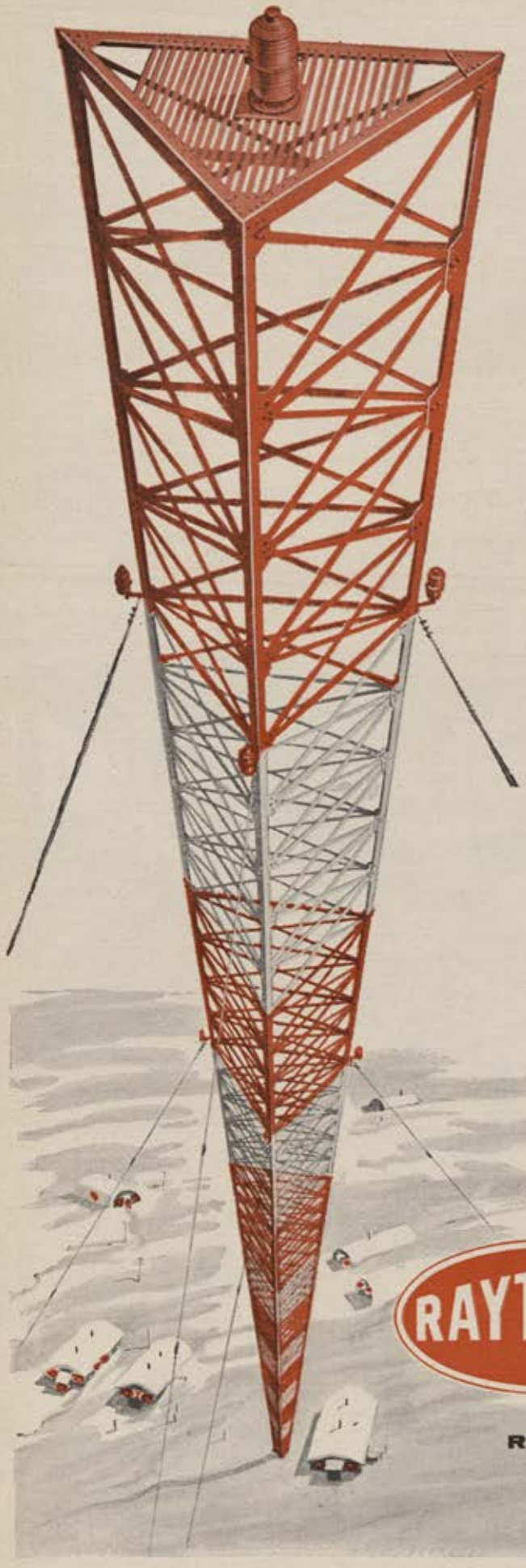
■ The Air Force has **plans for about 45,000 family housing units** on sixty-six AF bases and installations. The authority for the building extends **up to next September 30.** The design and construction will be done by civilian contractors under **rules established by the Federal Housing Administration.**

■ AF Secretary Quarles has announced that the **Air Materiel Command** now has direct operational **control of all depots of the Far East Air Force.** This is the first step taken by the Air Force to set up **a long-range logistics plan** for simplified world-wide operations. It makes possible **rapid shifting of materiel support** for operations in various parts of the world.

■ **The Tactical Air Command's 18th AF** will take part in the **Navy's Operation Deep Freeze** in the Antarctic next fall. The planes will fly some 2,000 nautical miles to a spot about 400 miles west of Little America. The AF's planes **will airdrop and deliver about 500 tons** of construction equipment and supplies.

■ A record **25,153 dependent children** of Air Force families overseas **have entered schools** this fall in eighty-three elementary and twelve high schools, all operated by the Air Force. This figure represents **an increase over last year's total** of 19,362 children attending overseas schools.

STAFF CHANGES . . . **Horace M. Wade, Joseph R. Holzapple,** and **Joseph J. Preston** were recently promoted to brigadier general. . . . **Brig. Gen. Clifford H. Rees,** former deputy for Operations of the Central Air Defense Force, ADC, Grandview AFB, Mo., has become Commander of the 20th Air Division, ADC, Grandview AFB. . . . **Maj. Gen. Morris J. Lee** has been released from duty as Director of Personnel Planning, DCS/Personnel and assigned to the 1100th USAF Hospital, Bolling AFB, Washington, D. C. New Director of Personnel Planning is **Brig. Gen. William S. Stone.** He had been Deputy Director. . . . On December 1, **Brig. Gen. Ivan L. Farman** becomes Assistant Deputy Commander for Weapons Systems (Electronic Systems), ARDC. He has been Assistant Chief of Staff, Communications, Allied Air Force Central Europe, APO 11, New York. . . . Also on December 1, **Brig. Gen. Herbert M. Kidner,** Judge Advocate General of USAFE, will report to the 1100th Personnel Processing Squadron at Bolling AFB, Washington, D. C. . . . In October, **Brig. Gen. William E. Rentz** reported to the Office of the Assistant Chief of Staff, Installations, at Hq., USAF for duty as Director of Real Property. He had been Chief of Staff of the Technical Training Air Force at Gulfport, Miss. . . . **Maj. Gen. Phillips W. Smith** has been retired in the grade of major general. He had been Comptroller, Air Materiel Command. . . . Early next year, **Brig. Gen. Hollingsworth F. Gregory** will become Commander of the Air Force Office of Scientific Research, ARDC, Baltimore, Md. He is presently Air Attaché in France. **Brig. Gen. Donald D. Flickinger,** present commander of the Office of Scientific Research will report to Detachment 1, 6590th Special Activities Squadron, ARDC, Brussels, Belgium, for duty as Commander of the European Office of ARDC. . . . **Brig. Gen. William M. Garland** has been removed from the Temporary Disability Retirement List and retired. . . . **Brig. Gen. Don R. Ostrander** has been released from duty as Director of Development, ARDC, and assigned as Assistant Deputy Commander for Weapons Systems (Guided Missile Systems), ARDC, Baltimore, Md. . . . **Maj. Gen. Ralph P. Swofford, Jr.,** has been released from assignment as Commandant of the USAF Institute of Technology, Air University, Wright-Patterson AFB, Ohio, and assigned as Director of Research and Development, DCS/Development. New Commandant of the Institute of Technology is **Maj. Gen. Julius K. Lacey.** . . . In September, **Brig. Gen. Benjamin O. Davis, Jr.** was released from duty as Vice Commander, Thirteenth AF, and assigned duty as Commander, Air Task Force 13, FEAF, APO 63, San Francisco, Calif. . . . **Brig. Gen. James W. McCauley** has been released from duty as Commander of the 26th Air Division, ADC, Roslyn AF Station, N. Y., and assigned as Vice Commander of the Eastern Air Defense Force, ADC, Stewart AFB, N. Y. **Brig. Gen. Thayer S. Olds,** formerly Commander of the 40th Air Division, SAC, Turner AFB, Albany, Ga. became new Commander of the 26th.—END



RADIO WITH A ROUND-TRIP TICKET

COZI—short for Communication Zone Indicator—is a new and different type of "radar" developed by the Air Force and Raytheon. It gives a big assist to high frequency radio contacts by telling which frequencies to use for best communications to any area—and whether the signal is being jammed.

COZI is also working for the Voice of America and Radio Free Europe. It's one more example of Raytheon's ability to handle tough engineering problems in any range of frequencies . . . and of "Excellence in Electronics."

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THE FASTEST FLY WITH THE J-57

In the Air Force, J-57 turbojet engines power the fastest fighters—including the holder of the official world speed record. In the Navy, J-57s power the fastest carrier-based aircraft, fighters capable of supersonic speeds in level flight. The mighty B-52, new strength of the Strategic Air Command and the fastest bomber, is powered by J-57 engines, as is the fastest transport now flying, the 707 prototype jet tanker-transport.

In all of these powerful aircraft, and in many others, Pratt & Whitney Aircraft's J-57 advanced turbojet engine has been chosen to meet the exacting requirements of high thrust rating, reliability and efficiency.

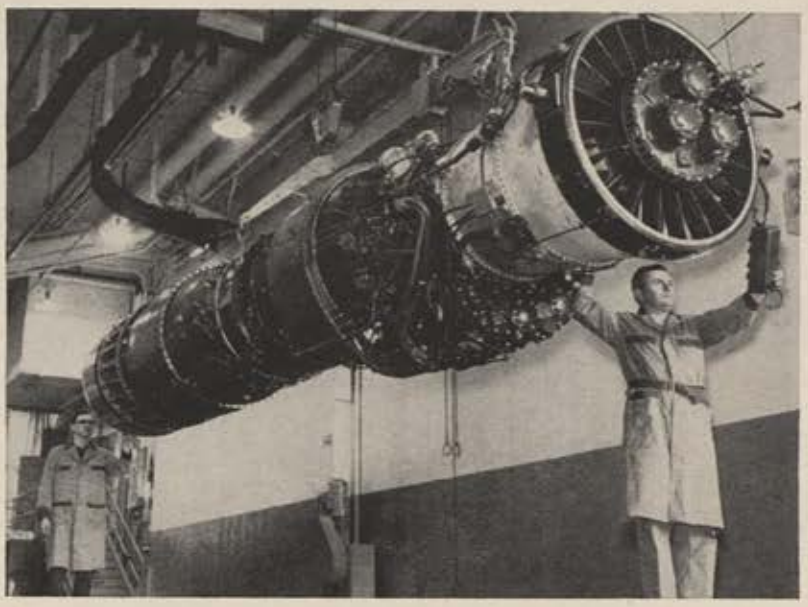
The leading land-based and carrier-based fighters, the new mainstay of the heavy bomber fleet, and the jet transports are all designed to take advantage of the performance of the J-57 engine. Pratt & Whitney Aircraft's J-57 is continuing to make its vital contribution to American air strength.

1. SUPERSONIC RECORD HOLDER—The North American F-100C holds the official world speed record, 822.135 miles per hour. Already in operational use in the USAF Tactical Air Command, the F-100C Super Sabre can deliver an atom bomb at high speed.

2. MIGHTIEST OF THE BOMBERS—The Boeing B-52 Stratofortress uses eight J-57 engines hung in pods under the wings. Now in units of the Strategic Air Command, the B-52 can be refueled in flight to extend its range as needed. Speed is over 600 m.p.h., ceiling over 50,000 feet.

3. JET TANKER-TRANSPORT—Boeing's 707 prototype, with four J-57s, is the fastest transport and the first of a new family of advanced jet aircraft. The Air Force has ordered production of a tanker-transport version, the KC-135. As a commercial transport, the aircraft could carry from 80 to 130 passengers, cruising in the 550 m.p.h. range.

4-5. FASTEST NAVY FIGHTERS—The Douglas F4D Skyray, left, with delta wing, set a 753.4 m.p.h. record on a three kilometer straightaway run. The new Chance Vought XF8U-1 Crusader, right, with swept wing, features a trim, lightweight airframe and uncluttered design. Both are equipped with afterburners, and can exceed the speed of sound in level flight.



THE POWERFUL J-57—Pratt & Whitney Aircraft's efficient J-57 provides more than 10,000 pounds of thrust. Afterburners increase the basic thrust greatly for short periods of operation. The engine delivers rapid acceleration and is economical of fuel, adding to the high performance of the world's fastest, most powerful combat aircraft.

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This new basic trainer makes it possible for the fledgling pilot to take a big step forward in the mastery of the techniques of twin jet flight.

As in actual air training, both instructor and pilot "fly" side by side at dual controls in the ME-1. Realism is duplicated to the point that for the first time in any ground training device, actual "G" forces are reproduced in the cockpit and corrolated with conditions of flight.

Here again, Link precision engineering is keeping pace with aviation progress . . . helping to provide better trained pilots for America's defense.

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Airpower's Hollow Shell

'Our Insecurity Today Rests in a Lack of Concept, a Lack of Education and a Lack of Interest'

By Gill Robb Wilson PRESIDENT, AIR FORCE ASSOCIATION

IN MY judgment today the airpower of the United States is a superstructure built upon the sands. We have an Air Force which is capable of carrying out certain roles and missions, and within itself, that is an excellent accomplishment. We have an industry that is capable of producing weapons capable of doing the jobs that we have to do. But back of that there is almost a vacuum of national airpower. I feel that the job of the Air Force Association during the coming months will be to help put foundations under the superstructure that we have.

What military aviation is to the job of national security, civil aviation is to the security of business. The Air Force and the air arms of the other services have one function and that is to preserve the freedom of the skies of the world for trade, prosperity, the growth of the arts and sciences, and the civilized movement of humanity. That is what Mahan once said seapower was for. Mahan never stressed the battleship except as a power to convoy the tradesmen of the sea and to keep the sea lanes open and free. That's exactly what airpower should do for the air lanes. In this sense military and civilian airpower are indivisible.

At Versailles, when the treaty was being discussed, some of us protested to the gentlemen who were putting the world treaties together that they should not permit Germany to reestablish its civil aviation. We attempted, with all the fervor that we had, to tell them that airpower was an indivisible thing. Their viewpoint prevailed because they were the best scholars and students and historians of their time. They convinced us that it was necessary to set up a strong buffer state between the revolution that was going on in Russia and the Western democracies. So we had to go along with the reconstituted industrial Germany, strong in airpower. But from Versailles, we came back to the tiger-skinned floor of Billy Mitchell's home down in Middleburg, Va. and started to plan for range and power, because we knew World War II had inevitably been written into the books.

Yet today, when I look upon the airpower situation in the United States, I find that back of the military establishment, which in itself is excellent, there is no hard core. And this means that this nation is in grave danger today. Not so much from the Soviet Union or her immediate capabilities, as from our own lack of foundations in airpower. I mean exactly that.

I run a magazine. There isn't a month that almost every element of American aviation industry doesn't advertise in that magazine—for technicians, for engineers, for help of some kind or another.

I was talking to an official of one of the best-known American airlines within the past forty-eight hours. He told me that he was having to lease, or to offer for lease, three DC-6s because he didn't have crews to fly them.

Some months ago, I became excited over the lack of kids on American airports and I asked the Civil Aeronautics Administration to tell me the average age of the private pilots in the United States and they came up with the figure of thirty years. I asked them, then, for the average of commercial pilots of this country, exclusive of military and airline pilots, and they came up with a figure of thirty-three years. I then asked them for the average age of the airline pilots of America and they came up with the figure of thirty-six years. The average age of the men who flew the fighters in Korea was thirty-six years, and the average age of Curt LeMay's boys who are shoving the B-47s and B-52s around is probably higher.

I want to pose to you the problem "What would America be today if she had no citizens under thirty years of age?"

There will be seven million boys sitting in American high schools as of this afternoon. Seven millions of them, and of the seven million, less than 20,000 of them will be in direct touch with any form of aviation education in the sciences, in the vocations or in the arts.

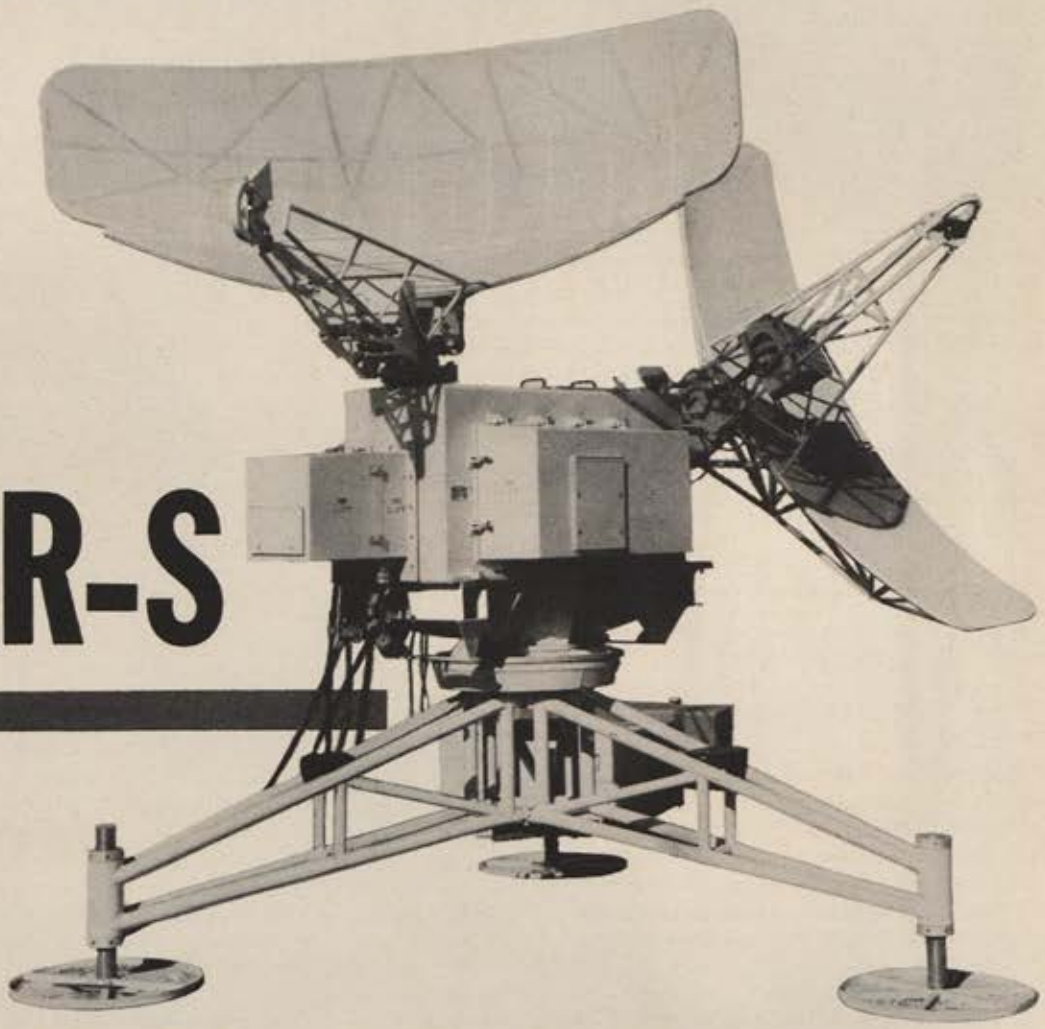
The future stretches ahead of us with incomparable opportunity. The air ocean that touches every shore, and has the potential for a one-world family is here for our utility. Beyond the fact that we are presently making use of it, we have nothing. So, when you hear one of these days that the Air Force Association is going to make a determined and continuous attempt to put aviation education into the public schools of America, you'll know that we're not doing it as a mere gesture or because we lack other elements of military or civil aviation to work upon. We're doing it because we're genuinely and seriously frightened over the fact that our opposite numbers in Russia and elsewhere in the world are pointing their energies at the foundations of airpower and we have thus far totally neglected them.

We can't talk about having military airpower security as long as less than ten percent of our total population has even been in an airplane. We can't talk about being an air-minded nation while there are proposed statutes to wipe out the airports at fifty-nine communities, and some of them large communities. We can't talk about air defense as long as the concept of air defense is not understood at the editorial levels and the publishing levels and the educational levels of the United States.

The insecurity of the nation today rests, not merely in the lap of technical weapons to match the weapons of the Soviet. The insecurity of the nation rests basically and fundamentally in the lack of concept; in the lack of education; in the lack of interest. How we solve these problems is going to make or break the power of the Free World and the exercise of democratic government in a period as short as the next twenty-five years.—END

Condensed from a speech to the Washington, D. C., Advertising Club, October 11, 1955.

NOW SPAR HAS A PARTNER



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SPAR-S combines its *Surveillance* capability with the tested and proven accuracy and ease of operation of SPAR's *Precision Approach.*

SPAR-S is comparable — and often superior — to more complex and cumbersome types of radar equipment. *And it costs about one-fifth as much!* The rugged reliability and pin-point accuracy of SPAR-S cuts down the hazards of heavy traffic and foul weather in crucial terminal areas. Light in weight, easy to transport, simple to set up and operate — SPAR-S reduces the requirements of trained manpower to a minimum.

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SHOOTING THE BREEZE

WITH JOHN F. LOOSBROCK, MANAGING EDITOR, AIR FORCE MAGAZINE

A Chicago *Tribune* story by Wayne Thomis included this little gem from Thule. It was posted—for a few hours—on a bulletin board near the base CO's office:

"It has been brought to my attention that too many of the personnel are displaying signs of happiness, such as smiling, saying hello to one another, being considerate, etc.

"As your superior, this type of attitude is disturbing. Therefore as of this day all personnel will portray moods of depression and bitterness. Reason:

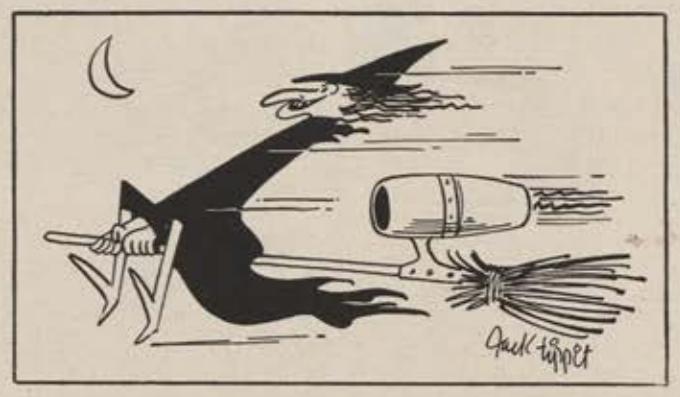
"Well-established rumor has it that all Thule inhabitants develop a stare and shook condition. It is my duty therefore to remind all personnel that you will be shook —forthwith."

It was signed: "Your psycho-neurotic, manic-depressive, hypertense liaison coordinator."

☆

Along with some 4,000 other spectators we hied ourselves to the Air Proving Ground at Eglin AFB recently for the semi-annual firepower demonstration. Part of the crowd included members of the Joint Civilian Orientation Conference. The Proving Ground Command put on a good show. We hadn't been down since 1949 and so the advances in numbers and kinds of weapons and aircraft were particularly striking. Most impressive were the toss-bombing demonstrations, in which an F-84F and a B-57 lobbed 1,000-lb. general purpose bombs at targets miles away from the release point. They weren't hitting the proverbial pickle barrel but with baby A-bombs they wouldn't have to.

Barbara Stevens, Marquardt Aircraft receptionist, adds a touch of pulchritude to the last shipment of J-47 jet engine afterburners to leave Marquardt after overhaul. Marquardt overhauled 357 of these afterburners for the USAF at a maximum rate of thirty a week. Output was ahead of estimates as a result of several unique tooling inventions and a new "production line" technique. (We're sorry, but they didn't supply us with the other statistics.)



☆

A good deal of the competition between the services arises from varying interpretations of roles and missions as originally outlined at Key West. Fellow we know says Navy insistence that submarine pens are legitimate naval targets (thus establishing a requirement for Navy strategic bombers) is about like the Army insisting on its right to bomb enemy tank factories.

☆

Apropos the Air Force budget—in a New York speech, General Twining gave all of us some food for thought when he pointed out, "We think 137 wings is the right goal—right now. However, this can be changed up or down—depending on whether an aggressor gets stronger or weaker.

"Furthermore," said General Twining, "our 137 wings must be good wings, not merely a force level.

"It would be possible to have either a strong or a weak 137-wing Air Force. Naturally, any limitation on funds available to us would affect the strength and quality of our force."

In this context, present programming is cutting too close to the bone for comfort, particularly since the Soviet air-power threat shows no signs of abating.

☆

A little known aspect of the Air Force was spotlighted recently when Brig. Gen. Wayne O. Kester was elected president-elect of the American Veterinary Association. General Kester is Assistant for Veterinary Services, Office of the Surgeon General, Headquarters USAF. AF veterinarians inspect all AF food, assist with nutritional aspects of aviation medicine, and overseas provide a veterinary public health service to prevent spread of food-borne diseases and animal diseases communicable to man.

☆

A correspondent of ours passed along a letter from a friend dealing with a clipping from the New York *Times*

(Continued on following page)

"Tex, I'm afraid you're not quite suited for fighters."

Sunday Magazine. In an article on the new AF Academy, Hanson Baldwin, military editor of the *Times* and an Annapolis graduate, wrote, "It is no secret that during World War II the tradition of sticking by the ship, of continuing to an objective was hard to implant in an Air Force with few regulars. Air Force officers were the first to proclaim the need for a peculiarly air service academy —which would inculcate in its students the traditions and discipline essential to greatness in air combat." We recommend that Navy-advocate Baldwin read Brig. Gen. Dale Smith's article, "Who Says the Air Force Has No Tradition?", in the September issue of AIR FORCE Magazine. We also suggest that Baldwin ponder the story of the famous Doolittle raid on Tokyo from the decks of the aircraft carrier *Hornet*. The Doolittle raiders took off from the carrier ten hours ahead of schedule and 200 miles further from Japan than originally planned because a Japanese vessel had sighted the *Hornet* and presumably had warned Tokyo. One of the raiders, Capt. Thad Blanton, subsequently said, "Despite the premature take-off, which practically guaranteed that many of us would die and most of us would crash at the end of the mission, the extra crew men ran all over the carrier offering $100 and $150 to anyone who would relinquish a spot for them. They did that right up to take-off time. There were no takers."

Come off it, Hanson.

☆

It's official now—the falcon is the mascot for US Air Force Academy inter-collegiate athletic teams. The bird —famous for its swift flight, its powers of vision, and its courage and ferocity—is a member of the hawk family. It is generally gray and brown on the head, neck, and upper body; the throat and under body are white or cream colored with dusky bars and arrowheads; the bill is blue and the legs and feet are yellow. The falcon has a long life span and shows its greatest courage in defense of its nest. Out at Lowry AFB, site of the temporary Academy, five young falcons started training as mascots by feeding— appropriately enough—on goat and mule meat.

Latest addition to our editorial staff is Air Force veteran Don Baldwin. Don is a recent graduate of the University of Virginia. His home town is Danville, Va. He had newspaper experience, on the Washington *Post* and the Arlington (Va.) *Daily*, before entering the Air Force in October 1950. His AF tour was spent in public information work—at Burtonwood AFB, England, with the Third Air Force, and at McChord AFB, Wash. He left the AF in November 1953 with the rank of staff sergeant.

☆

Stutterers, take heart. Research at Ohio State University, done under contract to Air Research and Development Command, indicates that stuttering is often easier to understand than normal speech if noise interference is high, as is often the case in aircraft communications systems. A radio message comes through better if the speaker says, "wuh-one, tuh-two" rather than "one, two."

☆

More on brainwashing, from the Philadelphia *Bulletin:*

"As part of their military training some GIs are being 'brainwashed' under conditions that simulate the hardships they may meet in Communist prison camps. It is hoped that they will consent to wear some sort of identification after finishing the course. Otherwise some poor girl may marry one of them and have a nervous breakdown when she finds she has a husband whose iron will can't be shaken even by poor food and incessant haranguing."

☆

Members of the Society of Illustrators have presented the Air Force with a bundle of paintings and sketches of Air Force activities around the world.

☆

An Associated Press dispatch from London quotes Maj. Gen. Roscoe C. Wilson, commanding the Third Air Force in Britain, to the effect that American airmen are marrying British girls at the rate of 250 per month.

(Continued on page 27)

A/1C James R. Bartlow has won Soldier's Medal for heroism twice. Maj. Gen. Reuben C. Hood Jr., congratulates him.

With MATS, his supply line can never be more than hours long

No matter where our men may be, Military Air Transport—MATS—insures that supplies can reach them within hours . . . practically *anywhere*.

Essential here is the Douglas C-124, largest operational cargo transport. Able to fly 2000 miles non-stop with a 25-ton payload, the C-124 can handle 96% of all military equipment *without disassembly*. During Korea it not only flew high-priority cargo, but worked as a hospital plane evacuating the wounded.

Looking to tomorrow, Douglas will have even larger and faster cargo transports.

BASIC TO MATS OPERATIONS—THE DOUGLAS C-124

Defense is everybody's business. Development of the C-124 shows how Douglas works with military planners to have aircraft ready when needed. But human skills are also needed to fly and service these planes. If you want a career, the Air Force offers opportunity.

Depend on **DOUGLAS** First in Aviation

THAT OTHERS MAY LIVE

This is the motto of the Air Rescue Service, proved by their actions. Last year alone, the 40 Air Rescue Squadrons flew 3,379 missions totaling 25,144 hours to give aid and comfort to 20,195 people, military and civilian, rescuing 1,949 from certain death. Grumman is proud to build the Albatross amphibians flown by the USAF Air Rescue Service.

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Designers and builders of supersonic Tiger, transonic Cougar, S2F sub-killer, Albatross amphibian, metal boats, and Aerobilt truck bodies.

Airman's Bookshelf

Several of us have been complaining about the tendency of Air Force officers, particularly the high-ranking ones, to shy away from writing. Recently, however, there have been a few more glimmerings of light in the literary darkness. Several top military experts have consented to do forewords for Air Force books, and two more generals now have full-fledged volumes under their by-lines.

Among the more recent forewords have been those by Tooey Spaatz in Brig. Gen. Dale O. Smith's *US Military Doctrine* and General Twining's in Clay Blair's *Beyond Courage*. More are just off the press. Jimmy Doolittle contributes a fine chunk of philosophy in the foreword to W. R. Lundgren's *Across the High Frontier*, Maj. Chuck Yeager's story (W. R. Morrow, $3.75)—an outstanding biography of an outstanding officer. TAC Commander Gen. O. P. Weyland provides a personal note of orientation to Maj. Ward Millar's *Valley of the Shadow* (David McKay, $2.95)—a story of courage, determination and faith which should be read by every AF officer.

Full-fledged authorship is achieved by Gen. Laurence S. Kuter with his personal account entitled *Airman at Yalta* (Duell, Sloan & Pearce-Little, Brown, $3.00). As Gen. Hap Arnold's personal representative, General Kuter took part in the deliberations with Stalin, Churchill, President Roosevelt, and an entourage of military and civilian VIPs. It isn't nearly as dry as the title might lead you to believe.

The Air Force's Director of Information Services, Brig. Gen. Robert L. Scott, has a new book out this month. It's a novel, *Look of the Eagle* (Dodd, Mead & Co., $3.50), the story of a veteran pilot who has been yanked off flying status and chained to a desk.

To go back to *Valley of the Shadow*, AF jet pilot Ward Millar (currently a student at the Air University's Air Command and Staff College) broke both legs bailing out of a crippled fighter-bomber over North Korea. A North Korean Red captured him and set the broken legs so badly that Millar couldn't walk upright. With the aid of a Christian North Korean soldier, Major Millar escaped from a miserable prison hosptial and began to hobble his way across the barren countryside. Under fire from the pursuing enemy, he spotted a USAF combat formation overhead. While our fighter-bombers pinned down the enemy, an Air Rescue helicopter lifted both Millar and his North Korean friend to safety.

