AIR FORCE

THE MAGAZINE OF AMERICAN AIRPOWER

May 1956 • 35c

THE TACTICAL AIR COMMAND—Many Missions, One Philosophy

A Special Report on the Outfit that Stays Fast and Loose

ACES . . . back to back

American Bosch Arma Corporation is the result of the merging of two great equipment manufacturers.

Arma—a leader in basic research, design, development and manufacture of advanced weapon and missile control, navigation and other precision remote control systems.

American Bosch—the nation's largest independent manufacturer of fuel injection systems and an important producer of automotive electrical and aircraft equipment. It contributes time-proved production techniques and efficient engineering methods to the merger.

By combining these resources, American Bosch Arma Corporation can provide more than ever before top cards for the nation's defense.

AMERICAN BOSCH ARMA CORPORATION

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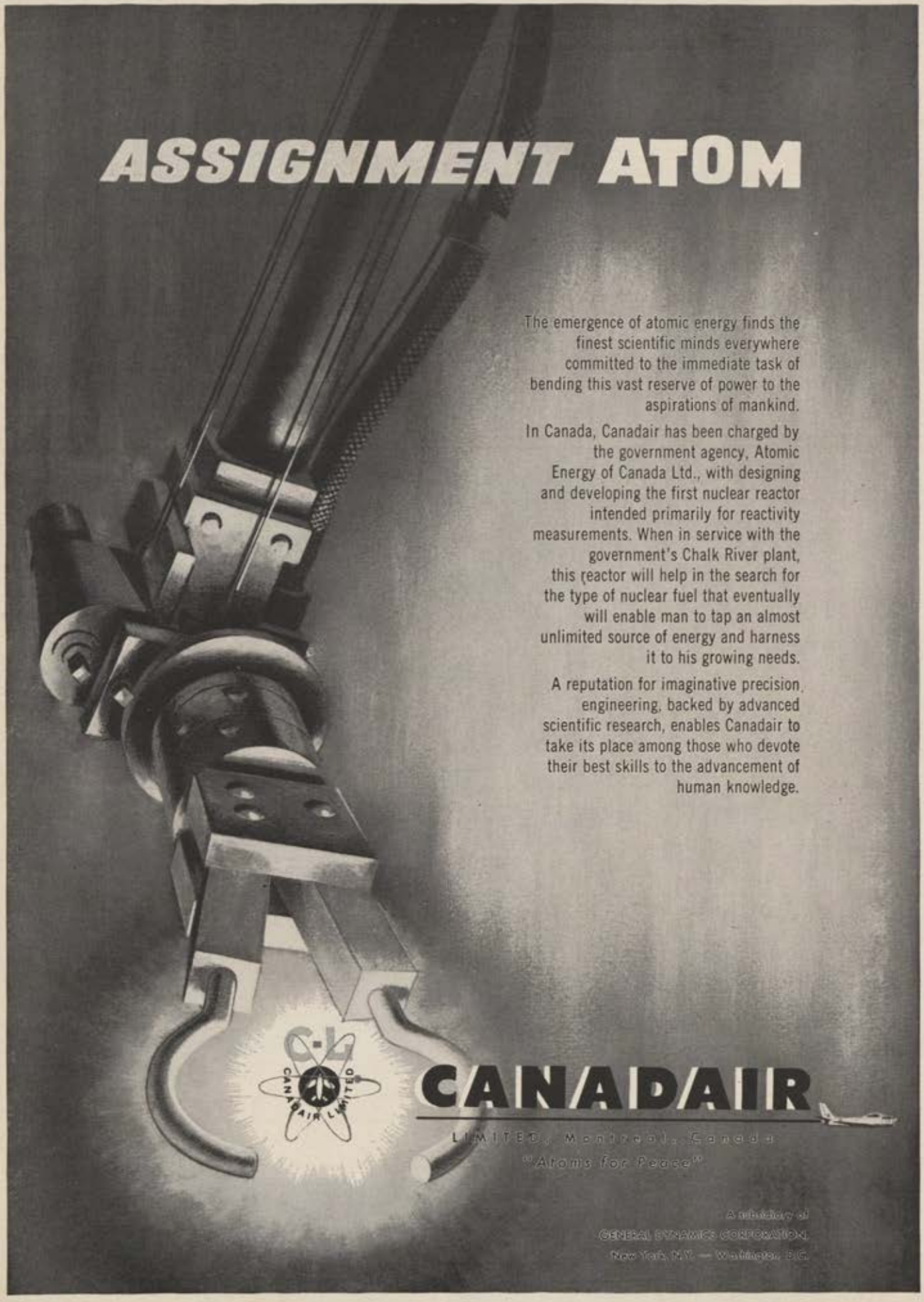
ASSIGNMENT ATOM
The emergence of atomic energy finds the finest scientific minds everywhere committed to the immediate task of bending this vast reserve of power to the aspirations of mankind.
In Canada, Canadair has been charged by the government agency, Atomic Energy of Canada Ltd., with designing and developing the first nuclear reactor intended primarily for reactivity measurements. When in service with the government's Chalk River plant, this reactor will help in the search for the type of nuclear fuel that eventually will enable man to tap an almost unlimited source of energy and harness it to his growing needs.
A reputation for imaginative precision engineering, backed by advanced scientific research, enables Canadair to take its place among those who devote their best skills to the advancement of human knowledge.
CANADAIR
LIMITED, Montreal, Canada
"Atoms for Peace"
A subsidiary of
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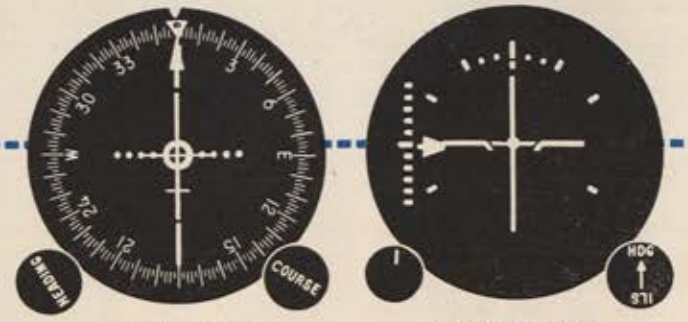
New York, N.Y. — Washington, D.C.

CAPITAL AIRLINES REPORTS . . .

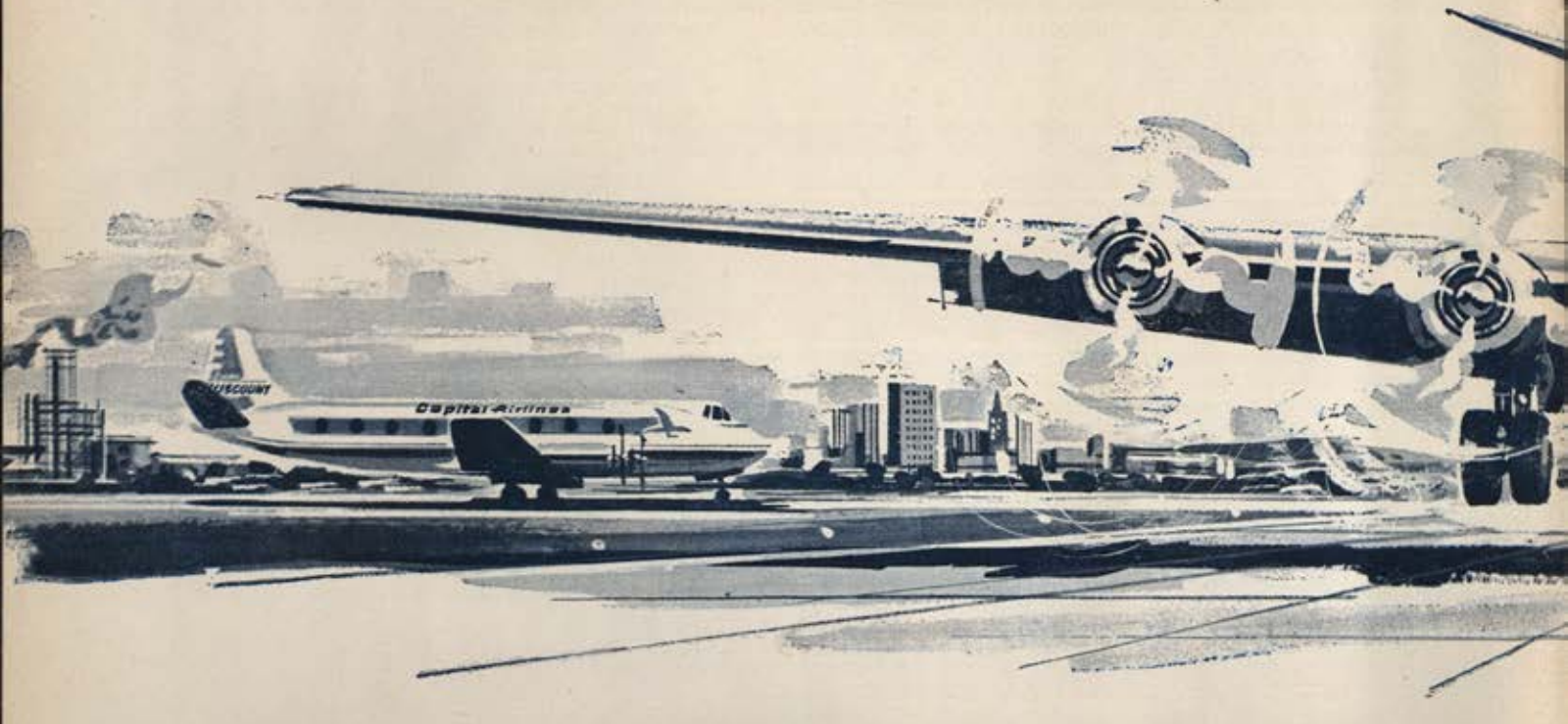
78,198,000

PASSENGER MILES OF TROUBLE-FREE SERVICE

WITH *Collins* INTEGRATED FLIGHT SYSTEM



COURSE INDICATOR APPROACH HORIZON



Write to the sales office nearest you for new Collins Integrated Flight System four color brochure.

Mr. Earl Raymond, Supervisor, Instrument and Electronics, says:

"In 78,198,000 passenger miles, no time has been lost because of unscheduled removals of Collins Integrated Flight System.

"During the period our IFS equipped Viscounts have been in service we have had 751 ILS approaches without a single missed approach.

"We have been thoroughly pleased by the unsurpassed reliability of the components of the Collins Integrated Flight System."

Capt. Ralph Read, Chief Pilot, says:

"The Course Indicator's graphic presentation makes for easy approaches during low visibility — convenient to set up and simple to understand.

"Easy to detect pitch and bank errors; easy to cross-monitor; less chance of missetting.

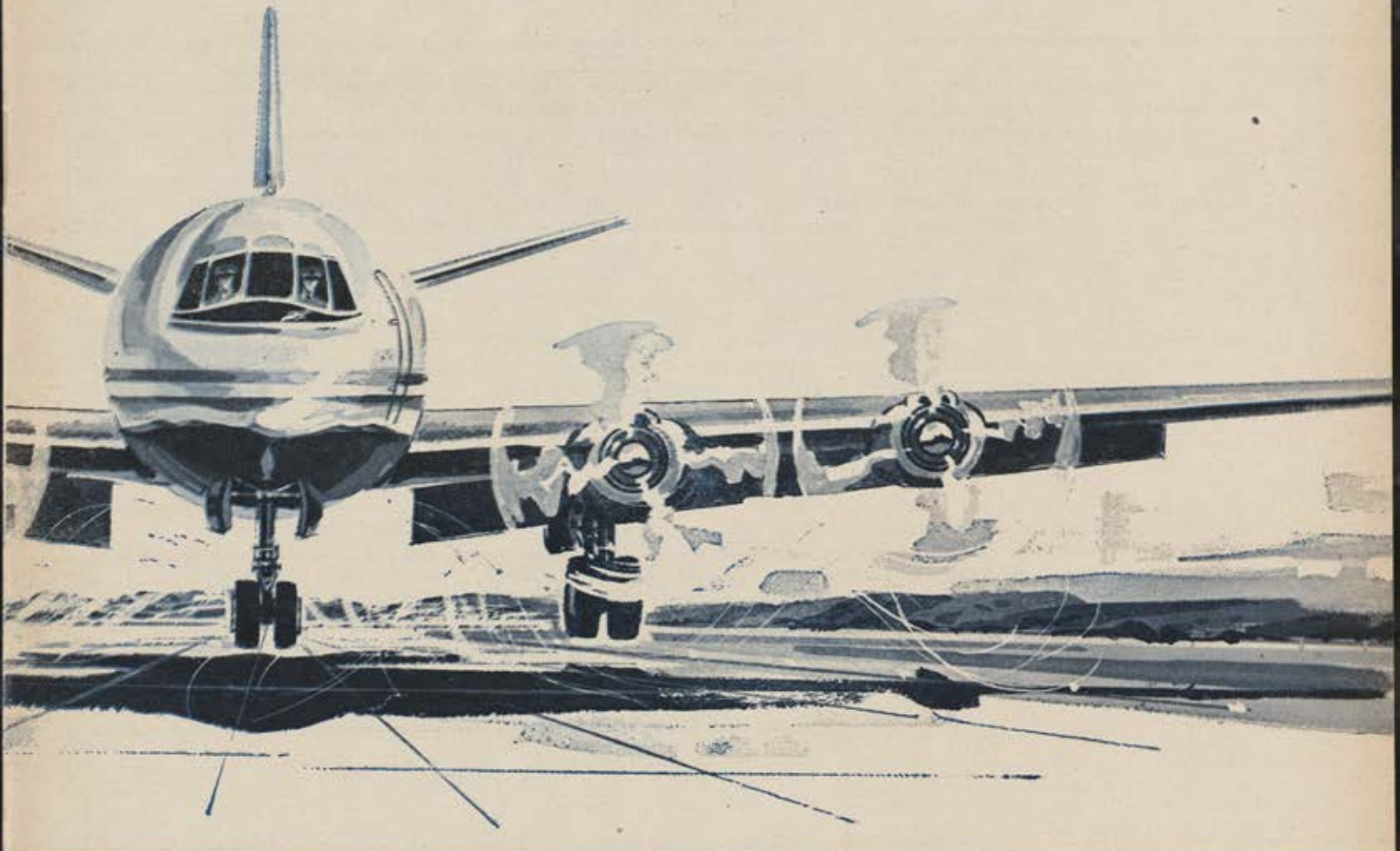
"In heading function, Approach Horizon makes enroute flying less tiring.

"Use of Course Indicator while 'holding' reduces fatigue.

"Automatic cross-wind correction simplifies ILS steering.

"Use of Heading Marker and Steering Needle makes radar flying more precise.

"During training, pilots consistently make more accurate ILS approaches than with previous equipment — definite improvement from the very beginning."



Collins CREATIVE LEADERSHIP IN AVIATION ELECTRONICS

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COLLINS RADIO COMPANY, 855 35th STREET N.E., CEDAR RAPIDS, IOWA • 1930 HI-LINE DRIVE, DALLAS 2 • 2700 W. OLIVE AVENUE, BURBANK • 261 MADISON AVENUE, NEW YORK 16 • 1200 18th STREET N.W., WASHINGTON, D.C. • COLLINS RADIO CO. OF CANADA, LTD., 11 BERMONDSEY ROAD, TORONTO 16, ONTARIO • COLLINS RADIO CO. OF ENGLAND, LTD., SUNFLEX WORKS, COLHAM MILL ROAD, WEST DRAYTON, MIDDLESEX, ENGLAND

Deserving of Praise

Gentlemen: As a USAF aircraft maintenance officer, I wish to express my appreciation to Jack Elliot, author of "The Man Behind the Men," in the "Jet Blasts" section of the February issue of your magazine.

Word for word, I agree with the gentleman and feel I can safely say that just about all 4344s in the Air Force today feel likewise. He hit the nail on the head with his up-to-date, factual account of the normal activities of today's squadron maintenance officer.

One important point that I would like to mention, however, is the part played in this maintenance business by that "man among men," the line chief. Not taking one thing away from the maintenance officer, I think it only appropriate to add that behind every successful maintenance officer there can be found a line chief who, on his own level, is every bit as important as his immediate boss. A word of appreciation for his loyal, never ending efforts would be in order.

Capt. John L. Redrup
McGuire AFB, N. J.

Not Much Progress

Gentlemen: I have nothing but praise for the efforts of AFA. I like AIR FORCE Magazine; however, I think it has come to have too many policy and world strategy articles. Although they display a great deal of thought and are exceptionally well written, I just don't have the time to digest the material.

After ten years of Reserve membership, my personal evaluation shows that we haven't made much progress towards effective AF Reserve training. With the exception of the flying units, a pretty sorry attempt at training exists today. As a category B-1 Reservist, I come in contact with two separate Air Force specialized training courses. I attend education and training course one night and instruct aircraft maintenance on another.

In my class I have some very excellent maintenance men, each of whom I feel could render the Air Force valuable service in time of need. The news headlines read daily that the Department of Defense will not enlarge our force in being inasmuch as the Ready Reservist is being trained to fill the gap. Who is kidding whom? We are supposedly training Ready Reservists and we have a course written in era 1949. The Air Reserve Center can't send any of our people to the fine maintenance course at Chanute AFB for their two weeks' training as they have no "quota." Many will not even get two weeks anywhere. For films on this course we are allotted three, all made in 1944. Supplemental films ordered by me from Fourth Air Force were also 1944 era. All this to bring World War II people up-to-date for the Jet Age!

Capt. Edward J. Smith
San Diego, Calif.

TAC Fan

Gentlemen: As an employee of the Air Force, it has been my good fortune to see your publication for the past ten years! I have always found some very enlightening and pertinent data insofar as other major air commands, research and development (civilian and otherwise) groups, and outstanding officials of the aeronautical field are concerned. However, in deep humility, I pose this question—

Tactical Air Command is very rarely even mentioned. Why?

Are your articles submitted or requested?

Comparatively speaking, TAC might be a "young major air command" but unless it is given its proper place, publicity and acclaim, many of our citizens may never be cognizant of the important role Gen. O. P. Weyland and his staff play in the serious peace business with which all are vitally concerned.

I urge that you consider an article on the Tactical Air Command, its mission and accomplishments, as well as the relation of TAC operations to remaining important major air commands.

Some of our American public think there is only *one* air command—but there are many—all equally necessary to strive for and attain a solid, effective air-preparedness for an all-out peacefully planned and lasting monument to our great American way of life! Tactical Air Command figures prominently in such plans!

In closing, I would like to congratulate you and Lt. Col. Kenneth E. Kay for the latter's "Never Understimate Your Crew Chief" [March '56]. As usual, Colonel Kay has done it again!

Lorraine Morewitz
Hampton, Va.

• *In equally deep humility we call Reader Morewitz's attention to our July 1955 issue, which was in large measure devoted to TAC. Also, in this issue, as in many others, you'll find considerable mention of this command. —The Editors.*

Command Pilot

Gentlemen: In the March '56 issue of AIR FORCE Magazine you stated that Maj. Gen. Kenneth P. Bergquist was a senior pilot. This is an error. General Bergquist is a command pilot, and, incidentally, one of the very finest pilots with whom I have ever flown.

Col. John C. Meyer
Maxwell AFB, Ala.

Broad-Minded Cadet

Gentlemen: In going through the January '56 issue of AIR FORCE for the third time, I came across an article in "Shooting the Breeze" discussing naval airplanes in your advertisements.

Now I'm not a member of your or-

(Continued on page 7)

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ON THE GROUND
Simulators are the only sure way to train jet pilots

LINK F-102 SIMULATOR, DEVELOPED BY LINK AVIATION, IN COOPERATION WITH WRIGHT AIR DEVELOPMENT CENTER, USAF.

Air power depends upon pilot efficiency. And the cheapest, shortest, *surest* way to give a student his ground training is to have him "fly" a simulator that *really* reproduces all conditions of flight.

An example is this Link F-102 Jet Flight Simulator which gives interceptor pilots the full range of flight experience on the ground. The new F-102 is the first U.S. simulator to utilize the DC method of computation, thereby improving computational accuracy and simplifying maintenance.

Only in the Link F-102 do you find such advances in *realistic* flight simulation as linear interpolation, automatic amplifier checking and improved dynamic performance.

This kind of progressive engineering is constantly at work at Link to give America more and better equipment, and better value for its defense dollar.

LINK AVIATION, INC.

BINGHAMTON, NEW YORK

Pioneer and World's Largest Producer of Jet Flight Simulators

A SUBSIDIARY OF GENERAL PRECISION EQUIPMENT CORP.

U. S. Air Force BOEING YC-97J with Curtiss-Wright TURBOLECTRIC PROPELLERS

. . . in MATS SERVICE makes FIRST TRANSATLANTIC FLIGHT of American TURBOPROP TRANSPORT

A U.S. Air Force Boeing YC-97J turboprop transport, operated by the Military Air Transport Service (MATS), recently accomplished the first transatlantic flight of any American turboprop aircraft, spanning some 11,413 miles between San Antonio, Texas and Rhine-Main Air Base, Germany and return. The 2,360-mile leg from Harmon, Newfoundland to Prestwick, Scotland took only 6 hours, 3 minutes – was hailed by the British press as the "fastest time for a propeller driven aircraft."

Curtiss-Wright Turbolectric Propellers provided precision control of engine speed and fuel reserves through positive pitch change and closer synchronization – combining fuel economy with smoother, quieter operation. These propellers feature the exclusive Curtiss-Wright single-piece hollow steel blade, extruded from a solid billet—without welds or brazing. This construction, assuring higher abrasion resistance and greater strength to withstand impact damage, has been performance-proved by 17.7-million operational hours. Inherent in Turbolectric design are structural reserves for the larger aircraft and greater engine powers that lie ahead.

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Curtiss-Wright has permanent career positions open for specialists in advanced engines and propellers, metallurgy, electronics, nucleonics, ultrasonics, plastics and chemistry. Write to: Engineering Placement Department, Curtiss-Wright Corporation, Wood-Ridge, New Jersey.

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CORPORATION • CALDWELL, N. J.

YOUNG MEN! JOIN THE U. S. AIR FORCE

Investigate Career Opportunities at your Nearest Recruiting Office

ganization, although I soon will be if I can scrape together three dollars. In fact, I'm only a lowly college sophomore. However, if I'm going to be as narrow-minded an individual as are your critics I hope I never receive a degree. I won't be deserving of it.

Now, to the crux of the matter. Had your critics taken the time to look on the last page of any AIR FORCE mag, they would have found the following AFA objectives neatly listed there:

"1. To assist in obtaining and maintaining adequate airpower for national security and world peace." If naval airpower doesn't fit into this picture, then neither does the Air Force!

"2. To keep AFA members and the public abreast of developments in the field of aviation." If "the field of aviation" doesn't cover naval aviation, then neither does it cover Air Force aviation, commercial aviation, or private aviation. Any strides forward in the field of aviation made by the Navy are just as important to the Free World as those made by the Air Force. I, for one, am always glad to read about *any* new developments in aviation.

Now don't get the idea that I'm pro-Navy. In fact, I expect to be an observer trainee in the aviation cadets by August 1956. It's just that I'm not completely oblivious of the fact that there are other fine aviation organizations in this world besides the USAF.

Cadet A/1C Peter H. Snyder
Purdue University
West Lafayette, Ind.

Better Training Aids

Gentlemen: General Hall's story in the March AIR FORCE which told of the search for cities which will permit flying training for Reservists brought joy to my heart. To be perfectly frank, I had just about decided that the Reserve program was another phase of the well-known "paper war." However, if USAF wants to give some flying training to Reservists with ratings, I have a suggestion.

It would seem to me that there are two classes of rated Reservists: (1) the flyers recently released from active duty in the air, and (2) those who have not flown since World War II or since the Korean conflict. Although there must certainly be a point at which the Reservist's age makes it imperative to assign him another duty, there must be thousands who could step back into flying duty in case of an emergency. These men, now involved in watching World War II films and studying basic weather and communications manuals in Reserve Centers, should be getting up-to-date ground training which would keep them acquainted with the latest flying procedures—much nearer to being truly "Ready Reservists" than now can be said to be the case.

My basic idea is to provide the Reserve Centers with such training aids as flight simulators of currently used aircraft, radar trainers, Loran trainers, Link trainers, as well as system mock-ups and other visual aids used by USAF in preparing its men for flying current aircraft types. By using these aids, in connection with current manuals and training films, all rated personnel could be kept close to the ground-training level to which they would be brought now after being called to active duty. Perhaps men with this training could spend a few week-ends a year at Air Force bases getting checked out in aircraft of types in which they had received simulator training. Then, perhaps, these men could have their two weeks of active duty with a USAF flying unit, instead of spending this time playing nursemaid to a filing cabinet.

It is obvious that such a program would cost a lot of money, but the expense would be nothing in com-

(Continued on following page)

parison with the equivalent cost of aircraft which the present program would use if it could obtain bases near cities. And, in the event of an emergency, many of the personnel now on active duty would be assigned as instructors or commanders of units in which these Reservists would be serving. Actually, the skeleton of a mobilization system could be amplified by a complement of well-trained Reservists.

Capt. Elwood M. Jones, Jr.
San Diego, Calif.

You're Being Followed

Gentlemen: Reference to Ruggles Orientator in picture on page 116 of the February '56 issue.

In the spring of 1922 I was an employee of the Surplus Property Division, War Department, and was a clerk working on inventory of excess property at Carlstrom Field, Fla., at that time the ASPFS (Air Service Primary Flying School).

The Ruggles Orientator was an item of excess stored in Air Service Supply. This item was reported in excess and redistribution called for its shipment to the East. I believe Mitchel Field. I remember it included as accessories a kit of tools, all nickel-plated, which seemed to all stray away before shipment.

In June 1922 the primary school moved to Brooks Field, Tex. I followed and during late 1922 or 1923, in passing a GI truck parked in barracks area, my glance at a large box was drawn to my handwriting on the label —and it was Ruggles again.

The picture which appeared in your magazine was taken outside the old balloon hangar at Brooks, as indicated by the large door frames mounted on rail tracks, frames on which the Semi-Rigid C-2 turned in the fall of 1922.

Little did I think that Ruggles and I would meet on Formosa in 1956!

Maj. Colby L. Cherry
Taipei, Formosa

Crusaders All

Gentlemen: I want to let you know how very much I appreciate AFA and AIR FORCE Magazine. One can easily keep informed on the important matters connected with airpower. AIR FORCE Magazine also helps one keep posted on personalities and events important to both the man on active duty or to the Air Reservist.

Sometimes you probably feel like Billy Mitchell, but keep up the good work.

Chaplain (Capt.) Lewie H. Miller, Jr.
Atlanta, Ga.

WORLD WIDE SERVICE ON A SYSTEMS BASIS

As flight systems have become more complex, speeds higher, space and weight-saving more valuable, the increasing rate of technical progress in the aircraft industry has created a serious problem:

Keeping its products up to top level of operational effectiveness—and in the air—has become a major responsibility of the prime contractor.

Martin has been working on that problem for many years; and the result is a new kind of service organization and systems method which now provides for the maintenance of all Martin products—from the company's assembly lines to operational flight lines anywhere in the world—at peak effectiveness and with maximum availability.

It is service on a *systems* basis, and already it's setting a new pace in the industry.

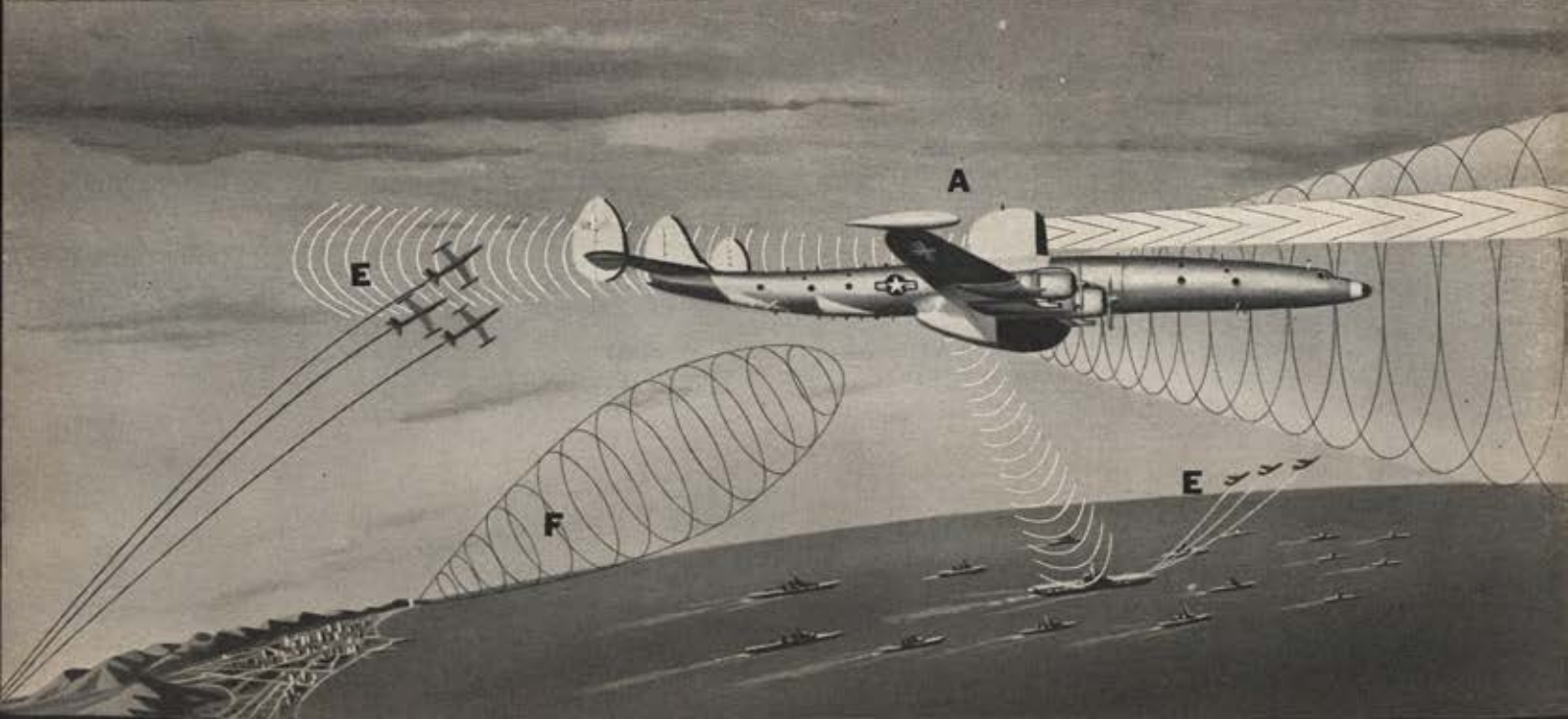
MARTIN

New U.S. Concept for

TOTAL DEFENSE

In this age of awesome airborne nuclear weapons, a vast umbrella of airborne electronics will safeguard our nation against sneak attack

BELOW—A WEAPONS SYSTEM IN ACTION. An electronics-laden Super Constellation early-warning plane (**A**), patrolling our outermost defense perimeter hundreds of miles from our shores and borders, from its high altitude can "see" beyond the horizon and detect both high-flying and low-flying enemy aircraft (**B**). Using its powerful search radar (**C**) and height-finder radar beam (**D**) to pinpoint position of invaders, the patrol plane alerts our interceptors (**E**), which swarm aloft and are radar-guided through fog or darkness to intercept and



LEFT—EARLY-WARNING RADAR PATROL. Designated the WV-2 by U.S. Navy and EC-121 by USAF, these radar-domed Lockheed Super Constellations carry six tons of electronics and a 31-man crew. Super Constellations are ideal for this duty because of their famed all-weather stability and extremely long range.

ABOVE—ROCKET-FIRING STARFIRE INTERCEPTOR. First of the almost-automatic all-weather interceptors, the Lockheed F-94C Starfire is an example of Lockheed's leadership in the design and development of airborne electronics. This deadly defender and other interceptors will soon be supplemented by—

Farsighted Pentagon planning and recent amazing technological developments by U.S. science and industry are rapidly making our nation's TOTAL DEFENSE system the most formidable in all history.

Lockheed's role in implementing our new Weapons System concept and in Systems management, is an important one. Thousands of Lockheed military aircraft, of *nine* widely different types, are already in service. Other advanced planes, missiles and electronic guidance devices are in production, undergoing tests or on the drawing boards at Lockheed. And Lockheed's pioneering leadership in design and development of airborne electronics will continue to contribute heavily to TOTAL DEFENSE.

STILL-SECRET F-104 SUPERSONIC JET FIGHTER. (Photo not yet released.) A high-ranking USAF officer said of the F-104: "This is a fighter pilot's dream. We feel confident that it is the fastest, highest-flying fighter in the air, anywhere."

THREE PHOTOS AT LEFT show crew members of Super Constellation early-warning plane at work. (Top) Navigator plotting a fix; (center) observers at radar consoles plotting altitude, speed and course of unidentified aircraft; (bottom) fighter-director charting position and path of approaching aircraft.

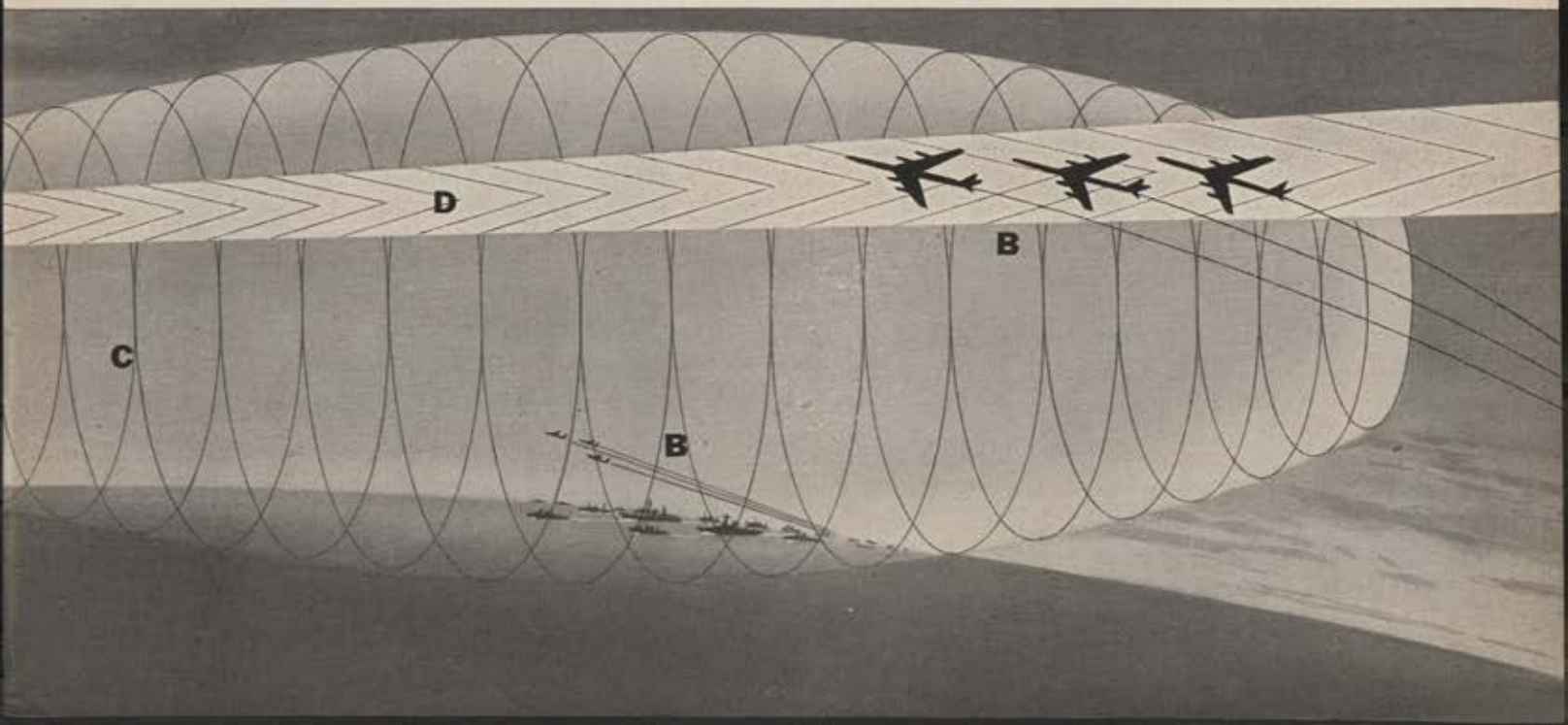
Lockheed

AIRCRAFT CORPORATION

California Division, Burbank, Calif.
Georgia Division, Marietta, Ga.
Missile Systems Division, Van Nuys, Calif.
Lockheed Air Terminal, Burbank, Calif.
Lockheed Aircraft Service, Burbank, Calif.

LOOK TO LOCKHEED FOR LEADERSHIP

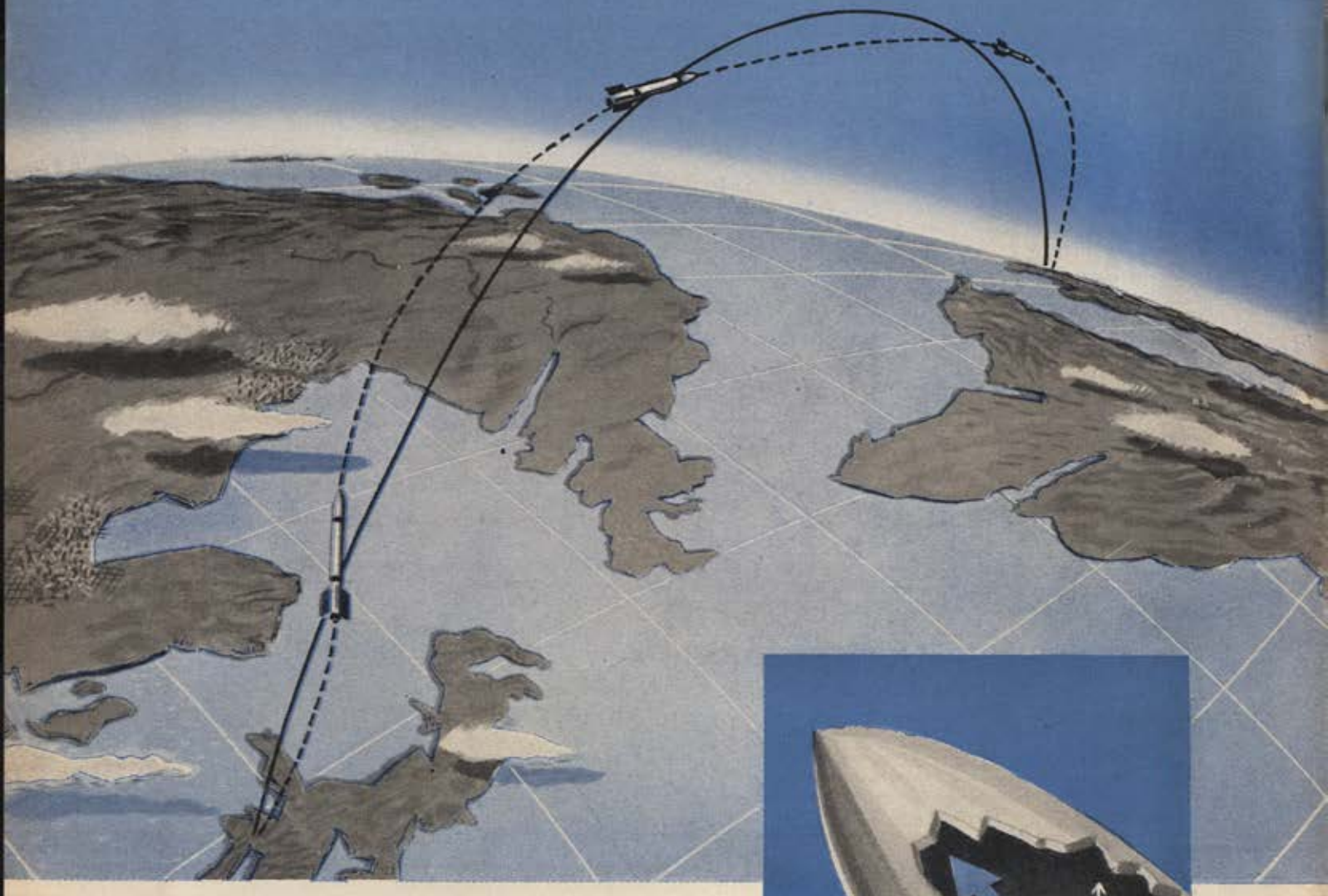
destroy the attackers with high-speed rockets or missiles. Any enemy aircraft penetrating our barrier patrol areas would be detected by shore-based radar stations (F) and Ground Observer Corps outposts continuously manned by patriotic civilians helping to keep our nation free.



