SEPTEMBER 1979/$3

AIR FORCE MAGAZINE

PUBLISHED BY THE AIR FORCE ASSOCIATION

Biplanes at 30,000 Feet

Air Force Power

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CF6-50-POWERED KC-10A ADVANCED TANKER/CARGO AIRCRAFT

CF6-50-POWERED E-4A ADVANCED AIRBORNE COMMAND POST

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MILITARY AIRCRAFT

As early as 1949, the Astronics Division achieved notable success in flight control with the receipt of the Collier Trophy for development of the first high-volume production autopilot for jet aircraft. The airplane was the **F-84**...the autopilot was one of more than 10,000 produced by LSI for the USAF.

The tradition continued with technology innovation—in 1953 the first fighter autopilot coupled to an ILS receiver for the **F-86D;** in 1954 the first jet transport autopilot for the **KC-135;** the first solid state 3-axis damper for the **F-104** in 1955.

More recently, the Astronics Division's AFCS for the **LTV A-7** initiated two breakthroughs—control augmentation with control stick steering and a two-channel fail passive AFCS. This system was later modified and put into production for the Lockheed **P-3C** to insure absolute reliability and safety.

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The Astronics Division's success with Automatic Flight Controls for piloted aircraft led to the development of control systems for pilotless aircraft.

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Because of this broad experience, the U.S. Air Force selected the Astronics Division for the design and development of an integrated system of modular avionics to interface with new and existing remotely piloted vehicles.

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COMMERCIAL AIRCRAFT

In 1956 the Astronics Division brought innovation to the commercial jet transport world with the first Category 3A automatic landing system for the **SUD Caravelle.**

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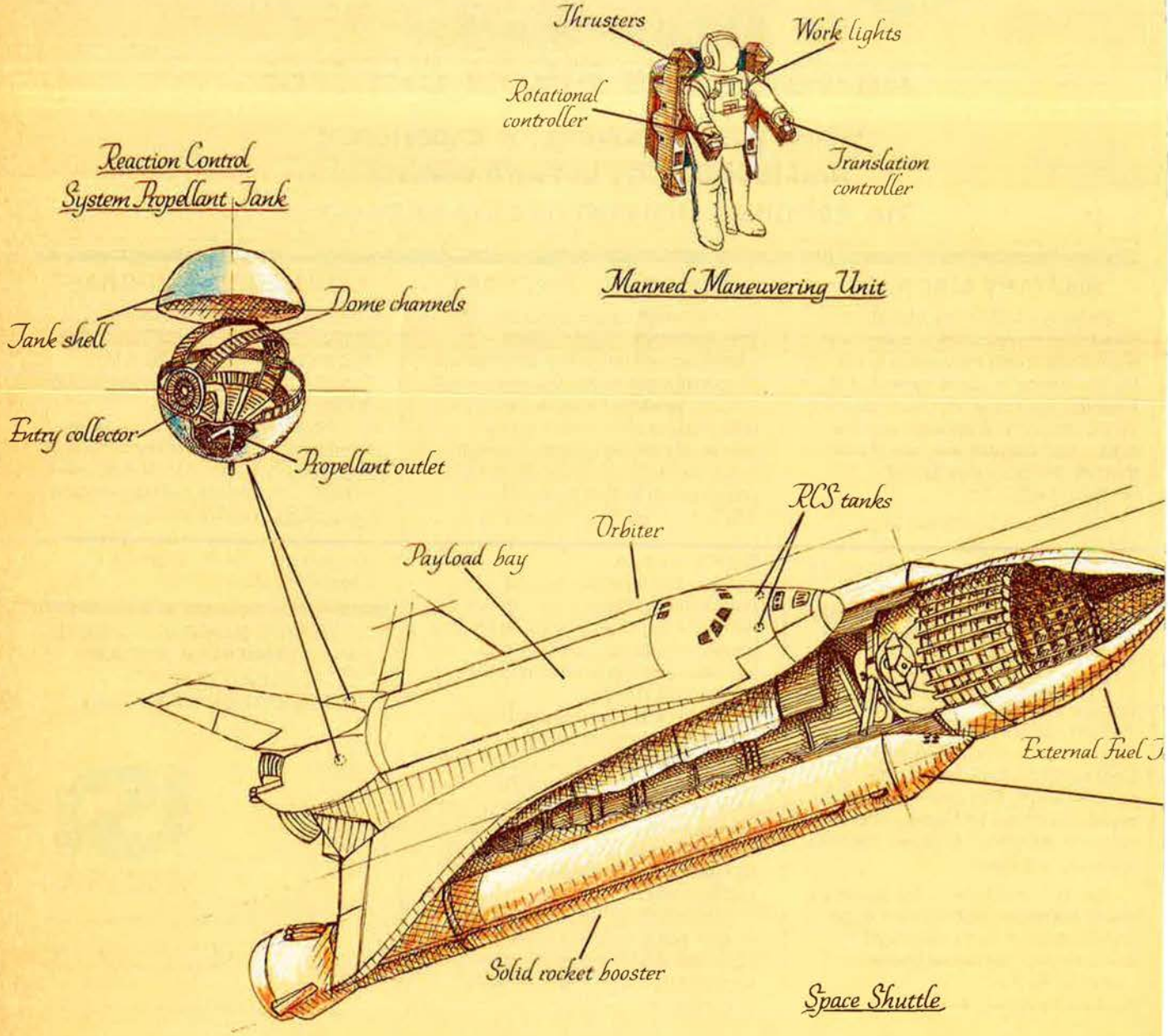
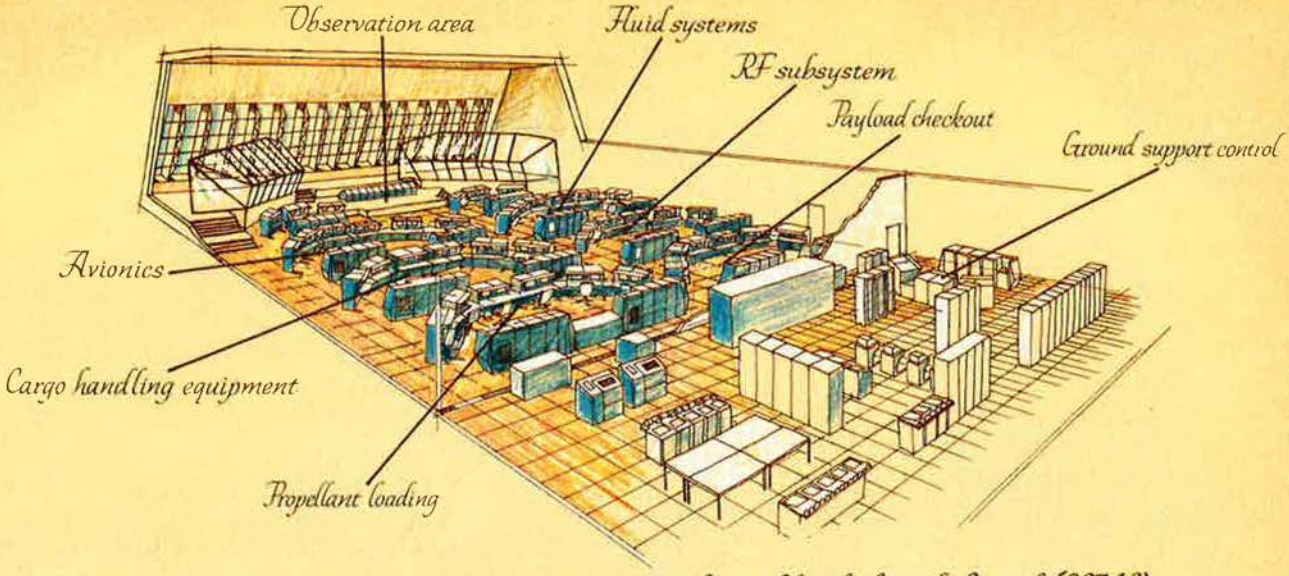
Involvement in the Space Shuttle.





Space Shuttle Launch Control (CCMS)

A new era in man's exploration and use of space is beginning.

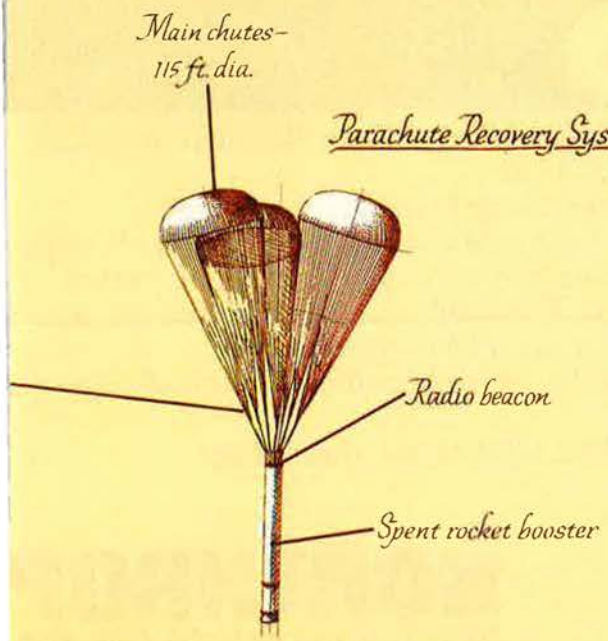
Its cornerstone is the Space Shuttle, an unusual manned vehicle that can fly satellites and scientific equipment into orbit, return to repair and resupply them, and later bring them back to Earth. Its cargo bay can be used as a research laboratory as well as to carry materials to build huge space stations.

Martin Marietta has been involved in Space Shuttle development from its inception, as a partner to both NASA and the Department of Defense. We supply the mammoth, 154-foot external tank to fuel the Shuttle's main engines at launch. In addition, we produce the parachute recovery system for the twin solid-rocket motors, an electronic warning system to alert astronauts of malfunctions, the fuel tanks for the craft's control thrusters, and the pyrotechnic controls to arm and fire the ordnance mechanisms.

For ground operations we produced the computerized checkout, control and monitor system for the launch control centers. And for the Department of Defense we act as the payload integrator, assuring that satellite and cargo designs are Shuttle compatible, as well as performing ground services support for the West Coast launch site.

For orbital operations we have designed a backpack to allow astronauts to maneuver and work outside the Shuttle's main cabin. Looking to the future, we are exploring the concept of a small, remotely controlled spacecraft to deploy, retrieve, survey and repair other spacecraft.

The Space Shuttle is our country's major space vehicle for the decades ahead. Our broad involvement in space and defense programs has given us the knowledge, experience, and the technical resources to help meet the nation's needs in this new era.



Parachute Recovery System

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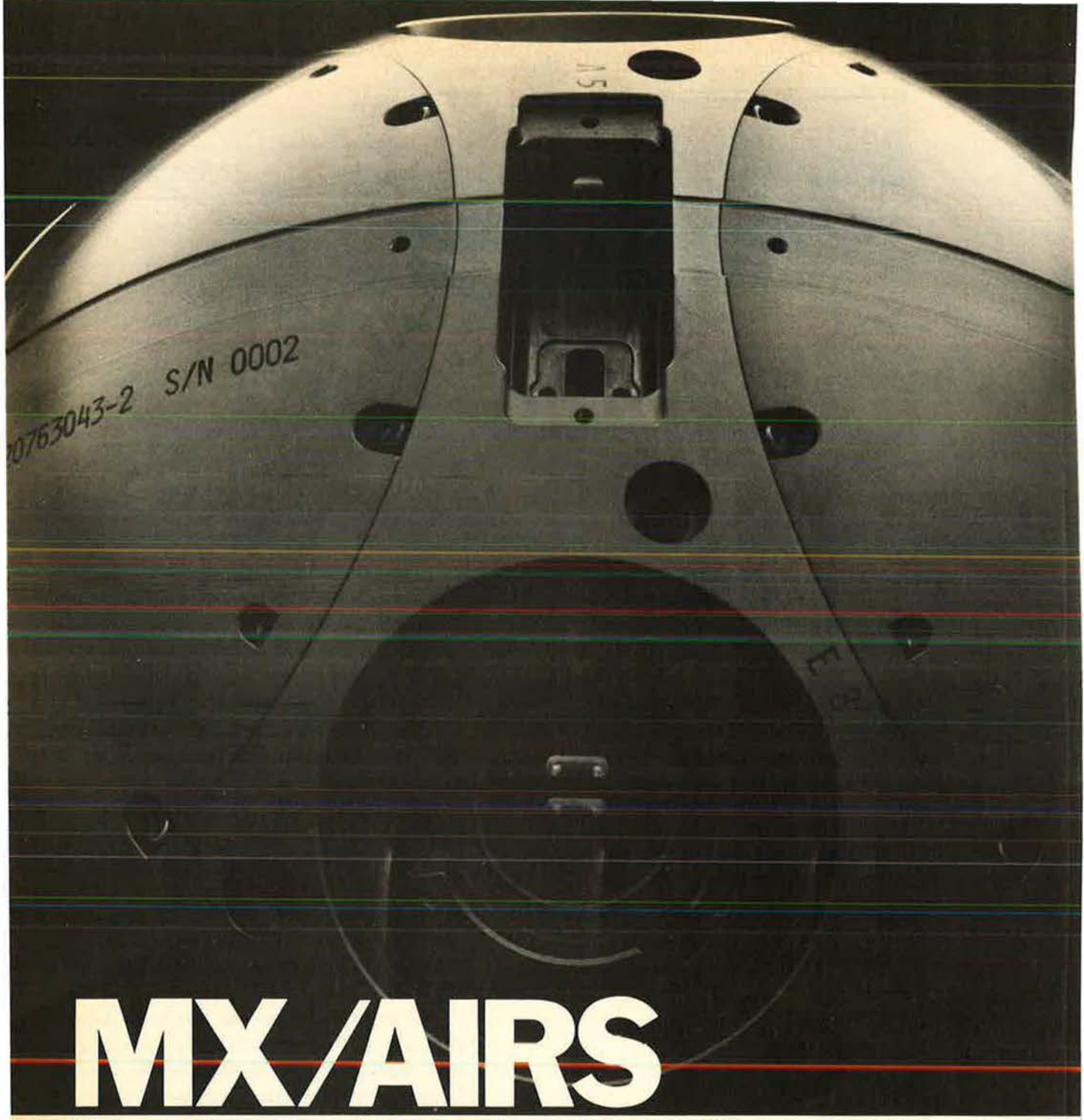

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Northrop's Advanced Inertial Reference Sphere (AIRS) for the U.S. Air Force MX intercontinental ballistic missile is the most precise guidance system of its kind.

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AIR FORCE MAGAZINE
PUBLISHED BY THE AIR FORCE ASSOCIATION

SEPTEMBER 1979
VOLUME 62, NUMBER 9

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ABOUT THE COVER

"Biplanes at 30,000 Feet," by aviation artist Keith Ferris, depicts Boeing P-12s of the 95th Pursuit Squadron, which pioneered high-altitude formation flying, over San Diego in 1929. The P-12's role in the development of fighter tactics is described by Jeff Ethell on p. 120.

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Lt. Col. Mike Sexton
F-15 Pilot
36th Tactical Fighter Wing
United States Air Forces Europe


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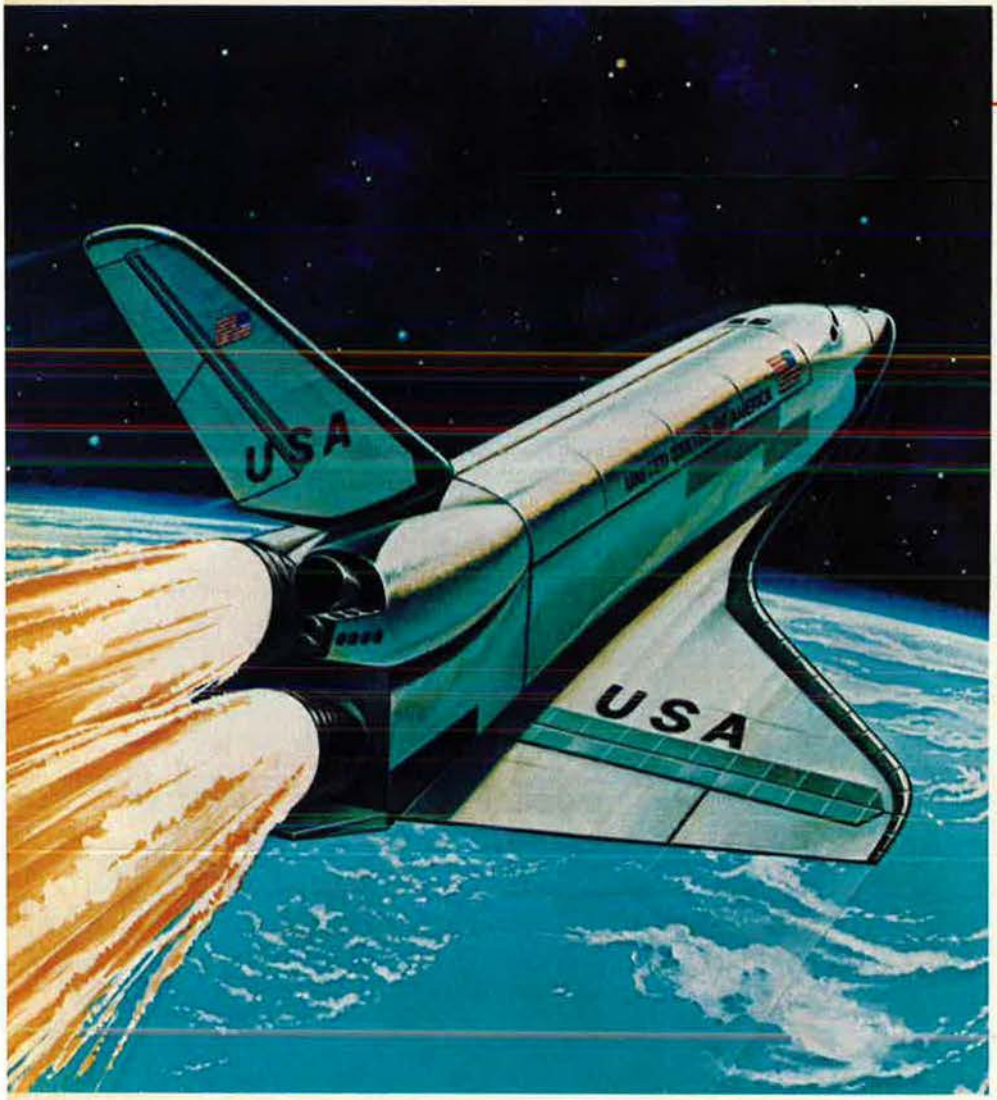

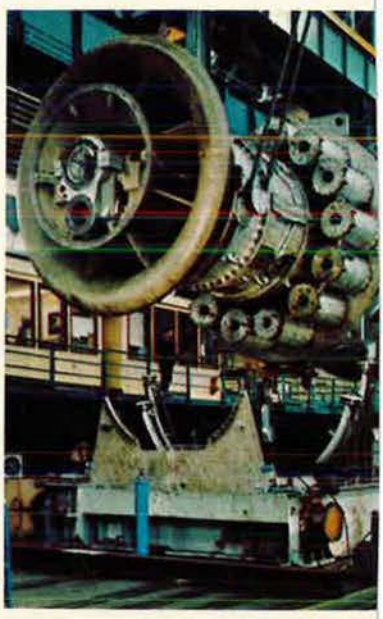

High-performance alloys contribute improvement in efficiency and relia stationary gas turbines such as this M jointly developed by General Electr pany and Alsthom. It is the largest shaft, 50 Hz heavy-duty gas tu operation.

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AN EDITORIAL

The Two Faces of Tradition

LONG before the Air Force became a separate service thirty-two years ago this month, airmen of the Air Service and the Air Corps prided themselves on being forward looking. They had little patience with the traditional thinking of the older services and not much interest in military history. Army ground officers, who held the fate of military aviation pretty much in their hands, looked on airplanes as supporting weapons, to be controlled and parceled out like corps or division artillery. And there wasn't much in the pages of military history that seemed relevant to war in the air. That despite the dramatic dogfights of World War I and some not very successful experiments with strategic bombing in 1917 and 1918.

Contempt for tradition, or at least disinterest, became itself a tradition in the years between 1907, when the Aeronautical Division of the Signal Corps was established, and World War II. The traditions that were held in low regard were what, in general, might be called "intellectual" military traditions having to do with organization, strategy, tactics, and command control—those that had evolved over many centuries before man learned to fly. Airpower—or at least the potential of airpower that airmen saw on a distant horizon—didn't fit into those traditional concepts.

It is remarkable that many able airmen stayed on to fight the long and often discouraging battle with the traditionalists over the right way to use airpower. They stayed despite public disinterest, low pay, stagnated promotions (Hap Arnold was a major for eleven years and Tooey Spaatz for fifteen), and the lure of jobs in infant aviation and airline industries. But they were remarkable men.

By the latter part of World War II, ideas on the employment of strategic and tactical airpower, largely thought out during the '30s at the Air Corps Tactical School, were widely accepted. Then came the German V-2 ballistic missile and the atomic bomb, and again it seemed that most of the lessons of military history had once more been thrown on the scrap heap.

The Air University, established immediately after the war at Maxwell Field, site of the old Tactical School, adopted as its motto: "We progress unhindered by tradition." That motto has served the Air Force well in adapting to the demands of US world leadership in the technological maelstrom of the nuclear-armed aerospace age. It has helped revolutionize research, administration, planning—the functions relating to management of vast and expensive programs.

So much for the traditions that have to be broken in order to progress.

In contrast to traditions that can impede progress are others, rooted in the history of an organization, that make it a profession rather than an occupation. Some of these go back long before military aviation—traditions of courage, self-sacrifice, integrity, concern for subordinates. Some are unique to the Air Force. One such that comes to mind is the World War II tradition that no bomber formation was ever turned back by enemy action. Some are merely symbolic—like the fifty-mission cap that was a victim of "military respectability" soon after V-J Day.

These are the traditions that build morale and esprit de corps—that provide continuity and identity and inspire men and women to rise above themselves in times of crisis. They are an instrument of leadership, and it is the task of leaders to cherish and preserve them.

The contrast between the "intellectual" traditions that could inhibit progress, and therefore should be abandoned, and those that build esprit and must be preserved highlights the contrast between management and leadership. The goal of the one is efficiency; the goal of the other dedicated military professionalism. Both are needed, and holding a proper balance between the two calls for some very fine judgments.

In recent years, the Air Force has leaned heavily in the direction of management—partly through coercion, partly from necessity, partly by choice. And partly, perhaps, because of lukewarm interest in its own history. (The only comprehensive history of the Air Force first appeared in a special 458-page issue of this magazine in August 1957. Subsequently, it was published by D. Van Nostrand Co., under the title *A History of the United States Air Force 1907–1957*, edited by Alfred Goldberg. It has long been out of print.)

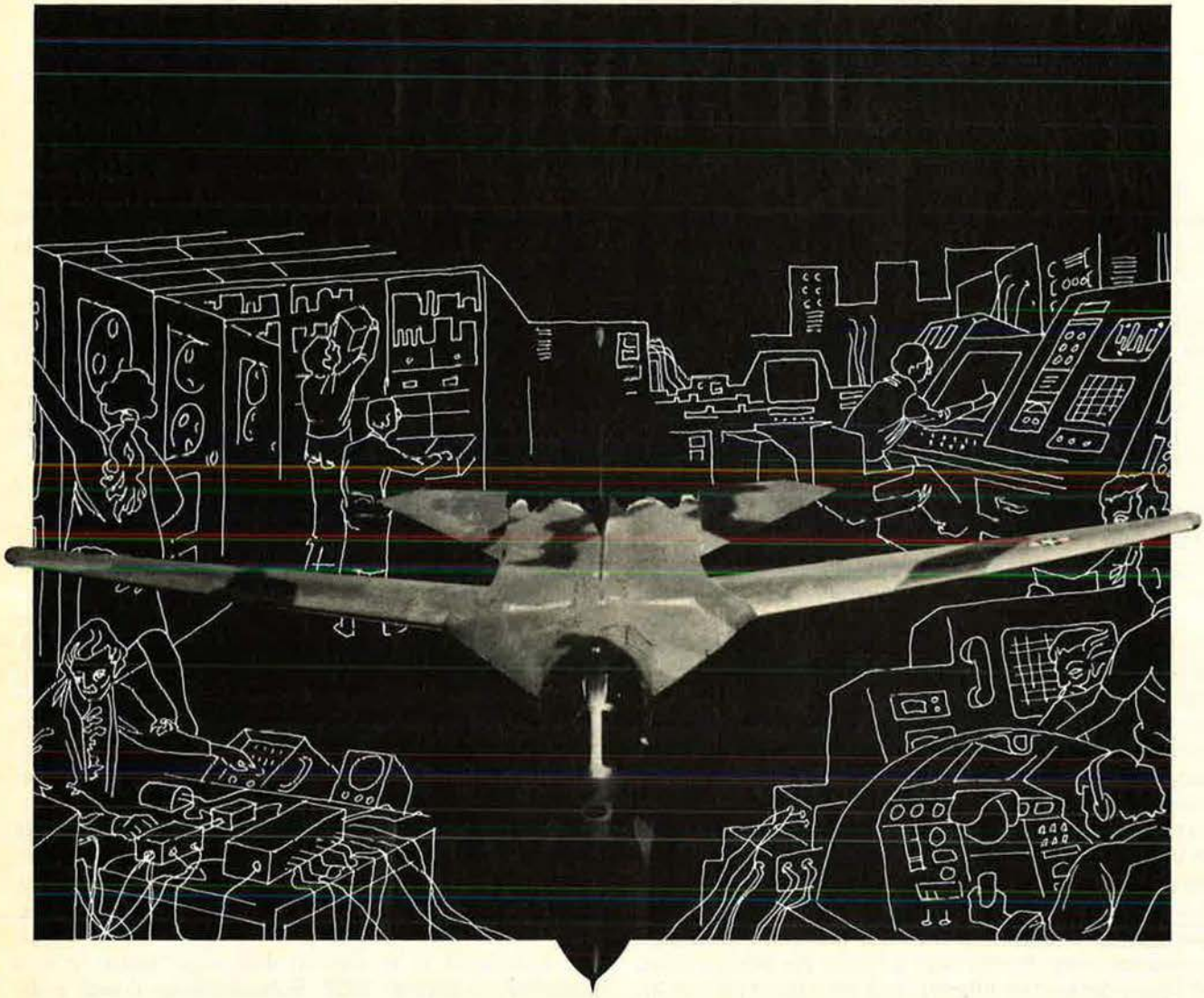
At the same time, we are encouraged to see an increasing interest in unit history and traditions, reflected in letters to our editors. Not in recent memory has the Air Force had a greater need for the binding force of professional pride that flows from the traditions of an illustrious past.

No part of the Air Force Association's purpose is more important than helping to preserve—through a fellowship of those who have served, who are serving, and who will serve—the Air Force traditions that are founded in the pioneering of the early airmen, in Schweinfurt, New Guinea, MiG Alley, Thud Ridge, and the Hanoi Hilton. Without them, the Air Force no longer would be a profession. It would, indeed, be an occupation—just a collection of jobs.

Should that happen, we all would be the losers.

—JOHN L. FRISBEE, EDITOR

"DAIS" PUTS PILOTS ON TOP OF TECHNOLOGY



More and more military aircraft use complex computer architectures to handle the mass of information that aids aircrews in navigation, EW, fire control, and weapon delivery. In future, flight control and engine performance will also be computer-assisted.

DAIS (for Digital Avionics Information System) is the USAF program to demonstrate low-cost architectures, software, and support systems to meet these vital requirements in the 80s. TRW supports DAIS with sophisticated simulation technology, support software, and avionics integration and analysis.

We're also helping Logistics Command to apply these technologies in developing flight software support systems. The next step is to provide using commands with mission-to-mission reprogramming capability. We're hard at work on that, too.

For more information, contact Richard A. Maher, TRW DSSG, One Space Park, 55/2586, Redondo Beach, CA 90278, (213) 536-3238.

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Airmail

eappearance of Geopolitics

s good to see an article on geopolics again ["The Geopolitics of Nonnergy Minerals," by David J. Kroft, une issue]. Today, when people are sked why we fought WW II, they've orgotten, or never knew! We knew uring WW II because we were told ncessantly about resources and gegraphy. Geopolitics, heartland, laushofer, and MacKinder were ousehold words.

What bothers me, and has since the nd of WW II, is that geopolitics lropped out of sight at the very time he Communists did the same thing hat we went to worldwide war to stop Hitler from doing. In the nuclear age, when we are not going to have war anymore because it's too "unthinkaple," we can defy gravity. Like Rhett Butler said, "You're going to beat the North with cotton and arrogance?"

The Soviet aim has been systematically isolating the US. The Soviet Union is now the world's No. 1 producer of oil. Oil was Hitler's Achilles' heel. And it will be ours, along with chrome, copper, moly, and a bunch of other things. We have to get these materials from friends, which we don't have anymore!

L. S. Abbott
Wichita, Kan.

Kudos to David Kroft on the article "Geopolitics of Non-Energy Minerals." The importance of these minerals to the United States has been largely overlooked due to the furor over our oil-import posture.

Hopefully, the US won't wait as long to act in its national interest on this matter as it did on the energy issue.

Capt. Jacques A. Rondeau
APO New York

Even the Air Force Needs Help

John F. Loosbrock's editorial "The Luftwaffe Wasn't There" [*June '79 issue*] makes many valid points; however, it distresses me to find that your magazine continues to stress airpower above all (no pun intended).

Hitler had his "Deutschland Uber Alles," but WW II proved that Germany was unable to win the war without help, or, as things turned out, with it. I think that a truly objective look at the facts will prove quite conclusively that airpower, too, needed help—quite a lot of it, in fact.

On the civilian front, it needed taxpayers to work at all kinds of jobs to earn the money to pay the taxes to buy the planes, the bombs, the ammo, and the fuel.

On the industrial scene, it needed universities to produce the aeronautical engineers and technicians who designed the aircraft, and it needed plenty of around-the-clock support by Rosie the Riveter, *et al.*, to build them by the thousands.

On the high seas, it needed the US Navy and Coast Guard to fight and win the battle against the German U-boat so that fuel, oil, spares, ground crews, bombs, and all the other support equipment could reach England instead of the bottom of the Atlantic. And it needed these same forces to ferry the D-Day invasion fleet across the English Channel so that it would have something to protect.

And the whole purpose of D-Day, as I recall, was to put ashore some 173,000 American, British, and French troops to slug it out toe to toe with the Wehrmacht.

What I am trying to say is that I am as "Shade 84 Blue" as the next guy, but it really bugs me when one service or the other claims to have been the "decisive force" in any large-scale undertaking, certainly in anything as incredibly complex as WW II. Roger Staubach may be the "star" of the Dallas Cowboys, but he would be the first to admit that he could never throw a pass without superb blocking and never complete one without superb receivers. And without good coaching he wouldn't even know who to throw to, or when.

I support your efforts to tell the Air Force story, but let's keep things in perspective. The Air Force is a member of a *team* and war has always been a *team* game. Hitler never understood that, but I sure hope *we* do.

Lt. Col. Richard L. Anderson,
USAF (Ret.)
Oxnard, Calif.

"Dumb" vs. Guided Munitions

Re General Kuter's article, "D-Day: June 6, 1944," in your June 1979 issue.

I always enjoy reading first-hand accounts of that nearly forgotten war that ended almost thirty-five years ago. At that time I was a young lad living in Germany and I can attest to the skill, bravery, and effectiveness of those B-17 armadas and the ubiquitous swarms of marauding P-51s and B-26s. However, the precision bombing described by General Kuter on page 98 ("There were no bomb craters visible in this picture. Every one of his bombs had hit the bridge or gone into the water alongside. That is, without doubt, the finest example of precision bombing I have ever seen") was not the result of the run-of-the-mill B-26 aircrew effort.

Neither in World War II nor in Korea or Vietnam were we able to take out difficult targets such as bridges without leaving the telltale signs of our inefficiency—the numerous bomb craters to their approaches. Precision bombing under combat conditions with "dumb" GP bombs is, frankly, almost asking for the impossible. There just are too many uncontrollable variables to cope with.

The bridges over the River Seine, which the General refers to, as well as locks in the Danube River and the Avisio Viaduct just south of the Brenner Pass, were taken out by one of our first guided munitions, known as the VB-1 (Vertical Bomb), or AZON. As the name implies, this product of the imaginative and productive MIT laboratories was steerable in azimuth only, but, therefore, ideal for long, narrow targets such as bridges. This particular guided bomb did especially well in Burma, where the 7th Bombardment Group knocked out twenty-seven bridges with only 459 AZONs.

United States precision guided weapon employment never amounted to much in WW II and its further development was scrapped at the end of that conflict, not to be rediscovered in earnest until 1965, when the need for precision again became apparent. For a more thorough discussion on PGMs past and present, see "Tactical Precision Guided Munitions—Implications in Perspective," *Parameters*, June 1979.

I thank General Kuter for sharing with us his memories and experiences.

Lt. Col. Wolfgang W. E. Samuel
Air Force Research Associate, MIT
Cambridge, Mass.

Wrong Motto/Right Motto

You are to be complimented for your publication of the fine, if a bit obsolete, letter "Wrong Motto" by Lt. Col.

Airmail

Don Baucom in the May 1979 edition.

I certainly agree with everything Colonel Baucom said and take issue only in the fact that there are far too few Colonel Baucoms within our armed forces today, and that his excellent letter should have been written in the past tense—*e.g.*, the strength of our Air Force (in fact should read Armed Forces) *was* or *has been* systematically and intentionally undermined. In another case: "The Air Force mission *was* to fly and fight" or "Our bottom line *was* our superior abilities over our adversaries," etc. ad infinitum. The American people should be made to understand that all this didn't just happen recently, as could be construed from Colonel Baucom's fine letter, but was in the making as far back as the forties, when our nation's leadership embraced the Soviets.

While certainly not blaming the Soviets for our present situation, the deterioration of our armed services has been steady since the end of WW II, until what was once the toughest, biggest, and smartest fighting military force ever assembled on earth by any nation has finally arrived where it is today—poorly manned, poorly equipped, poorly propagandized, well fed, well paid (by comparison), and overall a mere shadow of its once great and most respected might.

One should be careful to observe down through the years the one thing that holds the attention and respect of both the Soviets and the Red Chinese—a greater force than their own. They hold no real respect for anything else, and until the so-called "free world" learns this all-important lesson, we will continue to follow the same path Great Britain was forced to follow, until we are no more a threat to those who would dominate the world than they are.

Harsh words? Yes! But I believe history supports them. If one doubts how the "modern" military person feels, one has only to inquire, in true confidence, to discover that the "Right Motto" is still there, ready and eager to spring forth with vigor when and if our great nation can ever again face reality and stand once again among nations with honor, pride, and dedication to keeping freedom through the respect of the greatest power.

Then and only then will we be able to return to the present tense when writing and speaking of the strength and abilities of our armed services. I know from first hand, for at least twenty-three years I watched our steady decline with heartache and even tears. The "Motto" was always there and is still there, but for now it should, in my poor opinion, be referred to in the past tense.

Many thanks for a fine magazine from a fine organization. I know you're all trying, but it is a crying shame this situation was ever condoned by any true American living in a modern society of supposedly educated people. Please pardon my shame, but I just can't help it.

Lt. Col. Rolland S. Freeman,
USAF (Ret.)
Tampa, Fla.

A Night at Home for the Home

In the late 1960s, a group of active-duty NCOs, responding to an idea of Maj. Gen. G. B. Green, Assistant Deputy Chief of Staff for Military Personnel, formed the Air Force Enlisted Men's Widows and Dependents Home Foundation, Inc.

With the support of numerous organizations like AFA, plus countless individuals, the home, Teresa Village, near Fort Walton Beach, Fla., is a going concern today.

It is fulfilling a desperate need for a small but growing number of our Air Force family, the senior citizens, and especially the widows of retired enlisted people. Details are being worked out to allow the Foundation to buy seventy-nine acres of Eglin AFB as the site of a new 200-unit complex. A dictionary of words used with the greatest of eloquence couldn't describe the great need this facility will fulfill. But naturally a lot of money is going to be needed to make it come true. I have placed the Foundation as No. 1 on my IRS Hit Parade, and I urge each AFA member to do the same.

It's a simple procedure: (1) on Friday, October 5, plan a simple dinner at home—cold cuts, tuna salad, etc.; (2) check your latest receipt for a family night out; and (3) mail a check for that amount to the Enlisted Widows Home, 354 Woodrow St., Fort Walton Beach, Fla. 32548. It could represent a week's rent for someone at the home. I guarantee you'll like yourself a lot for doing it.

The Executive Committee of the California AFA has established a goal of $25 per member (approximately $350,000) using this scheme. I challenge you to beat us! Note on your check your AFA chapter and state affiliation, and Mr. D. N. Masone, Foundation Executive Director, will submit an end-of-the-year box score to AIR FORCE Magazine.

Yours truly for a Night at Home for the Home.

Lt. Col. Charles A. Pinney,
USAF (Ret.)
Chairman, Enlisted Widows Fund, CAFA
South Bay Chapter
Hermosa Beach, Calif.

Triple Nickel History

The 555th Tactical Fighter Training Squadron (TAC) is currently undergoing a major renovation, the primary theme of which is Nickel history. We are soliciting any and all memorabilia from the "Triple Nickel," particularly the following:

The mural that was painted on the wall at Udorn;

Pictures—with explanatory notes about events and people;

Names—if nothing else, drop us a card with your name and the inclusive dates you were in the squadron.

All items received will be permanently kept at the 555th TFTS building. Please forward anything you have to:

5¢ History
% 555th TFTS/CC
Luke AFB, Ariz. 85309

Cross of Military Service

AIR FORCE Magazine is a defense barometer alerting the readers to the military with its system, personnel, and operation. The demands, problems, needs, and decisions to establish the superiority of the United States Air Force and the military are very well explained.

We are a sophisticated civilization searching for survival. In this space age, a need for stability in our lives becomes a necessity which can be found in tradition and nostalgia. Through the history of our country there have always been groups of concerned citizens, caring, giving, and remembering the Americans who fought for the principles of this country and who paid the supreme sacrifice for these principles.

These groups grow and become organizations. One of these is the United Daughters of the Confederacy established in 1894 with historical, memorial, benevolent, educational and patriotic objectives. There are chapters in the United States and France with many credits in each objective.