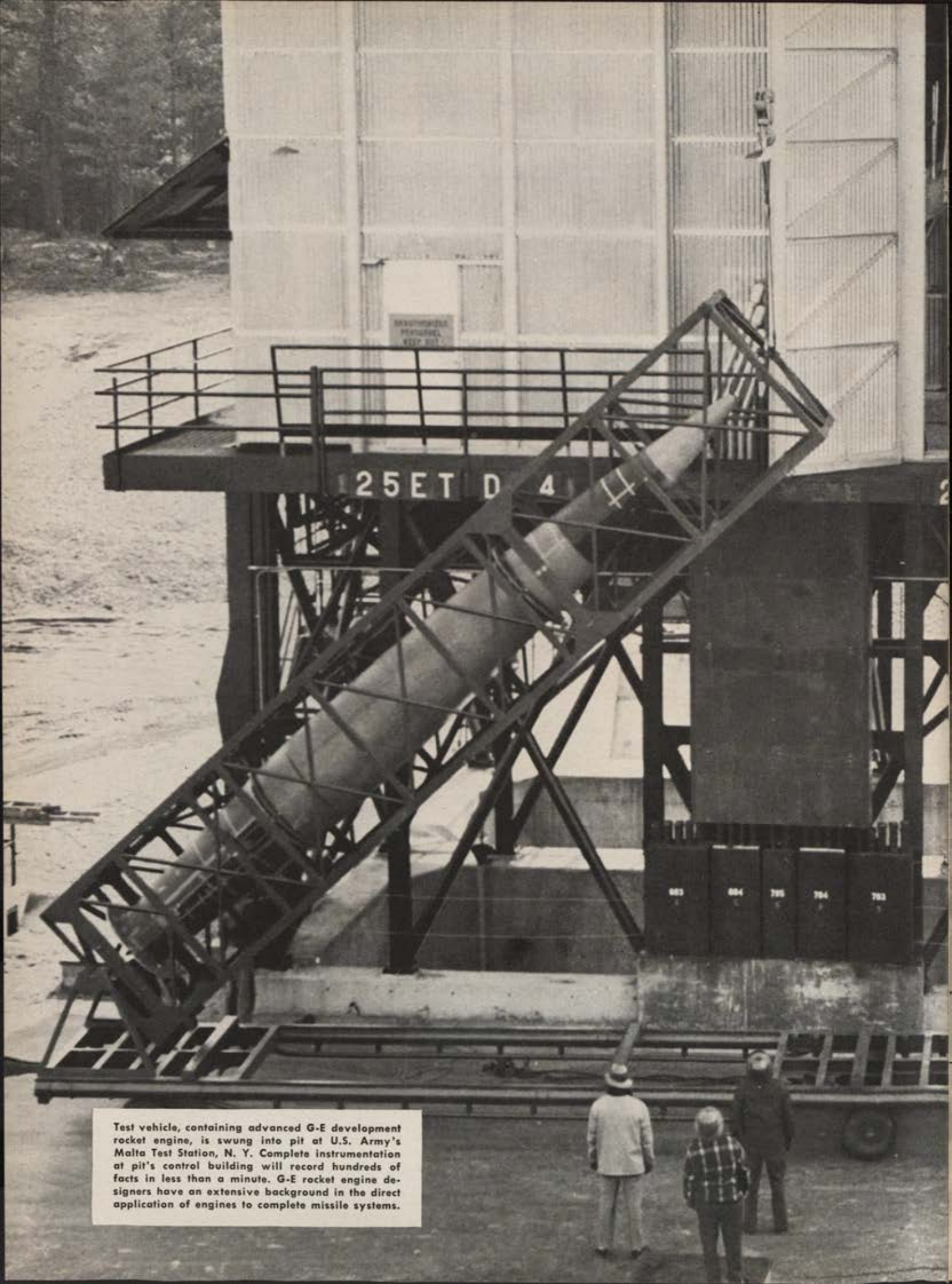
Escape Through the Pyrenees, by John Dunbar (W. W. Norton, $2.95), is the tale of an Eighth Air Force bombardier in World War II, who bailed out of his flaming B-17 and landed on a French coastal island. Disguised as a French peasant Dunbar made his way to the mainland, evaded the German occupation forces and crossed the Pyrenees alone only to be tossed into a Spanish prison. He finally was released and returned to England.

Another World War II take is *General Leemy's Circus*, subtitled *A Navigator's Story of the 20th Air Force in World War II* (Exposition Press, $3.00). The author, Maj. Earl A. Snyder, was in the first B-29 raid on Tokyo and fourteen subsequent 20th AF missions. The "General Leemy" in the title is the Japanese name for LeMay.

With hurricanes making more news each year, a timely new book is *The Hurricane Hunters*, by Ivan Ray Tannehill (Dodd, Mead & Co., $3.00). It's the story of the pilots who fly the hurricane circuit and includes, in layman's language, a history of hurricanes which is most interesting in itself. Turns out the first pilot to see one of the big storms from the inside out was an AAF Colonel, Joseph B. Duckworth, who penetrated one off Galveston in an AT-6 on July 27, 1943.

In a different vein, three new publications deserve mention. In *Frontiers Are Not Borders* (Coward-McCann, $2.00) retired Air Force Col. Stedman S. Hanks writes on foreign policy. Scholars will delight in the *Soviet Treaty Series*, compiled and edited by AF Col. Leonard Shapiro (Georgetown University Press, Vol. I, 1917-1928, $10.00; Vol. II, 1929-1939, $12.00; $20.00 a set). Colonel Shapiro is on the Air War College faculty. The series is a collection of the essential documents of Soviet diplomacy and is a scholrarly and definitive work.

Three paper-backs with Air Force atmosphere recently found their way to our desk. Frank Harvey's *Jet* (Ballatine, $.35) is a collection of seven Air Force short stories originally published in *The Saturday Evening Post*. Hugh Fosburgh's stimulating 1953 novel, *From the Air*, is out in paper form (Bantam Giants, $.35). It's the story of a B-24 crew and its role in the reduction of the Japanese stronghold of Truk. And S/Sgt. Leaford C. Williams writes of his experiences as an interpreter in the Korean truce negotiations in the Tokyo-published paper edition of *Rebirth of a Nation*. —END



Test vehicle, containing advanced G-E development rocket engine, is swung into pit at U.S. Army's Malta Test Station, N. Y. Complete instrumentation at pit's control building will record hundreds of facts in less than a minute. G-E rocket engine designers have an extensive background in the direct application of engines to complete missile systems.

ROCKET ENGINE PROGRESS AT GENERAL ELECTRIC

Weight Cut More Than 50% In NEW G-E Rocket Thrust Chamber

General Electric has tested an advanced rocket thrust chamber which weighs 50% less per pound of thrust than previous chambers of similar design. This marks another step in General Electric's continuing progress in developing better engines for the aviation industry. The significant weight reduction was achieved without compromising performance and reliability characteristics typical of G-E engines.

General Electric has been cutting rocket engine weight ever since G-E engineers ran the first U.S. tests on German V-2 engines in 1947. For example, the use of lighter materials and the transfer of start-up components from missile to ground are two weight reduction methods G.E. has pioneered. Experiments with new materials and new means of fabrication promise even more improvements on future engines.

Advanced Facilities Speed New Rocket Engine Development

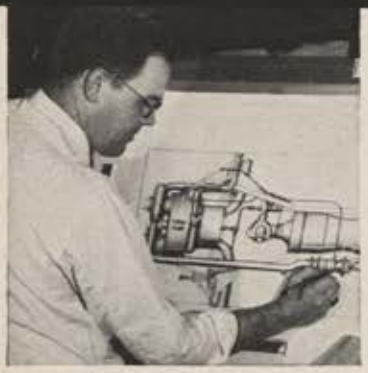
Today, General Electric is able to undertake a wide variety of rocket engine development work. The Company's rocket team, as an integral part of the Aircraft Gas Turbine Development Department, has access to the nation's most advanced privately-owned aircraft engine development facilities, as well as support from other G-E labs.

These facilities spell more and faster development progress for rocket engine programs and they underline G.E.'s increased capability for developing a wide range of rocket systems, subassemblies and components. To find out how General Electric can meet your specific rocket engine needs, contact a G-E Aircraft Specialist through your nearest G-E Apparatus Sales Office. 234-2

Progress Is Our Most Important Product

GENERAL ELECTRIC

ADVANCED ROCKET ENGINE DEVELOPMENT ACTIVITIES AT G.E.



OVER EIGHT YEARS' EXPERIENCE PER MAN is the record of G-E rocket engineers. This experience is now paying off in advanced powerplant designs under development.

STRONGER, LIGHTER ALLOYS being developed at G.E. will give rocket engines greater reliability, higher performance. A technician at the Company's Materials Laboratory checks a new alloy for tensile strength.

PREDICTING ADVANCED G-E ENGINE PERFORMANCE with electronic computer cuts development time, enables G-E engineers to ascertain optimum design characteristics of engines still on the drawing board.

G-E Facilities Available to Support Rocket Engine Programs:

- Component Development Laboratory
- Materials Laboratory
- Research Laboratory
- General Engineering Laboratory
- Combustion Laboratory
- Metals and Ceramics Laboratory

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These vital missions are typical of the C-119's ability to haul big payloads anywhere—and they prove, once again, the dependable all-weather performance that has helped make the *Flying Boxcar* world-famous.

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Kinetics Division, N. Y., N. Y. • Speed Control Division, St. Augustine, Fla. • Stratos Division, Bay Shore, N. Y.

The Requirements For Modern War

TRADITION VERSUS PROGRESS

Field Marshal Viscount Montgomery
DEPUTY SUPREME COMMANDER, ALLIED FORCES, EUROPE

■ It appears that Field Marshal Montgomery, one of the most respected commanders of ground armies in modern times, will be making an annual appearance in this magazine. It was only last December that we printed his views as set forth in an address to the Royal United Services Institution, at Whitehall in London. The following pages are devoted to a condensation of a similar appearance before the same audience in mid-October of this year. There is a certain amount of irony in the fact that some of the most pungent prose concerning the proper role of airpower in today's military world should come from a man whose prime background has been that of an infantry commander. Yet it was Montgomery, working with his air commander, Sir Arthur Coningham of the RAF, who hammered out the doctrines of air-ground cooperation in the North African desert—doctrines which essentially still guide the air forces and armies of the Free World. The Field Marshal is a thoughtful student of warfare in its broadest implications, unfettered by parochial bounds imposed by his own service background. Product of a nation which places a high premium on tradition for tradition's sake, he is able to say with equanimity that when tradition clashes with progress, it is tradition which should give way. We do not attempt to insist that all who read his views should agree with all of them. But we do insist that what he has to say must be of intense interest to those who wish to understand modern war and the reasons why airpower has become the prime instrument with which war is to be waged if, God forbid, it should come upon us.—The Editors.

THE EARTH consists of large masses of land and great areas of water. Man is primarily a land animal, and control of the land masses has always been for him a priority objective in war. Many centuries ago he found that a skillful use of the water areas of the world opened up the land masses to him, and enabled him to pursue his objectives the more easily.

Man then learned to fly, and he soon found that unless he could dominate the skies above the land and the water, he could not carry out satisfactorily the land and sea tasks necessary for his purposes. Against this background we reach the conclusion that in global war today and in the foreseeable future, airpower is the dominant factor. Therefore, the first object in our strategy in the Western Alliance must be to win command of the air.

Secondly, it will be essential in an East-West war that we should control the seas. That is, we must be able to use the seas ourselves and deny their use to the enemy.

Next, while the air battle is raging and the struggle for control of the seas is in progress, it will be vital to prevent enemy land forces from occupying the territories of the Western peoples, disrupting our way of life, and using our industrial and production organization for their own purposes. If these things were to happen we would lose—no matter what successes we gained in the air and at sea.

The armed forces necessary for this strategy must be organized in such a way that they are geared to a nuclear capability, with all that this entails in the use of firepower and in the saving of time and manpower.

These forces must be suitably organized for the conditions of peace time activities, which may at any time include small or limited wars in which nuclear weapons are unlikely to be used, *and also* for the conditions of world war in which nuclear weapons would certainly be used by both sides.

The problem will then be to get a right balance between air, sea, and land forces, and one that will suit the needs of the national problem and also enable the nation to play its full part in the alliance.

In addition, a sound civil defense organization is vital in each national territory and this must be under military direction and control.

All these requirements must be provided within the financial limits laid down by governments. The economics of defense are becoming a vital problem today.

The Revolution in Weapons

We are in the midst of a revolution in military affairs, brought about by scientific advances in the development of nuclear weapons and the means of delivering them. As a result, the capability to destroy is reaching unprecedented proportions. Certain changes in warfare will follow, because of this revolution in weapons. I will name two which are very important and will have an impact on future defense organization.

First will come a change in the tempo of war. Stockpiles of high-yield weapons will create such destruction early in a war that the phase of decisive operation will begin almost at once. It is clear, therefore, that the forces which are essential for the conduct of operations during the first phase must be "in being" in peace, and be immediately available on mobilization. There will be no time in which to train these forces after the outbreak of war.

The second point is that, because of the increased tempo of war, we must be able to execute our plans with speed and efficiency at once. The side that can execute its plans the most effectively *from the very beginning*, will gain the advantage. We must also be able to sustain our operations in the face of continuing destruction of a magnitude previously unknown. . . .

'Change is inevitable . . . Progress is not inevitable. Progress depends on courage to make decisions to meet the needs of the times.'

Command of the Air

We can master the air only if we destroy the enemy air forces. We shall never be able to do this unless we organize and control the air forces of the western alliance as one single mighty weapon of airpower.

The first task in global war is to win command of the air. Victory in this operation will go to the side that is superior in executing sustained operations in the face of unprecedented destruction.

'In global war today and in the foreseeable future airpower is the dominant factor.'

The blows that are launched against the enemy in the global air war must be timed and directed as part of a single great campaign. The Western alliance must have the means of centrally controlling all moves in the global struggle for command of the air. . . .

Tactical Air Forces

It [is] my opinion that the development of guided missiles and short-range rockets will force us to recast completely our present organization of tactical air forces. These are highly vulnerable so long as they are tied to long, easily distinguishable concrete runways in forward areas.

By increasing the number of airfields in order to get greater dispersion, we are solving only part of the problem. We must also change the *nature* of the problem for an enemy, so that he will not be able in one surprise nuclear

blow to eliminate a high proportion of our offensive capacity.

The solution lies in so dispersing our means of delivering blows against an enemy, that these could not be located easily and would not be a fruitful target for nuclear attack. We must, in fact, evolve equipment, weapons, and techniques whereby our aircraft, our vehicles of delivery, can be launched without the use of large airfields. We must develop zero-length launchers and rocket-assisted take-offs, using pierced steel planking airstrips in fields through the countryside; possibly a flight of six aircraft could operate from each airstrip. . . .

Logistics

We shall be fighting the air war at 700 knots or more. But we still have a logistic system that moves at fifteen knots.

I consider there is a requirement for air transport on a gigantic scale. We should start now to build a world-wide air transportation capability to meet our deficiency. If we are to sustain air operations in the great air battle, the weapons and the men and the supplies needed by the air forces must move at hundreds of knots, not fifteen. Air transport is the only way to do this.

This opens a wide range of thought. For the Western air forces, air supply is essential. But would it not help to solve other problems?

An expert once said: "Air transport is the *best* means to get supplies to most places, it is the *only* way to get supplies to some places, and it is the *fastest* way to get supplies to any place."

I agree with him.

I do not suggest for a moment that we can move everything by air, or that air transport could replace our sea life line in any foreseeable future. Until we have great nuclear-powered air freighters, or something of that sort, we shall always need our ships and navies to protect them. Indeed, as things stand today, if the navies lose control of the seas the Western alliance would have to go out of business.

But we need air transport on a far larger scale than we have today, to move men and essential munitions of war quickly. These must be moved at the same speed as the battle, particularly the air battle.

The Economics of Defense

The nations of the Western alliance are straining under defense budgets which are heavy and painful. Ahead lies a vista of ever-increasing government expenditure and wage claims. In this country the battle against inflation is on. All nations are looking for ways and means of reducing defense budgets and, in the case of the bigger nations, the problem is rendered the more difficult in that they have to be prepared to fight two kinds of war, conventional and nuclear. In general, limited or small wars call for conventional weapons. But once war becomes unlimited and global, nuclear weapons would be used from the outset by both sides.

'We want to release the air forces from bondage and forge them into one mighty weapon.'

'The more we mess about with old organizations designed for conditions that will not recur, the further we shall get from the right answer.'

In war, offense and defense alternate. The attempt to create an adequate organization *for both* is becoming increasingly expensive. Where is the money to come from to provide all that is needed in this nuclear age?

I consider that we shall build up an adequate defense within the definite limits of economic possibilities only by making a completely new approach to the problem, and by working on the principle of economy of force.

The Problem of Three Fighting Services

Before airpower became a weapon of war, it was reasonably clear in which direction the responsibilities of the armies and navies lay. The navies were concerned with the war at sea, and the armies with the war on land. Even then, navies considered they needed their own soldiers for certain functions, and marines became a part of navies—and still are.

The advent of airpower changed the whole scene. Armies and navies saw, and still see, in airpower a way of concentrating great firepower for their particular tasks, a way of distant reconnaissance and of striking the enemy beyond the range of guns. The cry went up for air forces to support armies, and for air forces to support navies. They each got what they wanted, and some more than others.

This surely is *not* the way to use the decisive instrument of warfare. We want to release the air forces from bondage and forge them into one mighty weapon.

What has gone wrong is that today each service tries to be self-contained and in a large measure it succeeds. In this struggle between the services there is duplication, and naturally wastage. On the other hand, *so long as we have three fighting services*, there is a need for each service to have certain additions if it is to carry out its functions efficiently, and this principle must be accepted. Let us examine this problem for a moment.

Navies require aircraft for locating and destroying submarines and for the defense of fleets at sea. So far as we

(Continued on following page)

can see at present, aircraft cannot be operated economically or efficiently in mid-ocean against submarines, or indeed against raiding cruisers, unless some form of floating airfield can be provided there. For these reasons there may always be a need for vessels from which to operate aircraft. But with progress in vertical take-off and landings, we should aim to design something smaller and cheaper than the present aircraft carrier. We could then dispense with the *present form* of aircraft carrier, which is very expensive.

> ***'Looking into the distant future, we must take as our objective bringing the three services more closely together—even to the extent of combining them into one.'***

There is also a definite role for navies in the offensive use of short-range ballistic missiles fired from submarines, or from ships specially designed for the purpose.

Armies need their own limited facilities for intercommunication, for artillery spotting, and possibly for *short-lift* air transport in forward areas. Armies also need long-lift air transport on a vast scale; but this must be provided by air forces, since it involves the whole realm of command of the air.

Air forces need air-sea rescue services, and units of ground airmen to defend their own bases.

Once we go beyond these broad limits, there is no restraint. The service "empires" expand; overlapping and duplication begins; we run into grave financial problems.

If there is an apparent need to go beyond the broad limits I have outlined, then I consider there are three things wrong:

(a) The services do not trust each other.

(b) Service chiefs are compelled, possibly against their will, to be protagonists of their own service.

(c) Wrong policy or plans have been made.

The above are my views, in outline, on the way we should approach the problem, having in view the definite need to balance expenditure on defense with economic possibilities and practical realities.

What it amounts to is that there must be a new approach to the whole problem. But again we run head-on into a difficult problem.

The keyword of the old world is tradition; the keyword of the modern world is progress. These two guiding principles are in direct opposition to each other. I hold the view that when the two meet, if a compromise cannot be found it is tradition that must give way. Only by so acting will the new approach be successful.

One Fighting Service?

I am quite certain about one thing. The more we mess about with old organizations designed for conditions that will not recur, the further we shall get from the right answer. . . .

Looking into the distant future, we must take as our objective bringing the three services more closely together—even to the extent of combining them into one. Until this is done we limit ourselves to approaching, but not achieving, an ultimate goal of economy of force in the real sense of the word.

Progress and development in the modern world have outmoded the old conceptions of the organization of military forces. But we cannot see this, so strong are our habits and traditions. All the great nations today have three services—sea, land, and air. This separate existence of the three services results, in every nation, in waste of money, waste of manpower, and waste of time.

If the world were static, and present conditions could be projected indefinitely into the future, there would not be the same urgent reasons for change that exist today, except of course the permanent need for economy of force in manpower, materials, and finance.

But the greatest fact of modern times is that change is inevitable—change in politics, in economics, in techniques, in fact in every field. Progress is not inevitable. Progress depends on courage to make decisions to meet the needs of the times.

The impact of scientific progress makes it essential that we shall be able and ready to adapt ourselves to changes. But the present organization of military forces is incapable of adaption to changes, neither quickly, nor economically, nor efficiently.

A factor which influences the problem is the intermingling of functions in modern war. Ground forces require the support of air forces; air forces require protection of

> ***'Air transport is the best means to get supplies to most places, it is the only way to get supplies to some places, and it is the fastest way to get supplies to any place.'***

their bases; both are served by ships which have to cross the oceans bringing fuel, food, and ammunition.

Navies at sea in war and in peace are greatly dependent on flying machines of many types; in addition they can, in many parts of the world, participate directly in the land/air battle with aircraft operated from ships. Today, all these intermingled tactical functions must be coordinated by joint staffs, by committees, by agreements between services. I would add that any agreements reached are always compromises, and are seldom the best and most economical solution.

In basic matters there is continual disagreement between the three services of a nation, and in some cases there is definite friction. There is hidden suspicion at all levels between the members of all services, in varying degrees. There is a continual tendency for duplication of administrative services and facilities in all the fighting services. There is wastage of personnel through the maintenance of obsolete or obsolescent functions in all the services.

When some function becomes obsolescent, vested inter-

(Continued on page 55)

Though not too long in mileage, the hike at Stead AFB is an ordeal because of such terrain as this.

Ever eat sirloin snake, porcupine shish-kebab, or grubs on the halfshell? At Reno's 'Home of the Walking Air Force' they've assembled a hardy crew of Timber Tigers to train air crews in survival techniques. Want to be a man again? Then take a nine-day trek with only a handful of dehydrated chow. Hush, man, it's terrible if you're on . . .

THE HIKE OF THE HORRIBLE HUNGER

By Ed Mack Miller

Students at the survival school are taught to "live off the land." Parachute tepees in the background are good examples of the usefulness of parachutes to downed airmen.

THE snows came early and hard in the fall of 1846 in the Sierra Nevadas. A group of pioneers, California-bound from Illinois and Iowa, was trapped by the blizzard. In jerry-built shelters they fell to quarreling over who was at fault as they waited for the snow to stop.

But the snows continued, and their ordeal by hunger began. As days and weeks passed and no help came, some of the travelers went mad. Some died —or were killed.

A few of the less delicate members of the famed Donner expedition, however, survived to reach the Sacramento Valley. But they were noticeably close-mouthed when people asked how they survived, what they had eaten.

They had to be.

Because they had survived by eating human flesh.

* * *

Oddly enough, today, in the shadow of Donner Summit in Nevada, near the same Truckee River that the Donner party forded 109 years ago, an Air Force school is teaching airmen how to survive—in a more civilized manner—the ordeal by hunger that drove the Donner party to cannibalism.

Stead Air Force Base, twelve miles northwest of Reno in Lemon Valley, is now headquarters for the Air Training Command's 3635th Combat Training Wing (Survival). Its mission is to show air crews how to live off the land in desert, jungle, Arctic, or mountain country. The "timber tigers" who run the school are boot-hard men, most of whom have learned survival techniques first-hand the hard way—either in combat or through crashes or bail-outs in some of the most alien climates on the skin of the globe.

The instructors at Stead have one of

(Continued on following page)

Home was never like this, but cooked meat of almost any species is a treat when you're hungry.

After fashioning some fishing equipment from his survival gear, one of the students tries for a trout. Stead AFB restocks all the streams in the area.

Eating porcupine not only fills your stomach, it gets rid of a real pest.

HUNGER HIKE — CONTINUED

the toughest jobs in the Air Force—driving men to the end of their endurance while feeding them next to nothing and chivvying them, all the while, almost out of their minds. But it's all for a purpose, a good one. The Arctic, the desert, the sea, the jungle are littered with the bodies of men, say the top officers at Stead—men who died because they wouldn't learn, who wouldn't think, who quit while they still had a chance of winning.

The idea for a survival school was originally conceived by Gen. Curtis E. LeMay, commander of SAC, who decided that, should his men have to fly one-way missions and then "walk out," he would provide a training course to show them the best ways for saving their own lives. Since then, happily, scientific advances in aerial refueling have canceled the one-way policy; the escape, evasion, and survival school has, however, proved its worth and, as its name implies, survived.

The course came into existence December 16, 1949, as SAC's 3904th Composite Wing, at Camp (now Fort) Carson, Colorado. The wing was moved to Reno early in 1951, and in September of 1954 the school was enlarged to make it an Air Force-wide training operation. Now it trains not only SAC crews but also MATS, TAC, FEAF, and other Air Force units—and also Navy, Marine, RCAF, and RAF air crews.

Still expanding, the school will be processing some 850 men a month by the end of 1955. Almost 30,000 men have already taken the course at what the permanent personnel call "The Home of the Walking Air Force" (as their insigne they have adopted, unofficially, the drawing of a battered GI boot, lofted by a pair of silver wings, *volant* on a field of blue).

In the beginning, training was based on the standard SAC survival kit and other take-it-with-you equipment. The school's leaders soon found, however, that something more was needed. In too many cases men had to bail out without the gear—or had it ripped from them in the process of bailing.

And so, as one of the Stead top brass says: "We had to go back to the stone age. We had to revamp the program to teach the people to work with their hands, using only what tools they could improvise from their surroundings or from their parachutes."

The Stead instructors soon found that survival was not so much a matter of hanging hardware on the man as it was of teaching a single fact: "Survival is in the head."

"A man thrown out in the wilderness is like a traveler searching for a motel," says one of the senior officers. "He looks at the land to see if he likes what it has to offer. It has to give him shelter, food, and perhaps eventually clothing. Everything is there if the man knows where to look—and if he has been trained to use it."

Survival is a grim business at Stead. Even the base itself is Spartan-like. The landscape is raw umber, sagey, drab; the facilities for "comfortable living" on base are almost nil. There are neither NCO nor airmen's clubs (Reno is, however, a lusty substitute). There are no swank mess halls, theaters, swimming pools. Stead is just a place to work.

Maybe that's why they're doing such a good job at Stead.

• • •

The tall master sergeant with the horsey face, pronounced sideburns, and Texas accent uncoiled out of the phone booth and looked off across Reno to the hills.

"I'll bet even the snakes here have chapped bellies—and the vultures have rickets," he said. Then, getting back to business, he spoke to the swarthy airman who was plugging nickels into a slot machine: "I called the field. They got bunks for us, but not for the officers. They'll have to grab a hotel room tonight an' report in the morning." The big sergeant looked down the main drag. Slot machines. All over slot machines.

"Mmmm," said the stocky airman. "So where do we go first?" The big sergeant picked up a giveaway booklet entitled *This Week in Reno*.

"Hey, lissenta this." He dug an elbow into the chest of the shorter man. "Here we are. 'Metered jackpots on the philanthropic machines give you immediate appraisal of the tremendous pay-off.'"

"Mmmm," said the airman. "What does that mean?"

"I dunno. Let's go find out."

"I'll blow five bucks," said the burly airman. "That's all. Not a stinkin' nickel more."

"Sure," said the big man. "Sure ya won't."

• • •

Reno's "philanthropic" machines send the incoming students out to Stead pretty sick of money-hungry civilization and looking forward "maybe to getting in shape again up in the hills."

Stead doesn't disappoint them. "On the first day," said one veteran of the course, "they start to separate the adults from the adolescents." It becomes immediately obvious that the course is not meant for weak-wristed types or the open-toed-sandal sort of guy. One look at the instructor staff is in itself a sobering glance into the seventeen-day future. Most are "hardcase" types, tough as oak, tanned as Honduras mahogany. And they're about as talkative as the stone faces on Mount Rushmore. "To be an instructor at Stead," said one officer who had been there twice, "you have to be made up of equal portions of muleskinner, hermit monk, and mountain goat."

The glitter and ballyhoo of Reno are rapidly forgotten as the course gets under way. From the top brass to the lowliest airman, the survival technicians at Stead know their business.

The base commander is Col. Burton E. McKenzie, a West Pointer who has a way of saying: "This is the way I want things done." A fighter pilot in World War II, he racked up ninety-three missions before being shot down over Austria early in 1944. For a year and a half he was a prisoner of the Germans. Before coming to Stead this summer he was Air Attaché to Afghanistan.

Group commander in charge of training is Lt. Col. Hans H. Marechal, a German-born former US infantry officer with crewcut silver hair, a broken nose, a weathered, leathery face, and a pleasant smile. A tough leader who served with General Patton in Europe, he still has a hint of an accent.

Capt. Jack King, training squadron commander, is perhaps typical of the highly experienced survival technicians at the school. An infantryman who got rough training early in World War II, he transferred to the AAF and ended up as a fighter pilot, flying some 110 missions, during which he was shot down three times. He walked out of Germany twice.

One of the original members of the school's staff is an old Arctic hand, Maj. Willie Knutsen, whose young appearance belies his world of experience north of the sixty-degree parallel. Among the other instructors are several who were captives of the Reds in Korea. One, as a youth, fought with the Polish patriots against the Germans in the sewers of Warsaw after that city had been nearly levelled by German artillery.

The average young "buck" instructor who shepherds the survival students on their trek across the mountains is a superior character. To find him Stead is allowed to screen thousands and thousands of airmen at

(Continued on following page)

HOW TO AVOID CAPTURE... THE REAL GOAL AT STEAD

Some months ago we put Ed Miller to work on the accompanying article, telling the story of the Air Force's survival school at Stead AFB, Nevada. While gathering material there he heard about a phase of the course in which Communist "brainwashing" tactics were vividly simulated in an effort to condition air crews against the sort of treatment they might expect if captured. But Pentagon instructions were that Miller was not to have access to any classified information. Hence he got no first-hand dope on the brainwashing part of the school—officially. As he put it in a letter to us, "I learned enough to beef up my story quite a bit but I was careful to keep it out of the article."

As a result Ed wasn't too happy, and neither were we, when *Newsweek* Magazine appeared, on the very day Miller put his piece in the mail to us, with the by-now famous article, "Ordeal in the Desert," which brought down a rain of criticism on the AF for its harsh treatment of its Stead students. A Congressional investigation was threatened, the Stead commander and training officer were called to Washington to explain. Lt. Gen. Emmett O'Donnell, Jr., Deputy Chief of Staff for Personnel, said he thought they "were running a good school." Newsmen were flown out to Stead to see for themselves.

The discussion seemed to boil down to a few fundamentals. No one was brainwashed against his will. Only volunteers and instructors went through the tough portion of the course, and medical men had noticed no adverse effects. Some people seemed to think this sort of training was a most useful conditioning for the cruel and inhuman treatment that historically has been the fate of Red prisoners. Others thought it served no useful purpose.

In all of the discussion the most important function of the Stead course was overlooked or ignored. We happen to think that the "anti-brainwashing" part of the school is a good thing if properly handled. But we feel the real story of Stead is the one Ed Miller originally set out to get, and which we present herewith. It is necessary to know how to behave if captured. It is even more essential to learn how to avoid capture. For if you know escape and evasion techniques and practice them, you may never have to face the brainwashers at all. That is the real lesson that has been learned at Stead.—The Editors.

Lackland, Parks, and Sampson Air Force Bases. Only those who are tough, smart, and love the outdoors qualify past the initial survey. Of these about 800 to 1,000 each year are given briefings on what being an instructor at Stead entails.

After they hear the details, usually about 100 volunteer to take the 150-day training course which includes a 100-mile hike across the Sierras, with little equipment and less food. This trek, called "Operation Longwalk," makes the hike the Stead students take seem like a Sunday stroll by comparison.

About half of the hundred men who start complete each instructor course. The average graduate is twenty years old, has had two years of college, and ordinarily has spent a great amount of time in the woods as a youth. Theirs is a dedicated type of work. Their home and social lives suffer because for about seventeen days each month they don't have time to think about home or family. After each hunger hike they get five days for rest and recuperation. Often they'll use the time to take their family on a busman's holiday—deer hunting or camping in the mountains. One instructor even spent his leave last year climbing the Himalayas.

• • •

The air crew course itself is rough. It has to be for "Survival isn't luck; it's brains, training, and stubbornness." You can't breed in stubbornness or implant brains, but you can teach a man the tricks of survival that make a downed flyer hang on, tighten his belt, and try a little harder to get home. "Keep going, keep cool, and keep your socks dry," they say.

During their first seven days at the base the students hear lectures on such aspects of survival as "living off the land," camouflage, the psychological, medical, and intelligence facets of the problem, and talks on "The Will to Survive." They are also given demonstrations of survival weapons, the fabrication of survival equipment, forestry procedures, communications, obstacle penetrations, and parachuting. They fire the hornet and the handgun, and are shown how to use foreign small arms and flares.

• • •

"Hang onto your parachute!"

This axiom is drilled into the students because, even after a 'chute has lowered a flyer safely to the earth, it still can aid him in many ways.

After a parachute has safely landed a flyer, it can still aid him. Besides tepees, it can be used for bandages, clothing, sails, and many other items.

Innumerable things can be made from the shroud lines, the webbing, and the metal fastenings of the canopy, including such diverse items as blankets, bedrolls, tepees, lean-tos, snares, sleeping bags, sling-shots, fishhooks and lines, nets, seines, mukluks, eye shields, hats, scarves, puttees, parkas, insect hoods, splints, bandages, slings, packs, sails, snowshoes, spearheads, signal panels.

Students also learn how to make gill nets and rafts, racks for smoking meat, fish spears, gaffs, wood lures, knives, fishing reels, backpacks, wood utensils, knife sheaths, snow knives, blackjacks, bowls, awls, leather punches, and signal mirrors.

During the seven days, members of each air crew are assigned certain projects and build various survival items for the entire crew to use (for instance, it is recommended that each crew have its specially trained hunter). Stead is the biggest user of obsolete parachutes; canopies are shipped to the Reno facility from depots all over the US.

• • •

"Now how in hell are we going to get across this?"

It was a big contingent of trainees, twenty-two in all, which stood on the bank of the Truckee river. Somehow they had to ford this roaring devil. Their instructor stood apart from them a bit, leaning against a tree, smiling. Let 'em figure it out. He couldn't help them—unless they got in trouble.

"The poncho deal," said a young airman second. "Remember?" The boy was enthusiastic, the aircraft commander a little dubious. As he talked, the kid started breaking off willows from the river bank. Soon the others were too.