FAIRCHILD GUIDED MISSILES DIVISION PIONEERS

the application of

INERTIAL NAVIGATION



After years of experience in the application of inertial navigation, Fairchild Guided Missiles Division is now participating in the development of many new systems of this type.

The particular direction being taken by our talented engineering and scientific staff is of course secret, but the importance of inertial guidance to America's defense is not. The missile that incorporates true inertial guidance is virtually non-deterrable, because it is totally self-contained, depending only upon its own "brains" to pinpoint its target.

Developing such projects as these demands the greatest knowledge, experience and inventiveness. You'll find them all at Fairchild Guided Missiles Division, currently being applied as well to many other new, advanced concepts in this vital field of defense.

FAIRCHILD

GUIDED MISSILES DIVISION • WYANDANCH, L I, N.Y.

A Division of Fairchild Engine and Airplane Corporation

...WHERE THE FUTURE IS MEASURED IN LIGHT-YEARS!

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AIR FORCE
THE MAGAZINE OF AMERICAN AIRPOWER

Volume 39, No. 5 • May 1956

FEATURES

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wing tips

By Wilfred Owen

Belgium's Sabena Airways is getting eight new twelve-seater Sikorsky S-58 helicopters this summer to speed up its international helicopter services. The new craft will cut fifty-five minutes off the present helicopter schedule from downtown Brussels to downtown Paris.

• • •

You can buy a one-man "gyro-copter" for $1,795 from Benson Aircraft in Raleigh, N.C., but you have to put it together yourself. According to the inventor, anyone can fly this machine who can ride a bicycle.

• • •

There is now so much transatlantic airline traffic that a private pilot ferrying a plane with radio trouble was able to line up his flight with passing aircraft and reach Ireland "on the nose."

• • •

During one month last summer more than 2,500 flights were made between the United States and Europe. The largest number—582—was made by Pan American, followed by Trans World with 440, British Overseas with 228, and Scandinavian Air Services with 164.

• • •

A jet engine weighs one percent as much as a steam engine of equivalent power.

• • •

Domestic animals get airsick more often than wild animals. Bulldogs are considered the most delicate air

travelers and many airlines refuse to carry them. But flying cats get along fine.

• • •

Air cargo services are playing a vital economic role in machinery repair work around the world. When the only flour mill in Ecuador broke down, leaving the country with a three-day supply, parts were flown from London and installed within three days. When a 300-pound chain broke on a Venezuelan construction job a new one was air-shipped from Denver to save the company $100,000 in workmen's time that would have been lost if surface transport had been used.—END

SORRY—

Rooms and Suites at the Roosevelt SOLD OUT!

Better hurry with your request for hotel accommodations in New Orleans. Over half of AFA's rooms are gone. The Roosevelt is sold out of both rooms and suites. The other hotels do have rooms and suites left.

HOTEL RESERVATIONS

The four New Orleans hotels listed below have reserved 1,500 rooms for the Air Force Association's 1956 Convention and Airpower Panorama. A special housing office has been established at the New Orleans Convention Bureau to handle hotel reservations for the Convention. All reservation requests MUST be sent to the AFA Housing Office, not to AFA in Washington or directly to the hotels. All four hotels are air conditioned. No advance deposits are required.

ROOM RATES

HOTEL	SINGLE	DOUBLE	TWIN
Roosevelt	SOLD OUT	SOLD OUT	SOLD OUT
Jung	$7-8-9	$10-11-12	$11-12-14
St. Charles	$6-7-8	$ 9-10-11	$11-13-15
Monteleone	$6-7-8	$ 9-10-11	$11-13-15

Parlor Suites

One Bedroom . . . . $25 & Up

Two Bedroom . . . . $40 & Up

FILL IN, CLIP AND MAIL TODAY!

mail to: AFA HOUSING OFFICE
New Orleans Convention Bureau
315 Camp Street
New Orleans 5, La.

Date .....

NAME .....

ADDRESS .....

CITY & STATE .....

HOTEL ....
First Choice Second Choice

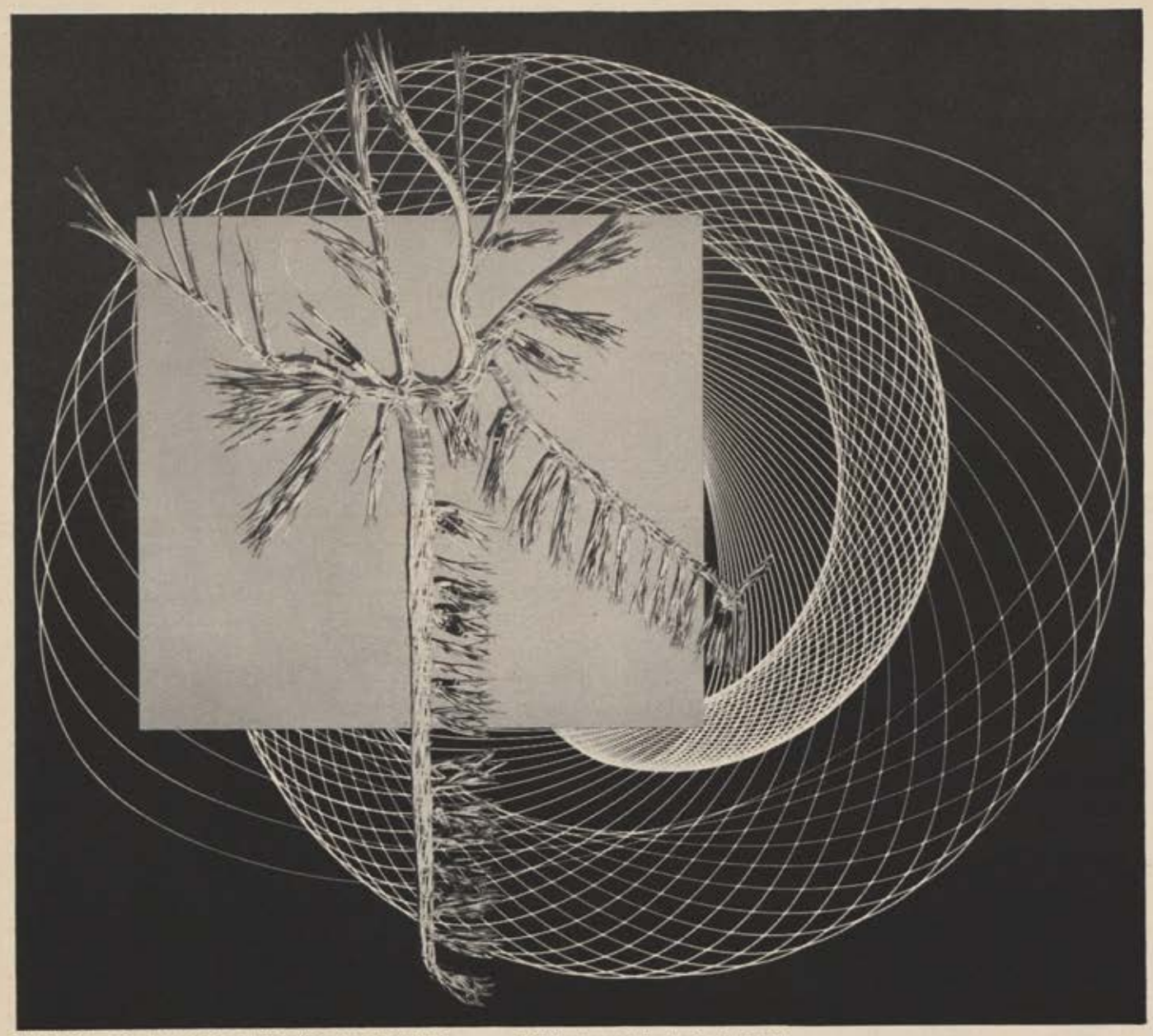
....
Type Room Desired Rate

ARRIVAL DATE & HOUR .....

DEPARTURE DATE .....

OTHERS IN ROOM .....

.....



This intricate wiring harness is part of the "nervous system" of AUTONETICS' MG-4 armament director for jet aircraft.

Man has created a nervous system

with reflexes faster than his own

Today's jet planes fly at speeds far beyond man's capacity to think and act. That's why today he is designing electro-mechanical stand-ins . . . automatic systems that expand his reasoning power, his nervous-reflex action, his muscular ability.

For example, shooting a crow with a rifle from a moving jeep would be quite a trick. But suppose the crow were flying at 750 mph? And suppose you were angling across at more than 800 mph! Hard to imagine, yet it illustrates the problem our jet pilots would face if they had no mechanical helpers. Fortunately, our jets have armament control systems like the AUTONETICS-designed and built MG-4 Fire Control. This automatic system enables jet pilots to hit even invisible targets flying at supersonic speeds. It calculates every factor in split seconds—speed of target, wind velocity, angle of approach—and directs the pilot through a complete attack.

Armament control systems are but one of the electro-mechanical avenues which the AUTONETICS Division of North American Aviation is exploring. Others include auto pilots, auto navigators, computer systems and special products.

If you have a professional interest in this field, either as an engineer or manufacturer, write AUTONETICS, Dept. F-3, 12214 Lakewood Blvd., Downey, California.

Autonetics

A DIVISION OF NORTH AMERICAN AVIATION, INC.

AUTOMATIC CONTROLS MAN HAS NEVER BUILT BEFORE

1916 SPERRY "AERIAL TORPEDO," FORE-RUNNER OF TODAY'S GUIDED MISSILES

40 years of Building Significant

MISSILE CAPABILITY

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Sperry is currently putting its capabilities to work in six major missile systems — of all types — ranging from complete systems' cognizance to major sub-system responsibility.

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AIRPOWER IN THE NEWS

■ Secretary of Defense Charles E. Wilson has appointed **Eger V. Murphree** his **Special Assistant for Guided Missiles.** Mr. Murphree, appointed for one year without pay beginning April 3, will have **broad powers in organizing and directing missile research, development, engineering, and production.** He will, in Secretary Wilson's words, "devote major emphasis to missiles of the long-range type, particularly ballistic missiles."

Mr. Murphree took a leave of absence from his job as president of the **Esso Research and Engineering Co.** to take his new position in the Pentagon. He is a native of Bayonne, N. J., and a graduate of the University of Kentucky where he received his M. S. degree in chemistry. From 1922 to 1924 he was a staff assistant and research associate at Massachusetts Institute of Technology, and then took a position as chemical engineer with a Syracuse, N. Y., firm. He began his career with Standard Oil in 1930 and has been a top research executive for them since then. During World War II, as a member of the Office of Scientific Research and Development S-1 Committee headed by **Dr. J. B. Conant,** he helped set up the **Manhattan Project.** In 1950 he received the Perkin Medal for work in applied chemistry and in 1953 won the Industrial Research Institute Award for outstanding accomplishment in the organization and direction of research. He and his wife live in Summit, N. J.

■ When **Gen. Ivan A. Serov,** head of the Soviet secret police, flew into London in advance of the visit of Bulganin and Khrushchev, he created quite a stir. He swooped into London airport in a **TU-104, the transport version of the Soviet Type 39 medium bomber Badger** (*see cut*) after covering the 1,564 miles from Moscow non-stop at an average speed of about 440 mph.

The British press became quite excited about the jet's arrival and called it "**a world beater**" and "more advanced than anything likely to be available in Britain or America for at least three years."

Later, a more thorough look at the aircraft (from a distance because the plane was well guarded during its stay) indicated that while the Russians seem perfectly capable of producing aircraft to match, and possibly surpass, those produced in the West, this particular plane may not prove to be quite as good as it looked at first glance.

The Russians claim **they are mass producing** this version of the TU-104 and say they **hope to capture some of the international jet market** with it. Obviously a prototype, the plane that landed in London had a plexiglass nose, typical of bombers but unusual on civilian transports. Experts also pointed out that **each seat was equipped with an individual oxygen mask,** indicating that the plane is either not pressurized, or not pressurized enough for its 33,000-foot operational ceiling.

The plane was designed by **Andrei N. Tupolev,** who said that it has a cruising speed of 500 mph, a range of 2,000 miles, and carries fifty passengers. (A tourist version would carry seventy passengers.)

Its two very large engines are believed to produce a **thrust of 18,000 pounds each,** more powerful than anything operational thus far in the West. Tupolev claims that in an emergency, the plane could fly at altitudes up to 15,000 feet on one of its engines.

■ The shareholders of the Piasecki Helicopter Corp. have voted to change the name of the company to **Vertol Aircraft Corporation.** The move was made to avoid confusion with the **Piasecki Aircraft Corp.,** organized by Frank N. Piasecki when he left the older firm that he founded. According to **Don R. Berlin,** president of the company, the change "will better reflect the full range of our current activities and future operations [because] today, our programs include not only helicopters, but other new and promising possibilities of obtaining vertical lift."

■ **Marion Sellers,** public relations manager for the **Lockheed Aircraft Corporation's guided missile division,** told the **Air Force Association San Francisco Squadron** that the aircraft industry may launch a satellite before the government does. According to Mr. Sellers, the project "will be known as the 'Mouse' (**Minimum Orbital Unmanned Satellite of Earth**). A small satellite capable of orbiting the earth for about thirty days may be powered either by sun rays or by small atomic batteries."

Meanwhile, latest plans for US participation in the 1957-58 **International Geophysical Year** call for the launching of twelve earth satellites in the hopes that at least eight of them would stay up as "laboratories in space."

(Continued on following page)

Russian TU-104 averaged about 440 mph on its non-stop flight from Moscow to London, covering 1,564 miles.

Wide World Photos, Inc.

Russian TU-104, transport version of the Soviet Type 39 medium bomber, Badger, at London, England, following flight from Moscow carrying Gen. Ivan A. Serov, head of the Soviet secret police. The plane was designed by Andrei N. Tupolev and is said to be in mass production in Russia.

This project, not to be confused with MOUSE, is the Navy-Martin project Vanguard.

■ The designer of the famous old **Ford Tri-Motor Transport, William B. Stout,** died on March 20 at his home in Phoenix, Ariz. The seventy-six-year-old pioneer aeronautical engineer was **credited with many of aviation's firsts,** including design and construction of the first internally braced cantilever plane in the US, and the first American commercial monoplane (the Batwing). He also inaugurated and operated the first all-passenger airline service in the US (between Detroit and Grand Rapids, Mich.) in 1926. In recent years he has operated the **Stout Research Laboratories in Phoenix.**

■ The Air Force lost **one of its top officers** on April 3 when **Maj. Gen. Floyd B. Wood,** 47, Deputy Commander for Research and Development, ARDC, Baltimore, Md., was killed after his **T-33 crashed on take-off** from Friendship International Airport, near Baltimore. A native of Richland Springs, Tex., General Wood was graduated from North Texas State Teachers College and received a master of science degree in meteorology from Massachusetts Institute of Technology. In World War II he served in the South Pacific, and later became Chief of the Air Division for the Joint Brazil-US Military Commission. He was assigned to AMC, Wright-Patterson AFB, Ohio, and in 1951 became **Chief of Staff of WADC** there. In 1953 he became ARDC's Deputy Chief for Development. General Wood had been slated to take over the ARDC **Flight Test Center** at Edwards AFB, this June.

Eger V. Murphree has been appointed Special Assistant for Guided Missiles, a new office under the Secretary of Defense. Murphree is President of the Esso Research and Engineering Co. He will have broad powers in his new job directing the guided missile program.

■ An **AF Northrop Snark** guided missile recently **flew 2,000 miles** from Florida's Cape Canaveral out into the Atlantic to set a **distance record** for pilotless aircraft. **Vern Haugland,** Associated Press aviation editor, reported that the flight was "more a test of range than of accuracy, load-carrying ability, or maneuverability. The testing officials were said to have decided to just let the missile fly until it ran out of fuel." The Snark, a jet-powered missile, is said to have **"intercontinental atomic capability."**

■ AIRPOWER NOTES . . . The AF has officially confirmed for the first time that **besides the intercontinental ballistic missile Atlas,** a second version, named **Titan,** is under development. It was also announced that a 1,500-mile intermediate ballistic missile, the **Thor,** is under development. . . . Some Pentagon authorities feel that a **realistic duel between missiles and bombers** would be worthwhile. . . . **A Civil Aeronautics Administration** committee recently observed actual air-refueling operations by the 305th Bomb Wing (B-47s) at MacDill AFB, Fla. CAA is studying the procedures for **possible introduction of in-flight refueling to commercial airliners** in the future. . . . According to **AF Secretary Quarles,** long-range bombers will continue to be **more effective than guided missiles** for some time to come. . . . **Dr. Harry Wexler,** chief of the US Weather Bureau scientific services division, says that man-made satellites could be of **inestimable value as global weather patrols.** . . . The French have been forced to use World War II type aircraft, rather than jets, against the rebel bands in Algeria. Supersonic jets France has been building for its NATO forces are not suitable for the work. . . . **Peter H. Wycoff,** chief of the atmospheric physics laboratory of the AF Cambridge Research Center, says that a **rocket might be able to circle the earth almost indefinitely** at a height of sixty miles by utilizing a controlled reaction of gases in the air at that altitude. . . . **Dr. Fritz Zwicky,** California Institute of Technology rocket expert, says that if $100,000,000 is made available for research and construction of a rocket ship, **travel to the moon will be possible within ten years.** The ship he visualizes would travel indefinitely by scooping up fragments of molecules in space, holding them inert by extreme cold, and then heating them to release energy.

■ **STAFF CHANGES . . . Brig. Gen. John H. Ives,** Director of Military Personnel Policy Division, Hq. USAF, will be assigned to Hq. ConAC as Chief of Staff about June 20. . . . **Brig. Gen. Charles H. Pottenger,** Chief, War Plans Div., DCS/Operations, Hq. USAF, will be reassigned to Hq. FEAF as Chief of Staff, on July 5. . . . In August, **Brig. Gen. Arthur J. Pierce,** Hq. FEAF, will become Director of Plans and Requirements, Hq. ADC, Ent AFB, Colo. . . . **Brig. Gen. William T. Hudnell** has assumed command of the Air Materiel Forces, Pacific Area, which was formerly filled by **Maj. Gen. Paul E. Ruestow.** . . . **Brig. Gen. Herbert M. Kidner** retired in March. . . . Congress confirmed the promotion of **Maj. Gen. Frederic H. Smith** to Lieutenant General. . . . **Brig. Gen. Frank E. Rouse,** Hq. USAF, DCS/Operations as Deputy Assistant for Programming will become Commander of the 27th Air Division about September 30. . . . In June **Maj. Gen. Walter E. Todd,** Vice Commander of the Fifth AF will be reassigned as Vice Commander of FEAF. **Maj. Gen. Kenneth B. Hobson** will become Vice Commander of the Fifth AF, replacing General Todd, on June 14. General Hobson is Director of Manpower and Organization, DCS/Operations, Hq. USAF. . . . **Brig. Gen. Robert S. Macrum,** DCS/Comptroller, Hq. ADC, Ent AFB, Colo., will become Comptroller of FEAF about July 9. . . . In July, **Brig. Gen James O. Guthrie,** Commander of the 29th Air Division will be reassigned as Commander of the 39th Air Division. . . . **Brig. Gen. Harvey T. Alness,** Deputy Director of Plans, DCS/Operations, Hq. USAF, will be reassigned as Assistant DCS/Operations, Hq. ADC, about August 15. . . . **Maj. Gen. Kenneth P. McNaughton,** Vice Commander of FEAF will be assigned to Hq. ConAC, Mitchel AFB, N. Y., about August 13. His new position at ConAC has not been announced. . . . **Brig. Gen. Harold L. Neely,** Chief of Staff, Twelfth AF, will become Commander of the 29th Air Division, ADC, Malmstrom AFB, Mont. in July. . . . **Brig. Gen. Thomas C. Musgrave, Jr.** will become Director of Manpower and Organization, DCS/Operations, Hq. USAF, on June 14. He is now Deputy Director of this office. . . . **Brig. Gen. John G. Fowler,** Deputy for Intelligence, Hq. FEAF, will be assigned to the United Nations Command and the Far East Command on April 17.—END

RAYTHEON RADAR AT THE ARCTIC CIRCLE HELPS GUARD US

In the still, snow-shrouded world of the northern lights, strange black domes perch along the barren rim of North America.

Inside these giant inflated "radomes" spin radar antennas probing the skies for intruders. Skilled operators examine glowing radar screens, alert for pips that could mean unidentified aircraft.

Contacts picked up by these DEW line (Distant Early Warning) radars are flashed to Air Defense Command centers.

The U. S. Air Force and Western Electric, contractor for the DEW line, selected Raytheon to develop radar for these critical Arctic stations. We are proud of this choice and of our opportunity, as the world's largest producer of search radar, to contribute to the protection of our hemisphere.

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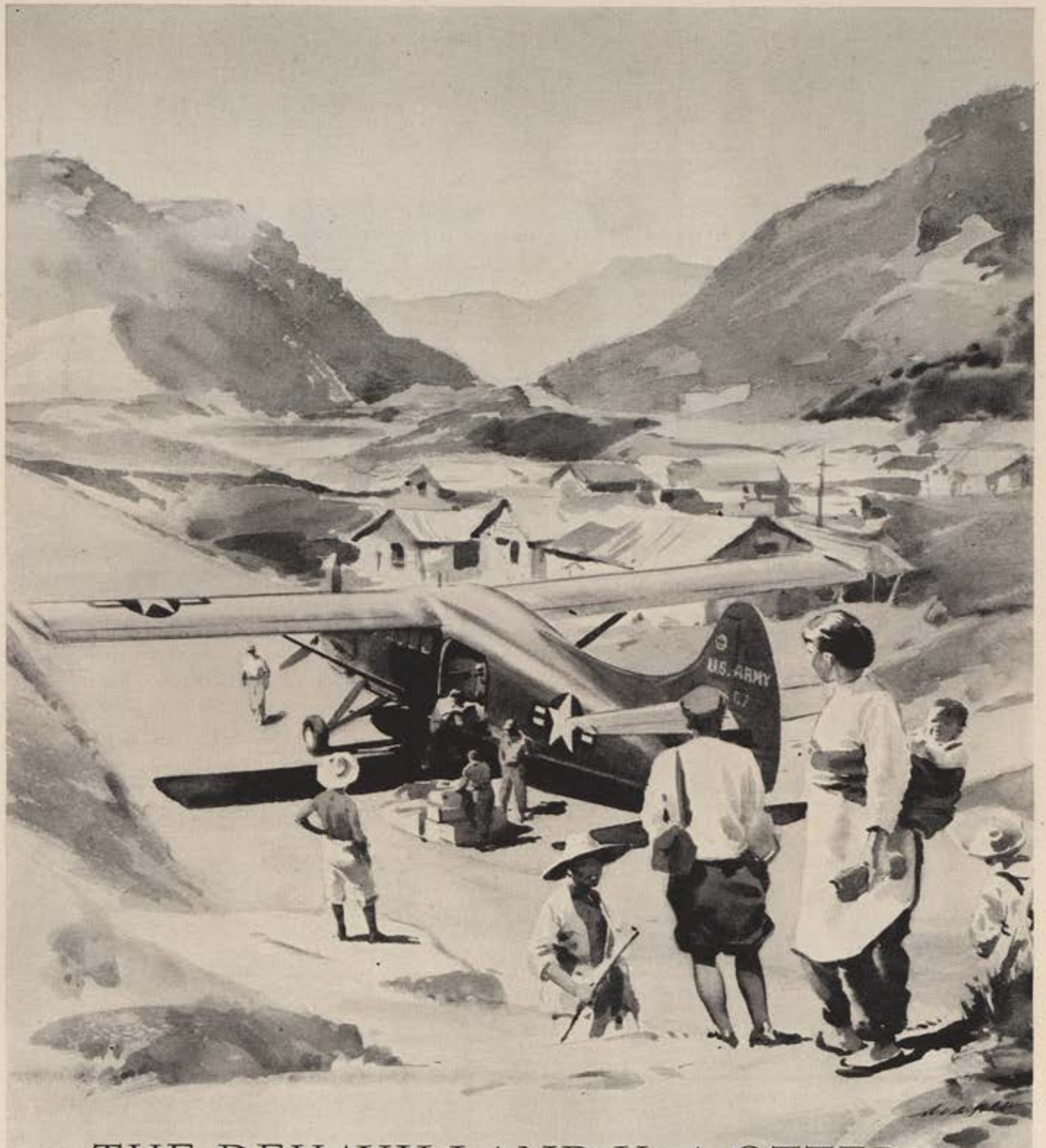

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The Otter can carry 10 passengers or 1 ton of cargo for 500 miles range.
It is at home wherever 1000 feet of landing strip is available.

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RENDEZVOUS

Where the Gang gets together

15TH AF SOCIETY: The 15th Air Force Society, comprised of veterans who served in that outfit in Italy during WW II, is conducting a national survey to determine the possibility of holding a national reunion in Philadelphia on Friday and Saturday, August 24-25. It will be the Society's first national reunion. Fifteenth veterans interested in attending the proposed reunion are requested to write to *15th Air Force Society, 1654 Dyre St., Philadelphia, Penna.*

405TH WAC REUNION: Plans for a reunion dinner this summer are being readied. All former WAACs and WACs who served with 405th WAC Det., 1st Troop Carrier Command, Sedalia Army Air Field, Warrensburg, Mo., are cordially invited to write to *Etta Campbell, P.O. Box 3145, Washington 10, D.C.*

PEARL HARBOR PERSONNEL: *Life* Magazine and Walter Lord (author of *A Night to Remember*, recent book on the Titanic disaster) are collaborating on a new book about the attack on Pearl Harbor. All Air Force personnel who were present on Oahu that morning (including the B-17 flights which had just arrived from Hamilton Field) are urged to send a card with name and address and old unit to *Charles Osborne*, Life *Magazine, 9 Rockefeller Plaza, New York 20, N. Y.*

OLD FRIENDS: I would like to locate the following people with whom I was associated during World War II: John D. Kreyssler, Joel Crouch, David B. Hamilton, Jr., Stanton F. Bierwith, and Melvin A. Dougherty. *Samuel F. Carlley, 2815 Richmond Highway, U.S. #1, Alexandria, Va.*

439TH BOMB SQDN., 319TH BOMB GROUP: Former members of this squadron please contact us in regard to information they may have concerning the unit's history. Pictures, items of personal interest, names and addresses of former members, or campaign memories would add much to the information on hand. We plan publication of a personal history of the unit. *M/Sgt. William R. Killian, 114th Bomb Sqdn. (TAC), NYANG, Floyd Bennett NAS, Brooklyn, N. Y.*

TRANS WORLD AIRLINES

UNITED AIR LINES

NATIONAL AIRLINES

AMERICAN AIRLINES

CONTINENTAL AIR LINES

PAN AMERICAN WORLD AIRWAYS

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PRATT & WHITNEY ENGINES HELP BUILD U.S. LEADERSHIP IN JET LINERS

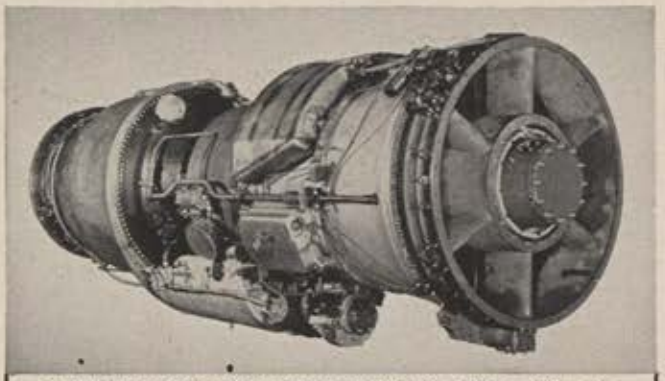
16 leading airlines will offer jet service in U.S. transports with JT3 and JT4 engines

American-made jet airliners flying for 16 U. S. and foreign lines will be in service over five continents starting in 1959. More than 190 Boeing 707s and Douglas DC-8s have been ordered to date—and still more orders are in prospect.

Turbojet engines designed, developed, and produced by Pratt & Whitney Aircraft will power both the Douglas DC-8s and the Boeing 707s. These are the JT3, commercial version of the powerful J-57, or the even more advanced JT4. Both are of twin-spool, axial flow design which provides high thrust coupled with outstanding fuel economy.

The new Douglas and Boeing jet transports will give the United States undisputed leadership in jet air travel. No aircraft in sight challenges them for speed, passenger capacity, and range.

Throughout the history of aviation, Pratt & Whitney Aircraft engines have led the field. Now the Pratt & Whitney turbojet engines join the distinguished company of the Wasp, the Twin Wasp, the Double Wasp, and the Wasp Major, helping the U. S. aviation industry continue its world leadership.



PRATT & WHITNEY AIRCRAFT JT3 ENGINE, civil aviation's version of the widely-used military J-57, most powerful jet engine now in quantity production.

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SHOOTING THE BREEZE

WITH THE EDITORS OF AIR FORCE MAGAZINE

The Air Force Academy has won what we hope is the first of a whole raft of trophies to grace the school's halls. The Academy's rifle team has won the National Rifle Association's intercollegiate championship against such formidable opponents as the US Military Academy, the US Naval Academy, and freshman teams from nineteen other schools.

☆

Commenting editorially on the appointment of Eger V. Murphree (*see page 17*), the New York *Herald Tribune* asked "whether the new Special Assistant to the Secretary of Defense will be given sufficient authority to do what needs to be done—namely, to judge, evaluate, force cooperation, and get the vitally important program into focus and swift action. . . . As we understand it, he is essentially only an expediter. In the event of an 'interservice disagreement,' he would be outranked by each of the service secretaries, by their deputies and by their assistants."

We don't know the name of this month's Breezecake girl, but according to the accompanying release from the Studebaker-Packard Corp. she's holding "the new safety-finned brake for the restyled 1956 model Studebakers." This, the release points out, is an idea borrowed from the aircraft industry. The brake fins, which employ the air-cooling principle, increase the surface area and allow greater heat dissipation. It works the same way as the aircraft engine cylinder does, on the left.

The editorial ends with a warning note to the American public: "On the world balance of power, of which the guided-missile program is such an important part to all free men, we must not be governed by undue considerations of a balanced budget. Maximum funds and maximum work are essential to make absolutely sure that the United States does win the race for the Free World. In short, we must put all our resources and brainpower to the task of devising the first and best intercontinental ballistic missile. Being second best is not good enough for survival."

Words like these, in our opinion, cannot be repeated too many times.

☆

A New York *Times* correspondent visiting the DEW (Distant Early Warning) line in the Far North, was surprised at how easily anyone can visit the supposedly top-secret installation. **Tania** Long said that the exact location of each of the sites in the Canadian Arctic was pinpointed on a map in an office that's open to anyone and if there is any idea in Washington and Ottawa "that the location of the DEW Line site can be kept secret—as there appears to be—it had better be revised."

☆

One reviewer, writing about 20th Century-Fox's CinemaScope production, "On the Threshold of Space," said: "To give you an idea of the film's authenticity, it was made with the cooperation of the Air Force, some of it photographed at Sovern Air Force Base, Florida, some at Hanover Base, New Mexico." These were the fictitious names the script-writers devised for Eglin and Holloman.

☆

There is only a little more than a month left to send in nominations for the Air Force Association's "Miss Airpower of 1956." The winner will be Queen of the Earl T. Ricks Memorial Jet Flight from San Francisco to New Orleans July 28 and then will reign at AFA's National Convention and Airpower Panorama in New Orleans, August 1-5. To be eligible, nominees must be single, at least eighteen but not more than thirty years old; have a valid pilot's license as of June 15, 1956; be nominated by a civic, fraternal, veterans, or military organization and be available to travel, expenses paid, from July 15 through August 5.

Nominations should be postmarked no later than June 14, 1956, and should be sent to: Air Force Association Convention, Roosevelt Hotel, New Orleans, La. The following information should be included: Photostatic copy of valid pilot's license; signed statement that nominee is single and will remain so until August 5, 1956; signed statement of age at time of nomination; signed statement by a bona fide civic, fraternal, veterans, or military organization, nominating the candidate; two eight by ten-inch glossy black-and-white photographs (one portrait, one full length); statement of height, weight, bust, waist, and hip measurements, color of eyes and hair; and mailing address

(Continued on page 27)

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**

The symbol of bold creative engineering at Avro Aircraft

The only limit to ingenuity at AVRO AIRCRAFT is the capacity of the individual.

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These projects are now attracting the interest of the free world and the envy of the remainder.

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and telephone number of the girl who's been nominated.

After all the nominations are in, an AFA committee will select twenty-five candidates. A second committee will select three candidates from this group of twenty-five. The three finalists will appear on a network television show, and the winner will be selected at that time.

☆

The AF's Chief Scientist, Dr. H. Guyford Stever, told a West Coast meeting of the Massachusetts Institute of Technology Alumni Association: "We now have considerable evidence that we in the aeronautical engineering field can be overly optimistic about our capability, not so much from the standpoint of whether or not we can eventually complete a piece of research or development or production but from the standpoint of the time it will take. Recently a study was conducted within one of our Air Force activities on the completion dates of research and development contracts in the aeronautical field relative to the promised completion dates. A random sampling was taken of about 300 projects, some of which consisted of small, one-man research projects, and others of which involved large-scale developments of aircraft engines or of complete aircraft weapon systems. Of the 300 projects only one met the original delivery date. A substantial percentage of the rest fell far short of the goal."

Officer's informal off-duty attire has been approved by the Air Defense Command. Here it is worn by Maj. Ernest D. "Pete" Stuyvesant, Commander of the 97th Fighter-Interceptor Squadron, New Castle County Airport, Wilmington, Del. Coat is a dark blue flannel and trousers are a medium gray flannel.

Just one more reason why planning for the long pull can be so difficult.

☆

Things are tough all over. Esther Manning, our Membership Fulfillment Director, failed to receive her copy of our April issue.

☆

The March issue of *Interavia* tells about a Russian booklet, "Thoughts on Air Strategy," published by the Soviet government in May 1955. Its author is believed to have been the Commander-in-Chief of the Red Air Force, Marshal Pavel Zhigarev, who was promoted to Grand Marshal of the Soviet Union on March 10, 1955. The main points the booklet makes are that the strategic bomber is out of date—its development and production take too long and are too costly; and in wartime, losses in equipment and personnel would be unacceptably high. In addition, the intercontinental weapons are faster, simpler, and less costly to develop and build.

The booklet goes on to criticize what it calls "inferior" American development. The final sentence read: "Today's giant air bases will become bomber cemeteries in a future war." Just one more indication of the Russian stress on development of the intercontinental missiles.

☆

A headline that caught our eye in the Washington "Daily News" the other day was "Bugs Bother Radar." Seems that a couple of scientists have told the American Association for the Advancement of Science that birds and insects can be blamed for many of the phantom radar echoes that prompt "flying saucer" reports.

☆

There has been much talk about an "atomic stalemate" existing in the world today—and many persons actually feel that we are safe from atomic attack because of it. For those, the Philadelphia *Inquirer* offers some good words of advice: "The possibility [of an atomic stand-off] should never be allowed to lull the American people or their leaders into the belief that the enemy 'wouldn't dare' to attack us. . . . The United States must remain constantly on guard against an atomic attack and must, on all counts, maintain the strongest possible national defenses."

☆

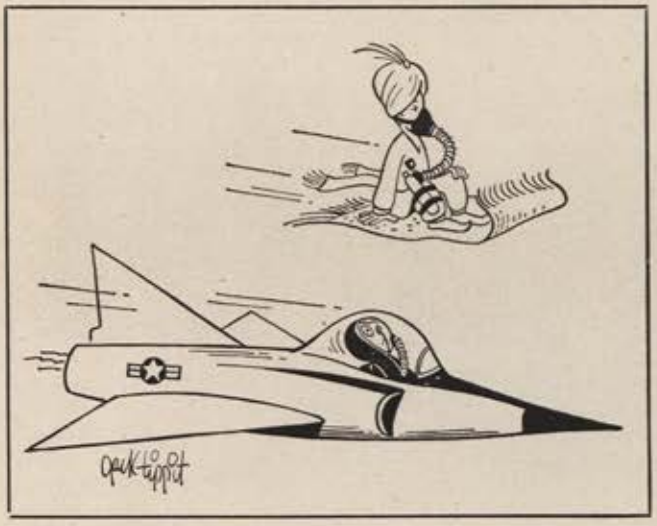
We saw this item in the "Air Force Times," the other day. Seems the Air Force and Army share a recruiting office in Hagerstown, Md. The Army recruiter there, Sgt.

(Continued on following page)

First Class Donald S. Barron, used to listen in on his Air Force colleagues in his spare time. They evidently sold him on the Air Force, because when his time came to reenlist, Barron switched to the AF and will soon move to Wright-Patterson AFB with his family.

☆

"Miracle on Seventeenth Street," one of our staff called it (our building is on 17th St., in northwest Washington).



It goes back to the appearance of our April issue—the one devoted almost entirely to the tenth anniversary of the Strategic Air Command.

Arthur Godfrey—on his Monday night, April 2, "Talent Scouts" show over CBS-TV network—held up the front cover of AIR FORCE before his millions of viewers, and said he wanted to "call your attention to something that's very, very important." Showing the magazine, he said, "Steal one, borrow one, buy one if you have to, but get a copy and read it—from cover to cover. This is a special report on the Strategic Air Command. Every American must know the things that are in this book, and the sooner we know them the sooner we will be out of the danger we are in."

The next morning, on his radio-TV show, Mr. Godfrey said essentially the same thing, adding, "If every American would get this magazine and read it from cover to cover and know the things that are in this issue, we'd get out of the mess we're in so fast!"

This was all well and good, but Mr. Godfrey's audience didn't know where to get copies of AIR FORCE, which isn't on the nation's newsstands. The following day, Wednesday, Mr. Godfrey's office called us to report that "a number of inquiries" had been received. We suggested they be forwarded to us. Then we tallied up the extra copies of the April issue on hand and decided we would be able to give away several hundred copies to the first people who contacted us.

Mr. Godfrey then relayed this information to his Wednesday night audience, mentioning our Mills Building address. Hardly had he finished than our phones started ringing—both local calls and long distance—all from people who wanted their copy of AIR FORCE.