The most coveted award, Cross of

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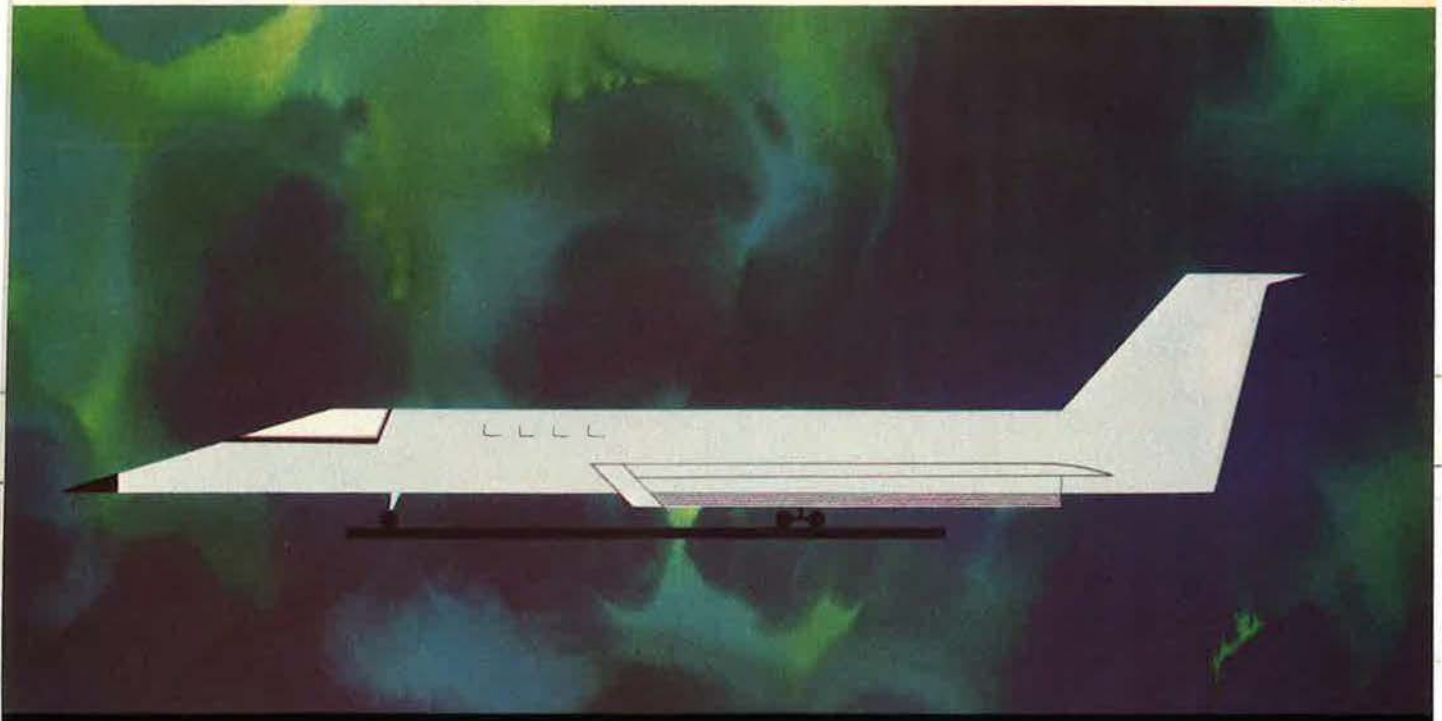

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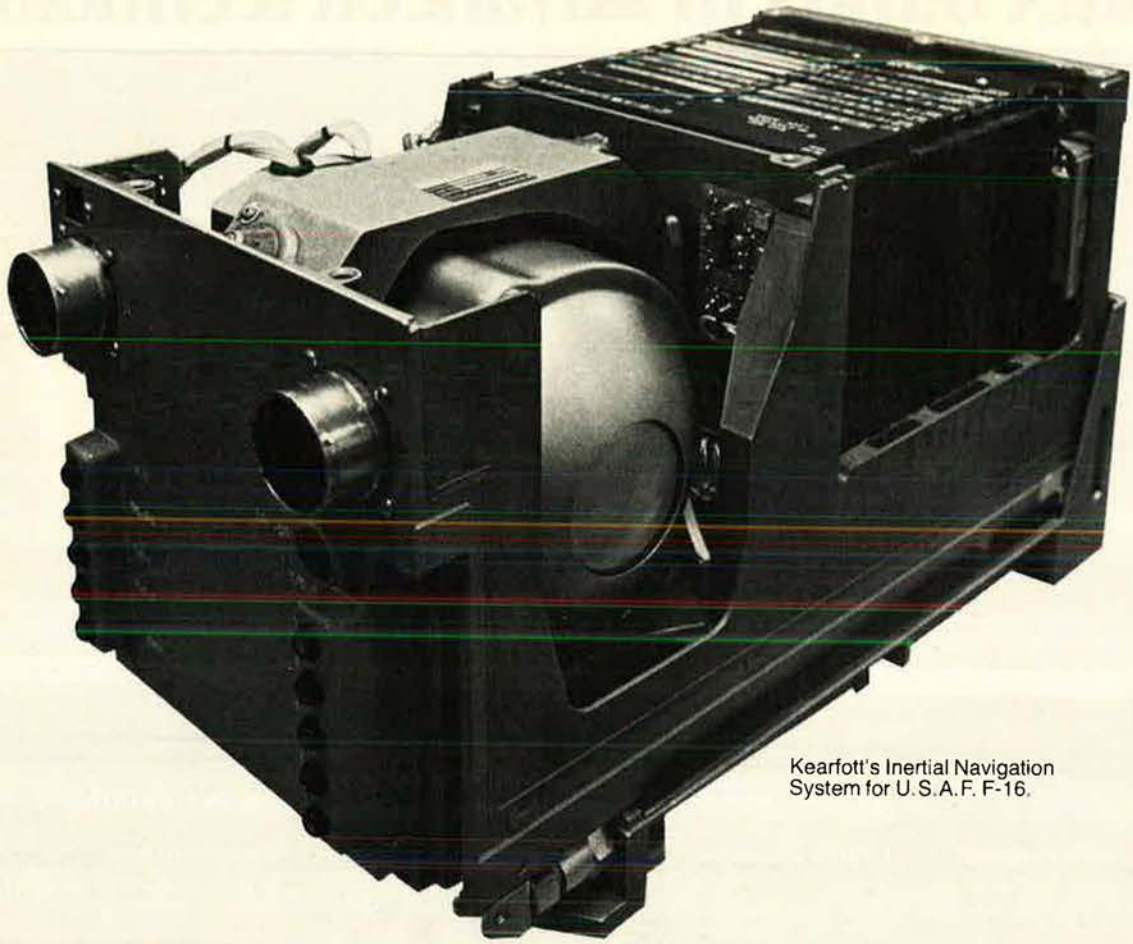

Kearfott's Inertial Navigation System for U.S.A.F. F-16.

Kearfott's Inertial Navigation System (INS) for the F-16 consists of two major line replaceable units—Inertial Navigation Unit (INU), and a Fire Control Navigation Panel (FCNP). It is a prime sensor for aircraft velocity, attitude, and heading, and a prime source of navigation information.

Navigational data are developed from self-contained inertial sensors consisting of a vertical accelerometer, two horizontal accelerometers, and two-axis displacement GYROFLEX® gyroscopes. The sensing elements are mounted in a four gimbal, gyro-stabilized inertial platform with the accelerometers, which are maintained in a known reference frame by the gyroscopes, as the primary source of information. Attitude and heading information is obtained from synchro devices mounted between the platform gimbals.

The system provides pitch, roll, and heading in both analog (synchro) and digital form. In addition, the following outputs are provided on a serial MUX channel (MIL-STD-1553):

- Present Position—Latitude, Longitude, Altitude
- Aircraft Attitude—Pitch, roll, Heading (True and Magnetic)
- Aircraft Velocity—Horizontal and Vertical
- Steering Information—Track Angle Error

In order to permit operation in aided-inertial configurations, the INS accepts the following digital inputs in MUX serial format (MIL-STD-1553):

- Position Update—Latitude and Longitude
- Velocity Update—Velocities in INS coordinates
- Angular Update—Angles about INS axes
- Gyro Torquing Update—Torquing rate to INS gyro axes

Significant features:

- MUX interface (MIL-STD-1553)
- Lightweight—33 pounds
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For additional information write to: The Singer Company, Kearfott Division, 1150 Mc Bride Ave., Little Falls, N.J. 07424.

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Airmail

Military Service, is bestowed on active and inactive military personnel who have direct lineage to a veteran who served in the Confederacy during the War Between the States. By an act of Congress this medal is pinned on a uniform with other medals awarded by the military.

The Missouri Division, United Daughters of the Confederacy, invites active and inactive military personnel to contact me.

This is a link between the past and the present.

Gwendolynne Andrews Murphy
Recorder of Crosses of Military Service, Missouri Division
United Daughters of the Confederacy
424 S. Sappington Rd.
St. Louis, Mo. 63122

Research on Kamikaze Corps

I am a correspondent for international publications dealing with aviation, technology, and military affairs, and am currently engaged in research for a book—my fourth—on the Battle of Leyte Gulf in the autumn of 1944.

This was the occasion when the Kamikaze attack corps first went into action against the Australian and US navies. Background data is needed on the following:

- History, background, and performance of Kamikaze corps until the end of WW II.
- Use of their aircraft, including use of the Baka rocket-propelled flying bomb.
- History of Japanese naval aviation from its formation on the advice of former WW I flyers of the Royal Naval Air Service, in 1921.
- History of Japanese Army Air Force from 1920 to 1945.
- Formation of Japanese aviation industry and its record up to surrender, including assistance given by Hermann Goering's Luftwaffe advisors.
- Any opinion, comment, etc., dealing with the above.

William A. Scholes
57 Warraroong St.
Beverly Hills, Sydney
NSW, 2209, Australia

The 387th Reappears

Thank you for publishing George E. Lund's and my letter on page 14 of the April '79 issue. With the question of whatever happened to members of the world's best USAAF Martin B-26 organization—the 387th Bomb Group (M) of the ETO's Ninth Air Force. Did we get responses!

Suddenly, members of the 387th are coming out of the woodwork from twelve states, and B-26 Marauder stories abound. And behold—among the letters and telephone calls comes an answer to the question: "Why doesn't someone write a history of the 387th?"

Thank you, AIR FORCE Magazine; there most certainly is someone doing research into the history of the 387th. The gentleman's name and address are:

Mr. Alan Crouchman
18 Ash Grove, Chelmsford
Essex CM2 9JT, England

His delightful letter tells of his father, during WW II, watching beside the runway areas of Chipping Ongar, a B-26 base, and noting the names and numbers of various mission takeoffs and landings. Alan has the "dry" USAAF official archives history of the 387th, but would welcome letters of B-26 stories, comments, and photographs to be reproduced, fearful that they may soon become too aged with the passage of time.

AIR FORCE readers are urged to write him directly. He is hard at work on this 387th history project and needs our mutual assistance and help.

In closing, I am reminded that one ex-387th BG member stated that all Martin B-26 pilots were and are professionally sharp. He cited as an example that the captain of the TWA Boeing 727 that mysteriously banked, rolled, and entered a high-speed nose-down descent while over Flint, Mich., last April was none other than ex-Martin B-26 Capt. Harvey G. "Hoot" Gibson of the 387th!

Edward C. Kranch
Los Angeles, Calif.

E-6B Computer

The E-6B Aerial Dead Reckoning Computer occupies a special place in aviation history and lore. Designed by Lt. Phillip Dalton, USNR, it was adopted by the Army Air Forces in 1942, and military and civilian aircrews have navigated almost every type of aircraft over a good part of the earth's surface with various versions of this computer. Over the years, numerous manufacturers, while adhering to the basic format, made scores of changes involving improved readability, revised placement of information, and different methods of making conversions.

I am in the process of cataloging the many models and assembling a representative collection of E-6B pattern computers to be placed with an appropriate air museum. If fellow AFA members have old or new-model flight computers that they don't care to keep stuck away in attics or closets, I would appreciate them mailing these items to me. Any manuals touching on computer usage are also sought. Computers received that are not needed for the collection will be passed along to the local CAP unit for use in its cadet ground schools.

While seeking computers of all vintages constructed of various materials in various sizes, the project particularly needs:

(1) Model stamped "U.S. Army Air Corps—Assembly Drawing No. N330—Spec. No. 94-27, 892."

(2) Various enlarged models used by ground-school instructors.

I would also be happy to hear from anyone who knows of any other collection or cataloging efforts, as well as anyone having knowledge of early E-6B development or anecdotes concerning training or operational use of the computer.

Lt. Col. Joe F. Britt, USAR
4100 Cricklewood Dr.
Lumberton, N. C. 28358

1415th AAF Base Unit

I am a Norwegian Air Force pilot with a keen interest in our local World War II history. Presently, I am doing research on the 1415th Army Air Forces Base Unit, which was stationed in Sweden during the final months of the war and for a period thereafter. The commanders of this unit were Col. Bernt Balchen and Lt. Col. Maurice A. Marris.

The unit was equipped with DC-3 Dakotas and made several flights from Kallax Airfield near Lulea, Sweden, and to Bodø Airfield, during the summer and spring of 1945.

I ask the help of readers in tracing former members of this unit.

Lt. Knut Støre
Royal Norwegian Air Force
P. O. Boks 171
8015 Hunstadmoen, Norway

53d TFS "Tigers"

The 53d Tactical Fighter Squadron "NATO Tigers," now flying F-15s in an air defense role at Bitburg AB, Germany, is using a historical theme to decorate a renovated operations building. We request that former

Airmail

members send memorabilia such as patches, photos, etc., to 53d TFS, APO N. Y. 09132. We are especially interested in photos of the following aircraft with 53d TFS or 36th TFW markings: P-26, P-36, P-40, P-47, P-38, F-84, F-86, F-100, F-105, F-4. Contributors will receive a letter outlining current squadron activities.

Lt. Col. Paul T. Goldman, Jr.
Commander
53d TFS
APO New York 09132

Photos of P-51D

A military P-51 pilot of 1944 to 1949, I recently became part owner of P-51D-25NA N7722C, formerly 44-73420. Would like very much to obtain copies of any photos of this bird while in the AAF, ANG, or USAF. It was assigned:

Feb. '47	190th FS, Idaho ANG, Gowen Field, Idaho;
Oct. '49	190th FS, Idaho ANG, Boise, Idaho;
Apr. '51	Recalled to AD to 146th FBW, Moody AFB, Ga.;
Dec. '51	146th FBW, George AFB, Calif.; a few months at Waco, Tex.;
Apr. '52	21st FBW, George AFB, Calif.;
May '53	174th FBS, Sioux City, Iowa;
July '53	108th FBS, O'Hare Airport, Ill.;
?	165th FIS, Standiford Field, Ky.;
1957	Declared surplus at McClellan AFB, Calif.

I would be happy to pay for any copies and will send color photos of the bird in civilian paint.

Lt. Col. Robb R. Satterfield, USAF (Ret.)
2906 McDonald St.
Midland, Tex. 79703

Still in Existence

Your July issue ran a letter in the "Airmail" column [p. 9] from Col. William Schwehm that referred to your April article about B-17G *Shoo Shoo Baby*. *Shoo Shoo Baby* is definitely not the last existing B-17G. There are several in flying condition in the United States and England. I believe, though, that *Shoo Shoo Baby* is the only existing G model to see combat in WW II, thus making it very rare.

The B-17 Colonel Schwehm mentions on US 99 was still there as o November '78 when I saw it. It is lo cated near either Tulare or Visalia Calif.

Phillip Huston
El Cajon, Calif

Aerial Warfare

I am writing a history about WW II aerial warfare in three parts—the CBI SWP, and ETO/MTO—and would like to contact as many crews—pilots navigators, gunners, bombardiers —of fighters, light, medium, or heavy bombers, as well as attack aircraf and night fighters, for information about their experiences. Also, if they could send one or more pictures they would like to see published, the material will be returned within the month of its arrival here.

The three books will cover every aspect of air fighting in one of the most complete ways ever achieved before, including every aerial victory chronologically related. However, without the help of those who participated as aircrews in World War II it would be quite impossible to realize my project.

Philip F. Charpentier
Historian
Ruelensvest 181
3030 Heverlee
Belgium

Seeking Colonel Bonebrake

Can anyone assist me in locating Lt. Col. Robert R. Bonebrake, who is thought to have moved from Roseburg, Ore., to Taylor, Tex.? He served with the 83d Fighter Group during WW II, and crashed in a P-47 near Manston in Kent, England.

Seymour B. Feldman
12213 Victoria Falls, N. E.
Albuquerque, N. M. 87111

WW II Sextant

I have been trying to locate and purchase for my husband, a former navigator, a World War II sextant. Any help will be greatly appreciated.

Mrs. Robert E. Brandon
West 1314 20th Ave.
Spokane, Wash. 99203

Air War Over Australia

Recently I completed a two-year assignment at the RAAF Base Darwin Northern Territory of Australia, during which time I visited the old airstrip at Fenton. I have undertaken writing the history of the air war over Northern Australia and would like to make contact with the 380th Bomb Group Association members. The 380th

which consisted of the 528th, 529th, 530th, and 531st Bomb Squadrons, was based at Fenton airstrip from June 1943 until March 1945.

Wing Commander E. D. Plenty, RAAF
59, Burnie Street
Lyons A.C.T. 2606
Australia

AF Missions in Vietnam

Can anyone assist me in research work I am doing on Air Force missions flown in Vietnam? I would like any information, pictures, or anything on missions flown by F-4, F-111, A-7 Corsair, and B-52 pilots.

Robert Cerjan
HHC 10th Engr. Bn.
APO New York 09701

UNIT REUNIONS

American Astronautical Society
October 29–November 1, Los Angeles, Calif. **Contact:** Janet Dean, P. O. Box 2202, Downey, Calif. 90242. Phone: (213) 922-3289.

Eagle Pass WASPs
35-year reunion, November 8–12, Eagle Pass, Tex. All former members Eagle Pass Army Airfield invited. **Contact:** Col. John H. Bundy, USAF (Ret.), Air Force Village, 4917 Ravenswood Dr., San Antonio, Tex. 78227.

Kentucky ANG
123d Tac Recon Wing, September 30, Standiford Field, Louisville, Ky. **Contact:** Maj. Richard H. Jett, KyANG, Office of the Adjutant General, Dept. of Military Affairs, Boone National Guard Center, Frankfort, Ky. 40601. Phone: (502) 564-7800, Ext. 373.

USAF Security Service Officers
September 22, Bolling AFB Officers' Club, from 1800 to 2100 hours. All USAFSS officers, past and present, urged to attend; guests welcome. For dinner reservations call (202) 563-3800. For other information **Contact:** E. J. White (703) 533-3303 or 548-8128; or V. M. Heistand (301) 796-6848 or 530-2879.

U-Tapao Vets Association
All Arc Light, Young Tiger, and Bullet Shot personnel, October 5–7, Offutt AFB, Neb. Will dedicate an exhibit in SAC Museum to SAC personnel who served in SEA and the 118 who died there. **Contact:** U-T Vets, Box 13023, Offutt AFB P. O., Neb. 68113. Phone: (402) 294-5059.

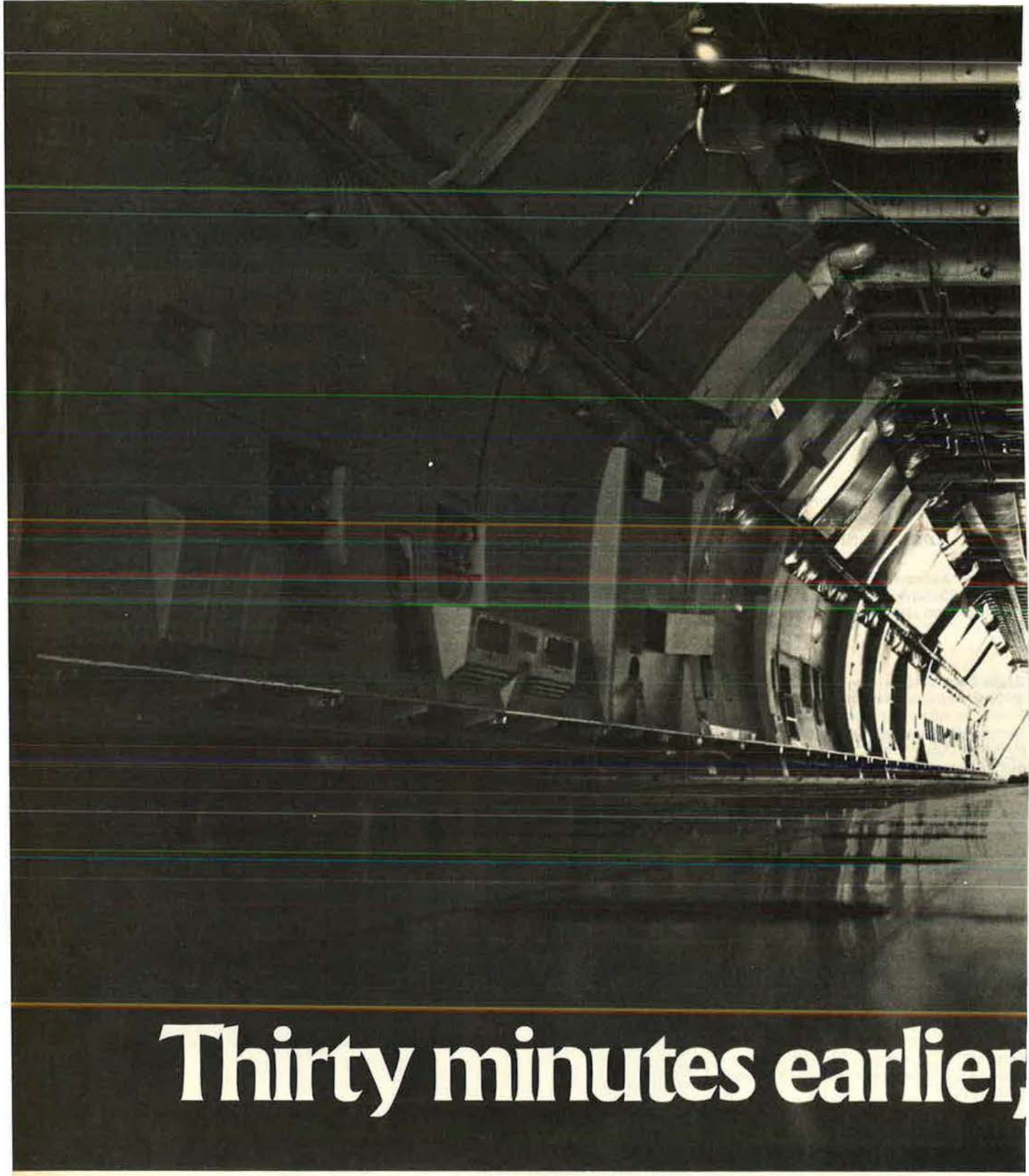
BAD #2
3d annual reunion, October 25–28, Phoenix, Ariz. **Contact:** BAD #2 Association, 811 East 16th Ave., New Smyrna Beach, Fla. 32069.

8th Air Force Historical Society
October 25–28, Phoenix, Ariz. **Contact:** 8th AF Clearinghouse, 3911 NW 173d Terrace, Opa-Locka, Fla. 33055.

66th Fighter Wing, 8th AF
2d reunion, October 5–6, Marriott Hotel, 1999 Jefferson Davis Highway, Arlington, Va. All former members and friends invited. **Contact:** C. M. Bowman, Cambria, Phoenix, Md. 21131. Phone: (301) 666-2880.

F-102 Pilots
November 9–10, Sheppard AFB, Tex., in conjunction with dedication of a pedestal-mounted F-102. **Contact:** Col. John M. Franklin, 4300 Shady Lane, Wichita Falls, Tex. 76309. Phone: (817) 692-6081 (home); AUTOVON 736-2603.

303d Bomb Wing
(Davis-Monthan AFB, Ariz.) October 27, Tucson, Ariz. **Contact:** Ray Stanford, 6451 N. Camino Abbey, Tucson, Ariz. 85718.



Thirty minutes earlier

That's where the C-5 Galaxy far outshines the rest—speed of cargo handling.

After all, huge capacity is fine, but that alone doesn't make a great airlifter. What does is simple, quick, efficient loading and unloading. And in actual operation, a fully loaded C-5 unloads in under 30 minutes.

The C-5, of course, can carry more than 200,000 pounds of payload including things other planes can't carry, like Chinook helicopters and large, fully assembled vehicles.

It can navigate surely, even in remote areas of the world, and be refueled in flight. It can lift main battle tanks into and out of semi-prepared runways as short as 3,500 feet.

And on the ground, it's a loadmaster's dream come true. The huge nose swings up in front, doors open at the rear. Then the giant plane 'kneels' on its 28-wheel landing gear to bring the cargo deck close to the runway. Integral ramps fold out to truck-bed height o

this C-5 was fully loaded.

are slanted to the ground to become drive-on ramps.

Then, without the need for sophisticated ground-handling and hoisting equipment, cargo can be speedily loaded or unloaded through both ends of the 145-foot-long, 19-foot-wide bay.

There's a lot more to the C-5 story. Many of its features—short-field capability, front or rear straight-in/straight-out loading, huge payloads—make it ideal for other missions besides airlift. And it can be adapted to those missions at low cost.

The C-5. Built on the only airlifter production line in the U.S., by the people who designed and build the C-130 Hercules and C-141 StarLifter, the people who know more about designing and building airlifters than anyone else. When it comes to airlifters, Lockheed knows how.

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In Focus...

BY EDGAR ULSAMER, SENIOR EDITOR

Washington, D. C., Aug. 3

MX Entering Home Stretch?

The Administration's listless pursuit of the MX ICBM program—revolving on the selection of a basing mode that is survivable in a purely physical as well as an intelligence sense—seems to be going around in circles at a snail's pace. After a series of informal promises to concerned congressional leaders by senior Administration officials that the White House would select a basing mode for MX and authorize go-ahead of the program before the end of July, the decision on whether, how, and when the program is to proceed has been slipped to mid-August or later.

A component of the National Security Council (NSC)—the Program Review Committee (PRC), comprised, among others, of the Secretaries of State and Defense, the Director of OMB, the Chairman of the Joint Chiefs of Staff, and the Director of Central Intelligence—now is scheduled to meet on or shortly after August 7 to review DoD/USAF plans on basing modes and to make formal recommendations to the President on whether or not he should authorize full-scale engineering development of the entire MX program.

The fact that the Administration slipped the PRC meeting on MX by more than two weeks caused consternation on Capitol Hill. Ostensibly the reason was that a National Security Council staffer failed to clear the calendar of the principal participants. But there are indications that beyond this bureaucratic glitch, the White House was unwilling to cancel prior speaking engagements by Secretary of State Cyrus Vance and others themed to selling the SALT II accord. The feeling is that the Administration considers selling SALT more important than shoring up strategic deterrence.

At this writing, the status of the MX program is problematical because of a running battle between the Congress and the Administration: The latter has authorized go-ahead of the program but delayed the decision on basing mode; the Congress, presumably concerned about possible feinting on the part of the Administration, keeps providing the White House with deadlines concerning the program. Appended to these recurring mandates to proceed are provisos that the Congress will not authorize the program unless and until the Administration certifies that it has decided on a specific basing mode and will go ahead with simultaneous development of the missile and the basing arrangement.

The horns of the dilemma, in the view of some congressional experts, have been created by the Administration to give it the option of steering the program into a dead-end street. These experts claim—and at least one senior defense official seemingly agrees—that the Administration plans to let the MX program atrophy after the Senate has voted on SALT II this fall. The gambit, according to this school of thought, is to select a basing mode that drives up costs and environmental problems to a point where the Congress will want to kill the program. In such a case, the onus for halting the program would be on Congress. Other congressional experts fear that the Administration might plan a different tack and use MX as a bargaining chip for the next round of strategic arms-control negotiations.

A counteroffensive is being mounted, however, to increase the political viability of the MX program. An innovative strategy calls for Congress to authorize the MX program over its lifespan rather than on a year-by-year basis. Because of the Impoundment Act that requires the Administration to spend funds authorized by Congress, it becomes difficult if not impossible for the Executive Branch to halt or defer a program once it is authorized *in toto*. Few congressional insiders sympathetic to the MX program actually believe that Congress can succeed in such a step if there is no cooperation from the White House, but most hope that a mere show of congressional resolve could improve the long-term prospects of the proposed new ICBM.

The latest iteration of the MX basing mode, known as the Horizontal Dash MX System, differs somewhat from the earlier approach reported in this space last month. The new concept centers on a "closed loop pattern," and is pegged at a total systems cost of about $30 billion. The Horizontal Dash basing mode probably is not ideal from any one aspect—economics, military utility, political acceptability, or environmental impact. Yet, when all these factors are judged in sum, the closed loop basing mode scores high marks.

Key benefits expected from closed loop, or "racetrack," basing *(see diagram)* include compatibility with the

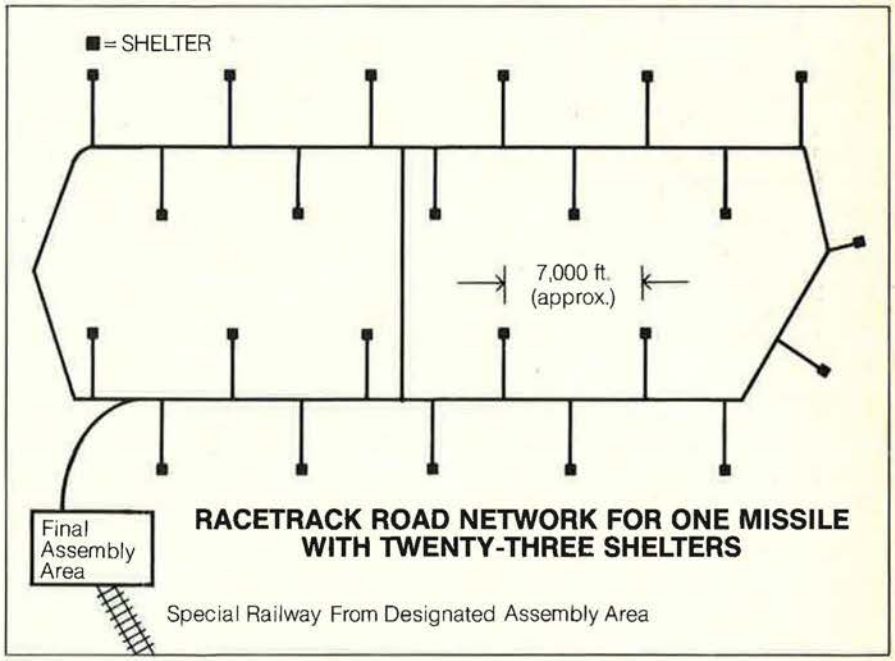

Diagram of the latest proposed basing mode for MX—the Horizontal Dash System.

In Focus...

presumed Soviet interpretation of SALT II's verification provisions. This is achieved by unambiguously confining the network of alternate shelters accessible to the mobile MX missile via surface roads and through use of an integral transporter-erector-launcher (TEL). The latter helps nail down the SALT II-sensitive distinction between shelters and launchers. From a purely military point of view, the Horizontal Dash System combines the advantages of "hiding" individual MX missiles in complexes of multiple shelters in shell-game fashion, with the ability to rapidly relocate the missile on tactical warning.

Each TEL operates within its own racetrack-like network of twenty-three shelters as shown in the diagram on p. 21. The individual shelters are hardened to about 600 psi (pounds per square inch) of overpressure and have "openable" roofs to assist in verifying there is only one missile per complex. The TEL is about 180 feet long, thirteen feet wide, thirteen feet high, and weighs, when carrying the 192,000-pound MX missile, about 700,000 pounds. Because of its weight, TEL can't operate off-road, thus assuring that no additional missiles can be introduced into a complex. In cases of tactical warning of an impending ICBM attack whose scope and characteristics suggest that the Soviets have breached the security of the MX basing mode—and thus might know where the US ICBMs are located within each complex—TEL would "dash on warning." The vehicle's speed—probably a maximum of between twenty and thirty miles per hour—is adequate to reach any shelter along the closed loop from the shelter it happens to be in, in less than thirty minutes, or less time than the interval between detection of a Soviet ICBM launch and warhead impact.

The system's mobility can increase its survivability in other ways. During a severe crisis, the MX can be kept in constant motion, in the manner of airborne strategic bomber alerts. Such a mobile alert would also signal the seriousness of US concern and might cause the adversary to deescalate. Or, if the choice is to operate in a "mixed" mode—under attack or threat thereof—some of the MX force can be left in shelters and some kept on the move in order to hedge and to compound Soviet targeting problems. Another step to enhance survivability is to "reposture" the system by moving the missiles to different shelters whenever there is concern about the Soviets breaching security, or during periods of crisis.

Present plans call for 200 MX missiles to be deployed on a like number of TELs. Each of the latter would operate in one of 200 closed-loop shelter networks to provide an aggregate of 4,600 shelters. (The number of launch points is still greater since TEL can launch MX either from shelters or at any point along the roads within a complex.)

Assuming that SALT II limitations of Soviet ICBMs and MIRVs are in effect in the late 1980s—when MX is expected to achieve full operational status—a minimum of 100 MX missiles, or at least half the force, would survive a Soviet first strike. If the Soviet threat proliferates beyond presently anticipated levels, additional shelters can be added at reasonable cost, *i.e.*, between $1.7 and $2.2 million each.

Several special features are being incorporated into the Horizontal Dash basing mode to demonstrate unmistakably to the Soviet Union that only one missile can be deployed in each complex. At the same time, an intricate procedure has been developed to hide the location of the missile within a complex from the prying eyes of enemy agents on the ground, Soviet satellites overhead, and other Soviet detection methods. Included are periodic movement of the TEL within its shelter complex. But since TEL moves on surface roads, a "visibility shield" is needed to keep the Soviet Union from pinpointing the missile's location. This "shield" is a special vehicle that straddles and moves in unison with the TEL. After the TEL is relocated in a new shelter, the shield vehicle visits all the other shelters in the cluster and replicates the procedure associated with TEL's entry into a cluster.

Further, the various observable clues associated with moving a 700,000-pound TEL—and with TEL's presence in a given shelter—will be masked carefully. Electromagnetic, thermal, acoustic, gravitational, and seismic "signatures" produced by TEL and its missile will be simulated by a combination of countermeasures both in the empty shelters and on the shield vehicle.

In the interest of SALT II verification, the shelters are provided with openable sections, or "plugs," in their roofs. The shelters will be opened periodically, or "on demand" in ambiguous cases. Preliminary calculations suggest that plugs of between six and ten feet, spaced every forty feet, will permit adequate verifications.

One of the Horizontal Dash basing mode's more interesting features is the plan to power MX in peacetime by photovoltaic solar units to avoid energy problems at the remote sites, and also to provide a pathfinder for large-scale production of commercially useful photovoltaic power-generating systems.

The proposed basing mode requires only "point security" of the land in the immediate vicinity of the shelters. Combined, the amount of public land in Nevada and Utah—where the system is to be situated—used by MX probably won't exceed twenty-five acres. The governors of these two states strongly support the Horizontal Dash basing, just as they also strongly oppose the "covered-trench" concept favored initially by the White House.

If current SALT II-related moves to strengthen and modernize the nation's offensive strategic capabilities can be translated into supplemental funding of the current Defense budget and an upward revision of the Five-Year Defense Plan, the political survivability of the MX weapon system could come close to its military survivability.

Washington Observations

• The date of a double Minuteman ICBM launch as part of SAC's "Global Shield" exercise was delayed by about a month to avoid the possibility of adverse Soviet reaction during the SAL talks in Vienna. Before the double launch did take place, the Administration notified the Soviets as stipulated by SALT II.

US concern over Soviet sensibilities does not appear to be reciprocated. Recent Soviet nuclear weapons tests almost certainly exceeded permissible yields, and there is evidence of a rapidly increasing Soviet military presence in Cuba, including new command posts and Soviet manning of some Cuban military aircraft.

• A recent trip by the White House's science boss, Dr. Frank Press, to Britain to change the Thatcher government's critical attitude concerning the trilateral Comprehensive Test Ban Treaty negotiations has been described as a singular failure. The new

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Fred Randall
Vice President
Vought Corporation

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"Aircraft structures are the core of Vought's Specialty Product Business. But we're doing much more."

"Vought was recently awarded a multi-million dollar contract by Boeing to build the horizontal stabilizer for the new 767 airliner. Obviously, this represents a very significant piece of business for us. So do all the other specialty items we provide the aircraft industry, such as wings, nacelles, aft fuselages, and landing gear. Our customers for these products include such names in aerospace as Boeing, Lockheed, Bell, Sikorsky, and McDonnell Douglas.

"But our horizons have broadened beyond the aircraft arena. We're currently doing important research and development work in lightweight graphite composites for the automobile industry. We're very interested in all phases of energy—oil, solar, nuclear—and we already construct major steel assemblies for the oil and gas drilling industry. We're even using the Vought-improved techniques of electrochemical milling to rifle machine gun barrels.

Fabrication of Boeing's 747 vertical fin.

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"Today, wherever there's a high technology need for specialized production, Vought is ready to meet it with the production capabilities, cost effectiveness, and quality that have made us the number one specialty supplier among all aerospace prime contractors.

"We didn't achieve this distinction without commitment. It's one we made in the 1950's to develop our specialty strengths over the long term. That early investment in planning has long since paid us dividends. And we intend to profit from it even more as we actively pursue new work in this vital area of our business."

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InFocus...

British government appears determined to strengthen its own nuclear capabilities, and, therefore, is not as inclined as its predecessor to agree to a complete cessation of all nuclear weapons tests. There is indication that Whitehall's reluctance to accept CTB on US/Soviet terms—that is, no tests at all, not even below the verifiable level of five to ten kilotons—in part is fostered by doubts about the reliability and effectiveness of the US nuclear umbrella. Contrary to the Administration's boast that the new British government is an enthusiastic supporter of SALT II in its present form, congressional sources in touch with British authorities believe that the accord has heightened rather than allayed British doubts about the reliability of this country's nuclear umbrella.

These sources also report similar reactions in France, including increased determination to maintain indigenous nuclear weapons capabilities. French spending on nuclear warhead research and development, these sources say, now is equal to US investments.

There is irony in the fact that while Britain's ardor for CTB is cooling, the US taxpayer is paying more than $50,000 to host a group of Soviet scientists who are examining US equipment for monitoring underground nuclear weapons tests at MIT's Lincoln Laboratory and other sensitive installations.