"We gotta get some stakes," the kid said. They cut rough stakes with their knives and the kid knocked the stakes into the ground to form a kind of rectangle with round corners. Then he started piling the willows in between the stakes and a couple of the other men started tying them with parachute shroud lines.

When the youngster, working quickly and a little nervously, lashed a poncho onto the top, the darned thing did look rather like a dinghy.

Then the kid made a long rope out of shroud lines, wrapped one end of the rope around a flat rock and lobbed the rock for the opposite shore. It fell miserably short.

"Here. Let me try it." The tall lieutenant pulled the line back out of the water, hunkered a big hand around the rock and threw. The rock soared across the water downstream a bit, hit low in a Ponderosa pine and wrapped itself around a limb.

After that it was easy. They tied another line to the "dinghy" so they could retrieve it each time, and the men worked their way across, one by one, clinging to the line all the way. The last man across slipped as he got aboard and plunged his foot through the poncho, but he made it across.

"Hey," yelled the young airman a little triumphantly, "how come you left your leg down in the cold water all the way across?"

"Ya think I was going to pull it out," said the man with one wet leg, "and let the fool boat sink?"

• • •

To get in shape for the hunger hike,

(Continued on page 41)

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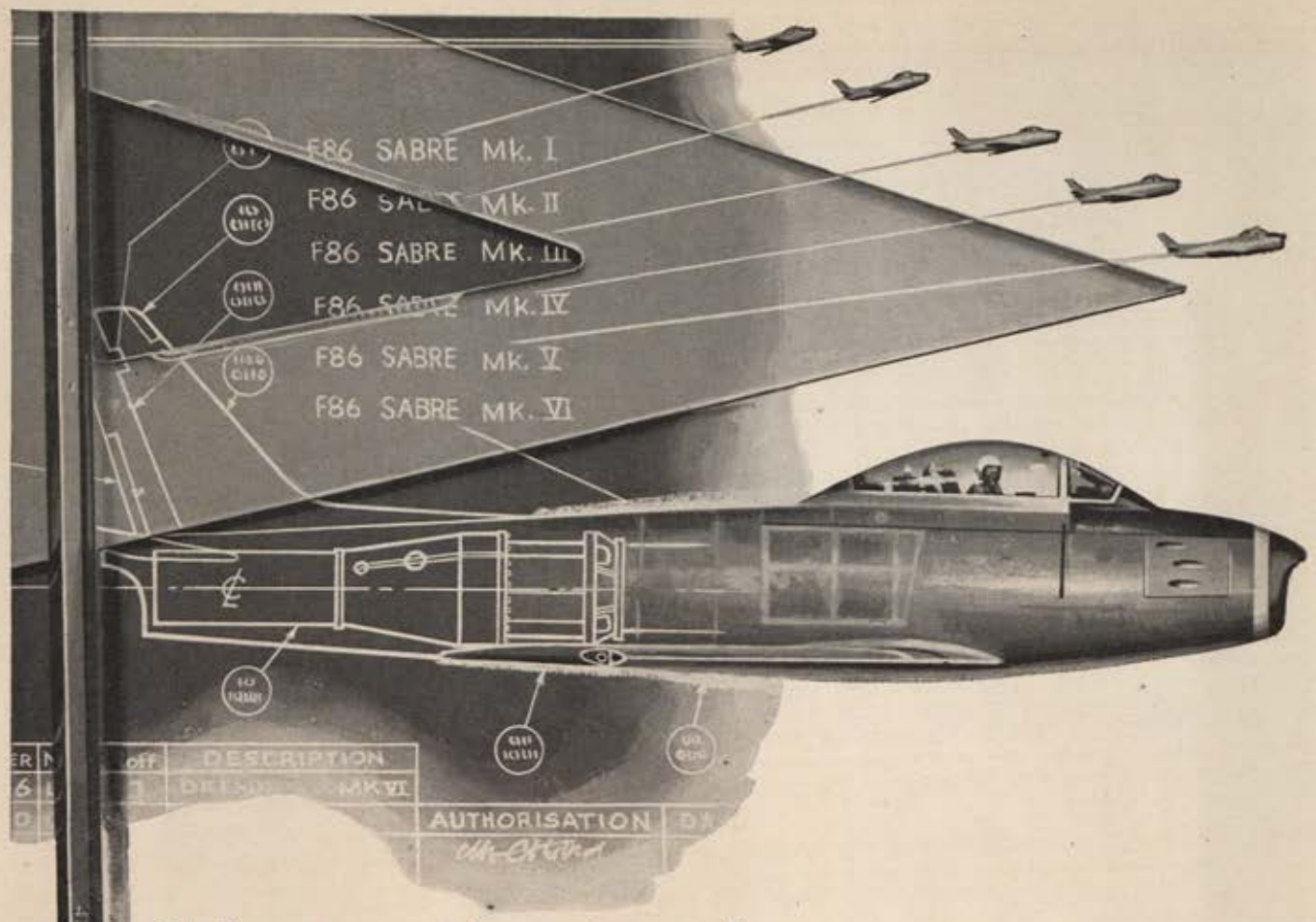

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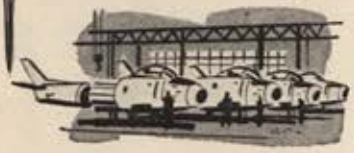

It was recently announced that the latest Canadian-built F86 Sabre jet fighter can fly faster and climb higher than any other aircraft in European squadron service . . . practical evidence of Canadair's superior development and production facilities.

This is the sixth version of this famous fighter which has been produced continuously at Canadair without interruption of scheduled delivery dates. The outstanding record of the Orenda-powered Sabre VI can be credited to the intricate re-engineering of the airframe to take full advantage of the aircraft's new power plant — the Canadian Orenda 14.

In this job, as in the work now going on at Canadair to design and produce the CL.28, a maritime reconnaissance version of the Bristol Britannia, the RCAF depends on the imagination and "know-how" of Canadair's engineers. Like so many aviation experts around the world, they know that in every aspect of production, "You can count on Canadair".

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the students sleep in sleeping bags their first few days at Stead. On the seventh day they depart for the static camp, where they get more intensive training on the construction of shelters, are taught fire-building ("It's amazing," says one instructor, "how few people know how to build a fire"), personal hygiene, camp sanitation, ground navigation and trail discipline, emergency first aid, travel techniques on land and water, mountaineering, the preservation of food and water ("the way to conserve water is not to hold it in the canteen; just keep from sweating"), and air evacuation procedures.

The Stead area is made to order for this kind of training, for there is a wide variety of terrain, rising from 5,500 to above 10,000 feet. The school staff tries to make the situation as real as possible, keeping in mind the health and welfare of the students. It is, however, as the group commander notes, "a calculated risk on casualties."

When they come, he says, "we assume that they are combat-ready and physically fit. Therefore we give little thought to their comfort—but plenty to their health." Some few get altitude fatigue, a form of hypoxia. "Fatigue," the instructors say, "is real common."

* * *

At static camp the troops are still well fed enough to get a big bang out of "playing Boy Scout." They kid the two improvised equipment instructors about their names (Technical Sergeant Tennis and Airman First Class Archer), and it's only after the food gives out that their sang-froid wears thin and the humor peters away to mere grunts.

The men are given two and a half days' rations for nine and a half days "on the hoof."

"When they move out of static camp on the trek, the first evidence of friction is quarreling over food," said Colonel Marechal. "When a man eats up his own supplies and starts trying to panhandle food from his buddies, tempers begin to fray." The instructors watch such situations closely and grade the men on every part of the trek. If an aircraft commander can't lead his men, or if one man is a bad apple, the school wants to know it; for in a genuine survival situation he can jeopardize the entire crew. (Some of the things the aircraft commander and his crew are graded on: Is everyone kept well briefed? Is food prepared properly? Is ingenuity shown in improving survival articles? Is good personal hygiene practiced? Did the man in question cooperate with the crew and instructor? Does he maintain high morale under stress?) The crew is watched to see if the men help one another. A man is graded on whether he can disagree without losing his temper. It is even noted if joking is kept good natured or tends to become vicious.

There are no doctors in the hills; the men are strictly on survival status, and every man is on his own. If a student runs a high temperature or complains about internal ailments he will be sent back, but he is expected to carry on if his ailment is minor. If he cuts himself with a knife or axe (which happens quite frequently) he can get an aid man to sew it up for him—or he can "make points" by doing it himself.

Of the nearly 30,000 students who have been through the training only one man has died—of a heart attack during a rest period in static camp (indications were that he suspected he had a bad heart, but would not mention it to a flight surgeon).

No place to go, but a shave can lift your spirits. Judging from the expression, however, it seems to hurt.

Hunger and stress, then, are the two big factors on the hike. The men have to cover about thirty-three miles, which does not seem like much until you realize that this is Sierra country—down canyons, through heavy scrub, up high, sheer cliff walls. The ordeal tells mainly on the feet. The men's main troubles are either blisters ("Get that shoe off as soon as you feel pressure. Straighten the sock. Put the shoe back on. Hike.") or, in the winter, frostbite ("Frostbite should be a court-martial offense. Every man knows when his feet start to freeze. He should stop, take his shoes off, and warm his feet by cupping his hands around them, and don't rub. Change socks if he has an extra pair. Continue the trek.")

* * *

Hunger. . . .

Crews are encouraged to forage off the land. They can eat plants, squaw potatoes, wild onions, watercress; they can fish and hunt small game (rabbits, squirrels, field mice—but not deer or large animals; the game and fish laws must be observed). They are told that anything they eat will give them strength. If they find a plant and do not know what it is they should eat a portion of the suspicious object and, if it doesn't make them sick in eight to twelve hours, eat a little more. It's a tough job, but when, as the students say, "you're hungrier than a woodpecker with a headache," it's something you'll do—or starve.

Porcupines are plentiful in the Sierras, and the Forest Service is glad to get rid of them (they kill trees). The first class at Stead killed more than 100 porkies. "Any man without arms," said one survival instructor, "can kill a porcupine and survive." Sometimes none of these things are easy to find. Men have been known to fry grasshoppers (old hopper-eaters will tell you they're like popcorn, but you must make sure the legs are removed; they stick in your throat like fishbones).

Water can often be found in cacti and stalks, juice in vines and the fruit of trees. Turtle and animal blood can keep a man going. In fact, remind the instructors, you can eat anything with fur or feathers; any palm bud, any flower without a milky sap. Some men have become ecstatic on finding a "crawdad" or two with which to cook a succulent "seafood" supper. Fresh water mussels, something like razorback clams, are also a delicacy. Occasionally the crew feasts on trout (Stead AFB restocks the local streams). Even chipmunks are a welcome sight to a hungry airman. So is blue camas, a starchy, potato-like bulb the Indians used to eat. Manzanita tea is a staple.

Occasionally, too, a crew will stumble on a den of rattlesnakes.

* * *

The young Navy officer was jumping with joy. The other men on the hunger trek admitted to a bit of jealousy as he scraped the skin from the rattler, chopped its head and rattles off. They hadn't been as fortunate, and he had been . . . well, it had been some time since they'd found anything to eat. Some of them secretly hoped he'd offer them a piece, just a little piece.

(Continued on following page)

He whistled as he stirred up a fire, coiled the delicacy, and browned it.

"Where's Pete?" someone said as they watched.

"Still hunting."

When the Navy man tested the snake with a hand-whittled fork and found it done just right (medium-well), he lifted dinner off the fire and placed it on a leafy plate. Then he went down to the stream to wash up before chow.

He had just left when Pete walked in, disgusted. He hadn't found a thing. And, not noticing, he stepped on the Navy man's dinner.

When the Navy officer returned, appetite burnished to a high whine, he looked at the squashed snake for a minute, then at Pete.

The other men had to separate the two, explaining that it had been an accident.

The Navy man cooled down, picked up the snake, washed it off carefully.

While he ate the other men sat around and watched, their Adam's apples bobbing up and down like frantic yo-yos.

• • •

The ration for the hike consists of two or three carrots or potatoes, two pounds of raw meat (which they can smoke to make "jerky"), two pemmican rations (concentrated meat, pemmican tastes like rich, greasy, beefy sawdust), which contain five concentrated meat bars, a cereal bar, a honey bar, five cubes of sugar, five coffee rations, and two or three tea rations, one packet of chili powder (prepared with the pemmican it makes the latter more palatable), a ration of dehydrated milk, and a packet of dried onions. This makes normal meals for two and a half days; after that the men are on their own. The same rationing applies on cigarettes. They get a couple of packs. Then *kaput*.

The enlisted instructors who accompany the students have, of course, full rations with them, but they are strictly enjoined to eat apart from their wards. Occasionally an instructor catches a famished student "borrowing" from his larder. For this the Stead people have a standard and very effective antidote. The "cribbing" student is either returned to his home base or finishes out the trek—and then goes through the whole survival course again. The same penalty applies if he is caught obtaining "commercial food" from any source, even as little as a pack of gum. . . .

Driving up a California mountain highway the man was at first startled. Then he braked to a stop.

The hitch-hiker was a sorry looking fellow, dirty, bearded, wearing GI fatigues. Tossed over his shoulder was a crocus sack full of bulky objects.

"Thanks for stopping," the airman said as he climbed in, depositing his heavy sack in the back seat. "And don't mind my looks. We're on maneuvers up here in the hills and I haven't had a chance for a shave or clean clothes in days."

"Oh?" said the driver as he headed toward Nevada. "What's in the sack?"

"Groceries," said the airman. "Man, are we going to eat tonight. Frozen pork chops, asparagus, strawberries. Steaks for tomorrow. Everything. Bought the store out."

There was a silence.

"Any place along here will be okay," the airman said. The driver slowed to a stop.

"Thanks for the lift." The airman reached for the groceries.

"Glad to be of help," said the driver. "Oh, by the way, you'd better leave that sack in the car." The airman turned, his eyes narrowing.

"What?"

"You're one of the survival students from Stead, aren't you?" the driver asked.

"That's none of your business," the airman said.

"Yes it is," said the driver. "I'm on the staff at Stead, and I have a feeling we're going to be seeing a lot of each other. Let's see, the next course starts. . . . "

But the airman was already walking away.

"I'll save the groceries for you till you're finished with the course," the driver yelled after the departing figure.

• • •

The instructors are, of course, normally suspicious of their hungry charges. The hungrier the students get, the more suspicious the instructor.

One morning an instructor was frying a breakfast of bacon and eggs and stepped back into his tent to get some salt. He heard some odd noises outside. Thinking one of the crew members was swiping his breakfast he dashed outside and bumped square into a big brown bear that was happily licking the pan.

To a city boy, of course, "sirloin snake," porcupine shish-kebab, or grubs on the halfshell are pretty hard to stomach, and so it is easy to see why the average man on the trek loses from sixteen to twenty pounds. Oddly enough, some men come back from the hike actually having gained a pound or two. These are the happy, hardy souls who can eat anything from hummingbirds to eels, natural-born scroungers who could probably bail out on the moon and keep going till help arrived.

The school operates every day of the year except on Christmas. As winter in the high Sierras can be rough, the Stead commanders are often concerned in the cold months when individual students or entire crews get lost. But, from experience, the instructors know where to look. They've found that lost persons will ordinarily try to hike out the easiest way. The instructors then start from the last check-in point, search via the easiest passage, and invariably come upon the lonely hiker(s). They never take a chance, though, even though they've never lost a hunger hiker. As soon as someone is reported overdue, they get the weasels out for fast ground travel, and supplement the ground search with air cover. Once found, the student isn't given a lift home, however; he has to hike back.

• • •

"It isn't too rough a course," says one of the instructors, "if the man is mentally adjusted to take it. If he considers it a load and wants to get through without trying, then it is rough. If you fight the problem, you have trouble."

"Survival," he reiterated, "is all in the head."

The value of the training was proven during the Korean conflict when many graduates of the early survival course walked back through enemy lines.

Two members of a B-47 crew that crashed in Canada early this year (AIR FORCE Magazine, May '55) also found the Stead training came in handy.

Posted on the walls at Stead is a sign: "The mission of this wing is to train all Air Force personnel in those techniques and abilities which will in any emergency, either in peace or in war, enable the airman to return safely to his home and to his family. Global survival, evasion and escape, rescue and communication procedures are his tools. Teaching him how to use them is the purpose to which this wing is dedicated."—END

The author, Ed Mack Miller, is a free-lance writer and a captain in the Colorado wing of the Air National Guard. Two other Miller articles appeared in our September '55 issue—"Thunderbolt Geometry" and "The Blue Line Forms on the Right."

NO TIME TO WASTE

WHEN THE CARGO

IS LIVES!

USAF HERCULES

The U.S. Air Force now has the ideal airborne ambulance for EVAC-BY-AIR, the Lockheed Hercules C-130 combat cargo plane.

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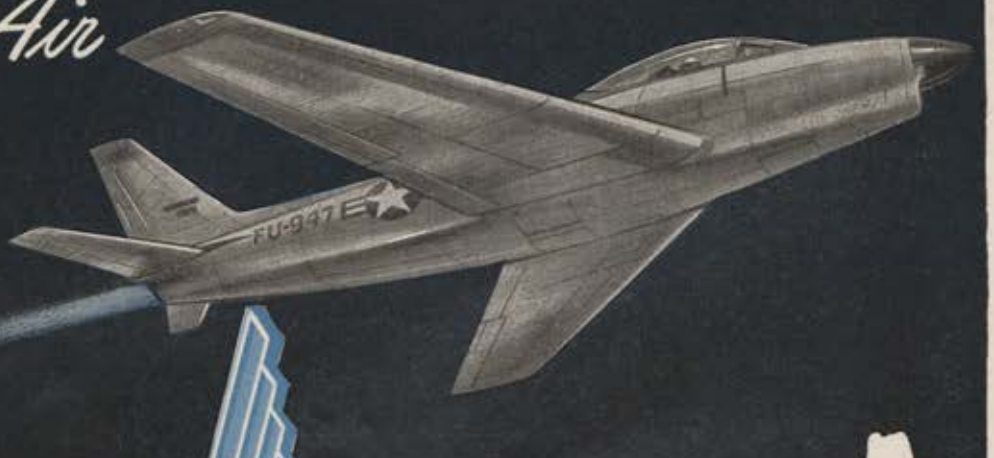

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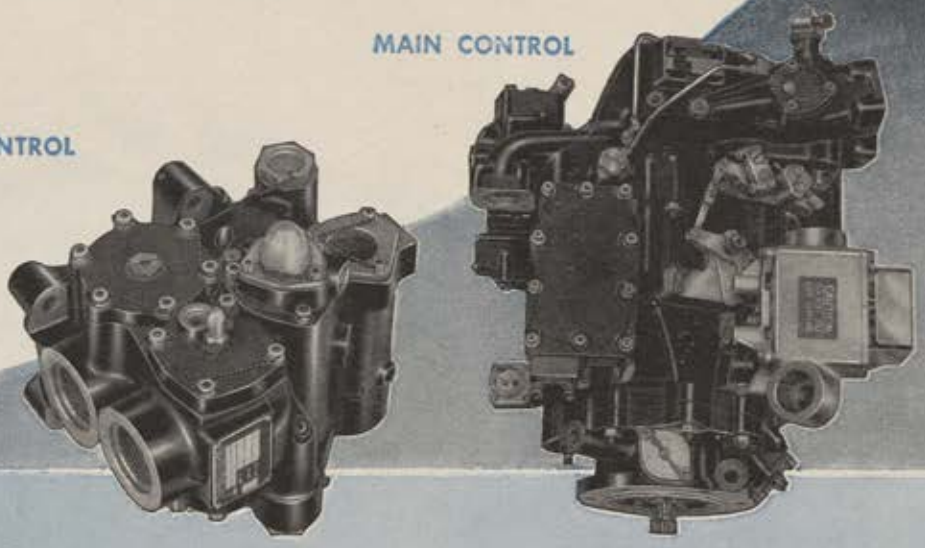

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Does Army thinking on tactical air violate . . .

UNITY OF COMMAND?

By Col. T. N. Dupuy
USA, ARTILLERY

THERE has been a recent quickening of the tempo of the long-standing debate on control and missions of Air Force units employed in support of ground forces. Army officers, many of whom have never been fully satisfied with the theory or practice of existing air support doctrine, are raising the issue once more. And so, largely in Army periodicals, we find unofficial statements of the Army's requirements for adequate air support, with the clear implication that if the Air Force can't or won't do the job, the Army itself will have to provide its own air support—just as the Marine Corps does.

The principal Army complaint is that the local ground force commander is now unable to exercise any control over the air elements from which he should receive air support. Many soldiers consider that this is an intolerable situation, that it jeopardizes the successful prosecution of the land battle, and—above all—that it violates the principle of unity of command.

It may be heresy, but as an Army man I find it impossible to reconcile this argument with established Army doctrine, or with Army concepts of the principles of war. I believe that there is an inherent inconsistency in reasoning which demands that local ground commanders should have command control of supporting air units on the basis of the "established and proven principle of unity of command."

The Army does *not* use this argument to criticize its own doctrine of employing supporting Army weapons. And the Army does *not* give command control of non-infantry supporting weapons to the local infantry commander.

Does the infantry regimental commander command his own supporting artillery? Rarely, and then only when it is impossible for a higher commander to assign other artillery missions.

But, comes the quick reply, the division commander *does* exercise command over artillery supporting his division.

Below, a Republic F-84 loaded for bear. Would the fighter-bombers have done such a bang-up job in Korea if they'd been under the control of a ground commander?

Of course he does. Because these weapons have range and flexibility commensurate with the usual missions and scope of activity of the division. But the division also receives additional support from longer-range artillery, much of which is capable of supporting more than one division. As a consequence, such longer-range supporting weapons are rarely placed under the command of the division commander, but are controlled by the corps commander. It would appear, in fact, that current Army doctrine envisages our longest-range, and most powerful, ground weapons—atomic cannon and rockets—as controlled by the Army commander. Of course, corps and army commanders are ground commanders, but they are not *local* ground commanders in terms of the capabilities of these long-range artillery weapons.

And why do we not give command control of these supporting weapons to the infantryman who makes use of their firepower—be he squad, company, battalion, regimental or divisional commander? The reasons lie in the principles of war, in particular those of mass, economy of forces and—strangely enough—*unity of command.*

Jets in action at Luke AFB simulate the tactics that proved aircraft as the best tank-busters in Korean war.

Applying our principle of unity of command to three-dimensional war, one commander must exercise full control over all combat forces normally operating within a given theater of war. This includes air as well as ground and naval units. The commander must consider the requirements of air combat as well as land and—sometimes—naval combat.

The ultimate objective of all of these forces is to overcome the enemy's resistance so that John Doughboy can get to, and hold, the territory which proper authority wishes to deny the enemy. There is no doubt in my mind that John Doughboy's role will always be fundamental to imposing our national will on an enemy. But certainly there will be times, as in Korea, when for one reason or another a theater mission will be strictly limited. Maybe this objective will be merely to provide bases for strategic air forces, or their refueling planes, or their fighter support; or to secure sites for radar or interceptors defending our own vital regions. Whatever the theater mission, however, the joint tasks of theater ground, naval, and air elements will be directed towards the assurance that the infantryman can secure his objective.

This being the case, shouldn't tactical air forces be under the direct command of the theater ground force commander? And wouldn't it be logical for them to "assist in the air battle in the gaining of air superiority . . . only at such times as there is not an overriding requirement for close support"?

The answer must be a resounding: No!

One does not need to subscribe to Air Force doctrine to see why the first priority mission of the air must be to gain and maintain air superiority. The answer lies in another principle of war as set forth in Army doctrine—security. Not only security for the aircraft but security for the ground forces themselves.

It is wonderful for Army forces to have close air support to augment their own ground firepower. But the land forces can fight effectively only so long as the enemy air does not interfere regularly and in strength. Ground troops will not wax enthusiastic about seeing the enemy plastered if they are being pounded just as hard at the same time. Simple common sense dictates that the foot soldier must prefer neutralization of enemy air close-support capability over our own close-support activities, if there should unfortunately be any conflict in priorities. Our own close-support activities cannot possibly be effective if the enemy is in a position to challenge us seriously in the air.

There is an interesting parallel between air-ground and naval support in amphibious operations.

In the name of unity of command the Navy insists on retaining control over naval forces supporting an amphibious landing. No one, so far as I know, says that in this insistence the Navy has postulated a new principle of war—"that of equality of command between [sea] and ground." Most soldiers accept the Navy position. Obviously, without control of the sea, there can be no effective naval support for the ground forces. All we ask is that ground and naval elements be under the same theater commander, to avoid anything like the near-catastrophe of the battle for Leyte Gulf.

It is difficult to see why this parallel of naval-ground coordination is not free of air-ground coordination.

And what of the second priority mission of tactical air support? Should it be interdiction, or should it be close support? This is, perhaps, largely a matter of circumstances.

We must remember, however, that there are few targets which can be observed from the ground or from low-flying observation aircraft, which cannot be hit more accurately, more quickly, more effectively, and more repeatedly by ground weapons. This is true whether the aircraft flies at 200 miles per hour (and is thus most vulnerable to modern enemy anti-aircraft fire) or whether it flies upwards of 400 miles per hour in the ground-attack role.

Certainly the aircraft is our "best tank destroyer," when the tank is on the road or in rendezvous areas. But the rocket-launcher and the artillery cannot be excelled when the tank is closely engaged with our own ground forces.

But it's awfully nice to see those birds peel off and clobber the fellow on the other side of the hill! And we know that there is nothing that can make the other fellow feel any unhappier. So whenever they can be spared from the air battle, ground-attack aircraft should add to the firepower and psychological pressure which destroy the enemy will to win. Let's not forget, though, that they can contribute more directly to the land victory by beating up rear areas, lines of communications, supply depots and command posts, than they can spraying a vaguely defined front line with machine guns, bombs and napalm. And so, in a conflict of priorities, the less spectacular interdiction role is more useful to the ground soldier, who has his own weapons to hurt the enemy to his immediate front.

But what of the argument that the close-support planes need not necessarily be the high-performance aircraft essential to victory in the air battle? Couldn't we use cheaper, more maneuverable, and thus more effective, air weapons for close support? Under today's circumstances, such a solution does not seem reasonable.

These limited capacity aircraft could not be employed

(Continued on page 49)


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in great numbers, or effectively, while the battle for air superiority is going on. And so, while awaiting the result of the air battle, expensive (and scarce) combat pilots would be sitting idly by, while their grounded aircraft would become attractive targets for enemy air attack. If we should lose the air battle, with significant numbers of pilots and aircraft thus ineffective, we should have done so because we violated the principles of mass and economy of forces, in pursuit of a false dollar economy in building cheap—and useless—aircraft.

If we win the air battle, the value of these cheaper planes is still questionable. Modern anti-aircraft weapons are so effective as to make their employment extremely hazardous. We should probably be forced to call in the high-performance aircraft for at least some of the close support. And let us not forget that close air support is a bonus—more valuable psychologically than in casualty effect—over and above our efficient ground weapons.

So it is that, with the weapons available today for the air and ground battle, the current theory of command and of missions for tactical air support is sound, in terms of Army doctrine for the employment of supporting weapons in terms of the principles of war, and in terms of comparable, satisfactory, doctrine of naval support for ground forces.

Does this end the argument? Unfortunately, it does not. Because abstract theory is not going to satisfy those who are certain that the theory has not held up satisfactorily in practice.

Why don't we have similar complaints about the Navy in its amphibious close-support role? Of course they don't do it as often, and it is possible to find examples of lack of cooperation on both sides in amphibious operations. But, in general, the naval man is proud of the way in which he handles this second priority mission, and the ground soldier is enthusiastic about the promptness and effectiveness of the support, despite his recognition of certain inherent limitations.

The airman, however, is (apparently) less interested in doing the close-support job than are his Marine Corps or Navy cousins. It seems to the soldier that the Air Force man lacks the incentive which impels the Marine flyer to do a fine job in this role. And there is some evidence that naval flyers are more interested—and therefore more effective—than Air Force pilots, who are every bit as good professionally.

Is the answer to adopt the Marine Corps system for the Army? Or to put all tactical air forces "in Navy blue"? Could be, if we recognize the need for adhering to sound theoretical doctrine, for the reasons discussed above.

This, however, seems a rather childish solution. What did Shakespeare say of the odor of the rose? If the theory is sound, changing nomenclature, or color of uniforms, can offer only a temporary improvement, at best. What is needed is the *will* to work together effectively, and mutual understanding of capabilities and limitations.

Unity of command is a meaningless expression without such a will—existing on the part of all members of the command—and without mutual understanding.

The example must be set at the very top. Lip service is not enough. The commanders must *believe* in the correctness of the theory and in the importance of working closely and effectively together. They must *insist* that results be achieved. Methods are unimportant if this prerequisite is met.

And it can be met in air-ground operations. It *has* been met. Let's look at the record.

Three sets of names are sufficient to demonstrate how strong-willed, capable soldiers and airmen can work successfully together in accordance with the concepts of our current prescribed doctrine: Patton and Weyland, Krueger and Kenney, Montgomery and Tedder. We should not forget that our current doctrine emerged largely as the result of failure in North Africa, in February 1943, of the doctrine to which some soldiers now wish to return. Nor should we overlook the signatures on the official statements of the revised doctrine: G. C. Marshall on FM 100-20, 21 July 1943, and Dwight D. Eisenhower on FM 31-35, August 1946.

One final postscript is perhaps desirable. Do the arguments made above imply that there should be less emphasis on Army aviation, or indeed that it should be eliminated completely?

Emphatically not!

There is no argument among the services about the necessity for organic Army light aviation for such functions as observation, command, communications, and evacuation. Nor should there be any argument about the need for organic Army air vehicles to provide modern mobility for large Army units on the battlefield. It would be ridiculous if the Army should be deprived of a form of transportation which should be as routine as trucks and armored personnel carriers. And airmen should be happy to encourage such developments since the drain and strain on their logistic air units would be correspondingly reduced.

Once again there is a convenient amphibious parallel. The establishment and employment of Amphibian Engineer commands by the Army in World War II in no way threatened or interfered with Navy control over all combat support vessels, or over the strategic transport lift.

This *is* fully consistent with the concept of the principle of unity of command. Forces which must, by their very nature, be *primarily* employed in the land battle should be under the command of that ground commander who is able to make most effective use of their range, flexibility and other capabilities. Similarly, forces which must be primarily capable of employment in the air battle, should be under an air commander, while forces which will be initially or primarily employed in combat at sea must be under a naval commander. But when there are elements of two of more services working with each other in any area, over-all unity of command is essential, with the over-all commander making final decisions on force employments whenever there is a conflict of views or interests.

And, as has been true since the dawn of history, unity of command in name will become unity of command in fact only when all elements work together wholeheartedly on the basis of mutual respect and good will, which can be developed only as the result of intensive and intimate working together, with a clear understanding of each other's problems.—END

Colonel Dupuy

Colonel Dupuy has been PMST at Harvard University since 1952. A 1938 West Point graduate, he served in combat in Burma in WW II, later was a staff officer in Operations on the War Department General Staff. He served as a military assistant to an Army undersecretary before being assigned to the Plans, Policy and Operations Division of SHAPE.

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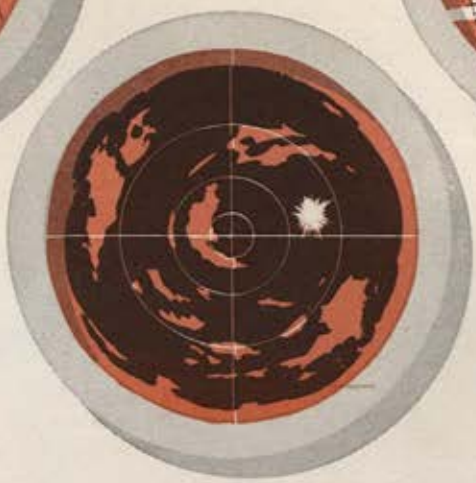

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From left, Falcons Charles Zaleski, Gene Vosika, and Giles Wideman.

Buck Shaw signs his contract as coach as Lt. Gen. Hubert R. Harmon, left, and Col. Robert V. Whitlow look on.

AF Academy grid season begins

Here Come the Falcons

By Flint O. DuPre

THE feverish Saturday afternoon madness known as college football has a newcomer on the national scene this fall—the US Air Force Academy.

A convincing thirty-four to eighteen victory over the University of Denver freshmen, October 8, popped many eyes open. Not only was the game the first in the history of the Academy, but also the first time a college freshman game has been thoroughly covered on a national radio hookup. CBS did the honors with their weekly football round-up. Some 18,000 fans watched the first Air Force Academy team come from behind to win, after trailing in the first quarter six to nothing.