Overnight many hundreds of telegrams arrived at our office—a good start on the supply of "several hundred" copies of the SAC issue Mr. Godfrey had mentioned. By noon the mail trucks were arriving at the Mills Building. Mail came by the sackful, no pun intended. At first, each letter was read, but, as more and more precincts were heard from, the mail reached avalanche proportions. Then it became a question of sorting, opening, and counting. Panic threatened, but cool heads prevailed, so to speak, and AFA did the obvious thing: we bought a mail-opening machine.

From then, over the weekend, and up until press-time, the mail kept arriving (and at this writing the West Coast still had not been heard from). At this point the total reached just over 138,000 requests (only 62,500 copies of the issue were printed originally for our regular members and subscribers). This prompted one of our editors to observe that it's small wonder Lipton's Tea and Pillsbury Flour are so fond of Mr. G.

Letters came addressed in a variety of ways—to Air Force Magazine, Air Magazine, Air Service Magazine, some just plain Magazine. Mills Building came out, in one case, Miling Biling. Other letters (the Post Office told us they'd put on four additional people just to handle "Operation Godfrey") were directed to General LeMay, General Lamey, General Lame, and even just General. One of the best, we thought, was a letter addressed to us at the "Pillsbury Mills Building"!

Some of the people who wrote were more insistent than others that they should receive one of the scarce copies. A Chicago man wired, "Godfrey insists you send me an April issue." A Detroit woman established "need-to-know" by including her pension number. Many others

—Staff Photo

Here's part of the mail that swamped AFA Headquarters after Arthur Godfrey plugged the April issue of AIR FORCE. The bewildered pair are Peggy Crowl and Bob Strobell, both of the magazine staff. No one was more amused by it all than Mr. Moll, the hard-worked postman.

were interested because of sons, husbands, or other loved ones in the Air Force. In all cases, the unprecedented response was both a tribute to the persuasiveness of Mr. Godfrey and a nation-wide expression of interest in the things AFA and AIR FORCE Magazine believe in.

Our immediate problem, then, was how to handle this deluge of requests. The plan as this went to press was to reprint the SAC material from the April issue, and send it without charge to as many of those who had taken the time and trouble to request it as our limited budget might allow.

Our hope is that out of this we may win some new friends for airpower, and perhaps rekindle in others a spark of interest that had died down over the years.

And to our regular readers we say, "Hang onto those April issues—they're in a fair way to becoming collectors' items."—END

automatic dual radar pressurization

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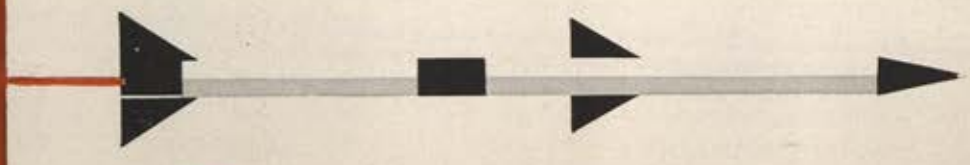

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AIRMAN'S BOOKSHELF

THERE always seems to be a new flying saucer book. This one, *The Report on Unidentified Flying Objects*, by Edward J. Ruppelt (Doubleday, $4.50), comes from the well-known horse's mouth. Former AF officer Ruppelt one-time head of the AF's "Project Blue Book," explains away many saucer sightings as weather balloons or other natural phenomenon. In the most rational work on saucers to date, Ruppelt goes into the procedures the AF uses to prove its case that earth is not being visited by space creatures. Yet he cleverly lets the reader make the final decision for himself.

The AF figures in a short, moving novel, *The Miracle of Merriford*, by Reginald Arkell (Reynal, $2.95). The original English edition, *Trumpets Over Merriford*, appeared in 1955. This is a delightful story about what happens when a sleepy rural English countryside is converted into a USAF jet base. Jet noises begin to threaten Anglo-American relations, while fun-seeking American airmen upset the dignity of English form and custom. But then the noisy, braggart airmen save the day by restoring the ancient bells in the village chapel of Merriford.

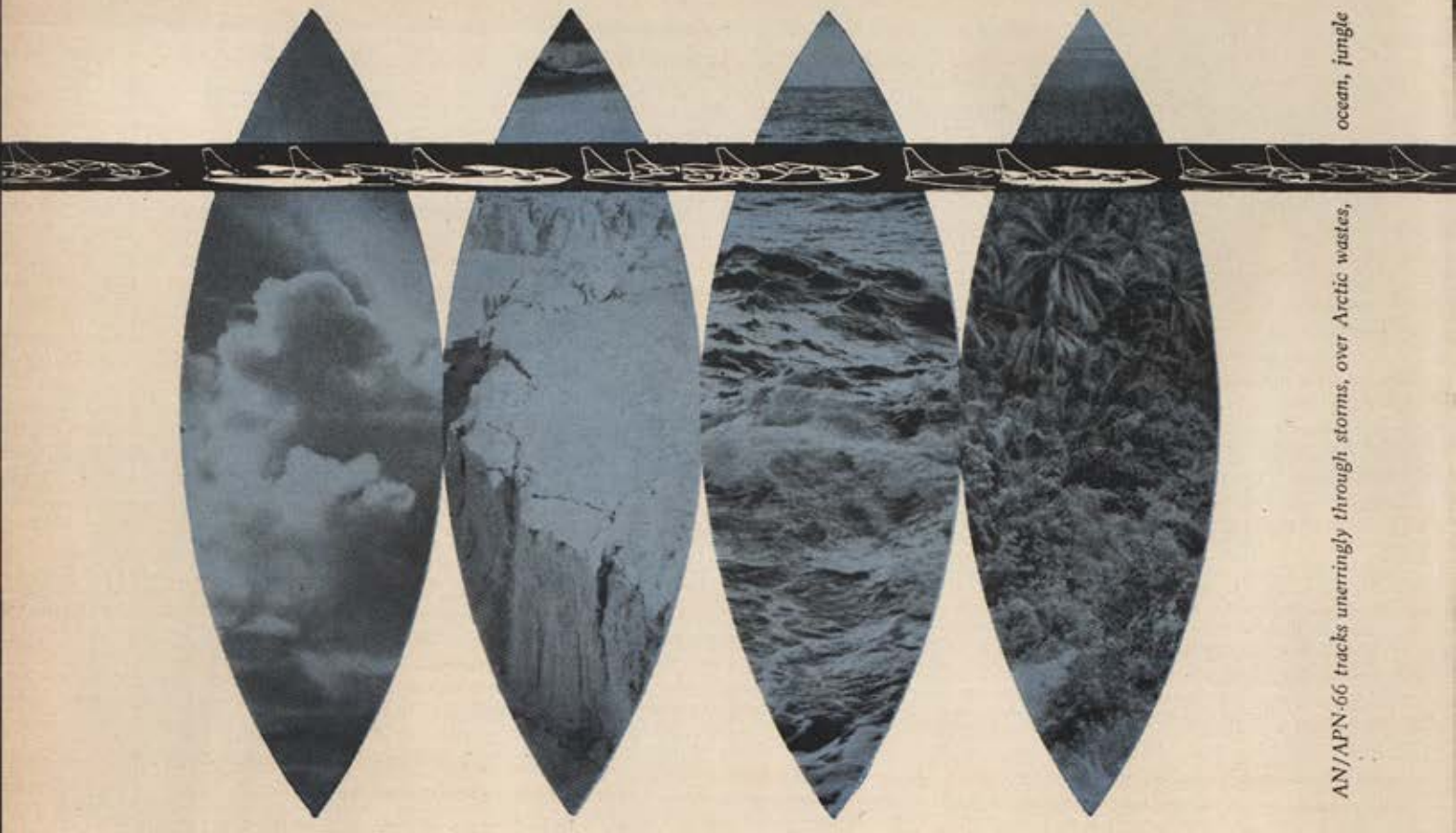
Out of the Korean war came a new word—"brainwashing." The Free World was shocked by the stories returning POWs told. Two new books may shed some light on the history, meaning, and conduct of the techniques used by the Communists to control the minds of men. Edward Hunter, author of *Brainwashing: The Story of Men Who Defied It* (Farrar, Straus, and Cudahy, $3.75), tells how the Russians made this technique a "science" through experimentation with men and animals. Hunter uses the stories of American POWs in Korea and civilians in Red China who underwent brainwashing to develop the pattern of what he calls an "atrocious quack science . . . as devastating an advance in war as nuclear fission had been only a few years before. . . ." But Hunter believes brainwashing can be beaten. Our men must receive mental-survival training along with physical-survival training, he says. The author spells out what such training should include and claims that mental-survival knowledge adapted to society as a whole could ultimately destroy Communism.

The other book is by Father Harold W. Rigney, S.V.D., a former missionary and rector of Fu Jen University in Peiping, who insisted on running his school on a Christian basis. As a result, he was seized by the Communists. *Four Years in Red Hell* (Henry Regnery, $3.00) is his story of life in Red Chinese prisons.

Every once in a while we find an author doubling as an airline pilot, or vice versa. Harley D. Kyson, an Eastern Air Lines skipper with more than 12,000 hours, has recently published *Aircraft in Distress* (Chilton Books, $6.00). A factual, extremely readable manual of air survival, this 428-page book looks at all sorts of aircraft emergencies through the eyes of the pilot. An authoritative book that packs a wealth of knowledge, this should be a companion to all profesional pilots, private flyers, and aircraft owners.

Two small-sized books on aircraft have appeared. *How Airplanes Are Made* by David C. Cooke (Dodd, Mead, $1.95), is for the eight- to twelve-year-olds but will appeal to fans of all ages. *Aircraft Today*, edited by John W. R. Taylor (Philosophical Library, $4.75), is an American edition of a British annual and contains photos, drawings, and short articles by British aviation experts.

Ernie Gann's great air novel of 1954, *The High and the Mighty*, is now available in paper back (Perma Books, 35¢); and Lloyd Mallan's *Secrets of Space Flight* (Fawcett, 75¢) is out in hard cover for $1.95.—END



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I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	GPE CAPACITIES
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Budget Highlights and Sidelights

OUR HOPES that Congress will give the budget a careful review (see "The Next Move Is Up to Congress," February '56 AIR FORCE) are being fulfilled.

The recently released testimony of top defense officials and the Chiefs of the services has shed much light on the issues. More important, it is clear that Congressional committee members have a good grasp of the problem.

For one thing, there is an absence of the geographical approach to our defense. There was a time when the primary interest of a Congressman centered on the defense activities in his particular district or in his state. This year's hearings reflect great objectivity. Congressmen from Kansas, Texas, the East, and the Far West were united in recognizing the fundamentals of present-day security.

The record of the House Appropriations Subcommittee also gave us the first look at the Air Force Secretary, Mr. Quarles, under fire, so to speak. His testimony and that of the Chief of Staff, General Twining, is marked by some of the most forthright official utterances on our Air Force program we have seen.

Chairman George H. Mahon, an old hand at inquiries on our defense posture, did an outstanding job of guiding the hearings to the heart of the matter.

The best part of two days was devoted to unraveling the knotty problem of guided missiles—on where we stand, service responsibilities, and the part these weapons will play in our future strategy.

Mr. Quarles took the lead and contributed some crystal-clear thinking to this field. Not only did he help to straighten out the issues behind interservice rivalries and the potential dangers of spreading our missile know-how too thin—he also proved that there can be free and open discussions of these matters without jeopardizing security and without fanning the flames of interservice conflict. This confirms a belief we have held for some time.

Here's a quote from Mr. Quarles on the ICBM:

"The Air Force shares the view that the intercontinental ballistic missile is a weapon of great potency and that it should be developed with highest priority and at all practical speed.

"We reoriented our program in that sense about two years ago, and while there have been some changes since that time—and I am speaking now only of the long-range intercontinental phase of it—it is substantially on the course that we placed it about two years ago. I might explain the reason it was reoriented.

"Prior to that time we had been attempting to develop a weapon of greater precision of fire and greater payload weight-carrying capacity.

"We have been on our new course for about two years, and the reorientation that took place at that time was a result of revised requirements for this development. There was a substantial reorientation of the project to deal with more practical requirements than had previously been applied.

"Since these practical requirements opened up the possibility of an accelerated program, we at that time gave the program highest priority. It has so proceeded since.

"We also at that time recognized both the organization within the Air Force and the organization of contractors in this program with a view to bringing in the best talent we could get in the country, for the purpose of expediting the program both within and outside the Air Force.

"I think the committee knows that shortly thereafter we set up on the West Coast the Western Development Division, so-called, which was the Air Force agency for the prosecution of this program. The chief of this Western Development Division is a deputy commander of our Air Research and Development Command, and in that capacity in this area acts with the authority of that command, so that we have concentrated there an organization that can deal effectively and authoritatively with this program.

"As I said, we reoriented the contractor structure, leaving the company that had been our main contractor still in the picture. They are now our airframe contractor for one version of the ICBM.

"But we did bring in as direct contractors to the Air Force companies in the propulsion field, companies in the guidance field, and companies in the nose-cone reentry field, all three of which involve very serious, and to some degree, separable problems from the airframe problem as such.

"In addition, at that time, under the advice of a very high-level and competent scientific advisory committee, we decided that we should have an alternate approach to the airframe design of this weapon. In line with that decision a contract was subsequently given to follow an alternative approach to the design, and alternative contractors were brought in on the other three important phases—propulsion, guidance, and nose-cone reentry.

"If I may pause, I think propulsion and guidance are fairly obvious. Perhaps the nose-cone reentry is not quite so obvious.

"One of the great technical problems we face in this program is the reentry of the vehicle into the atmosphere toward the end of its flight. This reentry starts at very high velocities which, unless handled properly, would burn the reentering vehicle up and destroy its effectiveness.

"The problem here then is to incorporate in what they call the nose cone, which is the only part of the vehicle we expect to bring down to the atmosphere in its effective form—the problem here is to design the shell of the nose cone, and the warhead encompassed by it, so as to get them back down through the atmosphere and into the final detonation position without their being destroyed by the enormous heat generated as they come down into the air.

"As I say, then, we now have in the long-range program prime contracts in these four areas of each of two different approaches to this problem, which means in effect we have eight or so different prime contractors moving ahead in this ICBM program. They have all been instructed that the program carries the highest Department of Defense priority and support and that the Department of the Air Force will do everything possible to expedite it."

A study of the 1,236 pages of testimony reveals another significant fact. With all the hassle over roles and missions, the Air Force mission seems to be the only one clearly understood and accepted. There were many questions directed at the roles and missions of the other services.

The final story on the FY 1957 budget is still being written. But some of the results of Congressional scrutiny are already in. As we go to press, the President asked Congress to increase the Defense Department appropriation by $547.1 million, about half of which would go to speed up production of the B-52 intercontinental bomber.

The Symington investigation subcommittee was just beginning hearings at press-time, and 1957 can well be a year of resolution and decision.—THE EDITORS

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AIR FORCE
MAY 1956

Nuclear Firepower—King of Battles

THE ARMY'S ATOMIC DILEMMA

An AIR FORCE Magazine Staff Study

FOR many years the annual budget battle among the three military services for the taxpayer's dollar has revolved around the importance of their several roles and missions. Each spring the Air Force would say that the decision in any future war must necessarily come in the air, therefore it needed more money. The Navy would graciously acknowledge the vital roles of its sister services but would add that the successful prosecution of a future conflict depended, in the last analysis, on keeping open the sea lanes, therefore it needed more money. The Army would say that no war could be considered won until the Queen of Battles had made its last successful bayonet lunge at the enemy, therefore it needed more money.

To sideline observers of the Washington scene, there was a new feeling in the air this year. An examination of service testimony on Capitol Hill and public statements of service leaders seemed to indicate, if you read between the lines a little, that perhaps the millennium had arrived. Or at least that long strides were being taken in that direction. For once the three services seemed to be moving close

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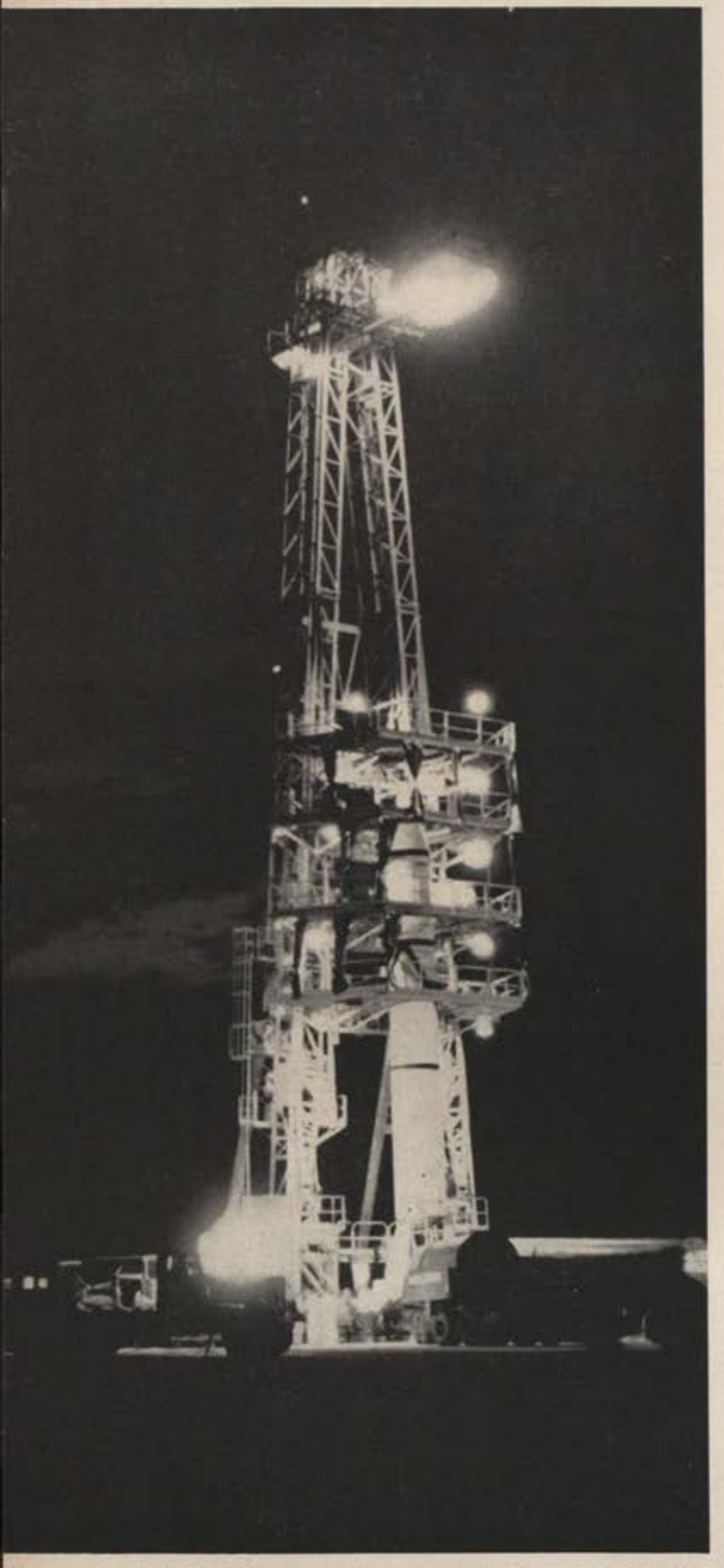


The Army's intermediate range ballistic missile, the Redstone, being fueled and checked in a service tower at Patrick AFB, Fla. The Army considers missiles "artillery."

to agreement as to what constitutes the decisive factor in war. There appeared to be little divergence as to the medium, the means, or the mission.

The common medium is the air, the common means the airplane or the guided missile armed with nuclear weapons, the mission to strike the enemy as close to his homeland and as far from ours as the state of the art permits. As Jimmy Durante might say, "Everybody wants to get into the act."

The Air Force, to be sure, has been in the act from the beginning. To the Air Force the decisive element has always been the aerial delivery system, carrying the maximum destructive force available consonant with the target.

The Navy has been in the air act for a long time, but only comparatively recently did it decide to become part of our "deterrent force" and to make the enemy's homeland, as well as his navy, a primary target.

The newest comer to the air business is, of course, the Army, and its position is perhaps the most significant because it represents well-nigh a 180-degree turn.

The fact is that all three services now want a strategic air capability, direct or implied. For the first time all services are united, psychologically at least, on a common strategy.

The catalyst which within ten years has welded together US military thinking is the revolution in firepower which first manifested itself at Hiroshima, coupled with fantastic strides taken during the past decade in ways to get a weapon from here to yonder.

The AF's adjustment to nuclear firepower

For the Air Force the adjustment to nuclear firepower was made easier by the fact that it involved no radical changes in doctrine or strategy, and only comparatively minor adjustments in tactics. To airmen, the quantum jump in firepower represented primarily new and convincing justification for the theories of warfare they had already developed around a delivery system as revolutionary in its day as was the atomic bomb years later in the fields of firepower.

For the older services, however, the new dimension of war came as a bit of a shock. At first blush, it seemed best to ignore the A-bomb, in the hope that it might "go away" and not do violence to time-hallowed roles, missions, or organizations. The A-bomb was played down, its effects pooh-poohed, even the morality of its use attacked. But the pressures of technological progress could not be ignored or pooh-poohed out of existence.

Nuclear weapons were improved. They became greater in destructive power, smaller in size. Western Europe, over which hundreds of divisions had struggled a decade previous, shrank to a strip "fifty weapons wide." Nuclear weapons became a flexible family in their own right. Coupled with delivery systems barely dreamed of twenty years ago, the nuclear weapon was clearly not "just another bomb" but the unquestionably decisive element of war. Almost overnight the revolution in firepower became complete.

No, nuclear weapons could not be ignored. So the problem became one of (1) a realistic revision of missions and organizations to adapt the services to the new weapons in furtherance of national objectives; (2) attempts to fit the new family of weapons into the traditional frameworks; or (3) a combination of the first two solutions.

The Navy came full cycle. During the B-36 hearings

a Navy commander testified that he would be willing to stand at one end of a runway while an A-bomb was detonated at the other end. Now hear this from a recent speech by Assistant Secretary of the Navy for Air Smith:

"You are familiar with the Navy's traditional role of keeping the sea lanes open. . . . I would like to talk, however, of changes in weapons development on both sides of the Iron Curtain that place the Navy in a very active rather than passive role." Mr. Smith went on to say that development of long-range nuclear firepower had led to the "Navy concept of the mobile striking force . . . as the essential counter to thermonuclear war. . . . In view of the tremendous capabilities imparted through nuclear development this force might well be termed the nuclear reprisal force."

The Army found the going tougher

The Army found the going a little tougher. The fact that the delivery system for the new weapons was, initially at least, an air monopoly, meant that the Army was in danger of losing its proprietary rights to the "fire" portion of its old "fire and maneuver" doctrine. Such a situation would, in effect, deprive the Army of its offensive mission, shrink it in size, and relegate its role to one of holding actions in selected positions, occupation of a conquered enemy, and maintaining order on the home front. Hardly an appetizing prospect for a proud fighting service with a long record of carrying the war to the enemy. It is not conducive to high morale, glory, decoration, or even promotion.

A recent issue of *Army*, the official publication of the Association of the US Army, tacitly recognized this fact in an editorial entitled "Not Yet Time to Turn in Your Hat," an analysis of the Army's role in an all-out thermonuclear war. It poses a situation in which an enemy nation has been pounded into submission by hydrogen bombs. The Army moves in, in its traditional role.

Says the editorial, "The stench of death covers their shambled land. What have they to fight for? Very little, truly. But human beings are illogical and the instinct to survive and to protect what little they have is strong. . . . And while the enemy could hardly hope to turn the tide, he could make his final subjection costly if the Army force we send in is not superbly trained, highly mobile, and fully armed with the finest weapons and machines we can give it. . . . Will it not be the Army—the soldiers on the ground—that will deliver the blows that achieve the final decision?"

The editorial continues, describing the beginning of such a war as "surprise, unprovoked assault of fleets of thermonuclear-carrying bombers. . . . We shouldn't kid ourselves that civil defense, as it is now or even as it might become when the need for it is made more apparent to Americans, can do the job without assistance from the Army. . . . Who better than the Army is equipped by experience and know-how to evacuate masses of homeless people, to provide them with food, shelter, and medicine?"

These are indeed valid and critical missions. The civil defense mission, particularly, is currently suffering from malnutrition, and this would appear to be a logical place to soak up the manpower being fed into the Army's Reserve program, as the United Kingdom is now doing.

But occupation and civil defense are thankless, unglamorous tasks, so with an eye to a more glittering future the editorialist continues:

"What of tomorrow when manned bomber aircraft disappear and the intercontinental ballistic missile replaces them? Will the Army's role be less or even non-existent? Will it then be time for the soldier to turn in his hat?

"Decidedly not. A weapon system of rockets and missiles ranging from tactical anti-tank rockets, through all ranges *up to and including ICBMs*, will retain for the Army the dominant position it has always had as the military force of decision. . . . *We in the Army should never forget and we should constantly reiterate that guided missiles and rockets are artillery. . . . As every new development in guided missiles marks the obsolescence of the manned bomber, so also does it mark advances in Army artillery.*" [Italics supplied.]

The significance of this lengthy quote will, we trust, appear a little later on, for it represents a basic Army dilemma which, like an iceberg, exhibits only a fraction of itself at one time.

The Army, like the Navy, must hold out to itself the promise of a return to the offensive mission which air-atomic power at one time appeared to deny to it. To see how this point of view is virtually a psychological necessity, let's look at a hypothetical ground combat situation, "before and after" nuclear weapons are introduced into the equation.

The normal pattern of ground action, as exemplified in World War II, called for supporting fire—artillery plus aerial bombardment and strafing, to prepare the way for the infantry to advance toward an objective that was not considered secure until the infantryman had seized and occupied the ground. Unfortunately, the finite characteristics of conventional chemical high-explosive weapons, whether fired from cannons or dropped from airplanes, seldom subdued all resistance from a determined enemy.

Infantry as the 'Queen of Battles'

The law of probabilities dictated that, in a given area of any size at all, conventional firepower, no matter how heavily applied, would produce more misses than hits. A given round was far more likely to hit empty real estate than it was to hit a man or a tank. As a result, when the fire lifted and the infantry climbed out of its holes and moved toward its objective, it still had to fight to get there. Infantry had an offensive mission. It was the "Queen of Battles."

But if the fantastic increases in destructive power occasioned by nuclear weapons are fed into the equation one comes up with quite a completely different set of answers. Now, in any given area, nuclear firepower will produce more hits than misses. In fact, the yield of the weapon can be adjusted to the target to the extent that the enemy can be literally wiped out in entire areas. So even if one buys the hypothesis that an objective has not been won until the foot soldier occupies it, the infantryman no longer has to "seize and hold," merely to "occupy and police." Nuclear firepower has done the seizing, rendered the decision, and left very little to hold.

If, as an answer to nuclear firepower, the enemy has dispersed enough to minimize its effects, he is so scattered as to be unable to offer effective resistance. On the other hand, if enemy possession of nuclear weapons forces the attacker likewise to disperse, then the attacker finds it difficult to concentrate his forces once more in the classical pattern of counterattack and capture.

(Continued on following page)

For the organization and disposition one must adopt to insure survival under atomic attack means that the ability to fight conventionally has been lost. You cannot have your cake and eat it in the nuclear age.

Thus the movement of ground forces on both sides is halted for all practical purposes until the battle for nuclear supremacy has been decided. As long as the enemy possesses the ability to launch nuclear weapons, surface movement is too costly. Thus, the nuclear battle is truly the decision-making element in modern warfare and it's a good hunch that everyone now recognizes it.

In such a situation ground forces would play a comparatively static role. Their effect of the outcome of the battle would be largely that of "spotting" for friendly nuclear weapons and helping to create targets for them.

Firepower becomes the 'King of Battles'

This sort of surface stalemate does considerable damage to the traditional Army doctrine that the weapon supports the force, that firepower paves the way for classical counterattack and capture. The realities of nuclear life are that the forces—land, sea, and air—support the weapon. Firepower is now "King of Battles."

One answer that is put forth is the idea that nuclear weapons somehow cancel out each other—the so-called atomic stalemate theory. Said Army Chief of Staff Gen. Maxwell Taylor last January:

"In the Pentagon there are those who focus all their concern on the big nuclear war. There are others who believe that war may assume many forms. The single-type-of-war advocates predict that a future war will open with atomic air attacks upon the United States, followed by our retaliation with atomic weapons. Devastation will be great on both sides; and the outcome of the entire war will depend upon success in this first brief destructive phase. The atomic air-delivered bomb, if the protagonists of this view are correct, will be the primary and decisive weapon. Personally, I rate this concept of war as only one of the forms, and not necessarily the most likely, which war may take. Particularly as atomic destructive capabilities grow, it seems increasingly improbable that an aggressor would intentionally embark on the gamble of atomic world war."

The implication here is clear and marks a common rationalization of the Army's atomic dilemma. For an atomic stalemate serves as a justification for the existence of conventional forces, with conventional roles, conventional missions, conventional weapons, and conventional organizations. However, to go back to the battlefield example, nuclear firepower available to both sides is far more likely to produce a stalemate of surface movement—a stalemate which can only be broken if the nuclear capability on one side proves superior to that on the other.

Our national policymakers—led by a former infantryman named Eisenhower—have concluded that nuclear firepower, not the advancing individual rifleman, is the supreme arbiter of modern war.

If this is so, then the need for the kind of aviation the Army says it wants today diminishes sharply. In a war of thermonuclear missiles, no matter who pushes the button, the question of close air support for infantry fades in importance, even to the Army. Likewise, the requirements for "battlefield mobility," tactical airlift, short-range reconnaissance, communication, and control—all of the so-called "non-duplicating" air needs of the Army—shrink even in terms of the Army's own criteria.

These unpalatable facts of nuclear life must not be clouded by the Army's successful use of its "local-war" mission as a smoke-screen. To quote General Taylor once again:

"The Army attaches great significance to these preparations to meet local aggression. It is my feeling, which many I believe share, that with the increasing destructiveness of the atomic stockpiles of the world, the deliberately planned, atomic general war becomes, fortunately, less likely to occur with the passage of time. However, the threat of local aggression is always with us. While one is inclined to believe that the Communist bloc will avoid general nuclear war, it is yet to be proved that the Communist movement has renounced aggression as a tool of policy. Consequently, it appears to me that it is the small war, the misnamed 'brush-fire,' which becomes a major threat capable of causing the erosion of the Free World and the loss piecemeal of those things which we are pledged to defend. Furthermore, a local war will be extremely dangerous because of the possibility of its expansion in the unplanned, unwanted general war which is to the interest of the whole world to avoid.

"It is for considerations such as these," continues General Taylor, "that the Army is bending all its efforts to improve the readiness of its divisions in the strategic reserve at home. It is for this reason, also, that the Army is concerned over the mobility of these forces. The Army is dependent upon the Navy for shipping, and upon the Air Force for aircraft, in order to move these forces rapidly about the world. We are most anxious that we do our utmost in lightening our equipment and reducing our tonnages, in order to make our movement less a burden for our sister services. At the same time, we are constantly urging the importance of our transportation requirements and recommending increased attention to the readiness of our plans and the effectiveness of our joint training."

Does nuclear firepower by-pass 'little wars'?

The implication in this and other Army statements on peripheral war is that the revolution in nuclear firepower discussed above has somehow by-passed the "little wars" and that only the Army's conventional capability can deal with them. The further implication is that it can deal effectively with them only if it prods the Air Force into providing strategic mobility for Army forces and if these forces have their own aircraft for battlefield mobility.

There is no quarrel with the thesis that an Army is needed for peripheral wars. And the big war, too, for that matter. But it is proper to raise the point that an unrealistic assessment of the Army role may well be generating unrealistic requirements for airlift and Army-owned air weapons.

First of all, our national policy now recognizes that it is absurd for us to tackle any kind of war, big or small, without nuclear firepower.

Secondly, the Army itself admits that the success of any local operation in which US troops may be engaged depends on winning the air battle. If this is done and we are able to apply our nuclear firepower at will in the local area, the need for US ground combat troops will be small by any previous standards. They will act primarily as the "starch in the collar" for indigenous

friendly ground forces. Such small US forces will not require masses of airlift and can be supplied with relative ease at the end of an aerial pipeline.

We must face the fact that all the Army can't fly. There will never be the airlift for that, not even for airborne divisions in any numbers. Tactical Air Command already has mobile strike forces, organized and equipped to move into any trouble spot on the globe on short notice with nuclear weapons. Army units needed for such peripheral conflict should be small in size, lightly equipped, and mobile enough to move in consonance with these air striking forces. Here again our nuclear firepower will tell the final tale. But national strategy doesn't foresee a decisive role for US ground troops in any kind of nuclear war, global or peripheral. And it is even more difficult to foresee a non-nuclear struggle big enough to be called a war.

Therefore, the Army must seek a way to get the ground soldier into the nuclear act. And the most obvious way to do that is to develop delivery systems for nuclear weapons within the ground framework.

In some instances this may appear to make a great deal of sense. In the over-all national strategy, unfortunately, it is already resulting in wasteful duplication of delivery capabilities now in existence or programmed.

More and more the Army looks to the air as the solution to its dilemma, since the air is the logical medium through which to apply nuclear firepower. An attempt was made, through the atomic cannon, to build a nuclear capability within the conventional Army framework. But its cost, lack of mobility, flexibility, and range, combined to doom it to failure from the start. Many persons within the Army will admit that the atomic cannon never was the solution, and it has since been abandoned as the Army's answer. No, to get into the nuclear act the Army must get hold of its own air weapons. This means both manned aircraft and guided missiles.

Thus far it has met with considerable success. In 1948, when the Key West Agreement was signed, the Army owned about 200 aircraft, primarily light craft for artillery spotting and liaison. By 1955 this had grown to something near 4,000, and current Army programming envisages much higher numbers over the next several years. Already Army aviation represents an investment of nearly half a billion dollars, with annual operating costs of another half a billion. And Lt. Gen. James Gavin, head of Army Research and Development, has said that "twenty thousand planes for the Army might not be enough." This is about the number the Soviet Air Force has today.

The Army is moving rapidly into the missile field as well. General Taylor testified before Congress that "the Army has developed and has in the hands of troops operational missiles—both defensive and offensive—of the general types needed in future wars. . . . We are working intensively on the longer-range guided missiles, a field in which the Army has had unique success."

The Army is developing, at Redstone Arsenal, Ala., an intermediate range ballistic missile with a planned range of 1,500 miles. This is an extremely interesting development and would appear to document the thesis that the Army has ambitions far beyond those of the land battle. In earlier doctrinal discussions, before the Army became air-minded, it sought to limit the battlefield to the narrow strip of real estate between the opposing front lines. Whenever AF tactical aircraft attacked targets at any distance behind enemy lines, the Army felt attention was being diverted from the main effort.

(Continued on following page)

DeLackner Aerocycle provides Army with tactical mobility.

One of more than 4,000 aircraft in the Army, Hiller H-23B.

Army's workhorse, Vertol H-21C, lifts a 105mm howitzer.

Most of Army's planes are light, such as the Cessna L-19A.

Now, the Army view of the battlefield is less sharply defined. Last August Secretary of the Army Brucker said, "There was a time when battle areas were limited. With the increase of the range and accuracy of weapons, the battle area occupied by troops has proportionately increased."

Evidently Army targets have likewise increased in depth, for it is only recently that the Army began to feel that targets as much as 1,500 miles away were important enough to spend Army money, time, and manpower in destroying them.

In a recent magazine interview, General Taylor went several thousand miles farther than the Redstone missile. In a discussion of guided missiles General Taylor said, "The role of the Army is to destroy enemy ground forces wherever found. And 'wherever found' isn't restrictive." Presumably it could include Soviet garrisons in Omsk, Tomsk, or Pinsk. Thus, the Army battlefield, sharply limited in discussions of close support aviation, becomes the whole world when you start talking about guided missiles.

In Congressional testimony General Taylor put it this way: "Our Army mission is to destroy an enemy on the ground any place, anywhere. Obviously, range is an advantage for a variety of reasons; because it gives us greater flexibility in choice of targets, allows us to leave our target system far to the rear and not have it transported forward." No commander can be criticized for seeking to increase the distance between his troops and the enemy. But as Army-delivered air weapons multiply and the Army moves the launching point for those weapons farther away from the front lines, there begins to be competition and wasteful duplication. Take air space. Even in Korea it was hard to keep track of whose aircraft was where. If the air were filled with supersonic aircraft, missiles, mushroom clouds, and what-have-you, the confusion would, as the saying goes, be utter. That is, if air operations continue first to divide and then to multiply.

A study of Army ambitions in the aviation field is now being made by the Joint Chiefs of Staff, according to Secretary of Defense Wilson. Whether or not such a study will come to grips with the basic Army dilemma which feeds these ambitions remains to be seen. The debate is a complex one, no longer a matter of whether air or ground is now the dominant factor of war. For all services now appear to be in agreement that air weapons are dominant.

Thus Army ambitions for the long haul seem geared to the development of an intercontinental missile capability with no restrictions as to range or targets. This means, in effect, that its denials that it seeks to create its own Air Force through expanding organic Army aviation become relatively academic. The question is no longer "Shall the Army have its own Air Force?" but "Is the Army to become another Air Force?" If this is borne in mind, then all of the nit-picking over details becomes relatively insignificant.

If you accept the Army requirements for missiles of unlimited range to destroy the enemy "wherever he may be," the groundwork is laid for all of the supporting elements needed to make such missiles effective. To take only one example. If the Army is to profitably use a missile like Redstone, with its 1,500-mile range, it must have information on its targets, before and after strikes. To get such information it must have long-range aircraft. Nor can these aircraft be what Secretary Brucker describes as "relatively slow, low-flying planes, geared to the environment of the infantryman—just the opposite of the fast, high-flying aircraft of the Air Force."

For such a reconnaissance vehicle would have to fly far enough, fast enough, and high enough to survive deep in enemy territory—to get to the target and back again. Such a capability would automatically entail all the elements the Air Force now possesses—a base complex, maintenance personnel and facilities, etc. In short, it would be another Air Force.

Research and development spending is a good guide to future composition of forces. According to General Taylor, the Army's "major development effort today is in the field of missiles in which we have a vital interest." In the same speech he went on to delineate the extent of that interest by saying,

"We [the Army] have a vital interest in the surface-to-surface missiles—an interest which existed in armies before the day David's sling-propelled missile was brought to bear on target Goliath. The incorporation of these modern projectiles with warheads of great firepower and of various guidance systems enables the Army to extend radically the range of its familiar artillery techniques against surface targets. We already have in operation units built around the Honest John, and the Corporal [missiles] and Redstone [IRBM] units are just being formed. *[This is interesting, because to the best of our knowledge, the question of which service will fire the Redstone had not been determined at press-time.—The Editors.]* The Army's requirement for support from surface-to-surface missiles extends from the front line to any distant target capable of influencing the sustained ground combat for which the Army is responsible. Missiles are vital to us as an important weapon to destroy the ground forces of the enemy, in short, to discharge the primary mission of the Army."

Nuclear firepower will decide future wars

In summation, the surface forces have now accepted the fact that nuclear firepower is the arbiter of future battles and that the nuclear decision can only be obtained by winning the air battle with air weapons. So, in order to retain this offensive mission the surface forces must get hold of some airpower and some air weapons. They have already done so to a degree, and they obviously intend to try for more.