• During recent hearings by the Oversight Subcommittee of the House Permanent Select Committee on Intelligence, Congressman C. W. "Bill" Young (D-Fla.) probed the government's ability to detect or prevent penetration of the armed forces by subversive elements. Because the government's investigative agencies are hamstrung by restrictive regulations and guidelines, the government's witnesses were uniformly pessimistic. Citing specifically the Progressive Labor Party (PLP), whose publicly stated goal is penetration of the armed forces and "armed struggle" against the US government, Mr. Young asked an FBI witness whether his agency could detect or confirm suspected PLP infiltration. Donald T. Perrine, a senior official of the FBI's record management division, testified that such an infiltration "would go undetected."

The reply drew this succinct comment by Mr. Young: ". . . The FBI does not have the data base that is necessary to respond to requests in a national agency check, and, frankly, I worry about this from the standpoint of the security of our country, the protection of our people, the prevention of acts of terrorism, and I am concerned that the reason we have this problem is because of the Attorney General's guidelines." Mr. Perrine said he, too, was worried.

• Reaction of the People's Republic of China to SALT II has been negative and could portend greater willingness by Peking to seek a rapprochement with Moscow. A Peking domestic radio broadcast on the day following the signing of the accord said that "after ten years of unceasing pursuit [of SALT] the Soviet Union has converted its inferior position of the mid-1960s into a strategically superior position. . . . Furthermore, the treaty itself is full of loopholes, and there are disputes beyond the treaty. . . . The Soviet global strategy is to overwhelm the US with strategic weapons and West Europe with theater and conventional weapons, and then advance on all fronts."

• One of the surprises of the US intelligence community in the wake of SALT II was the discovery of SS-11 ICBM canisters, launch equipment, and ground-support equipment at a Soviet MRBM (medium-range ballistic missile) silo. MRBMs don't count under SALT. In addition, a large number of SS-7 ICBMs was discovered at sites not previously identified as associated with nuclear weapons.

• The US, belatedly, has decided to replenish its supply of Oralloy, the fissile trigger material of nuclear weapons, and of heavy water, a key material in the production of Oralloy and other defense-related products. While the nation's Oralloy production facilities are in a state of disrepair, there is sufficient capacity available to assure the quantities of fissile material needed for the warheads of cruise missiles, MX, and other new delivery systems slated to enter the inventory in the next decade.

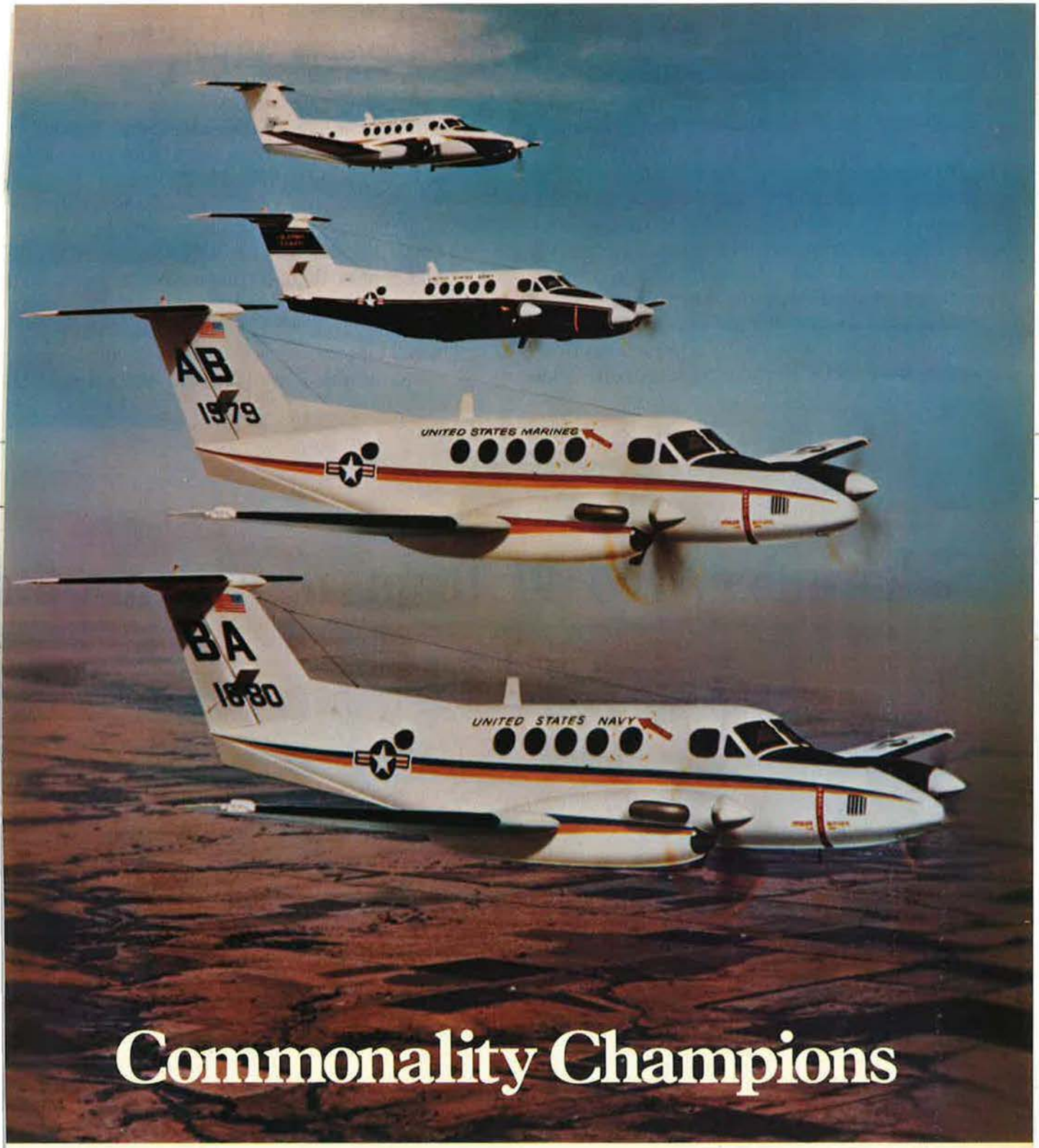
• The Regents of the University of California handed one of their own, California Gov. Jerry Brown, a stunning rebuff when they voted fifteen to seven (one abstention) against terminating nuclear weapons programs at the Los Alamos and Lawrence Livermore Laboratories, which the university manages for the Department of Energy. The two laboratories are the mainstay of US nuclear warhead and nucleonics research and development and play an important role in advanced high-energy physics research of potential benefit to national security. The present arrangement between the government and the university dates back to the late 1940s. Because of attitudes critical of defense work on the part of some members of the faculty and the student body, the university has reexamined its arrangement with the Department of Energy on several occasions over the past decade, culminating in the recent formal vote by the Regents. The Department has let it be known that in case of a negative vote it was prepared to consider a variety of management alternatives for the two laboratories, including creation of a private nonprofit corporation. Hollywood film star Jane Fonda was one of the more vocal activists who supported Governor Brown in his drive to terminate the present arrangement.

• The House Appropriations Committee's markup of the military spending bill contains a provision of potentially far-reaching consequence: The committee seeks to mandate the creation of a USAF warrant officer pilot corps to augment or replace commissioned aircrews *(see also "The Warrant Officer Wrangle," p. 154 of this issue).* This legislative bolt out of the blue ostensibly is meant to ease the pilot retention problem and to save money. USAF's reaction is that such an arrangement, presumably patterned after the US Army helicopter pilot corps, would do neither.

It is the Air Force's contention that the disparity in pay and long-term earning potential between warrant officer pilots and airline pilots would make the former more susceptible to airline recruiting than commissioned pilots.

Further, the fact that warrant officer pilots would not be required to have college degrees and would start their flying careers at an earlier age—which leaves them with more time for a second career than commissioned officers with comparable flying experience—increases their attractiveness to the airlines.

The House Appropriations Committee's plan has not been endorsed by other elements of the House or Senate. Nevertheless, there is basis for concern that the full House might vote in favor of the plan. At this time, it is not clear what the Senate's reaction would be. ■



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Lifting off the runway, the U.S. Air Force F-16—one of the world's most advanced fighter aircraft. On its wingtips, the Sidewinder AIM-9L—the free world's most advanced short-range air-to-air missile. Together, they make up a first line airborne defense team. The AIM-9L is already operational on the F-15 and F-14 and is a firm requirement for the Navy/Marine Corps F-18.

As a prime industrial support contractor for Sidewinder AIM-9L, Raytheon is currently in full rate production on the missile's guidance and control section. We are also providing technical assistance to a European consortium—led by the Federal Republic of Germany—that will produce the AIM-9L for use by several NATO nations.

Designed by the Naval Weapons Center, this newest Sidewinder features substantial improvements in maneuverability, guidance, accuracy, and lethality. Its all-aspect IR capability provides for early acquisition and first-launch opportunity against targets in close air-to-air combat. Over 18,000 hours of MTBF and captive flight testing have demonstrated tl system's design reliability.

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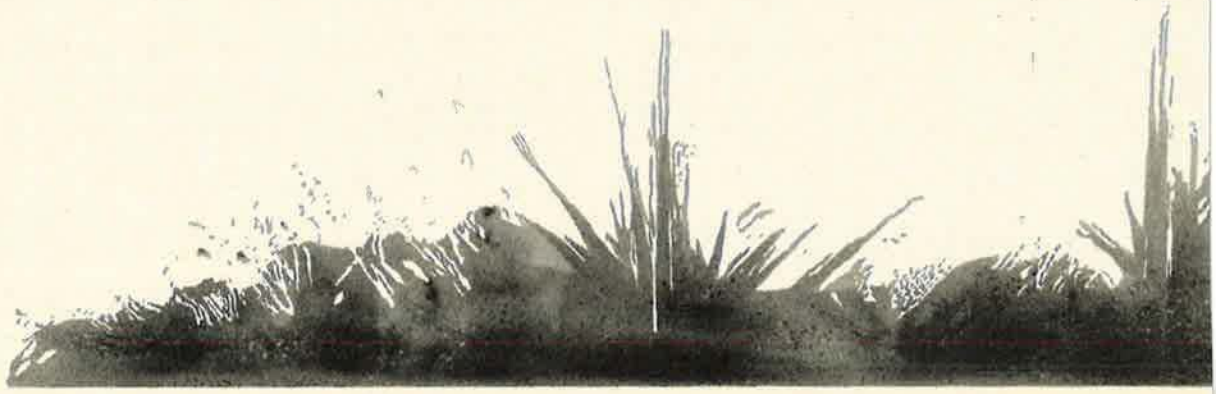

s later only one.

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Aerospace World News, Views & Comments

By William P. Schlitz, ASSISTANT MANAGING EDITOR

Washington, D. C., Aug. 6

★ In the language of the '60s, it was a "happening." To commemorate the event, entrepreneurs sold plastic Skylab protective helmets and survival kits; young people donned tee shirts with targets stenciled on the back; in Washington, a popular hangout offered a drink called the "Chicken Little."

Others took Skylab's July reentry into the atmosphere and breakup more seriously: In the Philippines, President Ferdinand Marcos reassured his people in a televised address. Elsewhere in the world, newspaper editorials chided the US for its handling of the matter.

In the final event, though, and to the relief of US government and NASA officials, nothing catastrophic happened. The major concern of many was that huge chunks of the disintegrated space lab would crash down in populated areas, taking a toll in lives and property. As it was, Australia was treated to a fireworks spectacular as bits and pieces of the seventy-eight-ton craft fell to earth in that nation's desolate outback, to the amusement of some Aussies and consternation of others.

What followed was a latter-day "gold rush," as people combed the outback for Skylab hardware to submit for rewards or display as souvenirs. NASA dispatched a team of scientists to inspect whatever parts of Skylab were recovered.

Thus, history's first manned orbital space station, which could not be sent into a higher permanent orbit, ended with a bang instead of a boost. Since its launch in May of 1973, the station played host to three separate manned missions, the third of which set the US mark for space endurance (eighty-four days), long since topped by the Russians (*see item below*). For all of that, however, Skylab's triumphs far exceeded its tribulations as man took his first tentative steps in the utilization of space stations.

And in an era when mankind seems faced with an endless series of threats and crises, the thrillingly dramatic but harmless reentry of Skylab was a welcome change.

★ At this writing, two Soviet cosmonauts had far exceeded the previously established record—of 139 days, fourteen hours, and forty-eight minutes—for time spent in space. Just how much longer the two—pilot Vladimir Lyakhov and engineer Valery Ryumin—intended to remain aboard orbiting space station Salyut-6 was still in question.

During their extended mission, the cosmonauts conducted extensive experiments in space biology (according to Soviet news agency Tass, to supplement their diets they grew their own lettuce), weightless metallurgy, photography, scientific measurements of cosmic events, and astronomical observations.

In April, a planned visit by a Soviet pilot and Bulgarian engineer aboard a Soyuz craft was frustrated by an equipment malfunction during the docking approach. The two would-be guests returned safely to earth. But Lyakhov and Ryumin have been successfully resupplied by unmanned Progress cargo spacecraft, which also delivered some equipment replacements for Salyut-6, in orbit since September 1977. The two cosmonauts constitute the third successive record-breaking crew to inhabit the orbital station, which has been operational far longer than originally planned.

With their customary secrecy, the Soviets have not made public their plans for Salyut-6 once the current mission is terminated, but in all probability it eventually will follow the course of previous Soviet orbital stations and be destroyed on reentry.

★ Key pieces of equipment to "space-walking" astronauts during Space Shuttle missions in the 1980s will be the radios built into their backpacks. Weighing only nine pounds and measuring twelve inches by 3½ by 4½ inches, these units will each contain two transmitters and three receivers for redundancy.

Besides providing voice communications, the radios will broadcast telemetry signals of the astronauts' heartbeats and deliver "caution" and "warning" signals when life-support systems run low.

A sixty-ton XM-1 tank—a new type slated to be the US Army's Main Battle Tank—emerges from the cavernous fuselage of a C-5A Galaxy on its arrival at Eglin AFB, Fla. The XM-1 is scheduled to undergo a stint of cold-weather testing at the McKinley Climatic Laboratory at Eglin. Congress has approved first-year production of 110 XM-1s.

The Town Crier convenes the recent silver jubilee gathering of Lockheed C-130 Hercules transports from around the world. Twenty-five Herks from fourteen nations attended the RAF Benevolent Fund's International Air Tattoo at Greenham Common Airfield near London, UK. Of special note was the first C-130 to arrive and the first on the line—ol' 023—the "City of Ardmore," the first Hercules to be delivered to a troop carrier wing in 1956, two years after the C-130 prototype first flew. She's logged 12,500 flying hours on her airframe, including battle damage in Vietnam, and serves with AFRES's 928th TAG, O'Hare IAP, Chicago.

For Shuttle astronauts wearing spacesuits equipped with rocket thrusters, the backpack radio will produce "thruster noises" as a safety measure so the astronaut can "hear" when the thrusters are operating. (The actual thruster noise cannot be heard in the vacuum of space.) The radios, a spinoff of the Apollo program, are to be built by RCA Government Communications Systems, Camden, N. J.

In the matter of Space Shuttle navigation, the four Orbiters, beginning with *Challenger* in mid-1982, are to be equipped with Global Positioning System (GPS) capability. This will enable them to receive extremely precise time and range signals from Navstar satellites orbiting some 10,000-plus miles above them.

Besides routine and accurate navigation, GPS can be used in mapping and surveying the earth, as well as plotting exact points for satellite launch and payload deployment. Having a highly accurate time base is of particular importance to a number of payload experiments being planned, officials said.

GPS and the Navstar satellites, to be put into operational orbits by the Shuttle in the mid-1980s, are to be built by Rockwell International's Space Systems Group, Downey, Calif.

★ The competitive flyoff between the Boeing AGM-86B and the General Dynamics AGM-109 air-launched cruise missiles (ALCM) began in July and is to continue through the end of 1979.

About twenty flights are planned for a course mapped out over parts of California, Nevada, and Utah. The flights, in a ten-mile-wide corridor, will take place over military ranges where possible and will be wide of densely populated areas. *(See "The ALCM Decathlon," June '79 issue.)*

On about half the flights, the missiles will remain attached to the B-52G launch aircraft in a "captive-carry" mode, designed to test the ALCMs' navigation systems by guiding B-52s over the predesignated route.

On the other flights, the missiles will be launched by B-52 at sea off the California coast and, once all systems are determined to be functioning properly, will head inland along the 1,500-mile prescribed course. F-4 chase planes capable of assuming electronic control of the missiles at any time will shepherd these flights, along with helicopters and refueling and communications aircraft.

The unarmed missiles, flying at subsonic speeds, will range in altitude from 500 to 5,000 feet. At the Utah Test and Training Range, southwest of Salt Lake City, the missiles will deploy parachutes for midair recovery by helicopter. Another phase of the program calls for the missiles to fly laps around a circular course at the Utah range.

Under current planning, 3,000 missiles are to be acquired from the two companies at a cost of about $1 million each, with the lion's share of $2 billion of the $3 billion appropriation going to the competition's winner.

If all goes as scheduled, a production decision is expected by the second quarter of 1980. The first operational ALCMs are to be aboard B-52s at Griffiss AFB, N. Y., by 1982.

★ First flight of NASA/USAF's new unmanned HiMAT research aircraft took place in mid-July at NASA's Dryden Flight Research Center, Edwards AFB, Calif.

The plane was launched, with engine running, from a B-52 at 45,000 feet (14,000 m). Full control of the aircraft, including landing on Dryden's dry lake bed, was from a ground cockpit. Two-seat F-104 chase planes were also equipped for flight control, if needed.

The advanced technology built into HiMAT could lead to future military aircraft with twice the maneuverability of present-day fighters. HiMAT—which stands for Highly Maneuverable Aircraft Technology—is radio-controlled and is expected to sustain twice the turn rate at transonic and supersonic speeds as fighters in the air today.

Because of the vehicle's high-risk advanced technology, it was de-

Aerospace World

signed to fly using the remotely piloted research techniques NASA developed several years ago.

An aerodynamically interesting aspect of HiMAT's design is its hoped-for ability to "aeroelastically tailor" (twist and bend) its wings and canards for greater maneuverability and performance. These are composed of about thirty percent composite materials.

HiMAT is also equipped with a digital fly-by-wire (electric) control system. Piloting commands fed via telemetry to an onboard computer in turn are relayed to flight-control surfaces. A digital computer also controls the aircraft's propulsion system, to integrate jet engine and nozzle operations.

HiMAT is equipped with winglets—small extensions of the wingtips—for additional stability and performance.

In HiMAT's flight test program, data will be fed into a simulator at NASA's Langley Research Center in Virginia for an assessment of a full-scale fighter's capabilities based on flight-verified aerodynamic characteristics. HiMAT is a scaled-down model with a wingspan of fifteen feet (4.5 m) and length of 22½ feet (seven m). It weighs 3,400 pounds (1,542 kg).

★ The first USAF/FAA radar site under the Joint Surveillance System (JSS) program was put into operation late in June at Salem, Ore.

It is the first of thirty-six sites planned under the JSS program to upgrade and consolidate NORAD's military aircraft surveillance with FAA equipment and personnel during peacetime. These and nine military-only sites will comprise the entire JSS radar network in the continental US. All are expected to be operational by late in 1980.

During wartime or periods of stepped-up alert, the military surveillance mission will be conducted by USAF's E-3A Sentry airborne warning and control system aircraft. These flying radar station/command posts are capable of directing air defense forces while scanning an area 250 miles (402 km) in all directions.

Under the JSS, manning requirements will be reduced by 5,000, and more than $100 million will be saved annually in operating and maintenance costs, officials said.

In the realignment, USAF will implement four new NORAD Region Operations Control Centers to replace the seven outdated facilities now in use in CONUS and an additional ROCC in Alaska.

★ In another radar milestone, the first ARSR-3 air route surveillance radar recently went operational at Arlington, Iowa. The radar is the first of a new generation of minimally attended radars to enhance civil air route surveillance in areas with heavy traffic. The new facility in Iowa passes aircraft position data to air traffic control centers in both Chicago and Minneapolis.

The ARSR-3, according to FAA officials, "is a giant step ahead in terms of technology" and a vast improvement over previous air route surveillance systems.

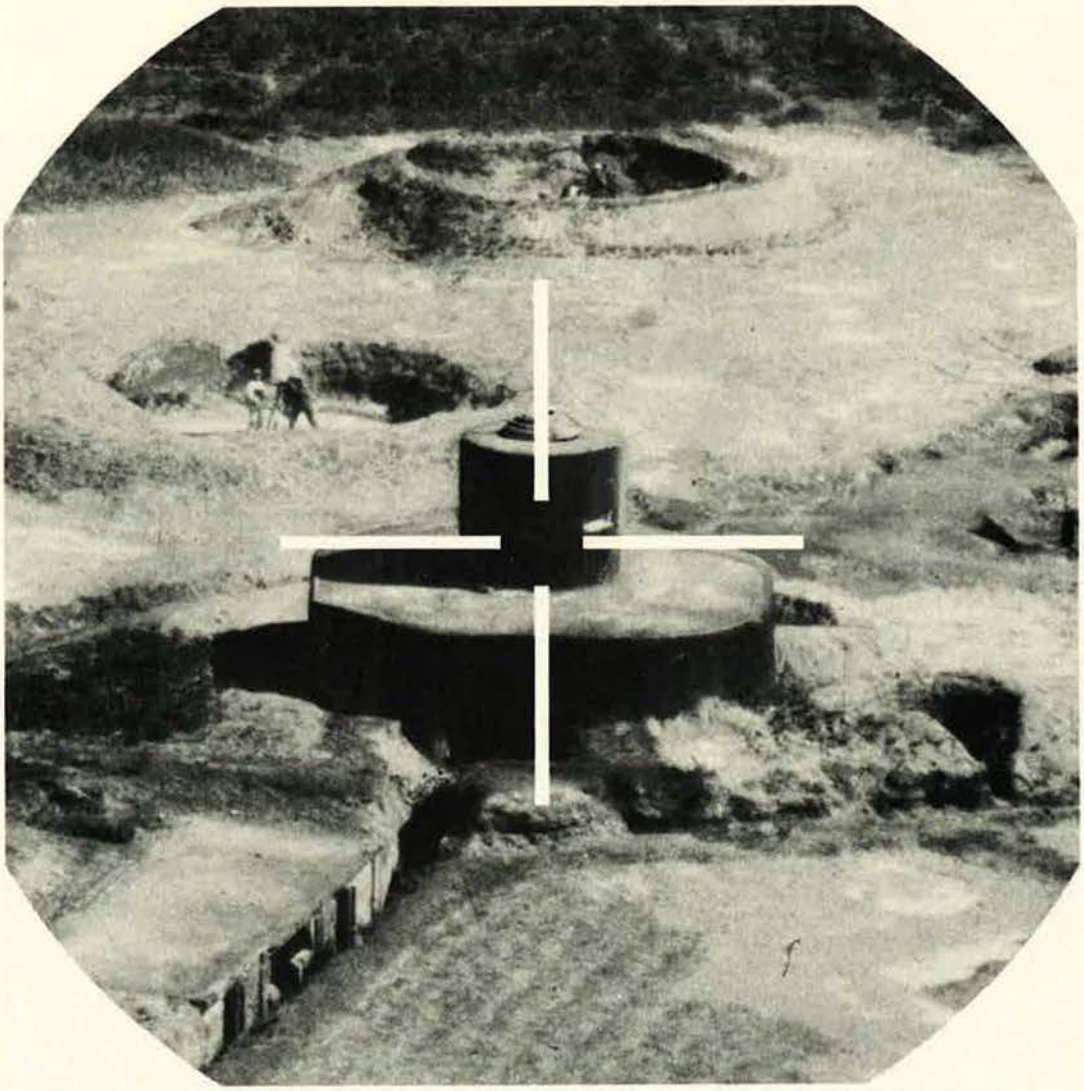
Designed for low-cost maintenance, the radar has solid-state circuitry throughout and a long-life klystron transmitting tube. Its digital signal processing minimizes false returns caused by weather, ground

Maxine McCaffrey 1925–1979

Maxine McCaffrey, one of the Air Force Art Program's most prominent participants, died of a heart attack in Los Angeles in July. She was a member of the Los Angeles Society of Illustrators and had worked in the Air Force Art Program since 1961. Of her sixty paintings donated to USAF's collection, the last—of Joint Chiefs of Staff Chairman Gen. David C. Jones—was offered in April 1979. Here she is pictured with General Jones on that occasion. She was presented the Gill Robb Wilson Award at AFA's 1975 National Convention in recognition of her dramatic paintings depicting, as no other artist had, the saga of the missing in action and prisoners of war in Southeast Asia. Her favorite charity was the Red River Valley Association Scholarship Fund. Contributions to the scholarship fund, which represents all MIA/POW organizations, can be sent to: Jay F. Street, National Treasurer, RRVASF, 365 Hampshire Lane, Crystal Lake, Ill. 60014.

Representative of Maxine McCaffrey's MIA/POW art is this study of a caged but resolute American POW entitled "At the Hanoi Hilton."

GBU-15 has an eye for heavily defended, high-value targets.



Industrial complexes, SAM sites, airfields and bridges. The nose-mounted TV camera for pinpoint accuracy and Cruciform Wing weapon design for extended range make the USAF GBU-15, developed by Rockwell International, ideal for use against such targets. GBU-15 transmits a sharp television picture of its target to the host aircraft. Using remote control, the pilot can guide GBU-15 to a direct hit — and not expose himself to radar or antiaircraft defenses in the target areas.

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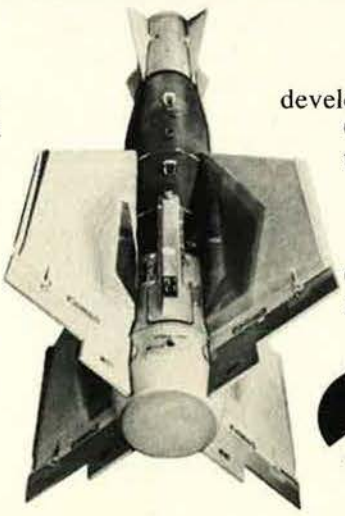
For more information, write: Missile Systems Division, Avionics & Missiles Group, Rockwell International, 4300 E. Fifth Avenue, Columbus, OH 43216.



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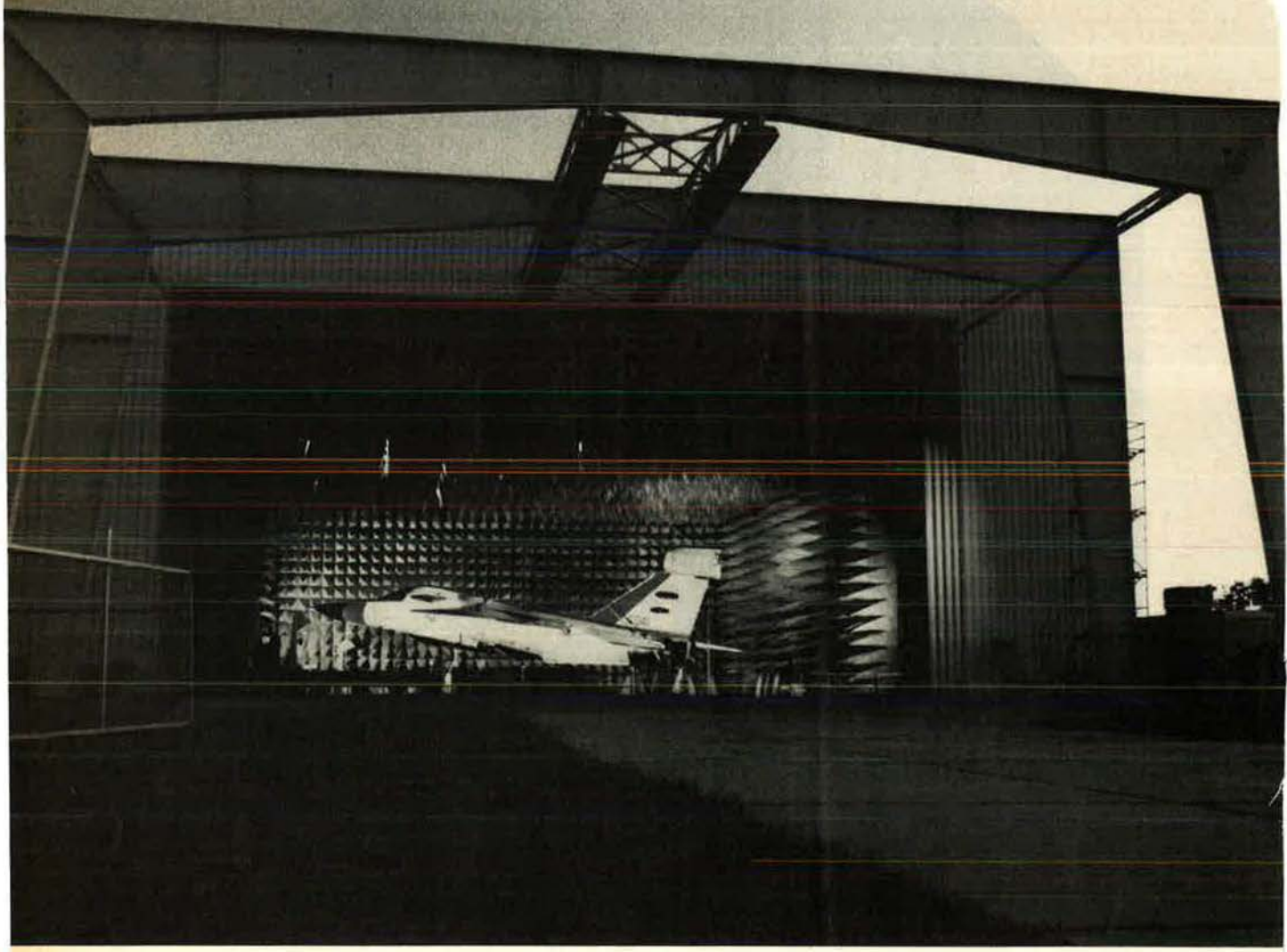

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EF-111 can overwhelm and blind such defenses. And even if multiple, hostile radars switch to a variety of frequencies, the EF-111's jamming capabilities can handle them immediately.

EF-111 can accompany any strike aircraft. Take any mission, from close air support to deep penetration.

Finally, the EF-111 is adaptable. Its electronic systems can be converted quickly to counter new threats as they develop.

EF-111 is just one illustration of our capability to design, manage and integrate total systems.

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jects, or electronic interference.

Thus far, the FAA has received twenty-three fixed-site ARSR-3s from builder Westinghouse Electric Corp. and three mobile units that can be shifted about to meet natural disasters or other emergencies. Versions of the radar have been ordered by Switzerland and Canada.

★ A simulator that can realistically reproduce B-52 aerial refueling operations is currently undergoing test and evaluation at Castle AFB, Calif. In this time of scarce and costly fuel, the new simulator will be used to shave the number of hours spent by B-52 pilots in actual refueling practice.

The device, built by Redifon Simulation Ltd. of Crawley, UK, has a number of key instructional features, including a computer-generated voice that can coach a B-52 pilot in the manner of a boom operator aboard a KC-135 tanker during refueling maneuvers.

The simulator can reproduce a tanker's pitch, roll, and yaw in the "sky," provides clouds and a horizon, and can serve up airborne malfunctions and emergency conditions, among other things.

The B-52 refueling simulator is a companion to the KC-135 boom operator's task trainer built in-house by AFSC's Aeronautical Systems Division, Wright-Patterson AFB, Ohio, and delivered to Castle in May 1978. It, too, is expected to cut into actual tanker flying training hours.

★ The Armament Development and Test Center, Eglin AFB, Fla., is planning an industrial symposium for air-delivered weapons October 3–4.

The aim is to promote an exchange of information via a gathering of industry and defense representatives and thus "stimulate innovation in Air Force nonnuclear air-delivered weapons," ADTC officials said.

Besides US industry and Defense participation, a number of allies has been invited; the presentations and discussions are to be at the secret level and will require security clearances.

For further information, contact Hilda Loy at Eglin, (904) 882-4444, or Robert DiGiovanni of the Environmental Research Institute of Michigan, (313) 994-1200.

★ After a series of experiments in communications technology that spanned a five-year period and served millions of people, NASA's Applications Technology Satellite-6 was switched off in June. The satellite exceeded its planned orbital life by three years.

During that period, ATS-6 scored a number of firsts in space-age technology, the implications of which are still being evaluated:

- The first educational course ever taught via satellite, graduate-level studies beamed to elementary teachers in eight Appalachian states.
- First communications from satellite to satellite, leading to a tracking and data relay system that will support future Space Shuttle missions.
- TV support of the Apollo/Soyuz joint mission that provided live spacecraft video to viewers in both the US and USSR.
- First satellite broadcasts to inexpensive ground receivers throughout India, bringing educational and health information to millions in 2,500 remote villages.
- First telemedicine transmissions, in which doctors prescribed treatment to persons in remote areas via two-way voice-video communications.
- First two-way color video and audio teleconferencing among twenty-seven less-developed countries conducted by the State Department, NASA, and other US agencies.

With three of its station-positioning thrusters out, a fourth will be used to boost ATS-6 to an orbit in a less-hazardous area, where it could remain for thousands of years.

★ NASA has taken a small step that may lead to another major utilization of near space. The space agency has awarded a study contract to define a space platform for geostationary earth orbit that would allow a large number of separate payloads to be clustered together on a single structure.

James M. McCoy Becomes USAF's Sixth CMSAF

CMSgt. James M. McCoy, formerly SAC Senior Enlisted Advisor, assumed duties as the sixth Chief Master Sergeant of the Air Force on August 1, succeeding retiring CMSAF Robert D. Gaylor. In his new post, Chief McCoy is responsible to the USAF Chief of Staff and Secretary of the Air Force, keeping them informed of matters affecting the duties, health, welfare, and morale of Air Force enlisted personnel. One of USAF's Outstanding Airmen for 1974, Chief McCoy served as Chairman of the AFA-sponsored worldwide Senior Enlisted Advisor Conference held in each of the past two years in conjunction with AFA's National Convention. Chief McCoy, forty-nine, entered the Air Force in January 1951. He is married to the former Kathleen L. O'Connor of Davenport, Iowa. They have eight children.

Chief McCoy, the new Chief Master Sergeant of the Air Force, chaired the 1977 and 1978 worldwide Senior Enlisted Advisor Conferences sponsored by AFA.

Aerospace World

Such an orbiting platform is visualized as hosting plug-in devices for communications, earth resources, meteorology, and numerous scientific investigations. These missions currently are undertaken through satellite launches.

In a 25,000-mile-high (40,000 km) orbit over a given spot on the equator, the platform could provide electrical power, stabilization, and housekeeping functions to various mission tenants. Commercial concerns would be charged a user fee for the service.

A platform's facilities, available to all users, would eliminate such equipment as batteries or solar power arrays on individual missions, and the central location would ease repair and servicing by Space Shuttle while remaining in orbit.

Eventually, platforms situated in several positions around the globe might serve such densely populated areas as the US, Western Europe, India, and Latin America, and communication links between them might make worldwide communications possible without the need for relay ground terminals.

The definition study for NASA's Marshall Space Flight Center in Alabama is being conducted by General Dynamics Convair, San Diego, Calif.

★ As in other locations around the country, Washington's National Cathedral on July 18 was the scene of ceremonies commemorating National POW/MIA Recognition Day.

The nationwide event was the result of a joint resolution of the Congress and a Presidential proclamation calling on Americans to honor "those who made the special sacrifice of being captive in war, and their loved ones."

Although dedicated to American POW/MIAs of the two world wars, Korea, and Vietnam, the ceremony in Washington clearly emphasized the Southeast Asia conflict. Air Force SMSgt. Louis LaBlanc, Jr., who led the pledge of allegiance, Air Force Chaplain (Lt. Col.) Jerry A. Singleton who gave the invocation, and Naval Academy Superintendent Rear Adm. William Lawrence, who conducted the program, all had been POWs in Southeast Asia.

The principle speaker was Veterans Administrator Max Cleland, who suffered multiple wounds in SEA.

Concluding the program was missing-man formation flyover of four F-15s from Langley AFB, Va.

★ **NEWS NOTES**—Theme of the **sixth Japanese International Aerospace Show**—November 17–25, 1979—will be "Transport Aircraft of the 1980s." The only event of its kind in the Asia/Pacific area, Japan's air show has the potential of providing a substantial market for US aircraft manufacturers and builders of aviation equipment.

Long-time AFA member **Brig. Gen. George W. Goddard,** USAF (Ret.), ninety, the "father of modern military reconnaissance" and inventor of the type of strip camera that proved the presence of Soviet missiles in Cuba in 1962, was recently honored in ceremonies at the Air Force Museum, Wright-Patterson AFB, Ohio. He's been inducted into the Aviation Hall

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CHEMICAL SYSTEMS DIVISION

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SCIENCE/SCOPE

A special-purpose digital computer will serve as the brain for the radar systems on three U.S. fighter aircraft, including the Air Force F-15 Eagle. The computer, called a programmable signal processor (PSP), processes reflected radar signals. It performs up to 7.2 million operations per second -- much faster than general-purpose computers -- to offer for the first time in a fighter radar a true multimode (air-to-air and air-to-surface) capability. The PSP was developed by Hughes for the APG-65 radar in the Navy and Marine Corps F-18A Hornet. It will replace existing processors in the APG-63 radar for the F-15 and the radar portion of the AWG-9 weapon control system for the Navy F-14 Tomcat.

Combat pilots will get a better view of the outside world with a cockpit display employing the technology of diffraction optics. The system has the same purpose as head-up displays using conventional reflective optics: to superimpose flight control information over the pilot's view of the outside world. The new technology, however, permits a wider field of view, brighter images, and a clearer view outside the cockpit. In fact, video pictures from radar or infrared sensors can also be displayed, allowing the pilot to see at night or in inclement weather. Hughes psychologists are now determining how to use the new capabilities of diffraction optics in ways that are most beneficial to a pilot.

Sensitive missile electronics can now be protected from searing heat by a device with no moving parts or electrical connections. The device, a thermal diode heat pump, is a closed metal tube containing metal mesh that circulates fluid via capillary action. During subsonic flight, it cools missile electronics by pumping heat to the missile's skin. Air flow carries the heat away. During supersonic flight, the heat pipe protects the internal electronics by absorbing heat from the hot surface of the missile. The thermal diode, built by Hughes, is being installed in the U.S. Air Force's High-speed Anti-Radar Missiles.