Things seemed to click for the new team. They were clicking off the playing field, too. The cadets picked the falcon as their mascot (Academy teams will be called the Falcons from now on), and settled on silver and blue as school colors. Besides, the Academy signed Lawrence T. (Buck) Shaw as coach under a five-year contract.

Shaw played for Notre Dame and earned his coaching reputation with North Carolina State, California's Santa Clara University, and later as head coach of the professional San Francisco Forty-Niners.

Coached by an all-military staff until Buck Shaw takes over next year, the Academy Falcons in their first contest showed considerable aggressiveness. They're admittedly looking forward to the season when they first face Army and Navy. If things work out as expected, that'll be in 1958.

Since the cadets are freshmen now, it's natural for them to be playing frosh teams this fall. Next season, when the Falcons enter varsity football competition, they will meet such teams in the Rocky Mountain Conference as Colorado College, Colorado State, Idaho State, and others. In 1957, the varsity will step up the competition with members of the Skyline Conference—Denver, Wyoming, Colorado A&M, and schools of similar caliber.

About the Author

Flint DuPre is no newcomer to sportswriting. Back in 1930 he was sports editor of the Dallas Journal, *and later, until 1942, on the Dallas* News. *In WW II as an AAF lieutenant, he was a publicist for the Rambler elevens that he mentions in this article. DuPre, whose articles have appeared several times before in* Air Force, *is now in the Office of Information Services at the Pentagon. He last wrote for us in the September issue.*

This year's freshmen cadets will be seniors in 1958. And that's the season they hope to get a crack at Army and Navy as well as other major football powers. That's also when some of the Air Force's football tradition from the past will come in handy, for both Army and Navy are scores of years ahead of the Falcons in major football competition.

Except for a handful of former prep school men, the Academy freshmen squad this fall does not have what sports writers consider "name" players.

That's the way the Academy officials want it. Led by the Superintendent, Lt. Gen. Hubert R. Harmon—himself a fine football player for Army in the famous West Point class of 1915—those heading the Academy are quick to make it known that they're running no football factory. In fact, football is only one of thirteen intercollegiate sports scheduled as part of an intensive physical education program designed to condition the cadets for their main goal—as career officers in the Air Force.

Those cadets who don't play football, or compete in the other intercollegiate sports, must take part twice weekly in intramural athletics, with fourteen separate sports listed.

(Continued on following page)

The Academy football team is performing this fall under the supervision of Col. Robert V. Whitlow, the school's athletic director, an outstanding tackle for the Army teams of 1941–42, and a letterman in two other sports.

The football team, as well as other sports squads to be formed, will be supported by the Air Force Academy Athletic Association, a paid membership organization of USAF officers similar to those of the Army and Navy service academies.

The Academy team has a solid tradition to draw on from the Air Force's history in football.

In the past, particularly during World War II, teams from various Air Force bases proved that the Air Force elevens could hold their own in any league. No one doubts that that's what Buck Shaw has in mind for the Academy—the toughest service team.

To document the Falcons' claims to an Air Force gridiron tradition that's already rich, such names as Charlie Trippi, Georgia great; Jarrin' John Kimbrough, mainstay of the Texas A&M eleven for a few years; and the talented Tulsa passer, Glenn Dobbs, stand out.

But these names are only a drop in the waterbucket when compared with the roster of players on the World War II Randolph Field team—the Air Training Command Ramblers. This was in 1944, but it isn't too far back for the Falcons and their coaching staff to remember.

The Air Training Command Ramblers represented the best in the nation at the height of World War II. The Command had pretty much the pick of the professional and college players who had interrupted their careers to serve their country.

On this squad it wasn't uncommon for All-American backs and linemen to sit out an entire game on the bench. After all, a coach is permitted only eleven men on the field at one time, and the Ramblers were fat with All-Americans.

The Ramblers rolled over every team unlucky enough to be on their schedule, including such Southwest Conference teams as Rice Institute and the University of Texas, often by such lopsided scores as sixty or seventy to nothing. This caused not a little consternation down Texas way, where local sports writers were not used to having their pet teams manhandled. The scribes feverishly pounded their typewriters, bleating loud and long at the humiliation being handed colleges that had been stripped of their best players by the war.

In effect the columnists said, "If those guys [the Ramblers] are so big and tough, why aren't they overseas, walloping the Germans and Japs?"

This was a sensible question, though a biased one. The Ramblers, after all, were military personnel—airmen and officers. Many were engaged in flight training as pilots and bombardiers.

The majority of them did go overseas, after they'd sewed up the Air Force championship by defeating a strong March Field team which boasted such players as Oklahoma's Indian Jack Jacobs, Nebraska's Bob DeFruiter, Southern Cal's Ernie Smith, Jimmy Nelson of Alabama, and Woody Strode of UCLA.

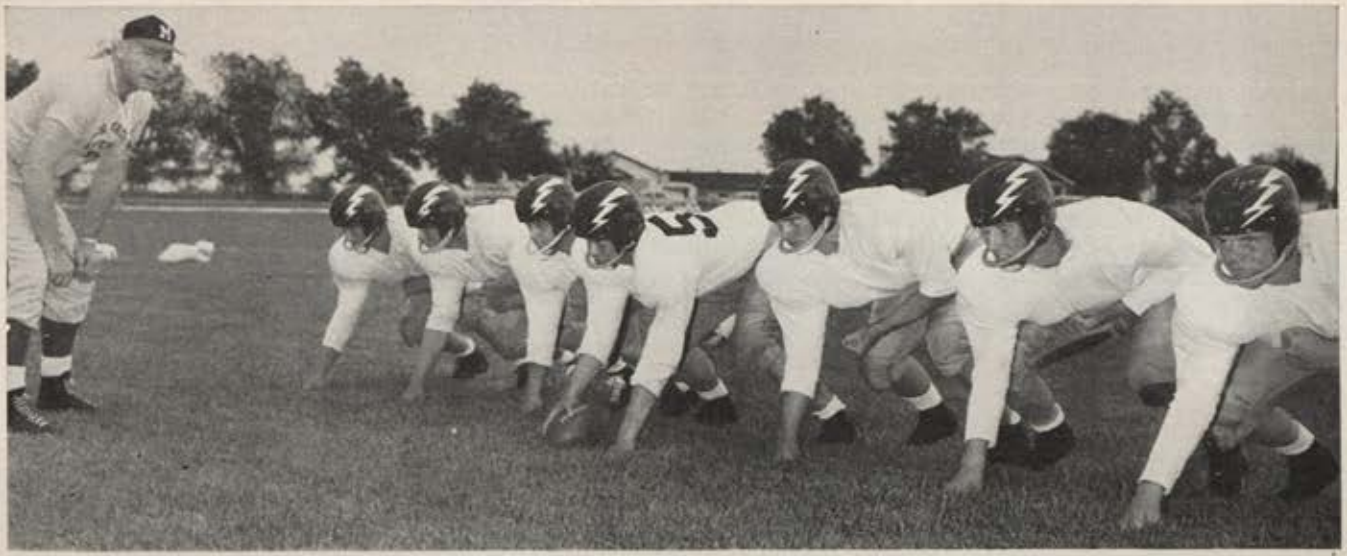
But the Air Force had no monopoly on the football market. Navy and Marine squads during World War II were also loaded with college and pro stars and the other services had more experienced coaching—for Navy, George Halas, Papa Bear of the Chicago pro Bears, backed up by baseball's Bill Dickey, who kept the players in condition; and for the Marines, Cliff Battles and Jim Tuttle, then pro greats of the Washington Redskins and New York Giants, respectively.

But superior talent told the story. The Navy and Marine teams simply couldn't match the caliber of stars the Air Force had. The interservice games were well played, to the delight of thousands of men in uniform.

Other thousands now will have a chance to cheer the Academy Falcons, who already have a solid tradition of Air Force football memories to draw on and a fighting team spirit—a combination that breeds champions.

And, along about 1958, this could spell trouble for the men of West Point and Annapolis.—END

Left to right: Colonel Whitlow, cadets Gene Vosika and Greg Boyington, Jr., and Lawrence T. (Buck) Shaw.



Assistant coach Maj. Frank Merritt looks over his line. Left to right: Tom Jozwiak (Mich.), Gene Vosika (Neb.), George Evankovich (Mich.), Bob Dellagatti (W. Va.), Brock Strom (Mich.), John Gulledge (Okla.), and Dave Phillips (Calif.).

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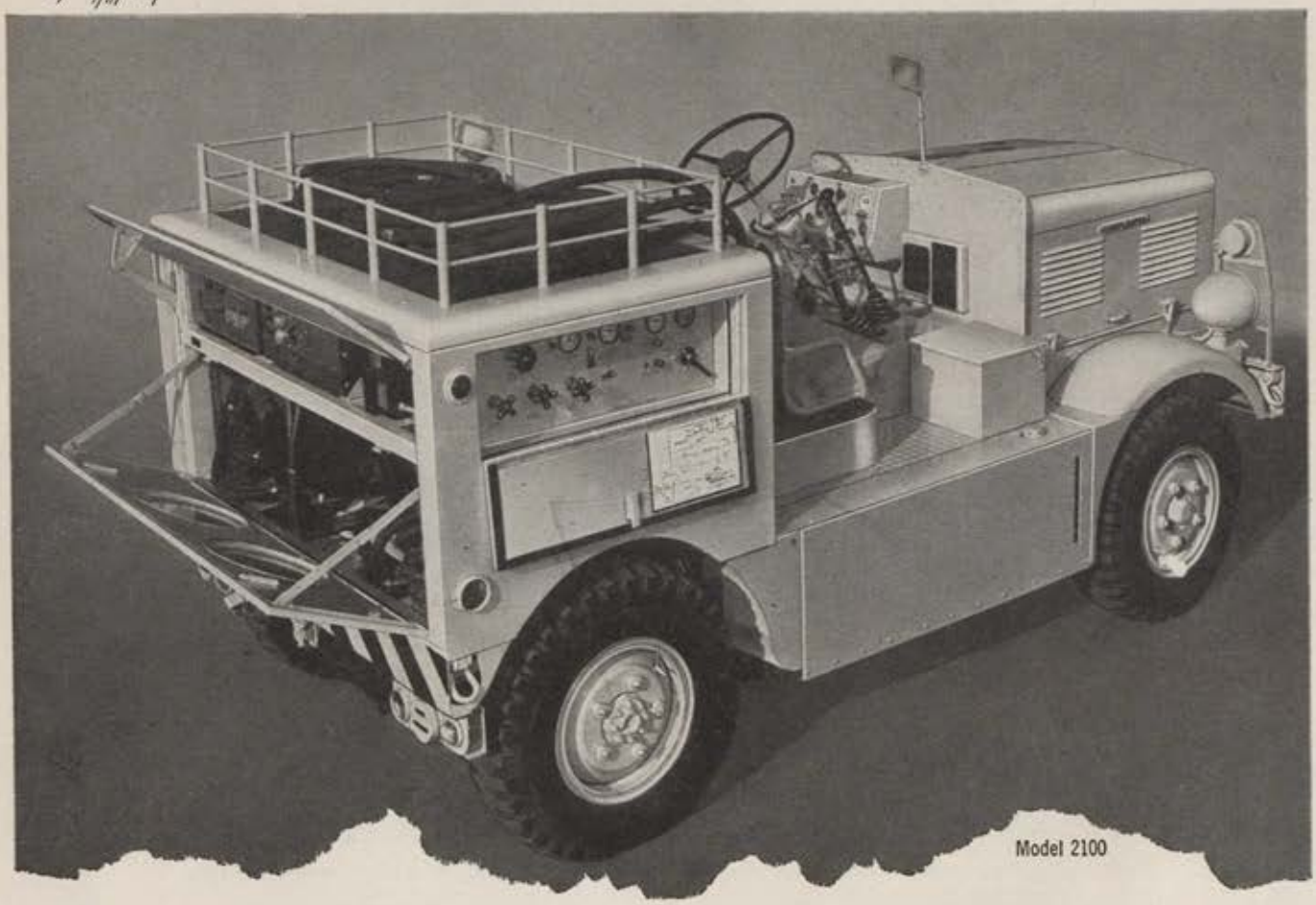

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ests and emotional attachments go into action to prevent it being abolished, and service propaganda machines are put into top gear.

The basic reason for all this confusion is wrong organization. The old feudal system, first of two services and now three, has existed for too long and even today is not much more than a federation of powerful states. What we need is a system of close integration, with a proper function for each service, on a cooperative and not on a competitive basis.

It is an inherent characteristic of every organization to resist change and to attempt to survive. This results from the growth of "vested interests."

But in the future, as political, economic, and technical changes accelerate, *it is a grave question whether any large military organization which is not closely integrated and gripped tightly at the top can adapt itself successfully to the required speed of modern life.* If this is not done, the lack of adaptability of the organization as a whole will tend continuously to promote individual service interests over those of a nation concerned. Under such conditions, politicians have to step in to keep things going; they do this in the only way they know, *i.e.* by the creation of *more* committees, and by *additional* bureaucracies for coordination and arbitration above those already existing. . . .

> ***'It is an inherent characteristic of every organization to resist change and to attempt to survive.'***

We have not achieved for the three services in combination a system which is comparable to that which each service has evolved for itself. We had glimpses of the possibilities during World War II when Supreme Commanders were appointed; but these have faded out in the British set-up and we are back with our triumvirate of specialists whenever inter-service affairs have to be dealt with. It is rather as if a ship was commanded by a committee consisting of the Gunnery Officer, the Major of Marines, and the Engineer Officer, each of whom had under him one third of the crew, and each wearing a different uniform.

It seems to me to be ridiculous to go on in this way. Obviously we cannot today go over to one service. But we might well introduce such a close integration between the three services that the final step could be taken without confusion *if it was ever decided it was necessary.*

An essential step would be gradually to produce a new type of senior officer who was trained to be completely inter-service from his earliest days. This could not be done unless we combined the service cadet colleges, the staff colleges, and so on, and this I consider might well be done now. The final step would be to abolish the three services as distinct entities, and organize them into one fighting service under a single war Department.

I suggest three reasons for this.

First: the tasks of the three services are not nearly so differentiated as they used to be. The Navy flies; the Air Force devotes much of its effort to crippling the enemy's army and transporting our own.

Second: the advance of scientific discovery has produced ideas and weapons which do not fit neatly into the picture of three services. They tend to unify warlike operations and it is more important than ever before that objective minds should examine the application of science to war.

And third: our nation is going to find it difficult to maintain defense expenditure at the present level. We cannot afford the luxury of duplication, and the waste which comes from adding together the demands of the three services.

Time will not allow of attempting to answer the host of objections which will immediately be brought against such a scheme as this. No doubt the difficulties will be immense, and service propaganda machines will make them appear impossible to overcome.

Tradition will be put forward as a reason against changes. Tradition is a wonderful thing but it must not become a bar to progress.

The point to note is that the rewards for success, and the penalties for inaction, are so great that something must be done: and done immediately. The changes would produce an equally good defense organization, indeed it would be better. And the financial gains would be tremendous, resulting eventually in reduced taxation and a better standard of life for all. . . .

Organizing at the Top

It is clear that there is much to be done to get defense organizations geared to the requirements of future war.

Whatever is done must begin at the top. If the organization there is right, progress will be possible. If the organization at the top is faulty, there will be no progress.

It would be impossible to carry through a major reorganization of the defense needs of a nation, on the lines I have suggested, with the present set-up that exists in some nations. I refer to the committee system of management. A good example of that system is found here in London, where at the top is a Minister of Defense who is merely a "persuader," with no real power; and right down the chain the professional side of defense is run by committees, boards and councils. The committee system of management is out of date as far as defense is concerned; it is totally unsuited for modern times.

> ***'It is more important than ever before that objective minds should examine the application of science to war.'***

A Minister of Defense has got to produce a sound defense with the right balance between air, sea, and land forces—all within definite financial limits. He will never achieve any economy so long as all he can do is to add together the demands of the three services. He can achieve nothing in these matters unless he has the power of decision.

(Continued on following page)

In modern times, a nation needs a defense organization on the following general outline.

A Minister of Defense, who has real power of decision and action within the limits of cabinet policy. He should be responsible for air, sea, and land forces, and also for civil defense.

An undersecretary in each service Ministry; these would direct the organization and administration of their services in accordance with the definite instructions of the Minister.

A chief of staff of the armed forces, who would be the professional adviser to the Minister of Defense. He would issue orders to the three service chiefs on defense matters

'The banning of nuclear weapons will not give us peace.'

and must have the power of decision in case of disagreements. He must, of course, be completely inter-service on all matters.

A chief of staff of each fighting service who would be the sole professional adviser to his undersecretary.

Today it is impossible for a head of government or Minister of Defense to get true and unbiased inter-service advice. Under the above system the chief of staff of the armed forces would give such advice.

The first and essential appointment is to make a chief of staff of the armed forces. It would then be necessary to work out the details of the modern system and to draw up the legislation necessary to give effect to it. The power of decision is then placed in the hands of the Minister of Defense, and service empires disappear. . . .

Science and War

Let us take a quick glance at the future. I consider that this lies in the hands of the men of science.

Today some of us may feel we are living in the era of ultimate weapons. I suggest we are really in a transition period. There is much more to come.

Within the next five years the guided missile will be with us. Within the next ten years there will be an operational intercontinental ballistic rocket carrying a nuclear warhead. Never has it been so necessary for the fighting men and the scientists to work closely together, and for the service chief to say clearly what he wants from the scientists.

In my address here last October, I quoted the following verse from the Old Testament: "If the trumpet give an uncertain sound, who shall prepare himself to the battle."

1 Corinthians, 14, 8.

I often think that today when service chiefs talk to the scientists, the trumpet gives out a most *uncertain sound.*

Shortly after the ballistic rocket will come the unmanned satellite. I read recently in a newspaper a statement by a scientist that there is no sound military requirement for this device. I disagree profoundly.

I remember a statement made some forty to fifty years ago: "There is no sound military requirement for the aeroplane."

What these statements really mean is that man's imagination is deficient. A few years hence we will look on such a statement about the satellite as rubbish.

The military requirement is that a large unmanned satellite could contain television, photographic, and communication equipment. It could televise pictures of worldwide cloud formations thus allowing the continuous location of storm centers and areas of good weather. This capability to view the weather from above as well as below would advance meteorology; such an advance would have military value, particularly for air operations.

The satellite could look down on any desired area several times in each twenty-four hours.

The information thus gained would depend on the state of development of radar, visual optics, and television technology. The pictures taken would be automatically developed and sent back to earth by radio.

'We must go forward into the future, working for a sound balance between tradition and progress.'

The advances that would accrue to mankind in general, and to the military in particular, are of course impossible to predict accurately. If they could be predicted we would not need the satellite.

It is clear that there *would be* advances; some of them might completely overshadow all advances up to date. In any case, the scientists would get a fresh unhampered view of the earth. . . .

Summary

I have been studying nuclear war for a considerable time and I have come to the conclusion that man will have it within his power in the future to destroy himself and every living thing in this planet. I do not believe this to be man's destiny. But we must face the facts *now,* or it will be.

War is not an act of God. War grows directly out of the things which individuals do or fail to do. It is, in fact, the consequence of national policies or lack of policies. Do not let us fail to do the right things now. Our aim must be to prevent war; the prospect of winning or losing is not a profitable subject. We must find another court of last resort for adjusting political differences.

You may say: "How can we prevent war? Man has been warring since the dawn of history. Why should he change his ways now? Man will, as far as one can foretell, always make war unless there is some powerful deterrent to prevent him."

Here lies the key to our problem.

The *banning* of nuclear weapons will not give us peace. We will get lasting peace only *by having* the nuclear deterrent, as no nation will risk its own utter

(Continued on page 58)

BUILDING BLOCK
Sub-Systems ...in support of the Weapons System Concept

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destruction by bringing on a nuclear war. But there must be no hanging back, no flinching in the crisis; the unflinching deterrent will produce peace.

What then has to be done to ensure that war will be categorically unprofitable?

This question is not easy to answer. But the "Pax Atomica" should be the basis of the plan, until man can bring about the abolition of war as a means of settling international disputes: which is a problem for the political leaders to solve.

Then I suggest that if we can give sound solutions to two simple questions, we service chiefs will have given our contribution to the answer.

The two questions are:

First: How should the armed forces be organized in order to achieve maximum strength and thus act as a positive deterrent to war?

Second: How is this best done within the limits of economic possibilities?

I have endeavored to point the way towards the answers to those two questions.

As far as I can see, in any global war that may come upon us in the foreseeable future, air power will be the dominant factor. This fact being acknowledged, it will then be necessary to ensure a proper balance between air, sea and land forces. . . .

As air forces develop through the jet bomber to the ballistic missile and the satellite, the world balance of power will become progressively more precarious. We must build up a powerful deterrent to war as our first object; having done that we must seek to bring about some measure of world-wide disarmament.

We must get the right organization for modern defense from the Minister of Defense downwards. That organization must be one which gives power of decision to the Minister of Defense and to his chief of staff of the armed forces.

Having got the right organization at the top, we must bring about a very close integration of the three services, welding them together on a cooperative basis.

Over-all, we must tackle the economics of defense as a matter of urgency.

Finally, we must understand that we are in the midst of a scientific revolution and we cannot stand still or put the clock back. We must go forward into the future, working for a sound balance between tradition and progress.—END

Air Force Combat Control Team maneuvers, Sewart AFB, Smyrna, Tenn.

First Team

The *years-ahead* design and production capabilities of Northrop Aircraft, Inc. are time-proved by the performance of the long-range Scorpion F-89 all-weather interceptor series. Today the newest members of the Scorpion family, the F-89Ds, constitute the "first team" of the U. S. Air Force, standing combat-ready at our most critical defense bases. Although the Scorpion's basic lines were laid down years ago, advanced engineering enables it to penetrate into the high altitudes where tomorrow's bombers will travel. Now armed with the massive striking power of 104 air-to-air rockets – heaviest punch in the air defense arsenal – the reliable Scorpion, with its two-man crew, can make effective use of even newer weapons as they are proved and produced. Because of this unique design flexibility, the Air Force has gained years and saved millions of tax dollars in its build-up to defensive strength. Like its teammate, the Northrop Snark B-62 long-range pilotless bomber, the Scorpion is a product of the creative ability of Northrop Aircraft, Inc.–since 1939 world leaders in the design, development and production of all-weather and pilotless aircraft.

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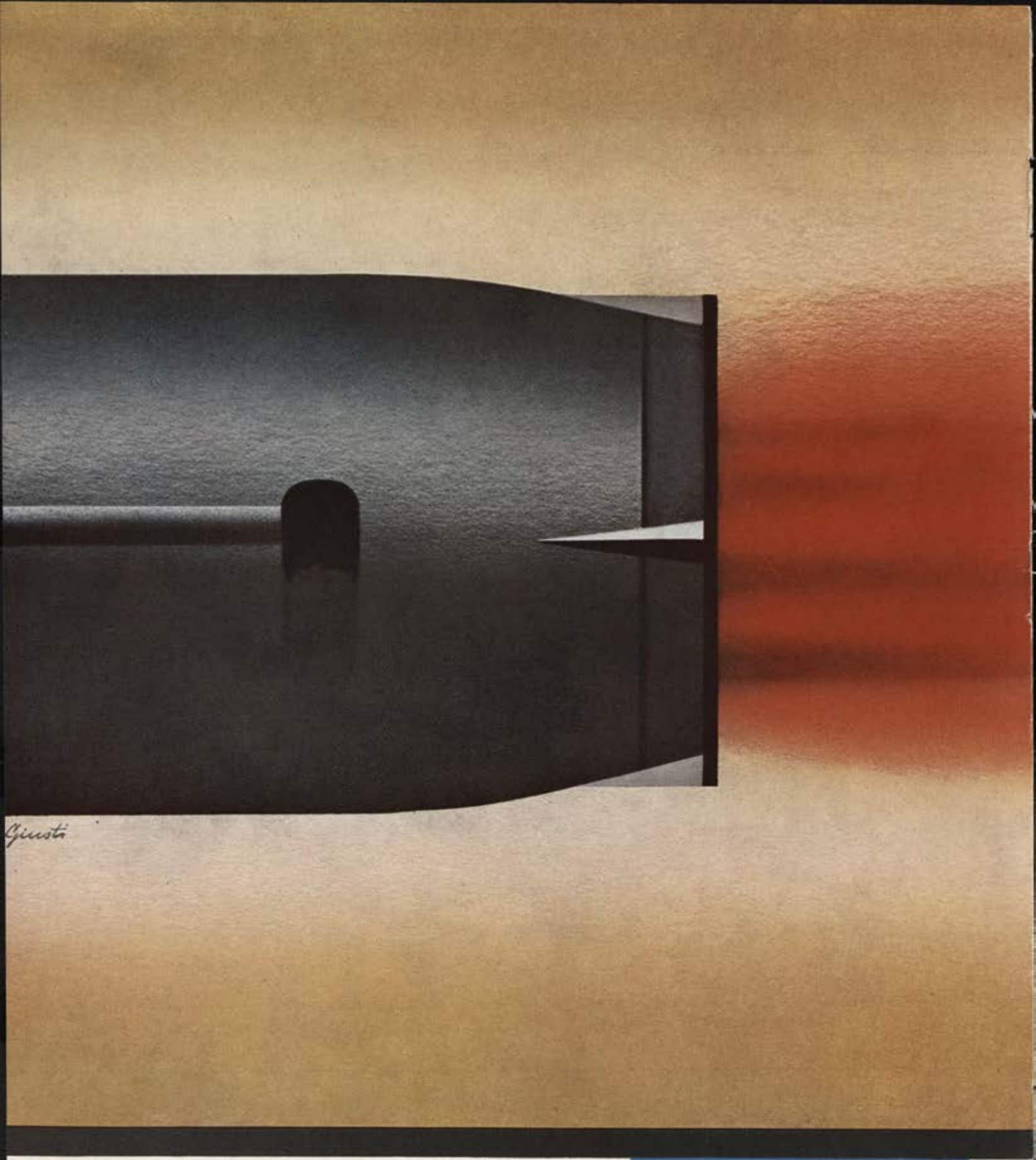

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Lockheed F-94C Starfires of the Massachusetts Air National Guard are lined up on the ramp at Gowen Field, Boise, Idaho.

The Weather Almost Won It

The Air Guard Gunnery Meet

ON PAPER it looked pretty good, the 1955 Air Guard Gunnery Exercise, scheduled from September 9-18 at Gowen Field, Boise, Idaho. The score card gave the names and numbers of all the players. The scoop was that the food would be catered, and someone said there was even a swimming pool on the base.

Along the Gowen ramp, you looked at the names on the sides of all the airplanes: Minnesota, Massachusetts, New York, Indiana, Texas, Maine, Iowa, Washington, New Mexico, California, New Jersey, Utah, Pennsylvania, New Hampshire. And you noted the types of planes: The curvaceous old F-80s, the fat "Super-Hog" F-84Fs, the rich-looking 94Cs, long as a dollar cigar; the scrappy '86s, doing 200 knots just sitting still on the ramp; the C-46 "Dumbos," the C-47 "Goonies," the L-20 Beavers, Charlie-45s, Tango-Sixes, what have you.

Things were shaping up. Looked like the beginning of a good gaggle.

And then you saw the little yellow keystone sticker on the window of Ops: "Never Fear," it said, "A SAM Is Near."

"What," you ask the Ops sergeant, "is a SAM? And what's to fear?"

"Beatselloutofme," says the six-striper. "It's those guys from Pennsylvania what's doing it. They're pasting the whole damn country down with 'em."

• • •

The Colorado Wing was the outfit to beat.

In 1954 Lt. Col. Walt Williams of Denver and Capt. Bog Sands of Albuquerque had come to Boise in their old rocking-chair 80s, whipped the tailpipes off the '86 jockeys, and retired to the Eastern slope of the Rockies with some fifteen of the twenty-one trophies offered. They had also won something else—the right to represent all Guard wings in the US, plus the Guard squadrons in Hawaii, Alaska, and Puerto Rico, at the 1955 Air Force World-Wide Fighter-Gunnery at Nellis AFB in Las Vegas. And in winning this honor, they again won something else: Sabrejets. For in order to participate in the regular Air Force meet their planes had to have radar sights; the '80s didn't have them, so the Guard Bureau had scrounged nine F-86Es for the Colorado Wing to practice in for the Nellis donneybrook.

Bad weather during the ANG meet kept the scoreboard from being overworked.

T/Sgt. Paul Moya of the Colorado Wing loads .50-caliber bullets in an F-80.

But the Sabrejet thing was what the other Air Guard teams were counting on to whip the 140th Fighter-Interceptor Wing (Colorado, Wyoming, New Mexico) in the annual Guard fighter competition, for they knew that the 140th was coming to the '55 All-Guard meet at Boise with a split personality. The other teams readily realized that Williams and Sands were having to practice and stay proficient in Gunnery in two different types of planes at the same time—the F-80 Shooting Star and the F-86 Sabrejet, for the Guard meet came in the first half of September and the Air Force meet in the last half of the month. And the Colorado Guard was not allowed to use its '86s in the Boise meet because it was regularly equipped with the F-80.

Colonel Williams and Captain Sands, as well as the other members of the 140th team (Maj. Wynn

(Continued on following page)

Coomer of Denver, Maj. Jack Ziemer of Cheyenne, and Lt. Dick Hueholt of Boulder, Colo.), knew it wasn't going to be easy to hold onto the crown they had won in 1954 under the conditions, but they figured they'd give it everything it was worth.

• • •

The scoreboard summed up the whole situation pretty well, and in black and white. The big accent of the meet was on the "Day Fighter" phase, in which F-86s, F-84s, and F-80s would vie. But there was also an "All-Weather Fighter" phase, in which F-94C planes from four wings, Maine, Massachusetts, New York, and Minnesota, would compete. This part of the tourney was not expected to provide much "hot" action, however, as the units with the '94s had little experience in them and were having difficulties even obtaining Radar Observers.

Four firing missions had been scheduled at 27,000 feet and four more at 20,000 feet for both Day Fighter and All-Weather Divisions. In addition, the Day Fighter boys would fly two dive bomb sorties, two rocket missions, two skip bomb trips, and fire air-to-ground panel gunnery twice.

If the weather permitted.

If it didn't? Well, no one had quite figured that one out yet.

• • •

The food was catered and there was plenty of it, but the swimming pool was ice cold and you couldn't bring friends. There were rent-a-cars available free for lieutenant colonels and above, and if you weren't a lieutenant colonel or above there was always the roller-skating rink right on the base (it used to be a gym back in World War II days).

• • •

Monday, September 12, was devoted to practice missions.

The sun was just pulling the blind in the eastern sky when the first high-pitched whistle of an auxiliary power unit wrote the end to night.

The tow ships were off first, F-94Cs, painted garish, off-beat, fluorescent pinks and maroons, and then the tigers—in pairs—were torching into the blue.

It was a colorful sight, looking down the flight line at the chromed-up airplanes with the colorful and distinctive paint jobs; past the blue ambulances, the red firetrucks, and the yellow fuel trucks—with the hills of Idaho as a backdrop.

• • •

The air-to-air rules were simple:

Team championship was won by the 132d Wing of Iowa, above. The 142d Wing of Washington, Idaho, Oregon, and Montana was second, and the 144th of California was third. Lt. Col. Roland Wright of the California wing was top individual.

New York ANG F-94C Starfires were colorfully decorated with thunderbolts.

Counting the hits on a tow target.

Loading a rocket on one of the jets.

The target, a six-by-thirty foot radar reflective "rag" would be towed at the end of a 950-foot armored cable at 190 miles per hour (the tow ships couldn't quite "hack" this speed at 27,000 feet, but they tried hard).

Each pilot got six passes per mission, coming down "off the perch" in a diving, elliptical swipe. On each sortie each pilot would have four guns loaded with 100 rounds of .50-caliber ammunition apiece. He was supposed to break off firing when his angle to the target got flatter than fifteen degrees (so that he would not be firing up the tow plane's tailpipe). The judges had a good way of telling whether the pilot broke off when he was supposed to or not. If he had a "long bullet" on the target, one which broke more than fifteen strands in a row, he would be disqualified on that sortie. (Each pilot's ammunition was dipped in paint for identification purposes in scoring.)

In the air-to-ground phases, the big disqualifying factors would be firing when the range was closed (when a red panel was displayed on the ground) and flying below the minimum altitude set or beyond the foul lines.

In the dive-bomb events the pilots were to be given four bombs to drop in five passes; on the rocket mission they had to drive home four missiles in five passes; on the skip-bomb runs they had to lay in six bombs in seven tries; and in panel gunnery they got 400 rounds to unload in six firing passes.

"Remember," said the range officer

Pilots of Pittsburgh's 112th Wing prepare for a mission in their Republic F-84F Thunderstreaks. Weather and low-flying clouds hampered the competition.