It is not difficult to understand why there is such duplication of effort. Pride and tradition die hard. The effect of duplication is another matter. It is terribly wasteful in money, military and scientific manpower, manufacturing facilities, resources, electronics, air-base facilities, and even air space. This is not good for the country's defense posture nor for its economic structure.

In the last analysis, as a high Administration official put it, "Who cares who pushes the button?" It is not really important who uses our airpower as long as it is used effectively. And as long as it is broken into bits and pieces, and parcelled out among three individual services with one mission, it will not be used effectively. Further, as long as there are three individual services, it is difficult to see how overlapping, duplication, and waste—in manpower, money, and facilities—can be prevented.

This is bad news for the taxpayer. For if we are to have three services involved in the primary mission without sharp increases in defense spending, then other necessary but less decisive missions must be neglected to some degree.—END

Many Missions

TAC

One Philosophy

Second of the three major combat commands of the USAF to be celebrating its tenth birthday (see "Ten Years of Global Guard Duty," April '56 AIR FORCE) is the Tactical Air Command. TAC's commander, Gen. O. P. Weyland, leads an outfit that must in every sense stay fast and loose. With the emphasis on mobility and virtually unlimited striking power, TAC today takes its place with SAC as a deterrent force against aggression—whether in a big war or one of the localized variety. On the following pages is told the story of how TAC got ready for this mission and how the command stays ready—a story that plays a big part in the "Decade of Security Through Airpower."

—THE EDITORS

TAC

The Air Force's Jack-of-All-Trades

F-86H pilot is typical of men TAC must keep combat-ready.

By Lee Klein ASSOCIATE EDITOR

A LITTLE more than five years ago, in the March 1951 issue of AIR FORCE, we reported as follows: "Some weeks ago in the House of Representatives, a Congressman engaged in debate on the Korean war gave the definition which probably comes close to the average man's understanding of the subject. 'Tactical airpower,' the Congressman said, 'is nothing more than close support for ground troops.'"

Like the Congressman five years ago, the American public, by and large, still does not quite understand just what the Tactical Air Command is or what it does.

Established on March 21, 1946, as a small planning headquarters at Tampa, Fla., TAC was later transferred to Langley AFB, Va., to be near—for joint planning purposes—the Army Field Forces at Fort Monroe, and the Atlantic Fleet Headquarters at Norfolk. In December 1948, TAC became part of the Continental Air Command, but with the reorganization of ConAC in December 1950, TAC again became a separate command.

TAC is made up of three numbered air forces—the Ninth, with headquarters at Shaw AFB, S. C. (fighters, fighter-bombers, tactical bombers, and reconnaissance units); the Eighteenth at Donaldson AFB, S. C. (assault, medium, and heavy troop carrier units); and the Nineteenth AF, Foster AFB, Tex., a new tactical air force designed as a highly mobile headquarters able to move to any area of the world in case of threatened aggression. A major portion of the peacetime operations of the Nineteenth is devoted to field training exercises with the Army.

In addition, TAC has special units assigned directly to headquarters, such as the 405th Fighter-Bomber Wing at Langley AFB, Va., and the Air-Ground Operations School at Southern Pines, N. C., The Air-Ground School teaches the principles, tactics, and techniques of the Air Force air-ground operations system to Air Force, Army, Navy, Marine, and Allied officers.

Since it was formed in 1946, TAC has been commanded by Generals Elwood R. Quesada, Robert M. Lee, Glenn O. Barcus, John K. Cannon, and, presently, by Gen. O. P. Weyland. General Weyland hails from Riverside, Calif. Following his graduation from Texas A&M College, he accepted a commisison as a second lieutenant in the Air Reserve and completed flying training at Kelly Field, Tex. During World War II, he served overseas as commanding general of the 84th Fighter Wing and of the Nineteenth Tactical Air Command, supporting Patton's Third Army in its dash across France. Shortly before the war ended, he became commander of the Ninth Air Force. Following the war, General Weyland returned to the US as Assistant Commandant of the Command & General Staff School, Fort Leavenworth, Kans., and later he became the USAF Director of Plans and Operations. In June of 1951 he assumed command of the Far East Air Forces and remained there until the end of the Korean war. He has been at TAC since April 1954.

Today, TAC is one of the three major combat components of the Air Force. Yet it is probably least known of the three—perhaps because in this day of specialization the "jacks-of-all-trades" are often overlooked. The other two major commands have missions that can be readily visualized—SAC will deliver the big Sunday Punch against the enemy if it is ever required, while the Air Defense Command will try to keep the enemy from hitting us here at home.

TAC's job is harder to define and might be described as our "Weekday Punch." In the words of General Weyland, "Tactical air forces must be prepared to do a variety of tasks that cover practically the entire scope of airpower's capabilities. We must be ready to perform these tasks at a moment's notice, anywhere in the world, with appropriate force."

Briefly, the "variety of tasks" General Weyland speaks of are to:

- Organize, equip, train, and ad-

minister tactical air forces for employment in the United States and for deployment overseas;

- Maintain a capability for deployment of mobile strike forces for use in tactical air operations in any area of the world independently or in concert with land and naval forces;
- Maintain tactical air forces in this country in a state of readiness for immediate use to support theater requirements anywhere in the world;
- Develop doctrines, weapons systems, tactics, and techniques for world-wide employment of tactical air forces. Conduct training with Army and naval forces to develop tactics and techniques for joint air-ground-naval combat operations;
- Support the Air Defense Command here at home in the event of an enemy air attack.

To accomplish all this, TAC has aircraft ranging from the supersonic North American F-100 Super Sabre, the Republic F-84F Thunderstreak, the North American F-86 Sabrejet, the Martin B-57, and the Douglas B-66 twin-jet tactical bomber, RB-57, RB-66 and RF-94F reconnaissance aircraft, to the troop carrier transports —the Douglas C-124 Globemaster, the Fairchild C-119 Flying Boxcar, and the Fairchild C-123 assault transport— and the Sikorsky H-19 and the Vertol H-21 helicopters. TAC was also the first AF command to establish operational squadrons of guided missiles, the TM-61 Martin Matadors.

TAC, along with SAC, comprises the offensive capability of the USAF. Explaining the differences in the missions of the two commands, General Weyland has said: "Generally speaking, strategic air forces have primary responsibility for attack of the targets at one end of the spectrum, and tactical air forces have primary responsibility for attack of the targets at the other end of the spectrum. There is no sharp line of demarcation, there is a desirable area of overlap, and, by close coordination, strategic and tactical air forces can and do complement and assist each other without duplication of effort."

Operationally, TAC differs from SAC in that while SAC forces remain under the control of General LeMay, regardless of where they are around the world, TAC forces would not necessarily be under General Weyland's command, but would more likely be operationally controlled by the theater to which they were assigned.

Within the range of targets General Weyland mentioned before is everything from natural resources and basic industries at one end, to military forces actually committeed in battle at the other. SAC has primary responsibility for the more basic targets, while TAC has primary responsibility for targets such as military forces on the way to a battlefield or actually in combat. Nevertheless, as General Weyland points out, each force can and should be used to help the other as the situation demands. The main difference in weapons systems between the two commands is largely a matter of range.

TAC has two units of Martin TM-61 Matador pilotless bombers in Europe.

H-21s—one of the many aircraft types TAC uses for its wide variety of jobs.

All three military services currently agree that control of the air is essential to the success of their missions. This control of the air is probably TAC's biggest job. Of the three ways to achieve air superiority, the best is to be able to hit the enemy's airfields and aircraft and facilities on the ground. The next best way is to tangle with him in the air and beat him there. Least desirable, but sometimes necessary, is to establish air defense measures for the protection of our own forces and facilities.

Another TAC job is air interdiction —keeping the enemy from moving men and supplies forward. Interdiction aims at either destroying the enemy troops on the ground, or cutting their effectiveness by destroying their lines of supply. It is also used to cut off an enemy retreat, making it possible for our ground forces to destroy or capture the enemy forces.

Without air superiority, our own troops would be especially vulnerable to interdiction because its effectiveness is proportional to the supply requirements and dependence on mechanized transportion. It is a tribute to TAC's effectiveness in Korea that the Communists were hurt as much as they were by interdiction, because they were accustomed to living off the land and could carry minimum essential supplies on their backs. Had the enemy been able to wrest control of the air from us, the results might well have been disastrous. The effectiveness of interdiction also varies with the intensity of the ground battle. Tactical interdiction really comes into its own in preventing a build-up of heavy concentration of troops and ground equipment by cutting key lines of communication and simultaneously hitting supply points and troop assembly areas.

The job for which TAC is probably best known is close air support— assisting the ground forces both offensively and defensively. At the same time, it is this function of TAC that is probably the least understood and the most complicated because it requires extremely close coordination between air and ground forces. The British soldiers who survived Dunkirk know the value of good defensive use of tactical close air support, and in

(Continued on following page)

Douglas C-124 Globemaster, assigned as a heavy troop transport to the Eighteenth AF, plays big part in TAC mobility.

Korea it made it possible for the men on the ground to go into battle under the most favorable conditions for success.

Another function of TAC is troop carrier and theater airlift operations. Whereas Military Air Transport Service operations are inter-theater or global in nature, troop carrier aviation is assigned as an integral component of theater air forces. The two forces can and do support each other. In the early days of the Korean war, MATS assisted in intra-theater airlift —while troop carrier forces of TAC often act on a global basis, as they did when TAC troop carriers carried French paratroopers from Europe to French Indo-China and, more recently, in "Operation Gyroscope," when 4,000 troops were airlifted to the Far East and 3,100 more returned to the US. In addition, TAC regularly airlifts support personnel and equipment of tactical air squadrons to and from overseas points.

In addition to all these functions, TAC also conducts tactical recon, aeromedical evacuation, and other specialized operations. Wrapping it all up, TAC is charged with "maintenance of the capability and development of plans for deployment of mobile atomic strike forces for use in tactical air operations in any area of the world—independent of or in concert with other air, land, naval, and/or amphibious forces." TAC must man, equip, train, and support its combat units, which all have a nuclear weapons delivery capability, so they can effectively deploy anywhere in the world on short notice, and support that operation for up to thirty days.

With the deterrent power of SAC hanging over their heads Communist tactics today seem to be designed not to provoke all-out wars involving major forces, but rather to stir up periphery type wars such as Korea.

To cope with this situation, perhaps the most effective tool TAC has is its mobile striking forces. These units are designed to deploy immediately to any area where the Communists threatened aggression. These strike forces might consist of fighter-bombers (atomic carriers), reconnaissance aircraft, sufficient air refuelers to handle the mission, and the necessary cargo aircraft to provide airlift support for a thirty-day operation. The composition of these forces will naturally remain flexible for any situation.

Technically, the history of tactical military aviation dates back to the first World War, but the TAC we know today had its inception in World War II. Another writer said it pretty well in this magazine several years ago when he wrote that TAC was developed "on the anvil of war in the successful air-ground campaigns in Europe from 1943 through 1945, and has been battle-tested in every theater in the world."

However, the past five years have seen such a change in firepower capabilities of fighter aircraft, through the development of a wide range of nuclear weapons, that TAC today bears little resemblance even to the tactical air we had during World War II. While control of the air has always been paramount, the introduction of the new weapons has made this control the prime consideration in war today. This new capability of TAC was spelled out in the July 1954 issue of AIR FORCE (see "Old Jobs . . . New Tools").

Responsible for this evolution of tactical airpower are the rapid strides being made in the destructive power of fighter-size weapons, and the increasing ability of TAC to deliver these weapons anywhere in the world.

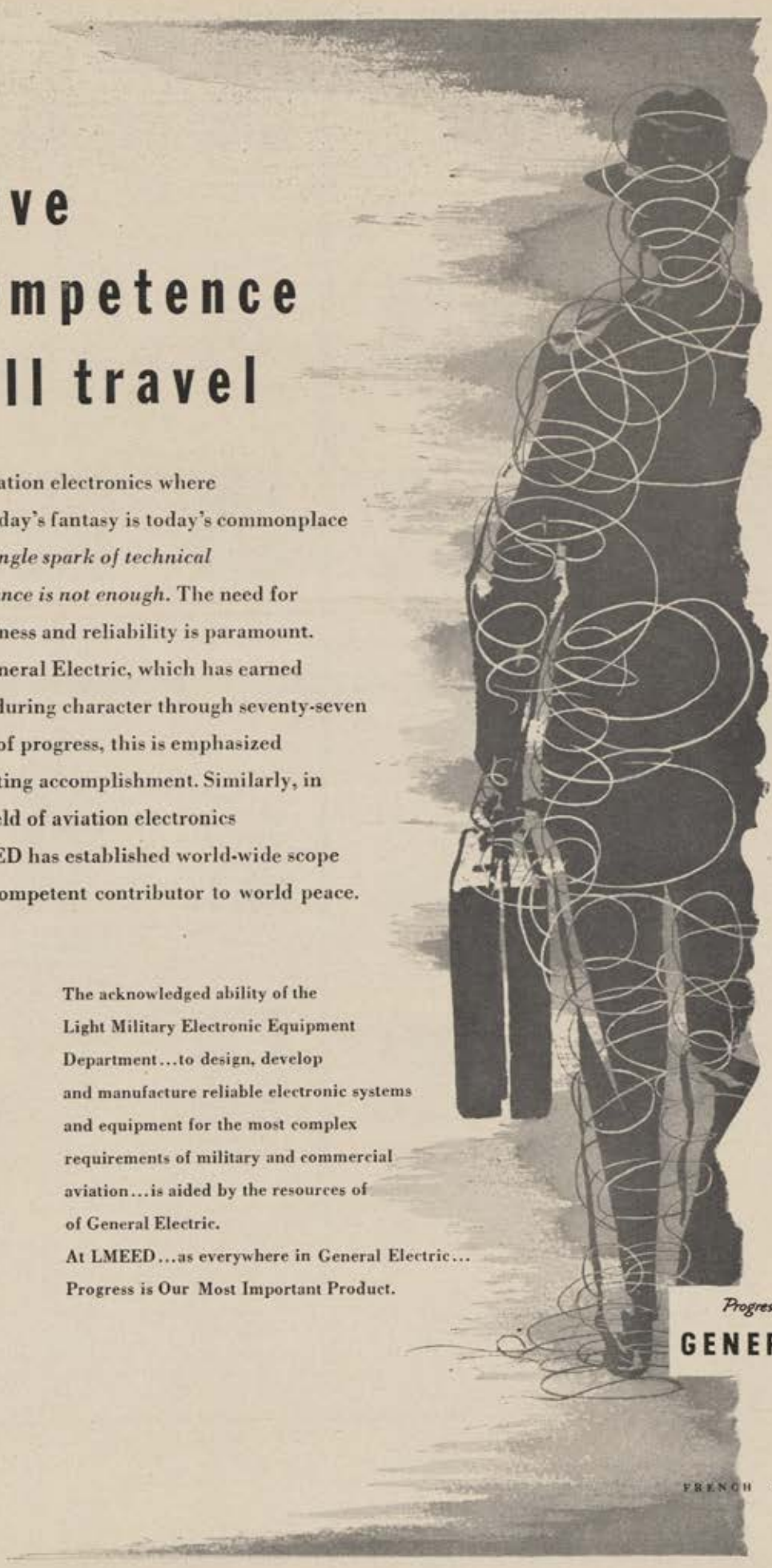
What really gave TAC its start as a major command was the beginning of the Korean war. In the period before that after the end of World War II, TAC was cut to the bone and consisted largely of AF Reserve and ANG units and a small headquarters.

In Korea, fighter-bomber, light bomber, and troop carrier units trained by TAC were in action within a few hours after the decision to fight was made. They represented the first US forces to get into the conflict and played an increasingly important role throughout the war—in spite of our self-imposed restrictions which limited their capability. The counter-air operations of tactical air forces in the Far East prevented enemy air from ever conducting effective operations against United Nations forces, and intensive interdiction so restricted enemy movement of supplies, equipment, and forces that the Reds were never able to maintain a drive to push our troops from the peninsula. And TAC air took heavy tolls of enemy forces in close air support operations.

As effective as our tactical air was during Korea, it must be remembered that this was before fighter-size nuclear weapons were available (we couldn't have used them with the self-imposed restrictions we fought under, in any case) and before in-flight refueling became SOP, greatly

(Continued on page 51)

have competence will travel



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The TACTICAL AIR COMMAND

Hq., TAC
Langley AFB, Va.

1. **Commander**
Gen. O. P. Weyland

2. **Deputy Commander**
Maj. Gen. Earl W. Barnes

3. **Inspector General**
Col. Dale D. Fisher

4. **Chief of Staff**
Brig. Gen. Ernest K. Warburton

5. **Ass't Chief of Staff**
Col. Carl M. Nelson

6. **Information Services**
Col. Eugene B. LeBailly

7. **Chaplain**
Col. Cecil L. Propst

8. **Surgeon**
Brig. Gen. Major S. White

9. **Staff Judge Advocate**
Col. Frank P. Corbin, Jr.

10. **Adjutant**
Col. Nelson C. Voshel

11. **Deputy for Comptroller**
Col. Terrell E. Phillips

12. **Deputy for Communications**
Col. Roland O. S. Akre

13. **Deputy for Materiel**
Brig. Gen. Ira D. Snyder

14. **Deputy for Operations**
Maj. Gen. David W. Hutchison

15. **Deputy for Intelligence**
Col. Richard H. Smith

16. **Deputy for Personnel**
Brig. Gen. William L. Kennedy

USAF Air-Ground Opns. School, Southern Pines, N. C.
Brig. Gen. Daniel W. Jenkins

17.

18. **405th Fighter-Bomber Wing, Langley AFB, Va.**
Brig. Gen. Edwin S. Chickering

An AIR FORCE Magazine Photochart

(Corrected as of April 15, 1956)

NINTH AIR FORCE
Hq., Shaw AFB, S. C.

19. **Commander**
Maj. Gen. Edward J. Timberlake

(Operational Control)

20. **Deputy Commander**
Brig. Gen. Bruce K. Holloway

21. **Chief of Staff**
Col. Gene H. Tibbets

22. **Inspector General**
Col. Daniel F. Tatum

23. **Sp. Ass't to the Commander and Information Services**
Lt. Col. Bernard A. Katz

24. **Chaplain**
Lt. Col. Thad E. Son

25. **Surgeon**
Col. Nicholas F. Atria

26. **Judge Advocate**
Lt. Col. Sam F. Carter

27. **Adjutant**
Col. Ben F. Mariska

28. **DCS/Installations**
Col. Samuel R. Young

29. **DCS/Comptroller**
Col. John French

30. **DCS/Materiel**
Col. Robert W. Humphreys

31. **DCS/Operations**
Col. Francis S. Gabreski

32. **DCS/Personnel**
Col. Leonard J. Rohrs

33. **17th Tactical Bomb Wing, Eglin Aux. Fld. #9 (Hurlbert Field), Fla.**
Col. Howard F. Bronson, Jr.

NINETEENTH AIR FORCE
Hq., Foster AFB, Tex.

41. **Commander**
Brig. Gen. Henry Viccellio

34. **479th Fighter Day Wing, George AFB, Calif.**
Col. Irwin H. Dregne

35. **323rd Fighter-Bomber Wing, Bunker Hill AFB, Ind.**
Col. Bernard R. Muldoon

36. **312th Fighter-Bomber Wing, Clovis AFB, N.M.**
Brig. Gen. William W. Momyer

37. **366th Fighter-Bomber Wing, England AFB, La.**
Col. William A. Daniel

38. **363rd Tac. Recon. Wing, Shaw AFB, S. C.**
Col. Stephen B. Mack

39. **461st Tactical Bomb Wing, Blythville AFB, Ark.**
Col. Thomas R. Ford

40. **450th Fighter Day Wing, Foster AFB, Tex.**
Col. Joe L. Mason

42. **Deputy Commander**
Col. John R. Dyas

43. **Adjutant**
Maj. Ewald C. Braeunig

44. **DCS/Materiel**
Maj. Gordon T. Kight, Jr.

45. **DCS/Comptroller**
Lt. Col. Robert B. Stringfellow

46. **DCS/Operations**
Col. Richard H. Ellis

EIGHTEENTH AIR FORCE
Hq., Donaldson AFB, S. C.

47. **Commander**
Maj. Gen. Chester E. McCarty

48. **Deputy Commander**
Brig. Gen. Hoyt L. Prindle

49. **Chief of Staff**
Col. Harry S. Bishop

50. **Inspector General**
Col. Troy W. Crawford

51. **Information Services Officer**
Col. Carl E. Welchner

52. **Chaplain**
Lt. Col. Horace N. Cooper

53. **Surgeon**
Col. Raymond T. Jenkins

54. **Judge Advocate**
Lt. Col. Alfred Kandel

55. **Adjutant**
Lt. Col. Andrew DiAntonio

56. **DCS/Comptroller**
Col. Edgar B. Stansbury

57. **DCS/Materiel**
Col. Earl T. Showalter

58. **DCS/Communications-Electronics**
Col. Manuel Fernandez

59. **DCS/Operations**
Col. Jamie Gough

60. **DCS/Personnel**
Col. Harold L. Fuller

61. **62nd Troop Carrier Wing (H), Larson AFB, Wash.**
Brig. Gen. George F. McGuire

62. **63rd Troop Carrier Wing (H), Donaldson AFB, S. C.**
Col. Edgar W. Hampton

63. **456th Troop Carrier Wing (M) (Pacific Area)**
Col. James L. Daniel, Jr.

64. **463rd Troop Carrier Wing (M), Ardmore AFB, Okla.**
Brig. Gen. Cecil H. Childre

65. **464th Troop Carrier Wing (M), Pope AFB, N. C.**
Col. Theodore G. Kershaw

66. **314th Troop Carrier Wing (M), Stewart AFB, Tenn.**
Col. Marvin L. McNickle

How come nobody picks on the hummingbird? He's tiny, he's inoffensive, and he spends his time tranquilly fooling around among the flowers while bigger birds battle noisily for survival. By rights he ought to be extinct, but he's left alone because he packs a fearsome weapon and knows how to use it. With his rapier-like beak and darting speed, he is feared by would-be intruders as a veritable D'Artagnan of the honeysuckle. Until the happy day comes when lions will lie by lambs and predators are out of politics, the cause of peace is best served by those equipped to defend it.

➢ ➢ *We at REPUBLIC take pride in the long roster of accomplishment which Thunder-craft have written . . . such as the Thunderbolt, Thunderjet, Thunderstreak and Thunderflash . . . the potential of the new F 103 and F 105 emphasizes again the touch of engineering genius and production skills which have long been the pride mark of this famed fighter family.*

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increasing the range and mobility of short-range fighter aircraft.

This increased firepower, flexibility, and mobility of TAC has had a profound effect on the tactics of the ground war. Gone are the days of large troop concentrations on the ground—one fighter with a nuclear weapon could put the whole show out of action in seconds. And where it used to take many tons of high explosives to knock out an enemy airfield, one fighter with the right bomb can do the same job today.

New weapons, improved techniques, and better equipment combine to give TAC today almost unlimited firepower and the ability to apply that firepower almost anywhere.

But global mobility and tremendous striking power are not enough. The enemy's tactical air capability is making the same strides ours is—if we can put a big hole where one of his airfields used to be, he can do the same thing to us. And as long as we have to depend on vulnerable large airfields from which to apply tactical airpower. we are leaving ourselves wide open.

What is needed most urgently today to make tactical airpower a truly flexible force is a fighter that lends itself to wide dispersal and is able to operate from either very short runways or no runways at all. On the other side of the Iron Curtain, the Russians are already operating some of their fighters from grass fields, making it all the more urgent that we be able to do the same thing.

There are several methods of acquiring this freedom from permanent airfields—vertical take-off, zero-length launchers, catapults, arresting gear—but so far, no real answer to the problem is at an advanced enough state of development to be operationally useful.

Few will dispute that today wars are won or lost in the air. And tactical air is a very important element of that airpower. In the words of Britain's Field Marshal Viscount Montgomery, "The greatest asset of airpower is its flexibility. Whereas, to shift the weight of effort on the ground from one point to another takes time, the flexibility inherent in air forces permits them, without change, to be shifted quickly from one objective to another within the theater of operations. So long as this is realized, then the whole weight of available airpower can be used in selected areas, in turn. This concentrated use of the air striking force is a battle-winning factor of the first importance."—END

The Role of Tactical Air in The 'Long Pull'

By Gen. O. P. Weyland
COMMANDER, TACTICAL AIR COMMAND

IT WOULD be foolhardy for us to ignore the fact that the Communists have numerically superior land armies, and air and naval forces second only to our own. We know that their military strength is supported by vast natural resources and an expanding industrial base. Theirs is a controlled totalitarian economy, making it possible for them to allocate large sums of money for production of military equipment disregarding the other economic needs of their peoples. Last, but far from least, is the fact that their atomic stockpile is on the increase and that they have developed nuclear weapons and the means to deliver them.

The Communists then pose a double-barrelled threat to our peace and security. If we become weak, we may expect a major war. As long as we remain strong, we can be reasonably sure that they will be in no hurry to become involved in a decisive military campaign in which they surely would be subjected to the awful retribution of American airpower. But the Communist timetable is flexible. As long as we remain strong, any armed conflict of their choosing may be of limited nature, and we may be faced with the possibility of a series of "little" or periphery wars designed to whittle down our strength and increase our vulnerability.

The US national policy of security is therefore based on this realization. We are preparing for what the Chairman of the Joint Chiefs of Staff calls the "long pull." Our policy now is not to build for an expected war in any particular year, but to be ready this year, the next year, or ten years from now, for either an all-out conflict or a limited war.

The economic implications to the "long pull" military policy has placed heaviest emphasis on technology and airpower, in which we are strong, as distinguished from masses of manpower in which we obviously cannot compete with the Communists.

As part of the "long pull" we subscribe to the concept of collective security, wherein our allies furnish the forces and the facilities or weapons of war that they are most capable of providing to the common goal of defense against aggression. Allied contributions, of course, will vary according to the ability and economy of each country. Some have larger manpower resources represented in their armies, while others contribute the facilities of their navies, their ports, or their air bases.

Because we are a highly industrialized nation, it falls to us to furnish a major part of the more complicated and technical forces—airpower.

Airpower is the supreme expression of military technology, and we must capitalize on the superiority we now hold in the technology, industry, and nuclear development that supports our airpower strength.

The Communists have overwhelming strength on the ground. In size, the armies of the Free World are mere outposts by comparison. The Communists need not unduly fear our strength at sea, for with internal lines of communication, they are not dependent upon using the seas. The Communists fear but one thing primarily—our power in the air—and airpower has been the primary reason for our peace and safety during the past few years.

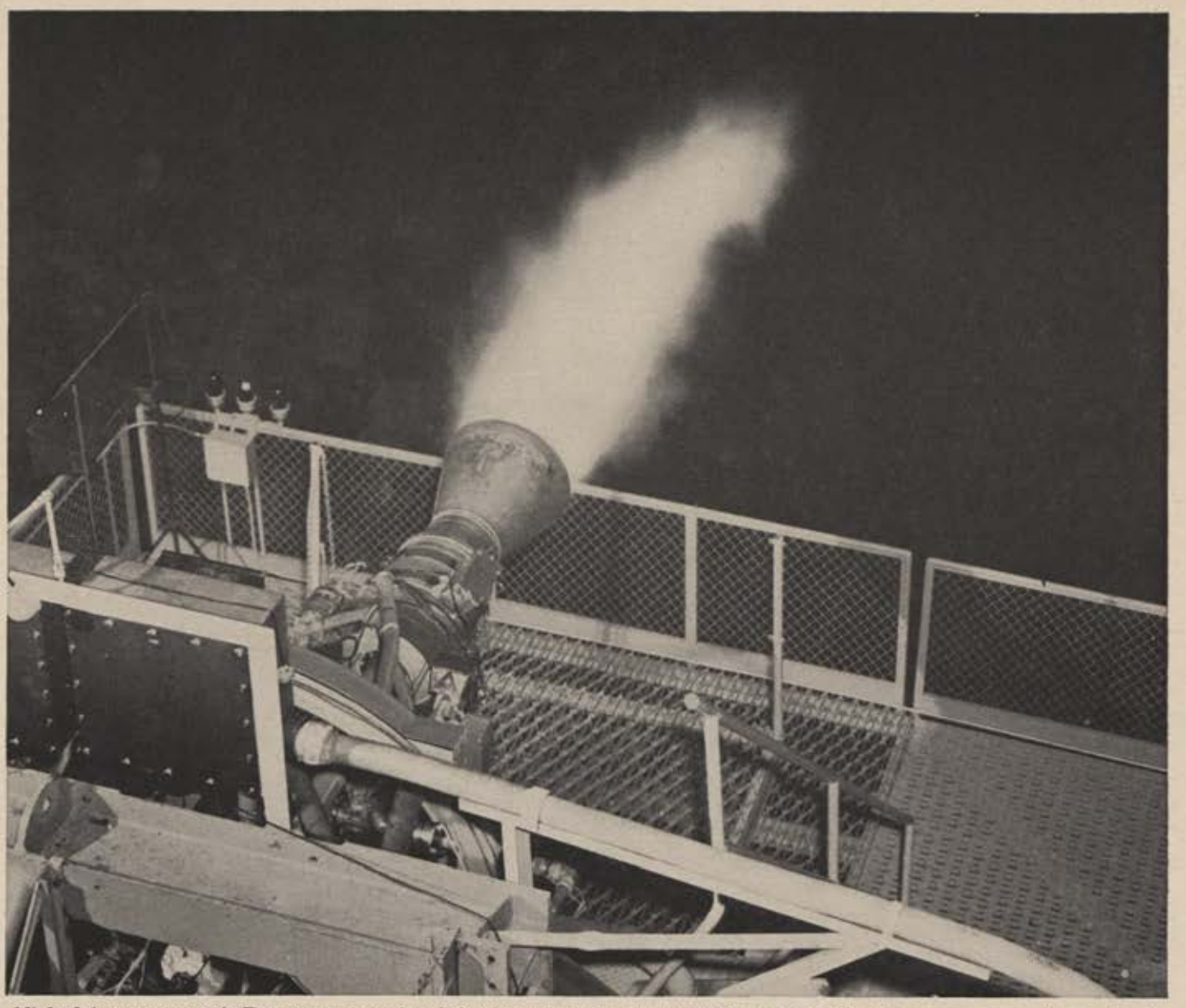
It is my earnest conviction that we must never permit ourselves to be led into a conflict in which massed manpower becomes a decisive factor, for by so doing we would be giving the enemy an advantage they should not have.

Since it is not our traditional forms of military power that have held the Communists in check, then it is most imperative that we exploit every means to increase our strength in the air, for by doing so we weaken the Communist threat posed by their superiority in raw manpower.

I must emphasize that I am not recommending that we do not need armies or navies—we do. But airpower, as exemplified in the United States Air Force, is the fundamental military threat restraining the enemy, and it is the prime force giving our country and those others of the Free World the initiative in developing a climate of freedom in areas that otherwise would be enslaved morally, politically, and economically.

United States Air Force airpower is therefore the decisive, dominant force assuring a continued Free World. Today, control of the air determines success or failure in all forms of conflict. Our airpower has spectacular mobility, both in its Strategic Air Command and Tactical Air Command, which, coupled with a completely versatile

(Continued on page 55)



Night firing tests on early ROCKETDYNE engines helped speed the development of today's models whose power cannot be disclosed.

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Behind these bare facts is a 10-year story of how the Air Force and ROCKETDYNE faced up to one of the biggest engineering challenges of the last decade. Security restrictions do not permit us to give you the details, but we *can* tell you that ROCKETDYNE has manufactured the largest liquid-propellant rocket engine in the free world. ROCKETDYNE is developing and producing rocket engines for many of the major guided missile projects in this country.

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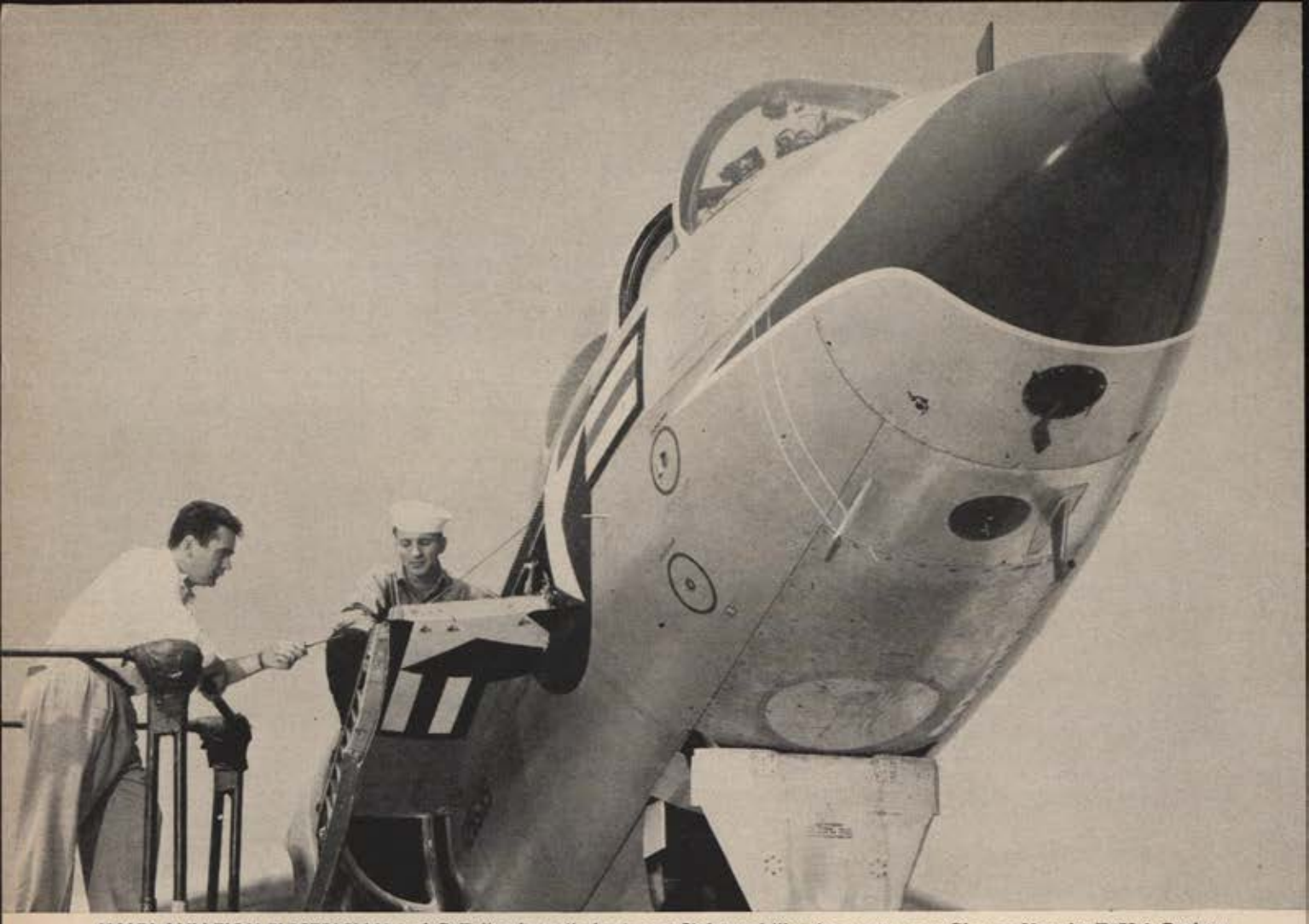

NAVY AVIATION ELECTRICIAN and G-E "tech rep" check out flight stabilization system on Chance Vought F7U-3 Cutlass.

How on-the-spot service engineers back up General Electric flight control systems

G-E SERVICE ENGINEER, Willie Jaques, demonstrates the autopilot line maintenance tester to Navy aviation specialists.

G-E field service engineers provide valuable technical assistance to the Armed Forces wherever service is required on General Electric flight control systems. These "tech reps" also conduct classes for pilots and aviation specialists on the operation and maintenance of G-E flight control systems.

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FOR DETAILED INFORMATION on the flight control systems that General Electric is designing and manufacturing for our Armed Forces, contact your G-E Aviation and Defense Industries Sales Office. Section 221-9, Schenectady 5, New York.

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arsenal of modern weapons, outmodes, without replacing, the older traditional services.

The domination of airpower can be applied anywhere, any time, in any strength. It can affect a decision in small wars independently or in combination with surface forces. It is the only existing US military force capable of applying total nuclear warfare.

In the light of the military advantages inherent in airpower, we have patterned and developed the organizational structure of the Air Force to take advantage of these complex capabilities and keep it ready for any of several contingencies.

We are all aware of the necessity of maintaining our long-range striking forces in instant readiness should all-out war occur. It is generally accepted that our strategic air forces, which have successfully deterred a global war since 1947, still remain the greatest deterrent to major Communist aggression.

We must keep these forces strong, especially in the light of the cold, hard fact that we no longer monopolize long-range nuclear airpower. We are still ahead, but if we are to remain ahead, it is vital that all of us—the people in the United States—understand the true military aspects of why our Air Force is the mightiest in the world, and having understood, to act swiftly and with decision in supporting it.

Referring again to the pattern of Communist conspiracy, it is abundantly evident that with the capability of our strategic air forces to deter global war, we are, whether we like it or not, possibly faced with an era of periphery or "brush-fire" wars. To meet this new threat, we have placed increasing emphasis upon tactical airpower, and today the ability to inflict instant punishment on an aggressor is shared equally by our strategic and tactical air forces.

In Korea, our intent to use tactical air forces was not established until after the aggression had begun. Our national policy in this regard is now clear-cut. With the mobility and striking power of today's tactical air forces, we can make clear our intentions to use these forces against limited, as well as all-out aggression, anywhere, any time. This should make the Communists realize that limited aggression will cost more than it is worth.

Even in Korea, in spite of the stringent restrictions placed upon us, tactical airpower was the dominant element which prevented the Reds from achieving their objectives in that area.

We know that there are a number of freedom-loving countries who have the manpower for ground units and who will fight in defense of their country if they are assured of tactical air assistance from us. We now stand ready to offer that assistance and have made this fact known. We are prepared to use modern tactical air forces capable of responding to any hostile action very quickly and with the appropriate degree of force.

The realism of this capability is reflected in the fact that our tactical fighter-bomber and tactical jet bombardment aircraft can now be deployed in a matter of hours to almost any threatened area of the globe by in-flight refueling, and then deliver nuclear weapons to any military target. The flexibility and mobility required for this is provided for by a global base structure and supported by a global airlift which we have in being today.

I emphasize nuclear weapons because, as I mentioned before, our strength lies in our superior technology, industry, and nuclear development. To fight a war based on pitting massed manpower against massed manpower would result in a war which, although we may or may not lose, we certainly could not win decisively.

We should never again, in my opinion, restrict our selection of weapons or target areas as we did in Korea. The best weapon to do the job with the least loss of life should be selected for each target under consideration. In a periphery war, the allies whom we might be supporting would almost certainly want us to support them in the most efficient and expeditious manner possible.

In our organization of mobile tactical strike forces, we have designed them to deploy very quickly, using in-flight refueling techniques, to any threatened area of the globe. With nuclear weapons, these forces can be compact and yet be so effective as to provide the decisive balance of power.

Tactical nuclear weapons are not "weapons of mass destruction." With them we can be selective, limiting our air attacks to primary military targets with much greater effectiveness. This is especially true when you consider that our nation's stockpile of nuclear weapons now includes a range of yields which permit accurate and optimum attacks on the entire spectrum of targets.