A fast-reacting radar that sweeps the sky every two seconds will help destroyers and other high-value ships defend against such airborne threats as the cruise missile. The Target Acquisition System (TAS) can automatically detect, track, and identify an anti-ship weapon whether it "pops up" over the horizon just above the waves or dives in from high angles. It can direct Seasparrow missiles or other ordnance to intercept an incoming weapon. TAS, in production at Hughes for the U.S. Navy, has a surveillance range of more than 90 nautical miles and a target-designating range beyond 20 nautical miles.

The Federal Republic of Germany will soon have a new automated air defense system for southern Germany. The system, called GEADGE for German Air Defense Ground Environment, will replace a radar network installed in the early 1960s. It will employ advanced data-processing techniques to track, identify, and evaluate airborne targets, and to direct intercept missions more efficiently. Hughes will manage the system's design and installation. German and other NATO industries are expected to participate. Similar Hughes systems have been developed for NATO, Spain, Switzerland, and Japan.

Aerospace World

of Fame, the International Aerospace Hall of Fame, the Explorers Club, and is a member of the National Inventors Council.

The **world's largest electricity-generating windmill** was dedicated near Boone, N. C., in July. A joint DoE/NASA $3.5 million project, it has the capacity to supply power to 300 to 500 homes.

Top DoD and industry officials will discuss **battlefield interdiction** in Europe at a **symposium to be held at the Institute for Defense Analysis,** Arlington, Va., November 13–14, 1979. Concepts governing development of technologies and systems for interdiction of Warsaw Pact second-echelon forces using conventional weapons will be presented. Attendance is limited to US citizens having a secret or higher security clearance.

A **Command Control and Communications (C^3) Directorate** has been established within the OJCS "to improve interoperability among tactical as well as strategic C^3 systems, connectivity among strategic warning and C^3 systems, and WWMCCS ADP management."

Bell Helicopter Textron's **XV-15 Tilt Rotor Research Aircraft**—a joint Army/NASA project—successfully converted from helicopter to airplane mode during a milestone flight in late July.

Died: Gen. Joe W. Kelly, USAF (Ret.), whose career spanned flying the mail in the 1930s to bringing the Military Air Transport Command (now MAC) into the jet age, of a heart attack at Eglin AFB, Fla., in July. He was sixty-nine.

Died: Maj. Gen. John D. Lavelle, USAF (Ret.), a key commander in SEA during the Vietnam War, of a heart attack in Washington, D. C., in July. The long-time AFA member was sixty-two.

Died: Sir John Slessor, Marshal of the RAF and a member of the UK's top military planning staff during WW II, in July in western England. He was eighty-two. ■

A copy of the Air Force Historical Foundation's latest book, Flying Combat Aircraft, *Volume II, was recently presented to USAF Chief of Staff Gen. Lew Allen, Jr., by Foundation President Lt. Gen. John B. McPherson, USAF (Ret.). The Foundation's work in recording USAF history is to be recognized this month at AFA's National Convention with the presentation of one of the organization's highest awards, an AFA Citation of Honor.*

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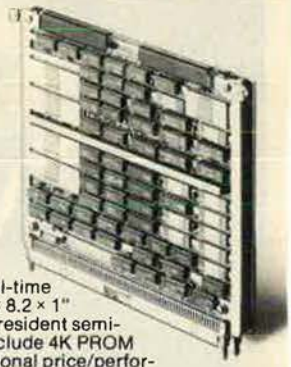

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During the long, hot Washington summer of 1979, the Senate is trying to find the answer to a question of pervasive importance to America's defense posture and global standing . . .

IS SALT II GOOD FOR THE US?

BY EDGAR ULSAMER, SENIOR EDITOR

SALT II, according to critics with a flair for sarcasm, is like the pursuit of wedlock by a couple whose one member is after matrimony while the other seeks only alimony.

Sen. Henry M. Jackson (D-Wash.), the Senate's "conscience of SALT I," indicted the new accord with the comment that "to enter into a treaty that favors the Soviets, as this one does, on the ground that we will be in a worse position without it is . . . appeasement in its purest form."

Senate Republican leader Howard Baker probably scuttled Administration hopes for easy Senate ratification when he asserted "this treaty is not favorable to the United States, and, at the least, it is inequitable in that it provides a substantial strategic superiority to the Soviet Union." He believes that SALT II "is vague where clarity is required. It rests on faith where hard evidence is essential."

Sen. John Glenn (D-Ohio) weighed in with this reservation about the treaty: "Where I part company with the Administration is in its willingness to sign a treaty now, even before we know for sure how well the prospective [verification] systems work or if we even can work out the difficult political arrangements to permit monitoring systems to be put in place overseas."

President Carter, on the other hand, urged ratification of the accord before a joint session of Congress when he stated in part:

"The SALT II treaty must be judged on its own merits, and on its own merits it is a substantial gain for national security for us and the people whom we represent, and it is a gain for international stability. But it would be the height of irresponsibility to ignore other possible consequences of a failure to ratify this treaty."

These consequences would include, he suggested:

- "Greatly increased spending for strategic nuclear arms which we do not need;
- "Greater uncertainty about the strategic balance between ourselves and the Soviet Union;
- "Vastly increased dangers of nuclear proliferation among other nations of the world who do not presently have nuclear explosives;
- "Increased political tension between the East and the West, with greater likelihood that other inevitable problems would escalate into serious superpower confrontations."

According to the President "rejection would also be a damaging blow to the Western alliance. All of our European and other allies, including especially those who are most directly and courageously facing Soviet power, all of them, strongly support SALT II. If the Senate were to reject the treaty, America's leadership of this alliance would be compromised, and the alliance itself would be severely shaken."

He portrayed SALT II as a "deliberate, calculated move that we are making as a matter of self-interest for the United States—a move that happens to serve the goals of both security and survival, that strengthens both the military position of our own country and the cause of world peace."

Gen. David C. Jones, Chairman of the Joint Chiefs of Staff, seconded by the other service chiefs, testified before the Senate Foreign Relations Committee that "none of us [the members of JCS] is totally at ease with all the provisions of the agreement," and cited specifically the provision that only the Soviets are permitted Modern Large Ballistic Missiles (MLBMs), the exemption of the Soviet Backfire strategic bomber from the SALT II numerical limits, and "significant concerns with regard to our ability to monitor certain aspects" of the accord.

"The Joint Chiefs," he told the Senate, also "consider it absolutely essential that if the nation accepts the SALT II agreement, it does so with a full understanding that we will be required to undertake a series of important strategic modernization programs in order to maintain strategic parity within the limits agreed upon. In this connection, the decision to proceed with the development of the MX missile capable of carrying ten reentry vehicles and deployed in a survivable basing mode is an important step toward this end."

General Jones further warned that "a recurring theme in US history has been that treaties—which are at best a framework for enhancing security—can somehow serve as the *source* for such security. Despite repeated disappointments on this score throughout the twentieth century, the unique and highly visible character of both strategic arms and the SALT negotiations contains the potential for exaggerated expectations and serious public

Senate Republican leader Howard Baker opposes SALT II because he fears the treaty is not favorable to the US.

Sen. Henry M. Jackson, one of the Senate's most respected arms-control experts, believes the accord favors the Soviets.

misunderstanding about the adequacy of our strategic posture and programs."

General Jones's testimony was somewhat at odds with that of Army Lt. Gen. Edward C. Rowny, the recently retired SALT Representative of the Joint Chiefs, who, after citing a host of purported flaws of the treaty, told the Foreign Relations Committee that SALT II "would sanction and codify the strategic inferiority of the United States."

Among the more subtle forms of persuasion applied by the pro-SALT II forces in Congress is the exploitation of the Administration's claim that "with or without SALT we must modernize and strengthen our own strategic forces, and we are doing so, but SALT II makes this task easier, surer, and less expensive." By portraying this pledge to strengthen US strategic forces as an integral element of the treaty, the SALT II advocates create significant leverage for their cause. Acceptance of the accord by the Joint Chiefs presumably was influenced by the prospect of beefed-up strategic programs.

Secondly, the case is being made—albeit with mixed success—that the treaty coaxes the left-of-center wing of the Democratic Party into supporting strategic force modernization, since SALT II ratification probably is contingent on such a commitment. Thus, the anti-Defense orientation of the majority of Congress's liberal faction—so alienated by the Southeast Asian War—is apt to ease, according to this line of reasoning. Whether or not such a reconciliation between the Left and Defense would in fact be germinated by SALT II—and whether or not it would endure beyond the ratification vote—remains to be seen.

The Record of Arms Control

As the Congress begins the drawn-out process of judging SALT II and deciding whether to accept the treaty unchanged or with cosmetic reservations—or to reject it *in toto*—or to instruct the Administration to renegotiate it—or to amend the document in a fundamental way—the record and history of arms control deserve detailed scrutiny. The historic scorecard is not good and seems to suggest that arms control works best after one nation defeats and occupies another, and thus is able to enforce compliance verifiably and effectively. Yet, even under such a cynical view of arms control, success is not assured as Napoleon's and Hitler's experience with occupied countries demonstrated.

The genesis of SALT can be traced to the immediate post-World War II years when the US sought to establish a supranational guardian for nuclear weapons. The Soviets not only responded with a resounding "Nyet" but promptly developed their own A-bombs and H-bombs. Strategic arms control gained strong momentum when President Lyndon B. Johnson seized on arms control to outflank the left wing of the Democratic Party that was becoming restless because of the deepening US involvement in the Vietnam War.

SALT I is one of history's rare instances of a major power, leading in offensive and defensive strategic capabilities, "trading down" to uneasy equality. It produced mainly negative results. From a military point of view, SALT I's principal goal was to assure enduring survivability of this nation's ICBM force. In fact, by allowing the Soviets substantial numerical advantages in ballistic missiles, by constraining mobile ICBM deployment, and by outlawing effective ballistic missile defense of ICBMs, SALT I provided the USSR with the conditions and incentives to develop an unambiguous first-strike capability against USAF's silo-based ICBMs. SALT's record in slowing down the growth of Soviet strategic forces is dismal. The treaty may not have spawned, but it clearly hastened, history's most lethal arms buildup, carried out unilaterally by the Soviet Union over the past few years.

After the Soviets signed SALT I, Moscow started the *deployment* of three new ICBM types and the *development* of an additional four or five weapons of this type. Moscow also fielded four new submarine classes, complete with three drastically new SLBMs, and started deployment of a new strategic bomber as well as the development of another B-1-like strategic bomber design. Lastly, the USSR worked toward and achieved major gains in ballistic missile defense, air defense, and civil defense capabilities.

SALT I also failed to sate Moscow's appetite for global violence and expansionism, as attested by five wars since 1973, fueled if not instigated by the USSR, along with a series of Soviet-supported *coups d'état* and significant expansion of the network of Soviet bases abroad.

If the historic record of arms control warrants scrutiny in the current SALT debate, so do the divergent philosophical approaches to the negotiating process of the US and the USSR. As frequently and convincingly argued by Sen. Sam Nunn (D-Ga.), the Soviet Union sets its long-term strategic policies and requirements and then, uncompromisingly, tailors its negotiating stance to the strategic master plan. The US, by contrast, tends to negotiate, *i.e.*, compromise first, and then tries to come up with a force structure and weapons that comply with the *fait accompli* of arms control.

SALT II Features

SALT I sought to freeze numerically the Soviet strategic arsenal, which meant more but technologically inferior weapons compared to the US. SALT II establishes balanced limits for the number of legally permitted "strategic nuclear delivery vehicles," or SNDVs. But as General Rowny argued, "Because the treaty does not

"SALT I also failed to sate Moscow's appetite for global violence and expansionism. . . ."

actually put a brake on the momentum of the massive Soviet buildup, the United States will for the first time not be able to maintain essential equivalence or nuclear parity." The total number of SNDVs, comprised of ICBMs, SLBMs, and heavy bombers, goes from 2,400 initially to 2,250 by the end of 1981.

Sublimits imposed by SALT II hold the number of MIRVed systems—that is, MIRVed ICBMs and SLBMs as well as bombers with long-range cruise missiles—to 1,320. Of this number, no more than 1,200 weapons may be ballistic missile launchers and, within this sublimit, there must not be more than 820 MIRVed ICBMs. Like SALT I, the new accord, with one minor exception, does not count missiles, but only launchers. This could enable the Soviets to keep a thousand or more "spare missiles" that could be used as a "strategic surprise factor."

One of the treaty's pluses is that it obligates the USSR not to produce, test, or deploy the SS-16 ICBM, a weapon system suspected of being deployed in small numbers in a clandestine, possibly mobile mode. Regrettably, the treaty seems to permit storage of existing systems and thus creates a strategic reserve, much like other stored ICBMs. The SS-16 is of additional concern since it is a close kin of the MIRVed SS-20 intermediate-range ballistic missile. The latter can be transformed into an SS-16 by the addition of a third stage, a metamorphosis that the US probably can't detect. The SS-20 is not covered by SALT II.

President Jimmy Carter views SALT II as being in the interest of the United States and said it "strengthens both the military position of our country and the cause of world peace."

Gen. David C. Jones favors the accord, but is not totally at ease with all its provisions.

Lt. Gen. Edward C. Rowny warns that a poor SALT II will make it impossible to negotiate a good SALT III.

The SS-16 provision is weakened further since it appears under the heading of a "common understanding," an addendum to the formal treaty of dubious enforceability. (The precise legal status of the series of "common understandings" and "agreed statements" appended to the treaty is not clear at this time.)

A welcome feature of SALT II is that it calls for dismantling the Soviet Union's Fractional Orbital Bombardment System (FOBS), at the Tyuratam ballistic missile test range. Of the eighteen FOBS weapons—in fact, heavy ICBMs with a special payload—twelve are to be dismantled or destroyed while the remaining six launchers can be converted for testing missiles undergoing modernization. The anti-FOBS provision specifically prohibits either party from placing in earth orbit nuclear weapons "or any other kind of weapons of mass destruction."

One of the features of the accord that the Senate is likely to amend is the unilateral concession to permit the USSR 314 modern large ballistic missiles while the US can have none. The Administration contends that this provision is inconsequential since the US has no plans for the development of such weapons. This claim can be challenged on two points. The US concluded in a National Security Council Decision Memorandum dated July 1970 that this nation and the Soviet Union should limit themselves to 250 MLBMs each. The Soviets in subsequent SALT I negotiations rejected the US proposal, and this country decided thereafter not to build any MLBMs.

Also, even if the Administration might not now entertain plans to develop such types of missiles, it does not follow that the US should forego the option to do so later on.

The destructive power of the Soviet heavy missiles exceeds that of all US ICBMs and SLBMs combined. Several senators are concerned that Defense Secretary Harold Brown shrugged off the SS-18 concession by the US as *insignificant* and wonder what in the Administration's view represents a *significant* factor. These senators relate this claim of insignificance to the Administration's contention that, while the treaty can't be verified with total certainty, it *can* be verified adequately. If some 300 heavy Soviet ICBMs are seen as insignificant, the Administration's standard of "adequate" verifica-

Sen. Sam Nunn is concerned about diverging philosophical approaches to SALT II by the US and USSR.

Sen. John Glenn is alarmed over US willingness to sign the treaty before monitoring systems are in place.

tion may be equally flexible, they fear.

The treaty creates other uncertainties affecting the SS-18 as well as, to a lesser degree, other MIRVed Soviet ICBMs. SALT II limits the number of reentry vehicles that can be carried by an SS-18 ICBM to ten. But the SS-18's post-boost vehicle, also called the "bus," that directs the individual warheads to their separate targets, has been tested for the release of fourteen reentry vehicles. Further, the treaty prohibits a number of warhead-dispensing maneuvers greater than the number of warheads permitted for a given ICBM type. But it allows an unlimited number of additional maneuvers for the purpose of releasing decoys or other penetration aids. Congressional SALT experts consider the pertinent clause, in fact an "agreed statement," to be so vague as to create a significant loophole: "Procedures for releasing antimissile defense penetration aids will not be considered to be procedures for releasing or for dispensing a reentry vehicle so long as the procedures for releasing antimissile defense penetration aids differ from those for releasing or for dispensing reentry vehicles."

The notion that a decoy whose very purpose is to deceive the defense into believing that it is a warhead should be made to behave in a way that advertises that it is not a warhead seems preposterous. So is the idea that the Soviet Union, in time of war, would abide by such a gentlemen's agreement.

The Absence of "Baselines"

One of the most questionable aspects of the SALT II treaty is its failure to establish jointly accepted baselines so far as vital size and performance factors of Soviet ICBMs and SLBMs are concerned. This deficiency is especially important in the case of the SS-19, the largest "light" ICBM permitted by the treaty, and hence the yardstick against which the modernization of existing missiles and the permissibility of new missiles is to be measured.

The Soviets won't deny or confirm the US intelligence community's estimate that the SS-19's launch-weight is 90,000 kg and its throw-weight is 3,600 kg. The consequences of this lack of a baseline for the treaty's "watershed" missile are pervasive and blur the distinction between light and heavy missiles.

The lack of baselines for Soviet strategic weapons affects in a fundamental manner the modernization of existing ICBMs and the definition of the one "new" ICBM that each side is permitted to develop and deploy under SALT II. The "new" ICBM is defined as one differing from existing designs in the "number of stages, the length, the largest diameter, the launch-weight and the throw-weight of the missile. . . ." The term "difference" is described by a "common understanding" as being "in excess of five percent." Calculating plus or minus five percent from an uncertain baseline tends to create a Catch-22 situation. Conversely, US questions about whether or not modifications of existing ICBMs are below the five percent limit, under these circumstances, probably will receive Delphic answers from the Soviets.

The "new" ICBM provision of Article IV appears to contain other ambiguities. The Soviets seem to have succeeded in protecting their four new "fifth-generation" ICBMs from any significant constraints in order to increase Moscow's counterforce capabilities. The treaty's constraints apply only to six definition elements rather than the eleven the US originally insisted were needed. Also, the Soviets are allowed up to twenty-five test launches of their ICBMs before they apparently are required to comply with the five percent provision. Similarly, the treaty seems to allow the Soviets to decrease in excess of five percent the launch and throw-weight of existing missiles by reducing the number of warheads and penetration aids as well as the amount of propellant carried by a given ICBM type. This may be significant since the Soviets are known to want to deploy a new fifth-generation ICBM with a launch-weight about twenty percent below that of the SS-19.

Exacerbating the US problem of differentiating between "old" and "new" Soviet ICBMs is the treaty's vague and probably unenforceable constraints concerning the encryption of telemetry data. One of the principal means for monitoring the performance of Soviet ICBMs is to "listen" in on telemetry data transmissions during test flights. This electronic eavesdropping is a mutually accepted element of what SALT describes as the national technical means of verification. But recently there have been several instances of denying the US this information by Soviet encryption of telemetered data. *(See "In Focus . . . ", August '79 issue.)* SALT II entrusts the Soviets with the responsibility of encrypting *only* information that the US does not need for verification. This unchecked trust in the Soviet Union's sense of fair play would seem imprudent in light of the Soviet record under SALT I and has been termed a case of "appointing Nero fire chief of the city of Rome."

The Backfire Statement

Possibly SALT II's most controversial feature is its treatment of the Soviet Backfire bomber, a "swing" weapon capable of serving in theater, naval, and strategic roles with equal competence. More than 150 of these aircraft are in the Soviet inventory, and another 200 or so are likely to be produced over the life of the accord. The aircraft can accommodate refueling equipment and is thought to have an unrefueled range approaching 6,000 miles. Yet, the treaty deals with Backfire only in a peripheral manner and does not count them as strategic nuclear launch vehicles. Appended to the text of the trea-

"Calculating plus or minus five percent from an uncertain baseline tends to create a Catch-22 situation."

ty is a "Soviet Backfire Statement," described as a written statement that President Brezhnev handed President Carter during the SALT summit meeting in Vienna.

The Soviet leader declared in the document that Backfire is a "medium-range" bomber and that the USSR does not "intend to give this airplane the capability of operating at intercontinental distances," or of striking targets in the US. Neither does the USSR intend to give Backfire an intercontinental strike capability by in-flight refueling or "in any other manner," according to the Soviet declaration. The question of the in-flight refueling capability observed in the past apparently was not raised by the US. Finally, the Soviet document avers that Moscow "will not increase the production rate of this airplane as compared to the present rate."

In what appears to be an unusual and uncertain approach to a bilateral accord, the US version of the treaty's addendum then explains that the Soviet President confirmed—presumably orally—that the Backfire production rate would not exceed thirty aircraft per year. This comment is followed by the unilateral assertion that President Carter "stated that the United States enters into the SALT II agreement on the basis of the commitments contained in the Soviet statement and that it considers the carrying out of these commitments to be essential to the obligations assumed under the treaty."

The Backfire provision is made murkier yet because the treaty fails to acknowledge the fact that the Soviets have tested cruise missiles with a range of about 1,200 km for use by Backfire. Such a range extension, according to SALT II's Article II, transforms the carrier aircraft into a "heavy bomber." Yet another provision of the accord authorizes both countries to operate sixteen specially marked test aircraft that can be used for test launches of air-launched cruise missiles with a range greater than 600 km. Congressional experts claim that this clause gives Backfire yet another free ride. Once the new, longer-range cruise missile is tested on a number of Backfire bombers, conversion of the other aircraft to this mission can't be detected.

SALT and MX

One of SALT II's most crucial controversies is the question of how it affects this nation's ability to develop and deploy the MX ICBM. While this new, survivably based weapon won't reach operational status until after the expiration of the accord at the end of 1985, the treaty has already caused major changes in what the Administration considers basing modes compatible with SALT II. One of the reasons for the Administration's rejection of the MPS concept (multiple protective structures, a scheme involving large numbers of vertical hardened shelters hiding a much smaller number of MX ICBMs in shell-game fashion) was the belated recognition that such a system probably runs afoul of Article IV of the treaty, a fact the Soviets were quick and adamant in pointing out to the US negotiators as long ago as last summer. Specifically, this clause stipulates that "no additional fixed ICBM launchers" are to be built. Because of this provision, the Air Force, earlier this year, was instructed to redesign the MX basing mode.

Another section of the accord that affects MX are stipulations in the "basic guidelines" for SALT III that cast a pall over the fate of the MX program. The long-term objectives of the two countries are defined as "qualitative limitations on strategic offensive arms, including restrictions on the development, testing, and deployment of new types of strategic offensive arms. . . ." Since it is unlikely that the framers of this clause were aiming at either the air-launched cruise missile or the Trident programs—both of which are under way and thus not "new"—MX emerges as the principal candidate for such "limitations" and "restrictions."

One of the last-minute surprises of the treaty was that in its final version it was stripped of all specifics concerning mission areas and capabilities to be dealt with by SALT III. Earlier draft versions of the treaty had stipulated that these future negotiations should include such vital US concerns as civil defense, antisubmarine warfare, and theater nuclear forces. The latter were to include specific consideration of the SS-20 ballistic missile force and Backfire. The fact that these elements were dropped in the final SALT II negotiations is an alarming US concession, in the view of congressional arms control experts.

Another element of the treaty that is causing concern on Capitol Hill is Article XII, which obligates the signatories "not to circumvent the provisions of this Treaty through any other state or states, or in any other manner." Administration spokesmen claim that this clause won't preclude the US from making cruise missile or other technologies under SALT II's purview available to this nation's allies. This sanguine assertion presupposes, however, that the Soviets will yield on their publicly stated goal of making the provisions of the treaty's protocol—for the time being in effect only until the end of 1981—a permanent element of SALT II.

How the Senate will vote on the treaty can't be predicted as yet with any reasonable accuracy. What can be said, however, is that when the Senate takes its ultimate measure of the treaty, most senators probably will do so on the basis of their personal perceptions of the nature of nuclear war and its deterrence. Those inclined to favor a posture of minimum assured destruction probably will find the treaty acceptable as is. Those who are worried about what might happen—and what needs to be done—if deterrence were to fail and war were to break out, probably will seek substantive change. The latter group most likely will remember General Rowny's warning that "agreeing to a bad agreement is worse than no agreement; a poor SALT II will make it impossible to negotiate a good SALT III." ■

NEGOTIATING WITH THE RUSSIANS

BY BONNER DAY, SENIOR EDITOR

In this exclusive interview, Lt. Gen. Edward L. Rowny, the top US military representative during the SALT II negotiations, describes Soviet negotiating techniques and objectives. General Rowny warns that the US should not negotiate without the backing of a strong strategic arsenal: "We cannot do it with mirrors."

DIPLOMATIC negotiations, a rare experience for career military officers, provided Army Lt. Gen. Edward L. Rowny with a unique insight into Soviet-American relations.

General Rowny, who was the top military man on the US team during the second round of Strategic Arms Limitation Talks, concluded that the US, after decades of dealing with the Soviet Union, had much to learn about negotiating with the Russians.

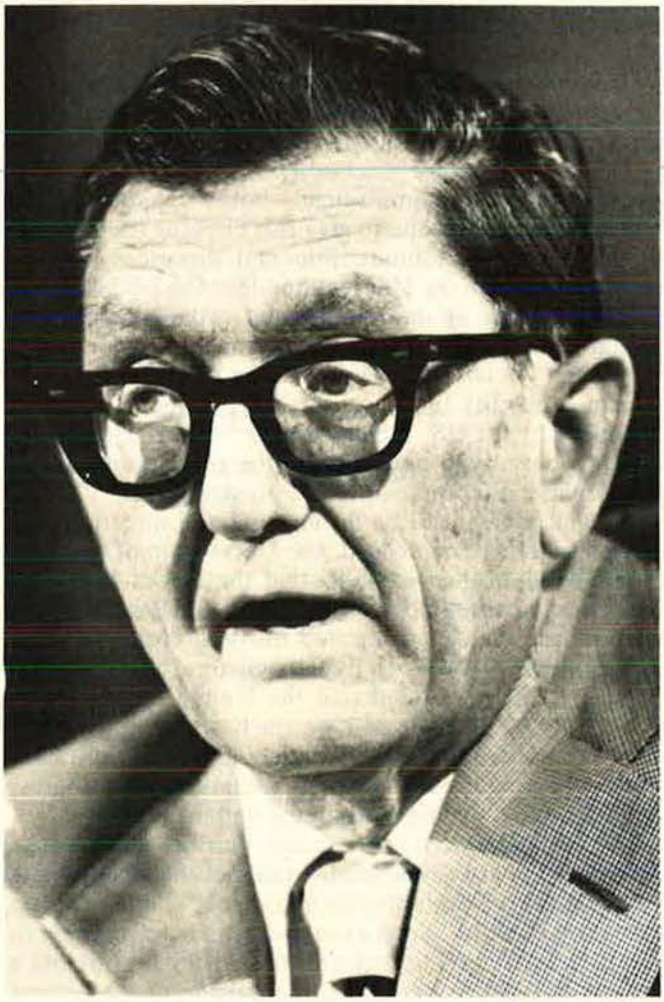
In an interview with AIR FORCE Magazine, the General explained how the Soviet negotiators tried to outfox the US delegation.

General Rowny has made it clear that he opposes the proposed treaty. Just days before voicing his frank opposition, General Rowny retired from the Army. "Only when I was sure an agreement I couldn't agree with had been reached did I leave," he explained.

This cleared the decks for his appearance before the Senate Foreign Relations Committee in July, when he testified: "The emerging treaty, in my view, is not in our interest since it is inequitable, unverifiable, undermines deterrence, contributes to instability, and could adversely affect NATO security and Allied coherence." He urged the Senate to send the treaty back for further negotiations.

Hailed by Sen. Jesse Helms (R-N. C.) as "perhaps the most knowledgeable American in this field," General Rowny was the only member of the US delegation to serve the entire period of the SALT II negotiations. He was the Joint Chiefs of Staff Representative for the Strategic Arms Limitation Talks from March 1973 to June 1979.

General Rowny was well prepared for the negotiations. He has been a student of arms control and has written a number of papers on the subject. His thirty-eight years of military service also include extensive experience as a combat leader. His background includes command of an infantry battalion and a regimental task force in Italy in World War II, command of a regiment during the Korean War, and director of a special team in Vietnam charged with testing and evaluating new Army concepts for counterinsurgency operations. His military decorations include the Silver Star with two oak leaf clusters.



—Wide World Photos

General Rowny was the US military representative throughout the SALT treaty negotiations in Geneva.

General Rowny, sixty-two, received a BS degree in civil engineering from Johns Hopkins University, and then resigned an Army commission to enter the US Military Academy. He was commissioned a second lieutenant in the Corps of Engineers in 1941. He holds master's degrees in civil engineering and international relations from Yale University, and was awarded a doctorate in international studies from American University.

His advocacy and study of arms control, and his participation in negotiations with the Soviet Union on the reduction of conventional arms in Europe, were factors in his selection as the JCS Chairman's representative to the SALT negotiations.

General Rowny says a minimum of six months of in-

President Carter and Soviet President Leonid Brezhnev sign the SALT II treaty in June 18 ceremonies in Vienna while US and Soviet officials watch.

tensive study is absolutely necessary to participate in strategic arms negotiations. According to General Rowny, continued briefings on changes in the US and Soviet strategic arsenals were equally necessary.

Sixty-two Trips

During the six-year period with the SALT delegation, General Rowny made sixty-two round trips between Geneva and Washington, and participated in more than 1,000 hours of negotiations.

He quickly found he was involved in not one negotiation but a series of negotiations that included bargaining within the Defense Department, bargaining within the US government, and exchanges on the SALT negotiating team.

The process of hammering out a US position often was more time consuming and more complex than exchanging views with the Soviet delegation. The US position was drawn up by interagency working groups meeting in offices of the Arms Control and Disarmament Agency (ACDA). Sometimes these meetings were moved to the White House.

After a position was developed, it would be sent to four bodies for comment—the State Department, ACDA, the Defense Department, and the Joint Chiefs of Staff. The position then would be cleared by the National Security Council staff. If there was a difference of opinion, the position paper would go to the Strategic Coordinating Committee, which is chaired by the President's National Security Affairs Assistant and includes as members the Defense Secretary, the Chairman of the Joint Chiefs of Staff, the Secretary of State, and the CIA Director. Opposing views would be presented to the President, and his decisions would be passed on to the delegation in Geneva.

Within the Pentagon there was a separate negotiating process. Each service would work with the Joint Staff to prepare the JCS position. This position would be coordinated with the Defense Secretary by the Defense Department's SALT Task Force before being submitted to an interagency group.

The US negotiating team itself played an active role in the interagency deliberations, sometimes recommending actions and other times requesting the modification of instructions from Washington.

"The US seems to think in terms of problem solving," says General Rowny. "We negotiate in good faith, expecting give and take." The Soviet delegates, he says, do not share Western concepts and instead regard negotiations as just another means of competition. Says General Rowny: "The Soviets look to the SALT negotiations to gain or to maintain a competitive advantage."

It is General Rowny's opinion that this complex negotiating process within the US government "militates against" US efforts to get an equitable treaty: "We would arrive at a reasonable position that we felt both sides could accept, but the Soviet delegation would present an extreme position that heavily favored the Soviet position." This meant that almost any compromises between the two positions would benefit the Russians and be disadvantageous for the US.

One defense against this Soviet tactic would be for the US to arrive at a reasonable position and then outwait the Soviet delegation. General Rowny says: "We went into the bargaining sessions with such a strategy, but we never held to it."

The Soviet Team

Continuity in the negotiating team also served to the Soviet advantage, in General Rowny's view. For the

most part, the Soviet delegation remained unchanged throughout the negotiations. The chief of the delegation for both SALT I and SALT II was Deputy Foreign Minister V. S. Semenov. P. S. Pleshakov, representing the Soviet defense industry, and Academician A. N. Shchukin, representing the science community, also were members of the delegation throughout the negotiations. A fourth civilian seat apparently was designated a temporary position by Moscow. It was held by a series of Soviet diplomats during the talks.

The Soviet team included two generals, in contrast to one on the US delegation. Lt. Gen. K. A. Trusov and Col. Gen. I. I. Beletsky were appointed to the delegation during the SALT I period. After General Trusov suffered a heart attack, he was replaced by General Stavobudov. General Beletsky served throughout the SALT II negotiations.

On the US delegation, only General Rowny served for the entire period of the negotiations. During the six-year period, the US delegation had five State Department representatives, four representatives of the Defense Secretary, and four representatives of the Arms Control and Disarmament Agency. General Rowny served as a member under three Defense Secretaries, three JCS Chairmen, and three Presidents. He offered his resignation from the negotiating team at the outset of the Carter Administration, but was asked to stay on.

Negotiations with the Soviet delegation were conducted for three or four months in Geneva. This period of bargaining would be followed by a break of three or four months when the US delegation returned to Washington for consultation. During the last eighteen months before an agreement was reached, however, the talks were in session almost continuously.

An integral role of the delegation was to keep top officials of the US and NATO nations abreast of the negotiations. This was accomplished by regular written and oral reports.

Negotiations revolved around a formal meeting, called the plenary session, on Tuesday and Thursday. The meetings would alternate between an annex to the US Mission, called the SALT Negotiation Building, and a building in the ten-acre Soviet compound.

The plenary sessions were devoted to reading prepared statements. As each paragraph was read by the head of a delegation it would be followed by a translation. Each statement would take from twenty minutes to an hour. During most of the SALT II negotiations, Ambassador Ralph Earle II, a veteran ACDA official, served as head of the US delegation in the absence of ACDA Director Paul C. Warnke, the official delegation chief.

Very seldom was there any exchange or rebuttal to the prepared statements. If a question was asked, it might be answered by the delegation head after conferring with his colleagues. More often, the question was considered in the next plenary statement.

The formal session would last as long as two hours. After the time of the next meeting was agreed upon, the plenary session would officially end and the delegates would proceed with informal discussions.

In this phase, the chiefs of the two delegations would retire to another room for informal discussions. The remainder of the delegation would meet in separate corners of the room with their Soviet counterparts, accompanied by interpreters. This part of the meeting was off the record so that nothing said was binding upon the delegation. General Rowny says: "We would talk about what was in the latest plenary statement or what was in the previous week's statement. We talked about what ought to be taken up in the future. Or if we didn't have much to say, we engaged in small talk." Because General Rowny is fluent in French and Russian, he was able to participate in these talks without interpreters.

The informal talks would last an hour or an hour and a half, depending upon how long the chiefs of delegations met.

In addition to the plenary and informal sessions, there were social exchanges, about one every ten days. The two sides usually alternated with dinners, garden parties, and cocktail receptions. Though some informal negotiations took place at these meetings, the limited authority of Soviet delegates precluded much of an exchange of views. On one occasion, General Rowny recalls, he asked the wife of one of the Soviet guests how many children she had. He was astonished when she asked another in the Soviet party whether she could answer the question.

Negotiating Problems

One of the major problems of the negotiations, in General Rowny's views, was a failure on the part of US delegates to realize that the Soviet delegates were the product of a different environment and therefore approached negotiations differently.

"We in the US tend to think the Soviet citizen is like us," says General Rowny. "Because our leaders do not know Russian history and Russian culture, we tend to apply a 'mirror image' and think the Russian thinks and acts the same as Americans."

The differences between the two cultures, however, show themselves in negotiations:

Trickery. The Soviet delegates would resort to crude negotiating tricks in an effort to achieve an advantage. In one case, General Rowny offered a compromise in exchange for a Soviet compromise, and detailed what the two compromises should be. He offered the exchange at an informal meeting in which the Russian delegate indicated neither agreement nor opposition. When the proposal was made at a subsequent formal plenary session, the Soviet delegation walked out after the US half of the compromise was announced, without volunteering the assumed Soviet compromise, as General Rowny had suggested. From that experience on, General Rowny would not offer a compromise until after the Soviet side had made its offer.

Eleventh Hour. The Soviet delegation would delay action until it seemed no agreement was possible, then agree to terms. General Rowny said this tactic often was used after public announcements had been made that an agreement was near, in an effort to get as many concessions as possible. This last-minute strategy played on the nerves of the US delegates: "We lacked patience and would give additional concessions as a deadline approached," General Rowny said.