It takes a lot of ground work to prepare a jet plane for a gunnery mission.

in his briefing to the pilots on skip bombing, "the minimum altitude is thirty-five feet. I'll be standing in the tower watching. My eyes will be about thirty-eight feet above the ground. If I can look down at you, you've just committed a foul."

"Any questions?" the range officer asked, looking around the room.

"Yeah," said a quiet voice somewhere in the rear. "What is a SAM?"

• • •

For a couple of days it was a little hard to figure out how things were going. Looking at the scoreboard didn't help much because the teams were flying all different kinds of missions, and some missions carried more point-weight than others. Even a really hot air-to-air mission didn't compare pointwise with a mediocre rocket run, so all the pundits could do was sit around and chew their pencil stubs.

• • •

Every once in a while the pilots would hear a slightly disconcerted voice on the radio, saying in a rich Mexican accent: "Enoff uf thees lov-makeeng."

Which was the Colorado Wing's pilots way of telling one another to quit goofing up on the skips, the rockets, the strafing, or whatever they were doing.

At first the champion 140th didn't worry much about "lov-makeeng." Late Thursday afternoon Williams, Sands & Company was doing quite well, with a high 908 score posted on the board. Texas, flying '80s also, had 800 points, and Washington, flying F-86s, had 774.

In the all-weather department, Massachusetts was posting a few creditable scores, but nothing to brag about around Beantown.

None of the "hired killers," as the fighter boys call themselves, had gotten red hot—yet. . . .

• • •

The weather had been slowly souring all week long. At first, when a transient front put the cover on operations on the flight line, no one perspired much. After all, there would be time for make-up missions on Saturday—even Sunday if necessary.

The weather did clear out, almost. Trouble was, it left a few vagrant shelves and decks here and there that managed to float across the range about the time a tow ship would move in with a "rag." Not being able to spot the range boundaries below, the pilots involved would have to abort the mission.

It was a necessity. Overflying the range was dangerous. After all, only the year before, so the story went, a harness shop in the little town of Bruneau, Idaho, had been shot up a bit.

Nothing serious, but the civilians took a mighty dim view of it. Naturally.

• • •

By Friday noon the complexion of the scoreboard had changed so much that it was entirely obvious that the boys of the 140th had been doing entirely too much airborne "lov-makeeng" for their own benefit. The Washington Wing (comprising squadrons in Washington, Oregon, Montana, and Idaho) had piled up 1,534 points in nine missions to Colorado's 953 points in seven missions. The Hayward, California, Wing, the 144th, including the Utah squadron and its super-hot "shooter," Lt. Col. Roland Wright (who won individual honors in 1954), had emerged, too, with 730 points in only four missions.

Colorado had 953 points in six missions, and the Iowa Wing had emerged as the dark horse with 1,040 points in seven missions. The all-weather teams had been able to fire little—because, oddly enough, of weather.

Individually, Maj. Ken Nordling of Idaho, flying with the Washington team, was high man with 444 points. Right behind him was a teammate, Lt. Hal W. Morrill, with 387 points.

But things were really getting fouled up. Time had almost run out for the tourney (most of the troops were getting eager to get home; in fact, had to get home to their civilian

(Continued on page 67)

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jobs), and yet bad weather and poor scheduling had resulted in less than half the planned missions being flown.

• • •

The Pennsylvania boys were having their troubles with the F-84F "Super-Hogs." The Philadelphia Wing, the 111th, newly checked out in the fast, swept-wing fighter, finally gave up on firing, after a series of "zilches." But before they did one of the pilots had the misfortune to fly into a tow cable at 27,000 feet, while flying right on the mach. The cable cut the plane's left wing spar in two, but the pilot was able to get the '84 on the ground safely (while sweating freely). Thus the 111th, self-dubbed "the big spenders from the East," bowed out of the competition.

The 112th Wing from Pittsburgh, "The House of Sam," did pretty well on air-to-ground sorties with their newly acquired plane, but couldn't get the rag in the sight at altitude.

In fact, the best scoring they were able to do was on windows and mirrors with their SAM stickers.

• • •

On Saturday, September 17, the final scores were posted—and only two of the teams, Indiana and Iowa, had reached the halfway mark in firing.

Leading was Iowa, with 1,651 points. Next was Washington, with 1,534 points and one mission to go; in third spot was Colorado with 1,239 points and one mission to go; in fourth was California's 144th Wing, with 1,226 points and three sorties yet to fire.

In the all-weather category, Massachusetts was high, with 121 points, New York second with 118 points, and Maine third, with eighty-eight.

In the individual scoring, Capt. G. L. Young of the Iowa Wing was high with 487 points, his teammate, Lt. D. H. Hueske, second, with 456 points, and Maj. Ken Nordling of Idaho (Washington Wing) third, with 444. Nordling had been unable to fly since Friday, having been taken to the hospital with tonsilitis.

• • •

The meet finally fizzled out on Saturday, with no decision having been made on what would be done to pick a winner—or to arrange for the rest of the missions to be fired.

At the bar, an earnest pilot finally succeeded in cornering a Pittsburgh fighter jockey.

"Tell me about this mysterious SAM stuff," he said.

"It's like this," said the man from Pitt. "We used to have a squadron commander who called everyone 'Sam' the way you'd call a guy 'Mac' or 'Doc.'"

"Go on," said the earnest pilot.

"Well it got to be that everyone was calling the squadron 'The House of SAM.' Then somebody thought up this 'Never Fear' stuff and it caught on.

And in our squadron now a new pilot is said to be 'quarter-Sam'; a pilot checked out in a T-6 is 'half-SAM'; when he gets checked in a T-bird he's 'three-quarters SAM'; and when he gets into the '84F he's full-Sam.'"

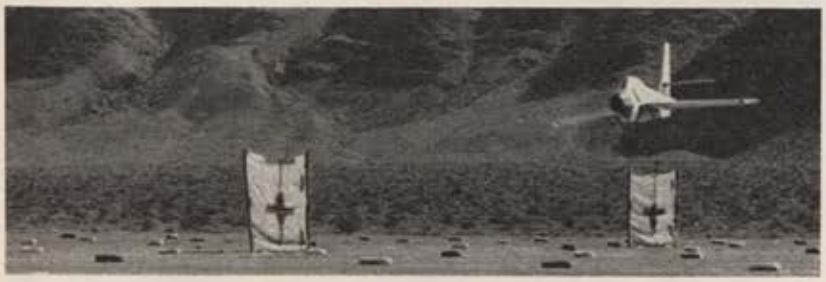
"The only trouble is," continued the Pittsburgh pilot, "the way we flew here we're all only quarter-SAM."

Which is a pretty good description of how the whole 1955 Air National Guard Fighter Gunnery Exercise ended—"quarter-SAM."

(Final missions in the Air Guard gunnery exercise were fired at Boise just before this issue went to press. The team championship was won by the 132d Wing of Iowa. Second place went to the 142d Wing, which has units in Washington, Idaho, Oregon, and Montana. Third place was won by the 144th Wing of California. Lt. Col. Roland Wright of the 144th won high individual honors. Capt. Harold Young of the 132d placed and Maj. Kenneth Nordling of the 142d was third.)—Ed Mack Miller

At Nellis and Yuma

THE BIG SHOOT



Against a rugged background of Nevada scenery, a jet fires on ground targets.

By Edmund F. Hogan
RESERVE AFFAIRS EDITOR

Maj. Frederick C. Blesse, of the Air Training Command, won six out of the eight individual awards.

Scoring the hits on a target. Different colors on the bullets make it possible to score each pilot.

THREE years ago the Air Force's nineteenth jet ace, Maj. Frederick C. Blesse, left the 334th Fighter-Interceptor Squadron in Korea and reported to Nellis Air Force Base, Nev., to teach fledgling pilots the rudiments of combat tactics, including the most important tactic of all—air-to-air gunnery. Last month Blesse proved the wisdom of this assignment.

The thirty-one-year-old fighter pilot knocked off six of eight individual awards to lead Air Training Command to its second consecutive championship in the week-long day fighter portion of the world-wide USAF gunnery and weapons meet in Las Vegas.

Blesse, who flew 223 combat missions in Korea, was high individual in air-to-air missions at both 20,000 and 30,000 feet; tops in high-angle bombing and rocketry; first in low-angle skip-bombing and strafing; high individual in the combined air-to-air phases and high in the combined air-to-ground operations.

Strategic Air Command took second place, repeating its finish of last year, but there the resemblance to the 1954 standings ended. Far Eastern Air Force, which won third-place honors last year, trailed the pack in sixth place. A surprising Air National Guard team, represented by the 140th Fighter Wing with headquarters in Denver, finished third. US Air Force Europe was fourth, and Tactical Air Command wound up a disappointing fifth.

Five teams competed in the Special Delivery phase of the day fighter competition. This phase, involving the daytime delivery of classified weapons, was won by Far Eastern Air Force with USAFE finishing second. Strategic Air Command was third, Training Command fourth, and Tactical Air Command fifth. The Air Guard did not compete in the Special Delivery competition.

Immediately after Las Vegas, attention shifted to Yuma Air Base, Ariz., where the second annual world-wide rocketry meet ended in a victory for Eastern Air Defense Force. Air Training Command finished second; Northeast Air Command third; Far East Air Force fourth; Central Air Defense Force fifth; Western Air Defense Force sixth; US Air Force Europe seventh; and Alaskan Air Command eighth.

The Eastern Air Defense Force team was led by Col. Milton H. Ashkins of the 4710th Air Defense Wing, New Castle County Airport, Wilmington, Del. Col. Benjamin H. King of the 4710th tied for first place in the individual scoring race at 4,600 points with Lt. Arthur F. Dennis of Training Command.

(Continued on page 71)

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From left: Starfire team Lt. Robert Goad and his pilot Col. Ben King, and Lt. Arthur Dennis, F-86D pilot, scored 4,600 points out of a possible 6,000.

Eastern Air Defense Force took top honors in 1955 AF Rocketry competition. From left, Col. Milton H. Ashkins, 4710th Air Defense Wing, holds permanent trophy; Maj. Gen. Morris R. Nelsen, CO of EADF; M/Sgt. Jake Grant, EADF with Richard I. Bong trophy; and Maj. Gen. George F. Smith, ADC Chief of Staff.

Despite Blesse's outstanding performance at Las Vegas, scores in the day fighter competition generally ran lower this year than last. One reason may have been that missions were fired for the first time at 30,000 feet and the rate of target rejections reached a new high.

The Guard team stepped into an early lead and for two days occupied top spot in the standings. The team might have finished higher had not its captain, Lt. Col. Walter E. Williams, been disqualified on his first two missions at 30,000 feet for firing at too flat an angle.

Williams almost shot himself out of the competition before it began in a freak mishap. On a practice mission two days before record firing began, a .50-calibre slug ricocheted off the target tow bar, struck the Sabrejet's nose cowl, and was swallowed by the engine. Since the Guard had no spare aircraft, ground crewmen set about making an engine change.

As the meet progressed, Williams, who flew fifty-two missions in Sabrejets with the 51st Fighter Wing in Korea, fired well enough to overcome partially his bad missions at 30,000 feet and ended up as the winner of the high team captain trophy.

The only "weekend warriors" in the competition at Las Vegas, the Air Guardsmen flew in borrowed F-86E aircraft, their basic equipment being the F-80. The team earned the right to represent the Guard by winning the ANG gunnery exercise at Boise in 1954. Only two weeks before they began firing at Las Vegas they had competed in the 1955 Guard competition at Boise (see page 63).

Competing teams were permitted six pilots, two of whom acted as alternates, and a ground support crew totaling twenty-five. But the population required to support the meet, including technical representatives from seventeen aircraft companies, reached almost to the thousand mark.

Each team flew eight air-to-air missions, four at 20,000 feet and four at 30,000 feet. Each flew eight air-to-ground missions at the Indian Springs range, about forty miles from Las Vegas. These included two high-angle rocketry runs and two high-angle dive-bombing runs. The four low-angle missions were divided into two skip bombing and two strafing rungs.

Team members were shooting for a possible 1,600 points, one-half of this total in the air phase and the other half in the ground phase. Blesse finished with 945 points, 291 of which he picked up on the eight missions.

Col. R. C. Franklin of USAFE and Lt. Col. E. B. Edwards of FEAF dominated the Special Delivery competition.

Franklin won high team captain award and placed first in the low-angle bomb run, using an IP. Edwards had the high individual aggregate score and was first in the low-angle bomb phase, without benefit of an IP.

Two fatalities marred the meet. A/1C Harry B. Stewart of the 321st Troop Carrier Squadron, Sewart AFB, Tenn., was killed when he walked into the revolving propeller of a twin-engine C-119. Capt. Thomas E. Daems, a flight commander in the 3598th Combat Crew Training Squadron at Nellis and a veteran of seventy-eight combat missions in Korea, lost his life when his F-86H tow aircraft crashed and burned on take-off. Daems had just hooked on to the nylon target and had reached an altitude of about one hundred feet when the airplane fell off on the right wing and crashed.

Only six of the pilots who flew in the 1954 meet were on hand for the 1955 event. Among the newcomers was the first non-Air Force pilot ever to compete in an Air Force event. He is Marine Maj. George H. Dodenhoff, who has been flying as an exchange officer with the Air Force for two years and who had his orders extended so that he might participate with USAFE's Special Delivery team. He picked up a second place behind Colonel Franklin in low-angle bombing with the aid of an IP.

Hundreds of spectators, including military representatives of a dozen foreign governments, thrilled daily at the Indian Springs range to demonstrations by the Thunderbirds, Training Command's precision aerial team, and by a flight of North American's F-100s.

Viewed in the hard statistics of who won what, it is difficult to establish the magnitude of the operation at Vegas and Yuma. USAFE's team, for example, hopped from Germany to Scotland to Iceland to Goose Bay and down the northeast coast line before turning west. One C-54 accompanied the fighters. FEAF's men flew almost 5,000 miles across the Pacific in a C-97, then borrowed aircraft at Foster AFB in Texas where ground crewmen went on fourteen-hour days to get the machines ready for the competition.

Training Command pulled in technicians from throughout its far-flung base structure; extra tank cars of fuel had to be stocked; the Pentagon and commands were tapped for experts in arbitration and judging. Housing had to be found for hundreds of visitors who annually find gunnery meets a compelling magnet. A mobile weather detachment from Tinker Air Force Base in Oklahoma spent five days on the road to negotiate the 1,200-mile trip in their huge vehicles so that they could report wind changes on the range to help competitors evaluate the winds in their firing missions.

Lt. Gen. Charles T. Myers, com-

(Continued on page 74)

TOMORROW'S AIRCRAFT: *One step closer*

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Chief Project Pilots, Tom Lloyd and Fred Hughes, join on the ground, prior to debriefing, following an afternoon air-to-air gunnery check on a fighter armament system.

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mander of Air Training Command, who presented the sixty-odd trophies on the final day of the meet, termed the Las Vegas competition the "World Series of the Air Force." Gen. O. P. Weyland, who commands Tactical Air Command, saw Vegas and Yuma as "valuable centers for the development and proving of new ideas and techniques."

In the excitement that is Las Vegas, with entertainment unsurpassed anywhere in the world and where the dice tables never close, the tendency is strong to overlook the fact that the Yuma competition is coming of age.

Weapons, which can be triggered by radar impulse rather than the combination of eye and hand, are taking over from the .50-calibre machine guns as the Air Force moves closer to complete all-weather fighter capability. In this context Yuma, which demonstrates this art, is emerging as the testing ground for the all-weather performance.

If Las Vegas attracted the most people, Yuma provided the most suspense. It was not until the final sortie that the EADF team, flying F-94C fighters, overtook Air Training Command's team from Perrin Air Force Base, Tex., to win the Richard I. Bong trophy.

This was not an easy accomplishment. Training Command had led from opening day. Further, no fighter-interceptor pilot in the Yuma meet ever sees a target with his naked eye. He flies under a hood, pursuing a nine-by-forty-five-foot target of nylon marquisette which reflects radar and streams out at the end of a mile-long cable. The target is towed at 20,000 feet by B-29s and at 30,000 feet by B-45s.

Since the radar in the fighter aircraft will show two blips—one for the tow plane, the other for the target—a "chase" plane is assigned to each mission to assure that the fighter will not line up for a firing pass on the tow plane instead of the target. Whenever a fighter lines up on the tow plane, the "chase" aircraft calls for the firing pass. Proving the effectiveness of the technique, no tow plane has yet been hit.

It is unlikely that any will for, as Gen. Earle E. Partridge, commander of Air Defense Command, said in summing up the meet, "The best air-to-air rocketry teams in the world have just completed 1955 competition for the air-to-air rocketry championship of the United States Air Force."

One can assume that more of the best will be entered as Yuma overtakes Las Vegas as the center of air-to-air competition.—END

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The Case for the Escort Fighter

In the current crop of supersonic fighters being developed for the USAF, the emphasis has been placed primarily on short-range, high-speed aircraft designed for interception or tactical operations. The North American F-100, Convair F-102, Lockheed F-104, and, presumably, the Republic F-105, all fall into this category. These aircraft are among the best in the world for their designed purposes, but while day fighters and all-weather interceptors are being produced in ever increasing quantities, and more emphasis is being placed on tactical aircraft, the nation's aviation planners and designers seem to have forgotten the escort fighter completely.

World War II proved that neither defensive armament nor speed can entirely protect bomber formations from the interceptors which inevitably must meet them over their targets. Today, bombing tactics have changed, and guided missiles have come into the picture, but the nations of the world still rely primarily on interceptors to stop bombers and escort fighters to stop interceptors. The fact that the potential range of heavy jet bombers has increased greatly makes the problem of designing an escort fighter all the more difficult. For example, the principal Soviet type of escort fighter, a version of the Ilyushin IL-28, has to be as large as a light bomber and as sluggish in order to carry the fuel necessary for long-range flights.

The US answer to the problem, the McDonnell F-101A Voodoo, is equally large, and, therefore, not highly maneuverable. The F-101A, often called a "penetration" fighter, could be equipped to fight off the nimble interceptors it would meet over target with the installation of guided missiles in the forward fuselage, where it now carries four 20-mm cannon. Another proposed idea is a fighter version of the Martin Canberra.

But, although production of the F-101A has been stepped up, little has been done to further adapt it as a fighter escort, and no other comparable aircraft, not even the proposed Canberra, are now on order. With war possible at any time, little is being done to provide escorts for SAC's heavy bombers. The Thunderstreaks currently in use with SAC units could handle this job only with air-to-air refueling, something which is not needed by heavy bombers and which would cause complications in any large-scale operation.

So, let's hope that the Air Force will look more closely at this problem and come up with something that will guarantee SAC's bomb crews a flight reasonably safe from enemy interceptors, should the time ever come when war is forced upon the United States.

Lt. Robert F. Dorr, CAP
Washington, D. C.

'And if by Air?'

"One, if by land; two, if by sea" are familiar words to all Americans. They symbolize an era that has ended, an era that gave us the cushion of two oceans and wide expanses of land between ourselves and any potential aggressor. This cushion of water and land, which gave our industry and citizenry adequate time to develop military might for victory after the outbreak of war, belongs to the past.

A new era has been thrust upon us with the birth of supersonic speed and nuclear fission. It confronts us with the inevitable question, "And if by air?" Land and sea no longer play their former role as a defense cushion. The sole answer is an adequate defense force in being prepared for the moment when war breaks out. America can never again rely on her capacity to marshal military strength after an attack. This inescapable conclusion throws new light on the obligation of patriotism. The supreme test of our country's ability to exist no longer depends upon the sacrifices which her citizenry may be willing to undergo after she is attacked. It now depends on the sacrifices her citizenry is willing to make in time of peace. Those who sleep complacently, lulled by the assumption that their patriotism, though now dormant, will be sufficient to meet any threat to our nation after an outbreak of war, must ponder the question, "And if by air?"

This is an age of supersonic speed and nuclear fission. The answer is evident. America can survive provided the dormant patriotism of her citizenry awakens today and rallies to the immediate support of her defense forces in being. This is an hour of decision. In the event of actual attack America will be saved or lost solely on the strength of her standing military forces at the moment the aggressor strikes his first blow. The greatest disservice to our country today is rendered by those who hide behind the fiction that they can safely postpone until tomorrow what they should do today.

Americans must completely reappraise their civic duties. Love of country on the part of each citizen must be fired with the spirit of "Do it now!" The spirit "Let George do it now—I'll do my share when war breaks out" is a fatal luxury, no longer permissible. This new concept of patriotic responsibility, so essential to our nation's survival, must catch fire at the grass roots of American life. It imposes new obligations both on our citizenry and on our military establishment.

Homes, churches, educational institutions, veterans' organizations, and civic groups must inculcate hard truths in the minds of our younger generation concerning the necessity for personal sacrifice in manning the defense of our country. The doctrine of duty commensurate with privilege, oft-times unwelcome, must be impressed upon the minds of our youth. As a nation, we must reject the selfish philosophy of those who live by the principle "Let the other fellow do it." We must purge ourselves of selfishness, apparent in the attitude of those who feel that the only smart thing to do is to feather their nest in civilian life, while smirking at those who man the nation's current defenses.

(Continued on following page)

A parent who fosters this type of personal selfishness in children undermines the very foundation of our nation. A church that does not instill in the minds of individual members a deep sense of obligation toward their country, commensurate with the privileges of the American way of life, fails our nation and the virtue of patriotism badly.

An educational institution which poisons the minds of young people with the cynical philosophy of self-indulgence, to the utter exclusion of the concepts of sacrifices and duty, betrays our national well-being. A veterans' organization or civic group, when more zealous for immediate material advantage than for a program of indoctrination in basic values of the American way of life, contributes to the ominous weakening of the nation. If these segments of our citizenry fail to combat the trend of worldly-wise complacency, the way will have been paved for national collapse. National survival depends on the effectiveness of our actual military establishment in being at the time of an attack. Every blow against this essential to national survival constitutes the crime of treason.

The weighty concepts of this new era of national life, so unlike anything in our past history, impose new obligations on the military establishment itself. More than ever before, danger, privations and hardships are inherent elements of military service in our day, often to be shared with loved ones.

Service personnel have a way of rising above self in generous response to the call of duty, when properly motivated by the love of country and full appreciation of the objectives of our national quest for world peace. Fortunately for us as a nation, a great number of career officers and airmen recognize their calling as one of complete dedication to their country's cause.

The exigencies of national defense will increasingly demand stern sacrifices. The military establishment must face up to these sacrifices and take pride in them. Hard-headed patriotism must be the tough core of our present and future defense effort.

Recruitment efforts, if based solely on the promise of "life as usual" in the service with bigger and better material gains, sufficient to outweigh the forfeiture of the comforts and stability of civilian life, fall far short of the job. Those who entered the military service with the exclusive expectation of a comfortable, profitable career, awakened to the fallacy of this type of motivation when confronted with the grim reality of Korea and similar crash defense programs.

No fair-minded citizen begrudges the generous steps taken by Congress to undergird military service with equitable material benefits. When we, as a nation, expect sacrifices on the part of those who man our defenses, it is but just that we reward their self-effacing dedication to our national cause. Yet, in our thinking we must not allow the concept of reward to exclude the concept of devotion to duty above self-interest. We must face the facts! Individual enlightenment, motivated by earnest dedication to duty and an appreciation of proffered material benefits, is the indispensable ingredient of the long, hard pull ahead. Only the cynically blind, with heads buried in the non-atomic past, minimize the effective role of true patriotism in our present situation, patriotism that rises to the full measure of dedication rather than sinks to the narrow confines of total self-interest.

Military service cannot be sold solely on the basis of "life as usual." Inevitably crash defense programs as well as the ever-present possibility of a sneak attack against us rob such a recruitment concept of its validity. Separation from loved ones, privations and even the risk of life and limb will be taken in stride by those true Americans who love their country above self and personal conveniences. That is the glory of America—even in the time of uneasy peace.

In this grim struggle for national survival our homes, churches, educational institutions, veterans, and civic groups must join hands with the military establishment in a common effort, marked by such sincerity and singleness of purpose as will assure the continued safety of our nation. This joint endeavor must squarely face the great issue of our generation: "And what if by air?" We must not reply, "Tomorrow." Tomorrow is never!

Ch. (Col.) Constantine E. Zielinski
US Air Force Academy
Denver, Colo.

Budget and Taxation

Each year government agencies are called upon to prepare annual budget estimates. The estimates are reviewed by Congress, who then determines and authorizes the amount of the appropriations for the various government agencies.

From a Congressional standpoint, it would appear that the total government budget should be predicated on a tangible base line. A logical base line, consistent with the economic situation at any given time would be the estimated yearly value of the national product.

Total appropriations could then be determined on a percentage basis to meet the situation existing at a particular time—peace, war, or an extended emergency such as we are now experiencing.

Assuming the yearly value of the national product to be $400,000,000,000 the following breakdown is suggested:

Budget (Billions)	*Peace*	*Emergency*	*War*
Total Budget	$40	$60	$120
Civilian Gov't. Agencies	24	24	24
Military Depts.	16	36	96

During periods of economic depression pump-priming might be necessary and income would be decreased. Under these conditions added expenditures would be considered deficit appropriations and should be added to the national debt, so that they could be paid over a longer period of time. Under this plan the budget for civilian government agencies would remain stable but military expenditures would change as necessity dictated.

This plan envisages putting government expenditures on a pay-as-you-go basis, up to the point of a maximum personal income tax of thirty percent (over-all average).

If the yearly national budget is related to the yearly value of the national product on a percentage basis, it will simplify budgeting procedures and impart stability to government expenditures. Further, as the national economy contracts or expands, our yearly budget would likewise contract or expand.

The division of total appropriations between civilian government agencies and military requirements should also be considered on the basis of a percentage of the total yearly budget in order to preserve the proper balance between these two major government components.

It is believed that a plan of this type if adopted would simplify budgeting procedures and maintain appropriations within amounts considered to be financially sound at all times. The divisions of the appropriations between agencies would remain the prerogative of Congress.

Col. Lloyd E. Arnold
Selfridge AFB, Mich.

COSMIC OPTIMISM

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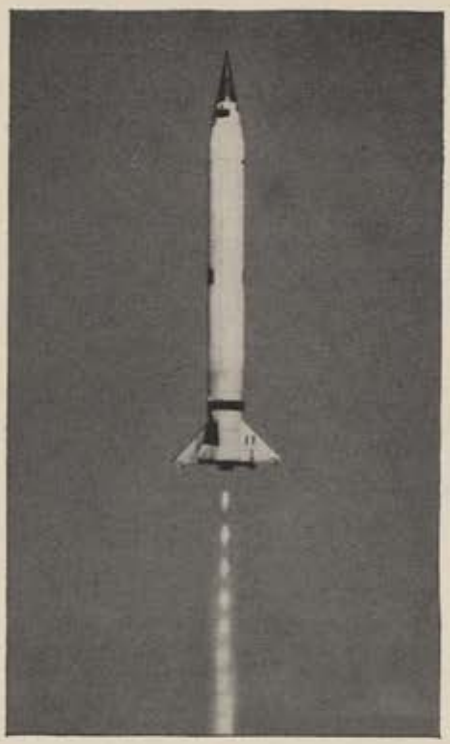

RMI's continual design progress is reflected in the ever-advancing performance of the Viking missile (shown left). Powered by a 20,000-pound-thrust RMI rocket engine, Viking 11 has broken the world's record for single stage missiles by climbing 158 miles into space and reaching a speed of over 4,300 miles per hour.

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FLIGHT TESTING THE ANTI-SUB HSS—At Patuxent River, Maryland, the Navy has subjected the HSS helicopter to carefully-instrumented, grueling tests. This submarine-hunter is one version of the high-performance Sikorsky S-58. It uses electronic sonar gear to locate and track subs. Addition of arming racks enables it to launch torpedoes or mines. The S-58 has twice the payload capacity of the S-55. Rotor blades fold back for shipboard use.

AROUND THE WORLD WITH SIKORSKY HELICOPTERS

FOR VENEZUELA—A new Sikorsky S-55 type helicopter, pictured above, has been delivered to the Venezuelan Air Force. With the delivery, Venezuela joined the ranks of 14 nations whose armed forces or commercial air operators rely upon the efficiency and dependability of versatile Sikorsky helicopters. Pilots were trained in the S-55 at Sikorsky's Bridgeport plant.

FOR THAILAND—A representative of United Aircraft Service Corporation supervises the assembly of Sikorsky S-55 type helicopters in Bangkok. The machines will be flown by the Royal Thailand Air Force, on low-level border patrol duty. Six of the big Sikorsky helicopters were ordered. The type has achieved an outstanding record operating in jungles and other remote areas.

HELP FROM THE SKY—When flash floods hit the northeastern states in late August, helicopters picked up nearly a thousand people and carried them to safety. People were rescued from houses being torn to pieces by savage flood waters, from hilltops, and from stranded trains and cars. In Connecticut alone, more than 500 were saved by Sikorsky helicopters. Above, a USAF Air Rescue Service Sikorsky H-19, pictured in Pennsylvania, lifts a woman to safety as a man waits his turn at a second floor window. Helicopters were often the only means of rushing food, medicine, and rescue workers to the stricken areas.

HELICOPTER HISTORY

FIRST HELICOPTER AIR-SEA RESCUE

In November, 1945—almost ten years before the recent flood disaster in which Sikorsky helicopters saved hundreds of people—a Sikorsky R-5 made what is believed to be the first helicopter rescue. Crewmen were brought safely ashore from a storm-swept barge wrecked on Penfield reef, off Fairfield, Connecticut.

SIKORSKY AIRCRAFT

BRIDGEPORT, CONNECTICUT

One of the Divisions of United Aircraft Corporation

By Murray Green

at the corner newsstand

THE SUMMIT conferences at Geneva left in their wake a number of sincere joint communiqués which portend some welcomed relaxation of tension in the cold war. These hopes may never be realized, but in any event, we can be absolutely certain there will be no relaxation of intelligence and espionage behind the polite façade of diplomatic negotiation.

Two different ways of life are separated by an ideological no-man's-land. Peering intently at each other across it are the MVD, old as intelligence operations go, and our young organizations. In the past ten years we have learned much about acquiring intelligence with neatness and dispatch, but are drastically handicapped in a comparative sense. In our democracy, the printed and spoken word that keeps the American people well informed also does the same for the MVD, an advantage which, for the US, tends to make the intelligence-collecting game grossly unequal.

In the espionage department we are probably holding our own. Watchful FBI and military counter-intelligence agents are constantly on the alert to expose defection and treason wherever they may find them. But the FBI is helpless to cope with a perfectly legal transaction that may take place daily at any corner newsstand.

Through careful screening of our newspapers and periodicals, the Soviets may acquire practically anything they want, from the specifications and performance characteristics of a secret piece of machinery, to the highest level of government planning, by simply reading about it. More likely than not, the information is dressed up in artful illustrations on slick magazine stock.

How does important military information find its way into print? Perhaps the most common way is by sheer inadvertence. Our government is so big and cumbersome that thousands of pieces of factual information flow across a dozen control desks each day. No two security officers view each item exactly alike. One may blue pencil what the other releases to the press.

We may cite a number of recent cases where security information accidentally found its way into print. Some months ago, a drawing of the classified Bomarc guided missile appeared in an unclassified Air Defense Command publication. In another instance the Navy showed colored movies of the Terrier guided missile which, according to a New York *Times* account, "drew amazed comments" from an open Waldorf-Astoria audience. At the same time, Navy security regulations barred Convair, the manufacturer, from releasing any pictures to the press.

The Office of the Secretary of Defense, which tries to keep the individual services in line, has been guilty itself. A directive published in March 1954 set up a production scheduling system for "hard goods." Some eighteen missile projects were listed as falling within a production priority area. The directive at once told the Russians which missile projects—amid all the public relations hoopla—really had operational possibilities. The directive was rescinded, but not until the damage was done. One au-

thoritative aviation writer asserted that the directive "released more information on the US guided missile program than had been previously released or leaked."

But perhaps the most painful single disclosure came out of an executive meeting of the House Armed Services Committee in July 1951. Two Congressmen, within earshot of a reporter, said they were "shocked" to learn that the Air Force had only eighty-seven B-36s ready to go at a moment's notice. If Winston Churchill was correct when he said that American atomic airpower was the only deterrent to Soviet aggression, then extremely vulnerable information had been leaked to our potential enemy. Equally galling was the fact that the Kremlin had acquired it for a nickel.

Elmer Davis's sage advice comes to mind: "This is information the Russians would like to have, and could get, probably; but why not make them work for it?"