Actually, our tactical combat aircraft have only reached the threshold of attaining the ultimate possibilities in the scope, variety, and magnitude of tasks they can perform. We are now in an in-between position in regard to the aircraft themselves. We are fast getting the newest high-performance jet day fighters, fighter-bombers, and tactical bombardment aircraft we need, as well as larger and faster airlift transports, but we still have to use some of the older types to meet operational commitments.

One of the best examples I can think of to illustrate the advances we have made in our new type combat aircraft is the first of the Century Series, the North American F-100 Super Sabre. This is in operational use in four wings of the Tactical Air Command today. These aircraft represent a jump in speeds from the subsonic to the supersonic in level flight. In the tactical reconnaissance field, just a few weeks ago, the first aircraft for several squadrons of Douglas RB-66 tactical reconnaissance bombers was delivered to our recce wing at Shaw Air Force Base, S. C., representing not only a faster aircraft, but one with a twenty-four-hour, all-weather capability.

Because of the tremendous power for peace inherent in our tactical air forces of today, it is vital that we continue to be supplied with the most modern tools to do our job. In this day of sudden, undeclared war, our tactical air forces would be caught short if we fall behind in research, development, and production. Right now in the engine field we need greater power combined with lighter weight. In aircraft, the lead time must be cut between the drawing board and the operational flight line. We need more speed and better all-around performance, with shorter landing and take-off characteristics, if we are to maintain our qualitative superiority over our potential enemies. Our scientists, engineers, and the aeronautical industry are working with us as a team to solve these problems.

We are achieving these things, and I am confident that even greater scientific and engineering advances will mark the next few years. We have been living in a decade of security through global airpower, made possible through our strategic air forces and our tactical air forces as a deterrent to aggression anywhere in the world, and our strong air defense forces to guard us here at home.—END

From an address at Wilkesboro, N. C., February 1956.

Cutting enemy supply lines was one of TAC's main jobs in Korea. Here a B-26 crew is briefed for a night mission.

TAC in Korea—A Look Backward

TAC hit many targets in Korea, with napalm, the war's most feared weapon.

UNTIL June 1950 Korea was just a name on a map to most people. But then this strange, far-off land became at once both an arena for the tactics of World War II and a proving ground for the weapons and doctrines of the jet age. TAC-trained men were in the thick of things from the start. Sabres slugged it out with the MIGs for control of the air. Old but reliable B-26s teamed up with the fast new jet fighter-bombers in rail-splitting and bridge-busting missions designed to keep enemy supplies from the front. Everything else that could fly and fight was thrown in to give our hard-pressed ground forces additional firepower, with ground controllers calling the shots as they were needed. Even the outmoded F-51s

First jets to see action in Korea were TAC's F-80s, which made a good showing.

Maintenance was an around-the-clock business in Korea. This is a recon RF-80.

One A-bomb could have done the work of thousands of these little frags.

got in their licks, and, taking a cue from the Sabre pilots who outfought the enemy high over the Yalu to become history's first jet aces, the top scorers among the F-51 and B-26 drivers became "locomotive aces." With living conditions as bad at times as the worst from World War II, the success of the tac air operation was as much a tribute to the maintenance men as to the pilots and bombardiers. Despite restrictions on weapons and targets, the Korean war proved the soundness of our tactical air doctrine. And whether Korea proves to have been the big show or just the dress rehearsal, TAC figures its stable of hot new planes (*see next page*) and stockpile of A-weapons make it a potent force to be reckoned with.—END

Actual gun camera films show how F-51 pilots gave a Red train the works. Locomotives were a favorite target of the low-flying fighter-bombers.

TAC faces. Some of these men did not make it back from Korea. But, taking their place, other men have stepped up to fill the ranks.

TAC's Front Line Today

Douglas B-66 all-weather bomber—the newest aircraft in TAC's inventory.

NEVER again can we afford to be caught off guard as we were when we went into Korea with an inventory of obsolescent World War II type aircraft. The stakes will be too high in this supersonic age.

As they were in Korea, TAC men and planes will again be among the first to do battle should the whistle blow again. And here are some of the planes that TAC is betting on.

Newest of the group, the Douglas B-66 tactical bomber—in the 600-700-mph class—is now being assigned to operational TAC units. Martin's B-57 has proved itself a versatile airplane with tremendous firepower and fighter-like maneuverability. Both these bombers are also assigned to TAC in a reconnaissance version.

TAC's newest fighter, the supersonic North American F-100 Super Sabre, will eventually phase out that Korean war ace, the F-86 Sabrejet. But the F-86 is still a formidable weapon system that would see a lot of action for some time to come as would the ocean-hopping, atom-bomb-carrying F-84F Thunderstreak.—END

Martin B-57 tactical bomber is in 600-mph class, has tremendous firepower.

Republic F-84F is an important element in TAC's mobile atomic strike forces.

TAC's speediest fighter, the supersonic F-100 Super Sabre. It also comes in a fighter-bomber version.

F-86—ace of Korea and still a formidable weapon.

SYNCHRONIZED—Like a fine watch, Northrop Aircraft is synchronized for dependable performance. A precise balance between long-range planning and economical production insures the continued development of the nation's most advanced weapon systems. Effective thinking and doing have produced such recognized achievements as the Northrop Scorpion F-89 interceptors, far-reaching defenders of our heartland; Northrop Snark SM-62s, unmanned intercontinental A-bomb carriers; and Radioplane Company's pilotless drones and missiles. New weapons of the future are now being designed. Their punctual delivery is guaranteed by synchronized management, engineering and production at Northrop.

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FOR A COPY OF THIS PHILLIP HARRISON HAYS ILLUSTRATION, SUITABLE FOR FRAMING, WRITE TO PUBLIC RELATIONS DEPT., AVCO DEFENSE AND INDUSTRIAL PRODUCTS, STRATFORD, CONN.

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TODAY'S MILITARY SERVICES, WITH THEIR TREMENDOUS TECHNOLOGICAL ADVANCES MADE POSSIBLE THROUGH SCIENCE, OFFER A VITAL, REWARDING CAREER

When wives are familiar with the complicated planes their husbands fly, they can appreciate why his mind should be free from worry while he's in the air.

How TAC Reads In Its Wives

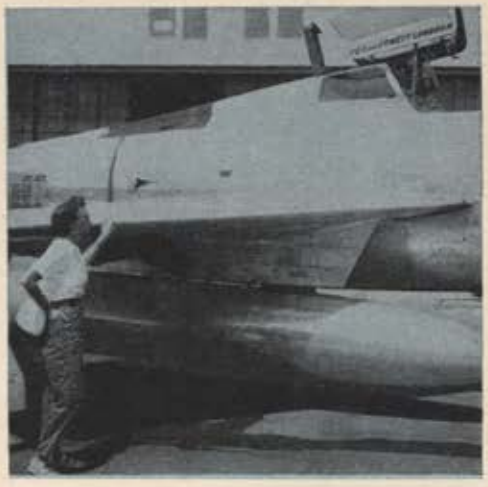
THE Air Force realizes that a pilot's wife is a very important member of the AF team. And briefings at TAC bases are helping her to better understand the work of her fighter-pilot husband. She is told as much as possible about the mission of his unit—and comes to realize that there are good reasons for his sudden and sometimes long absences from home. She goes out to the base, examines his jet fighter from the cockpit out, and even tries on his flight equipment. She learns what problems he faces when he flies and some of the things that are apt to make him tense when he returns home. These briefings help her realize that in addition to top-notch equipment, her jet pilot needs a clear mind, proper rest and food, and a contented home life. As she protects the life of the man she loves, she is also protecting her stake in the AF. Most TAC wives accept this responsibility wholeheartedly, and become TAC's invisible co-pilots.

(Continued on following page)

It's only natural for her to worry when her husband goes off on another mission, but most AF wives learn to cope with it.

The best way for a pilot to take his mind off flying for a while is to relax with his family. If the married pilot is happy at home, he can do a better job of flying.

Planes can be rough competition. As one jet pilot's wife put it: "They are sleek, shiny, and beautiful—they never argue, and they see more of our husbands than we do."

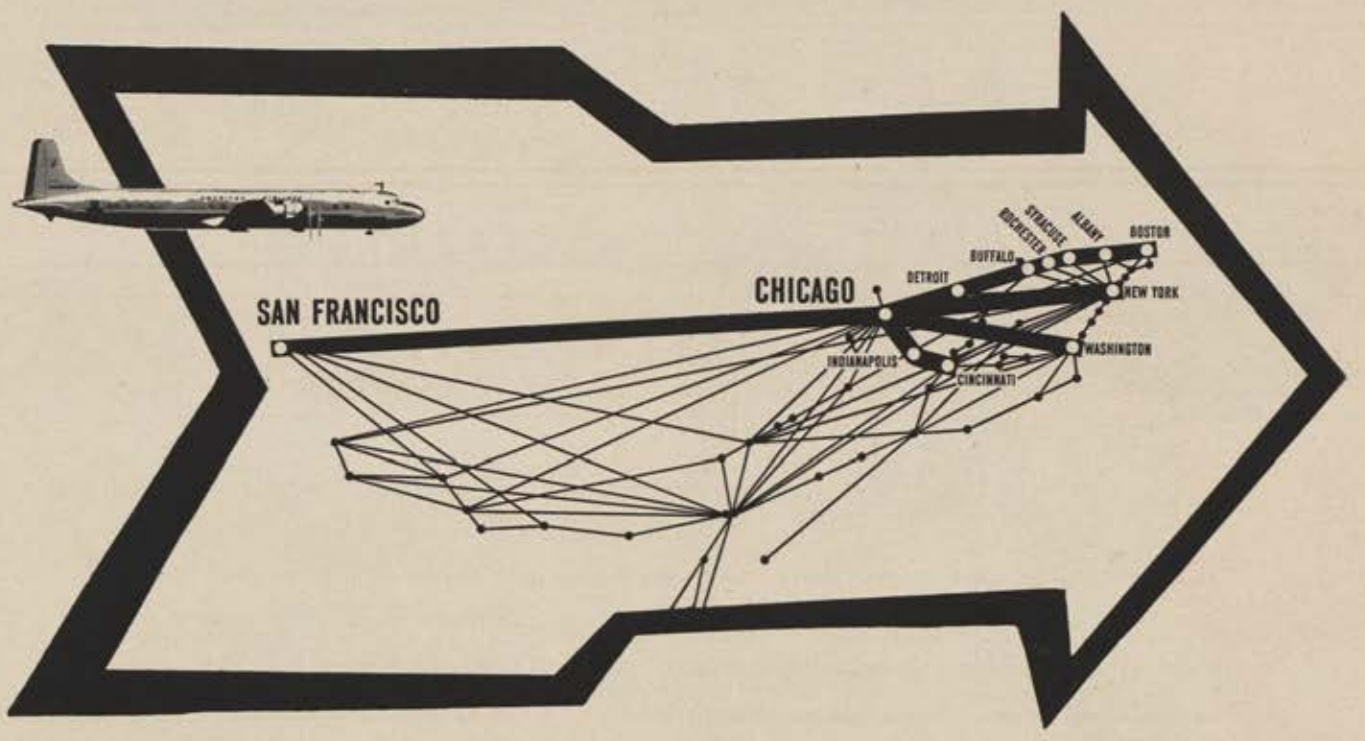


Pilot's wives have a big stake in the AF. They have invested their love, their hopes, their future, and the future of their children in the men who fly the airplanes.

To become better acquainted with their husband's jobs and problems, TAC wives get a briefing and try on the same equipment the pilots wear when they go on flights.

FLY AMERICAN'S NEW ROUTE NONSTOP

SAN FRANCISCO CHICAGO



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The versatility of the USAF Tactical Air Command . . . its mobility and atomic capabilities . . . combine with Ground Support equipment to provide assurance of effectiveness ***when seconds mean survival .*** ▷ Ground Support equipment of unquestioned reliability is indispensable should the need of defense or retaliation demand that TAC "rise" to the occasion in protection of our freedom. ▷ Through design, development and manufacture, we have solved the most complex ground support problems . . . providing the Tactical Air Command with a self-propelled multi-purpose unit, which combines towing, testing, servicing and/or starting for all types of aircraft under the most difficult operational conditions. The M A-1 and other type ground support units. are now being used extensively by the USAF, Navy and Marines . . . and are ***consolidated for greater power and versatility.***

THE ALL-PURPOSE MA-1 HELPS GREATLY TO SOLVE THE MOBILITY PROBLEM . . . FOR ONE UNIT TAKES THE PLACE OF FOUR OR FIVE

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The Men TAC Has Up Its Sleeve

RECOGNIZING that the nation may never again have time to conduct the complex training required for modern air operations after a war begins, Tactical Air Command has given high priority to maintaining reserve units which are ready to go. The idea is to produce reserve air units, which, in an emergency, can quickly and easily assume positions alongside regular TAC units as effective elements of our national airpower.

Air Reserve forces units, including tactical and support organizations, in thirty-three states have Mobilization-Day assignments to the command. Thus the TAC reserve training program is broad both in scope and in geography.

The Air Reserve Forces under TAC training guidance include both Air National Guard units and Air Force Reserve units. The Air National Guard is organized on a state and territorial basis and its units are normally under the command of the respective governors. Upon mobilization, however, the Air Guard is integrated into the Air Force and given a specific mission. The Air Force Reserve is a definite component of the Air Force, under the command of the Chief of Staff.

TAC conducts its reserve forces training program in cooperation with the Continental Air Command, which has administrative responsibility for over-all training responsibility for reserve forces. By Air Force directive, TAC sits in an advisory capacity over those units which have Mobilization-Day assignments to the command.

These units constitute a formidable combat potential. They include four tactical bombardment wings, thirteen troop carrier wings, two tactical reconnaissance wings, four air resupply groups, three tactical control groups, three communications groups, and eight aerial port squadrons.

A third element of the reserve structure is the mobilization assignee, an individual who trains for pre-selected assignment which he is expected to fill on M-Day.

Mobilization-Day assignments include across-the-board assignments in both officer and airmen specialties, and also apply to both desk jobs and flying assignments.

(Continued on following page)

Air drop from C-119s—just one of the many activities in TAC where reserve units back up the active-duty personnel.

Reserve troop carrier wings form an important part of TAC's combat potential. "Buddy system" training gives reservists a chance to learn by actually doing.

TAC reserve forces keep up to snuff by taking part in realistic training.

A unit training program consists of a monthly unit drill and an annual fifteen-day active-duty training period. Programs are designed to accomplish both training in individual specialties and of units to accomplish the unit mission. The progress of the training programs is monitored by TAC through a Reserve Forces Division headed by Lt. Col. George S. Cook.

During their active-duty encampments unit training programs are monitored by TAC's Ninth and Eighteenth Air Forces which assign advisory wings for reserve units. This gives the command a chance to use the "buddy system" of training wherein the trainee works with an active-duty man and learns by doing under experienced guidance.

The attainment of a high degree of mobility by regular TAC organizations has generated a requirement for reserve units to develop a similar capability. As a result, each TAC M-Day reserve unit must prepare mobility plans. To provide mobility training, summer encampments are conducted at sites other than home installations. Sites include pre-designated Air Reserve and Air National Guard training installations and sometimes regular TAC bases.

To give reserve units the most realistic training possible, this summer TAC plans to use five troop carrier wings in joint airborne operations with regular units with Army airborne forces. Other reserve units, communications and tactical control groups, which have reached an acceptable degree of readiness in their equipment and training will conduct similarly realistic programs of their own.

Future training plans will provide for using reserve units in some of the large training exercises and maneuvers held annually by the command for its regular units.

The limitations on the reserve training program are the time available to reserve personnel to engage in training, funds, and equipment. Units, though, are being given the best equipment that the Air Force can spare from its active-duty structure.

One factor which favors reserve units over their active counterparts is stability of personnel. The experience level of many reserve personnel goes up to the ten- or twelve-year level, whereas regular units may have technicians doing the jobs with only two or three years' experience.

Many TAC reserve units have reached a high state of readiness. One good example is the operations of the 302d Troop Carrier Wing during last year's floods in Connecticut. This unit, located at Clinton County Air Force Base, Ohio, was alerted at ten p.m. by a telephone message to prepare for relief missions to the disaster area. An hour and forty-five minutes later the first aircraft of the unit were airborne, and for the following seventy-two hours the wing operated under maximum performance on disaster relief.

As Tactical Air Command continues to grow in mobility and striking power to fulfill its role in the Air Force's deterrent effort, the TAC reserve units will likewise progress in their training and capability.—END

TAC RESERVE FORCES

AIR FORCE RESERVE

Tactical Bombardment Wings:

Scott Air Force Base, Ill.
Long Beach Municipal Airport, Calif.

Troop Carriers Wings:

Clinton County Air Force Base, Ohio
Greater Pittsburgh Airport, Penna.
Portland International Airport, Ore.
Brooks Air Force Base, Tex.
Bakalar Air Force Base, Ind.
Miami International Airport, Fla.
Floyd Bennett Naval Air Station, N. Y.
O'Hare International Airport, Chicago, Ill.
Grandview Air Force Base, Mo.
Ellington Air Force Base, Tex.
Andrews Air Force Base, Md.
New Castle County Air Force Base, Del.
Mitchel Air Force Base, N. Y.

Aerial Port Squadrons:

Mitchel Air Force Base, N. Y.
Greater Pittsburgh Airport, Penna.
O'Hare International Airport, Chicago, Ill.
Sewart Air Force Base, Tenn.
Donaldson Air Force Base, S. C.
Bakalar Air Force Base, Ind.
Paine Air Force Base, Wash.
Pope Air Force Base, N. C.
New Castle County Air Force Base, Del.

AIR NATIONAL GUARD

Tactical Bombardment Wings:

Floyd Bennett Naval Air Station, N. Y.
Lambert Field, St. Louis, Mo.

Tactical Reconnaissance Wings:

Birmingham Municipal Airport, Ala.
Berry Field, Nashville, Tenn.

Air Resupply Groups:

Hayward Municipal Airport, Calif.
Kanawha Airport, Charleston, W. Va.
Harbor Field, Baltimore, Md.
Green Field, Hillsgrove, R. I.

Tactical Control Groups:

White Plains, N. Y.
Jeff Barracks, St. Louis, Mo.
Van Nuys, Calif.

Communications Groups:

Springfield Municipal Airport, Ohio
Geiger Field, Spokane, Wash.
Wellesley, Mass.

THE BOEING B-52 STRATOFORTRESS, America's first jet intercontinental bomber, uses Fenwal Fire and Over-Heat Detectors, located in its eight engine pods. Set at 450°F, 675°F and 750°F. all with a tolerance of ±25°F, these Fenwal Fire and Over-Heat Detectors function the instant surrounding air temperature reaches the alarm point — no lag, no false alarms.

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Fenwal Fire and Over-Heat Detectors are used in every type and size of plane, in every location where fire or excessive heat must be constantly guarded against and instantly indicated. These locations include main engine areas, auxiliary sections, cargo compartments, cabin heaters and inside wing areas.

Fenwal's unit system offers the advantage that electrical isolation of an individual Detector does not affect the functioning of the remaining units. Any Detector may be quickly removed and replaced without disturbing or removing the whole fire detection installation.

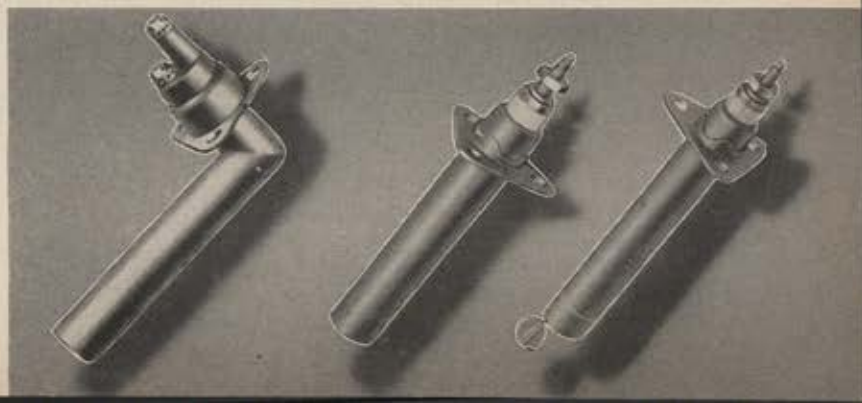
Fenwal Fire and Over-Heat Detectors are made for single-wire and double-wire loop circuits. A loop circuit enables each Detector to act independently in the event of accidental breakage in the electrical conductor. One push-button checks continuity of wiring in either type of circuit.

THE NORTH AMERICAN F-100C SUPER SABRE, first jet fighter to establish a world record for supersonic speed, depends on Fenwal Fire and Over-Heat Detectors for positive protection. Installed around the engine and fuselage, these units give warning *before* dangerous over-heating occurs. Fenwal Thermocouples are also used for temperature indication in the F-100C's J-57 jet engine.

Fenwal

Controls Temperature . . . *Precisely*

THE SHELL IS THE TEMPERATURE-SENSITIVE ELEMENT in all Fenwal Fire and Over-Heat Detectors, giving positive, unfailingly accurate response. Compact and easily installed, these units are available in a wide range of designs, covering different temperature ranges and complying with all applicable military and government specifications. For complete facts write to **Fenwal Incorporated, Aviation Products Division, 345 Pleasant Street, Ashland, Mass.**



IN-FLIGHT REFUELING technique for helicopters is demonstrated for the first time by two Marine Corps Sikorsky HRS helicopters. By increasing potential range and payload, aerial refueling can give still greater versatility to the helicopter. The HRS is the Marine Corps version of the Sikorsky S-55, most widely-used transport helicopter.

AROUND THE WORLD WITH SIKORSKY HELICOPTERS

FOURTEEN SEAMEN, five from the bridge, eight from the fantail, and one from the water were saved by an Air Force rescue helicopter when the grounded Japanese freighter *Handa Maru* broke up in 40-foot waves off Honshu, Japan. The Sikorsky H-19 lifted men to safety despite high winds. Note man in rescue sling, circled.

LIFEGUARD FOR TEST PILOTS, Sikorsky S-55 recently purchased by Grumman Aircraft arrives at company's Bethpage, L. I., airfield. Grumman will use the S-55 as a stand-by rescue aircraft while testing its Navy jet fighters off the Atlantic coast. Grumman's S-55 has a 600-pound rescue hoist and flotation gear.

ANTI-SUB SQUADRON HS-5 is first Navy unit being completely equipped with 14 large Sikorsky HSS helicopters. Based at Key West Naval Air Station, the new squadron is first of a number still to be formed which will fly the HSS. Eight pilots and eight crewmen are shown above at Sikorsky Aircraft in Bridgeport, where they were checked out in their new aircraft. The HSS tracks submarines with sonar gear and can launch torpedoes or lay mines. The high-performance helicopter also serves with other armed forces and, in commercial versions, is scheduled for airline passenger service this year in the U. S. and Europe.

HELICOPTER HISTORY

FIRST HELICOPTER AIRMAIL

On May 16, 1943, at the Capitol, U. S. mail was carried by a helicopter for the first time, commemorating the 25th anniversary of airmail. The Sikorsky R-4B was flown by Capt. (now Brig. Gen.) H. Franklin Gregory. Sikorsky helicopters now carry not only mail but freight, express, and passengers in regular daily service.

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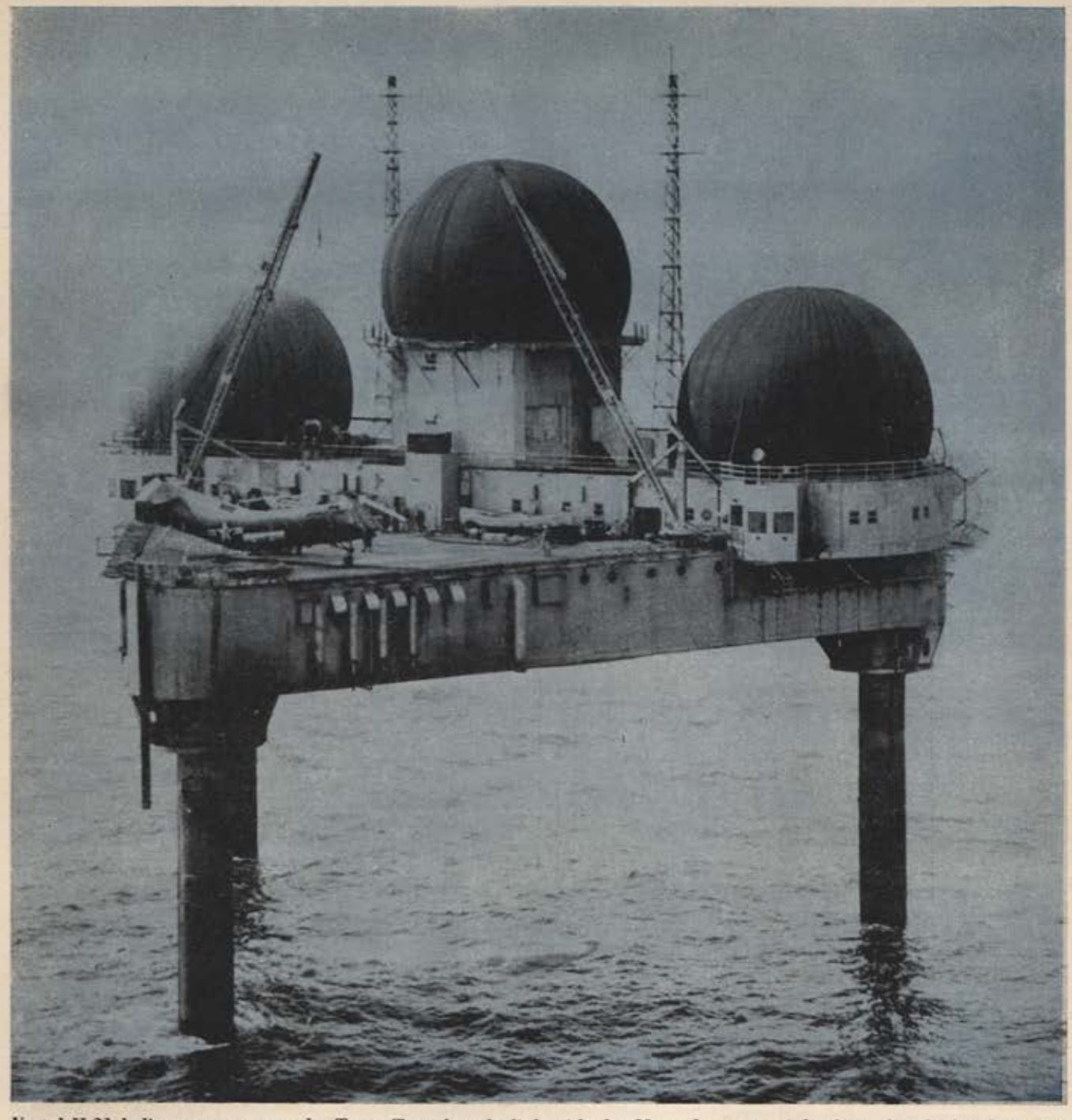

Vertol H-21 helicopters are now the Texas Tower's only link with the Massachusetts mainland one hundred miles away.

You Can't Go AWOL from a TEXAS TOWER

By Jim Winchester

PERHAPS the most frustrated man in the US Air Force these days is young Lt. Alvin D. Size. Graduated from the Naval Academy at Annapolis in 1954, he turned his back on the sea and elected to take a second lieutenant's commission in the Air Force.

Today he's farther at sea than many of his classmates. This sailor-turned-airman is assigned to the Air Force's revolutionary new Texas Tower—so-called because it resembles the oil-drilling rigs set far out in the Gulf of Mexico—a 200- by 200- by 200-foot man-made steel island planted on three tubular stilts some 110 miles out in the stormy Atlantic off Massachusetts's Cape Cod.

This first Texas Tower—a forerunner of a number of such bases that will eventually form an offshore early-warning radar rampart from New-

(Continued on page 75)

Cessna T-37 designed for Jet Training

To meet jet age demands, the U. S. Air Force requires a jet trainer that makes it easy for cadet-pilots to master first-line combat airplanes.

The Cessna-developed T-37 introduces the cadet to all combat jet airplane characteristics while training on this safe, easy-to-fly jet trainer.

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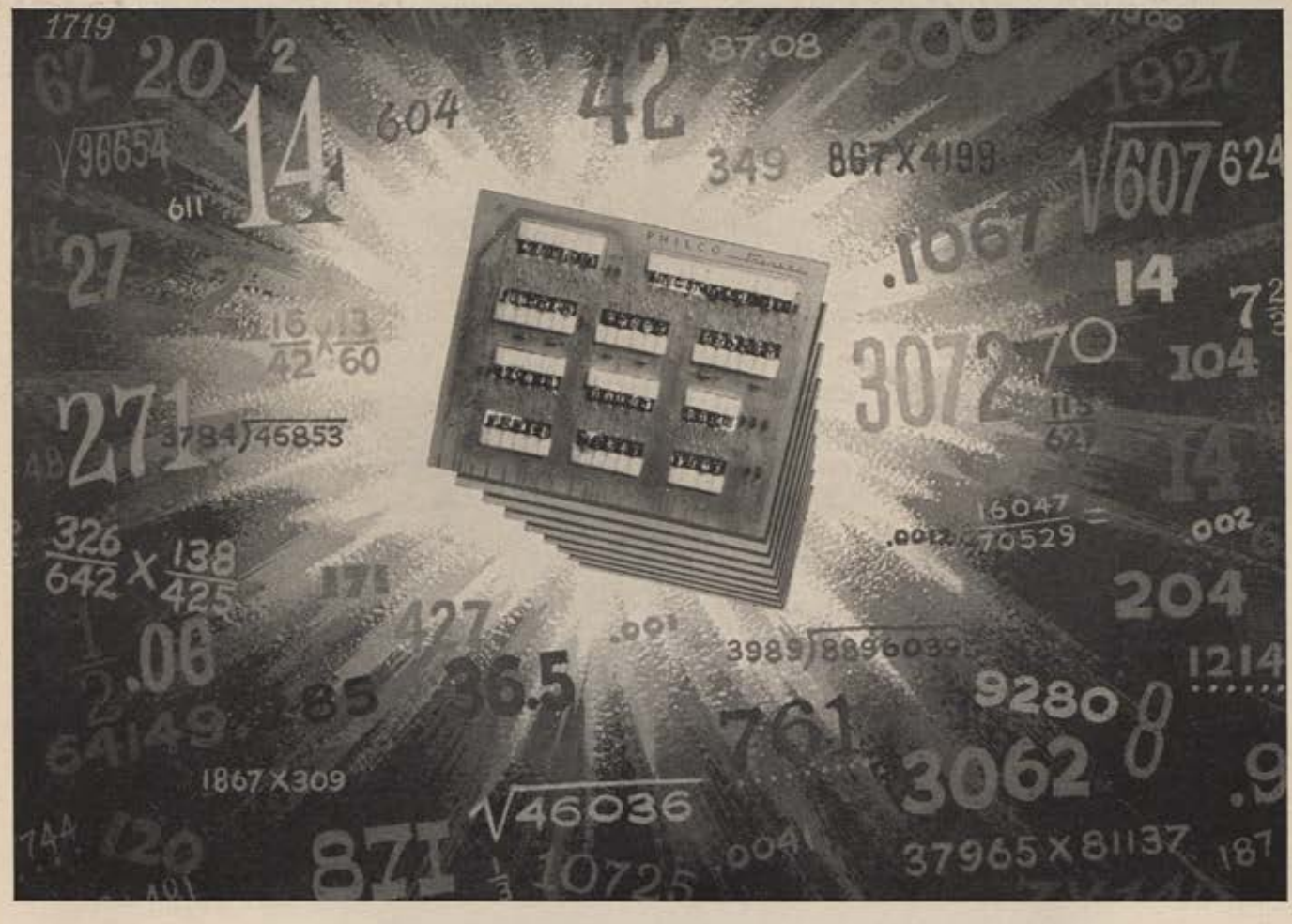

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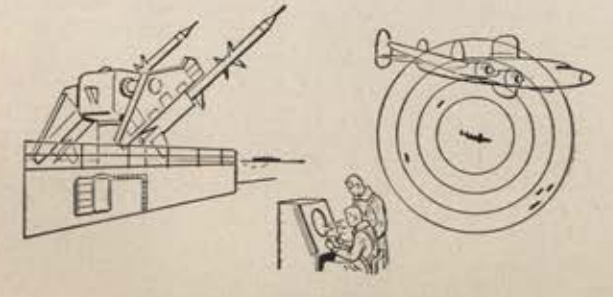

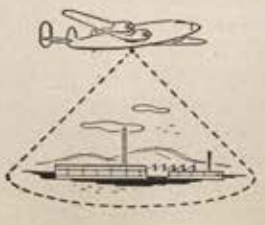

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transac — *Trademark of Philco Corporation for Transistor Automatic Computer*

foundland to Cape Hatteras—is a lot more "Navy" in character than "Air Force" in many other ways beyond the presence of an Annapolis graduate as one of its officers.

Built in a New England shipyard and floated to its present position, the structure is compartmentalized and bulkheaded like a battleship. The island, known as the Georges Shoal Tower Annex (named after the Atlantic shoal on which it rests) is attached to the Air Defense Command's 762d Aircraft Control and Warning Squadron, which is headquartered at North Truro, Mass. Though strictly an AF operation much of the lingo, and many of the procedures, adopted by the forty-three airmen and six officers assigned there has more of a salty tang than a wild blue yonder air.

The island itself, together with enough electronic gear to supply a city of 100,000, weighs some 6,000 tons. The airmen stationed there refer to it as the S.S. *Ridiculous*. The three floors of the Tower on which the men work and live are called "decks." The lavatories are "heads," and the stairs are "ladders."

AF Capt. Charles R. Nicholson, of Adamsville, Ala., and Capt. James Phelan, of Fall River, Mass., who alternate as the island's commanding officers, are both referred to as "skipper." S/Sgt. M. O. Wascher, of Milwaukee, who came to the Tower from an Air Rescue Service crash boat, has charge of the deck force, handling the lines and other ship-like activities. He's called "Boats," after the term applied to Navy boatswains whose duties are similar to his. The Navy tradition of coffee and cake on tap twenty-hour hours a day in the mess hall—the galley, that is—is also followed. And to complete the shipboard illusion, two twenty-six-foot lifeboats are lashed to the open top deck, ready for any emergency.

This unique Air Force installation, an integral part of a modern version of the Great Wall of China, provides the Atlantic seaboard of the United States with "eyes" against a sneak attack by an enemy air force. The second and third towers in this "wall" are expected to be in operation by mid-1957 off Nantucket Island and Montauk Point, L. I.

A number of Air Force and Navy planes and ships carry the radar watch even further to sea. Both the Air Force and the Navy fly huge, four-engined, radar-equipped planes, with thirty-one man crews, on around-the-clock patrols three and four hundred miles off US coasts. Because they fly at high altitudes these planes can "see" beyond the horizon with their radar and detect both high- and low-flying aircraft. In addition, the Navy operates a number of radar picket boats—some converted from World War II cargo ships—in a more-or-less permanent line several hundred miles offshore. The Navy also patrols our sea-approaches with radar-equipped submarines and blimps. All of these expensive devices are in operation for just one reason—to give the nation advance warning of any sneak attack from the air.

While the ships and planes in this warning net can patrol large areas, the Texas Tower is permanently planted in the water. The working part of this first of our man-made islands is contained in three decks, the lower one sixty-one feet above the sea. This deck contains air-conditioning machinery, emergency generators, fuel storage tanks, and steam boilers. Living and operational headquarters, along with a four-bed hospital, galley and dining hall, a movie theater, and a powerful diesel plant are on the second or middle, deck. And on the top deck, exposed to the raw elements of the North Atlantic, are a helicopter landing area, the balloon-like rubber and plastic domes covering the Tower's three radar antennas, and such other equipment as the lifeboats, cranes for unloading boats, and the like.

At present a Vertol H-21 helicopter, flying out of North Truro, supplies the Tower on a one-flight-daily schedule, weather permitting. Eventually four helicopters of this type will make the supply run.

The Tower is supported on three steel tubes, sunk forty feet down into the sand of the shoal on which the structure rests. The water at this point is fifty-six feet deep. This makes the structure, from the bottom of its supporting tubes to the top of its radar domes, higher than a thirty-story building.

The officers and airmen who man the Tower are carefully selected. The time they spend on the Tower counts as overseas duty. Each Texas Towerman spends thirty days on the Tower, then thirty days ashore at North Truro before going back for another thirty-day tour at sea.

Psychologically, when on the Tower, these men are attuned to uncertainty. Theirs is a tense world of what might happen, a constant watching and waiting for an enemy who could appear in five minutes—or never.

Everybody works shifts of twelve hours on and twelve hours off. To

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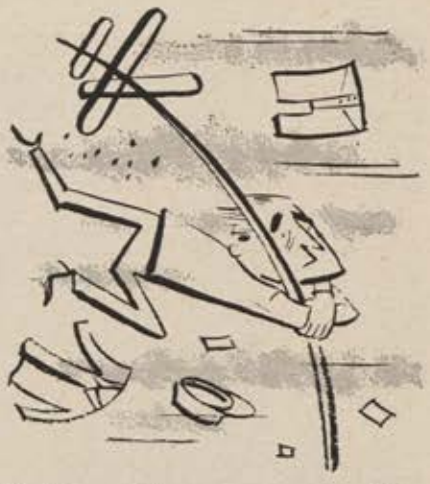
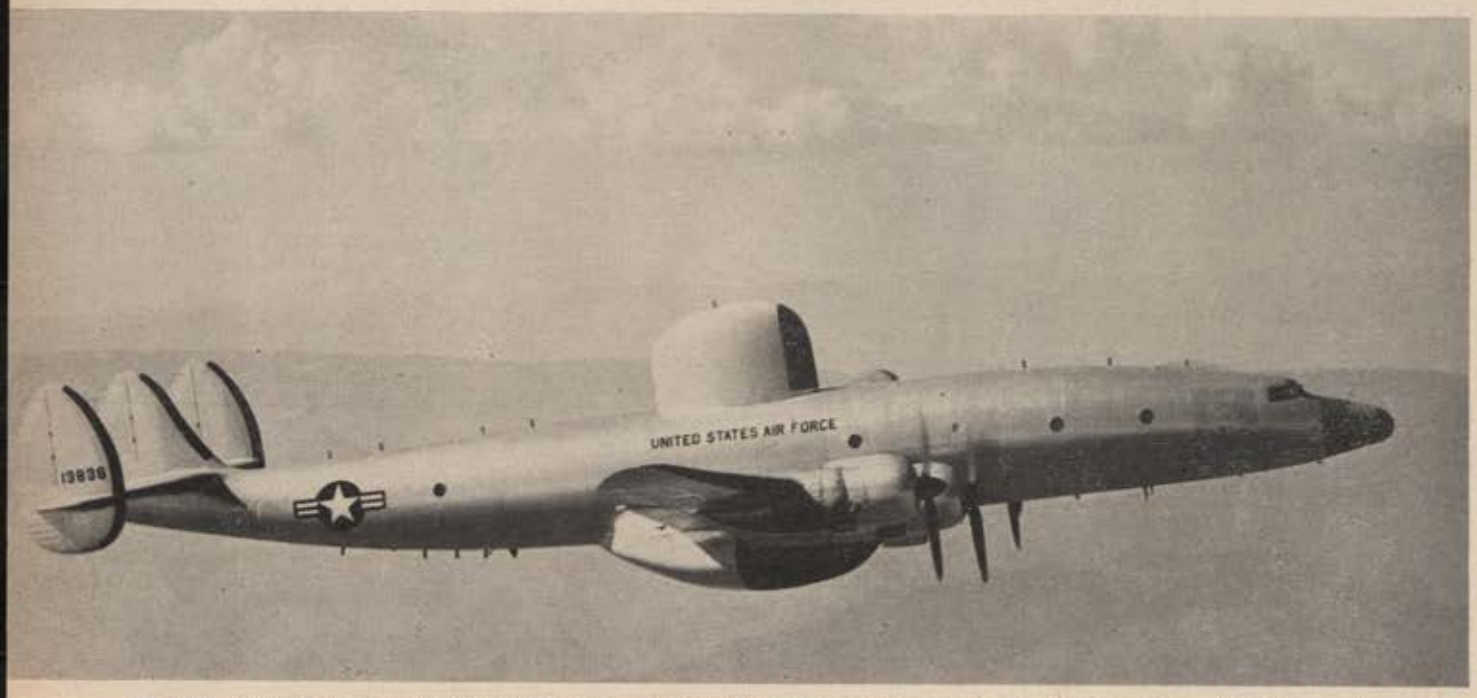


Howling winds sweep away everything on the Tower that isn't tied down.