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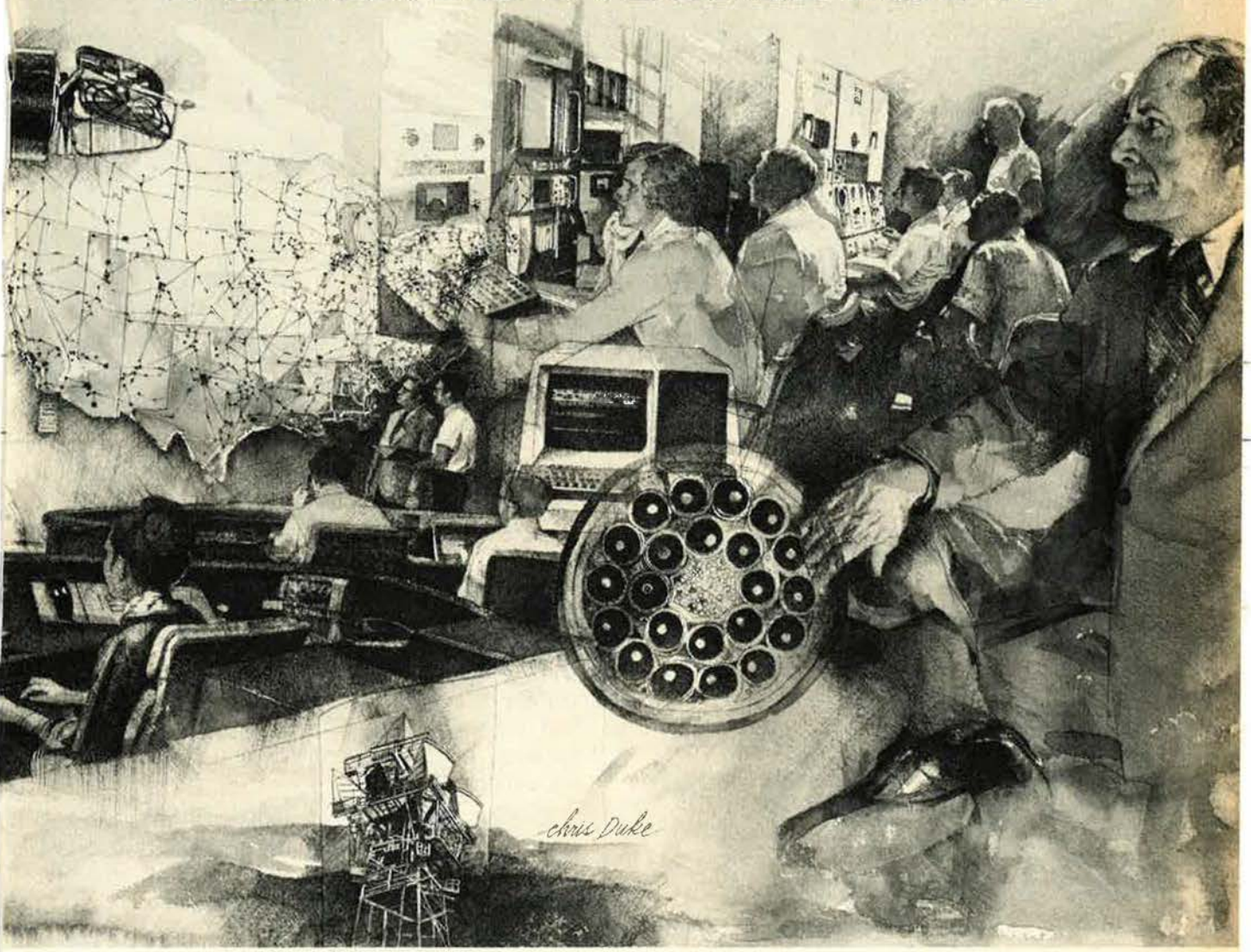

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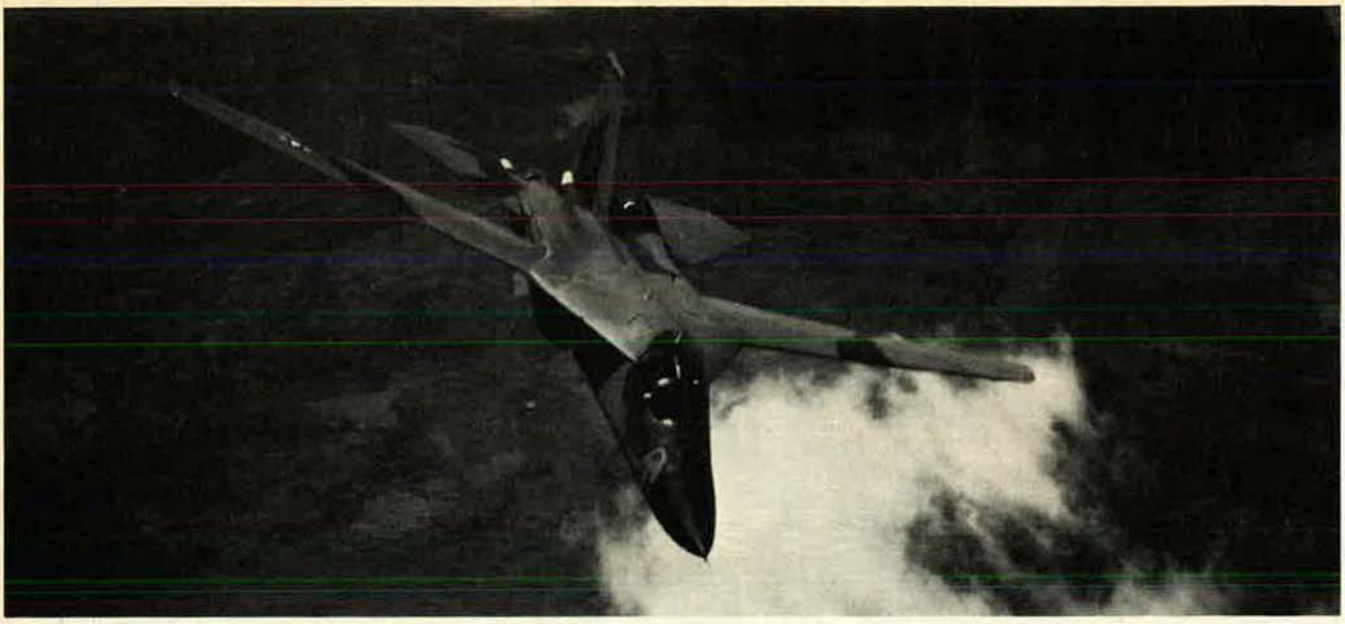

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Defense Secretary Harold Brown, right, discusses closing steps of the US-USSR strategic arms treaty with Presidential Assistant Zbigniew Brzezinski, left, and Secretary of State Cyrus Vance. The luncheon meeting was held April 27 in Secretary Brown's Pentagon dining room.

Reversals. The Soviet delegation was not hesitant to reverse its stand if it suited its purposes. This caused the delegation members no embarrassment. "The Russians would argue that black is white, then switch with no explanation or apparent reason," General Rowny said.

Repetition. Soviet delegates would repeat their positions over and over without changing any point. General Rowny says this had several effects. It would tire the US delegates and cause them to shift to other negotiating issues. It would also cause the US to conclude that the Russians had strong feelings about the point being repeated and could not be persuaded to change. In some cases, the US delegation would concede parts of the Soviet position in order to move the negotiations along.

Soviet Spontaneity

Programmed Delegates. There were few spontaneous remarks from the Soviet delegation. Almost nothing was accidental or unplanned. If a US delegate asked a question, his Soviet counterpart often pulled a card from his pocket and read an answer, even though the answer might be completely unrelated to the question. Soviet delegates made this a practice both in the plenary and in the informal sessions. When Soviet delegates ran out of answer cards, they would quote Soviet Communist Party Secretary Leonid Brezhnev or Lenin.

Progress. The Soviet delegates, without offering any flexibility in their position, would urge that progress be made in the talks. "They know Americans want to make progress, and they would play on that desire," General Rowny explained. The Soviet delegates, by contrast, seemed willing to wait years if necessary to win a point.

Secrecy. The Soviet Union played on secrecy at every turn of the negotiations, even keeping its own delegates uninformed on some issues and offering little or no information to the US delegates. The US delegates were forced to negotiate with what they knew about US strategic arms and what they assumed about those of the Soviet Union.

Grand Principles. The Soviet delegates liked to pontificate on détente, nuclear proliferation, and arms control, rather than discuss specifics about a workable treaty. This tactic seemed to be for purposes of propaganda and delay.

Open Society. The Soviet delegates would quote different US civilian and military officials about SALT terms in an effort to win a negotiating point. But if they were asked for the reaction of a Soviet official, they would say his views were secret. Says General Rowny: "It is like a poker game in which they've got their cards up against their chest and yours are face up on the table."

Multiple Proposals. The Soviet delegation would patiently ask for new proposals from the US, without offering any suggestions of their own. To keep the talks moving, the US often obliged. Then the Soviet delegation would pick out what it liked of each proposal. "It was what we call taking the raisins out of the cake," says General Rowny. Often, the US would find itself making six proposals to one Soviet proposal, then having to defend itself against Soviet attempts to take the best of each proposal.

Anonymous Proposals. A Soviet delegate would tell a US delegate that he had left a "nonpaper" in the negotiating room. Because of the unusual way the proposal was made, unsigned and unaddressed, the US would have to offer it as its own proposal to make it a part of the formal record. The Soviet delegate, if pressed to admit authority, would insist he had not made any proposals that were left on the table or floor without even a verbal alert to the US delegation.

Nice Cop–Mean Cop. The civilian Soviet delegates would ask their counterparts to "give us something to help us out with our generals." This approach, implying a split in the Soviet delegation, was tempting to US delegates even though they were very much aware that there could be no reciprocation by the closely controlled Soviet delegation.

Between the Lines

Coy Answers. The Soviet delegates would answer a question with another question. Or they would tell the US delegates to study the "nuances" of the plenary statement. On occasion, General Rowny would say he had restudied the prepared remarks and still did not understand them. The Soviet reply would be to study the statement harder and to read between the lines.

Good Intentions. The Soviet delegates refused to consider arms balance equations on the basis of the capabilities of the respective weapons. Instead they insisted that consideration be given to the "intent" of the Soviet Union, which they described as peaceful. General Rowny cites the Soviet Backfire bomber as the "classic case." The Soviet delegation repeatedly said that as the Soviet Union had no intention of using the Backfire against the continental US, it, therefore, could not be included in the SALT agreement.

Objective-Subjective. The Soviet delegation relied heavily on political doctrine to guide its negotiations. On one occasion General Rowny suggested that the Backfire bomber be discussed in objective terms, and his Soviet counterpart agreed. But when General Rowny cited figures from a magazine on the range and performance of the Backfire, the Soviet delegate replied that such figures

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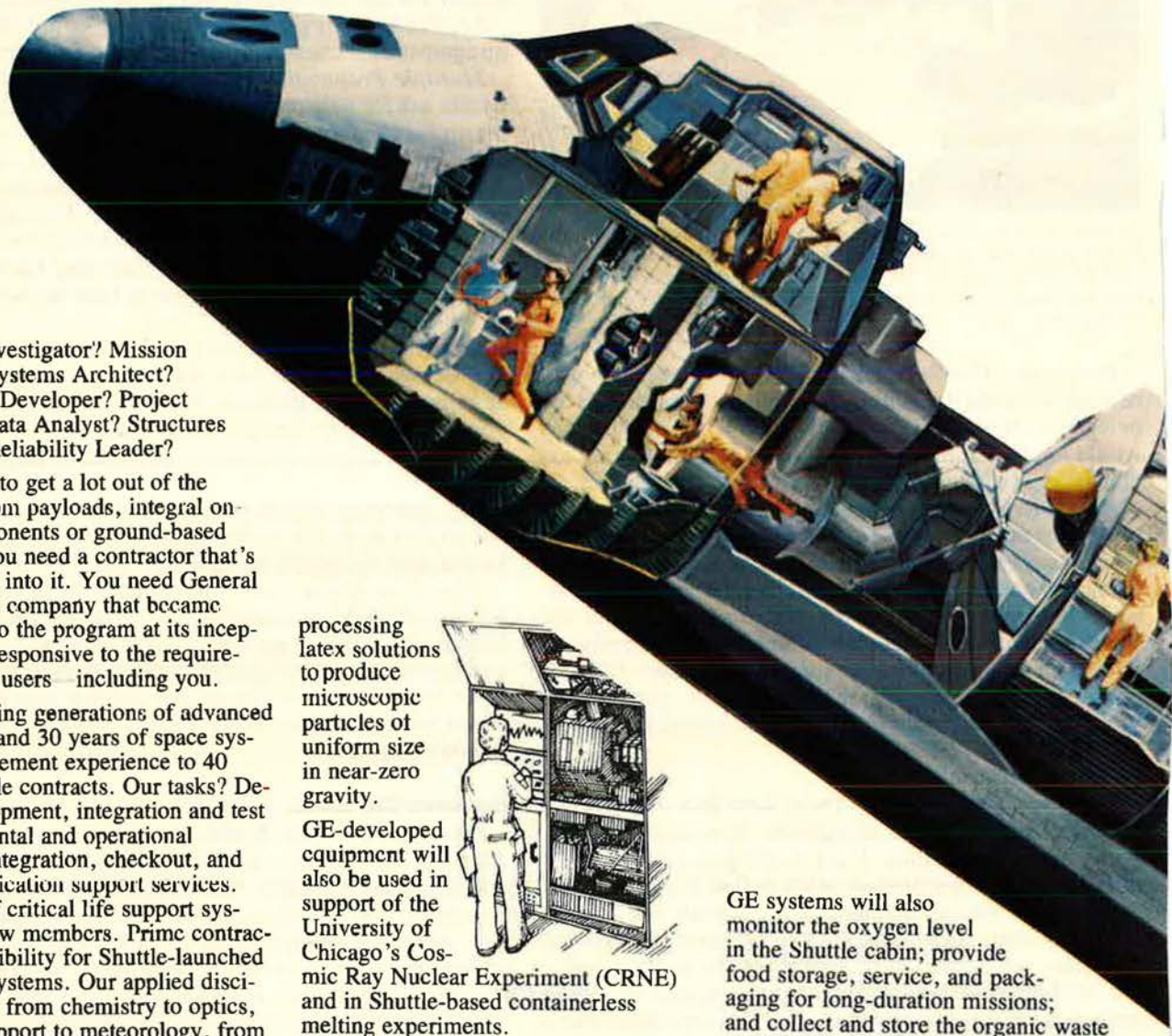

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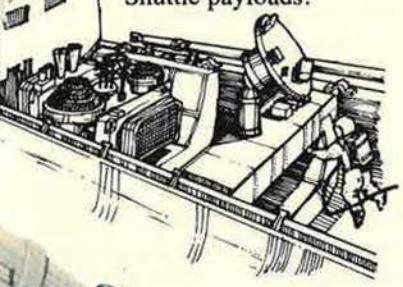

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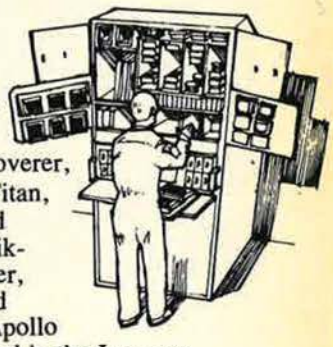

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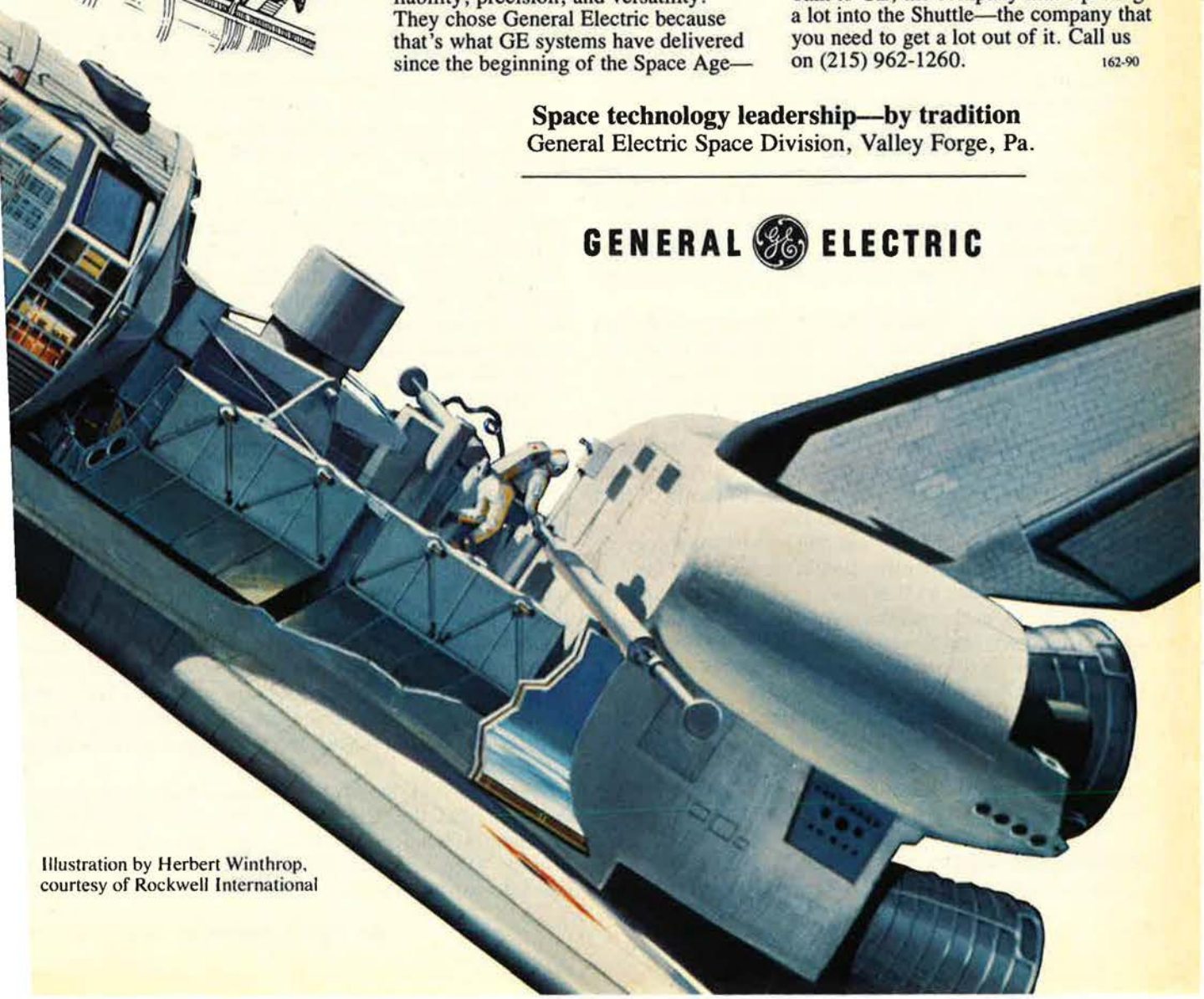

Illustration by Herbert Winthrop, courtesy of Rockwell International

Differences over negotiating tactics were resolved at the White House. President Carter confers with, from left, Defense Secretary Brown, Presidential Assistant Brzezinski, and Gen. Alexander Haig.

were created by engineers and that engineers lie, so the figures were subjective. He offered as "objective truth" a statement by Secretary Brezhnev that the Soviet Union did not intend to use the Backfire in strategic missions.

Logic Appeal. In advancing their positions, Soviet delegates would argue their case was "logical" though in some instances the argument had nothing to do with logic and in others was actually illogical. General Rowny concluded that the appeal to logic was simply another effort to use propaganda techniques to convince the US delegation.

Trust. A frequent argument of the Soviet delegation, particularly on verification issues, was trust. "Trust us," was a frequent reply of Soviet delegates when specific issues were raised. The Soviet position was that all international treaties are based on trust and that the Soviet Union would be willing to trust the US if it trusted the Soviet Union.

Public Opinion. While the Soviet delegation held fast to its positions, the Soviet government tried to change the US position by influencing public opinion in this country. General Rowny said the Soviet Union's propaganda assaults on the US were timed to the SALT negotiations. These actions included writing letters to the US newspapers and sending Soviet officials, such as G. A. Arbatov, director of the Institute of the USA and Canada, on speaking tours in the US.

Agenda Control. The Soviet delegation spent a great deal of time arguing over the agenda of meetings. The US delegation conceded a lot of these arguments in an effort to proceed to more substantive issues. But once the agenda was set, the Soviet delegates would not permit the US to bring up other issues—unless, of course, it suited Soviet purposes.

Despite the differences in negotiating techniques and the tight control Moscow held over the Soviet delegation, General Rowny advocates continued negotiations on strategic arms and is a strong supporter of face-to-face negotiations.

Detecting Nuances

There is a tremendous value, General Rowny says, in getting to know members of the Soviet delegation in person. Even when carefully worked-out formal statements are presented, he insists, nuances in facial expressions and voices can be detected that would otherwise be lost, if exchanges are limited to diplomatic notes. "You often can sense when a Soviet delegate is less rigid on some points than others," General Rowny says.

But for these face-to-face meetings to be profitable to the US, General Rowny insists that US delegates must be better prepared and trained in the techniques of negotiation. "I wouldn't let anyone go over and negotiate who doesn't speak Russian," he says. He cited as one example of clumsy preparation the replacement of a US aide to the delegation—an expert on the Soviet Union who spoke Russian—with an expert on South America. Civilian delegates also should be better informed on US and Soviet strategic arms, he says.

As for the question of whether the director of the Arms Control and Disarmament Agency should also act as chief of the negotiating team, General Rowny contends that when one person holds both positions, both jobs suffer.

At the outset of the SALT I talks, ACDA Director Gerard C. Smith also served as the chief of the delegation. When Dr. Fred C. Iklé was appointed ACDA director early in 1973, the delegation was put in the charge of U. Alexis Johnson, a career diplomat. Under the Carter Administration, Ambassador Paul C. Warnke served both as ACDA director and chief of the delegation. General Rowny says that negotiations slowed when the chief delegate was not present to make or to hear plenary statements.

It is General Rowny's view that the US delegation could have negotiated a better treaty than the one submitted to the Senate, if the US had been more patient.

In testimony before the Senate Foreign Relations Committee in July, General Rowny insisted that a good SALT treaty—one that would be better from the US standpoint and still acceptable to the Soviet Union—could still be negotiated.

General Rowny was challenged in this view by Sen. Edmund S. Muskie (D-Me.), who asked him to explain why he was the only member on the delegation who saw the potential for additional Soviet concessions.

General Rowny's reply: "I know the Soviet mentality."

General Rowny insisted before the committee that the Soviet Union "needed the treaty more than we do. They will come back to the table." The Soviets want a SALT treaty, he explained, "because of their desire to be recognized as a superpower and because it will allow them to enjoy the advantages they receive from a continuation of détente." He said that Moscow's leaders also see a treaty as a "necessary step" to achieving most-favored-nation status with the US, important to winning US trade credit.

But General Rowny cautioned the questioning senators that the US must in the meantime keep its strategic arsenal competitive with that of the Soviet Union: "We need the wherewithal to renegotiate; we can't do it with mirrors."

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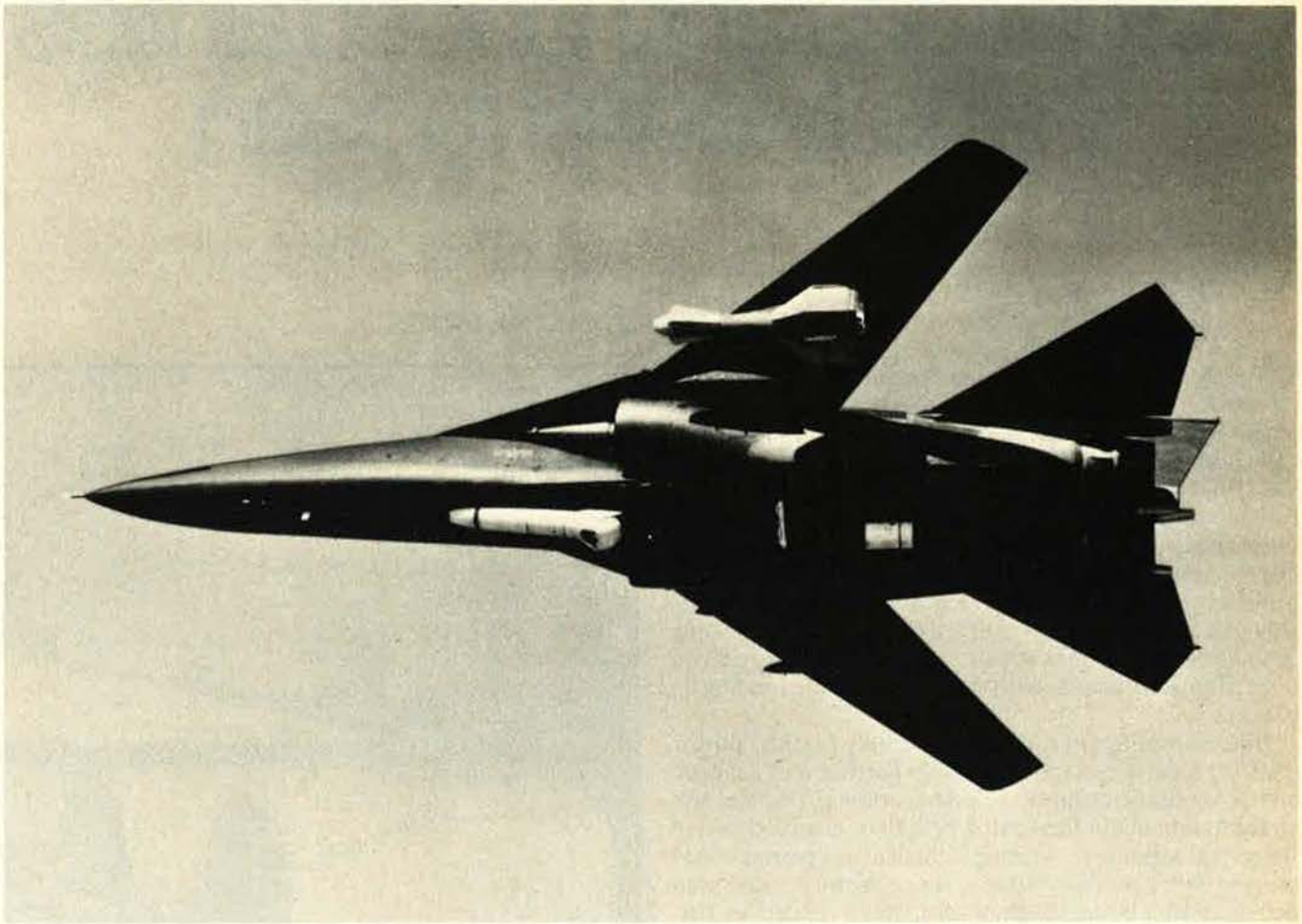

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In July, the author met with senior US and NATO officials in the Mediterranean. Here is his report on that increasingly important region at a time when there are soft spots in NATO's southern flank and when US influence in the area is in decline.

Obligations and Uncertainties in the Mediterranean

BY GEN. T. R. MILTON, USAF (RET.)

THE Mediterranean has a compelling fascination for northern Europeans. The long and gloomy winters in places like Bonn, Amsterdam, Brussels, and Oslo inspire a deep longing for the sun and the soothing waters of the sea. Fuel crisis, inflation, DC-10 groundings, and terrorism notwithstanding, the hegira was on again this year, and evidently bigger than ever. Boarding an Italian DC-9 is reminiscent of the Tokyo subway at rush hour as otherwise nice hausfraus elbow their way up the gangplank. In explanation of this behavior, the seating arrangements on these sunshine flights are potentially a form of musical chairs, with the slow, or polite, ending up seatless.

Hotels from Spain to Greece are fully booked during the long tourist season as the pale northerners descend on the Mediterranean, blue and beautiful as ever despite ominous talk about increasing pollution. Everywhere, in short, one sees the reassuring sight of a prosperous world blessed with sun, marvelous scenery, history, and a general air of well-being. Everywhere, that is, except in Turkey, which is a separate case.

It is, of course, the view of a very superficial observer, this one of a sparkling Mediterranean region teeming with all the beautiful people, but it is an easy illusion to hang on to. Again, except in Turkey, where the facts of life are more starkly evident.

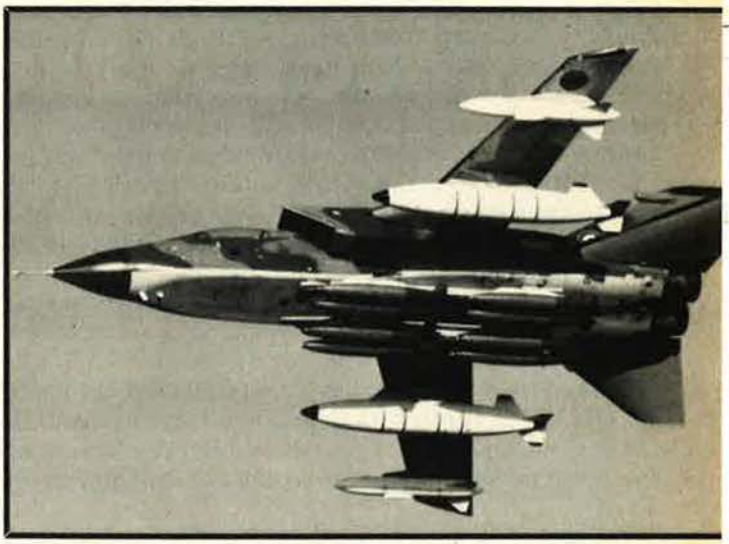
Because NATO has an important stake in the Mediterranean, and the United States an increasingly important one of its own, Naples is a good place to begin a look at that region. Naples is the headquarters of the Commander in Chief South—CINCSOUTH, in military shorthand—one of SACEUR's three major NATO commanders, the others being, logically enough, CINCCENT and CINCNORTH. CINCSOUTH is, as he has always been, a US Navy admiral, a reflection both of the traditionally maritime nature of the Mediterranean as a military theater, and of the predominance of our Sixth Fleet in the NATO naval array.

The headquarters of CINCSOUTH is an impressive place, reassuringly unchanged in a changing world. It is the same place in almost every detail—the blue and white flag of Greece is now missing from its flagpole—that President Nixon visited in 1970, a time when both his own prestige and that of the United States were at a high point. That day Nixon stressed the vital importance of the Mediterranean region and the essentiality of allied unity to the assembled NATO leaders. That Presidential visit was a great day for NATO's Southern Command, one that is not likely to be repeated.

Looking East from Naples

The present CINCSOUTH, Adm. Harold Shear, has a cautiously optimistic view of the situation facing his command. Italy, a country that has been on the brink of political and economic chaos for some years now, seems to have pulled back from the edge. The elections this June were a psychological defeat for the Communists,

Left, a Hellenic Air Force pilot checks the status of his F-5. The Italian Air Force plans to buy 100 MRCA Tornadoes (below) to replace F-104 and G91R fighters.



A Turkish Air Force F-5 (far left). Turkey's armed forces are suffering a lack of spares resulting from the US arms embargo. Left, an air-to-ground gunnery target at the range near Zaragoza AB, Spain, where USAFE pilots do much of their gunnery training.

although they remain a powerful minority influence and have installed mayors in many of the major cities. Still, the Communists lost ground in these general elections, a bitter disappointment to Enrico Berlinguer, the charismatic Italian Communist boss, and his followers.

There is an evident move toward moderation on the part of the Italian electorate despite—or perhaps because of—the senseless terrorism of the Red Brigades. Communist participation in the government has not improved the efficiency of Italian public services, unemployment has reached the epidemic level of more than ten percent in Naples, bringing with it a rise in petty crime, and the oil crisis has had its effect on the Italian economy just as it has everywhere else. Regardless of all this disruption, the Italians seem to have halted their slide to the left, something the Alliance has devoutly hoped for.

Like our own Air Force, the Italian Air Force is suffering from pilot attrition. Alitalia has the same sort of pay and fringe benefit attraction as do our American airlines, and Italian Air Force losses to Alitalia have been heavy. In one respect, this transfer of Italian military pilots to civilian air transport is a good thing. They are clearly the best source of trained pilots, and it is always nice for a passenger to know the boys up front have done it before. Nonetheless, this steady drain, not only of pilots but of mechanics, has had a serious effect on the Italian Air

Force. With the introduction of the MRCA Tornado, experience and personnel stability will be important factors in successful operation of this complicated airplane.

Again, like our own Air Force, the Italians are taking some steps to improve pilot retention, among them, better pay and improved on-base housing. They are also beginning to hold pilots to a sixteen-year active-duty obligation. Finally, as a way of increasing their pilot output, the next graduating class of the Italian Air Force Academy will take its flight training in the United States.

The Commander of Allied Air Forces Southern Europe, or AIRSOUTH, is Lt. Gen. Devol Brett, better known as "Rocky," who has spent a long and colorful career in the fighter business. General Brett has an infectious optimism about the state of affairs in the Mediterranean, but even so, it is hard not to retain a little pessimism. The Allied Air Forces, Southern Europe, are undeniably less allied than they have been for some time, and the solution to the problem does not seem very near at hand. Gen. Alexander Haig made a final valedictory effort to bring the Turks and Greeks back together in NATO's Southern Command, but even his immense prestige seems not to have been enough.

It is a very complicated situation that is keeping Greece and Turkey at odds, and it has mainly—almost entirely—to do with airspace boundaries and defense responsibilities over the Aegean Sea. Before Cyprus started its chain reaction of NATO-damaging events, the Commander, Sixth Allied Tactical Air Forces, with headquarters in Izmir, Turkey, served as an impartial arbiter, if not always precisely as a commander, over air defense activities in the Aegean airspace separating Greece and Turkey. The Commander, Sixth ATAF, was a United States Air Force lieutenant general subordinate to COMAIRSOUTH, with Greeks and Turks on his staff. Cyprus ended all that, of course, and last year a Turkish lieutenant general succeeded to the command of Sixth ATAF.

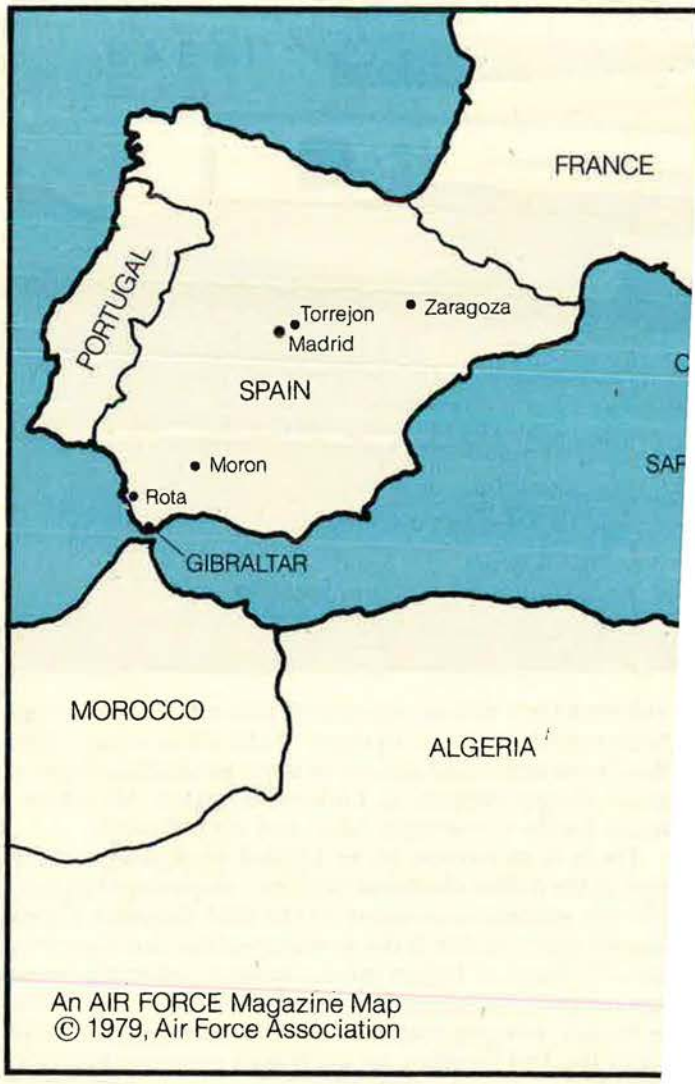
The proposed solutions to the present impasse seem to envision a Seventh ATAF at Larissa in Greece to match the Turkish one at Izmir. COMAIRSOUTH would then have some sort of advanced headquarters, probably in Greece, to referee the activities of the two tactical air forces. It is a Solomon-like approach, but it still does not solve the matter of air boundaries above the Aegean. Greece has, as justification for its claim to an airspace reaching to the Turkish coast, the existing international air traffic control boundary, which does, in fact, place all Aegean air traffic control under Athens. The Turks dispute this transposing of an air traffic control boundary into a military area of responsibility. Behind it all lies, naturally enough, the deep suspicion of one another's motives. The Greek-Turkish hostility is a basic fact of life, one that must be taken into account whenever Alliance matters are considered in that part of the world.

The Greek Puzzle

Greece itself is something of a puzzle. There appears to be little question of Premier Constantine Caramanlis's desire to return to participation in the military structure of the Alliance. It is a feeling evidently shared by Greece's military leaders. Coming back to the fold, however, is proving harder than leaving it.

There is, first of all, the continuing situation in Cyprus, no nearer resolution now than it was four years ago. Since Cyprus was the cause of Greece's withdrawal from the integrated military structure, there must presumably be at least a little movement in the Cyprus situation before any Greek government can afford to come back under SHAPE, even assuming the Aegean airspace matter is dealt with. The Greeks, indeed, do propose keeping a few national strings on their forces when, and if, they do return.

The political situation is another factor that must be taken into account in assessing Greece's future relations both with NATO and with the United States. When Constantine Caramanlis returned from exile to take over the government from the failed military junta, he was clearly the most popular and influential figure in Greece. He still is, but Caramanlis is seventy-six, and like a number of other old men in power, he seems either reluctant to build up an heir apparent or indifferent to the need for one. In any case, the second most prominent man in Greece, at least in terms of public visibility, is not anyone walking in Caramanlis's shadow, but Andreas Papandreou. This man is a Berkeley graduate, a former Harvard professor, and a renounced United States citizen. Papandreou is also an extreme leftist, perhaps even a hard-line Marxist, and most certainly an enemy of all things American these days. He is dead against Greek participation in NATO and would surely pull Greece entirely out of the Alliance



An AIR FORCE Magazine Map

if he were to come to power.

The recent admission of Greece to the European Economic Community was a setback to Papandreou, for he opposed that attachment as well, but it does not mean he is no longer a threat to the future relationships of both NATO and the United States with Greece.

The need for Greece in NATO is clear. Its geographic position alone makes it a key link in the admittedly faulted strategy of NATO in the Mediterranean. But Greece also has some considerable importance to American interests in that part of the world. There is the naval base at Suda Bay, in Crete, for example, a very useful place for our Sixth Fleet. Then, we have the air base in Athens, a busy way station for transports going to and from the Middle East. There are other tasks performed out of the Athens base. All in all, it would be difficult to do without that facility as the Eastern Med grows both more important and more dangerous to US interests. Verification of SALT II, already a capability in considerable doubt, would be even more questionable without the post at Iraklion on Crete.

Even forgetting the ominous presence of Papandreou waiting in the wings for his chance, we can no longer take anything in Greece for granted. Our relations there are good enough, as indeed they should be in a country where every family seems to have a relative in the United States, but they are not anything like as solid as they were in the days when America's role in defeating the Communist revolution was so fresh in every Greek mind. Many years have passed since Harry Truman lent such a decisive hand to the Greek forces of democracy, and Greek memories are no longer than those of the rest of us, it would appear, if we are to judge by the slightly forlorn and neglected look of Harry Truman's statue. What is more apt to be remembered is our accommodation with the junta during its years in power.

Looking back on those years of the Papadopoulos regime, it is hard to feel any particular guilt for such friendship as we showed the colonels. True, they did lock up a few people now and then, just as they themselves are locked up today. But Greece is a volatile country, and worse things than the military junta might have happened at the time of Papadopoulos's coup. Papandreou, for instance. At any rate, the interests of NATO, and our own interests, for that matter, dictated our behavior during that period. The real irony of the colonels' regime was the fact that they focused too much of their attention on governing and too little on the condition of the military. It was the appalling state of Greek military readiness, exposed at the time of the Cyprus affair, that finally did the junta in.

The future course of Greece in the Western alliance is still open to question. It goes without saying that there can be no return to the state of things before Cyprus. Five

years of acrimony and confrontation have left their ineradicable mark. Unhappily, those five years have also seen the United States slip badly in Greek esteem. The Greeks, like the Turks, think we have been favoring the other side. Whatever else one may think about our diplomacy in this Cyprus matter, he must agree that it has been something of a classic in evenhanded ineptitude.

Meanwhile, Greece moves on. Membership in the Common Market, long a dream of Greek politicians, has at last come to pass. Whether it will be of any real benefit to Greece remains to be seen, but as a status symbol, a sign of really belonging to Europe, it rates very high. This European Community membership also takes a certain bit of value off a return to full NATO membership. After all, France, the EEC member nonpareil, takes its NATO membership lightly enough.