Inadvertence aside, damaging security information has also leaked into print through the deliberate release of information as a by-product of inter-service wrangling. Take guided missiles. We recall the heated discussions between the Army and Air Force as to whether missiles had "wings," which made them "pilotless bombers," or "fins," which made them artillery projectiles. Not many months ago, a Senate Appropriations Committee report astringently concluded: "Service witnesses in almost every instance, while lauding the characteristics of the missiles under production for their particular service, had a tendency to belittle the programs of the sister services."

But we would be mistaken to place all the blame within the military establishment. A number of editors, syndicated columnists, and "inside dopesters" in the nation's capital thrive on controversy over military strategy. Not even in politics can they find more grist for their mills. Once you catch on to the military jargon—"calculated risk," "massive retaliation," "absolute weapon"—you have cut your eye teeth as an expert.

Military analysis has blossomed into a major Washington industry. When two or more weapons systems seem to be competing for the same appropriations dollar, exponents of System "A" may find the inspired article a convenient way to communicate their belief that it is superior to System "B." Sometimes they provide classified details as to why this is so. Congressmen read these articles very carefully, but unfortunately, so do the Russians.

The MVD collection machinery has other sources of information to keep it working overtime. Out of the House and Senate document rooms emerge the weighty hearings texts on military and strategic subjects. In the famous B-36 controversy of 1949, advocates of the strategic bomber and aircraft carrier weapons systems pressed their cases with vigor and documentation. A House committee held protracted hearings in which practically every important military personality testified at length—and in detail. The result: a stand-off, with the Air Force continuing to hold "primary responsibility" for strategic bombing. The Navy was not excluded from conducting strategic bombing when vital to its mission—a determination apparently left to the Navy. No one gained but the MVD.

Our intentions along with our capabilities have been laid bare in Congressional hearings. In April 1951, Gen. Douglas MacArthur was recalled from the Far East by President Truman. The demand for a Congressional investigation ended up in another zestful probe and 2,000,000 words of testimony in five thick volumes. Nothing pertaining to our Far East policy—past, present, and future—was left unsaid. Doubtlessly, the information was of immeasurably greater value than the design details of our guided missiles or the disclosure of how many B-36s were operational at any given time. It was practically the equivalent of our having all the minutes of the Politburo meetings in the ten years since V-J Day. We gave it all away, except for a bit of "secret" information scissored out by a military censor at the hearing-room door.

Of how much use is all this to the Communists? Of course, we may never know, and we pray that we may never have cause to find out. Yet Americans must face the uneasy fact that intelligence operations and espionage are almost second nature to the Russians. For thirty-seven years under Communist rule, and for generations before that under the Czars, they have had an internal system of cross-espionage. They have spied on one another, and neighbor reported neighbor to the police, a practice which has only been intensified in recent years.

If the MVD is as conscientious as the Gestapo was in the pre-World War II period, we may be in for trouble. The Kremlin leaders may not only know more than we give them credit for; *they may know more than we know.*

An authenticated case in Air Intelligence files proves that it is possible for one individual to combine painstaking research with broad experience, then synthesize it into important conclusions. In mid-1940, the Gestapo made a special effort to evaluate what role, if any, could be played by the US aircraft industry to bolster the shaky Allied cause. The Low Countries had been overrun; France had surrendered; and the British awaited invasion.

Also in June 1940, President Roosevelt gave the green light to build 50,000 planes a year, but few seriously expected American industry to come close. Yet it was clearly evident that to save Europe from Nazi domination, America's aircraft production potential—IF given enough time to shift into high gear—would have to provide the substance for this last hope.

The Nazis were acutely aware of this when they sent over an expert to get the facts and make an appraisal. The "spy" went to a public library and surveyed all the published data he could get his hands on. After about eighteen months here, just before Pearl Harbor, he returned home to write a "Report on United States Air Armament," a document which found its way into our hands at war's end. It was translated and sent to the Air Technical Intelligence Center. At Wright-Patterson our analysts went through the document with ill-concealed amazement as they concluded "that the German estimates, although conservative, were closer to the actual production figure than the estimate of US production planners."

This assertion is especially interesting. The official US estimates were produced by the War Production Board. They were distilled from on-the-scene, classified reports made by production experts, economists, and statisticians. The German's figures were based entirely on published data.

Our favorite spy did not confine himself to predicting production rates. He got out on more limbs than an election pollster, only his precision was almost uncanny. For example, he pinpointed the B-29 as a weapon to be watched—if it had 2,500-horsepower engines. These estimates were made in 1941 when the B-29 and the 2,500-horsepower engine were kept in the same top drawer with our experiments in atomic energy.

Curiously, the official history of the Army Air Forces reveals that elaborate cover plans were carried out in 1943-44 to disguise the existence of, and later the mission of, the B-29. These plans obviously kept all but our enemies in the dark.

In another instance, the prescient German spy dismissed as too slow the vaunted Douglas B-19 which turned out to be one of our biggest wartime busts:

"Several months ago, [early 1940] the B-19 underwent its first flight test in the presence of the entire press. It seems problematic whether this airplane will go into mass

(Continued on page 85)

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Typical of the types of projects Hoffman Field Engineers are working on, one group is presently engaged in conducting field evaluation studies at remote air bases on TACAN, the most advanced airborne navigation equipment yet produced. This field study is being coordinated with Hoffman's production of TACAN equipment.

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production even though it was given the fantastic name 'Hitler's Headache.' Its speed slightly exceeds 300 km. [185.4 mph]."

We learned later on what the German implied then, but not before we invested money, manpower, and material in "Hitler's Headache."

In some instances the German's report missed its mark, but in others, it gave detailed advice the Nazis were not prepared to take—for which we can be thankful. For example, the German foresaw that the American heavy bomber posed the most serious threat to Germany's industrial power. Our technical intelligence experts referred to these unusually farsighted observations in the following conclusion:

"One of the most significant estimates made in this report that the German government did not consider until it was too late, was the data outlined . . . [about which] the author had sufficient foresight to warn the German government in 1941 (two years in advance) that the German aircraft industry should be dispersed to protect it from long-range bomber attacks. As we know from historical data from World War II, the Germans made frantic efforts to disperse their aircraft to other surface plants, to forest plants, and to underground sites, late in 1943 and in 1944 when it was too late."

Remarkable as he was, this German "spy" was just one agent among many. As we now know, the Nazis, in the years before the war, had set up the *Auslands Organization* (League of Germans Abroad) under Ernst Wilhelm Bohle. In 1934 delegates of the League met in Berlin and heard Adolf Hitler tell them, "You are listening posts. Far from the front, you must prepare certain undertakings. . . . Consider yourselves under orders; military law applies to you."

Before the United States started worrying about foreign agents, there were an estimated 50,000 individuals in this country sending information back to the Third Reich. By 1936, a Bund espionage adjunct, a sort of mass reading panel, had been organized in ninety-one communities throughout the US. The membership was required to read and screen every newspaper, weekly, trade paper, and magazine, then forward the clips to New York headquarters.

To the average American a system involving so many people and such a tide of reports would seem fantastic and unbelievable. According to an American newspaperman who spent twenty years in Berlin, about $73,000,000, the second largest item in the secret Nazi budget, was spent on this US collection apparatus in 1939. If only a fraction of the data collected was as good as that furnished by the German agent, it was money well spent.

There is no good reason to doubt that the present Soviet effort is any less intensive. FBI Director J. Edgar Hoover estimates there are about 25,000 Communists in the US plus a number of active sympathizers several times that. It is hard to believe that the Kremlin is not exploiting this potential, especially with raw material so abundant and accessible.

Many have asked what the United States is doing in the field of overt intelligence. While our collectors have nothing like the volume of material available to the Soviets, the US is not exactly standing still.

The Library of Congress, for one, has agreements with libraries all over the world. It even made one with the Lenin Library to exchange as many as 9,000 publications each year for a like number shipped to the Soviet Union. In quantity, the switch has been fairly even; but in substance there is no comparison. Soviet publications for export are probably fine tooth combed by teams of censors for anything that may have intelligence value. Our publications are wide open. Recently, US intelligence officers estimated that a Russian newspaper that would tell as much about Soviet political, economic, and military affairs as a New York, Washington, or Chicago newspaper does would be worth a billion (repeat: billion) dollars. We cannot get our hands on such a newspaper, hence our intelligence-gathering apparatus must do what it can with what it has.

The outlook for US intelligence is not entirely bleak, however, despite the most relentless censorship of Soviet publications. There is a surprising amount of useful information that gets through, around, or over the Iron Curtain, and will probably continue to get out of Russia, for the totalitarian state of 1955 has not yet attained the automatic human responses of novelist George Orwell's society of *1984*. Swagger, complacency, envy, anger, sorrow—none of them has been quite extinguished in the Soviet state of 1955. Oftentimes they find their way into print—to our advantage.

But research is the cutting edge of surveillance. We must find these nuggets hidden away in Soviet trade journals, travel folders, and even railroad timetables, and relate them to other facts; and we must do it in a systematic way, if they are to do us any good. Consequently, our government has enlisted all the information-gathering agencies in this effort. The very resourceful Library of Congress has set aside an enclave appropriately called "Treasure Island," which operates within a parent Air Information Division under technical guidance of Air Force intelligence.

Other material which comes from businessmen and vacationers abroad, military attachés, bookshops in foreign cities, and many other sources, is poured into the intelligence hoppers. What comes out, however, is the very essence of an endless plodding research by hundreds of skilled people. Uncle Sam employs translators, sociologists, economists, historians—and even psychologists. All are engaged in a painstaking, day-in, day-out task of fitting

(Continued on following page)

ABOUT THE AUTHOR

Except for a wartime stint with the Navy, Murray Green has been associated with the AF since 1942 when he was an aircraft inspector at Martin Aircraft. He's now assigned to the AF Secretary's office in a research and writing capacity. Since 1950, when he was commissioned a captain in the USAFR, he's been active in the Air Intelligence Reserve program. Born in New York City in 1916, Mr. Green received his B.B.S. and M.S. degrees from the City College of New York in 1937 and '40, respectively, majoring in American history and international relations. In World War II, as Ensign Green, he served aboard aircraft carriers as a communications officer in the Pacific. For several years after the war he did historical work for the AF for several airpower books, among them Harold Hinton's Air Victory, *Vern Haugland's* The AAF Against Japan, *and Walter Edmonds'* They Fought With What They Had.

fragments of information into a jigsaw of military and economic capabilities, political and social strengths of other nations.

For some time now, I have harbored this secret, but really unclassified desire to set straight a popular misconception that has equated intelligence with espionage. For too long we have been conned into acceptance of a cloak-and-dagger symbol shaped by TV, Hollywood, slick magazines, comic strips, and sundry other media of communications. We have been thrilled by dashes to the far corners of the globe by collar-ad operatives comforted by stunning blondes and unlimited expense acounts.

I would be among the last to scorn derring-do, but we ought to put it in perspective. Covert missions are important, but they mainly serve to explore pin-pointed areas not covered in open source material.

For the fact of the matter is that intelligence collection, evaluation, and presentation is so complex and diverse that it takes highly trained personnel to assemble and integrate numberless little facts into meaningful relationships. We are heavily dependent upon the diligent efforts of needle-witted experts who, in their own way, possess as much daring as any E. Phillips Oppenheim protagonist.

Indispensable though the old-fashioned spy may be, the trained scientist is the mainstay of our intelligence service. Through espionage we may get an aerial photograph on which a radar station appears, but only an expert can spot and properly identify the station. So with smuggled photographs of new Soviet aircraft. It takes an aeronautical engineer to see in the sweep and dihedral of the wing surfaces, and in the blur of engine cowling against fuselage an aerodynamic quality of a new powerplant which may augur a technological "breakthrough" by the Russians.

One thing the Soviets must worry about is that the agglomeration of unevaluated data they may find in the American press is oftentimes booby-trapped.

Can we possibly conceive of an American intelligence analyst wrinkling his brow over a reported difference of opinion between Defense Minister Zhukov and Foreign Minister Molotov over basic military policy? Hardly—yet this must be common fare for his Russian opposite number. Just imagine the consternation that this worthy must have felt when he picked up his copy of the New York *Times* of recent date, and turned to Hanson W. Baldwin's column. On that day, the eminent military writer featured: "Dulles vs. Wilson," and under it the following subhead: "An Appraisal of the Divergence in the Cabinet on Politico-Military Policies." Mr. Baldwin's lead sentence began thusly: "John Foster Dulles, Secretary of State, contradicted Charles E. Wilson, Secretary of Defense, in his press conference Tuesday. . . ."

On another recent occasion, the New York *Daily News* blazoned the following headline: "Ready, Not Ready, Say 2 Generals." One Air Force general, speaking in St. Louis, was quoted by the United Press as saying the US is prepared for atomic war if it is forced on us. The other, at Colorado Springs, also quoted by the United Press, "warned today the nation's air defenses are a far cry from what is needed to stop a Russian H-bomb attack."

So far as the MVD is concerned, it is possible, as Voltaire observed, to suffer from an embarrassment of riches.

The Soviets also have a mechanical problem of sifting and evaluating the mountain of material they get from American publications. A veritable army of skilled people must be employed to distill something useful out of it. Manpower, however, is not a serious Russian worry. Whatever the problems are, there is no doubt but that our intelligence officials would gladly exchange their present setup for that of the Soviets!

And there is no immediate prospect that the tremendous handicap now afforded the MVD in point of overt intelligence will be narrowed in the future. Meanwhile, the United States must find some way to reconcile the need to maintain a free press, pillar of our democratic society, with the requirements of national security which sometimes puts a premium on secrecy.

Recently, a distinguished newspaper editor told a Senate subcommittee that "secrecy is alien to freedom and incompatible with freedom." Secrecy's price, he concluded, "is too high" to risk our free institutions. Perhaps this is so, but if opening the government's state and military files to public view is the price we must pay, the American people ought to be told that in all candor, and they might just as well get used to it.—END

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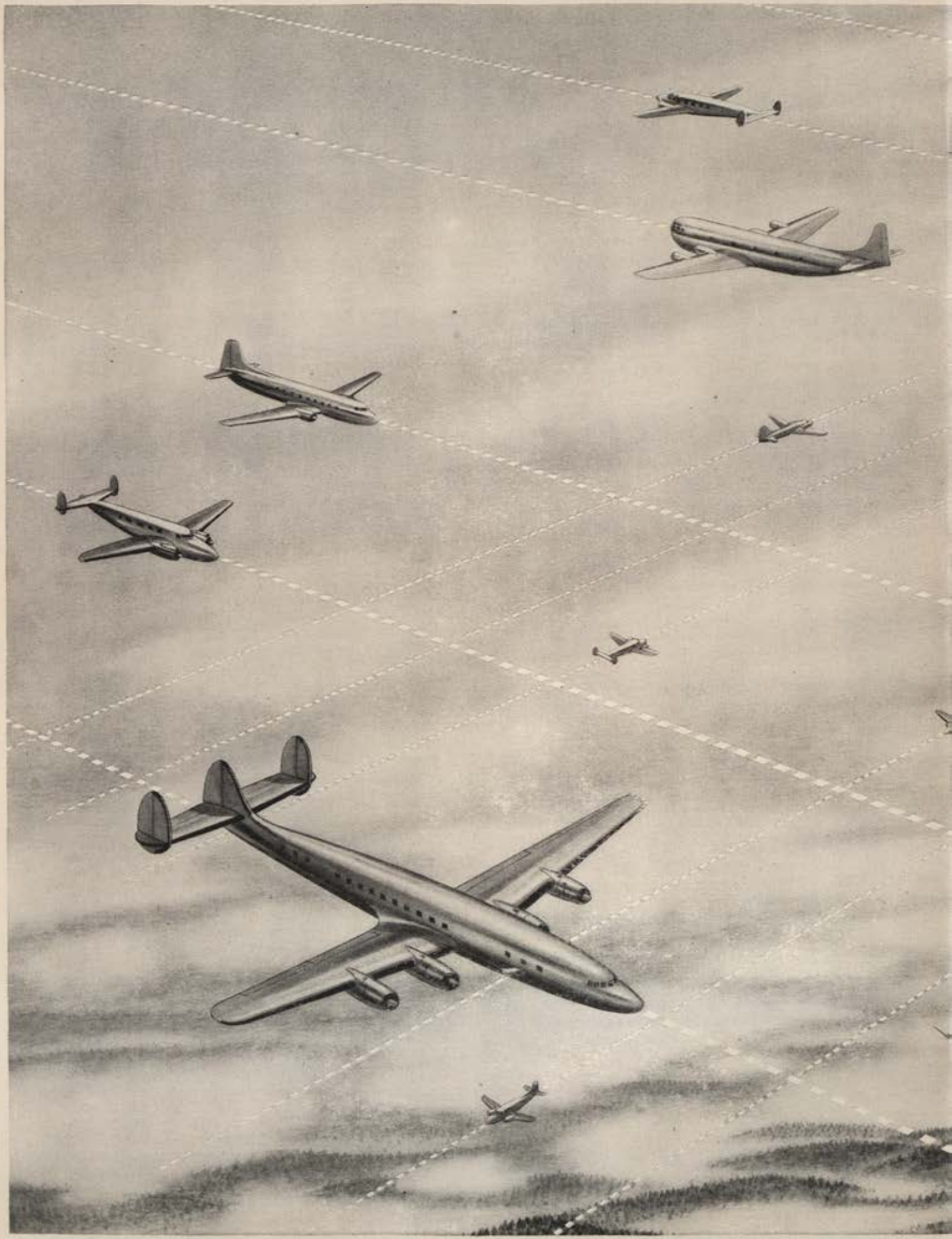

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The READY ROOM

RESERVE AND AIR GUARD NEWS

T. B. Herndon of Baton Rouge, La., Director of Aeronautics for Louisiana, has been reappointed chairman of the Air Force Association's Air Reserve Council (see cut on page 93).

In announcing the appointment, **Gill Robb Wilson,** AFA President, called Herndon **"the most qualified man I know** on Air Reserve matters." Herndon is a brigadier general in the Air Force Reserve and holds a mobilization assignment as vice commander of Fourteenth Air Force. A member of the Air Force **Section Five Committee** on Reserve Policy, the council chairman has played a leading part in revitalizing the Reserve program.

To serve with Mr. Herndon for the next year, AFA's President also named:

John P. Henebry of Park Ridge, Ill.

Paul Zuckerman of New York City.

John I. Lerom of Falls Church, Va.

J. Chesley Stewart of St. Louis.

Samuel C. Thompson of Coral Gables, Fla.

Thomas C. Stebbins of Worcester, Mass.

Charles W. Knox, Jr., of Albuquerque, N. M.

Willard D. Powell of Long Beach, Calif.

Frederick Rudesil of New Orleans.

Albert L. Priem of Portland, Ore.

Frank M. Ward of Battle Creek, Mich.

The council establishes Air Force Association policy on all matters pertaining to the Air Force Reserve. A similar council exists for the Air National Guard, and its members will be announced in the next issue of AIR FORCE, Mr. Wilson said.

* * *

More than **$48 million** will be requested in the next budget for **Air Force Reserve and Air National Guard construction,** according to the semi-annual report of the **status of the reserve forces** just issued by **Maj. Gen. William E. Hall,** Assistant Chief of Staff for Reserve Forces.

Of the total amount some **$31.6 million** is needed for construction of facilities for the Air Force Reserve at **eighteen flying locations** and for **twenty-five new Air Reserve centers.** Approximately **$17 million** will be spent for **Air Guard construction** at eighteen flying bases and eleven non-flying locations.

By July 1, according to the report, the Reserve and Guard will have **132 flying bases** and **173 non-flying sites.** This is the target date, also, for the majority of required ANG construction. Appropriations for construction in **Fiscal Years 1957 and 1958** will be primarily for the Air Force Reserve as a result of the **realignment of Reserve wings and squadrons** and expansion from twenty-four flying locations to sixty to meet manning requirement of the Reserve M-Day mission.

General Hall reported that the last year has brought **"notable improvement to the Air Force Reserve Forces."** His report declared that manning, participation, aircraft assignment, training and provision of facilities had been stepped up vigorously in both the Guard and Reserve. The improved posture of the Guard and Reserve, he said, was due in large measure to the fact that **Gen. Nathan F. Twining,** USAF Chief of Staff, had given a **firm mobilization requirement** to the fifty-one Guard and Reserve wings, plus approximately 300 support-type units and more than 100,000 trained individuals.

In the course of the expanded program, General Hall noted, **seventeen Air Guard wings** had been relieved of a dual fighter-bomber and fighter-interceptor mission and reassigned the **intercept mission** exclusively. At the same time, he reported, the **mission of the Guard** had been expanded to include **eight support units**—four air resupply groups and four air transport squadrons.

The report noted that the Air Force Reserve—despite increased participation—is still **handicapped by a shortage of airmen.** But, General Hall added, the selective assignment system which was put into effect a few months ago is expected to produce the airmen needed to man training **Category A units.** Under this system airmen who are released from the active Air Force and who have a Reserve service obligation to fulfill are **assigned to the Reserve unit** nearest their home of record immediately **upon discharge. More than 100,000 airmen** who fall into this cate-

(Continued on page 93)

On a recent inspection of the Ohio ANG at Alpena, Mich., USAF Chief, Gen. Nathan F. Twining, is accompanied by (from left) Lt. Gen. Leon Johnson, Maj. Gen. Winston Wilson, Brig. Gen. Ernest Briscoe, and Maj. Gen. Errol Zistel.

M/Sgt. Anthony Metke (right), a crew chief in the Illinois ANG 108th F-I Sqdn., has recruited his 17-year-old son Gary (seated) into the outfit. Above, A/3C Gary is "checked out"' in an F-84F as CO Maj. Joseph Kovacs looks on.

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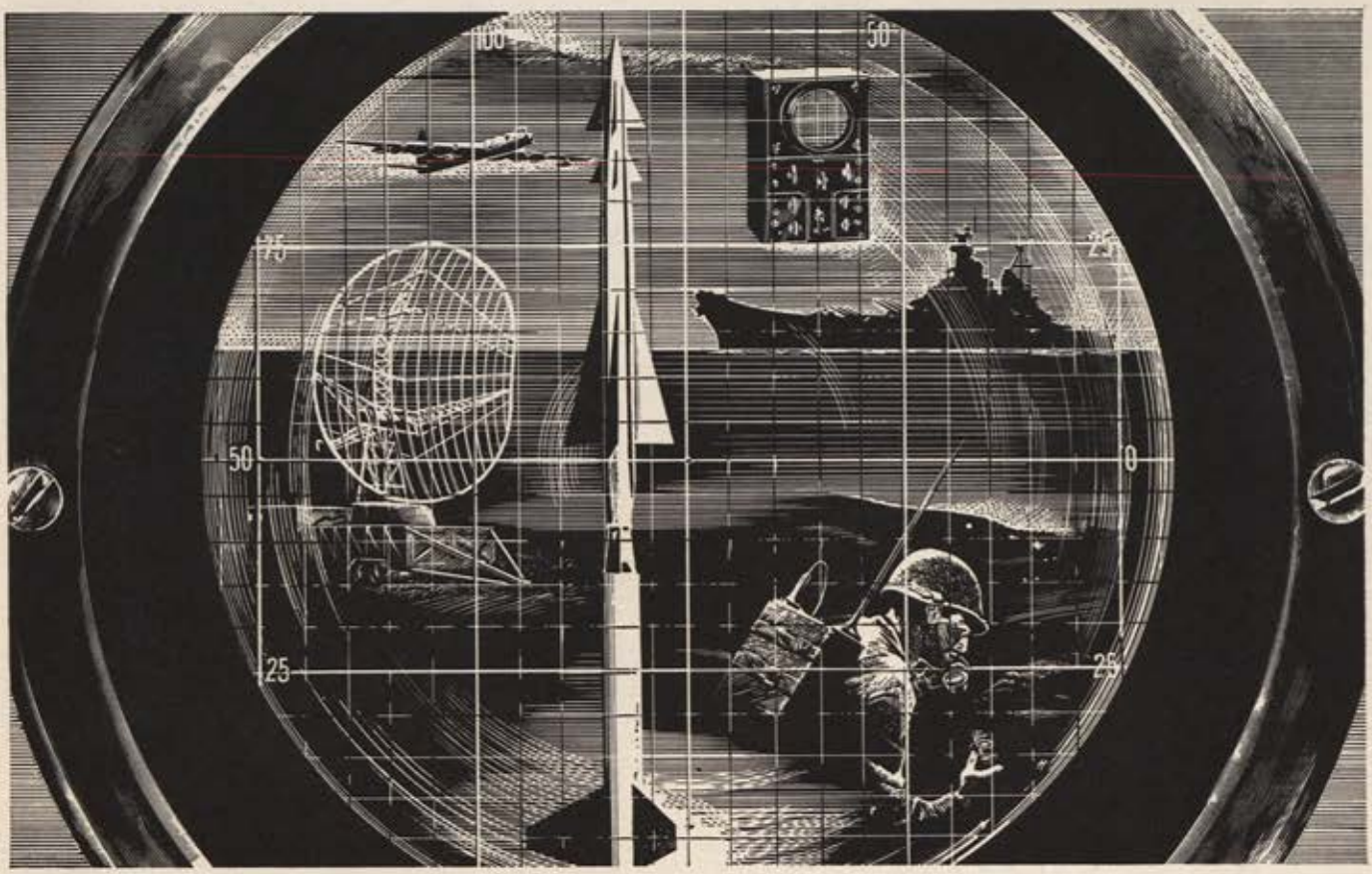

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gory will be released from the Air Force annually for the next four years.

Six pilot training wings were dropped from the Reserve program in the last year, General Hall observed, but **nineteen navigator training squadrons have been organized.** All, he said, have aircraft instructors in place, and are recruiting successfully. **Air Training Command** has been designated as the agency to provide active duty training, and **each navigator** is scheduled for twenty hours in **T-29 aircraft.** General Hall estimated that 500 navigators would receive training this year.

General Hall's report disclosed that the Air Force, with the approval of the Department of Defense, has submitted a **plan to the Bureau of Budget for severance pay** for Reservists who are released involuntarily from active duty. The plan would provide **severance pay** for all Reservists released after they had completed **more than five years of commissioned service.** Payments would range, depending upon length of service, from two and one-half months to fifteen months' pay.

° ° °

Departure of the Air Force's **97th Fighter-Interceptor Squadron** from Wright-Patterson AFB for a month of rocket firing at Yuma took the **Ohio Air Guard's 162d Fighter-Bomber Squadron** out of the dilemma of having new jet fighters and no place to operate them. The 162d is based at Cox Municipal Airport whose runways are too short for jet operations. So **Col. Paul L. Barton,** Wright-Patterson base commander, told the Guard squadron it could operate five of its new **Republic F-84 Thunderjets** at the base while the 97th fired in Yuma. New facilities will soon be ready for the 162d at Springfield, Ohio.

° ° °

Notes on the Back of a Form 175. . . . National Guard Bureau has amended its rules for the **award of the Spaatz Trophy,** presented annually to the squadron adjudged the best in the country. Originally, a squadron had to win trophy **three times** to retain permanent possession. Henceforth, the trophy will be awarded **on a permanent basis.** . . . A new **USAF extension course** in the **comptroller career field** is available for ANG officers. To be eligible students must have completed **two years** of full-time experience in accounting or have had two years of similar training in an accredited college or university. . . . **ANG units** which plan to use one of the permanent Guard field training sites for authorized **supplemental gunnery training** must tell the state in which the site is located this month of the **dates they desire to use the location.** . . . NGB says it does not anticipate that the **new warrant officer tests** will be given before next January. Current tests will be used until the new ones become available. . . . In an effort to clarify the issue of which National Guard people on active duty for training qualify for **movement of dependents and household goods,** the Bureau has announced that at the present time **only officers who undergo pilot training in grade** are eligible. . . . ANG units are being urged to use a **training film** on the **VHF Omni-Range Navigation system** in their instrument training program. The film, available through the **Harrisburg, Penna., Film Library,** is encouraged because some ANG aircraft are equipped with the omni-range system and **all T-33s** are programmed for modification to include the system. . . . The **122d Light Bomb Squadron of Louisiana** has won the Air Guard's **gunnery competition** for B-26 outfits. Six squadrons competed at **Gulfport, Miss.**—END

—Edmund F. Hogan

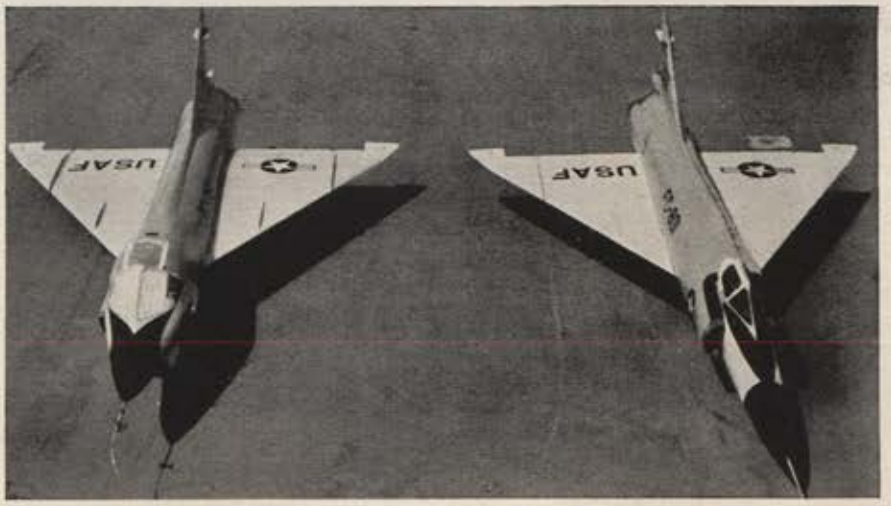
Busman's holiday for USAFR Col. Charles F. Blair, Jr., as he climbs into his B-47. As a civilian, he's Capt. Blair and flies Pan Am Stratocruisers.

T. B. Herndon of Louisiana, just reappointed to succeed himself as chairman of AFA's Air Reserve Council.

Tech Talk

By Lee Klein

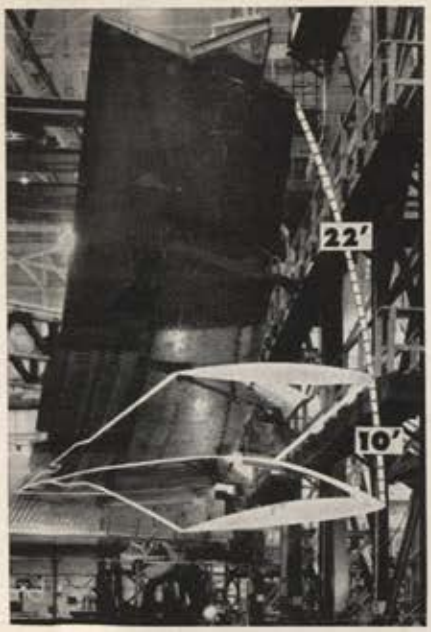
Last month, the first **TF-102A** rolled out of the **Convair** plant in San Diego (see cut). The two-place, side-by-side plane was **designed as a combat proficiency trainer** for the Convair F-102A all-weather interceptor. The primary difference is that **the trainer has a wider nose section to** accommodate the two pilots. In the TF-102A, the instructor will sit at the right elbow of the student and **each pilot will have his own basic instrument panel.**



Before soloing in the Convair F-102A (right), pilots will be trained in the two-place TF-102A. Side-by-side seats necessitate the wide cockpit in trainer.

Three companies—**Marquardt Aircraft Company, Reaction Motors, Inc.,** and **Olin Mathieson Chemical Corp.**—have established a joint research program for the advancement of aircraft and missile propulsion. Called OMAR, the program is to be administered by representatives of the participating companies. **Harry A. Sosnoki,** Olin Mathieson, is chairman and **T. F. Walkowicz,** of the staff of **Laurance Rockefeller** is vice chairman. Readers of AIR FORCE Magazine have seen many articles during the past years by Walkowicz, who is also **a Director of the Air Force Association.** Other members of the committee are: **John A. Drake,** Marquardt Aircraft; **William P. Munger** and **Warren P. Turner,** Reaction Motors; and **L. Kermit Herndon, Joseph H. McLain** and **John J. O'Neill, Jr.,** Olin Mathieson. Laurance Rockefeller is a stockholder in both Marquardt and Reaction Motors. The principal objective of the program will be to provide improved methods for the production of rocket and ramjet engines, their propellants and related devices.

The "Aeroduck," manufactured by Comex-Fraser Tuson Ltd. of London, blots up hazardous pools of water from runways. It can soak up 400 gallons in minutes.



In a test of strength, a Boeing B-52 wing was deflected to these extremes.