Limited to two beers per day, you do best to find friends who don't drink.

Officers and non-coms watch for what is called "that look," which tells them a man's ready for shore duty.



Huge, radar-packed planes like this Lockheed RC-121C play a vital role in our growing chain of early warning radar.

keep the men occupied and happy in their off-hours, the Air Force furnishes a variety of playtime equipment—badminton sets, checkers, chess, punching bags, medicine balls, volley balls, golf balls (they drive the balls into the sea) photo kits, model plane kits, fishing gear, table tennis, and deck shuffleboard, all in addition to television sets, movies, and a well-stocked library.

"Actually," reports Captain Nicholson, "the men on the Tower don't feel nearly as cramped as men assigned to, say, submarines."

Still and all, though, assignment to the tower isn't as free-and-easy a life as duty at an average air base.

"There's one consolation, though," quips S/Sgt. Norman Sandnes of Chicago, a radar maintenance man assigned to the Tower. "The AWOL rate from here is very, very low."

Both the officers and the non-coms keep an alert eye for men who get what they call "that look" in their eye.

"It's a sort of vacant stare out across the water," says Sergeant Sandnes. "When we see it, we know it's time for the guy to be rotated back to the Cape for a few days, whether his thirty days are up or not. We make sure he's on the next helicopter bound for the mainland."

The best remedy for the confining life aboard the Tower though is work and plenty of it.

"Everyone here is a jack-of-all-trades," reports Captain Nicholson. "Our radar mechanics jump in and help run the laundry. Our cooks help unload supplies on deck. We are undermanned here—on purpose. It's part of our morale-planning to keep the men busy—and happy!"

Shortly after the Tower went into operation, high seas and bad weather kept either ships or helicopters from servicing the Tower for more than two weeks. After seeing all the available movies several times, the men finally set up a home-made bingo game for amusement. The top tournament prize, which was won by S/Sgt. C. E. Anderson, a communication specialist, consisted of breakfast in bed the next morning.

Airmen on the Tower have long since learned not to leave clothing or other articles lying around on the open deck. The howling winds, unbroken as they sweep across the sea, whip away everything not tied down.

"The wind is so strong," Sergeant Sandnes reports, "that it bends our TV antennas over at ninety-degree angles, even though we mount them on two-inch pipes."

Beer (two cans per man) is served in the dining hall during a thirty-minute "bar" period every night. No hard liquor is allowed. Similarly, no women—military or civilian—have yet visited this isolated, man-made air base.

"We're hopeful, though, that maybe someday they'll send a USO show our way," Captain Nicholson said somewhat wistfully.

Once a month, Chaplain Jefferson E. Davis, from Otis AFB on Cape Cod, flys out in a helicopter to conduct non-denominational religious services for the Tower-based airmen.

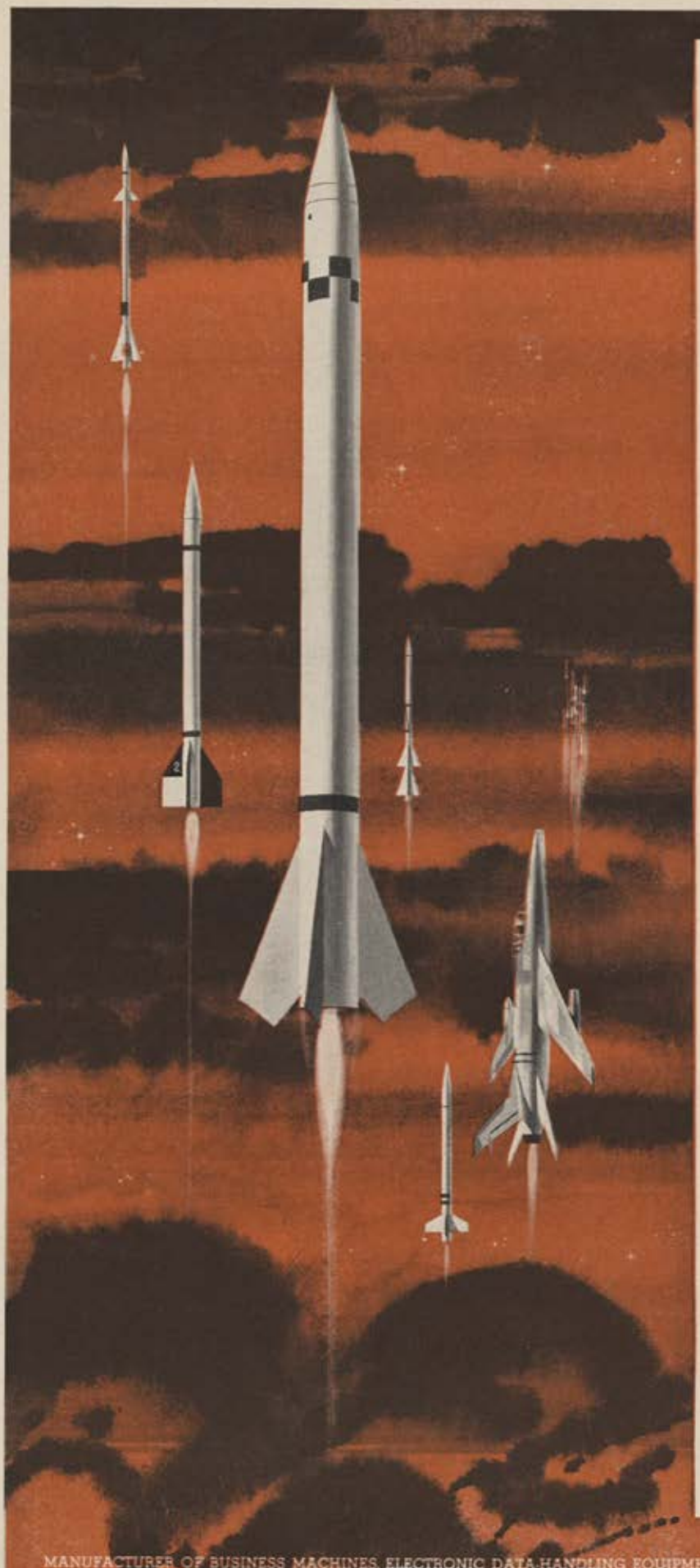
The big thing, though, to the airmen assigned to this isolated and lonely radar platform is the fact that they know they are doing an important job.

"Maybe nothing will ever happen here," one of them sums it up. "But we have to be on the job in case anything ever should. When you take out an accident insurance policy, you don't think you're going to have an accident tomorrow or the next day. That's silly. You take it out for the one-minute period maybe two or three years from now when you may get hit.

"That's what we are out on the Texas Tower—insurance for the United States."—END

About the Author

Well traveled is the only word for Jim Winchester. He figures that he visited no less than 87 countries during World War II when he was a war correspondent. Now a feature writer for King Features Syndicate-N. Y. Mirror Magazine, Jim's still very much on the go. At press-time he was on a trip to Mexico. His home is in Pleasantville, N. Y.



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What's Wrong With Base Ops?

An area that has shown little progress or development with the passage of years is in the base operations field. This is apparent to most pilots and crew members who have flown in and out of a majority of Air Force installations, both in the ZI and overseas. No continuity exists. Procedures run the gamut from none at all to complex and impossible.

It is obvious that everyone likes a smooth, well-run, orderly operations. It is conducive to starting a pilot off in the proper mood and frame of mind. Every flight a pilot makes today should be considered as important as an actual combat mission. The time spent in proper flight planning, correct briefing, over-all diligence and care in his pre-take-off tasks will enable the pilot to accomplish his mission safely and effectively.

Operations personnel at a number of base operations offices seem to think that pilots and crew members are to be merely tolerated. Service and assistance is often poor. Generally the pilot and crew are lucky if they get transportation to their aircraft, let alone any real help in more important problems of aircraft clearance, flight planning, briefings, or traffic control procedures peculiar to that particular station or area.

What then is specifically wrong with our base operations organization and how can we improve it? Here are the critical problem areas:

Duties of the base operations officer as presently outlined in Air Force Regulation 20-47.

Personnel performing duty as aircraft clearance officers.

Layout of base operations offices.

Flight planning, briefing facilities and clearance procedures.

Air Force Regulation 20-47 specifies the duties and responsibilities of the base operations officer and assigns specific responsibilities to him. The base operations officer is considered to be one of the key officers on an air base. His job in civilian industry would be comparable to that held by the general manager of large commercial airdromes. He is responsible for everything that occurs on his airdrome—the safety of aircraft and personnel, orderly and expeditious control of air traffic, maintenance and upkeep of the flying field and its approach zones, instrument procedures and their coordination with CAA, promotion of the flight safety program, adequate flight planning and briefing facilities, clearing authority for the base commander, plus other duties.

It should be apparent that if the base operations officer is to effectively accomplish his job, he should not be responsible for additional duties that distract from his primary task. Air Force Regulation 20-47 specifically assigns the base operations officer the following duties which it is felt should be the responsibility of the flight operations officer.

- Form 1's and 5's records section.
- Check-out, flight proficiency and flight scheduling of base and attached pilots.
- Personal equipment.
- Issue orders, make reports, and maintain records and files pertaining to airbase flight operations.

The primary responsibility of the base operations officer and his staff is the clearance of aircraft on cross-country flights. Directly associated and closely paralleling this primary responsibility is his equally important responsibility as the overseer and manager of the airfield and its attendant facilities. These responsibilities alone are more than enough to keep the base operations officer busy.

The procedures followed at a majority of Air Force bases in the selection of aircraft clearance officers is also unsatisfactory. Personnel are not qualitatively selected, but are merely rosterized and fed into the base operations office for a twenty-four-hour tour of duty. They generally perform a dual function, that of airdrome officer and as aircraft clearance officer.

Not being trained or skilled in the field of clearing aircraft, this officer is seriously handicapped in properly discharging his duties as a direct representative of the base commander. This delegated authority to act as the aircraft clearing authority is granted only to Air Force commanders and Flight Service commanders by Air Force Regulation 60-16.

The responsibility vested in clearing aircraft is great, and due care must be exercised by the individual assuming the duties of clearing authority. Section V, paragraph 42a, of Air Force Regulation 60-16 says: "The clearing authority will assure that the proposed flight is to be conducted under proper flight rules, that all applicable flight requirements and regulations are complied with, and that the aircraft is suitable and pilot is qualified for the type of flight contemplated."

Every flight presents a slightly different problem. Consequently, studying flight plans and authorizing their clearance is a duty which must never become routine, nor should it be delegated to personnel who are not qualified by training and experience.

Aircraft accident investigations reveal that regulations regarding flight rules, minimum safe altitudes, fuel requirements, alternate airports, radio contacts, and weather minimums have been brushed aside in many cases as inconsequential. Pilots have even been cleared on flight plans which could not possibly be accomplished. Statistics show that when current regulations are observed and a moderate amount of common sense is used by the pilot and clearance officer, accident rates are lowered substantially. Common sense, unfortunately, cannot be covered by rules and regulations. Nevertheless, it is all-important in flying. Whenever a pilot indicates that he lacks common sense in planning a flight, the clearance officer must supply it for him. Comparatively few pilots need such careful supervision, but these few need it badly.

The last individual to check a proposed flight plan and to make whatever changes are necessary before take-off is the person signing the clearance. It is his responsibility to take every step necessary to be certain the flight starts, proceeds, and

(Continued on page 83)

NATIONAL AIRLINES

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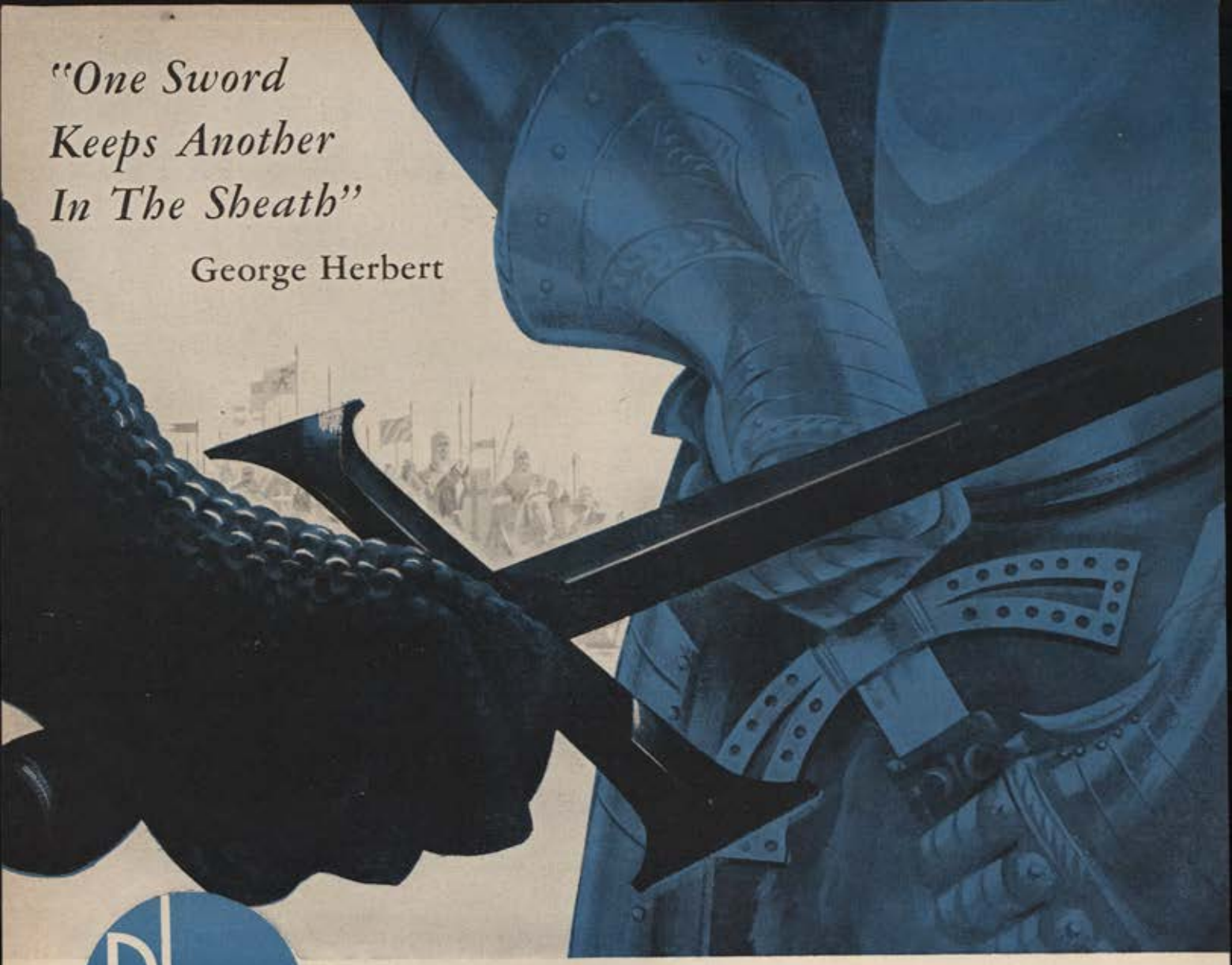

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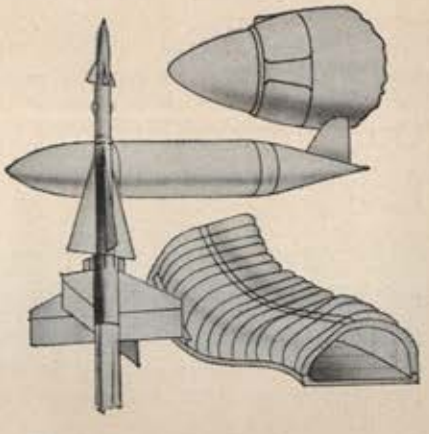

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ends with safety. A clearance officer who signs every clearance handed to him without further investigation is inviting serious trouble.

The picture is further complicated by the fact that "military necessity" is frequently a factor to be considered. However, "military necessity" may too often be used when in reality the term should be "personal desire." Even a "military necessity" flight is of no use if the aircraft crashes and is destroyed before the mission is completed.

It should be apparent then, that since such great importance is placed upon the responsibilities of the aircraft clearance officer, Air Force commanders should insure that only a limited number of the best qualified personnel are assigned to perform such duties. This would permit the base operations officer time in which to adequately brief and train this highly select group. It would also permit the continuity essential to this vital function and eliminate the present deficiencies. And there is no reason why field grade officers should be excused from performing such duties.

One of the primary duties the base operations officer is concerned with is the actual facilities and building used by operations and flying personnel. The operations building itself should be planned and laid out with an eye to efficiency.

A standardized base operations layout would permit a much more efficient and effective operation through its uniformity. Operations personnel as well as pilot and crew personnel would benefit.

Closely allied with, if not synonymous with standardized base operations layout, is the problem regarding flight planning, briefing facilities, and aircraft clearance procedures within our today's Air Force. To say that these facilities and procedures are uniform, which they should be, is completely erroneous. There is no reason though why they should not be.

In order to properly brief and clear all flights, the base operations section—specifically the briefing and clearance section—must maintain and keep up-to-date certain materials and publications. These items include a distance map of the US, including a protractor and a measuring device, a diagram of the local flying area, a diagram of the flying field, a prominent display of the instrument letdown procedure, and profile map of the area within 500 miles of the field and showing profiles of the most common routes flown from that base. The publications which should be available for the use of pilots and briefing personnel are:

The Airmans Guide, Notices of Airmen, Radio Facility Charts, Supplementary Flight Information Document, PHACUS, Danger Areas map, NOTAM Q Code, Aeronautical Charts, Pilots Information File, Flight Plans/Flight Logs, and Air Force Regulations pertaining to flying.

All of this material should be prominently displayed where pilots, crew members and operations personnel can have ready access to it, not hidden in files or under the counter.

Headquarters USAF should publish a standard briefing check list that will be utilized by the pilot as well as by briefing and clearance personnel prior to clearing an Air Force aircraft for flight. The check list should cover conventional and jet aircraft separately as well as VFR or IFR flights.

Headquarters USAF should also publish a standard flight plan and flight log for use by Air Force pilots. These standardized forms would be specifically designed for either conventional or jet aircraft. Adoption, Air Force-wide, of these standardized forms would be of considerable assist-

(Continued on following page)

ance to pilots as well as briefing and clearance personnel. It would emphasize adherence to a detailed and complete check list for flight planning and clearance purpose. It would eliminate the different flight plan/flight log forms presently in existence at each Air Force base, which are confusing and in themselves a potential hazard to safe flight planning and in-flight navigation as well.

Pilots should be required to "slip" their proposed flight plan and log prior to each flight. On IFR flights a duplicate copy should be left with their Form 175. If this procedure were adopted it would place the necessary emphasis on this highly important factor of thorough and adequate flight planning and procedures on a professional level commensurate with commercial airline operations. Pilots and crews would take pride in effecting their operations on the split-second timing basis essential to a well planned, organized mission.

As the number of jets in the Air Force inventory continues to increase, the problems associated with the briefing, clearance and control will become untenable unless positive steps are taken to develop adequate procedures to handle them. The capabilities and limitations of jet aircraft are not understood by all agencies responsible for their clearance and air traffic control, or, unfortunately, by all senior Air Forces officers. Clearance and air traffic control procedures which were developed for conventional, propeller-driven aircraft with comparatively slow speeds, low altitudes of operation, and relatively no limit on the time element are entirely inadequate for jet operations. Each echelon of command must be made aware of this fact, and must assist in the development of procedures that will be adequate for jet operations.

The adoption by our Air Force of the changes suggested will enable safer, more efficient pilot and aircraft operations from the point of initial filing to the point of first intended landing. It is firmly believed that if these proposed changes are placed into effect, the USAF will realize a reduction in its over-all aircraft accident rate. If it is possible to reduce the Air Force accident rate, the overall strength of our airpower will be increased in direct proportion to the decline in aircraft accidents. In these days of international tension and indecision, nothing can be left undone that will help to keep America strong in the air!

Major John T. Hanton

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Development of the power plant for the RV-A-10 stems largely from Thiokol's "systems" concept of rocket motor development. Under this concept of rocket motor design, all of the requirements of the missile are taken into consideration before the propulsion unit is put on the drawing boards. The motor's thrust, duration, size and shape are all governed by the specific application for which the unit is intended.

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Some people believe that military men cause wars. Actually, men like this SAC B-47 pilot are our bulwark of peace.

Let's Make Military Life A Wanted Career

By Brig. Gen. Dale O. Smith

A RECENT Gallup poll showed that most American boys consider enlisted service an odious task, to be avoided if at all possible, while adults rate garage mechanics above servicemen. Recruiting and reenlistment problems are critical, and if it were not for the pressures of the draft, volunteers would be as scarce as fish in the desert.

Why are those few Americans who are willing to dedicate their careers to the defense of their country regarded as second-class citizens? The fact is that peacetime military service has never been highly regarded in this country. Military life has always been contrary to the "traditional American way."

The American aversion to war has given rise to many myths about the military. One of these is the notion that the military somehow cause war. Military virtues and ideals have suffered through ridicule and subtle condemnation. And there is even some evidence that our schools have tended to perpetuate anti-military prejudices.

Actually the military have had little, if anything, to do with causing American wars. Yet constant attention is given to civil control of the military. Although there has never been a military *coup* in the history of this country, efforts to keep the military "controlled" by civil leaders take on proportions that seem entirely unrelated to the danger. Doesn't this indicate general distrust for the man in uniform and give substance to the belief that, if he should achieve high place, he would lead us into war, or at least into dictatorship?

Washington, Jackson, and Grant were all military men who kept us at peace while in office. This historical evidence should refute the fear that military leadership leads to war or dictatorship. As recently as 1947 Congress

(Continued on page 89)

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U.S. Army Photograph

Electronic specialists at Ft. Monmouth SCEL Laboratories checking out radar and computing system designed for field use.

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This is one of a series of ads on the technical activities of the Department of Defense.

102

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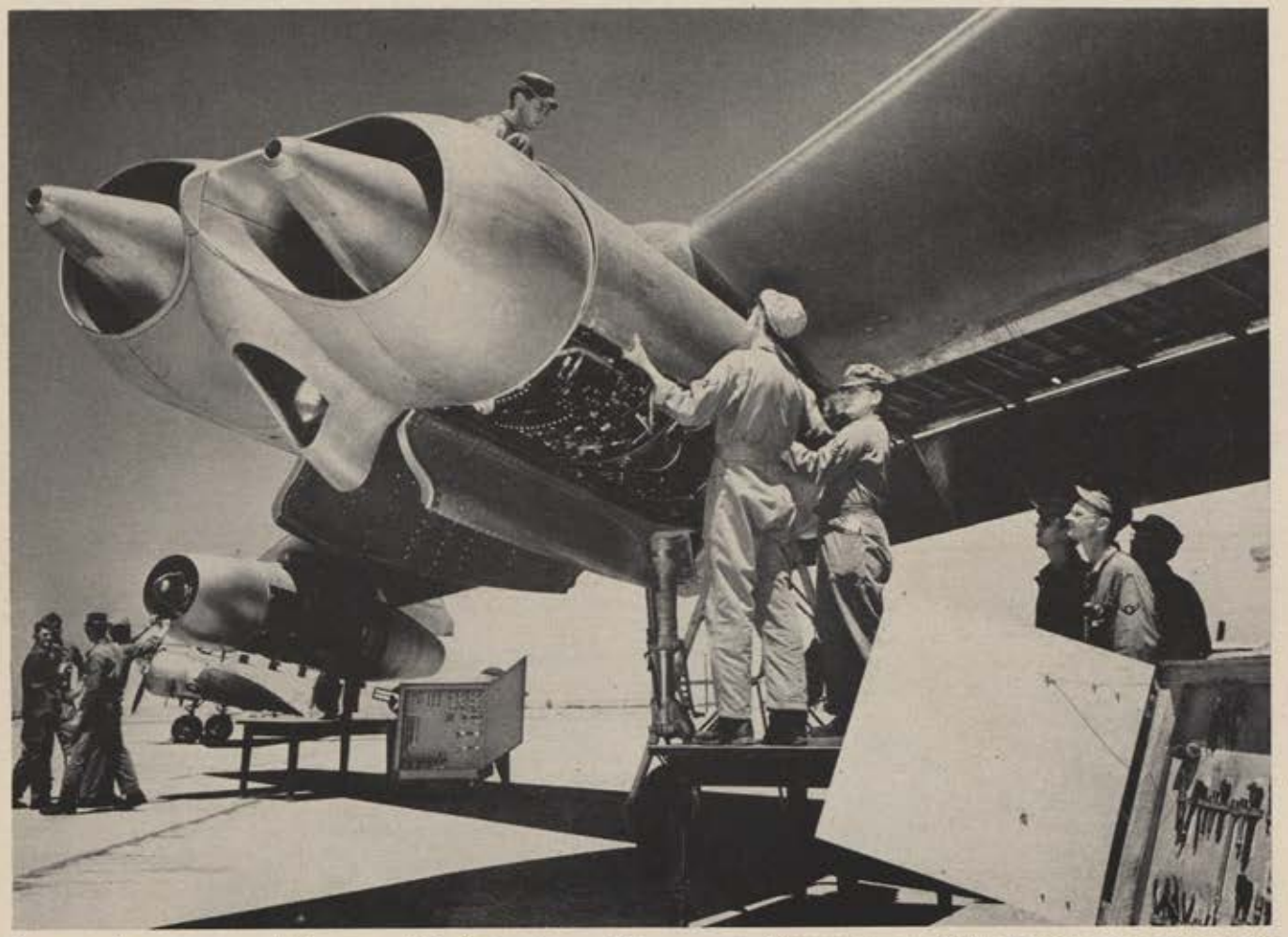

Low pay is one reason civilians see little future in a military career. These men would likely make more "outside."

passed a law that prohibited a professionally trained military man from becoming Secretary of Defense. This, of course, was to assure civilian control of the military.

It would be as logical to accuse the medical profession of causing disease as to blame war on the military. The doctor tries to keep the individual healthy; the military man tries to keep the nation healthy. He specializes in the most urgent political disease—war. Like the doctor, he practices preventive medicine, but if the disease of war nevertheless breaks out, the military man must resort to the painful surgery of battle.

The apprehension that the military man may cause war or dictatorship may possibly go back to periods when practically all statesmen and politicians were also military men, like Caesar and his successors. But in today's age of specialization, the military profession has broken off from the political and concentrates on problems of war alone. There have been enough politically trained dictators (Mussolini, Hitler, Stalin) to lead us to believe that the drive for absolute power does not necessarily rest uniquely with military training.

There's another myth that the military and democracy are inimical. Yet the first successful democracy, Athens, rested squarely on a military society. And, in the most ruthless and severe dictatorship of modern times, in Soviet Russia, the military has thus far been controlled by the civil order.

Despite these myths, America has been able to produce a small body of military professionals. These men have sworn to defend the American ideals with their lives, and thus their very dedication may tend to set the military apart from other professions. Also, because of our society's anti-military bias, the military has tended to remain more or less separated from the civil world, to retain its pride and dignity. As a result the military isolated itself on posts and bases, apart from the civil order it was sworn to defend. Thus shielded, military men were able to generate the self-respect necessary for success in any difficult endeavor.

This military-civil separation worked fairly well until just after World War II when the size of the peacetime military body became so big as to demand a large and regular input. The drama of war was missing, and the coercion of the draft seemed the only solution to maintaining the necessary standing forces. You can hardly expect to get the best performance from anyone by impressing them into a profession against their will. Fortunately, this method of recruiting has not seriously shaken the basic military ideals. It has, however, diluted the skill and the general reputation of the profession.

Isolation from civilian society is no longer possible. Many professionals are beginning to question the worthiness of their calling after rubbing shoulders with the majority of Americans who consider the military something less than virtuous. Since World War II the degradation

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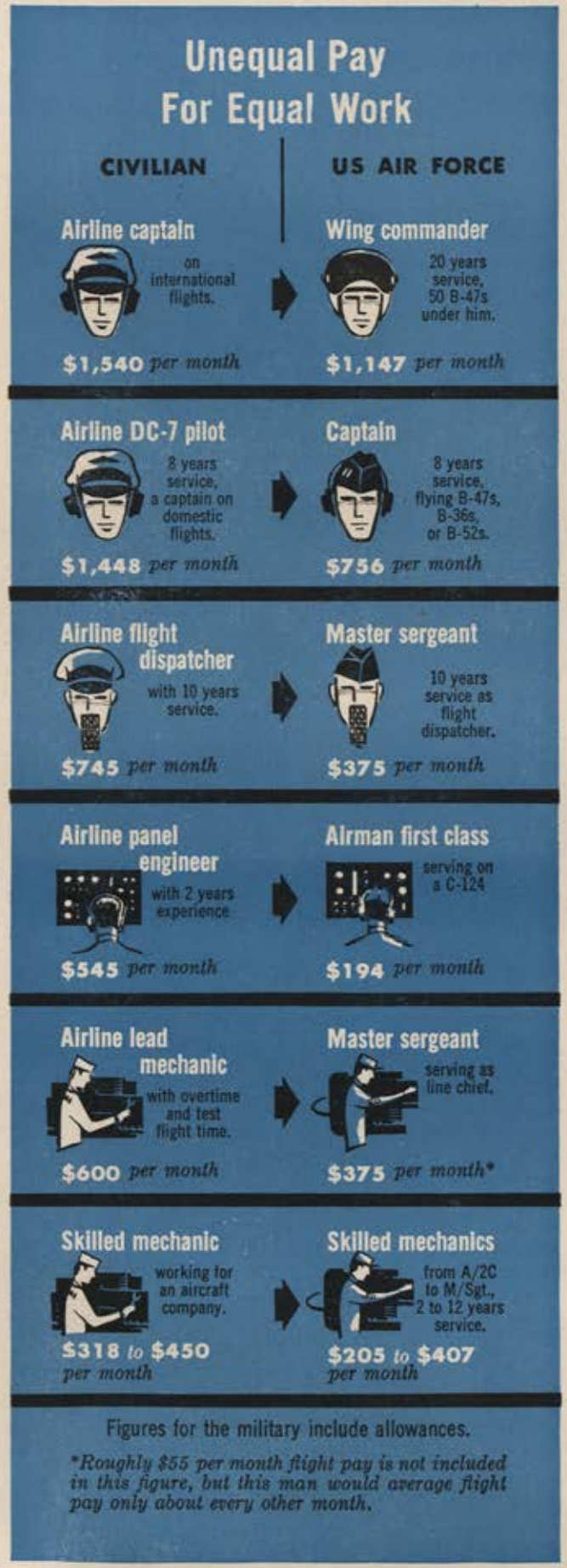

of the military profession has sunk to a new all-time low.

What can be done by those who still believe in the nobility of the military profession? Those of us in service devoutly believe in the rightness of our calling. What can we do to overcome this continual abasement?

There can only be one answer. If we are to be integrated with the civil order—as we most certainly are today—we must somehow change the American attitude toward the military. The first step, of course, is to behave with dignity and pride. We must believe in our ideals, live up to them, practice them. Our behavior must be above reproach.

But this is not enough. We must shuck off the vestigial remains of our isolated past which do not fit in with civilian custom and which have dubious military value in any case.

We call ours a profession, for example, albeit a learned profession. Certainly there is more than enough to learn to make it so. But this belief of ours is not shared by other professions. We give no military degrees. Our advanced schools are more often packaged indoctrination courses as opposed to educational programs to inspire personal study and curiosity. Our military standards of learning are not generally accepted by scholars. Rarely are military courses accredited, and the military profession sees minor importance in this matter. To gain respect, military education must become accepted by the educational world.

Another problem, harder to solve, is pay. We must gain a pay system which will attract good people to the profession, voluntarily. When we were isolated from the civilian community we could—through mutual support, co-ops such as PXs, and by choosing entertainment of our own making—live on a par with our civilian contemporaries. But today, competing with civilians on their own level we're at a distinct disadvantage. No wonder civilians fail to see a future in military career.

Some people say that the dedicated military man doesn't perform his dangerous tasks for pay. Could any pay check compensate for the dangers of supersonic flight or crash-diving a submarine? Habitual handling of high explosives and machines of destruction is not the kind of work that you can reward with money alone.

Yet money is the greatest standard of success and prestige in our society. The military cannot take its rightful place among American professions as long as it compares so unfavorably with other careers in terms of financial reward.

Integration of the military with the civil community has led too many military people into adopting some of the same myths that are so destructive to the military. Even some professional military men repeat the myth that the United States could not afford to pay its armed forces enough to compete with the pay scales of industry. The government can afford to compete with the Soviets in terms of military hardware—planes, tanks, guns—at rates never before dreamed of in peacetime. Is it not anomalous that the richest country in the world supposedly cannot afford to appropriately compensate its military personnel? That they must be impressed into service? Could the industrial profit motive be dominating our national defense structure in opposition to clear-headed military policy?

No one can say precisely how much could be saved by going to a truly voluntary, competitive, career system. Vast training expenses caused by the treadmill system of short tours of obligated service would be drastically reduced, but much of this saving would have to be plowed

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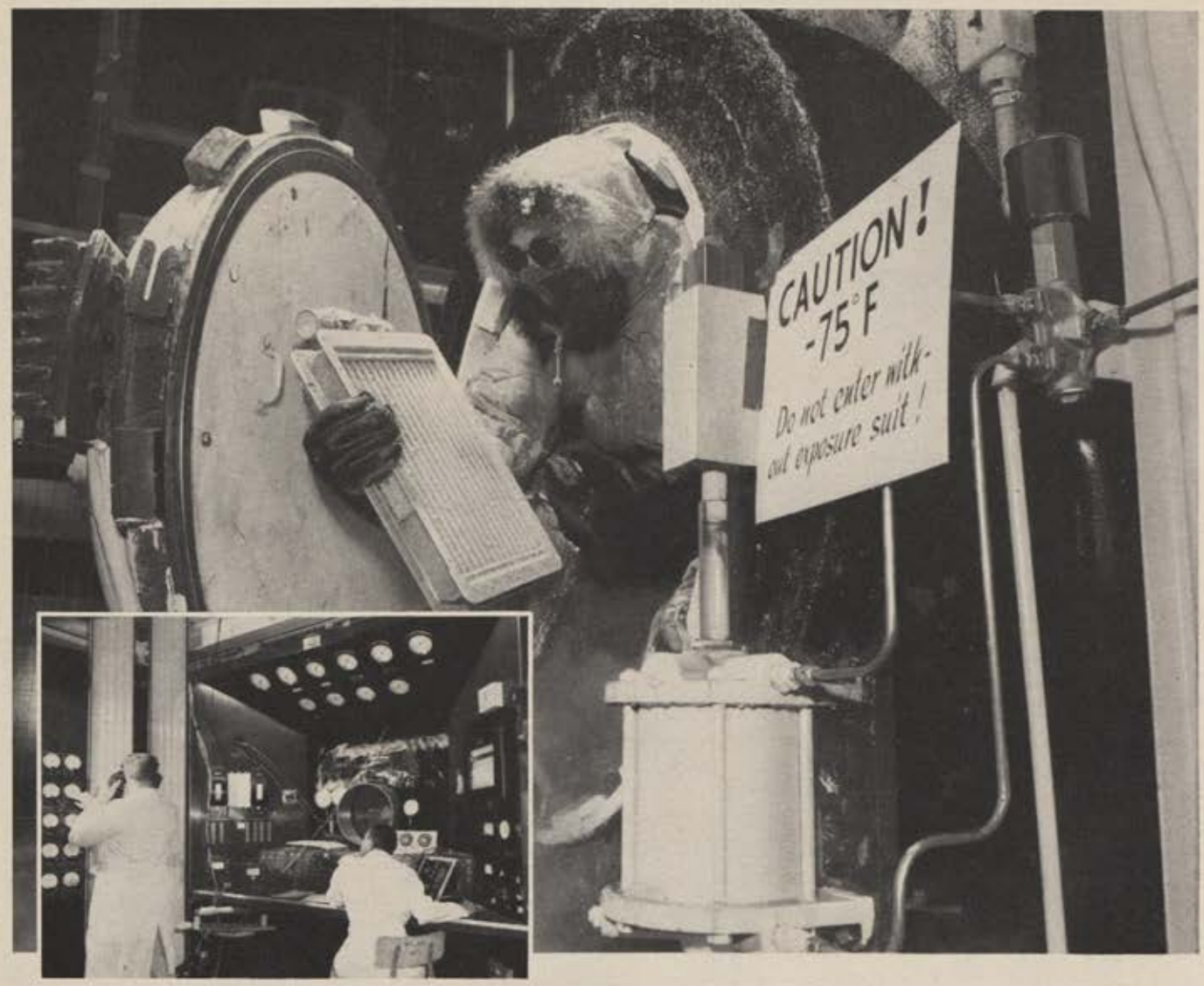

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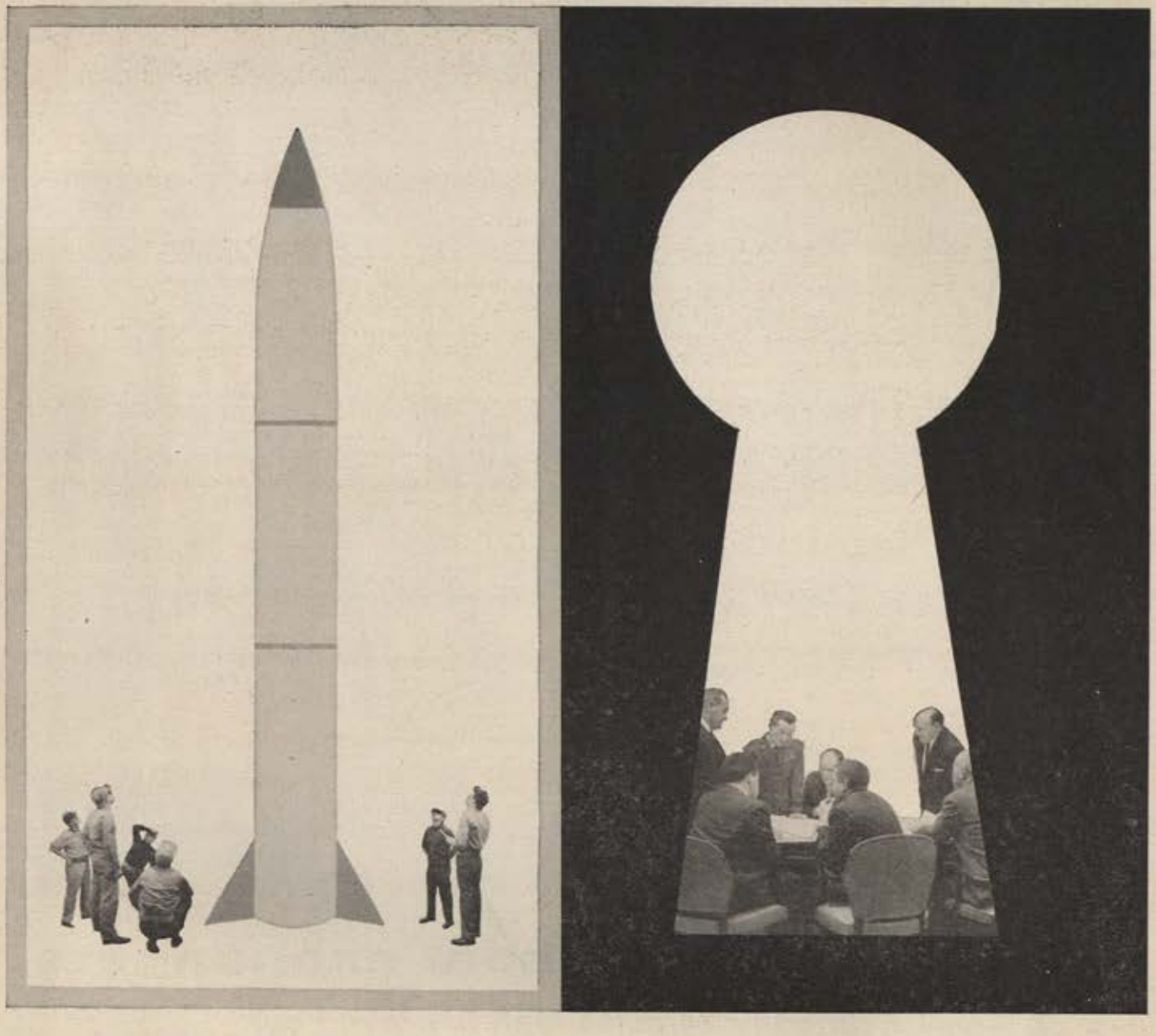

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back into higher pay, better housing, etc. The financial argument is cogent, but the one which clinches the issue is the need for a top-notch professional force.