Turkey: Aftermath of the Arms Embargo

Across the beautiful Aegean lies the real danger spot in our Western alliance. Turkey is in desperate trouble. Nineteen of its provinces are—or were this past July—under martial law. It is a benign sort of martial law, one without even a curfew, but it is martial law nonetheless, evidence of the terrorism that is an everyday threat. The young Turkish soldiers, patrolling the streets in pairs, seem somehow too innocent and unsuspecting for the task of stopping these anarchists who strike mindlessly and without any pattern. One day it might be a coffeehouse, the next day a movie theater. Their motive seems to be simply the spreading of disorder and fear. But if their aims are unclear, the source of their funds and training is not. It lies in the Soviet bloc, with some help, probably, from the PLO.

Terrorism is one of Turkey's problems, and not a minor one, but there is another worry that is even more pressing—the state of the economy. Turkey is, if not dead broke, the closest thing to it. The economic difficulties overshadow everything else. If they are not soon relieved, then the future course of events in Turkey is anyone's guess.

The binding force in Turkey has traditionally been the military, and, most particularly, the army. Turkish generals, a remarkably solid and responsible lot, rank very high in the scheme of things in that country. When the Turkish military has found it necessary to step in during a political crisis, it has always done so decisively but with reluctance. Once the crisis was settled and the politicians were again ready to take charge, the army has marched back to the barracks.

The question now is whether the military can again be the steadying hand as the Turkish government gets ever shakier, for our arms embargo has done severe damage to the Turkish armed forces, both materially and to their morale. The army, NATO's largest, is at this point years behind in modernization. It was no great help for the Turkish Chief of the General Staff, on an otherwise successful visit to the United States this past July, to see an M-1 tank displayed in an Army museum. The M-1 is Turkey's first-line tank, and our embargo has put a great many of these old machines out of commission for lack of parts.

The air force is still flying F-100s—another museum piece—along with F-4s and F-5s. Again, lack of spares has put a high percentage of these fighters out of commission. It is not a reassuring sight to see an ally's Phantoms listing on the ramp with flat tires, or with empty holes where the engines ought to be.

Gen. T. R. Milton has been a regular contributor to AIR FORCE Magazine since his retirement in 1974. Following graduation from West Point in 1940, he served as a bomber pilot in Europe, Director of Operations for MATS (now MAC), Executive to the Secretary of the Air Force, Commander of 41st Air Division and of Thirteenth Air Force, Chief of Staff of TAC, and Comptroller of the Air Force. Prior to retirement, he was US Representative to the NATO Military Committee. He is a member of the Editorial Board of NATO's Fifteen Nations *and a frequent contributor to defense-related publications in this country and in Europe.*

The arms embargo really hurt, there is no question of that, and it has left some scars that will be a long time healing. As a senior Turkish foreign office official put it, the romance has gone out of the Turkish-American relationship. Rightly or not, the Turks view the embargo as something that was engineered by the Greek lobby, with only Greek Cypriot interests in mind.

This business of the Greek lobby is something of an obsession with Turkish officials, and they ascribe much of our behavior in the Cyprus affair to the effectiveness of that lobby. Any discussion with a Turkish official, whether military or civilian, is likely to start on that note.

Lifting the embargo has not had the effect the Turks anticipated, another unhappy note in our relationship. Turkish expectations were for a flood of supplies, once the embargo was over. Instead, there has been only a trickle. The surpluses of the Vietnam days are gone, for allies and our own forces alike, and there can be no rapid replenishment for Turkey or anyone else. It is a hard thing for our people to explain to the Turks, who have trouble believing the story.

Our request for U-2 overflight of Turkey as an aid to SALT II verification has been one more setback in Turkish-American relations. Perhaps this refusal of our request was in retribution for the House of Representatives' at least temporary rejection of the $50 million grant-aid bill for Turkey. Turkish officials in Ankara deny any such motive and claim, instead, that our technical justification for the flights was unconvincing. Besides, they point out, Turkey agreed to a modernization of the big US listening post at Sinop, on the Black Sea, with no fanfare or bargaining considerations.

Whatever the reasons for the U-2 refusal, and the need of a very weak government to appease its left might be as good a guess as any, it would be a mistake to give this particular incident too much significance. We have a bigger stake in Turkey than overflight rights.

The Turkish bases are immensely useful assets in that increasingly critical area of the eastern Mediterranean. Aside from such listening posts as Sinop, we make great use of Incirlik Air Base, near Adana, both as a refueling point for transports on their way to and from the Middle East and as a fine training facility for European-based fighters. Our base agreement with Turkey comes up for renewal this fall. With Iran gone and the Mideast a focus of attention, Turkish bases make very good military sense.

It is hard to guess how the bargaining will start. Turkey, after all, understands the ritual of the bazaar. One

thing, however, is an almost certain Turkish desire, and that is this business of grant-aid. They need it for two reasons, only one of which has to do with penury. The other reason, and perhaps it is just as important, is that the Turks want—need—some new evidence that their great friend and ally of Korean War days is still, and once again, a true friend.

Another would-be friend—the USSR—is hanging around Turkey these days, ready with loans and technical assistance. There is nothing in the history of Russian-Turkish relations to suggest that much will come of these Soviet overtures in spite of the substantial size of some of the Soviet-funded projects. Still, you can never tell. A combination of our own intransigence and a sweetly reasonable Soviet Union just might turn Turkey away, into neutralism or, from our standpoint, something worse. It would be a sad day for both countries.

Spain's Ambiguous Role in the Med

At the other end of the Med is another country which, like Turkey, seems to be rethinking its relationship with the United States. Spain is now well along into its post-Franco constitutional monarchy form of government. Democracy, as we all know, has a few disadvantages to counter its undoubted advantages. A noisy and sometimes violent left, for instance. Like Turkey, Spain is suffering from a new outbreak of murderous terrorism. And again, as in Turkey, the army remains the final symbol of law and order. NATO membership, and a broader role in the Mediterranean, may appeal to Spanish Navy and Air Force officers, but the integrity of Spain continues to be the preoccupation of Spanish Army generals.

Our own role in Spain is, as it has been for the twenty-six years we have been there, a slightly ambiguous one. The Spanish air bases—Torrejon, Zaragoza, and Moron—were built originally for the B-47 strategic bombers whose range required forward bases. Today, these many years later, Torrejon is a busy Military Airlift Command stopping point and the home base for the 401st Tactical Fighter Wing. It is also the Headquarters of Sixteenth Air Force, whose nominal commander, Lieutenant General Brett, COMAIRSOUTH, lives and works in Naples. The day-to-day business of Sixteenth Air Force, which includes exercising USAFE responsibilities in the Mediterranean, is conducted by his deputy, Maj. Gen. William Nelson, from Torrejon.

The ambiguity of our Spanish presence stems from the fact that USAFE forces are really NATO forces, and Spain is not a member of NATO. Gen. John Pauly, CINCUSAFE, is also, in his NATO uniform, Commander, Allied Air Forces Central Europe. The fighters at Torrejon, with the small tanker force at Zaragoza, would be a powerful addition to NATO's Mediterranean strategy. As things stand, they first would have to deploy.

Like those in Turkey, the Spanish bases will be coming up for negotiation in the near future. And, again like Turkey, Spain is apt to drive a hard bargain. The real question that we must decide is just how important these bases are to what we may have to do.

Rota, the big US naval base near Gibraltar, is phasing down with the departure of the Poseidon submarines and their tender, and Moron is largely inactive, as it has been for years. Zaragoza has an air-ground range, useful for USAFE training, along with its small complement of tankers, while Torrejon, a beautiful facility outside Madrid, is apt to be the center of attention the next time around.

As seems inevitable in these relationships, ours with Spain appears to have cooled a bit. Part of this cooling may be traceable to the last base rights agreement, when we delivered somewhat short of our promises. The F-4Es we offered the Spanish, for example, had been through a few hard years. The ships the Navy came up with were too old for Spanish tastes. At any rate, our performance seems to have fallen short of Spanish expectations.

Another factor may be that Spain is drawing close, once again, to its European neighbors after the years of semi-isolation during Franco's time. The Spanish have their eyes on a European Community membership, something that may influence their choice of a new fighter airplane. The F-16 and F-18 are both evidently still in the running, but so is the French Mirage 2000.

The next few years should see a clarification of Spain's role in European security and with it, our own role in Spain. Like Turkey at the other end of the sea, Spain's position will have much to do with our, and NATO's, future strength in the Mediterranean.

Obligations and Uncertainties

There is more to the Med, of course, than those parts where we have a presence. Yugoslavia, near neighbor to Italy across the Adriatic, and closer than that at Trieste, is something of an enigma as Tito grows ever older. Will Yugoslavia, under whomever is Tito's successor, be able to maintain that curious brand of independent communism, or will it go back into the Soviet camp? If it does go back, if only to the extent of granting the Soviets air and naval base rights, Soviet visibility, and probably influence, in the Mediterranean will increase sharply.

Malta, still with the mercurial and anti-NATO Dom Mintoff as its premier, faces an uncertain economic future now that the British are finally gone. And while Malta was no longer very important as a NATO base, it would be unpleasant, to say the least, to see it in unfriendly hands. So far, Mintoff has declared for neutrality, and he seems to mean it, but he must also find a way to support his island. The strong man of Libya, Colonel Qaddafi, has become great friends with Mintoff. This in itself might be taken as certain bad news for the allies except for the fact that you simply cannot tell about Qaddafi. He is also very friendly with Turkey, and that fact, by and large, is probably good news. The Turks, as enlightened Muslims, may have a moderating influence on the rich and reactionary Islamic country of Libya.

All along the North African coast, and around through Lebanon, Syria, and Iraq, there are potential threats to our, and NATO's, Mediterranean presence. Years ago we were unchallenged in the Med. And, as it happened, we had relatively few commitments in those years.

Now we have taken on some very serious obligations, if not formally then certainly implied, in regard to Israel and Egypt. There are the further responsibilities to ourselves for a continued flow of Mideast oil. The Med has become an exceedingly important place in terms of our own, and our allies', national interests just at a time, it seems, when we are less certain of our own position there. ■

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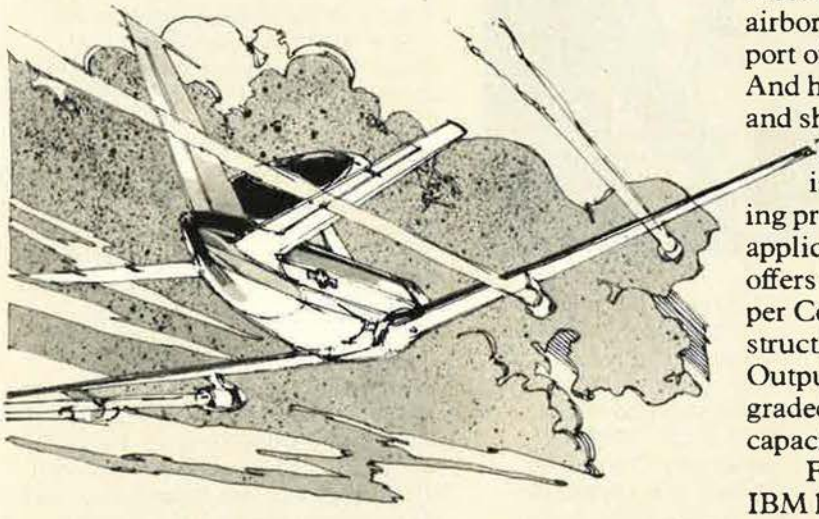
Creating systems that work



Eyes that see beyond the horizon. Eyes that can look deep into hostile territory. That's what the E-3A Sentry provides a tactical ground commander.

The E-3A Sentry integrates radar, identification, data processing, display and communications functions in a single airframe—and reduces the need for complex data interchange among many elements.

With its breakthrough in radar technology, the E-3A Sentry can detect and track at extremely long range, over land and water—despite ground clutter.

With its proven Boeing 707 airframe, the E-3A Sentry can solve surveillance requirements on a long-term mission basis without establishing large numbers of ground-based sites.

And with IBM on board, one of the largest, most complete data processors ever qualified for airborne use helps provide direct, real-time support of the E-3A Sentry's missions and operations. And helps give the big picture a wider perspective and sharper focus than ever before.

The IBM Advanced System/4 Pi Model CC is designed to solve the large, real-time processing problems that exist in command and control applications such as the E-3A Sentry. While it offers nearly one million operations per second per Computer Arithmetic Unit depending on instruction mix, as well as an extensive Input/Output channel capacity, it is presently being upgraded to significantly increase speed and memory capacity in the same amount of space.

From the B-52 through the space shuttle, IBM has applied management, engineering, manufacturing, integration and programming skills to produce effective systems for military and space agencies. Whether it's integrating the data processing function of the E-3A Sentry, or managing an entire complex multi-platform weapon system, IBM applies its capabilities from problem to solution. We put information to work. IBM Federal Systems Division, Bethesda, MD 20034.

USAF's Three Top Priorities

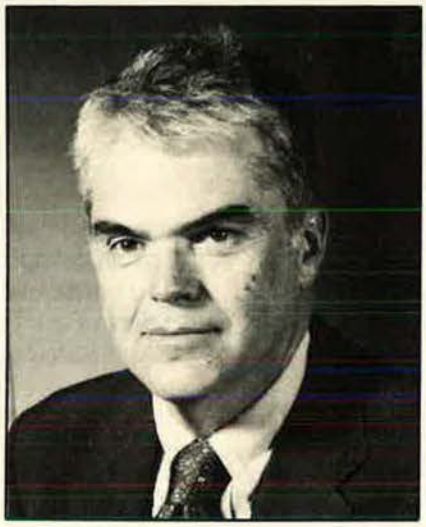
BY THE HON. HANS M. MARK, SECRETARY OF THE AIR FORCE

IN THE coming decade, the most important test our country will face is to maintain the position we have as a major world power. The effort necessary to achieve this objective will have to do with the expansion and modernization of our industrial capacity, major improvements in productivity by the application of new technology, and, most important of all, our ability to achieve some independence from foreign supplies of oil. Much of this effort will be carried on by our traditional private-enterprise system, and the personal initiative of individual people will play an important part.

The military component of this effort will be crucial. We must continue the ability to deter our principal military competitor, the Soviet Union, from launching a major strategic attack on this country. We must continue to retain the ability to respond to military contingencies around the world in which our vital interests might be involved. Finally, as a world power, we need to continue developing a worldwide perspective on the interests that we have elsewhere. It is entirely fitting that even in developing our military posture, private, voluntary, civilian organizations such as the Air Force Association should play a vital part. This is in the long tradition of our military history to minimize the distinction between military and civilian pursuits.

There are three important priorities for the Air Force as the effort to maintain our world power status develops:

1. The enhancement of our strategic forces to maintain a level that will ensure strategic equivalence with the Soviet Union.
2. The enhancement of strategic and tactical airlift so that we can adequately respond to worldwide contingencies where our national interests are involved.
3. The development of a doctrine and an organization that will permit greatly increased Air Force activities in space in order to take advantage of new technology to enhance communications, reconnaissance, and other vital Air Force functions.



The modernization of the strategic deterrent is our first priority today. For the past fifteen years, the Soviet Union has consistently increased its strategic power and is now in a position where in a number of fields it could have superiority. The current balance could easily be upset if we do not take aggressive steps to reverse present trends. We have upgraded our Minuteman ICBM force, and some of our B-52s are being modified to carry the new air-launched cruise missile. The President has approved our plans to deploy a new missile system, and we are proceeding to improve our strategic surveillance and strategic command and control systems.

These actions fall short of a complete solution. They must be followed by a basing decision for the MX, positive plans for a new bomber, and continual real growth in the defense budget. All of these steps must be taken to correct projected vulnerabilities and to provide a secure strategic force structure to support further negotiations for strategic arms limitations. These actions will help stabilize the strategic relationship between ourselves and the Soviet Union, but they will only work if we have a position of equivalence with our major military opponent.

We must continue to be able to respond to crisis situations in different parts of the world where our vital interests are involved. We must be able to supply allies rapidly, and we must be able to project forces if that needs to be done. We must also be able to evacuate rapidly Americans who are endangered in revolutions or conflicts around the world. While we have good strategic airlift capability, we do not have enough aircraft, and the tactical airlift force will have to be modernized in the next decade. Thus, airlift modernization must be considered as an essential element of our overall ability to operate as a major power, and a renewed effort must be made to improve this portion of our force.

The United States today is operationally dependent on space systems for a variety of functions that are of critical importance to our national security. Our military forces today have improved, more reliable communications, more accurate maps, more exact navigation aids, better weather information, and the capability for more reliable and quicker warning of attack due to a network of satellites that provide these things. In the next few years, the Space Shuttle will start flying, and once this happens our ability to operate in space will be greatly increased. We must see to it now that we have the organization and the doctrinal concepts that will permit us to take advantage of this new technical capability.

There are other things that also have to be done. I am speaking here particularly of the need to make it more attractive for young people to join and remain in our military forces. We also need to make certain that we can fly the airplanes we have, which means that more attention needs to be paid to maintenance and spare parts replenishment. However, I cannot dwell here on everything that is important.

It is important to recognize that the Air Force Association is a major factor in maintaining our connection with the civilian world and in providing a voice for the Air Force in many arenas where it would not otherwise be heard. I look forward very much to working with you to enhance the ability of the Air Force to help defend our country. ■

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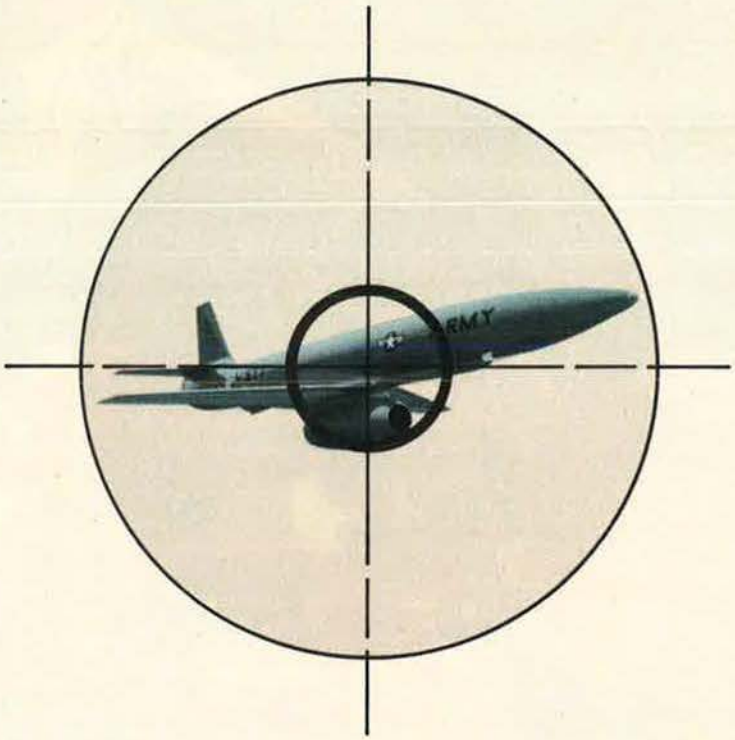


Focus on Quality

BY GEN. LEW ALLEN, JR., CHIEF OF STAFF, UNITED STATES AIR FORCE

As a nation, we face troubling times ahead, with difficult choices and decisions to be made. Many forecast economic decline as we seek solutions to the problems of inflation and energy. We must decide on our response to a growing Soviet threat. We will very likely have to cope with and to stabilize situations of unrest and conflict in many areas of the world, some of which may involve direct confrontation with the Soviets.

These are difficult issues and are a valid cause for anxiety in or out of the Air Force—in defense, in industry, or elsewhere.

During the past fifteen months I've had the opportunity of meeting and talking with many of our young Air Force officers and airmen. They are aware of the challenges we face as a nation and also have some troubling questions about what life in the service will be. How far behind will pay and benefits fall? Will available funding allow us to stay ready? Will we be able to attract and retain good people to do the Air Force mission?

Despite some anxiety, adverse trends, and hardships, however, there are within the Air Force clear indications of commitment and vitality. The morale of our people is high, and there is enthusiasm for the tasks at hand. These positive signs should really not be all that surprising.

We have good people in the Air Force, and we are determined to keep the focus on quality and retention even if we have to sacrifice some mission activities. There is a growing public awareness and understanding of the need for a strong defense and a strong Air Force, an awareness that is bolstered by the fine work of the Air Force Association. We are pushing ahead hard on our modernization programs. The F-15, F-16, A-10, and E-3A are now in operation. Development is progressing on the ALCM and the MX. We will add more new aircraft and equipment in the future.

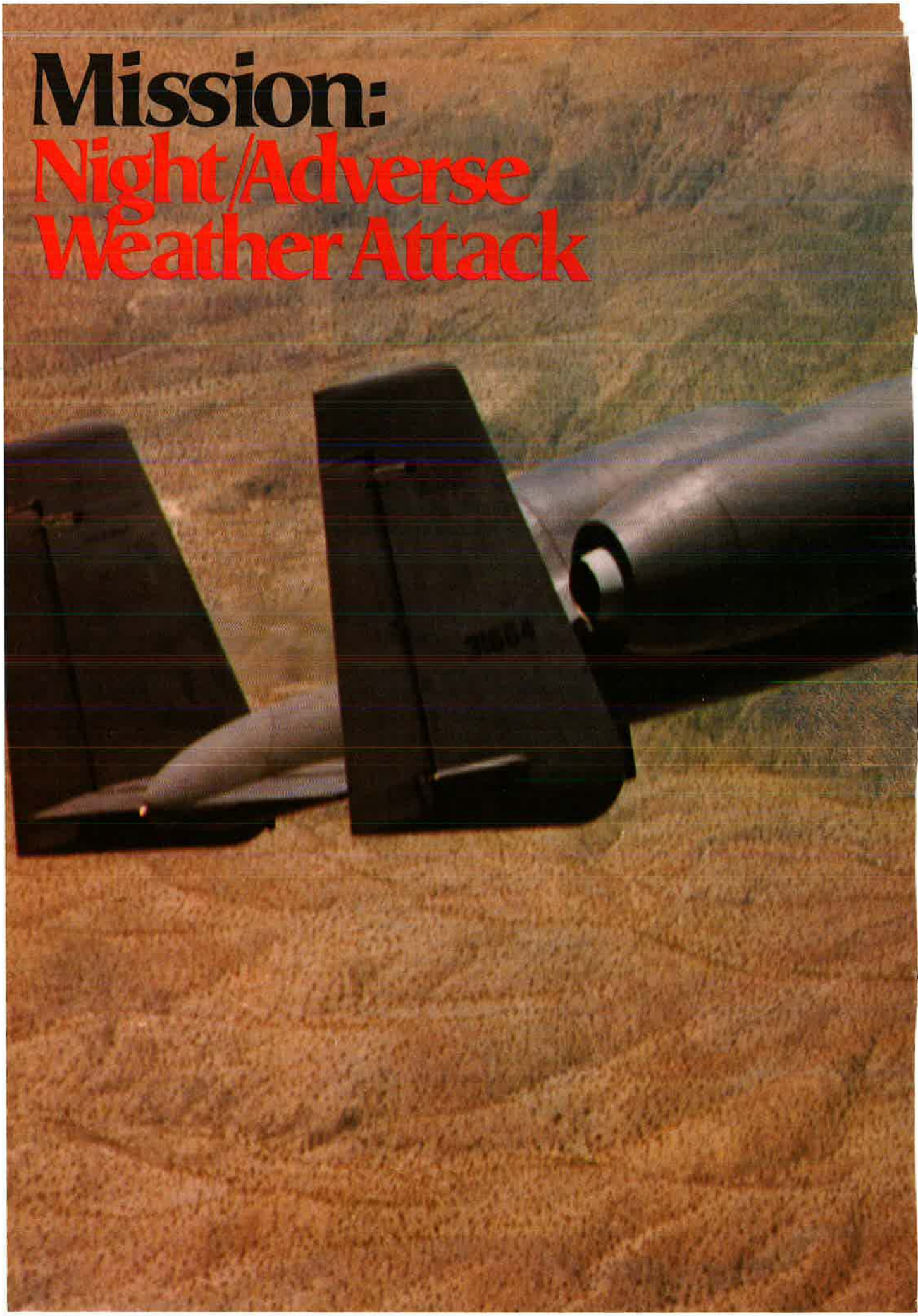
I'm convinced that the Air Force is where the action is. We have before us an opportunity to contribute to the solution of major national security problems. We must ensure that we can meet and if necessary defeat those who threaten US interests in Europe, the Persian Gulf, Northeast Asia, and elsewhere in the world. To be successful in this challenge we must pursue initiatives in all areas. We must continue modernizing our strategic capability, improving our tactical fighter forces, and enhancing our airlift posture. We need to seek more effective means of command control and communications. We must explore new and better techniques of training that will ensure that the skills of our people are commensurate with the capabilities of the aircraft they fly and maintain. We must fully exploit and enhance the potential of all Air Force elements: Active, Guard, and Reserve.

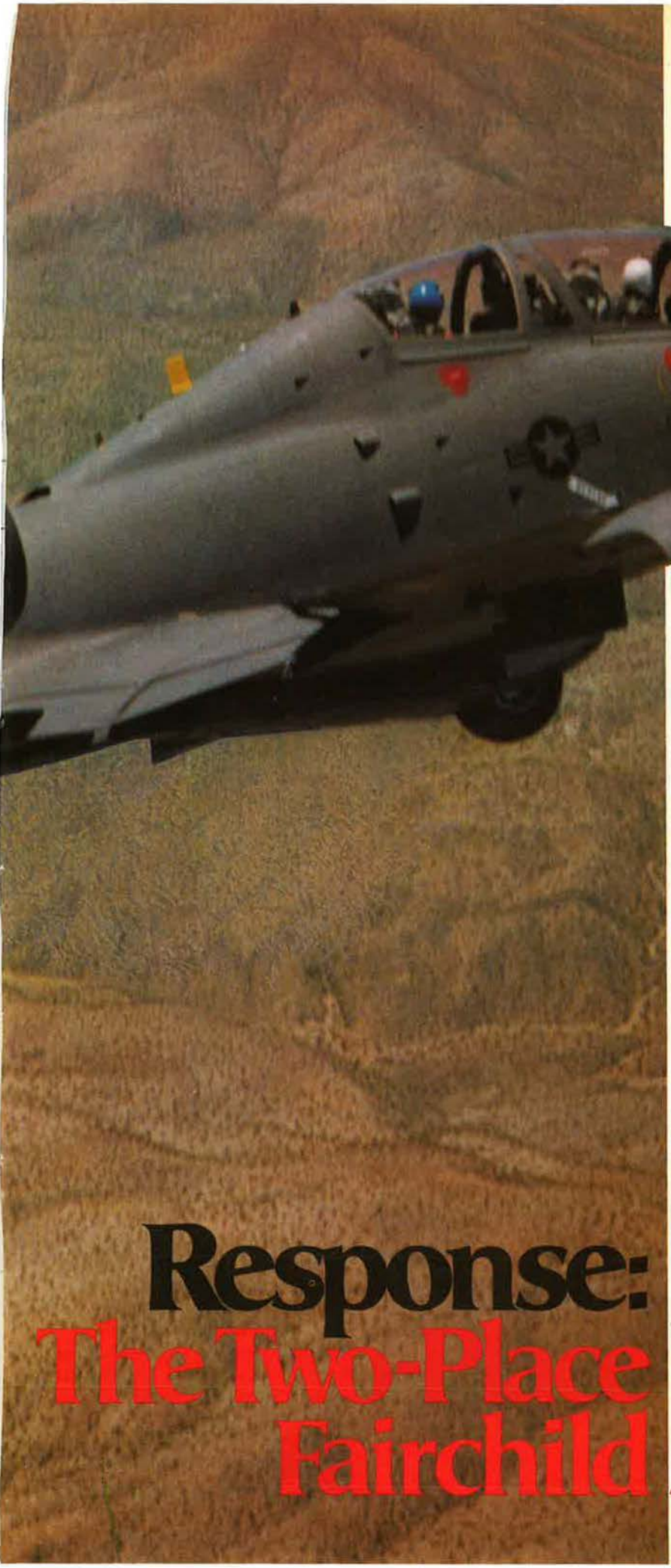
The Air Force *can* do these things, and we will. We are a strong and well-respected institution. The Air Force has been molded by the dynamic leadership of those who have served in the past, and today we are stressing the development of leadership skills to ensure that we maintain this same vitality and sense of direction into the future.

The next decade or so will be a time of challenge for our country. The Soviets, with a growing sense of power, will test us around the globe. Some of these tests will involve the USAF. Other, internal challenges exist and will test the resolve of the nation. But the nation needs the USAF—needs it strong and ready—and those in or supporting the Air Force are serving a vital purpose.

I have found service in the Air Force to be challenging, difficult, satisfying, important—exciting and enjoyable. It has been that way for more than three decades of my experience. There can be no question it will remain so. ■

Mission:
Night/Adverse Weather Attack





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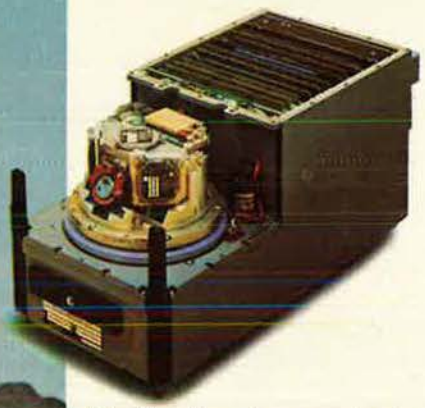
Equipped with night/adverse weather sensors and displays, the new two-place A-10 is designed to provide effective close air support around-the-clock under extreme weather conditions. Special avionics equipment includes radar, FLIR, laser ranger, radar altimeter, advanced HUD and INS. The two-place A-10's configuration is designed to meet the USAF's objectives of locating and destroying enemy armor in virtually any weather. Like its single-place counterpart, the new A-10 is extremely maneuverable, highly responsive and equipped with a devastating arsenal.

Response: The Two-Place Fairchild A-10

N73 is flying.



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N73's credentials? It's the first proven strapdown inertial system for aircraft navigation. Designed to minimize acquisition costs, maximize reliability, and provide low life cycle costs.

Compared to gimballed systems, N73 boasts an arsenal of advantages. It's much less complex mechanically. Its Micro Electrostatically Suspended Gyro (MESG) — a breakthrough in instrument technology — is a unique inertial sensor developed specifically for accurate performance in strapdown environments. And it provides two axes of reference with only one moving part.

Rockwell is proud to be part of this program, which has as its goal the standardization of navigation systems to achieve low life cycle costs.

For more information, write: N73 Program Manager, Autonetics Strategic Systems Division, Rockwell International, 3370 Miraloma Avenue, Anaheim, CA 92803.

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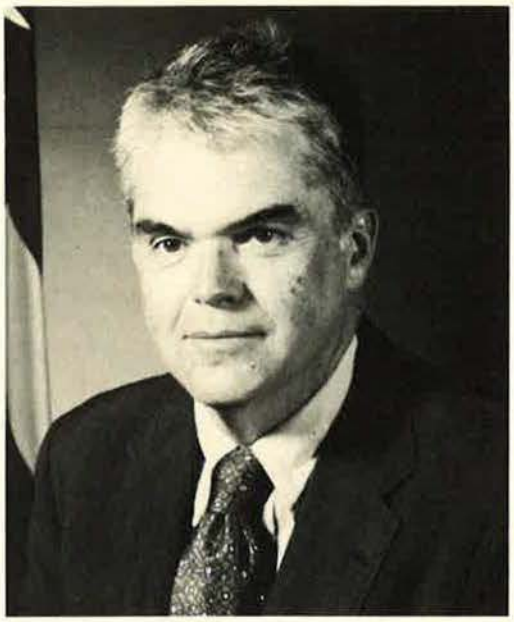
Office of the Secretary of the Air Force



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(As of August 15, 1979)

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26th NORAD/ADCOM Region
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Elmendorf AFB, Alaska

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Deputy Commander for Data Automation
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Pacific Communications Area
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Offutt AFB, Neb.

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Hq. Wright-Patterson AFB, Ohio

CMSgt. Robert E. Rogers
Senior Enlisted Advisor, AFLC

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Wright-Patterson AFB, Ohio

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Wright-Patterson AFB, Ohio

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313th Air Div.
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Alaskan Air Command

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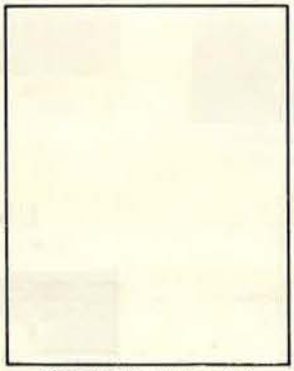
Senior Enlisted Advisor, USAFSS

The Major Commands
(Continued)

SAC
Strategic Air Command

Gen. Richard H. Ellis
Hq. Offutt AFB, Neb.



Senior Enlisted Advisor, SAC
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Barksdale AFB, La.

19th Air Div.
Brig. Gen. (selectee) Lyman E. Buzard
Carswell AFB, Tex.

40th Air Div.
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Tactical Air Command

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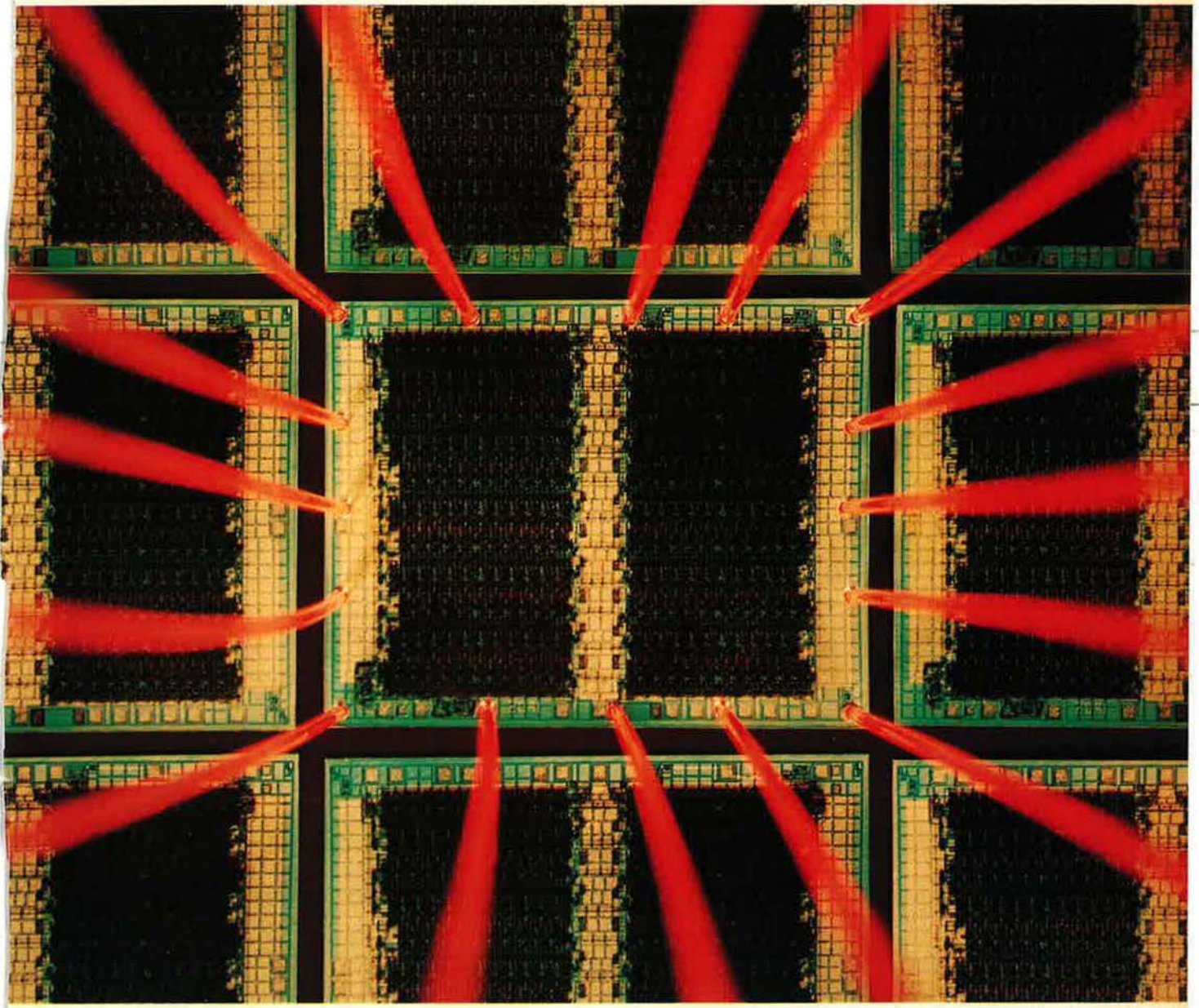

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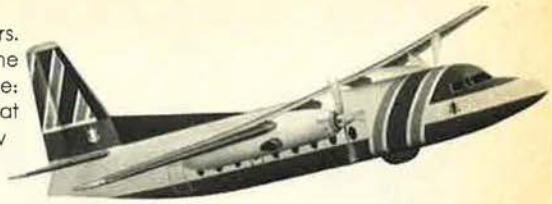

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For the B-52 . . . Sperry's controls and displays subsystem (CDS) will be the major control center for the offensive avionics system. The system, part of a B-52G and H updating, consists of two 10-inch cathode ray tube displays, a display electronics unit, digital scan converter, video recorder and two integrated control keyboards.

The display electronics unit is used for control and supervision of weapon delivery and navigation display processing and presentation. The two keyboards, located at the radar navigation and navigator stations will control the system in conjunction with the navigator's management and presentation panels.