Even though an engineer may think he has designed a plane of sufficient strength to withstand any stress that may be put on it, there may be a hidden defect somewhere along the line. And the best way to prove that a plane is really as strong as the figures indicate is **to deliberately break it up.** To prove the structural integrity of the B-52 to the AF, Boeing is now putting one of the giant bombers through a complete "torture" test at its plant in Seattle (see cut). Approximately **1,000,000 pounds of load was applied** to the bomber's wing **to stress it past the breaking point.** During the test, the wing tips were flexed ten feet down in a negative load condition and twenty-two feet upward in a positive load test. Through more than 160 separate tests, every structural part of the airplane will be tested before the program is complete.

It wasn't too long ago that **a pilot had to aim his guns much like Davy Crockett** had to aim his. The equipment in use on today's all-weather interceptors has come a long way. Recently, the Air Force and **Hughes Aircraft Company** let the press have a look at modern fire-control systems and also announced the development of a new system that would not only aim and fire the guns, but would fly the planes automatically "from take-off to touch-down." The system in use today searches out an enemy plane on radar and locates it on the

(Continued on page 97)

CONTINENTAL DEFENCE IS AVRO AIRCRAFT'S BUSINESS

In RCAF operational multi-squadron service in Canada, squadrons of CF-100s will begin duty with NATO forces in Europe by 1956

DROGUE PILOT RIDES RED

To practice collision course interception—the new one-pass radar-controlled attack technique—the RCAF needed "something fast and high to shoot at". Avro Aircraft supplied modified CF-100s which tow specially designed drogues attached to 12,000 feet of cable. The planes are painted a vivid fluorescent red so they won't be mistaken for the target.

Practicing this new collision course attack or the grim business of repelling enemy planes, Avro Aircraft's CF-100s are the mainstay of Western Hemisphere defence. Men of the RCAF patrol Canada's northern approaches on a 'round-the-clock alert in these mighty all-weather night interceptors.

Avro Aircraft's CF-100s add deadly striking force to the air defences of the free world. No other all-weather night interceptor in service today can equal them for power and range.

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Reeves has a thoroughly trained engineering group available at all times to help you solve any guidance problem. In addition to Command Guidance Systems, Reeves has a wide experience with all three Services in the development of Radar, Gun Fire Control, Servo Mechanisms, and Computing Systems of all kinds. Their extensive facilities are available for all types of prime or sub-contract operations

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scope as a small "blip" of light. The pilot then locks the computer in the system onto the target and the attack begins automatically. The system continually calculates the correct course for the pilot to fly and relays this information in the form of a dot on the scope. The pilot has to keep the dot in the center of a circle by maneuvering his plane in the indicated manner. At the correct instant during the attack, the system fires the interceptor's rockets.

A new **jet engine starter** developed by **North American Aviation, Inc.,** looks more like a snappy, low slung sports car (see cut). Capable of driving under planes such as the **F-100 Super Sabre,** the unit can also be used for towing aircraft. Power from the starter is transmitted to the jet engine **through a hydraulic torque converter.** It has a four-wheel drive and four-wheel steering and provides **twenty-eight-volt DC** power as well as **400-cycle AC** power.

At a time when most of the major airlines of the world are taking a giant step **into the turboprop and jet era,** it seems incongruous that anyone would plan **production of a slow, four-engine piston-powered transport.** Feeling that there is a need for an economical transport for short haul runs in and out of small fields off the beaten track, Jack Frye, president and chairman of the Frye Corp., has unveiled his plans for building such a plane. The Frye F-1 would be powered by four 600-horsepower Pratt & Whitney engines, would carry fifty to sixty passengers, have a range of 750 to 1,000 miles, and a cruising speed of 150 mph. The plane's backers hope to capture some of the load carried at present by the aging DC-3.

The Air Research and Development Command, in cooperation with **Craig Systems, Inc.,** of Danvers, Mass., has developed a **mobile air traffic control unit** for use at remote air fields. Known as "Project Two Wheels," it consists of seven **trailer-mounted shelters** which are compact enough to be transported in C-47 type aircraft or towed by jeep or truck. Included are a control tower unit, a low-frequency beacon unit, a direction-finding unit, a radio receiving unit, a radio transmitting unit, a facsimile unit for weather information, and a mobile electronics shop for maintenance work. Six **5,000-watt diesel engine generators** which operate on jet fuel **supply the power** to the system.

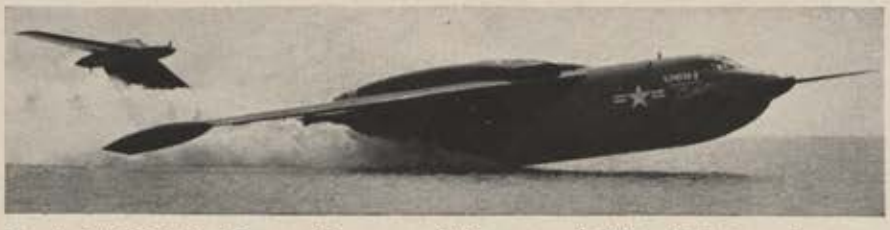
Mechanical starter developed by North American Aviation can drive under low-slung jets. It was designed by North American engineer Dan Coleman, left.

Harmon Trophy winner J. F. "Skeets" Coleman, test pilot of Convair's **XFY-1 Pogo Stick,** has designed an unusual plane which he hopes to sell to private flyers. Called an **Aeromarine,** the plane will have **a delta wing** and will be **powered by a 215-horsepower Franklin engine.** It will carry four or five passengers at a top cruising speed of 200 mph. Coleman's plane will be capable of landing on runways, on water and **will also convert to a vehicle for highway travel.**

Flight tests of the **Martin XP6M-1 SeaMaster** have proved the plane "unusually promising," according to the Navy. Also according to the Navy, the four-jet seaplane was **designed for minelaying and photo-reconnaissance.** Actually its 134-foot length, 100-foot span, and 30,000-pound payload definitely put it **in the medium-bomber class.** Several new design features of the 600-mph plane include wing-top nacelles, tall T-shaped tail, fixed plastic wing-tip floats, and hydroflaps on both sides of the hull that act as brakes when used together or as a rudder when used separately. The SeaMaster is powered by four **Allison J-71** turbojets with afterburners.

England's Bristol Britannia is being fitted with rubber and nylon fuel tanks made by Fireproof Tanks, Ltd.

Indications that **the AF is very much interested** in the tests of the new jet seaplane came from Miami recently. Speaking before an American Legion group there, **Vice Chief of the AF General Thomas D. White** said that "new engine developments may enable the water-based bomber to take its place alongside other Air Force airplanes and missiles." He predicted that **a nuclear-powered airplane** would be flying sometime **within the next decade.**—END



Martin XP6M-1 SeaMaster. Navy says flight tests of 600-mph jet seaplane are "unusually promising." Note wing-top nacelles, wing-tip floats and "T" tail.

By M/Sgt. Frank J. Clifford

How to Maximize Your Optimum Capability

Best way is to throw out big words, replace with short, simple substitutes

AMONG military men there is a large, hard-to-reform cult devoted to the voodoo rite of military writing. Give one of these high priests of gobbledegook a proposition, simple and uncluttered as an unpainted two by four, and he will "verbose it up" past all recognition and well beyond comprehension.

These men are dangerous, and periodically the services try to turn them off. The latest campaign has produced encouraging, scattered signs of success (see "Write It Right or They'll Read It Wrong," AIR FORCE, September '55). I recently had the pleasure of reading a military letter which delivered the goods in two sentences. The man said, "My letter of 15 August 1955, Subject: Test Materials, is in error in the last paragraph. Strike this paragraph and advise all concerned." That's all—that's the whole, ever-lovin' letter.

But can you imagine what a maharajah of militarese could have done with the same material? Take cover:

"1. Reference is made to letter, this Hq, file 44:72, Subject: Receipt, Issue, Storage, Destruction, Test Materials, Air Force Officer's Qualification Test (AFOQT) dated 15 August 1955.

"2. It is the opinion of the undersigned that reasonable doubt exists concerning the factual accuracy of certain parts and/or sections of the subject letter, referred to above. Corrective action will be instituted as soon as practicable."

And away we go—in 200 ill-chosen words.

The short, two-sentence letter came out of Headquarters, AF-ROTC, Montgomery, Ala., which traffics in readable letters. A recent fresh breeze from the same headquarters was an endorsement on a letter I sent them. The endorsement, classic in its simplicity, was a plain, workaday sentence, penwritten across the bottom of my letter. It said, "Your booklets are on the way—you should get them in a few days."

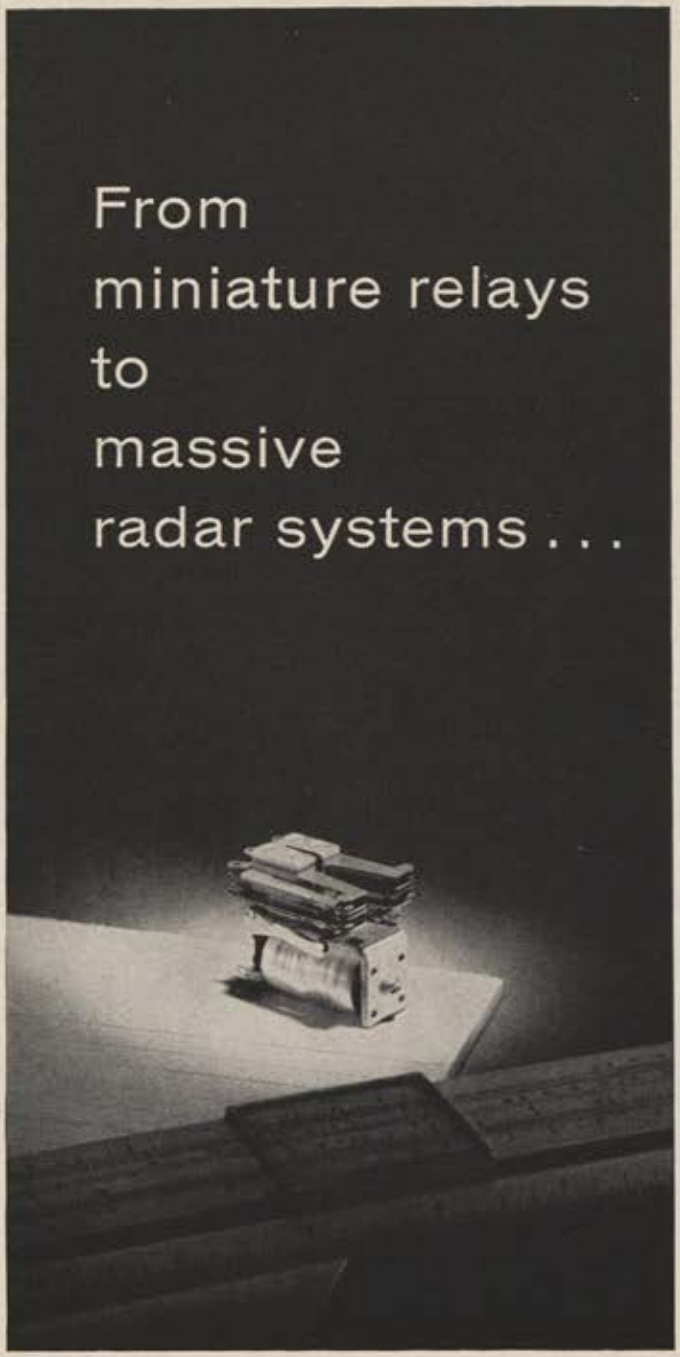
Good idea? Certainly! The responsible person did the job, immediately, with a few strokes of his pen, thus saving the clerk's time for something more involved—and he gave the information sought.

All endorsements cannot be done in pen and ink—but I suspect that a hefty chunk of Air Force correspondence could be. You would eliminate a lot of filing; you reply on the basic letter at once, and throw away the carbons. Swish! The incident is closed, and the transaction does not become a public record merely because it happened to be written.

A little effort at the operating level can do what regulations can't do. Once a letter is recognized for what it is—a communication tool—the rest comes easy. *Heading the list of requirements is simplicity, and simplicity depends on simple words arranged in uncomplicated sentences.* A Victorian superstition holds that it is bad form to use the same word more than once in the same sentence, or even in the same paragraph. Nuts! Look at the sentence set in italics—this is understandable

(Continued on page 100)

From miniature relays to massive radar systems . . .



Producing small, sensitive electrical "nerves", or constructing great penetrating radar "eyes" . . . each demands advanced technology. And these are but two of the *hundreds* of complex tasks the AMF organization performs every day.

The highly specialized yet widely diversified activities of some 35 engineering and production facilities provide AMF with a wealth of experience that covers nearly every field of industry. And it is immediately available to *you*.

Call upon AMF with your problem. See for yourself why this all-around experience in answering the needs of government and industry alike has made AMF the "can do" company.

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English, and relaxing to the eyeball.

Idiomatic English wears well in conversation—a more "high-toned" version will do just as well for correspondence. For the non-professional writer it is a pure waste of time to grapple with the rules of English, trying to decide whether to write "I" or "me," "who" or "whom," "can" or "may." Take these word barriers in your conversational stride, write the letter, and communicate.

I have no violent designs on the language, nor do I recommend free-style sabotage of the rules of grammar. I am merely suggesting that we stop leaning on a musty code of rules.

Non-stop sentences can also be controlled by the pencil, and by re-writing. Substitute words for phrases. A sample? "An empire slowly, surely, but irresistibly takes shape," etc. The rewrite: "An empire inexorably takes shape," etc. Net saving—three words.

The trend is to briefer sentences, simpler words. Some of the most effective writing today is made up of sentences whose average length is twenty words. This allows the reader to consume a letter swiftly, in eyeful gulps, and reduces the possibility of error.

Words are the building blocks of sentences—to be of value they must be widely understood and have a certain degree of permanence. However, "cute" words and phrases creep into the military lexicon.

Here are a few choice ones—"operationally significant quantities, cream it off, firm up, liaison for cross-fertilization of ideas, humanizing, programming on the mach, optimize, equipments, per telephonic communication, zero-in, register zero, optimum capabilities, if situation obtains, maximize, conceptual imponderables, debriefing, depainting."

Most of these words mean nothing; some have a limited technical meaning. Like to try some of them?

"We have locked-onto operationally significant quantities of equipment to zero-in on optimum capability if situation obtains. Conceptual imponderables will be optimized by programming on the mach, zeroed-in on our liaison for cross-fertilization of ideas."

If you read the above two sentences with easy comprehension you are in bad shape.

Want proof—out of real life? An anonymous sergeant plucked this from page 48, AF Manual 25-1 ("The Management Process"): ". . . while the logical distinction between the qualitative and quantitative bases for evaluation is apparent, we must not lose sight of the trend in science to develop means to quantify the qualitative aspect of things."

Rare specimen? Well, another sergeant found this in AFM 181-4 ("Maintenance of Current Records"): "The following discussion concerns a more specific conception of 'subjective' arrangement of records, namely, subjective arrangement of the 'basic' method for arranging individual documents which results in their grouping by the specific subject matter they contain."

For most people use of the third person in writing disappeared with ". . . your most humble and obedient servant." But in military writing the third person lingers on, enjoying a Babbitt respectability. What's wrong with the first person?

Another superstition. Some people cherish the notion that "I," "me," "my" are egotistical; "he," "she," "him," "her," too familiar. These people feel unctuously pious when writing, "It is the opinion of the undersigned," rather than, "I think."

Why not permit letters from individuals, particularly airmen, to follow business lines, written in the first person wherever possible. Eliminate the unit heading and also the SUBJECT: and TO: Here is a sample letter asking for transfer:

Maj. John Quill
Commander, XX Ftr/Bomb Sq
Sagacious Air Force Base
Windsock, Pennsylvania

Dear Major Quill:

I would like to be transferred to Gravy Boat AFB, Texas, at the earliest opportunity. After talking it over with Capt. Julius Boff, my Engineering Officer, and M/Sgt. Gus Stave, my Line Chief, I am convinced that my opportunities for promotion are much greater at Gravy Boat. As you know, my AFSC, propeller mechanic, has limited demand here. At Gravy Boat, which is equipped with propeller-driven aircraft, I could use my training and also advance in grade.

Authority for such transfer is AFR 35-59, 9 May 1952.

Sincerely,
Adolph Frappe
S/Sgt., USAF

The "official" military letter itself could benefit from a few changes, with appropriate salaam to Air Force Manual Ten-One ("Correspondence"). The manual itself is a very reasonable book. Trouble is that people follow it too slavishly. In spite of numerous letters urging a wider latitude in interpretation, the situation slides back to where it began, pushed by some "clerk" who says with vinegarish satisfaction, "Ten dash one says . . ."

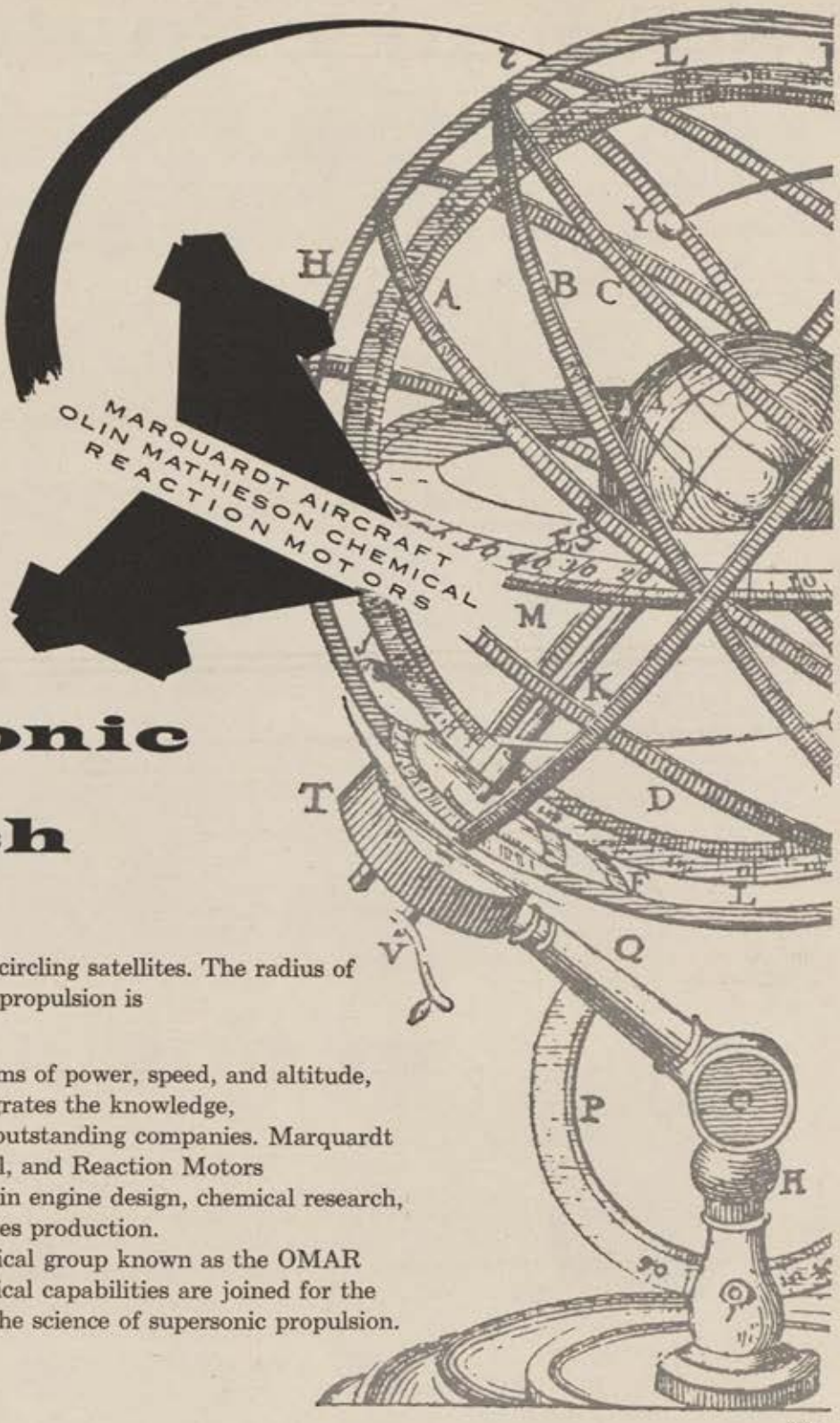
What AFM 10-1 says is, "This manual is *not designed* to *cover all cases* nor meet *all requirements*. Cases arising which seem to require special action usually can be disposed of by the exercise of *good judgment*" (italics added). The manual does not supply the good judgment.

Correspondence suspense dates should be typed directly under the date of origin. And under that, or at the bottom of page one, a "destroy" date that would limit the file-life of the letter.

I would severely restrict carbon copies, preferring to err on the side of too few rather than too many. For most correspondence, the original and two copies are plenty. A simple test? Check your files. A letter filed with a carbon means that the carbon was not needed. If your clerks spend part of their time stripping carbons from letters before filing, those carbons were not needed either.

(Continued on page 103)

new orbit for supersonic research



Aircraft . . . missiles . . . now earth-circling satellites. The radius of research in the field of supersonic propulsion is constantly being lengthened.

Spearheading an attack on problems of power, speed, and altitude, a unique new research group integrates the knowledge, experience, and facilities of three outstanding companies. Marquardt Aircraft, Olin Mathieson Chemical, and Reaction Motors bring together leading authorities in engine design, chemical research, metallurgy, chemical and explosives production.
Now coordinated through a technical group known as the OMAR Committee, chemical and mechanical capabilities are joined for the first time to add new impetus to the science of supersonic propulsion.

3360

RAMJETS

Marquardt Aircraft Company

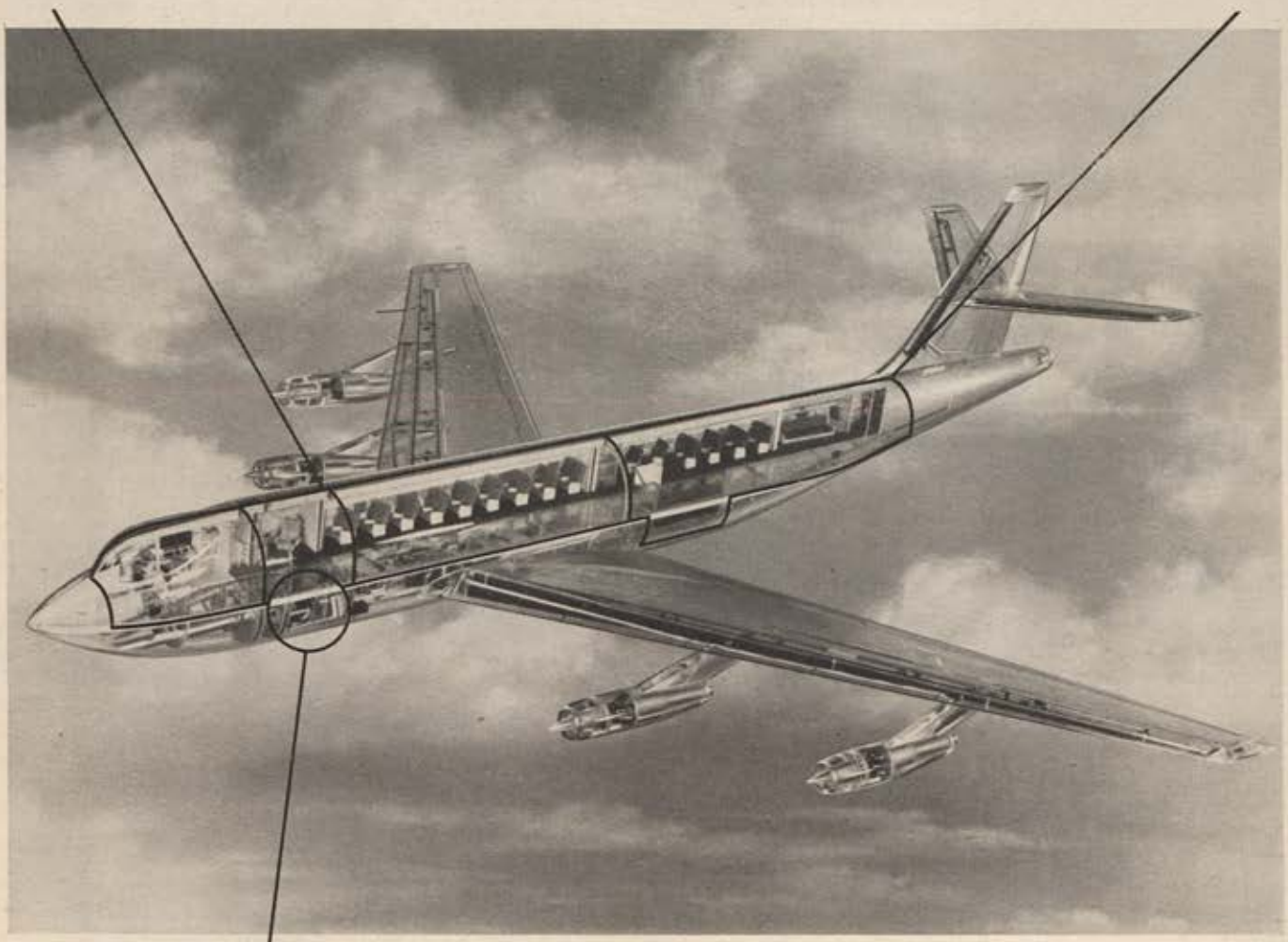
PROPELLANTS

Olin Mathieson Chemical Corporation

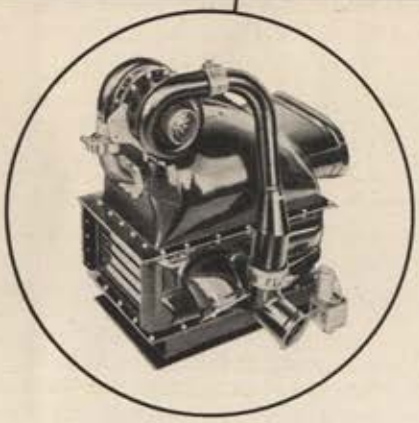
ROCKETS

Reaction Motors, Inc.

Cabin air conditioning



in one system



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To go a step further, when a letter is obviously a one-shot proposition, going to one destination, why bother to send even one copy? Business doesn't, why should the AF?

Now to take a whack at one of the most sacred relics in the administrative temple—the paragraph number. Why number paragraphs in a simple, one-page letter, or in an equally simple, multi-page letter? Unless the letter is unusually complicated, numbering is simply a foolish fetish.

The numerologists will protest, no doubt, saying, "How can you refer to a paragraph unless it is numbered?" Easy—assume your reader can count, then make your letter plain enough so that he will know what you are talking about.

The written word should be handled with the greatest caution since so many people assign unrealistic value to it, frequently far greater than intended by the author. An idle thought, reduced to print, is no longer idle. To some it becomes another chapter and verse in the Bible.

Weaning the administrative giant will take a lot of blood, sweat, and tears. "Clerks" will resist the efforts of those who recognize that we are living far beyond our means. Men simply can't read fast enough to keep abreast of the products of typewriters and duplicating machines. Instructions that are not read and acted on are worse than none at all.

The front is all around us. While one man devises a splendid book like AFM 35-11 ("Military Personnel Assignment Manual"), which superceded forty-four AF regulations, a "clerk" knifes his brain-child early in the foreword. Paragraph three, page four carries this:

"Actions Pertaining to Warrant Officers. Pending full implementation of the warrant officer program resulting from the enactment of the Warrant Officer Act of 1954 (see AF Bul 6, 1954), certain actions pertaining to warrant officers, formerly prescribed in the Thirty-Six-series of Air Force Directives, will be phased-out of the officer and warrant officer alliance and integrated into the warrant officer and airman alliance." Oh, brother!—END

About the Author

No stranger to readers of AIR FORCE *is M/Sgt. Frank Clifford, whose articles on a variety of subjects have appeared with some regularity during the last couple of years. His latest effort for us was "Just a Second, Lieutenant," in the June '55 issue.*

Philadelphia Proclaims AFA Day

THE ASSOCIATION IS HONORED DURING THE NATIONAL AIRCRAFT SHOW OVER LABOR DAY

Philadelphia's Mayor, **Joseph S. Clark,** who is a member of AFA, proclaimed September 4 **"Air Force Association Day"** at the **National Aircraft Show** held there over Labor Day weekend. For the three-day occasion, AFA's **Metropolitan Philadelphia Squadron** staged several airpower events.

First, a booth, manned by Squadron members, was set up on the grounds at International Airport, where the Show was held. **Frank J. Stieber,** Squadron Commander, reported that many prospective friends approached and were given full particulars on AFA and the work of the Squadron. Even the Soviet Air Attaché was moved to stop and give the booth some study.

Before the opening of the Show, AFA held a banquet to honor **Lt. Col. Edwin L. Heller,** one of the fifteen USAF POWs recently released by the Chinese Reds. Heller was made an **honorary Squadron member.**

The Squadron also embarked on a program designed to acquaint the city with the need for a **new Air Reserve Center. Henry Coffin III,** a Squadron member, presented the unit's views to the City Council. His arguments and the efforts of the other members were apparently so convincing that the Council passed a bill approving the lease of ground for the Center.

Denver's **Park Lane Hotel** was the scene of **Colorado's annual Wing-Ding,** on October 1. Wing Commander **James R. Hewett** was chairman of the program, the highlight of which was the banquet, held in the colorful "Top of the Park."

Col. Arthur E. Boudreau, Assistant Dean of Faculty, USAF Academy, was the principal speaker at the banquet, and was introduced by **Col. John Fletcher,** an old friend of the Colorado Wing.

Paul C. Potter, first Wing Commander, was the surprised recipient of the Wing's exceptional service award, and in turn was given the honor of presenting the Airpower Award to **Richard C. Hiester,** Chaplain of the 140th Fighter-Bomber Wing, Colorado Air National Guard.

During a noon luncheon, the Colorado Auxiliary elected **Anita Hewett** to head the Wing Unit.

Herbert K. Stockdale, an automobile dealer in Colorado Springs, was elected to head the Wing during the coming year. He served last year as Secretary, and was a delegate to the 1955 National Convention. Guests at the banquet included Regional Vice President **Thayer Tutt,** Congressional Medal of Honor winner **John Morgan,** and **Gus Duda,** representing National Headquarters.

In recent months the **state of Georgia** has renewed its activity in AFA. With the formation of new Squadrons at **Atlanta, Marietta, and Savannah,** and the election of a Wing Commander, the state's well on the way to taking its place among the most active in the Association.

A sizeable delegation, headed by **Lt. Gov. Ernest Vandiver,** Wing Commander, attended the National Convention. Afterward the Wing held a meeting in Atlanta to discuss ways to translate the deliberations and decisions of the Convention into local action.

The nucleus of the membership has come from the **Georgia Air National Guard.** More than 250 new members were obtained in the campaign to date, with Savannah turning in 141. Key individuals have been **William H. Kelly,** Savannah; **Bernard M. Davey** and **John T. Allan,** Atlanta; and **William Ramsden,** Marietta.

San Fernando Valley—AFA's "Squadron of the Year" for 1955—hosted the most recent meeting of the Greater Los Angeles Group. Chandler's Catering House in North Hollywood was the scene of a dinner meeting, at which the principal speaker was **President Gill Robb Wilson.**

Wilson discussed the needs for a better **Air Age Education** program, and also outlined the Association's position on the **budget requirements** of the USAF. Gus Duda, from AFA National Headquarters, also attended the meeting.

Bill Barcoff, North Hollywood, was installed as new Group Commander at the meeting. He had been appointed to that position upon the resignation of **Raymond Scherer.** Barcoff is the operator of a heat-treating concern.

The **first thirty days** following his election to the national presidency of AFA have been busy ones for **Gill Robb Wilson.** He made three trips to **Washington** to discuss organizational and editorial problems with the headquarters staff, and embarked on the first of many planned **field trips.** This first tour took him to the **Far West,** where he met with AFA leaders from **Montana, Washington and Oregon;** to **California** for a dinner-meeting with the Los Angeles Group composed of all Los Angeles area Squadrons and Auxiliary units (see above); and to De-

(Continued on page 107)

SQUADRON OF THE MONTH

The San Francisco Squadron
San Francisco, Calif.

CITED FOR

extraordinary achievement in connection with AFA's 1955 National Convention. The unselfish and untiring efforts of the committees were largely responsible for the success of the annual get-together.

Georgia Wing CO Ernest Vandiver, left, greets V-P Jerry Waterman at AFA meeting at Dobbins AFB, Ga.

San Antonio Commander Bill Bellamy's remark that he finished pre-flight "45 pounds ago" brings reaction from Aviation Cadet Larry Vose and Maj. Gen. John McCormick, Lackland AFB Commander. Bellamy spoke at graduating ceremonies.