Nuclear war would strike with terrifying suddenness. No mobilization would be possible before the major issue had been decided in supersonic actions that could wipe out whole nations. Only the best military skill, knowledge, and strategy can assure our salvation. It is blind to wish away these hard facts of modern war. Yet we do it, even in the armed services.

Finally, the armed services could gain much civil respect by presenting a more unified front to the public. Downright military effectiveness for national defense, irrespective of service interests, should be the aim.

We in the separate services must cease our bickering over roles and missions, weapons responsibility, manpower, and budgets. The hour is late. We must face the awesome problems of modern war, regain the respect of our noble profession, and create the finest military forces that the genius of America can provide. Only in this way can we perform our ultimate responsibility of protecting our country from military devastation and defeat.—END

The views expressed above the those of the author and are not to be construed as reporting official or unofficial policies of the United States Air Force or any other government agency. General Smith is the author of a recent book, US Military Doctrine, *published by Duell, Sloan & Pearce-Little, Brown. General Smith is a frequent contributor to* AIR FORCE. *His byline last appeared in our January '56 issue over the article "Spit but No Polish." He also wrote the article "Who Says the Air Force Has No Tradition" in the September '55 issue, and "Airpower in Limited War" in the May '55 issue.—The Editors.*

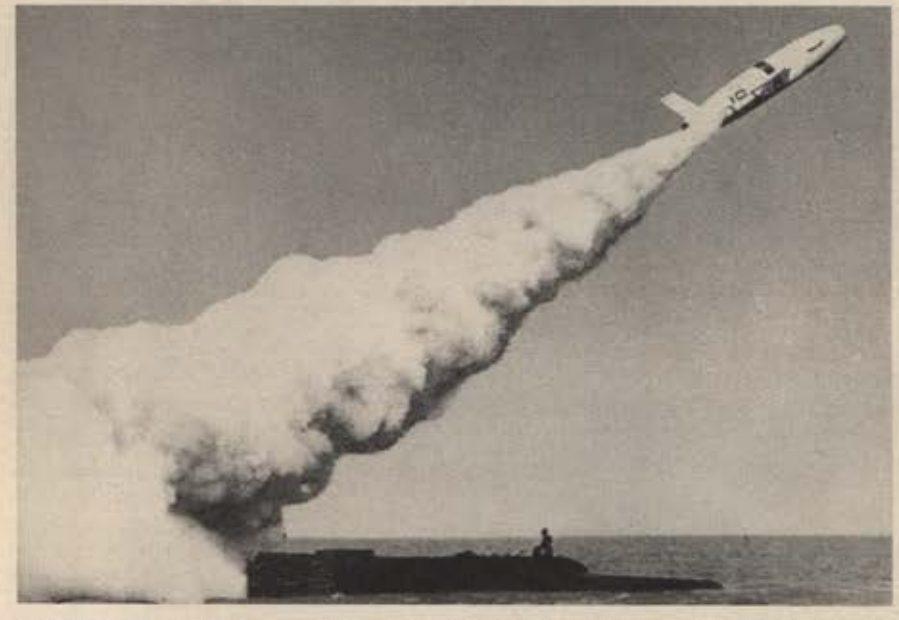
Combine a low pay scale, compared with what skilled technicians like these could make in industry, with an increasing lack of dignity and pride in profession, and you can see why it's tough to keep good men in uniform.

It's a pretty bad sign when the public thinks of men like this flight engineer on a B-36 as second-class citizens.

Tech Talk

By Bob Strobell

The Air Force has unveiled a new version of the Northrop Scorpion, the F-89H. It is the **first operational airplane to carry the Hughes Falcon** air-to-air guided missile (*see cut*) as standard armament. The missiles, carried in wing tip pods, extend through the sides of the pods to a launching position. The Falcon need not be aimed accurately at the target since it contains a guidance system that **automatically seeks out the selected target.** The pods also contain folding-fin, non-guided rockets.



Navy's Chance Vought surface-to-surface guided missile Regulus is launched from the submarine *USS Tunny* in a test somewhere off the California coast.

Air Research and Development Command scientists have achieved the first step in unlocking the vast storehouse of energy in the upper atmosphere. In March an **Aerobee rocket,** carrying **nitric oxide gas** under high pressure, was sent to an **altitude of sixty miles** above Holloman AFB, N. Mex., where it released the gas. Observers saw what first appeared to be the formation of a new star, **nearly twice the brightness of the planet Venus.** In less than ten minutes the "star" had grown in size and appeared to be about four times the diameter of the moon. Increasing the natural amount of nitric oxide in the atmosphere by a factor of several million resulted in the **release of stored sunlight** in vast quantities. Sunlight entering the atmosphere breaks two-atom oxygen into single-atom oxygen. Nitric oxide has the property of bringing two oxygen atoms together to form an oxygen molecule and thus release light. During the experiment, scientists **bounced radio signals from the charged cloud** in the same way that radio waves are bounced from the ionosphere and allow **long-range communication.** Man-made ionospheric clouds produced in a series may pave the way for effective long-range communications, the experiment indicates. According to ARDC, these experiments may eventually lead to ways of extracting this energy for such uses as the propulsion of rocket ships.

The Stroukoff-Fairchild YC-123E has recently **completed a series of arctic type test flights** at Lake Bemidji, Minn., for the Air Research and Development Command. This "Pantobase" (all-surface) airplane **took off and landed on soft, dry snow,** and on surfaces consisting of sixteen inches of slush during the tests. One flight was accomplished from snow and ice at a record gross weight of 55,165 pounds, more weight than had previously been flown under such conditions. The YC-123E has already **been tested on unprepared surfaces of sand, sod, smooth water, rough water with four-foot swells, and conventional runways.** The airplane is amphibious and can perform assault, cargo, and rescue missions on unprepared surfaces.

Hydrostatic (water pressure) tests are being conducted on the **Lockheed C-130 Hercules,** turboprop transport at Marietta, Ga. These tests will **reproduce the stresses and strains** imposed on the airplane during flight. The Hercules flies at high altitudes, and its entire fuselage is pressurized and air conditioned. These tests will reveal weak points on the airframe

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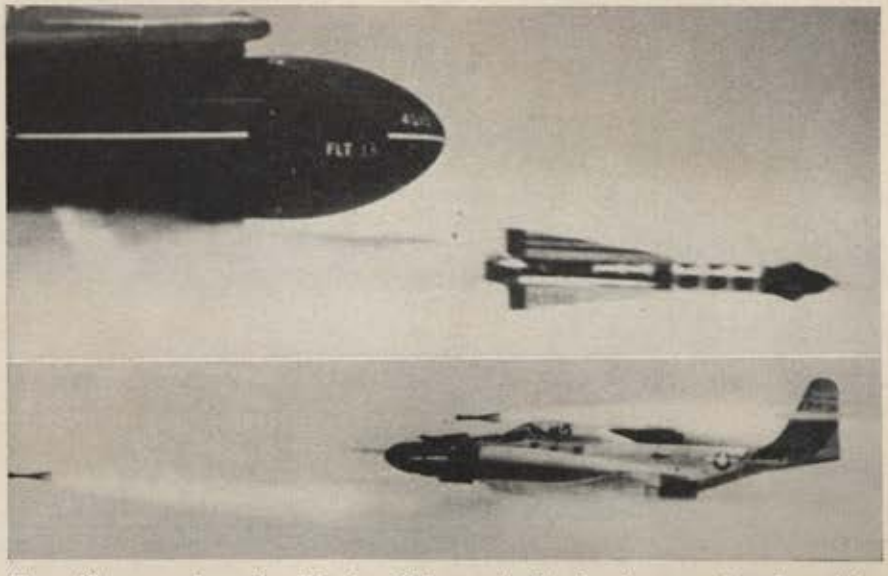
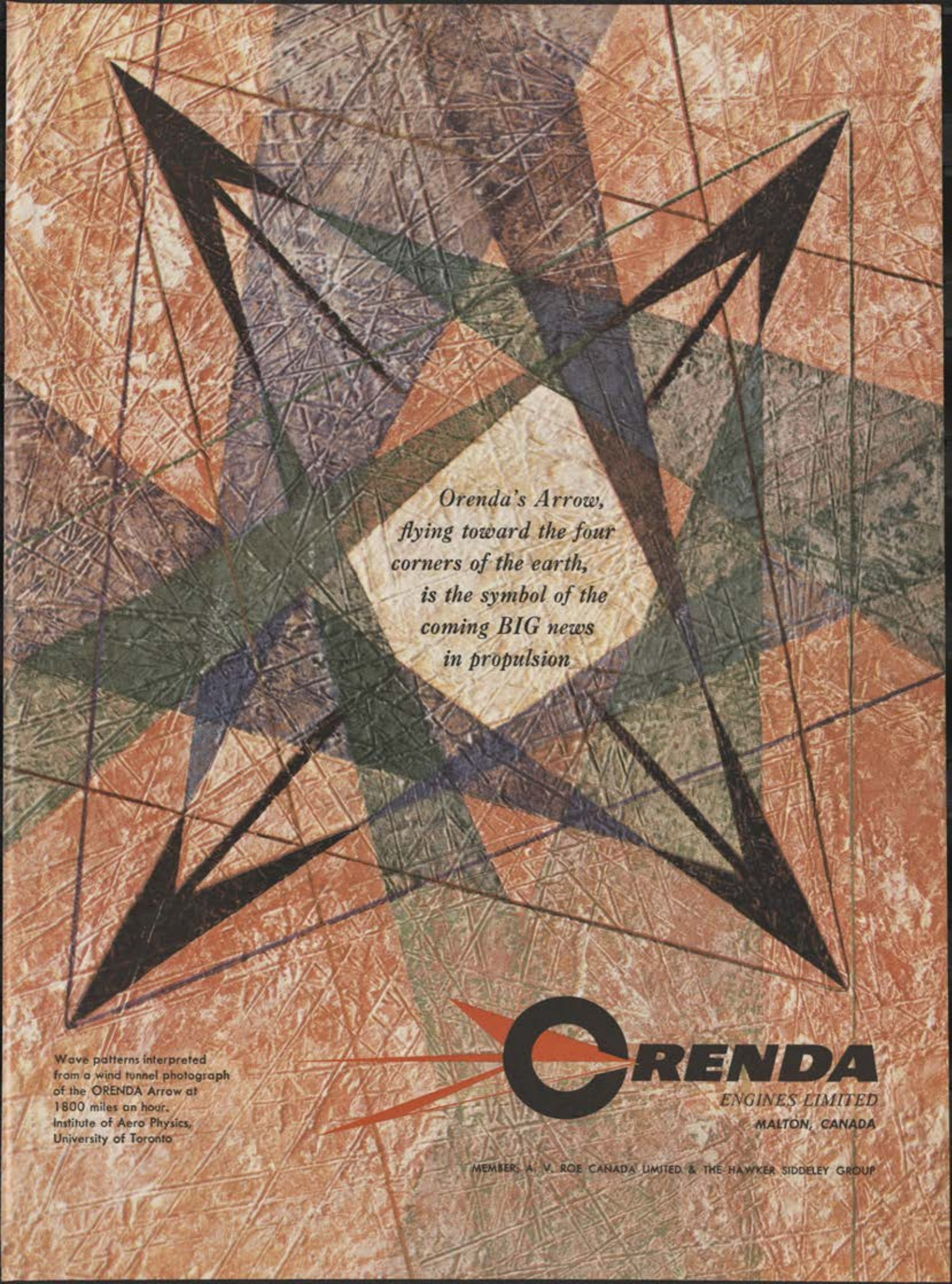


Top: Close-up view of a Hughes Falcon missile the instant after launching from the wing-tip pod of an F-89H Northrop Scorpion. Bottom: Two of the Falcons just after firing. The missiles are carried in the Scorpion's wing-tip pods until ready to be fired. They are then extended from the pods for firing.



Wave patterns interpreted from a wind tunnel photograph of the ORENDA Arrow at 1600 miles an hour. Institute of Aero Physics, University of Toronto

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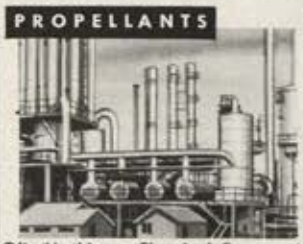
Tiny rotor-tip rocket engines increase the payload of the Sikorsky HRS-2 helicopter up to 100 per cent. Having started their vertical take-offs at same instant, equally heavily loaded Marine helicopters demonstrate relative hovering capabilities. Standard HRS-2 (background) hovers only as high as ground effect will permit. ROR (rocket-on-rotor) helicopter climbed straight up through ground effect and was still climbing when this photo was taken. Developed by Reaction Motors, Inc., for the Navy, ROR provides auxiliary power for take-off or emergency situations.

RAMJETS

Marquardt Aircraft Company
Van Nuys, California

PROPELLANTS



Olin Mathieson Chemical Corporation
New York, New York

ROCKETS

Reaction Motors, Inc.
Denville, New Jersey

MARQUARDT AIRCRAFT
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OMAR

and determine whether or not the airplane will withstand the repeated in-flight pressurization at high altitude. **A large tank,** similar to a swimming pool, **was constructed at** the Marietta plant. Portions of the **airframe are sunk in the pool,** and water under pressure from a plant fire hydrant is pumped inside the section until **pressure is built up to fifteen pounds,** thus reproducing in-flight pressurization of the section. This method is similar to that used on the British-made Comet jet transport but is much cheaper and simpler than air pressurization tests under laboratory conditions.

Martin has announced the development of **Missile Master,** the country's **first electronic system** designed specifically for **controlling** and coordinating the use of Nike **anti-aircraft missile batteries.** The systems will be located at **key anti-aircraft installations** in the United States and will operate in conjunction with units of the new SAGE system. The Missile Master collects information on the location of aircraft and their identity and presents this information on **electric display consoles** and then distributes the information to the missile-firing batteries. Nike batteries receive a continuous flow of fresh data on all aircraft within the defense area and on the activities of the other batteries as well. Battery commanders are provided with all the information needed to let them make proper selection of a target. Missile Master is a combination of the latest automatic electronic equipment and human supervision with a large capacity for handling information and solving complicated problems almost instantly. It ties together all elements of anti-aircraft missile defense from target-detection to target destruction.

Small Signal Corps dosimeter, built for field use, gives a quick reading of any deadly gamma rays in the area.

The Stroukoff-Fairchild YC-123E takes off from snow-covered Lake Bemidji, Minn., during tests of the Pantobase airplane. Arctic conditions prevailed.

A new **automatic warning device** to dramatically remind pilots to put their **wheels down when landing** has been devised by the Air Research and Development Command. The device puts a bothersome 250-cycle interrupted tone into the pilot's head set when he prepares to land. The signal functions when the throttle setting, airspeed, or altitude of the airplane indicates a landing is being attempted. It may be stopped manually, or will stop automatically when the wheels are down and locked. Pilots have trouble hearing the warning horn currently in use because their flying helmets are designed to cut down cockpit noises. This inability to hear the horn sometimes results in a "wheels-up" landing. The McDonnell F-101 Voodoo is already fitted with the warning device and it is designated for use in future Air Force airplanes.

Curtiss-Wright Corp. has announced the development of the **first rocket engine that can be throttled by the pilot** to increase or decrease thrust. The **controllable rocket now powers the Bell X-2** supersonic experimental airplane designed to probe the thermal barrier. Heretofore most rocket engines were fired up in full power with no means of adjusting the thrust. The Bell X-1 had a four-burner rocket engine which allowed the pilot to select any one of the burners or all four for full thrust. Thrust rating for the controllable rocket has not been revealed but its power is compared with that of a Navy cruiser. The controllable feature of the engine opens the way to the use of rockets in **tactical aircraft** and **guided missiles.**—END

Sikorsky S-55 helicopter makes a simulated emergency landing on water using the new Kidde Inflatair gear. Inflated electrically by the pilot, the doughnut-shaped floats can be deflated after initial use, refolded, and then used again.

Trenchard of the RAF

By Harry H. Ransom

ON FEBRUARY 21, 1956, a group of top British and American air officers assembled in the Chapel at Fort Myer, Va., just outside Washington, D. C., for a quiet memorial service for a man most Americans have never heard of.

The service was in tribute to a British airman whose profound and far-reaching influence on military airpower extended far beyond his homeland.

On February 10 Air Marshal Viscount Hugh Trenchard, first Marshal of the Royal Air Force and architect of British airpower, died in his London home at the age of eighty-three.

During the first World War, he was, successively, field commander of the British Royal Flying Corps, chief of Air Staff, commander of an independent bombing force, and when the war ended, chief of a planned Inter-Allied Bombing Force.

After World War I, Trenchard became first chief of the Royal Air Force, a position he held for ten years.

As the undisputed "Father of the Royal Air Force," Lord Trenchard influenced the growth of American airpower in two major ways. First, his personality and ideas made an indelible impression on Brig. Gen. Billy Mitchell during and after the first World War. Secondly, his development of an independent Royal Air Force in the postwar period set an inspiring example to Americans engaged in the long, hard fight to gain proper status for United States airpower.

World War I brought Mitchell in contact with "Boom" Trenchard, nicknamed for his fog-horn voice and explosive personality. Isaac Don Levine, one of Mitchell's biographers, after an examination of the American airman's diaries and personal papers, has concluded: "Probably no one throughout his life had a greater influence on Mitchell's aviation views than General Trenchard."

During a tour of British air stations at the front in 1917, Trenchard gave Mitchell a copy of a confidential memorandum on military airpower. Mitchell was impressed. Of Trenchard, he wrote in his diary:

"He considers it a perfectly practical thing for airplanes to attack the rear of the German army through the air and destroy all means of supply, subsistence and replacement. The Ruhr district around Essen is the arsenal of the Teutonic powers, and if this could be destroyed, it would be a terrible blow to Germany."

These two airmen, whose principal mission at the time was close support of ground troops, were discussing as a "perfectly practical thing" the idea of strategic bombing. This was almost forty years ago. The concept of an "independent" strategic role for aviation was the heart of Billy Mitchell's colorful crusade for a separate air force in the 1920s and early thirties.

Trenchard and Mitchell were convinced that "eventually airpower will be much greater than sea power." And both believed, so Mitchell's diary reveals, that "the only way to handle airpower is to unify it under one command."

Trenchard was more successful in his day in achieving fundamental changes in British military organization and doctrine than Mitchell was in the United States. This is due more to difference in political structure, geography, and wartime experience between Britain and America than to differences in tactics and talent between the two men.

Billy Mitchell once observed that "changes in military systems come about only through the pressure of public opinion or disaster in war." Interestingly, German bombing raids prompted the development of the independent RAF during World War I.

Lord Trenchard was commissioned in 1893 in the Royal Scots Fusiliers. He did not become a pilot in the Royal Flying Corps until 1912. He was then almost forty years old. One of his contemporaries has commented that he was never a very good pilot because he was practically blind in one eye—a fact he concealed successfully throughout his military career. Nonetheless, he quickly rose to field command of the Royal Flying Corps.

In so doing he developed certain basic principles. He became convinced that command of the air could be gained and maintained only by the offensive. This was to become the fighting doctrine of the Royal Air Force. Trenchard also recognized the possibilities of strategic bombing. But he was well aware that both numbers and capabilities of bombers were quite limited in 1917-18. And at first British bombing of the German homeland was undertaken largely to undermine enemy morale, although Trenchard interpreted the mission of his independent bombing force as nothing less than "the breakdown of the German army in Germany, its government, and the crippling of its sources of supply."

Early in 1918, Lord Trenchard resigned as chief of the newly formed air staff after a tiff with the civilian Air Minister. But he did not stay out of service for long. Within a few months he was recalled to head the independent bombing force. Then after the war he served until 1930 as the head of the Royal Air Force.

The heroic record of the RAF in the Air Battle of Britain, 1939-41, was the pay-off for his pioneering work.

Lord Trenchard refused to retire at the end of his military career. He accepted arduous duties as Commissioner of Police for crime-ridden London from 1931 to 1935. Again, his energetic administration involved him in numerous controversies. And, as with the Royal Air Force, he left his mark on the system. A vastly improved police institution was the result of his work.

"The thrifty Trenchard," as Churchill liked to call him, rounded out his career with seventeen years of service as chairman of the board of the United Africa Company, a firm engaged in African trade and development. He retired in 1953, at the age of eighty.

Lord Trenchard's young airmen of the old British Royal Flying Corps used to say of him, "Boom never seems to sleep." At last he sleeps, after a life both constructive and rewarding.—END

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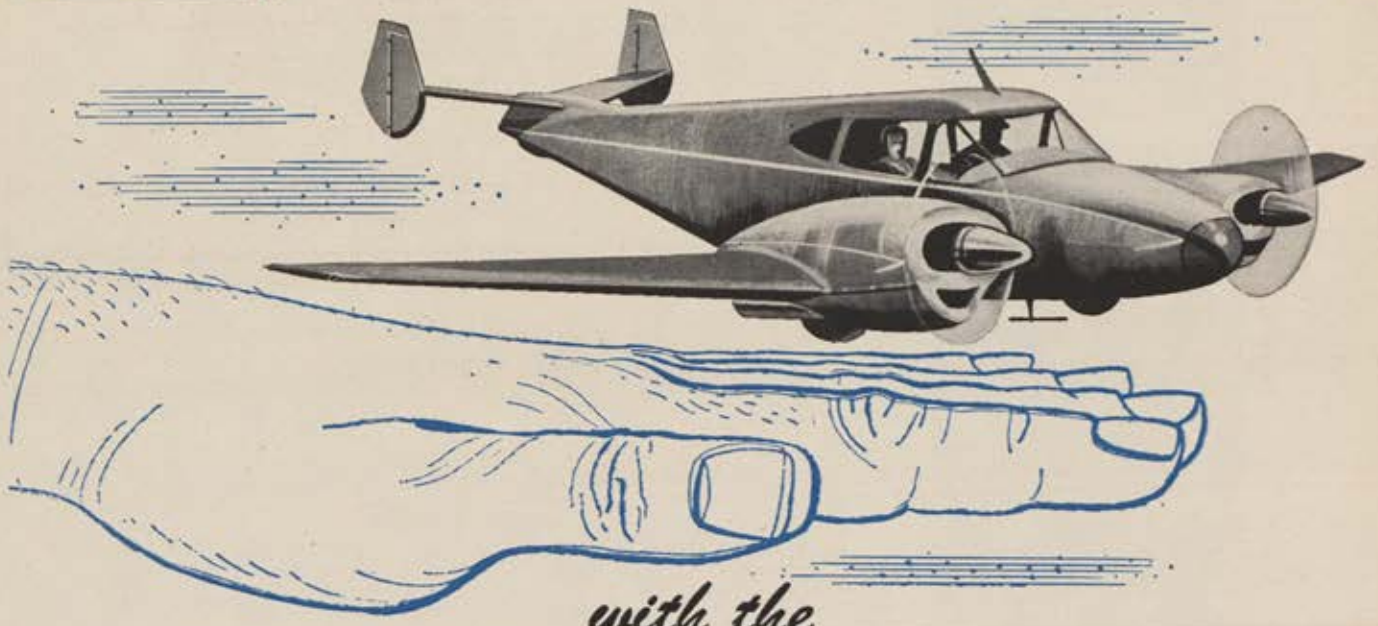

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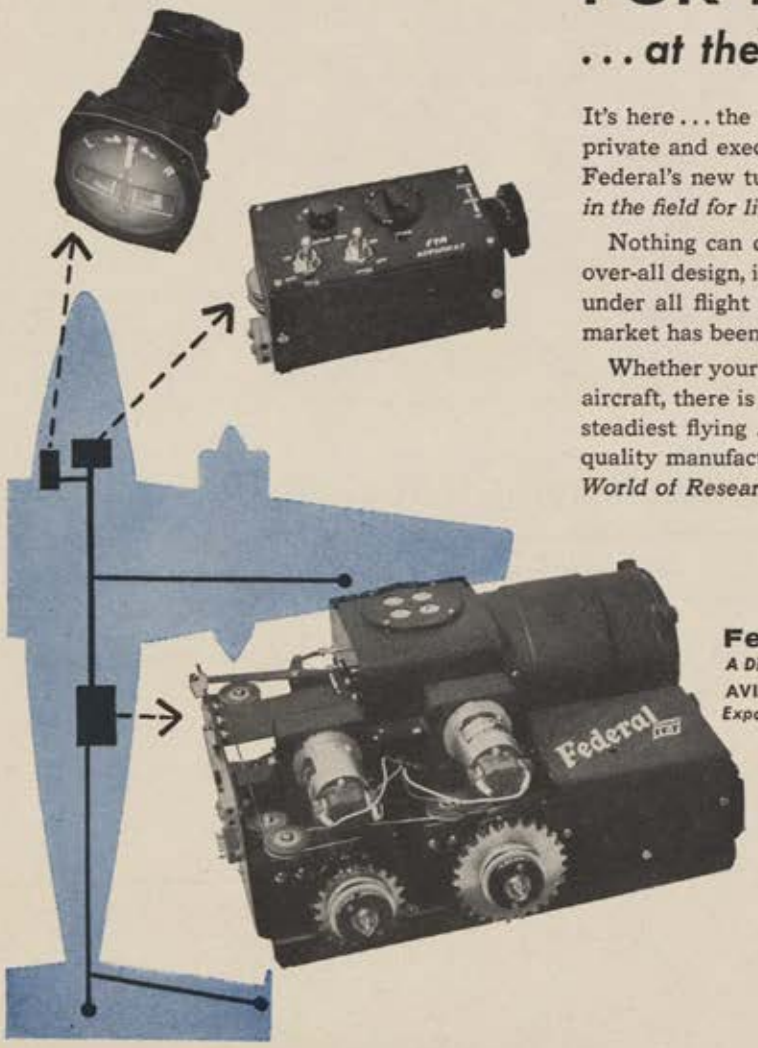

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RESERVE AND AIR GUARD NEWS

The **Air National Guard** and **Air Force Reserve** still are **short of adequate facilities** and **sufficient modern aircraft** to achieve true combat readiness, but both programs made **substantial progress** in the first half of the current fiscal year, according to a report just filed with the Department of Defense by **Maj. Gen. William E. Hall,** Assistant Chief of Staff for Reserve Forces.

"Current war planning," General Hall said, "requires an acceptable degree of combat capability in the reserve forces." Despite a shortness of such essentials as adequate facilities and modern aircraft, he added, **"very substantial and rewarding progress"** has been made in a "program involving new mission concepts and requirements."

One major gain, the report shows, has been in the area of **airmen strength.** This is the result of the Air Force policy of **"selectively" assigning Reserve airmen,** who have recently been released from active duty and have a legal military obligation to serve in the Reserve, to combat and support units.

These selectively assigned airmen **cannot participate in training for pay** nor can they **be promoted** unless they actually join a Reserve unit, enlist in the Air Guard, or undergo training in a mobilization position with a major command.

This program has been expanded to include the **Air Guard.** Since airmen cannot be assigned to an Air Guard unit, however, without the consent of the governor of a state, an Air National Guard of the United States mobilization manning section will be set up at the **Reserve Records Center in** Denver. It will have subsections corresponding to the various units of the Air Guard. Airmen selected to fill Air Guard positions will be assigned to a section corresponding to the unit in which they will serve in the event of mobilization.

The report confirmed that all Air Reserve combat wings and support units and individual mobilization positions have been designated as "ready" in keeping with current war plans.

Officers and airmen assigned to these units or positions must possess a **"Ready" status** by law or agreement lasting **two years,** and be available immediately for active military service in the event of an emergency.

Toward this end, the Air Force will insist that Reservists who are federal employees secure certificates from their civilian supervisors stating that in the event of mobilization the Reservist will be made available for active military service with no request for delay. Ready Reservists must produce this certificate **not later than June 30** or shift over to another portion of the program which does not offer training pay.

The **navigator training program** has been particularly successful, General Hall said. There are now twenty-one navigator training squadrons, and all have instructors, aircraft and materiel support. More than **1,000 officers** are enrolled in the program, and plans are being made to train **another 1,200 in** the fiscal year beginning next July 1. Military Air Transport Service has lent a helping hand by agreeing to permit instructors and trainees to fly within operating MATS units.

Air Force war plans for the Air Guard and Air Reserve are reflected in the breakdown of tactical and support flying units in both components.

The Air Guard is contributing **twenty-three fighter-interceptor wings, two tactical reconnaissance wings,** and **two tactical bomber wings.** The Air Force Reserve is contributing **nine fighter-bomber wings,** which will have an initial air defense mission upon mobilization, **two tactical bomber wings,** and **thirteen troop carrier wings.**

On the support side of the ledger, the Air Guard has **four resupply groups** and **four air transport squadrons.** The Reserve will have **three air rescue squadrons.**

Including the units, personnel strength requirements for the two components add up to **314,000 officers and airmen.** This is lower than the previously announced figure of 349,000 and stems from the fact that aviation engineer units, which had been included in the Guard and Reserve, are being returned to the Army. Of the new end strength figure, some 200,000 officers and airmen will be assigned to units, and the balance will be individually assigned within the active Air Force as fillers and replacements.

Air Guard training for the six months covered by the report reflected **high standards.** More than **5,000 officers** and **42,000 airmen** participated, representing ninety-four percent of the assigned strength of the units. In the same period 417 ANG officers and 1,523 airmen entered Air Force service and technical schools.

General Hall said that "positive, encouraging progress is being made" in the Air Reserve unit training program. But, he added, the program is handicapped by limitations which he described as **inadequate facilities** and **shortage of modern aircraft.**

To increase the important **reservoir of pilots** in the reserve components, he revealed that authority has been given to Reserve combat training wings and the Air Guard to provide training for pilots in numbers far above authorized organizational strengths.

The **Reserve individual training program** has moved ahead, General Hall said, with **ninety-two Air Reserve centers now** offering general and specialized training. This is an **increase of thirteen centers** in six months. Specialized training consists of lectures, shop, and laboratory instruction. Generalized training is offered for reservists in a non-pay status from course materials prepared by Air University.

The report stated that 45,000 officers were considered for promotion last year under the mandatory provisions of the **Reserve Officers Personnel Act** and that another 30,000 will be considered before July 1. This mass of promotions resulted in suspension of authority to promote officers in Reserve and Guard units. But, General Hall said, consideration is being given to **reopening these unit vacancy promotions** in the grades of **colonel** and **captain.** He indicated, however, that the promotion freeze on **majors** and **lieutenant colonels** will remain because the authorized number in these grades has been exceeded by the workings of the mandatory provisions of ROPA.

Although **Guard and Reserve aircraft** cannot be classified as **modern** in the strict interpretation of the word, both components showed **gains in terms of numbers.** The Reserve now has **844 aircraft,** an increase of 112 in six months. Of the total, 361 are jets. The Guard has **2,155 aircraft,** or seventy-nine percent of its actual requirement. The majority are jets and a number of years old.

The Air Guard, which has undertaken a **large air defense mission,** is experiencing difficulty, according to the report, in securing radar observers. The Guard now has 222 observers on flying status. It has a total program requirement, however, for almost **1,100 observers** by June 1959. Quotas have been established in Air Force schools

(Continued on following page)

to train Air Guardsmen but **only eighty-one observers** are presently in training. Greater emphasis will be placed on this phase of the Guard program, General Hall said, in an effort to produce the necessary number of observers.

To accommodate the total flying requirement of twenty-four wings and seventy-two squadrons in the Reserve, **sixty-one air bases are needed.** Only thirty-three exist and while the program contemplates that all will be on hand by the end of Fiscal Year 1959, slippages to date indicate that the goal will not be met.

The Reserve proposes to make maximum use of **joint facilities** and already has programmed units on **five Navy installations.** These are New Orleans Naval Air Station, Buckley NAS in Denver, Floyd Bennett in New York, Hensley in Dallas, and Willow-Grove in Detroit.

Still, however, to satisfy the over-all Reserve requirement for facilities, **about $200 million** must be spent in the next four years.

General Hall described the present degree of readiness of the Guard and Reserve as **"limited but steadily increasing."** Given adequate support, he concluded, the components can overcome their problems and "attain the combat capability required by current war plans."

° ° °

One of the resolutions adopted at the 1954 Convention of the Air Force Association in Omaha called for **thirty-six additional flying training periods** for rated people of the Air Guard and Air Reserve.

The resolution pointed out in detail that Guardsmen and Reservists were required to obtain the same minimum flying time as rated people on active duty. But the week-end warriors had to do this on their own time and voluntarily. In contrast, the active-duty pilot received monthly incentive pay for doing the same thing.

Months were required to get the necessary approvals and coordinations in the Pentagon. Last month, **Carter L. Burgess,** Assistant Secretary of Defense, gave the plan the green light.

In a memorandum to the Air Force, Mr. Burgess said "You are authorized to prescribe within your funding program" the additional paid training periods.

Both the Air Guard and Reserve have the funds to **start the program immediately.** The Air Guard has announced that jet pilots must fly a minimum of one hour and ten minutes during each of these additional periods and conventional pilots two hours and thirty minutes. In order to take advantage of these additional periods, however, the regular forty-eight air base assemblies of Guard units must last at least four hours.

Continental Air Command was in the process of preparing its directives covering the additional flying periods as this issue of AIR FORCE went to press.

° ° °

The **top policy committee** in the Air Force on Air Guard and Air Reserve matters is known as the **Section V Committee.** It derives its name from Section V of the National Defense Act and is charged with making recommendations on Guard and Reserve policy to the Secretary of the Air Force.

Since the committee was established in 1948, following passage of the National Security Act which created an autonomous Air Force, it has operated principally as an instrument of the Air Staff.

Many Guardsmen and Reservists have long felt that the committee should be set up at the **level of the secretary,** since by law it is the secretary's advisory committee rather than the Air Staff's.

Last year the Air Reserve Council of the Air Force Association **presented a resolution** in San Francisco urging that the committee be established as an agency of the office of the Secretary of the Air Force. Last month the Section V Committee met in Washington and **approved the draft of a policy** which does just that.

If Air Force Secretary **Donald A. Quarles** approves the policy, the committee will be known as the **"Air Force Committee on Air National Guard and Air Force Reserve Policy."** Its function will not change but it will report directly to the Secretary through the Chief of Staff. The Secretary, instead of an assistant chief of staff, will be responsible for the personnel, facilities and administrative services required for the committee to function.

In all, the committee considered forty-one agenda items. One would consider **billeting** and **messing** of officers and airmen as essential at locations of Air Guard units and Reserve wings and detached squadrons. Another that would seek authority for Reserve wings to **enlist Civil Air Patrol cadets** met with little enthusiasm, general opinion being that the interests of the Air Force would be served best if these cadets were motivated toward a career in the active establishment. The committee also considered a recommendation that a **reenlistment bonus** be paid reserve airmen, but it was pointed out that time studies on this idea already are being made at the Department of Defense level. The committee also was told that the Air Force comptroller had appointed a special group to study a suggestion that a separate budget structure be established for the Reserve.

° ° °

Three **Michigan Air National Guard** pilots have been recalled to active duty to fly the **supersonic F-100.** They are Capt. Phil C. Brockman, Capt. Lester A. Erikson, and Lt. Alfred J. Lagrou, Jr., all members of the 127th Fighter-Interceptor Wing.

Following transition training at Nellis Air Force Base, Brockman and Lagrou will be assigned to fighter squadrons in Europe. Erikson is scheduled to remain at Nellis as an instructor.

Brockman represented Michigan in last year's AFA-sponsored **Earl T. Ricks Memorial Trophy** event for ANG jet pilots. Erikson flew in the event for Michigan in 1954.

° ° °

Notes on the back of a Form 175 . . . The first Air Reserve organization to establish a **perfect attendance record** for a full year is the **9346th Squadron** at **Santa Ana, Calif.** Lt. Col. Claude J. Norton, squadron commander, has been told the 100 percent attendance record may be the first in a reserve unit since Revolutionary War days. . . . **Air Reserve Records Center** in Denver is now **two years old.** To maintain records of approximately **300,000 Reservists,** the center has eighty-five Air Force people and 1,382 civil service employees. Before the center was established, records were maintained at seven different headquarters, requiring the employment of about 2,500 people. The consolidation has resulted in shaving operating costs about five million dollars a year. . . . AF Reserve has a new radio program, **"Air Time."** It is scheduled over **NBC** and features Skitch Henderson, former Air Force B-29 pilot, and Gisele MacKenzie. The program is aimed at recruiting AF Reservists. . . . Reservists **retired under Title III** of **Public Law 810** are also eligible for **Social Security benefits.** According to Social Security headquarters, old age benefits are affected only when the retired reservist accepts civilian employment. . . . **Long Island University** has received a First Air Force commendation for devising an **experimental study program for Reserve officers** in military management.