Boeing B-52

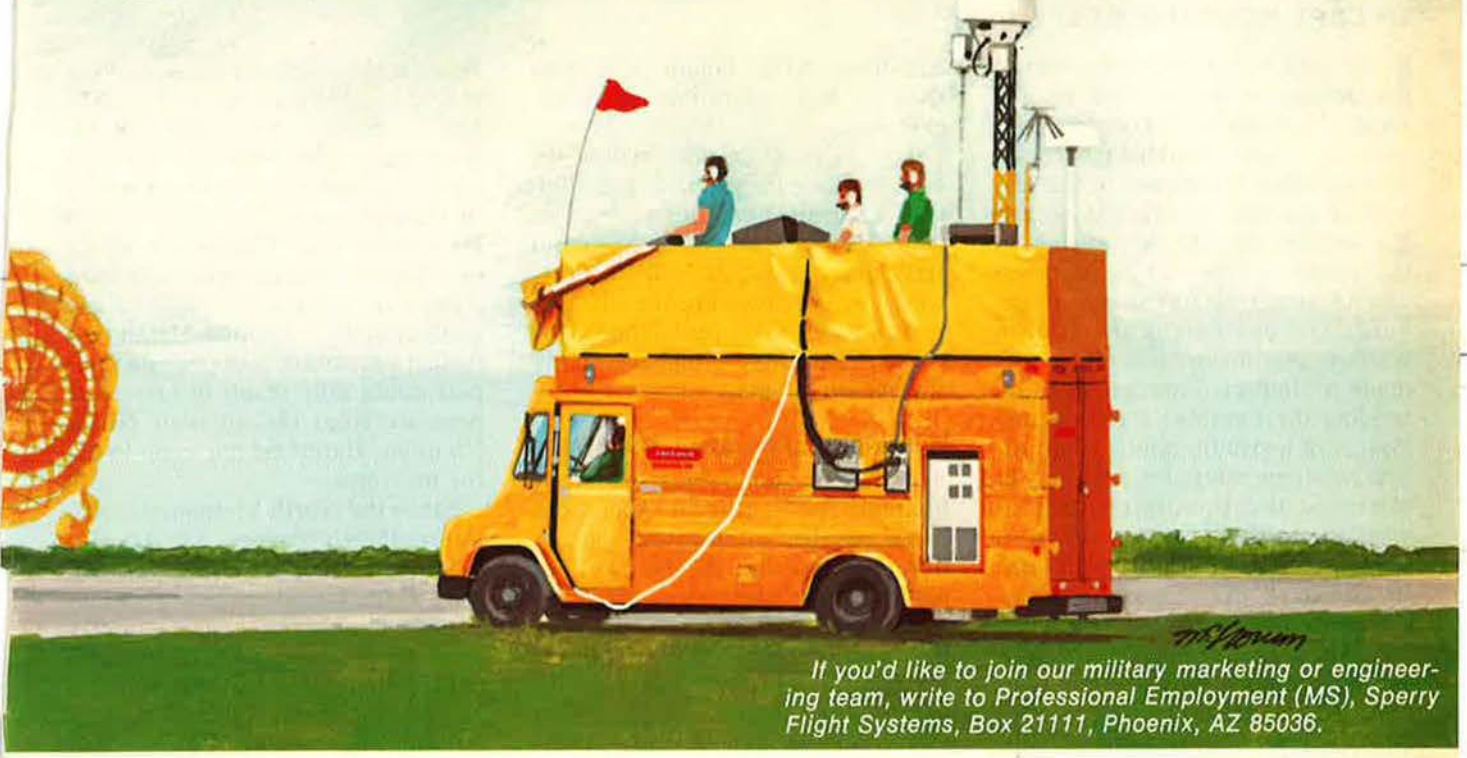
the F-102 . . . like the B-52, is also getting a new lease on life, thanks to Sperry Flight Systems. At our modification center near Phoenix we're changing the role of the fighter interceptor to that of a target drone — the PQM-102 (shown above). The Air Force contracted for the conversion of 145 aircraft, including options.

Capable of up to 8g maneuvers and operation through the full performance range of the F-102, the PQM-102 is a realistic afterburning target used in Air Force weapons system training.

Sperry has a long history of drone conversion work, from B-17s and B-47s to F-104s and T-33s.

the AH-64 . . . Hughes' advanced attack helicopter also counts on Sperry Flight Systems technology. We're providing the digital automatic stabilization system, including the digital backup fly-by-wire control system, a digital symbology generator for cockpit displays, and the entire multiplex data bus system, which integrates the TADS/PNVS with the aircraft fire control system.

ike the B-52 and F-102 newer F-15 and AH-64.



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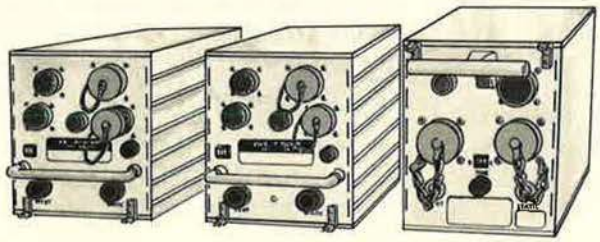
McDonnell Douglas F-15

the F-15 . . . is equipped with three major Sperry systems, including the attitude and heading reference system, an air navigation multiple indicator and digital air data computer.

the F-16 and F-18 . . . are also equipped with Sperry's digital air data computers. And for the F-18, Sperry builds the magnetic memory disc for the Hughes radar system.



F-15, F-16, and F-18 Digital Air Data Computers

the KC-10A . . . will have an advanced digital fly-by-wire refueling boom control system designed and built by Sperry. The system, proven in more than 1,400 hookups between a KC-135 and a variety of aircraft, allows the boom operator to "fly" the boom into optimum position for aerial refueling.

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It's easy to see why the military services and airframe companies alike turn to Sperry for avionics systems. We're attuned to the needs of the defense industry because *we understand how important it is to listen.* We're Sperry Flight Systems of Phoenix, Arizona, a division of Sperry Rand Corporation.

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In December 1972, SAC B-52s, supported by USAF and Navy tactical aircraft, flew more than 700 sorties in the Hanoi-Haiphong area against the most heavily defended military targets of history. That campaign, the most complex and precisely executed in the annals of air warfare, brought about a cease fire and the return of our POWs. One of the B-52 pilots tells about it in . . .

LINEBACKER II: A

BY CAPT. ROBERT E. WOLFF, USAF

LINEBACKER II, the controversial eleven-day B-52 assault against North Vietnam in December 1972, was one of the most concentrated applications of airpower in the history of warfare, conducted against the strongest air defense system in the world. It also has been called one of the most restrained bombardment campaigns in modern warfare. A considerable effort was made to limit civilian casualties by sending the bombing force against targets of a strictly military nature. The missions were designed not to terrorize the population but to weaken North Vietnam's ability to wage an offensive war in the South. Its ultimate purpose was to achieve American objectives of the day: to force the North Vietnamese back to the negotiating table in Paris, to obtain "peace with honor," and to secure the release of our prisoners of war.

Historians have not had the time or the resources to analyze the true impact of the Linebacker missions. Because of the sensitive and controversial nature of the operation and the impossibility of obtaining an accurate assessment of its impact on the North Vietnamese leadership, this appraisal is limited to my perspective as a pilot who participated, flying over Hanoi in December 1972.

My experience with the Linebacker operation began on February 8, 1972. I was on alert at Carswell AFB, Tex., when all the B-52 crews were told to report to the briefing room. We were told by the wing commander to go home and pack our bags for two weeks of temporary duty. He explained that he could not tell us where we were going, but advised us to pack tropical gear. It did not take an intelligence officer, or even a particularly intelligent one, to guess where we were headed. Just prior to takeoff, we learned that our destination was Andersen AFB, Guam, a staging base for B-52 operations in Southeast Asia.

Two days after our arrival, we were striking targets in South Vietnam. Over the next four months we were followed to Guam by about sixty percent of SAC's B-52 force, which was deployed to the island in waves known as Bulletshot. Our two-week journey would eventually stretch into a year.

Prelude: Linebacker I, May '72

This mass deployment of heavy bombers to Southeast Asia took place because intelligence sources had reported that the North Vietnamese were planning to launch a major offensive against President Thieu's Republic of Vietnam. If successful, this offensive could prove to be a major embarrassment to President Nixon. Because of his Vietnamization program, the American troop commitment in the south was down from a high of 595,000 to 95,000, and almost all of these troops were noncombat support elements. The South Vietnamese armed forces (RVNAF) would have to stop the new Communist offensive without the aid of American ground forces. President Nixon was determined to support the RVNAF through the massive use of American airpower. By March, aircraft and crews were in place, ready to blunt the expected attack.

We did not have long to wait. On Good Friday, March 30, the North Vietnamese Army (NVA) struck, its 200,000 troops spearheaded, for the first time in the war, by large armored forces. Three days after the Easter Offensive began, President Nixon lifted the bombing restriction that had been imposed by President Johnson in October 1968, and permitted air strikes in the area immediately north of the DMZ. These strikes were intended to strangle the logistical support of the NVA's offensive in the south. Later, on April 9, the bombing restriction to the 19th parallel was lifted, and the B-52s were sent north to Haiphong and Vinh for the first time in the war. That action was a determined attempt to demonstrate American resolve to continue the conflict and to convince Hanoi that further escalation of the war on their part could only result in increased pressure from the air over North Vietnam. Hanoi did not seem to get the message.

Since the North Vietnamese continued their offensive, the US decided to intensify the air war. On May 9, the President instituted Operation Linebacker (subsequently known as Linebacker I), an aerial campaign to destroy the war resources of North Vietnam and to interdict the movement of men and supplies to the south by striking at the heart of Hanoi's transportation system. The most important objective of the new campaign was to reduce the flow of war materials into North Vietnam from abroad by bombing the railroad lines from China and, more importantly, by mining Haiphong harbor.

This bombing campaign was a great success. By October, all the key lines of communication in North Vietnam had been cut. Vital facilities, such as supply depots, power plants, and rail terminals, had been damaged or destroyed. Shipborne resupply of North Vietnam had been virtually halted, and the logistics flow into the battle area had been drastically reduced. The RVNAF, assisted by large numbers of US tactical air strikes inside South Vietnam, was able to stem the attack of the supply-starved NVA. Eventually, the RVNAF was able to go over to the offensive and regain part of its lost territory.

Although battlefield successes were impressive, the true impact of

Pilot's Perspective

Linebacker I was felt in Paris. The bombing caused the North Vietnamese to modify their position in the negotiations. Hanoi dropped its demands for a coalition government in South Vietnam and for the resignation of President Thieu. Because of the perceived advances in the negotiations, as a sign of good faith, President Nixon suspended US bombing attacks north of the 20th parallel. On October 26, Secretary of State Kissinger announced to the world, "Peace is at hand." To most observers it did indeed appear that the end of the conflict was near.

"The tension increased as we were briefed on exactly what we were going against. The Hanoi-Haiphong area was defended by . . . more than 200 [SA-2] launchers."

The Linebacker II Concept of Operations

Peace was not to be. Within a month of the bombing halt, the negotiations again bogged down. The precise reasons for this deadlock remain unclear, but it is apparent that both North and South Vietnam were fighting for the best position possible at the end of the American involvement. President Thieu was very concerned about what he considered extremely lenient terms for the North Vietnamese. Hanoi, on the other hand, had withdrawn several important concessions they had made prior to the October 23 bombing halt. As the sessions once again degenerated into gatherings of men arguing over the nuances of words, prospects for peace receded.

Carefully utilizing the time gained from the stalled negotiations, Hanoi rebuilt some of its military capability. Railroads were repaired and reopened. Trainload after trainload of Russian equipment moved through China down to the panhandle of North Vietnam. Coastal shipping was also resumed. In short, the ability of Hanoi to wage an offensive war was being restored and became a major factor in the negotiations.

To forestall Hanoi's resumption of power, the Chairman of the Joint Chiefs of Staff, Adm. Thomas Moorer, recommended that a new, more-massive bombing campaign be opened against the North. Pointing out the failure of "graduated response," military leaders urged the total commitment of air resources in the kind of blitz US commanders had been asking for since 1965. Frustrated by Hanoi's intransigence and aware that Congress might soon cut off funds, the President agreed in December 1972.

The new operation became known as Linebacker II. It was originally planned as a three-day air assault on the Hanoi-Haiphong area, but later it was expanded into an eleven-day war. Many targets that had been on the restricted list since the start of air operations in 1965 were to be hit for the first time. These included rail and shipyards, command and control centers, power plants, railway bridges, MiG bases, and air defense sites. B-52s, with their tremendous conventional capacity, were to strike the larger target systems such as rail marshaling yards, and, for the first time in the war, they were to hit the enemy's airfields and surface-to-air missile (SAM) sites. These massive attacks would occur at night, while Tactical Air Command (TAC) and the Navy would send in fighter-bombers armed with new laser-guided weapons during the day. (Naval aviation played an important role throughout the operation; however, I'll limit my comments to USAF operations.)

Although Linebacker II was designed as a coordinated effort to be delivered around the clock, the major portion of the strikes were by the B-52 force. The Stratofortresses, because of their all-weather bombing capability, could strike by night or day. TAC's new laser weapons required extremely good weather to be effective. SAC bombers, therefore, went in at night while TAC had the day duty. Since only twelve hours during the entire eleven-day assault proved to be usable for laser weapons, the brunt of the attack fell to SAC.

This is not to say that TAC was

Above, a B-52D from Andersen AFB, Guam, starts the long flight to Hanoi. Right, B-52s at Andersen and at U-Tapao AB, Thailand, were serviced and loaded as others, carrying 108 500- and 750-pound bombs, attacked targets in the North.

not busy. In just those twelve hours, fighter-bombers accomplished extraordinary results. Even for the night missions, tactical forces provided a substantial support package. Leading the TAC effort were EB-66s. Originally designed as a nuclear bomber of medium range, they now were used as a stand-off Electronic Countermeasures (ECM) jamming platform. Orbiting south of the target area, these aircraft jammed Hanoi's air defense system.

Leading the actual strike force were the F-111s. These aircraft had a mission of the highest priority. For the first time in the war, we were going to make a determined effort to beat down Hanoi's excellent air defense systems. The F-111s went in at low altitude and high speed, using their terrain-following system, to crater the enemy's airfields and to strike known SAM sites.

Following the F-111s, F-4s spread a corridor of chaff to literally blanket the radarscopes of the defenders. This blanket would make extremely difficult the job of selecting a B-52 from the many false returns on the scope. As an additional duty, F-4s provided fighter escort for the big bombers. Fighter sweeps of the area prior to the arrival of the bomber force, and a close-in escort force, did an excellent job in suppressing the MiG threat.

The F-105 "Ironhand" aircraft also provided support. Ironhand aircraft were armed with antiradar homing missiles that could lock on to the beam guiding the SA-2, the standard antiaircraft missile, and follow this beam back to the site. Through coordination with other sites, the effectiveness of our antiradar missiles could be degraded. However, the mere presence of Ironhand diminished the enemy's missile accuracy.

The key to the Linebacker II operations, however, was the B-52. While the support of other aircraft was important, the B-52 contained a great deal of equipment to assist in penetrating to the targets. ECM black boxes were the most valued as they helped negate the SAM threat. As a counter to the MiGs, we were armed with four rearward-firing machine guns. The crews thought that these would prove to be ineffective, but the record proved otherwise. Although the MiGs never posed a serious problem for the bomber force, largely because of the work of our fighter aircraft, B-52 gunners did manage to shoot down two MiG-21s without experiencing a single air-to-air loss.

First B-52 Missions

As crew members, we knew the capabilities of our individual aircraft, but we did not have a fair appraisal of the power that was about to be unleashed on North Vietnam after seven years of restraint. The first we knew that a major operation was planned was December 17. On that day my crew was loading our baggage onto a KC-135 scheduled to redeploy to Carswell AFB. After loading, we were told to unload; we were not going home that day. No one would tell us why, but it was apparent something big was happening. The favorite rumor was that a massive redeployment back to the United States was being planned because of the impending end of the war.

Such was not to be, as we learned in the pre-takeoff briefing. Instead of returning home, we were going to strike targets in one of the most heavily defended areas in the world. Apprehension rose, with visions of Schweinfurt in many minds. The tension increased as we were briefed on exactly what we were going against. The Hanoi-Haiphong area was defended by thirty SA-2 sites, with more than 200 launchers. The SA-2 was specifically designed to bring down aircraft at the altitude at which we were programmed to attack. Adding to this defensive system were 145 fighters, the bulk of them MiG-19s and MiG-21s, which were more than capable of challenging the bomber force. Also integrated into this system was antiaircraft artillery (AAA) of all types, some of which could be a threat. We departed that briefing room in a sober mood.

After a normal inspection of the aircraft, this sober mood changed to one of pride and determination brought about by the actions of the ground crews. Information about the impending massive strikes at Hanoi had been impossible to keep quiet, and the ground crews soon gauged the enormous size of that night's effort. Up until this time, the morale of the ground crews had been low, a condition caused by long working hours and living in tents, with no end in sight. Now, at last, it seemed that we were going to attempt to end this war, and everyone was proud to have some part in that operation. Their graphic demonstration of this attitude brought about one of the greatest experiences of my life. As the aircraft began moving into position for takeoff, it seemed the entire base population at Guam was lined up on the edge of the taxiways and runway. As we moved by everyone came to attention and saluted. It was as if everyone suddenly knew that they were witnesses to the decisive event in a long, unpopular war.

After liftoff, we began our six-hour flight to Vietnam. We joined formation with twenty-seven other B-52s for what proved to be an uneventful flight to the battle zone. After air-to-air refueling from KC-135s, we crossed the coast north of Saigon. We knew at that moment we were in for a long night, for here we were picked up by the enemy's early-warning radar. Continuing on into Cambodia and Laos, we joined with the bomber force from U-Tapao, Thailand. This group consisted of another forty B-52s, making a total of sixty-seven aircraft. I like to refer to this formation as a baby elephant walk; we had a formation approximately seventy miles long of one aircraft behind the other lumbering toward North Vietnam. It must have been a very impressive sight on Hanoi's radarscopes.

Heading north toward China, we listened to our fighter sweep and chaff aircraft tackling Hanoi's defenses. The entire sky lit up from the AAA. The F-111s had done their job, but a few MiGs had been able to get airborne. Our fighter sweep was having some difficulty communicating with Red Crown, a US Navy ship in the Gulf of Tonkin that acted as the coordinating agency for the interceptions. Our escort pilots could not fire without Red Crown's permission for we did not want to make any identification mistakes. Because of this communication problem, some MiGs did escape; as part of the bomber force, we hoped that there were not too many.

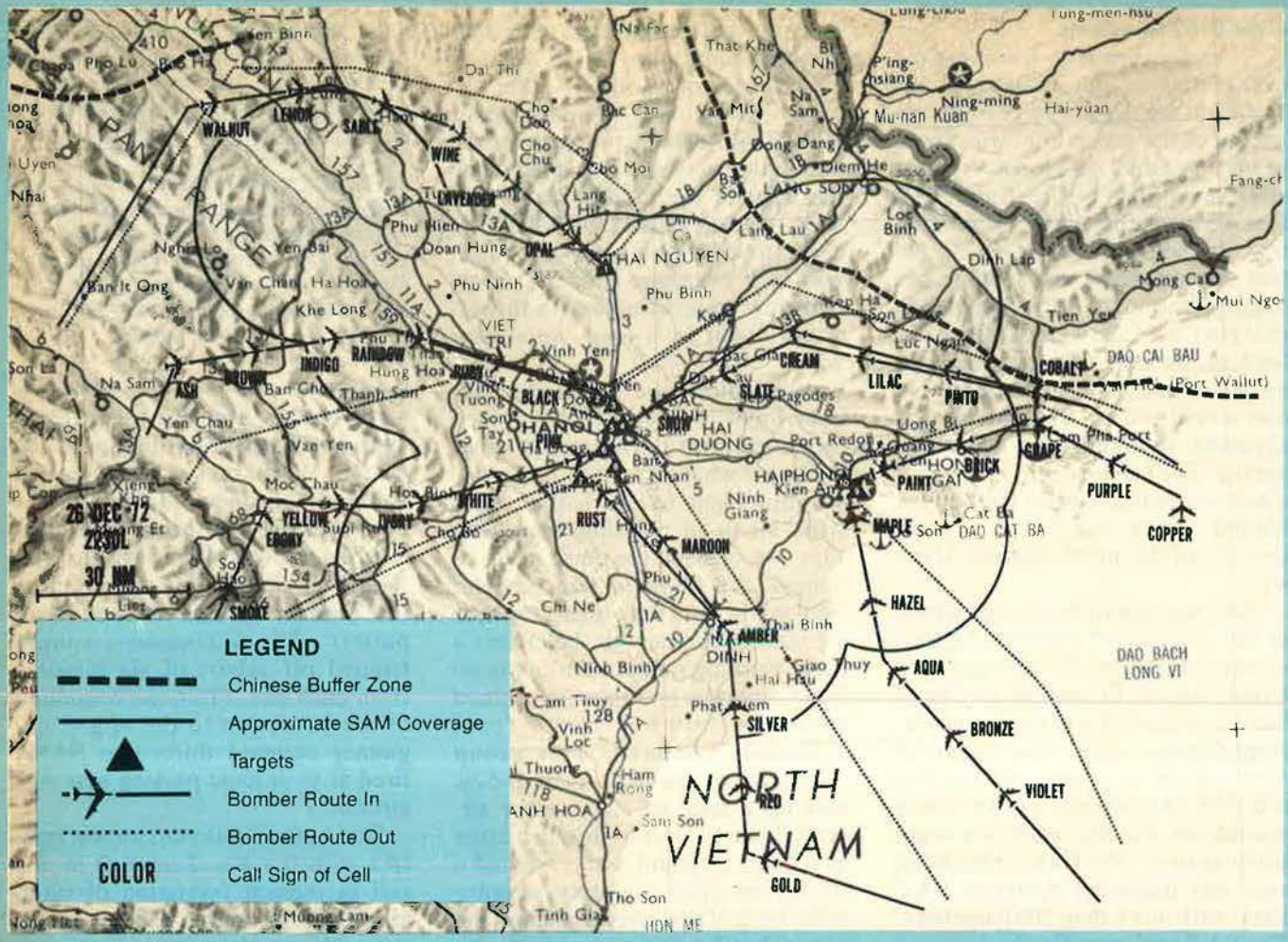
We flew on north almost to the border of China before turning back south down the Red River Valley. Thankful that there was no response from the Chinese, we prepared for the bomb run. This route into Hanoi was terribly familiar to American fighter-bomber pilots. It was the same one used during the raids of 1965–68. It was also familiar to the North Vietnamese. Sixty-seven B-52s flying down the Red River one behind the other was not exactly our idea of the best way into the target area. SAMs were fired at the bomber stream in a shotgun pattern. The Vietnamese simply tripped off salvos of six missiles from each site. From the beginning of the bomb run to the target, my gunner counted thirty-two SAMs fired at or at least passing near our aircraft.

During the bomb run, we lost contact with the No. 2 aircraft in our cell (a tactical formation of three aircraft). We had no time to determine his problem, so we concentrated on the run to the targets. My lasting impression of the people who flew that night is one of total dedication and true professionalism—the latter a term too much used to describe too many other life styles, but a word that fully describes our first night over Hanoi. Crew members were excited, but maintained discipline instilled by years of training. No one yelled over the interphone; no panic or freezing; only what must be termed—professionalism. Clearly, these men were determined to accomplish the mission.

We broke up the bomber stream into target groups and rolled out straight and level. We acquired the target—a railroad marshaling yard. To put it plainly, we clobbered the hell out of it. After bomb release, we put the aircraft into a turn to depart from the target area.

This proved to be an error. The crew members had believed that the straight and level portion of the mission would be the most dangerous, but we found that our exit from the target area was just as difficult. We

Capt. Robert E. Wolff completed pilot training in 1970 after having earned a master's degree in history at Texas Technical University. He served as a B-52 copilot and aircraft commander at Carswell AFB, Tex., from 1970 to 1975, with temporary duty at Andersen AFB, Guam, during the Vietnam War. Following four years as a member of the Air Force Academy history faculty, Captain Wolff has been assigned to the 319th Bomb Wing, Grand Forks AFB, N. D., as a B-52 aircraft commander.



This map and the accompanying data for Linebacker II missions of December 26, 1972, are from "Linebacker II: A View From the Rock," by Brig. Gen. James R. McCarthy and Lt. Col. George B. Allison, Government Printing Office, Washington, D.C., 1979. GPO order number 008-070-00433-0. $4.50. The plan called for releasing all weapons within a fifteen-minute period.

TARGETS

1.	Thai Nguyen	18
2.	Kinh No Complex	9
3.	Duc Noi Railroad	9
4.	Hanoi Railroad	9
5.	Hanoi Petroleum Storage	9
6.	Giap Nhi Railroad	18
7.	SAM VN 549	3
8.	Van Dien Vehicle	15
9.	Haiphong Railroad	15
10.	Haiphong Transformer	15
		120

113 SUPPORT AIRCRAFT

EB-66, EA-3A & EA-6B (Navy), EA-6A (Marine) ECM
F-4 Chaff
F-4 Chaff Escort
F-4 (AF & Navy) MiG CAP
F-4, B-52 Escort
F-105 & A-7 (Navy) Iron Hand
F-4 Hunter/Killer

B-52 CELLS/TARGET TIMES

"D" GUAM		"G" GUAM		"D" U-TAPAO	
SNOW	2230	OPAL	2230	BLACK	2230
SLATE	2232	LAVENDER	2232	RUBY	2232
CREAM	2236	WINE	2235	RAINBOW	2235
LILAC	2238	SABLE	2238	INDIGO	2237
PINTO	2242	LEMON	2241	BROWN	2240
COBALT	2245			ASH	2244
		PAINT	2230		
RUST	2230	BRICK	2233	PINK	2230
MAROON	2232	GRAPE	2236	WHITE	2232
AMBER	2235	PURPLE	2239	IVORY	2235
SILVER	2238	COPPER	2242	YELLOW	2238
RED	2241			EBONY	2242
		MAPLE	2230	SMOKE	2245
		HAZEL	2233		
		AQUA	2236	GOLD	2245
		BRONZE	2239		
		VIOLET	2242	WALNUT	2245

found SAMs were most effective during the B-52s' final turn off target because the maximum profile of the aircraft was then exposed to acquisition radar. As General Momyer points out in his book (*Airpower in Three Wars*), we changed our tactics, permitting us to operate ECM equipment at maximum effectiveness through the mission.

After departing the high threat area, we required a post-target refueling that made a long mission longer—but possible. After flying for sixteen hours, we finally recovered back to Guam, tired but elated. However, we had no celebration; after the debriefing, we learned that we were scheduled to go out again the next night.

A Summing Up

Some aspects of Linebacker II have been widely discussed since those now-quite-distant events. Many sources have described a crew revolt aroused by the tactics employed over Hanoi. I, personally, saw no such thing. The crews were concerned over tactics that we believed to be injurious to our health, and we were very vocal about these in our debriefings. However, no one whom I knew refused to fly. In point of fact, even people who had been taken off flying duties because of illness made miraculous recoveries in order to go with their crews to Hanoi.

Perhaps the greatest controversy between crews and staff in mission planning concerned the "baby elephant walk"—the miles-long formation, all aircraft using the same route, altitude, and heading. If thirty-six aircraft turned at a certain point to a certain heading, it does not require much of an educated guess for the defender to decide where to aim for number thirty-seven.

Because of this unimaginative procedure, many felt that we were taking unnecessary losses. The staff agreed—finally. After the Christmas bombing halt, we changed our tactics completely, and used many different routes to the target, with aircraft striking simultaneously from every direction. This tactic compounded the enemy's problems by flooding his defenses and by allowing more aircraft to strike during a shorter period of time. We also, at last, varied our altitudes during the mission. [See the summary of the December 26 mission on the facing page.]

Linebacker II was successful because of four major changes from earlier bombing efforts. First, we were allowed to strike, and to try to destroy, Hanoi's air defense system for the first time in an eight-year war. Second, we were permitted to use the more vulnerable B-52s, with their tremendous conventional capability, to attack major targets. Third, adding to the extensive destruction, TAC's use of "smart bombs" allowed us to strike critical targets that had always been off limits because of their locations in civilian occupied areas. Of course, the fourth and most important change with Linebacker II was President Nixon's clear statement to Hanoi that the United States was determined to use the means at our disposal to bring the war to a conclusion.

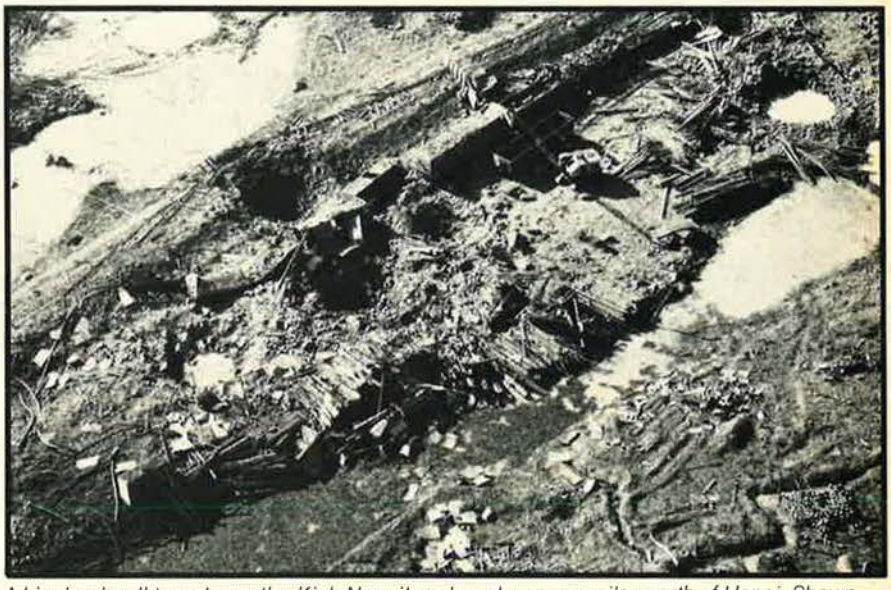
Hanoi did its best to convince our leadership that the cost would be too high. More than 1,200 SAMs were fired at our aircraft. Because of our suppression of their extensive air defense system, we could roam at will over the skies of North Vietnam by the end of the Linebacker operation. The enemy simply did not have anything left with which to challenge us.

The cost of losing control of their own airspace became painfully clear to Hanoi. B-52 and tactical air strikes inflicted damage too extensive to be repaired quickly. It turned North Vietnam's entire transportation system into a shambles.

Before anyone raises the issue of "area terror bombing," let me clarify that point. Our B-52 crews had strict orders, backed up by threat of courts-martial, to identify the target beyond any doubt—or to bring the bombs back to our base. Even by Hanoi's accounts, they suffered only 1,300 killed—both military and civilian—in the most concentrated bombing campaign of the war. The numbers simply do not support a charge of civilian terror bombing. We attacked North Vietnam's military capability in an effort to deny Hanoi the ability to wage offensive war against the RVN.

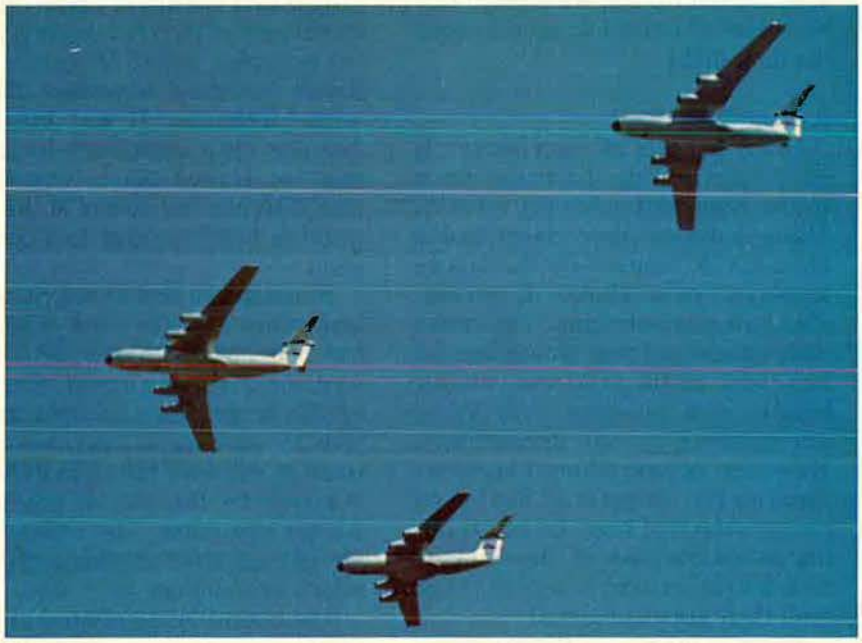
Of critical importance to the operation, TAC pilots went to work with their laser bombs and knocked out bridges, tunnels, and power plants previously untouched. This was a magnificent performance considering that only twelve hours during the eleven-day period were usable for these strikes.

Complete domination of the air over North Vietnam—the result of Linebacker II—demonstrated our resolve to employ massive forces, and brought the North Vietnamese back to the negotiating table in Paris. Eight days after the first meeting on New Year's Day, a breakthrough had been made. On January 27, 1973, formal signing of the Peace Agreements took place. ■



A Linebacker II target was the Kinh No railroad yards, seven miles north of Hanoi. Shown here is the damage to rolling stock in one part of the yards.

USAF C-141 QUICK REACTION WORLDWIDE AIRDROP CAPABILITY



C-141 STATIONKEEPING equipment permits close formation flight under day and night all weather conditions. Used in conjunction with the ZONE MARKER AN/TPN-27, the stationkeeping system AN/APN-169B provides the C-141 with a highly accurate airdrop capability.

Currently, a portion of the USAF C-141 airlift fleet is outfitted with stationkeeping equipment.

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The author spent much of his more than seven years as a POW in the Hanoi area. Before Linebacker II he was transferred to Cao Bang, near the Chinese border, and returned to Hanoi in January 1973. His account of earlier US air attacks in the Hanoi area is from personal experience; that of the December 1972 attacks is from discussions with fellow prisoners.

LINEBACKER II: The POW Perspective

BY LT. COL. JON A. REYNOLDS, USAF

TO FULLY appreciate the impact and the success of Linebacker II, one must measure this eleven-day effort against the United States air war in North Vietnam during 1965–68. While air strikes during that early period were impressive and exciting to witness, one must consider as the real criteria for success the effect they had on North Vietnam's will and capacity to continue the war. To be sure, North Vietnam's war effort was severely disrupted. Power plants were destroyed, bridges dropped, MiGs were shot down, and lines of communication were interdicted. The ultimate measure of US success, however, was whether North Vietnam's will to continue the conflict was being subdued.

The fact is, of course, that air strikes by tactical fighters of the US Air Force and Navy were not accomplishing the desired result. That North Vietnam had the capacity to continue the war—even if dependent on external support—is established. That the leaders and people of North Vietnam apparently were not intimidated by our air effort is not quite so clear to the average American. While much of North Vietnam's determination to continue the conflict was stimulated and sustained by a powerful propaganda machine—a machine that reminded the people daily, at times hourly, of their dedication—the major reason for failure to enforce our will stemmed from the manner in which we applied our airpower.

A typical air strike during this earlier period, as observed from my cell in Hanoi, provided in microcosm clear indications of the limited success of our air effort in convincing the North Vietnamese to stop the fight. These raids often took place daily; sometimes several times a day. The siren would wail, and the prison followed a fairly standard routine. POWs got under their bed boards, a one-and-a-half-inch-thick piece of mahogany, which, though it was not an effective shield against a collapsing roof, did offer some protection. Guards shuffled to their posts throughout the cell blocks. Both the prison and the city outside grew quiet as they braced for the attack.

The hissing flight and abrupt explosion of inbound Shrike missiles were the first signs that the raid was about to begin. Sonic booms of outbound SAM missiles indicated that the strike force was closing on the city; 85-mm and 100-mm antiaircraft cannon opened up as the aircraft came into view. Almost immediately, the multitude of 57-mm and 37-mm batteries that laced the city joined the battle. The din of gunfire, exploding flak, and transonic fighters made any conversa-

—Illustration by Bill Kinser

". . . the United States was really going to war. . . . This was our proudest moment."

tion impossible. Exploding bombs, whose proximity could be gauged by the degree to which the building shook, soon added to the roar. The concussion of nearby explosions blew open shutters, brought down plaster, and cracked walls. Aircraft passing reasonably close to the prison were fired upon by the guards, each of whom was armed with an AK-47. All in all, it was a very impressive five or six minutes.

The strikes ended as quickly as they had begun. Within a few minutes of the last explosions, an all-clear siren would blow and normal activity would resume within the prison and on the streets outside the walls. Guards, their sense of dedication and patriotism stimulated by the raid, would shake their fists in our faces as a sign of defiance. Within minutes, however, they were laughing and joking among themselves.

The streets outside came to life and vehicular traffic resumed. A loudspeaker somewhere over the wall apparently gave details of the raid and the number of aircraft shot down. The city was soon back to normal, a normalcy that lasted at least until the next strike, when the whole process was repeated. Although the raids were impressive, I was convinced our enemy could withstand them indefinitely.

No warnings preceded Linebacker II. The first indication the North Vietnamese and the American POWs had of the B-52 strikes on December 18, 1972, was when the bombs began exploding late that night. Each aircraft carried a mixed load of 108 500- and 750-pounders. As they rolled on all night, wave after wave, in a growing crescendo, the city of Hanoi glowed in the eerie twilight. This was commitment. For the first time, the United States meant business. For the first time, the United States was really going to war. We knew it, the guards knew it, and it seems clear that the leaders of North Vietnam knew it.

You could see the effect of the B-52s in the guards' faces. There was no joking, no laughing, no acts of defiance or reprisal. During subsequent B-52 strikes, the guards, some openly weeping, simply headed for their shelters—individual manholes—and pulled concrete lids over their heads. As far as POW/guard relations were concerned, this was our proudest moment.

Outside the prison, during the day, the center of Hanoi City was absolutely silent. Nothing moved. Even the ubiquitous roosters stopped crowing. No patriotic music or harangues blared from the loudspeakers. Nothing. The Voice of Vietnam was off the air. The magnificent North Vietnamese propaganda arm was losing its grip. The magnificent air defense system was out of SAMs. The B-52s now could strike with impunity.

Public outcry at home prevented the United States from pressing home the advantage. That the US did not enforce the provisions of the treaty, which North Vietnam began to violate immediately, and that South Vietnam would collapse in two years, in no way detracts from the success of Linebacker II. The operation was a testament to the effectiveness with which airpower can be employed.

Some, perhaps most, will suggest that the negotiations did not result from the B-52 strikes. Maybe. From my vantage point, however, the reason the North Vietnamese negotiated was obvious. ■

After completing pilot training in 1961, Lt. Col. Jon Reynolds flew F-100s prior to serving in South Vietnam as an ALO/FAC with an ARVN division. He flew a second tour from Takhli AB, Thailand, as an F-105D pilot, was shot down on November 28, 1965, and remained a prisoner of the North Vietnamese until released on February 12, 1973. Colonel Reynolds then attended graduate school at Duke University, where he is a Ph.D. candidate in history. From 1975 to June 1979, he was a member of the Air Force Academy history faculty. He is now a Plans action officer at Air Force Headquarters.