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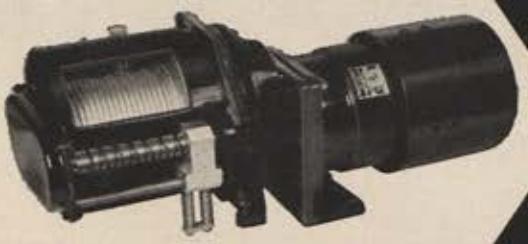

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Western Gear's more than 40 years of experience supplying important components for aircraft of practically every description was a major factor in its selection by Bell to design and manufacture this vital hoist for airborne use. Knowledge obtained since 1888 enables Western Gear to provide a speedy, economical solution to any problem involving the mechanical transmission of motion or torque. Why not avail yourself of this experience to solve your problem? Western Gear engineers will be glad to offer their help and recommendations from your blueprints or specifications. Address General Offices, Western Gear, P.O. Box 182, Lynwood, California.

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Seattle and Houston — Representatives in principal cities

WESTERN GEAR

ENGINEERS AND MANUFACTURERS

Frank W. Wiley, Harold R. Hansen, Gill Robb Wilson, and Winfield G. Young are shown during Northwest Regional breakfast meeting in Yakima, Wash.

troit, for an AFA-sponsored meeting which welcomed **Maj. Gen. Robert Eaton** to his command of the Tenth Air Force.

Between stops, President Wilson found time to fulfill a major obligation of all newly elected AFA presidents—appointing **national committees** (see roster below). He also attended the **New Jersey Wing** convention in Newark, where he was the principal speaker at the annual airpower banquet and awarded the Wing Trophy to **Edward P. Schinman,** President of Bogue Electric Corporation (see cut).

Plans for the immediate future call for trips to **Tulsa** and **Oklahoma City,** to **Milwaukee** and **Washington,** and to **Detroit** and **Dayton.** In short, the normal schedule for AFA's top representative.

The **National Committees** for 1955-56, as announced by President Wilson, are as follows (chairmen listed first):

Airpower Policy Committee—Gill Robb Wilson, New York, N. Y.; John R. Alison, Hawthorne, Calif.; James H. Doolittle, New York, N. Y.; George C. Kenney, Scarsdale, N. Y.; Thomas G. Lanphier, Jr., LaJolla, Calif.; C. R. Smith, New York, N. Y.; and Carl A. Spaatz, Washington, D. C.

Executive Committee—Gill Robb Wilson, New York, N. Y.; Julian B. Rosenthal, Lake Success, N. Y.; Samuel M. Hecht, Baltimore, Md.; John J. Currie, Paterson, N. J.; Arthur F. Kelly, Los Angeles, Calif.; Walter T. Bonney, Silver Spring, Md.; Peter J. Schenk, Utica, N. Y.; and Morry Worshill, Chicago, Ill.

National Wing Advisory Council—George A. Anderl, Oak Park, Ill.; Harold R. Hansen, Seattle, Wash.; Leonard A. Work, State College, Penna.; Stanley C. Denzer, Brooklyn, N. Y.; and Michel Pisani, San Francisco, Calif.

Constitution Committee—Julian B. Rosenthal, Lake Success, N. Y.; Randall Leopold, Lewistown, Penna.; Frank Ward, Battle Creek, Mich.

Finance Committee—Samuel M. Hecht, Baltimore, Md.; Jack B. Gross, Harrisburg, Penna.; C. R. Smith, New York, N. Y.

Membership Committee — Carl A. Spaatz, Washington, D. C.; James H. Doolittle, New York, N. Y.; George C. Kenney, Scarsdale, N. Y.; C. R. Smith, New York, N. Y.

National Convention Site Committee—Gill Robb Wilson, New York, N. Y.; John R. Alison, Hawthorne, Calif.; James H.

(Continued on following page)

Edward P. Schinman, left, accepts New Jersey Airpower Trophy from John Currie, as President Wilson looks on. The occasion was [illegible] Wing Convention.

Straubel, Washington, D. C.; Ralph V. Whitener, Washington, D. C.

Organization Manual Committee—Thomas Stack, San Francisco, Calif.; George Anderl, Chicago, Ill.; James McDivitt, San Gabriel, Calif.; Carl J. Long, Pittsburgh, Penna.; J. Alan Cross, Miami, Fla.

The seventh annual convention of the **New Jersey Wing** was held at the Robert Treat Hotel in Newark, September 24. **Irving B. Zeichner** was chairman.

Stressing the community aviation education theme, the Wing led off with a **tour of Newark Airport** and the **Reserve Center** installation. Following a short business session, the annual banquet featured an address by **AFA President Gill Robb Wilson,** and presentation of the Wing's Awards.

The top award went to **Edward P. Schinman** (see above). **William Kaiser,** of the Curtiss-Wright Corporation, was also honored, along with the **Allen B. DuMont Laboratories, Reaction Motors, Inc.,** and **Stroukoff Aviation Corp.**

Joseph Gajdos, Passaic-Bergen Squadron Commander, was elected Wing Commander for the coming year, succeeding **Joseph Boricheski.** Among those present were Vice President **Randall Leopold, Lewiston, Penna.,** New York Wing Commander **Stanley Denzer,** and a good delegation from the New York Wing, and **Gus Duda,** representing National Headquarters.

The weather was hot, but more than 15,000 people turned out for the display of aircraft and other equipment at **Worcester, Mass., Airport,** as the AFA Squadron there played host to the annual meeting of AFA's **Massachusetts Wing.** This year, the program was built around an official **welcome to SAC,** as Headquarters of the Eighth Air Force moved to Westover AFB from Carswell AFB.

Highlight of the day-long affair was the banquet that evening, when the principal speaker was **Maj. Gen. J. C. Selzer, Jr.,** Eighth Air Force Commander. **Robert S. Johnson,** past AFA President, and an Eighth Air Force ace during World War II, introduced General Selzer.—END.

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This important assignment typifies the way prime contractors rely on Twin Coach Aircraft Division. For Twin is staffed with experienced aircraft specialists to design and build tooling . . . with experienced aircraft production personnel . . . under experienced aircraft supervision and management.

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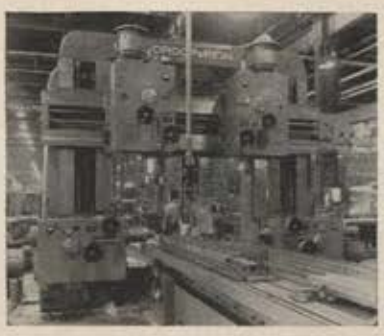

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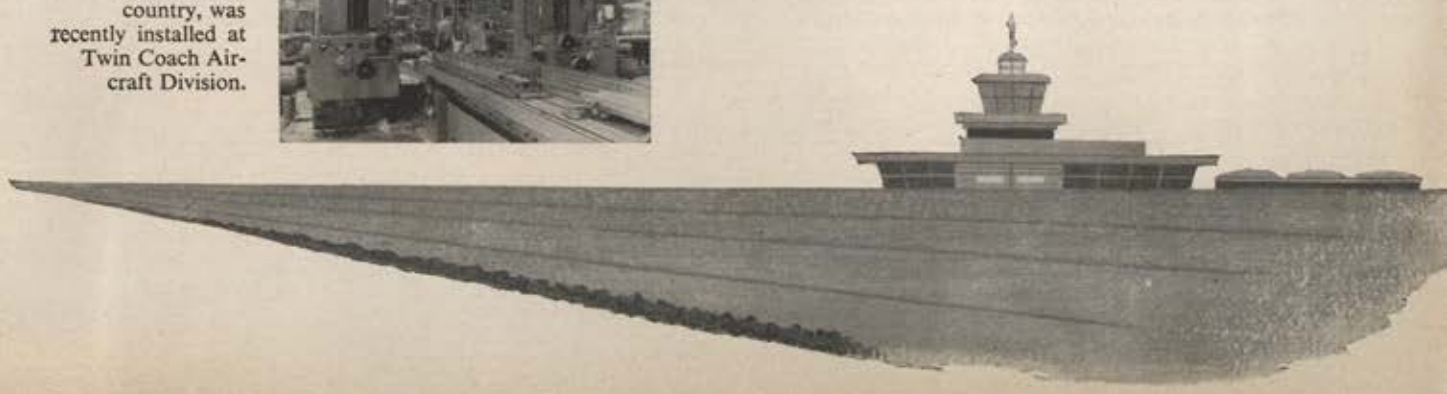


RENDEZVOUS

Where the Gang gets together

6147TH REUNION: All former "Mosquito" pilots and other officers of the 6147th Tactical Control Group will hold their first reunion at Goodfellow Air Force Base, Tex., November 11 and 12. Write to *"Mosquitos," Goodfellow Air Force Base, Tex.*

356TH FTR. GP. AND 360TH FTR. SQDN.: Will all former members of the 356th Fighter Group and 360th Fighter Squadron contact *Glenn D. Mishler, 1415 Indianola Ave., Akron 5, Ohio.*

LAURINBURG BUDDIES: I should like to hear from any of my old buddies in the 392d Air Base Squadron who were stationed at Laurinburg-Moxton Army Air Base, N.C., from 1943 to 1945. *Barney E. Slayton, Box 243, Springfield, Ohio.*

J. SLINDE: I would like to contact Capt. John H. Slinde, formerly of the 9th Air Force, 387th Fighter Squadron, 365th Fighter Group. Last known address was Honolulu. *George E. Robinson, RFD #1, Thomaston, Conn.*

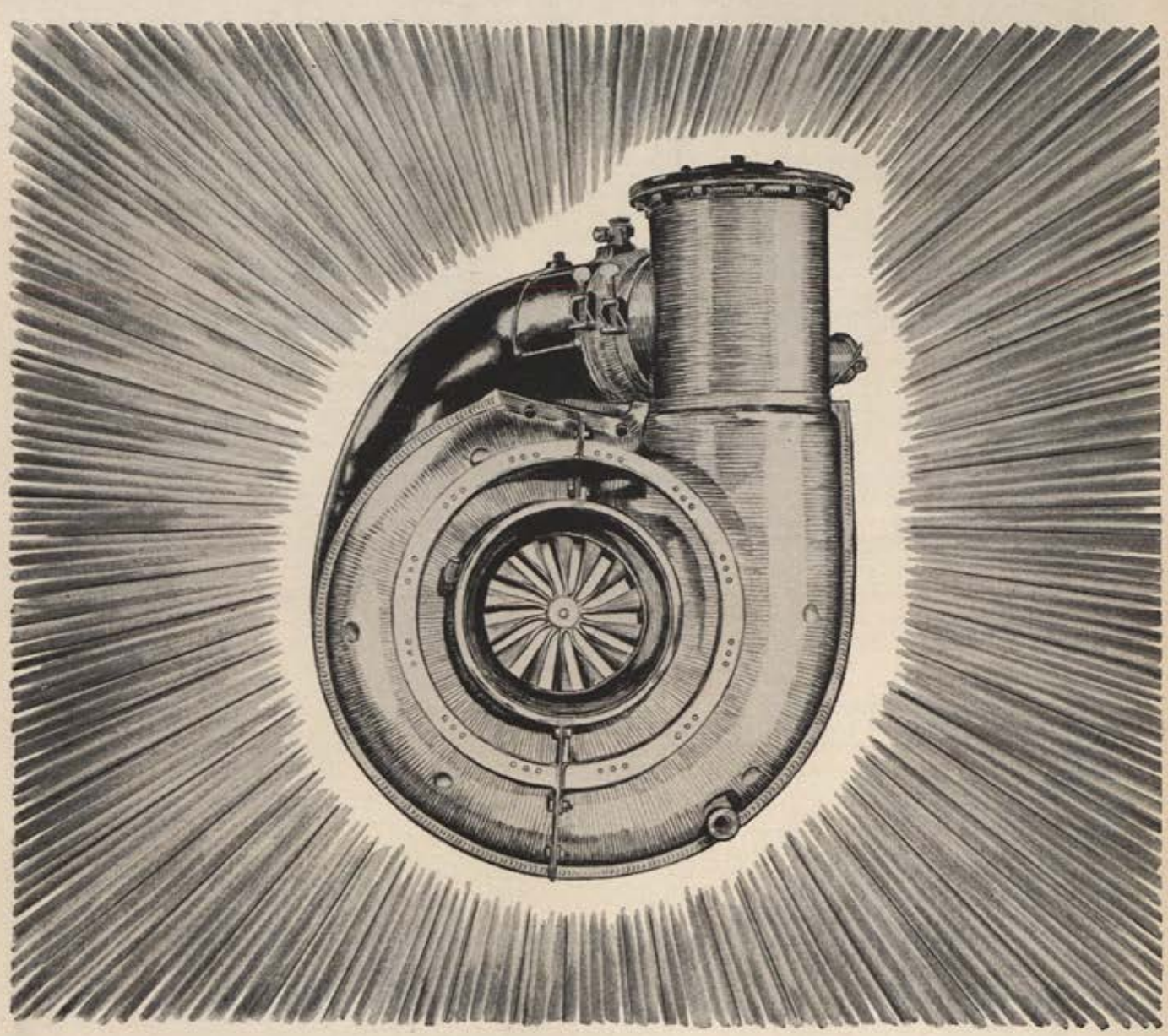
AF DIARY: I would like to secure a copy of *The Air Force Diary.* Am willing to pay original price of book. *Harry W. Getner, 1801 Clydesdale Pl., N.W., Apt. 103, Washington 9, D.C.*

G. A. DAYMOND: Does anyone know where G. A. Daymond, one-time 1st "Eagle" Fighter Squadron commander, can be reached? *Group Capt. M. Duke Woolley, RAF, Air War College, Maxwell AFB, Montgomery, Ala.*

TEACHING POSITIONS OPEN: It has been brought to my attention that there may possibly be retired Air Force personnel with Engineering backgrounds who are interested in college teaching. We have several staff positions open in Engineering Drawing, Industrial Engineering, and Industrial Mechanics for which such people would undoubtedly be well qualified. *L. J. Powers, Texas Technological College, Lubbock, Tex.*

OUT OF PRINT BOOKS: I am trying to locate a copy of *The German Air Force*, and a copy of *Air Victory. Hugh H. Russell, Jr. 1833 Blue Ridge Drive, Seattle 77, Wash.*

POWER PLANT OF THE FUTURE



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In the Arctic . . .

A New Lair For the Tigers

By 1st Lt. John H. Bickers

Lt. Don Treichel and the author, Lt. John Bickers, just before they took off for Thule.

"FOOTLOOSE Alpha, climbing on course."

The words came through my headset as the fields of Northern Maine dropped away below us. We dipped our wings in a farewell salute and headed northward. The August sun glinting on the two twin-jet interceptors brightened for a moment the battle-famous emblem of the Flying Tigers.

On the fighter apron below, a second flight of jets began to roll toward the runway.

After a decade of deactivation and behind-the-lines service, the 74th Fighter - Interceptor Squadron was again headed for the front, this time halfway around the world from the birthplace of its heritage.

The flights of jets streaked across Eastern Canada's green, pine-covered hills, etching the sky with contrails as the North Atlantic along the coast of Labrador passed under our wings seven miles below. On we flew toward the rugged rocky fjords of Greenland. The lonely waste of the Ice Cap stretched its awesome whiteness eastward.

Finally, with the North Pole only 750 nautical miles away, we sighted a range of brown hills snuggling along the edge of an inlet called North Star Bay. In the gathering shadows of the coming autumn lay the new lair of the "Tiger," Thule Air Base—the USAF's northernmost fighter outpost.

Within hours after the first Northrop F-89 touched down on the Thule runway, the Flying Tigers had moved into the great steel alert hangars. The squadron, founded as the American Volunteer Group under Maj. Gen. Claire L. Chennault in China early in World War II, again took up the watch on the perimeter of America's defenses. Where once the whine of the Curtiss P-40 Tomahawks snarled above the steaming Burmese jungle, now the shattering blast of jet engines pierces the stillness of the Arctic night.

The deeds of the AVG are well known. They entered battle outnumbered, their planes held together with baling wire and hope. They scored victories early in the Pacific war while the rest of the Allied world suffered in defeat. When the fighting in China was supplemented by US Air Corps units, the men of the AVG were integrated into the 23d Fighter Group to give the military organization a hardened nucleus of combat-trained leaders.

War's end came and with it came retirement. Without planes and without men, the Flying Tigers were disbanded. The pilots who ranged the China skies in the shark-nosed fighters became civilians and the planes they flew grew obsolete. But the stories of their exploits continued to be told.

Reactivation in 1951 saw the Flying Tiger Squadron again in action. New men filled the ranks in a new world of cold wars, civil defense, and propellerless aircraft. Those of us who were fourteen-year-old kids when we first heard of the Flying Tigers now came to man the planes that carried the historic emblem.

Now the Flying Tiger emblem on our aircraft gives every man a mental pep talk during every pre-flight. The characteristic red nose banner of the 74th looms bright in the Arctic sunset as we join formation and head for home at the end of a mission. The rows of Scorpion tails glisten in the lights from the hangars as the jets rest on the snow-covered fighter ramps. Every flight carries the realistic challenge that the tiny dot moving

(Continued on following page)

Major inspection and repair work is completed in the huge maintenance hangars at Thule. Effective heating systems maintain comfortable temperature.

across the radar scope may well be the enemy. For less than three flying hours away lie other bases in the Arctic. Other men are training and preparing for a different mission. The day may never come when they will attack, or they may attack tonight.

Who are the new Flying Tigers? Why, probably the boy who used to clerk at the corner drug store or the kid who delivered your paper . . . or your son.

There's Lt. Joe Powers who cut his weather-flying teeth in the 74th at Presque Isle, Me., joining the squadron after a short stint at flying Sabrejets in Nevada. He's "Mr. Powers' boy" to the folks back in Farmington, Mo. But when former law student Bill Cole, his radar observer from Douglas, Ga., says "I have a lock-on," that "boy" wheels his big fighter through the horizonless night with the skill of an expert.

Through the ranks, all are invaded with a spirit that dominates their personality and sharpens their reflexes. Part of that spirit comes from the example set by the commander of the present Flying Tigers, Lt. Col. Richard L. Crutcher. Looking more like a tackle on a college football team than the CO of the world's only fighter squadron operating north of the Arctic Circle, the former Beaumont, Tex., man sets the pace in the 74th.

Since he took over the organization two years ago, the 74th has earned two awards for outstanding flying safety. On December 15 of last year the Tigers wound up a year of accident-free flying in some of the roughest weather conditions in the world. Not so unusual when a look at Colonel Crutcher's record reveals 4,000 hours without so much as a scraped wing tip.

There's Operations Officer, Capt. Dale Flowers, a short five-foot-five fighter pilot, who's as big as any man when in the cockpit of an '89. Entering the Air Force as a navigator, the Springfield, Ill., flyer spent a previous hitch in the Arctic before returning to the States to learn the piloting trade.

Old-timer Capt. Ralph Ash, Hadley, Penna., flew "Jugs" (P-47s) in China alongside the 74th in World War II. Capt. Joe McCord of San Antonio commands the Radar Observer section and is one of the few ROs to have logged his two thousandth flying hour.

Youngstown, Ohio's Ray Senn tried an enlistment in the Navy before entering the Air Force to become a pilot . . . now a formation flyer with the best of them. Captains Lou Leiser, Arnold Lavoie, and "Squeeky" Wilson, all have fighter-bomber tours in Korea behind them.

These are today's Tigers.

Here also in the winter darkness and cold is the unsung Tiger. The mechanic who takes care of the cold-soaked metal that science has forged into a sonic weapon of war. He too plays a major role in the successful completion of the mission. Men like Stan Kastrava of Coaltown, Penna.; Chuck Freeman, Bangor, Me.; and Line Chief Arthur Syrjala, Amassa, Mich., work to keep the planes "ready in minutes" in spite of darkness, winds, snow, and cold.

Arctic flying is unlike any other flying operation. Dense frigid air sucked into an afterburning engine makes the airspeed leap from 400 to 500 miles an hour in less time than it takes to read this sentence. Jet engine thrust increases immensely as the temperature drops. In the horizonless night, "seat - of - the - pants - flying" becomes something you only remember from pilot training. Instrument flying is king during the three long months of winter at Thule when the sky is dark twenty-four hours a day.

Icebergs in Baffin Bay bounce radar reflections that only an expert can tell from airborne targets. Gale-like winds (they sometimes reach 150 mph at Thule) toss the aircraft like corks as 74th pilots try to keep "on glide-path, on center-line" at the end of a mission. Oil freezes brick-hard in the forty - five - below - zero temperatures, and hands stick to the metal clasp on the helmet. Taxiing becomes a skill in itself.

The alert hangars are the center of Fighter Operations at Thule. Strange quiet envelops the giant metal "cages" where the Tiger stands ready. Aircraft, their guns armed, stand waiting in the chill metal pockets of the building.

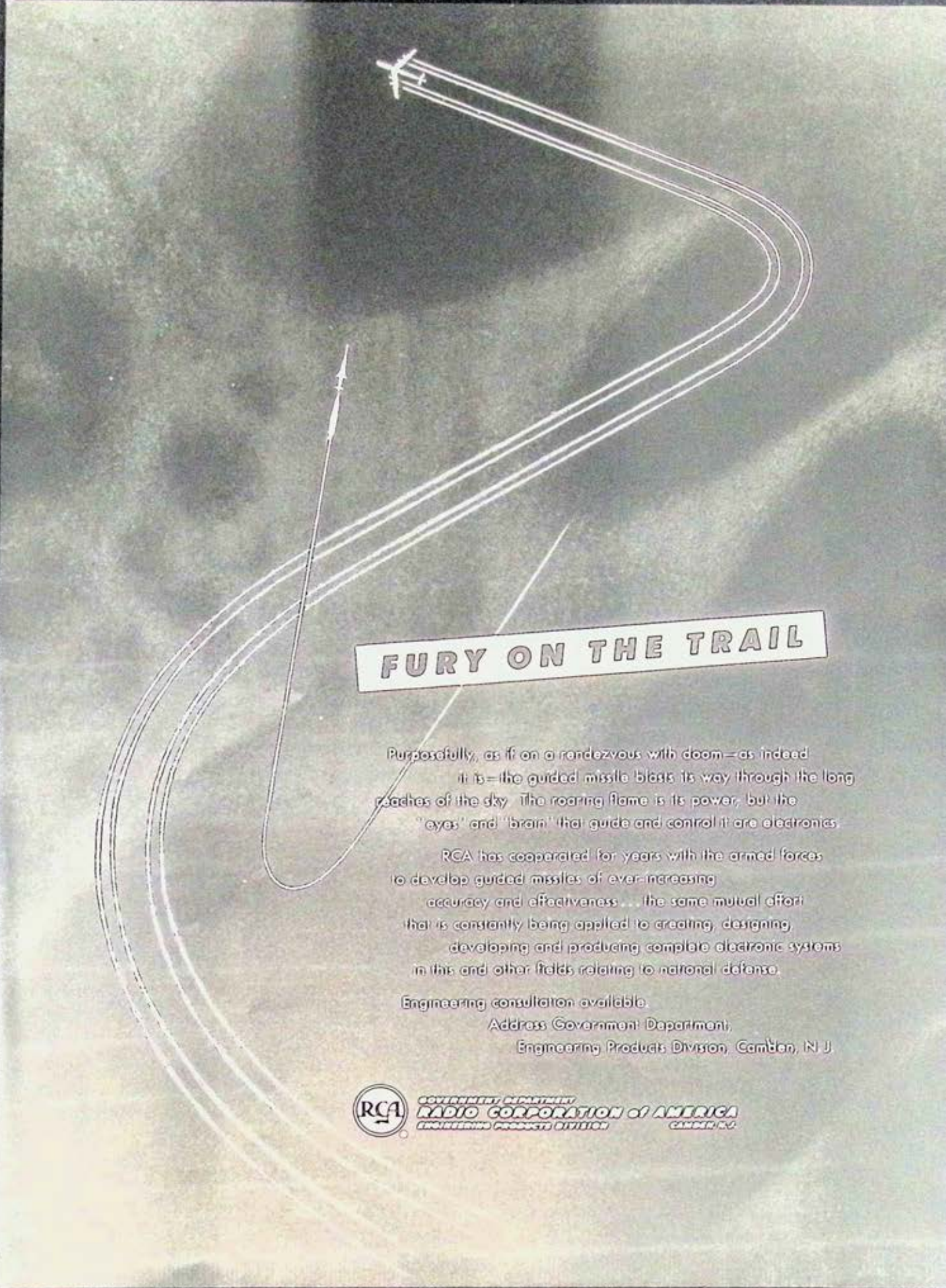
Jet mechanics sit around the lower floor of the center, reading, cooking, playing cards, or listening to Thule's radio station, KOLD. One man is writing his nightly letter to his wife. Another reads . . . maybe the Phoenix *Gazette*, maybe Hemingway, maybe Mickey Spillane . . . and time passes.

Upstairs, flight crews play bridge or rummy. Don Johnston of Pasadena, Calif., wanders over to the snack bar, jabs a hunk of cold butter onto a sandwich and lumbers back across the room. He reaches for a dog-eared copy of *Esquire* and wishes he weren't so hot—hot because of his six layers of Arctic flying clothing.

Stan Hutton, Burbank, Calif., and Jerry Shea, his pilot from Billings, Mont., argue about Shea's weight.

"You wouldn't even make good stew," Hutton says convincingly as they joke about the very serious business of survival should they go down. Each man has spent three days on the Greenland Ice Cap, learning the tricks of staying alive on that endlessly shifting sea of blowing snow.

(Continued on page 117)


FURY ON THE TRAIL
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Previously, it was only on Mondays, Tuesdays and Wednesdays that any person who purchased a full fare ticket could take along his or her spouse and their children for half fare. But now, American's Family ½ Fares are in effect from 12:01 Monday noon to 12:01 Thursday noon.

In 1948 American Airlines introduced the Family ½ Fare Plan. Since then, thousands of families have saved hundreds of dollars by using it. Next time you plan a family trip, remember that American Airlines offers the widest choice of days on which you can enjoy Family ½ Fare savings!

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A NEW LAIR FOR THE TIGERS — CONTINUED

A phone rings in the "Hot Room," the communications room that connects the Alert hangars with the ground radar site. No one even looks up as Airman Klan takes down the weather.

"Three thousand overcast, three miles visibility and blowing snow."

Another ring is heard—different this time—the dull wooden clatter of the field phone. As Klan reaches for the phone I zip the front of my parka . . . it may be just a line check.

"Typhoon Alert," says Khan. "Red on two!"

Charlie Myers, my radar observer from Monongahela, Penna., is closer to the door than I. We pull on our gloves as we pound down the narrow stairs. Klan is still yelling on the squawk box to the jet mechanics in the room below. Just ahead, a crew chief slips into his coat and dashes into stall two where the "Red" ship is waiting.

As we follow him through the door, a blast of cold air hits our faces. The heavy doors of the Alert hangar are swinging upward; the wind sweeps a carpet of snow across the hangar floor.

The starting power unit cuts in with a "chung," then settles to a high-pitched whine. The aircraft, its switches already on, hums with electric motors warming up.

Charlie jumps onto the wing and begins slipping into his chute as I clamber up the metal stairs and pile into the cockpit, jamming my right arm through the parachute harness as I glance around the already glowing instruments.

The radar controller at the ground radar site is giving the unknown an opportunity to identify himself. The yellow light in the hangar clicks off and the red one glows.

"Go get him!" he's decided.

The crew chief pulls the shoulder straps over my shoulders. The metal clasp of the seat belt fits into place with a solid click. I stab for the fuel control panel to re-check the switches on. Already the thirty-five-below-zero cold is numbing my fingers through the thin flight gloves.

Minutes after an unknown plane is seen on the ground radar scope, a Flying Tiger crew will be racing through the Arctic skies to determine its identity.

I hit the starter switch. The lights dim for an instant. The tachometer shows ten percent on the left engine . . . hits a crescendo and the exhaust temperature surges as the ignition cuts in, igniting the fuel pouring into the burner cans. The RPM slides upward, I hit the switch for the right engine.

The roar of the engines thunders against the metal-walled hangar. The vibrations of the engines pulse through the airframe. I reach for my helmet, cut the generator switches on and signal the ground crewmen to pull the power cables. A crewman runs to the side with the chocks.

"Canopy clear!" With a shudder, the eighteen-ton fighter rolls from the hangar. The floodlights glisten on the red wings.

"Typhoon Red, taxi one Fox 89," I call as we roll toward the runway. "Red, taxi runway one six, winds southeast fifteen, altimeter two eight point eight nine," answers Thule's control tower operator.

I recheck the switches. Charlie calls out the check list. Check and double check. It pays to be sure, and it doesn't take any longer.

In the Alert hangar, Airman Klan has received instructions from "Roughneck" (the call sign of the ground radar station) and cuts in—"Typhoon Red, vector two four zero, angels one five, buster."

Somewhere in the night an unknown aircraft slips through the darkness, its intentions and its destination still in doubt. The controller at the GCI station anxiously watches his scope. The blip edges toward Thule.

I slide the throttles forward as we turn on the runway. My eyes strive to catch two needles at a time as the instruments wind toward 100 percent.

"Typhoon Red, rolling!"

I cut in the afterburners and twenty feet of blue flame streaks from the tailpipes. The airspeed mounts as fast as I can call it off.

"Seventy knots, eighty, one hundred, one-twenty, nose off, airborne, gear coming up."

Gaining altitude over the ice cap, we turn to the vector received from Klan. The waiting controller picks out the blip of the fighter rising from the end of the runway.

"Typhoon Red, vector two four zero, angels fifteen, are you buster?" he breaks in on the radio.

"Roger buster."

The radar scope perks to life. Charlie is getting ready to make the pick-

(Continued on following page)

F-89 Northrop Scorpions of the 74th Fighter-Interceptor Squadron stand on the snow-covered parking apron at Thule.

A NEW LAIR FOR THE TIGERS — CONTINUED

up when within range. The altimeter stops its rapid rotation. I wing over slightly to level out of our forty-degree climb angle. Altitude fifteen thousand. Moments before the wheels left the Thule runway.

Three . . . four . . . five minutes pass. The voice of the controller continues to move us into position for an identification attack on the unknown.

"I have a contact," says Charlie into the interphone.

"Typhoon Red, contact," I call, wheeling the plane in an arc far out over Baffin Bay. Charlie keeps up a constant chatter of instructions and information. He now runs the intercept from his radar scope.

"Ease off, steady, target now ten port, seven thousand yards, ten low, overtake on the peg. Go down!" He directs us into a position from which to fire should the need arise. The guns are always "hot" at Thule.

"Lock on," he calls.

"Roughneck, Typhoon Red, Judy," I tell the waiting controller.

"Roger, Roughneck, standing by," he answers. The blips on his scope move rapidly toward each other.

"Bogie ten port, three thousand, ten below," comes Charlie's report. I nose the plane down slightly and glance outside. Off to the left I can see the winking lights of the unknown.

"Throttle back!" Charlie calls. We pitch forward into our shoulder harness as the engines unwind and the dive brakes split out of the wings. The target outlines itself against the clouds for an instant. I utter a relieved, "Tally-Ho, Roughneck, I have a Charlie one-twenty-four." It's a Military Air Transport Service cargo ship, possibly with his radio out, but just to be sure, Roughneck tells us to complete the identification.

We edge in close to the big four-engine aircraft. Passing just under the wing tip, Charlie flashes a light onto the tail and I read the numbers to Roughneck.

"Charlie one-twenty-four is aircraft number five one dash five eight two four."

"Roger Typhoon Red, good job, you're clear to break off." We drift down and away.

Back at Thule another aircraft now fills the cell we left behind. Another crew is waiting to roar off into the night.

The Air Force's northernmost air base is "Ready"!

The controller guides us home. The ground-controlled approach radar picks us up to bring us through the clouds. We speed toward the unseen runway at 220 miles an hour while the GCA operator directs the flight path and let-down through the gray mist around us.

Two miles out we break through the overcast. Directly ahead is the long Thule runway. Gear down and checked . . . flaps full down . . . power off over the end of the runway . . . the wheels scrunch on the snow-covered asphalt . . . another interception mission completed. As we taxi in, we hear the pilot of the C-124 calling in for landing instructions.

And so our history continues. Twenty-four hours of the day, crews of the 74th stand ready at the top of the world as they stood a decade ago at Rangoon and Kunming and Hong Kong. The job of the Flying Tiger is as unending as its history.—END

Many of the people Lt. John H. Bickers talks about in this article, which was written last spring, now are back in the US, though the job of the 74th F-I Squadron goes on at Thule. The author himself, now Mr. John Bickers after leaving the Air Force last September, is presently Publications Director at Iowa State Teachers College, Cedar Falls, Iowa.

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