—EDMUND F. HOGAN

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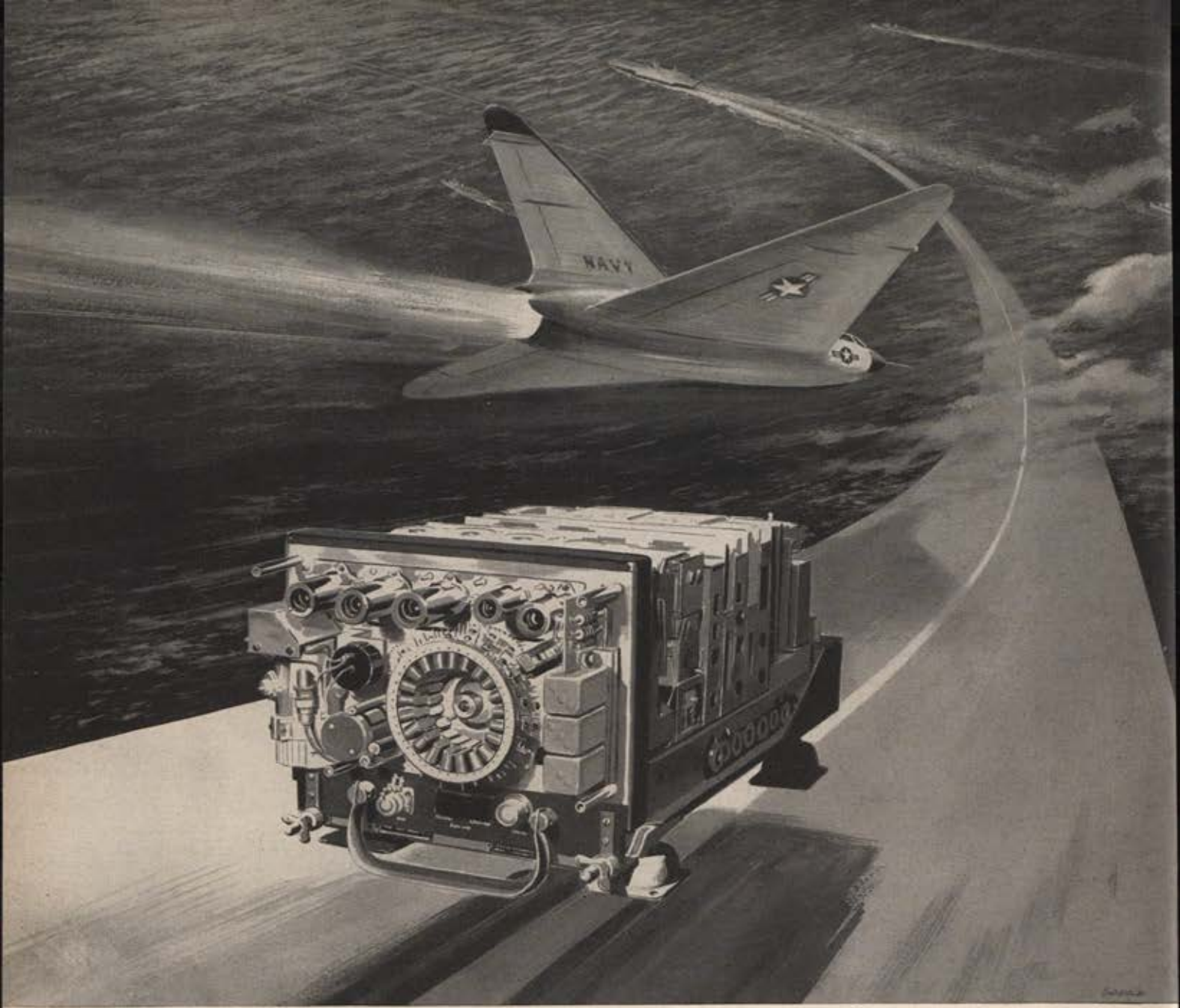

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Two Units Hold Jet Age Conferences

THE GREATER MIAMI AND THE SANTA MONICA SQUADRONS HOLD THEIR MEETINGS IN MARCH

SQUADRONS OF THE MONTH

Greater Miami and Santa Monica Area Squadrons

CITED FOR

their successful conferences aimed at educating the community on the problems facing the development of airpower —civil and military—in the Jet Age.

This month two AFA units share honors as **"Squadron of the Month."** On March 17, both the **Greater Miami** and the **Santa Monica Squadrons** sponsored **Jet Age Conferences** patterned after the February conference in Washington, D. C. (AIR FORCE, March '56). Though held on opposite coasts, the Squadron programs were alike in many respects.

The Miami Squadron played host to the **Florida Wing Convention.** About 100 persons turned out for the morning and afternoon conference sessions, and, at the luncheon, some 150 heard **AFA President Gill Robb Wilson** discuss the problem of the scarcity of youth activity in the aviation field. President Wilson also addressed the Wing meeting the next morning, and awarded Past Commander pins to five ex-Squadron and Wing Commanders, including **George M. James,** Daytona Beach, who retired as Florida Commander. **J. Alan Cross,** Miami, chairman of the conference, was installed as new State Commander.

SAC's General Montgomery chats with Ted Koschler, the Miami Sqdn. Cmdr.

The conference was highlighted by the appearance of **Maj. Gen. Richard Montgomery,** Chief of Staff, Strategic Air Command. Others appearing on the morning program were **Lt. Col. John Pountnay,** Commander, 435th Troop Carrier Wing, who discussed Reserve Forces; and **Grover Loening** who spoke on general aviation problems. On a Noise Abatement Panel were **I. D. MacVicar,** Dade County Commission Chairman; **Col. Travis Hetherington,** Commander, 397th Bomb Wing; **Capt. Samuel Stoia,** National Airlines chief check pilot; **Maj. John Hamilton,** Marine Corps Air Station Operations Officer; and **Lt. Col. Roland McRae,** Operations Director, 1107th Air Transport Wing.

Following the luncheon, films were shown on airport-community relations and the air traffic control problem. In conjunction with these visual presentations, addresses were made by **Capt. R. W. Vinal,** Pan American Chief Technical Pilot, and **Dr. Louis Pessalano,** CAA Medical Examiner, who spoke on Flight Safety. Airport planning and operations were discussed by **Alan Stewart** and **Leonard Thompson,** County Port Authority Directors. Air Traffic Control was covered by **William Barker,** Miami ARTC Center, and **Martin Hanson,** CAA Chief Controller.

Maj. Gen. Hugh Knerr, USAF (Ret.); **Prof. John Gill,** University of Miami; **Lt. Col. Thomas Morris,** USAF Guided Missile Center Operations Officer; and **Arthur Furchgott,** Eastern Airlines Facilities Engineer, formed an Air Traffic Control Panel.

Ted Koschler, Miami Squadron Commander, moderated the conference.

The **Santa Monica** version of the Jet Age Conference was arranged by a committee under the direction of **Dr. John Gilmore,** recently elected Commander, who was installed in that office at the banquet after the conference.

The Santa Monica program explored the commercial side of the Jet Age. **John K. Northrop,** co-founder of Northrop Aircraft (now retired), served as moderator for a panel consisting of **A. M. "Tex" Johnston,** Boeing Airplane Company's Chief of Flight Test, and **Philip A. Colman,** Lockheed Aircraft's Chief of Preliminary Design, representing aircraft manufacturers.

Gordon F. Maxwell, Manager of Pan-American's Pacific-Alaska Division, represented the airlines, and **Brig. Gen. Joseph S. Marriott,** USAF (Ret.), presented the airport administration problems. General Marriott is Riverside County's Director of Airports, and a member of AFA's First Reserve Squadron.

That evening, following the conference, a reception honoring the new officers was held. **John R. Alison,** Chairman of AFA's Board of Directors, presided at the annual installa-

(Continued on page 108)

At Santa Monica meeting, from left, John Northrop; "Tex" Johnston of Boeing; Pan-Am's Gordon Maxwell; Philip Colman of Lockheed; Brig. Gen. Joseph Marriott (see text).

At N. Y. Air Age program (see text), sitting, Mr. Wilson, Bonnie Gottwik; standing, Gen. Stone; Mr. Rosenthal; Carl Gottwik; Gen. Browne; Gen. Condon, and Adm. McLintock.

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★ *AMC Briefing*
★ *ARDC Briefing*
★ *USAF-Industry Luncheon*

FOR THE DELEGATES . . .

★ *ARDC Briefing*
★ *Business Sessions*
★ *Forum Discussions*

FOR EVERYBODY . . .

★ *Airpower Panorama*
★ *Symposium & Luncheon*
★ *Anniversary Cocktail Party*
★ *Wing Ding Mardi Gras*
★ *Awards Banquet*
★ *Airpower Brunch*

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Convention Program

WEDNESDAY—AUGUST 1

1:00 PM	*Reserve Forces Seminar*	*Jung*
2:00 PM	*AMC Briefing*	*Roosevelt*
2:30 PM	*AFA Commanders Meeting*	*Roosevelt*
5:30 PM	*Reserve Forces Reception*	*Jung*
6:30 PM	*Reserve Awards Banquet*	*Jung*
8:30 PM	*AFA Directors Meeting*	*Jung*

THURSDAY—AUGUST 2

9:00 AM	*ARDC Briefing*	*Roosevelt*
10:00 AM	*Auxiliary Board Meeting*	*Jung*
12:00 N	*USAF-Industry Luncheon*	*Roosevelt*
2:30 PM	*First AFA Business Session*	*Roosevelt*
	First Auxiliary Business Session	*Jung*
6:30 PM	*Panorama Preview-Reception*	*Mun. Audit'm*

FRIDAY—AUGUST 3

9:00 AM	*Airpower Symposium*	*Roosevelt*
10:00 AM	*Airpower Panorama Opens*	*Mun. Audit'm*
	Ladies Walking Tour	*French Quarter*
12:30 PM	*Symposium Luncheon*	*Roosevelt*
	Ladies Fashion Luncheon	*Jung*
2:45 PM	*2d AFA Business Session*	*Roosevelt*
	2d Auxiliary Business Session	*Jung*
6:30 PM	*Anniversary Cocktail Party*	*Roosevelt*
10:00 PM	*Wing Ding Mardi Gras*	*Roosevelt*

SATURDAY—AUGUST 4

9:00 AM	*Third AFA Business Session*	*Roosevelt*
	Final Auxiliary Business Session	*Jung*
10:00 AM	*Airpower Panorama Opens*	*Mun. Audit'm*
2:00 PM	*Final AFA Business Session*	*Roosevelt*
3:00 PM	*Ladies Tea & Charm Show*	*Patio Royal*
7:30 PM	*Airpower Awards Banquet*	*Roosevelt*

SUNDAY—AUGUST 5

9:30 AM	*Airpower Brunch*	*Roosevelt*
1:00 PM	*Airpower Panorama Opens*	*Mun. Audit'm*

Registration Fees

REGULAR (Active-Service-Associate Members)	*$20*
LADIES (AFA Auxiliary & Lady Guests)	*$20*
NON-MEMBER (Male—not affiliated with AFA)	*$35*
INDUSTRIAL (Includes AMC & ARDC Briefings & USAF—Industry Luncheon)	*$35*

Note: *Reserve Forces Reception & Banquet not included in registration fees—ticket $5. Ladies Tour & Tea $1 extra for each event.*

AFA NEWS — CONTINUED

Maj. Gen. Winston P. Wilson (right) of National Guard Bureau presents plaque to Houston's Capt. Jack Burden, runner-up in 1955 AFA Ricks Jet Trophy Event.

tion dinner. **Donald W. Douglas, Jr.,** vice president of Douglas Aircraft Company, was the principal speaker.

Preceding Mr. Douglas's address, the new Squadron officers were formally installed by **Arthur F. Kelly,** a past National President and Board Chairman, who, like Mr. Alison, is a member of the Squadron—and active in its programs.

Julian B. Rosenthal, AFA National Secretary, was chairman of a program at **Great Neck, L. I., N. Y.,** on March 15, billed as **"The Coming Air Age."** The entire program was planned and executed by Mr. Rosenthal virtually single-handed.

The principal speaker was AFA President **Gill Robb Wilson.** Others who appeared on the program were **Lt. Gen. Charles B. Stone,** ConAC Commander, **Maj. Gen. Roger J. Browne,** First Air Force Commander; **Maj. Gen. Robert Condon,** USAF (Ret.), Civil Defense Director of New York City; **Rear Adm. Gordon McLintock,** Superintendent, US Merchant Marine Academy; and **Brig. Gen. Thayer S. Olds,** Commander, 26th Air Division.

The event attracted a capacity crowd of more than 375 people, received excellent coverage in the Long Island press, and serves as an example of what one energetic AFA member can accomplish on his own.

AFA's **Houston Squadron** held its second big dinner meeting in January, when it officially closed the Charter of the Squadron with eighty-seven members. Permanent officers were seated at this meeting, replacing the provisional slate appointed last sum-

(Continued on page 111)

At Santa Monica installation, from left, outgoing Commander Dr. Theodore Stonehill; past National AFA President Arthur F. Kelly; new Commander Dr. John Filmore; and new Vice Commander and Program Director Gil Nettleton.

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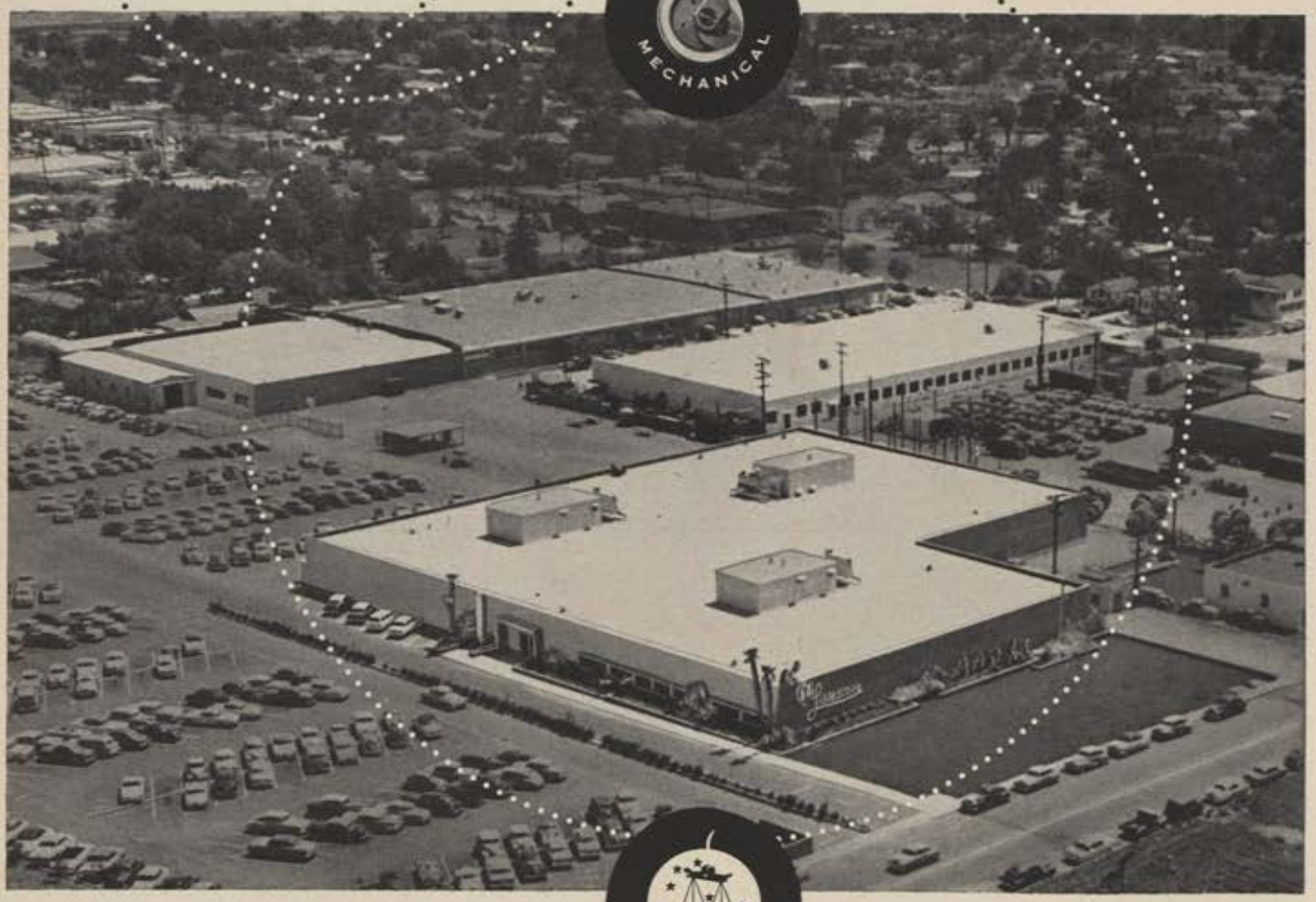

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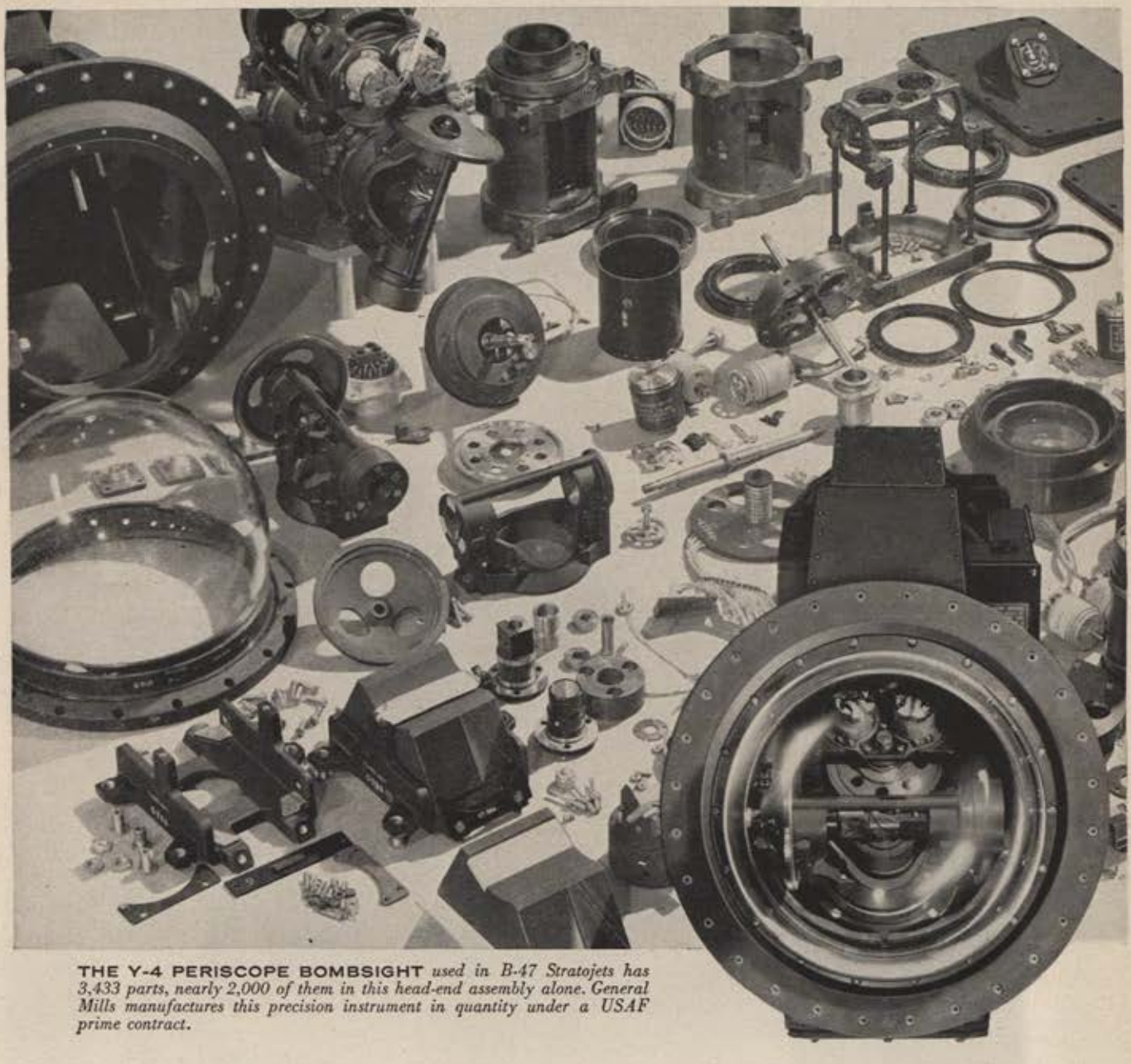

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mer by Regional Vice President **Clements McMullen.**

Robert B. Thieme, Jr., a Houston clergyman, and a lieutenant colonel in the AF Reserve, turned over the Commander's gavel to **Earl E. Shouse.** The other new officers are **Robert Taylor,** Vice Commander; **Joe Foster,** Treasurer; and **Seth Ramey,** Secretary. **Councilmen** include Brig. Gen. Thomas W. Blackburn, USAF (Ret.), Gaylord Johnson, Walter Reid, Russell Wolfe, and George P. Kelly.

Maj. Gen. Winston P. Wilson, Chief of the Air Force Division, National Guard Bureau, was the principal speaker at the dinner and presented the plaque to Houston's **Capt. Jack Burden,** a runner-up in the 1955 AFA **Ricks Jet Trophy Event.**

Col. Joseph Batjer, Houston Air Reserve Center commander and a leader in the organization of the AFA Squadron, served as toastmaster.

The **Maryland Wing Convention,** held in Baltimore's Emerson Hotel on March 11, carried out the **first local Jet Age Conference** when the Wing sponsored a Noise Abatement Forum patterned after the conference held in Washington in February. A three-man panel included **Capt. Edward G. Sperry,** ARDC, a co-holder of the record for high altitude bail-out at 45,200 feet (for which he won an AFA Citation of Honor last year), **Joseph Rowland,** Manager of Information Services for the Glenn L. Martin Co., and **Roger G. Flynn,** Operations Division, Air Transport Association. **James H. Straubel,** AFA Executive Director, acted as moderator.

Meir Wilensky, Wing Vice Commander, was chairman of the program committee. AFA President **Gill Robb Wilson** spoke at a luncheon which followed the morning business session. At that session, **A. Paul Fonda,** Hagerstown, was elected Wing Commander, succeeding **John S. Warner,** Towson. Guests at the convention included **Charles W. Purcell,** Regional Vice President, **George D. Hardy,** a National Director, and Capital Squadron Commander **Don Steele** from Washington.

AFA was well represented at the dedication of a new **Ground Observer Corps Post** in **Hermosa Beach, Calif.,** early in March. **Eric Rafter,** a Past Commander of the **South Bay Squadron,** is the District GOC Director, and **Charles McCann,** a member of the Squadron, is Communications Chief and Assistant Civil Defense Director of the community.

An AIR FORCE Magazine Fiction Feature

How Dooley Beat the System

By John A. Pope

NO ONE in Tulla, Miss., was ever surprised by Beauregard Dooley III. That day in 1944 when he landed the B-17 on the dirt strip at the Tulla County Airport, there wasn't one raised eyebrow.

To themselves, the Tullamians said, "That Beauregard Dooley sure is a card."

But it wasn't funny to Dooley, who had returned from the wars with Sgt. Michael O'Hoolihan to establish the Tulla Crop Dusting Service. Every time Dooley looked across the strip at the big bird, he remembered how it all started.

It hadn't been a good flying day. Low lying clouds hugged the mountains around Seattle. When Dooley pulled up in front of the Ferry Control office at Boeing, he vaguely recalled checking the schedule, finding his crew listing, making up a flight plan, and preflighting the aircraft with Sergeant O'Hoolihan.

But once the aircraft was off the ground, the stupor left him. He called O'Hoolihan.

"Sarge, I don't recollect seeing any paperwork on this airplane. Do you have it?"

"No, sir," O'Hoolihan answered. "I thought you had it."

Dooley ruffled through his briefcase. He nudged his co-pilot.

"Purley, did you pick up the paperwork?"

Purley shook his head.

"Can't do a thing without it," Dooley said, as he banked the B-17 and headed back to Boeing Field. He called the tower.

"Are you under emergency conditions?" the tower asked.

"No," Dooley replied. "I forgot something at the control office."

"Sorry, sir," came the answer. "Boeing is closed to all transients except for emergencies."

"You don't understand," Dooley said. "I just left your cotton-pickin' factory and I want back in."

"Stand by one," the tower said. Then, after a few minutes: "Control advises that you are considered transient and are not permitted to land. Continue with your original flight plan to Great Falls, Mont."

At Great Falls, Dooley and Purley were hailed by the Operations Officer.

"You just land?" Captain Cochran asked.

"Couple of minutes ago," Dooley replied. "Just in from Seattle."

"Seattle? We don't seem to have a flight plan on you. Did you file?" He thumbed through a sheaf of papers.

"Sure I filed," Dooley said.

"Nothing here, Dooley. As far as I'm concerned you've never left Seattle."

"You're blind as a polecat."

Cochran shrugged. "I'll recheck."

Dooley and Purley continued on to

(Continued on page 115)

AIR-TO-GROUND TV SYSTEM

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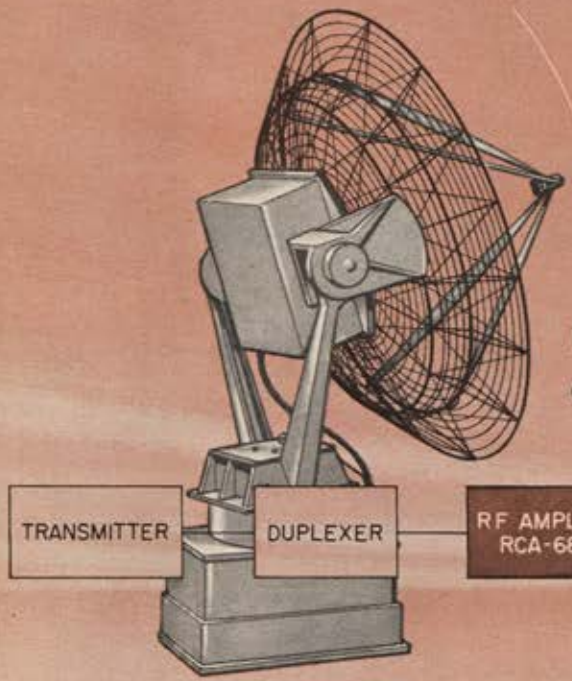

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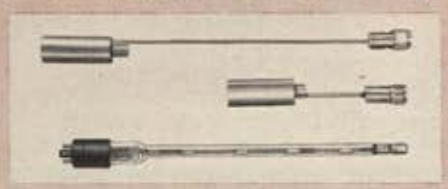

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the cubbyhole that housed the liaison officer for supply. The supply officer held out his hand for the papers.

"I'm afraid I loused up the detail," Dooley said gaily. "I seem to have misplaced the papers."

Captain Holzburg leaned back in his swivel chair, took off his thick spectacles, and rubbed his eyes.

"No papers?" he asked quietly.

"No papers."

"This is a very complex business, Lieutenant, and having no papers complicates matters. It's all very simple when it's done right," he said.

"I have the airplane. I give it to you. Take it," Dooley said. It all seemed very simple to him, too.

"Let me explain," Holzburg said. "Among the papers is a turn-in slip. No turn-in slip, no turn in. Got it?"

"But I have the airplane. It's on the ramp," Dooley insisted.

"Ramp shmamp," Holzburg shouted. "I'm not interested in your aircraft without a turn-in slip."

Dooley backed out hopelessly. Cochran called to him.

"Nothing on you at all, Dooley."

Dooley scratched his head and tried to recount his steps at Seattle. It was no use. No papers.

They found Sergeant O'Hoolihan replacing the last gas cap. Dooley explained their predicament.

"The system," O'Hoolihan said.

"System?" Dooley asked.

"Not a finger moves. Not a pencil scratches. No planes in the blue. No bombs away. Not without paperwork."

"You may have something there," Dooley said. "But where do we go from here?"

"Let's see what the boss has to say," O'Hoolihan suggested.

They trooped into the squadron commander's office and explained matters. When they had finished they offered to let him take over the whole problem.

"No, thanks," Major Winters said. "Tell you what you can do. There's a C-47 shuttle running up to Seattle tonight and we're short another crew. Why don't you backtrack, pick up the papers, and settle this business?"

When they turned up at the Control Office at Boeing the following morning, Dooley bounced up to crotchety Sergeant Mulcahy.

"You know that airplane we took out of here yesterday, Sarge?" Dooley asked. "Seems as how I left the papers and I can't turn the aircraft in."

Sergeant Mulcahy blew his nose noisily.

"I don't remember," he said. "What's the number of the plane?"

"44-2551."

"551. Hm. 551." Mulcahy flipped through the cards in his file. "551. Yes. Why it's still here."

"No, it isn't," Dooley said. "I flew *it* to Great Falls yesterday."

Mulcahy examined the card.

"Nothing on here says it left, sir. We still have it."

Dooley's face flushed.

"Find 551 on this field and I'll buy you a box of cigars!" he said slamming his fist on Mulcahy's desk.

Mulcahy pulled a pair of binoculars from his desk, strode to the window, and scanned the ramp. It didn't take him long to find it.

"There it is," he said. "Second one from the end. He passed the glasses to Dooley. "See it?"

Dooley did. The numbers were right. 44-2551. He returned the glasses.

"I smoke El Coronas. Panatellas," Mulcahy said.

"Something's fouled up," Dooley mumbled. "You don't suppose there's the slightest chance somebody numbered two aircraft the same?" he asked.

"We never make mistakes, Lieutenant," Mulcahy said coldly.

"Maybe so, Sarge, but would you check the plant superintendent?" Dooley asked.

Mulcahy dialed a number, spoke rapidly, paused and jerked the receiver away from his ear. The raspy voice of the superintendent grew louder. Then there was a click.

"You heard what the man said?"

"I heard," Dooley answered. "OK. If anyone starts looking for a stray B-17, I went that-a-way."

"And when you go, Lieutenant." Mulcahy said in parting, "you can take this 551 with you."

Dooley signed for the other aircraft, and on the return trip talked things over with Purley and O'Hoolihan. They decided on silence. They would turn in the aircraft they had and perhaps no one would notice that there were two B-17s at Great Falls with the same number.

Everything worked. Holzburg asked no questions. A week passed. Then another. All was quiet.

The third week Dooley and O'Hoolihan checked the ramp. Only one 551 remained and when O'Hoolihan checked transient alert, he found that they had been carrying the aircraft as "Transient—crew status unknown." He also heard grumbling about the space it was occupying and the time consumed in daily preflights.

Finally Major Winters called.

"Dooley," he said, "the aircraft you flew in here about a month ago is still on the line. Transient alert has traced it to you. Do you know the penalty for having an unauthorized aircraft on this field?"

"But, sir," Dooley protested, "that B-17 belongs to Uncle Sam."

"It hasn't been turned in and no one has a record of it. Do you have any paperwork to show for it?"

"No, sir."

"In that case, Lieutenant, please remove your aircraft from this field."

Dooley rubbed his chin. "You mean that nobody wants this B-17 and if I remove it, everybody will be happy."

"Precisely."

"Then give Purley, O'Hoolihan, and me a few days leave, and I will take care of everything."

Major Winters agreed, and the orders were cut. Dooley gave Purley and O'Hoolihan a fast briefing. They would fly 551 to Tulla, Miss., where Beauregard Dooley II, who owned the Tulla County Airport, would keep it safe and sound until someone caught up with the error.

They flew B-17 551 to Tulla.

A year later when Dooley and ex-Sergeant O'Hoolihan returned from the war, they found the aircraft still safely at the airport. Dooley wrote a long letter to the Pentagon.

"To whom it may concern," it began. "The Air Force is missing one each B-17. I have it, and this is how come." And he recounted the events.

A year passed with no reply. He wrote again and waited another year. He wrote again and again. At last in 1950 he gave up.

But Dooley maintained his sense of responsibility. With painstaking care, and carefully tabulated expense sheets, he and O'Hoolihan kept the aircraft in tip-top condition.

Then, one day in early 1955 came a letter bearing the official seal of the Air Force. Dooley ripped open the envelope and read aloud.

"A review and investigation of certain records reveals that a B-17, number 44-2551, was turned over to you at Boeing Field, Seattle. There is no record which shows that this aircraft was ever delivered to the proper authorities at Great Falls, Mont. In fact, there is considerable confusion as to what transpired.

"It is my duty to inform you that you are being held pecuniarily responsible in the amount of $350,000.

"You may be relieved of this charge by forwarding a money order for this amount." It was signed by

(Continued on following page)

DOOLEY——CONTINUED

Maj. Gen. Osbert Fosdick, Deputy for Supply.

Dooley slapped his knee.

"I'll be doggoned," he said. "They finally caught up with us."

He sent a telegram to General Fosdick: "I don't have the money. Come pick up the airplane. Regards. Dooley."

Within the week, General Fosdick and his staff descended on Tulla. Before Dooley could speak, the general growled, "Which one of you characters is Dooley?" He chewed an enormous black cigar.

"I'm Dooley," Dooley said. "And yonder is your airplane."

The general snorted. "Not so fast, Dooley," he said. They faced each other, a cigar-length apart. "This is serious business," the general said.

"I'm with you all the way," Dooley said, "and I've been serious about this a lot longer than you. Now if you'll just fly your airplane off my Daddy's property. . . ."

"Great balls of fire!" the general shouted. "We'll do no such thing. You held on to this airplane when we had a crying need for it. You're going to pay for this airplane, Dooley!"

"I don't see how you have a case," Dooley answered.

"I do," the general said, "and if worse comes to worst you can always be recalled for court-martial."

"That's an ugly thought," Dooley said. "What do you think, O'Hooliman?"

"That's the system, all right," O'Hoolihan said sadly. "I'll miss you."

Dooley turned to the general.

"This thing has been preying on my mind for years, General," he said. "Nobody believed me. Nobody answered my letters. But I've been thinking ahead."

The general worked the cigar to the other side of his mouth.

"Now listen," Dooley went on. "Tulla may be just a dot on the map, but we have a pretty fair country lawyer here, and we've been chinning about this. Seems like I occupy a very choice legal position." He pulled an envelope from his pocket and held it up.

"I've got copies of all my letters, to show I acted in good faith. And this," Dooley said as he extracted a sheet filled with numbers and handed it to the general, "I know will be of interest to you."

"What is this?" harumphed the general.

"A bill," Dooley said. "A legal, lawful bill. Since 1944, I've stored

(Continued on page 119)

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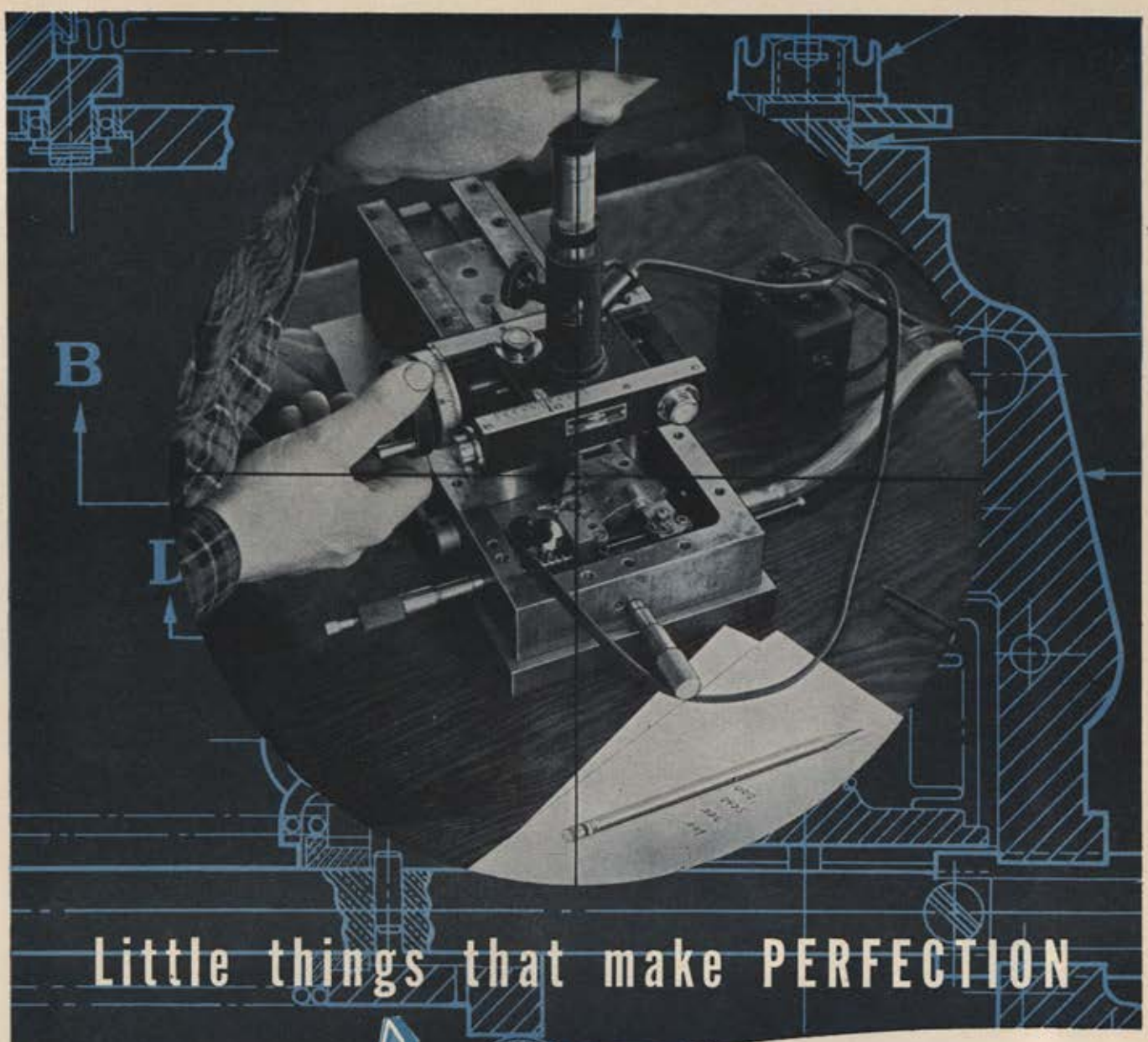

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The general's jaw set, his teeth clenched and his cigar snapped.

Dooley continued. "So the way I figure it, you owe me a few bucks. But I'll tell you what I'll do. You give me a check for $2,500, take your airplane, and I'll call it even."

General Fosdick's eyes narrowed and he looked for his legal adviser.

"Culpeper," he said, "that true what Dooley says about his legal position?"

Culpeper nodded.

"Don't unpack your bags, Culpeper," the general said quietly. He turned to Dooley.

"All right, Dooley," he said. "You've got us. Obviously, we can't give you any money for an airplane that's eleven years old."

Dooley blew on his fingernails and rubbed them on his chest.

"I'll make you a proposition," the general said. "Tear up your bill, keep the airplane, and we'll forget the whole blasted business."

"A sporting offer, general," Dooley said.

O'Hoolihan began a chuckle that grew into a throaty laugh.

"You beat the system! And with paper! You're a cotton-pickin' genius."

The general's eyes narrowed again. With deliberate movements, he drew another cigar from his pocket. He waggled it under Dooley's nose.

"He's right, Dooley," he said. "You *are* a genius."

Dooley was about to smile.

"We could use a man of your skills," the general said ominously, and Dooley's smile died a-borning.

Without another word, the general whirled, shooed his staff aboard and departed. Dooley and O'Hoolihan watched until the aircraft was gone.

"Well, Boss," O'Hoolihan said, "what do we do now?"

"My boy," Dooley said, "with the only B-17 crop duster in Mississippi, we ought to do a tremendous business. Let's go to work. I'd like to pick up a few bucks before they measure me for that new blue suit."—END

An Air Guardsman living near Washington, D. C., John Pope last wrote for us in our August '54 issue, in an article entitled "Lobster Tale."

THIS IS AFA

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