THE CURIOUS CASE OF THE CONFUSED COMPASS

At first, student navigators naturally concern themselves more with their log sheets than with practical aspects of flying, because their grades are largely based on these logs. Once, during a routine training flight, the instructor moved through the aircraft observing his students' efforts to plot the required course, enter this in their logs, then add magnetic variation, wind drift, etc., across each column to determine proper heading for the flight's next leg.

It was to be a northerly heading, and the lead student's log was properly computed in each detail, except that his sum in the final heading column read 364 degrees. The instructor decided to say nothing, knowing the pilot was an old head at these training flights.

Approaching the turn point, the student keyed his microphone and called the pilot, "In one minute, turn to three-six-four degrees."

To which the pilot calmly replied, "Pilot to Nav; . . . ahh, my compass only reads up to three-six-zero."

There was a slight pause, during which the instructor carefully avoided noting his student's perplexed expression, as he rechecked his addition. At last, sure of his math, he took a deep breath and replied, "Well . . . give me all you can get!"

—Contributed by Maj. Fred W. Walker, USAF

(AIR FORCE Magazine will pay $20 for each anecdote accepted for publication.)

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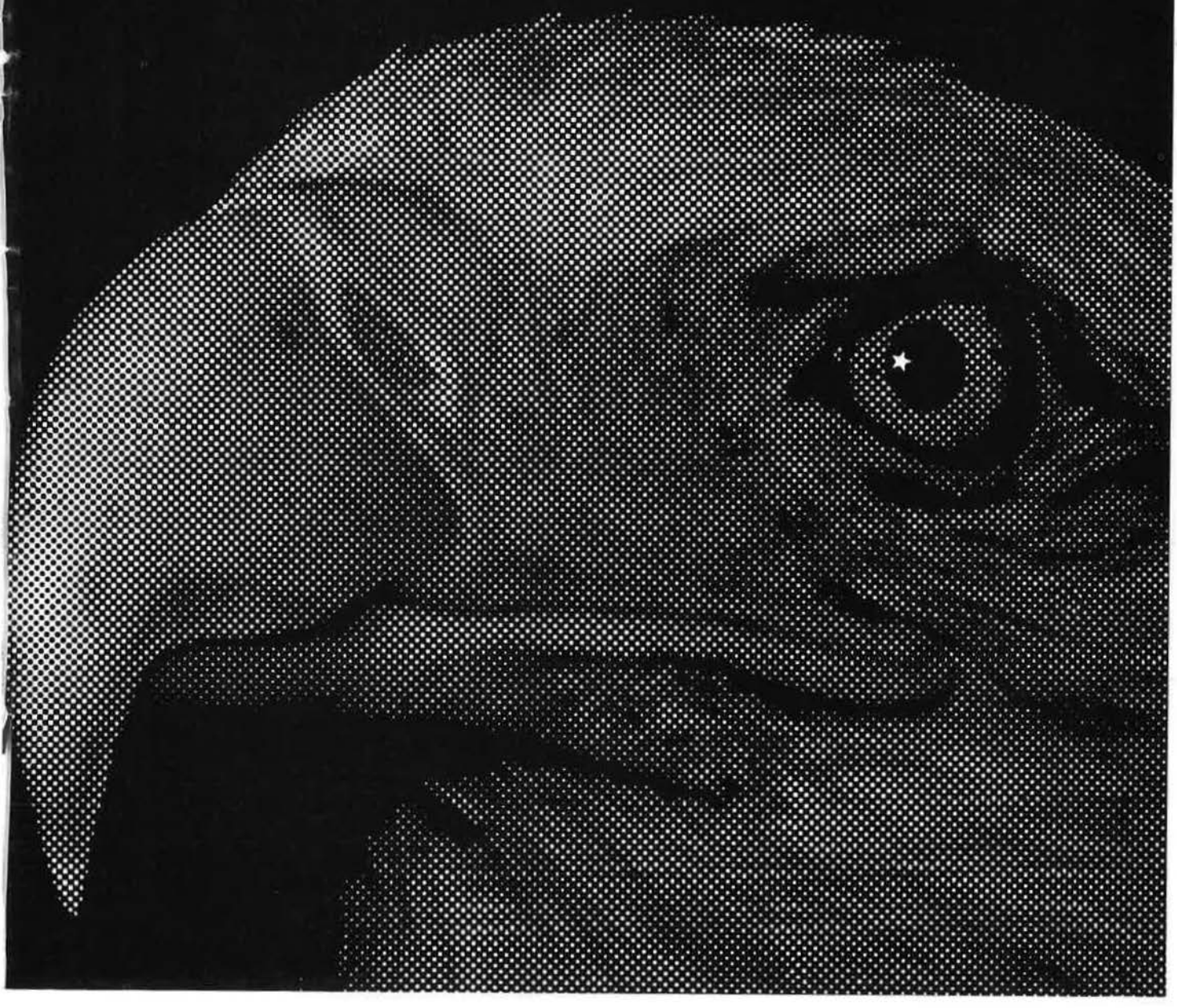


"Now *look,*" the navigator said to me in exasperation, "you've *got* to hold this airplane straight and level for me to get a sun shot. You're bouncing around so much that I can't even keep the sun in the sextant, much less line up the bubbles. I've *got* to have a level, stable platform!"

He had a point. We sure enough were all over the sky. It was June of 1943, and we were at 14,000 feet over the Sahara Desert in the middle of a sandstorm. We were buffeting up, down, sideways, slewing around in violent turbulence. The sun peered through the brown obscurity above and around us like a very tired forty-watt bulb. Earlier, it had disappeared momentarily, and we hit what I least expected—a brief spattering of rain that was over as fast as it started—just enough to turn the dust on the windshield to a muddy smear.

The flight engineer was out of it, his face detectably a pasty gray, even in the dim light. The copilot pretended to be oblivious to it all, but I noted that in the past thirty minutes, he hadn't turned a single page in the paperback novel he held in his lap. After fighting the airplane tooth and nail for nearly an hour, I was ready to throw in the towel myself. Only the navigator appeared to be hale, and if he had been any haler, I think I'd have killed him where he stood.

"I'm doing my best," I assured him through teeth that were grittily clenched—literally so, from sand floating in the cockpit. I offered to let him try flying the airplane, if he thought he could do any better.

I told him I would even stand behind him, hold his sextant, and do all the complaining, if that would help any.

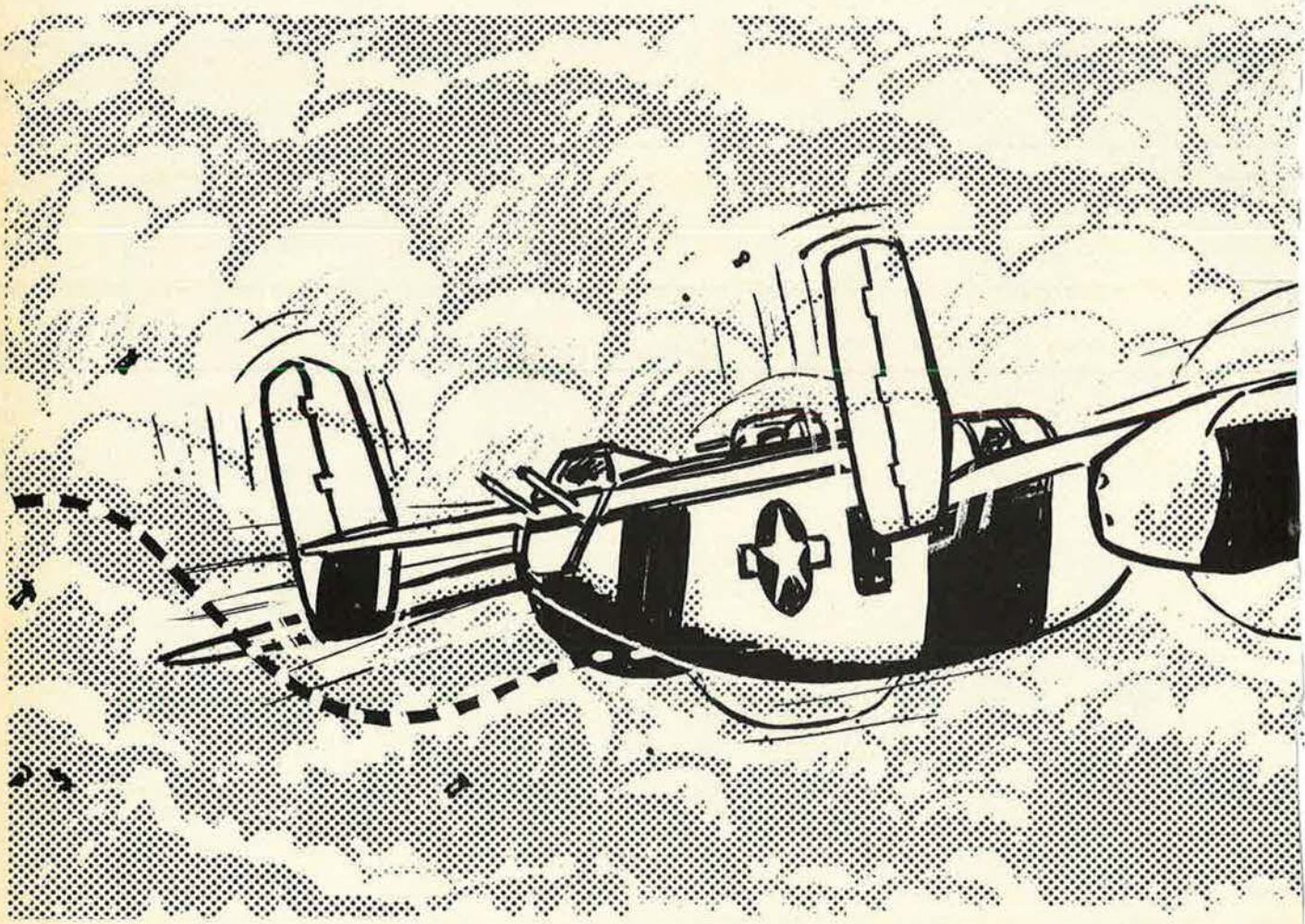
"There's no need to get huffy," he said crisply. "I'm just trying to do my job, and I can't do it if you don't keep the airplane on an even keel."

He was right. He was just trying to do his job of finding the next town. I was just trying to do mine, too, and we weren't communicating—not on the same frequency, anyhow.

To Each His Own

Navigators have always struck me as a breed apart. The ones I've known were all individualists—this one no exception—and yet they were all members of an exclusive fraternity. They could do such erudite things as point to the night sky and name the stars and planets—accurately, I assumed. Who except another navigator was going to argue with them? They never disagreed among themselves, and I think that if Castor was really Pollux, it was because in a closed fraternity meeting, they had voted unanimously to make the switch and then sworn each other to secrecy.

By staring into a sextant, they could apparently observe the height of the sun above the horizon, compare the observed height to a computed height given in a set of tables, and conclude that we were somewhere along a line defined by the



Just about every World War II AAF plane with two or more fans and enough range to get out of sight of land had one. They could name the stars, peek at the sun, read the whitecaps, and almost always get you where you wanted to go, when you wanted to get there. A breed apart, no two were quite alike . . .

THE TOWNFINDERS

BY LT. COL. JIM BEAVERS, USAF (RET.)
Cartoons by Bob Stevens

sun's position, the date, and the time—something like saying if it's Tuesday, this must be Belgium. I never understood the higher mathematics involved, and therefore distrusted the calculations. I sometimes suspected that when a navigator stared into that optical device, he was really looking at dirty pictures, and when he got tired of that, looked up our location in a set of tables that had known all along where we were.

However uniformly they practiced their mysterious art, no two of the townfinders I knew were alike. One was an aspiring movie actor who had been knocking 'em dead in amateur stage productions in the L.A. area before the war, and was busily plotting his post-hostilities assault on Hollywood. He never made it, that I know of, but if I believed all those wild stories he told me about his life to that time among the budding starlets, getting into the movies would have been anticlimactic anyhow.

He had a ready fix on such arcane matters as which of his profiles was the better of the two, and what was his stage voice, as opposed to his conversational tone. Knowing that sort of thing gave him a tendency to walk around the squadron area in a pronounced yaw, with his optimum profile always to the fore. It also showed up in any verbal exchanges with the ruling hierarchy in the outfit. When he spoke to anybody of the rank of captain or higher, out came the vibrant "To-be-or-not-to-be" timbre.

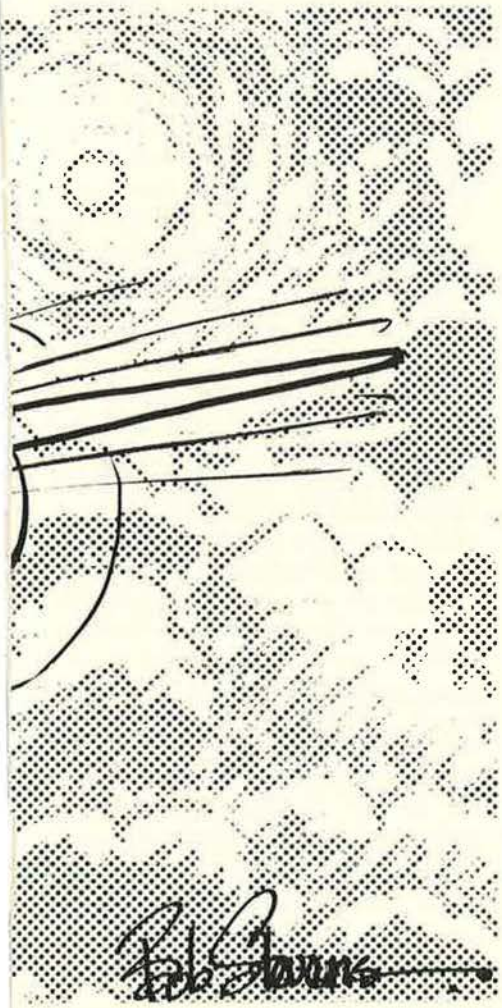
But the pilot of his crew said that he was a first-rate navigator and totally old-shoe in an airplane—businesslike, unassuming, not easily shaken in a tough situation. That may be why he didn't make it big in Hollywood later. When the chips were down, he was a performer but no actor.

Another was the scion of a wealthy family that owned a nationwide string of variety stores. He was not visibly in awe of himself, but was just grinding away at his combat tour like everybody else, demonstrating perhaps that if money can't buy happiness, it can't buy fifty missions, either.

Still another was an unflappable kid straight from a farm in Missouri. He was in such robust good health that he almost radiated vitamins. Big and brawny, he had the rosy cheeks and general milk-fed appearance of the All-American Boy. He was quiet and good-natured, and considering his size, that was a very good thing.

He was always hungry. Not in the least perturbed by what was going on outside the airplane, he sat on the edge of the flight deck when we were under heavy fire and dispassionately ate one of those mud-filled chocolate bars from a box of K-rations, an act of heroism in itself under the most serene of circumstances. Or something worse—can you believe *canned* scrambled eggs? Cold?

The bottomless pit had another drawback, and it was that he became Chatty Charlie when on the subject of navigation. In the midst



"You've *got* to hold this airplane straight and level . . ."

of a frantic melee over one target, when the single thought on my mind was staying alive, he reached up to tap me on the shoulder.

"The course home," he said between mouthfuls of whatever he was eating at the moment, "is 168 degrees."

I ignored him.

He tapped me on the shoulder again.

"I may want to change that. I've been looking at the whitecaps, and I think the wind is dying down, but try it awhile."

I turned away abruptly again, hoping I hadn't lost an engine during the interruption.

He tapped me a third time, and I turned around ready to take his head off at the roots.

"Did you know that whitecaps break into the wind at sea?" he asked. "That's an illusion. They don't really—they just seem to. See, the foam from the whitecap on a breaking wave seems to slide down the back side of it as it dies, and that creates the illusion of going upwind. It does give you surface wind direction, though, illusion or not. The size of the whitecaps gives you velocity. Want some eggs?"

Wind, Sand, and—Sirocco

My Saharan guide, whom I was ready to salvo, wasn't really my own navigator. I had picked him up in Natal, Brazil, on the way overseas. I was running late, with chronic mag problems. Bothered by a fever and a sore throat, he had stopped over, abandoning his own crew, to get medicated. Now recovered, he needed a ride. Separated from the organized flight I had started with in Florida, I had to have a rated navigator aboard in order to take off for Ascension Island, midway across the South Atlantic, and didn't have one of my own. Teaming up seemed a natural thing to do.

We had one last delay. For somebody's records, we had to hear two lectures—one of them a terminal discourse on sex hygiene. It raised a couple of unanswered questions in my mind. One was its net benefit in getting us safely across some 3,000 miles of water to Africa. The other was the exact nature of the hazard it addressed. Our ultimate destination was the arid mountains and plains of middle Tunisia, where the native

". . . he sat on the edge of the flight deck when we were under heavy fire . . ."

population count outside the few cities was probably less than one per square mile. Where—or who—was the problem? I was prepared to take notes, but the matter never cleared up.

The other lecture seemed more relevant. It had to do with navigation and weather, noting the persistence of a localized warm front off the coast of South America and another off the coast of Africa. It included some horror stories—nowhere near on a par with those in the sex hygiene discourse—about German submarines at sea broadcasting false beacons to lead us away from Ascension Island and have us run out of fuel in some uncharted region of the South Atlantic. The moral of that story was to rely on celestial navigation rather than high-frequency direction finding.

A final admonition was to use minimum cruise, maximum range power settings that had the props paddling around like big oars, the throttles just out of the idle position and the mixture controls a hair above cutoff. In that configuration, the B-25G I was driving flew with all the grace and stability of an ostrich with a hernia. The settings were alleged to yield precisely 166 miles an hour, presumably regardless of gross weight, altitude, or other incidental factors, and of course they did no such thing.

When we finally got under way the next morning, psyched up and ready to encounter warm fronts, German submarines, and social perils en route to Ascension, I was good for about an hour at the near-stalling minimum cruise settings before losing my patience. I ran the throttles and props up to the point where the airplane behaved like a flying machine. When we arrived at the island seven hours and fifty-five minutes later, I still had enough fuel aboard, including that in a temporary bomb bay tank, to have gone on halfway to Africa. Not caring to go only halfway to anywhere, as a matter of principle, I landed.

The navigator and I had gotten along famously to that point. The flight so far had been uneventful. Except for the warm front, which we transited in no more than twenty minutes, the weather was beautiful. The winds were favorable or not a factor. The air was smooth. Everything added up, all the way. The navigator's sun line, his dead reckoning, and the radio beacon at Ascension all confirmed each other. It was a textbook trip.

Things were a little less peachy, the next day, on the flight to Liberia. The weather was not as nice and the warm front offshore of the African continent was far more pronounced. We missed our landfall by a good forty miles and in the wrong direction, south into the Gulf of Guinea, which might have left us with another thousand miles of overwater flight if we had continued on the same course. We were flying in heavy rain and low ceilings with no audible radio aids to help us, and I was trying to stay VFR as our ETA began to run out, in hopes of spotting land—any land.

Happily, the navigator and I agreed that the obvious thing to do was to turn north, and we landed without incident at Roberts Field shortly thereafter. We had a night's sleep, went on to Rufisque Field in Senegal, and from there it was over the Sahara's traditional trackless wastes to Marrakech. I don't know why the Sahara was called trackless, because it wasn't, but it was pretty clear why it was termed wastes. We were no more than an hour outbound from Rufisque when we ran into the sandstorm, which I learned later was known locally as a "sirocco." And there my troubles with the navigator began.

Leave It to the French

For starters, he wore a Cornell

University rat cap in flight. Now, I didn't have any big thing against rat caps as such. In my day, they were small symbols of success. The wearer had made it into college, and that was mildly impressive at the time. But like the All-American Boy, the navigator was a hefty bruiser, and he had the punched-in nose of a boxer. The rat cap was a little red and white thing with a flexible fold-up brim all around—the kind of embarrassment my mother used to clap on my head after dressing me in another indignity, my sailor suit, when I was a child. I had nothing against sailor suits either, in the abstract, but in this one, the pants buttoned to the shirt, and I thought that was pretty shabby.

When the navigator, wearing that ridiculous cap, poked his head up into the cockpit to demand that I hold the airplane straight and level, it was hard to decide whether to laugh or cry. He looked like an aging member of the original cast of Our Gang comedies. On the other hand, until I could raise the beacon at Tindouf, a French Foreign Legion desert outpost with an airstrip, it was this apparition who had to guide us out of our current difficulties. The cap gave him a Joe College appearance that was less than inspiring.

The Atlas Mountains lay beyond Tindouf. Because I was already dealing with an unfamiliar and unforecast problem in the form of a sirocco, and since I didn't know how that problem might be compounded by the mountains, I landed at the tiny outpost, finding it in the blowing dust and sand by flying over the homer at low altitude.

I might as well have landed at a nursing home. It was siesta time, and the small US Army Air Forces detachment there was out to lunch until about 5:00 in the afternoon, when the wind could be expected to abate and the temperature to get somewhere below 120 degrees. I checked the weather ahead and was told that a sirocco was in progress. Expressing my appreciation for that bulletin, I asked to be refueled and learned that gas was flown in daily, except that today's delivery had been canceled—sirocco, you know. All things considered, it was a total loss, and I herded my crew back to the airplane.

My copilot was inexplicably missing, and he finally showed up with an attractive civilian female hanging on one arm. How he had found her in that desolate little spot in the exact middle of nowhere—or how she got there in the first place—or how my copilot was able to communicate with her, since she spoke no English and he spoke nothing else—I'll never know, but he said that she wanted a ride to Marrakech, and he had obviously convinced her that he could arrange it.

As much as I admired his enterprise, I had to say no. There wasn't room for her in the heavily loaded airplane, although the big-hearted copilot assured me that she could sit on his lap, if necessary. His generosity and self-sacrifice were very moving, but the clincher was that she had no parachute, and the copilot's offer to share his own wasn't quite persuasive. I still said no, and she may be there to this day. And to this day, I say that it was the absence of a parachute that made up my mind. That lecture back at Natal had nothing whatever to do with it.

We took off. I climbed to 16,500 feet, breaking out on top of the sandstorm, finding smooth, clear air above, and seeing the majestic Atlas Mountains in the distance. The navigator contentedly took sun shots all the rest of the way. His platform was finally stable, but in that rat cap, I wasn't so sure about him.

By the time we landed in the late afternoon at Marrakech, on the other side of the mountains, he was conversing freely with me again. That livened up dinner considerably that night at a downtown hotel, because the copilot wasn't on speaking terms with me. I had apparently saved him from a fate worse than death, and he by God resented it.

The Sightless Bombardier

Somewhere in the back of the airplane, I had a bombardier, even though the B-25G, which was equipped with a 75-mm cannon in its nose, had no bombsight and no compartment for one. Things were just sort of like that in World War II. They reflected an attitude that years later was summed up neatly in a

". . . he finally showed up with an attractive civilian female . . ."

popular Air Force expression of the day: "There's no reason for it—it's just our policy."

The bombardier had made the trip in the back of the airplane because he had an irresistible urge to go to sleep immediately following every takeoff. Between Homestead, Fla., and Puerto Rico, he had slept curled up on the navigator's chart table. Between Puerto Rico and Georgetown, British Guiana, he had snored in the crawlway over the bomb bay. After Georgetown, he migrated aft of the bomb bay and finally found a cozy nook in the tail section, atop some sandbags used for ballast. And there he slept all the rest of the way.

We had one more stop to make before our final destination, and it was a replacement center on the coast of French Morocco. There I planned to wake up the bombardier, dust him off, and make him available to anybody who had a bombsight and nobody to operate it.

Nothing personal was involved. It just seemed doubtful that he was going to get credited with a combat tour for fifty protracted naps as coballast in the tail. Nor did his full rating of bombardier-navigator, a euphemism glossing over the harsher realities of life, have anything to do with my declaring him surplus. The truth was that he couldn't navigate his way out of an open closet, but that was beside the point.

At the replacement center, he was put on a B-17 crew. I ran into him in Tunis some months later, and he was doing well for himself. By then he was already a first lieutenant—long before I was—and told me that he had been assured of his captaincy before going home. That proved to be no idle boast, and he finished a very respectable combat tour in ten months, going home with tracks on his shoulders and some meaningful decorations on his chest. If there's a square-peg, round-hole implication in all that, I think it's somewhat offset by the fact that he shared the nose of that B-17 with a navigator who kept him awake.

And Now—Navs with No Lip

When we got to our assigned bomb group in Tunisia, I returned the Sahara sun-shot artist to his rightful owner. Much as I would have liked to keep him, he was understandably loyal to his own crew, and in time I got my own stargazer. The first was the All-American Boy, and I kept him only a few months. He, too, had earlier been assigned to another crew, and when the pilot of that crew became a flight commander, he demanded his navigator back, and got him. I was given a new one from a freshly arrived bunch of replacements, and he stayed with me for the rest of my tour.

For the past three years, Lt. Col. Jim Beavers has been enlivening the pages of AIR FORCE Magazine with his humorous accounts of World War II B-25 operations and the whimsicalities of later life in the USAF. Much of Colonel Beavers's postwar career was in R&D as a nuclear weapons specialist. Retired since 1963, he lives in Winter Park, Fla.

Personality-wise, he was completely colorless in comparison to the first two navigators I'd had since leaving the States, but he was good at his trade. We took off on our first mission together, and after buzzing the flagpole, which was traditional in our squadron, I turned to him and asked, "What's the course, Magellan?"

That brought a blank expression, and he replied, "My name's not Magellan." He told me what it was. Then he gave me the heading.

I already knew what his name was. I shrugged, decided I had a dead one, and turned on course. But the more I flew with him, the more I came to understand and respect him. He took his job very seriously, and was singleminded about it.

He reminded me of an instructor I had in advance flying school who had a fixation on the subject of enhancing our ability to get from point A to point B, unassisted by a crew member whose specialty was that and nothing else. I don't know the history behind his vehemence on the subject, but once he had checked me out in the AT-6, I heard little from him other than a constant tirade about being able to do my own navigating.

When I took my final checkride before graduation, the captain giving it asked me ahead of time who my instructor was, and I told him.

"Lieutenant Doe, sir."

"Lieutenant Doe?" the captain echoed, and then snorted in disgust. "Cripes, you can't do anything but navigate!"

That was my last townfinder's only problem. He couldn't do anything but navigate.

With advancing technology, things have changed in the intervening years. My son, who now flies the F-15, was already way ahead of me when he flew the F-4. He explained to me once, when I was seeing him off on a flight, that he had to wait for the gyro—he called it the platform—in the inertial navigation system to get up to speed before taxiing out for takeoff.

That confused me. "Do you mean you start it before you ever get to the end of the runway?"

"Yep."

"But what if you have to taxi a couple of miles, like for an east takeoff at MacDill, before you ever get to the runway? Doesn't that affect the system?"

"Yep."

"Well, how do you compensate for that?"

"You don't. The system told you where you were on the ramp. Then it tells you where you are at the end of the runway."

I call that a real breakthrough. After all these years, we've developed the capability to navigate to the end of the runway. I'm not knocking it. There have been mornings when I could have used it.

But maybe things haven't changed too much after all. My son still has a navigator aboard, even if it's a bunch of black boxes instead of another human. And it still requires a stable platform to do its job of finding the next town.

Perhaps its biggest innovation is that it gives the pilot his position without having to be fed, without a lot of lip, and without clowning around in a rat cap. I guess that's progress, but it sounds pretty damn dull to me. The fact is that it doesn't even find the next town. What it finds is a set of coordinates, and the whole process strikes me as supremely boring.

"Hey, I stopped over at 32°23'N, 86°21'W last night. Man, that's a swingin' readout!"

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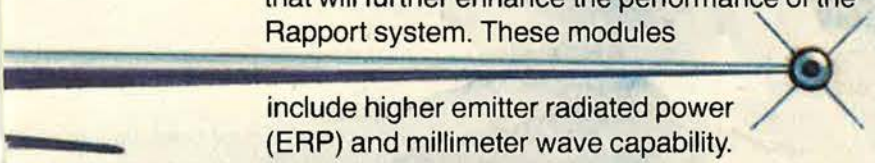

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In the early days of World War II, there were three Eagle Squadrons, manned by some 240 American pilots, flying with the RAF. More than 100 of these young men were killed in action or died on active duty before the war's end. Many of them transferred to the US Army Air Forces in September 1942, and several rose to high rank in the USAF in the years after the war. Vern Haugland has recorded the exploits of the squadrons (Numbers 71, 121, and 133) in The Eagle Squadrons: Yanks in the RAF 1940–1942, *published last month by Ziff-Davis Books, New York, N. Y. ($12.95). The following excerpt, which tells of the combat experiences of several 71 and 121 Squadron members during the air battles over Malta, is reprinted with permission of the author and the publisher.*

IN THE dreary early part of 1942 the RAF began readily granting transfers out of England to Spitfire pilots who volunteered for duty in Malta. The 122-square-mile British crown colony south of Sicily had long been under enemy attack. It needed help desperately.

The Eagles from 71 and 121 Squadrons electing Mediterranean service included Leo Nomis ("I was of Sioux Indian descent so it was inevitable that in the RAF I would be typed as an Indian"), Art Roscoe, John J. Lynch, Reade Tilley, Douglas "Tiger" Booth, Don McLeod, Jim Peck, Fred Scudday, Bruce Downs, and Richard McHan.

At 133, Squadron Leader Thomas resisted more strongly than did the other unit commanders the actions that would deprive him of his best men. He flatly refused the transfer requests of Jessie Taylor and Moran Morris, Oklahoma buddies since high school days, on the basis that they were first-line pilots who could not be spared. Thomas reluctantly acceded to the postings of F/Lt. Johnny Johnston and of Hiram Putnam.

In a paper written many years later, Leo Nomis reminisced:

> They should have awarded a medal for the mere arriving at Malta. I have never been to another place with such a visible atmosphere of doom, violence, and toughness about it at first sight. Coming out from England as we did, the filth, flies, diseases, and near starvation absolutely fascinated us, the more so because the interception missions—which were boundless—were not in the least deterred by these handicaps.
>
> The air war seemed more deadly there, the 109s more sinister than the 190s of northern France. Perhaps again it was the atmosphere and the conditions.
>
> A lot of the Eagles, some of whom were seemingly clueless in England, ran up their scores and got their gongs in Malta. Not speaking for myself, because I was involved in more farces than victories, but for Eagles such as Roscoe, Lynch, Tilley, Peck, and so many others. Malta either made or broke them.

In 71 Squadron, Art Roscoe was my ground companion, and John Lynch was usually my air companion. We were in different squadrons in Malta, but Lynch, who was out there later than those of us of the summer of 1942, ran up a mighty score. Roscoe, who went out with me in July of that year, was involved in an absolute epic in his final episode there.

The Jerries were employing both the Hermann Goering and Kesselring groups of 109s out there at that time. Both groups had all-yellow cowlings and spinners on their aircraft, and both were renowned for their slyness and ability to hit what they were aiming at.

During one of the increasingly huge dogfights of October, Roscoe managed to get himself in the reflector sight of one of those dangerous chaps. In the flick of an eye the rude fellow actually put four cannon rounds directly through Art's cockpit, the miracle being that only one hit Art—going completely through his upper body at the shoulder without killing him. The other rounds smashed everything in the cockpit and set the engine alight.

To say that Art was shocked and concerned would be an understatement. While he was dazedly pondering his predicament, the 109 boldly flew alongside to view his handiwork and no doubt to inspect the bloody hulk in the Spitfire cockpit.

Roscoe was still flying straight and level. By then the Spit was beginning to blaze a bit more respectably from the engine. Art tried to bail out but found himself so weak from shock and loss of blood he could not even get the safety harness off.

He sank back and looked over at the 109, whose superior speed was carrying him close by Art's port wingtip. The German pilot, as Art later related, was positively overcome with morbid curiosity.

Then, in one of those rare moments or pieces of moments in which we can hardly recall later how or why we acted, Roscoe kicked his rudder, swerved to the left and, pushing his cannon button, shot the 109 down. This while his cowling was shooting flames and he had the dreadful fear that he was dying.

The action continued as though it were taken from a Hollywood movie. Unable to bail out and with the Spit on fire, Art somehow managed to get back to Takali, where he crash-landed. When the plane hit the ground it flipped over, pinning him in the wreckage.

That would have been the end of Art, except that a ground crewman rushed into the blaze and pulled him out. The man later received the George Cross for his heroic act. Long hospitalization followed for Art, and finally a return to duty. I consider this a classic example of what some pilots did and endured in those days.

In Malta we used tropical Spits—that is, we flew without cockpit canopies. The largest of the three fighter bases on the island was Luqa. Our base, Takali, was a two-squadron airfield. The other base, Halfar, struggled through with one squadron, the mighty No. 185. Everyone was so keyed up and crazy out there that I was fearful most of the time of being shot down by some keen oaf from Luqa or Halfar.

Eagles at Malta

BY VERN HAUGLAND

RAF losses at Malta had to be replaced quickly. In April '42, forty-seven Spits flew from the USS Wasp, *off Algiers, to Malta. All were destroyed or out of commission in three days.*

The RAF had flown Hurricanes into Malta off the carrier *Furious* as early as August 1941. The pilots in that contingent included Howard M. Coffin, who had served briefly in 121 Squadron, and three other Americans who had trained with the Eagles but had been assigned to other squadrons: E. E. "Pete" Steele, Edwin E. Streets, Jr., and Don A. Tedford. Coffin wrote a book, *Malta Story,* published in 1943, about the grim early days of constant enemy air attacks, and dedicated it to Steele, Streets, and Tedford, all killed at Malta. Among other non-Eagle Americans in the Malta defense was Lance Wade, a Texan who shot down twenty-five enemy aircraft to become the leading American ace in the British forces.

In early March 1942, the small British carriers *Argus* and *Eagle* delivered to Malta fifteen Spitfires, the first fighters arriving there that were adequately armed for combat against the Me-109F. The Spits promptly shot down one attacking Me-109 and probably destroyed others. Predictably, the Luftwaffe intensified its assault.

The RAF launched more Spitfires for Malta reinforcements on March 23. Among the pilots were Jim Peck and Don McLeod, formerly of 121 Eagle Squadron. Before leaving England, McLeod had acquired the distinction of being the only person to have been shot down while flying a Link trainer—a unique accomplishment because the device is used only on the ground. McLeod was in the trainer in a small shack when a German plane strafed the field and shot the trainer off its pedestal.

The day after Peck flew to Malta, he shot down a Ju-88. The following day he and McLeod each shot down two Me-109s.

According to McLeod, by April 2 the RAF forces in Malta still had not been reinforced. "We only had about half a dozen planes to meet the scores of bombers and fighters the Italians and Germans were sending over.

"Four of us went up to meet 24 Me-109s escorting bombers on a daylight attack. I thought I was all right until I saw stuff flying around me like a horizontal hailstorm. Then I knew I was in for it. I said to myself, 'So this is how it feels to die.' My Spitfire was shot up so badly that the right aileron was sticking up vertically, and the elevators were disabled. The only thing to do was to hold the plane in a 200-mile-an-hour glide.

"I was at 21,000 feet when the attack started. I saw the machine being torn apart as Jerry after Jerry attacked. I kept looking over my right shoulder. I'd see two of them coming at me. Then I'd skid some and they would miss. Then I'd skid again. I felt something burn my left arm and leg, and saw blood. But it didn't hurt. I skidded again. That was all I could do. The radio was shot out from in front of me. I couldn't talk to anyone, so I decided to get out of there."

McLeod bailed out five to eight hundred feet from the ground. When the parachute opened, the straps struck his chin and snapped his body so hard that his thyroid cartilage was fractured. He came down off the coast and was picked up by a ship. Despite his broken neck and the cannon shell fragments in his left arm and leg, McLeod was back flying again within two months.

As the campaign against Malta intensified, Winston Churchill appealed to President Roosevelt for help in the form of the US aircraft carrier *Wasp,* then in the Atlantic. If the *Wasp* could sneak into the Mediterranean at night, he said, it could launch Spitfire reinforcements near Sardinia for a four-hundred-mile flight to Malta. Roosevelt concurred.

The big American carrier took aboard fifty-four Spit-

Above: Servicing aircraft proceeded with feverish haste in the face of constant enemy air attacks. P/O Reade Tilley, seated in the cockpit, watches as his Spit is checked before takeoff. Right: These four Eagle Squadron pilots were the first Americans who had been awarded the British DFC to return to the US. From left: Mac McColpin, Sam Mauriello, William J. Daley, and Reade Tilley.

fire VCs at Glasgow, raced south around the Iberian peninsula, and slipped through the Strait of Gibraltar in darkness. Early on the morning of April 20, off Algiers, forty-seven Spitfires lifted off the flight deck. Among the pilots were two former Eagles of 121 Squadron, Reade Tilley and Tiger Booth.

"This must certainly have been the first time Spitfires ever took off from an American carrier," Tilley maintains. "Everybody would have preferred a more leisurely and less hazardous way of reaching Malta with Spitfires, but there wasn't any.

"The main worry was that the *Wasp* might get sunk before the launch point was reached. The thought of the great air battles yet to be fought at Malta provided us with a lot of incentive and encouragement to aim down the deck, open the throttle, and start praying.

"All forty-seven of us landed at Malta, which was pretty good considering the fact that Me-109s picked up the last flight of the group, just before they reached the coast. Nobody had enough petrol to do more than run some 109s out of the pattern."

The next day more than three hundred German and Italian bombers gave Malta's airfields a working over. Only seventeen Spitfires remained serviceable that night. By the third day, all the Spits that had not been destroyed on the ground or in the air were out of commission.

About sixty more Spitfires were flown into Malta on May 9 from the *Wasp* and the British carriers.

"One Spit's belly tank did not feed, and the pilot landed back on the *Wasp*, confounding all the experts," Tilley says. "Even the Admiralty took note of the landing without an arrester hook. This experience accelerated development of the Seafire, the carrier version of the Spit."

Tilley led another flight of Spitfires into Malta in June, from the *Eagle*, for his second deck launching of the land-based fighter. This particular mission was spiced by the fact that the Spitfires were assembled on the dock and loaded directly onto the carrier. Thus, the initial test flight began with a sea launch and a seven-hundred-mile flight over unfriendly territory. The situation at Malta was desperate and the time factor critical. The Spits were needed to cover a ship convoy due in less than a week.

A Floridian whose erect posture makes him look even more than six-feet four-inches tall, Tilley loved fast automobiles and had planned to become a professional racing driver. In Malta he was to become an ace: seven enemy aircraft destroyed, three probably destroyed, and at least five damaged. He and Peck were to become the first Americans in the Malta campaign to receive the

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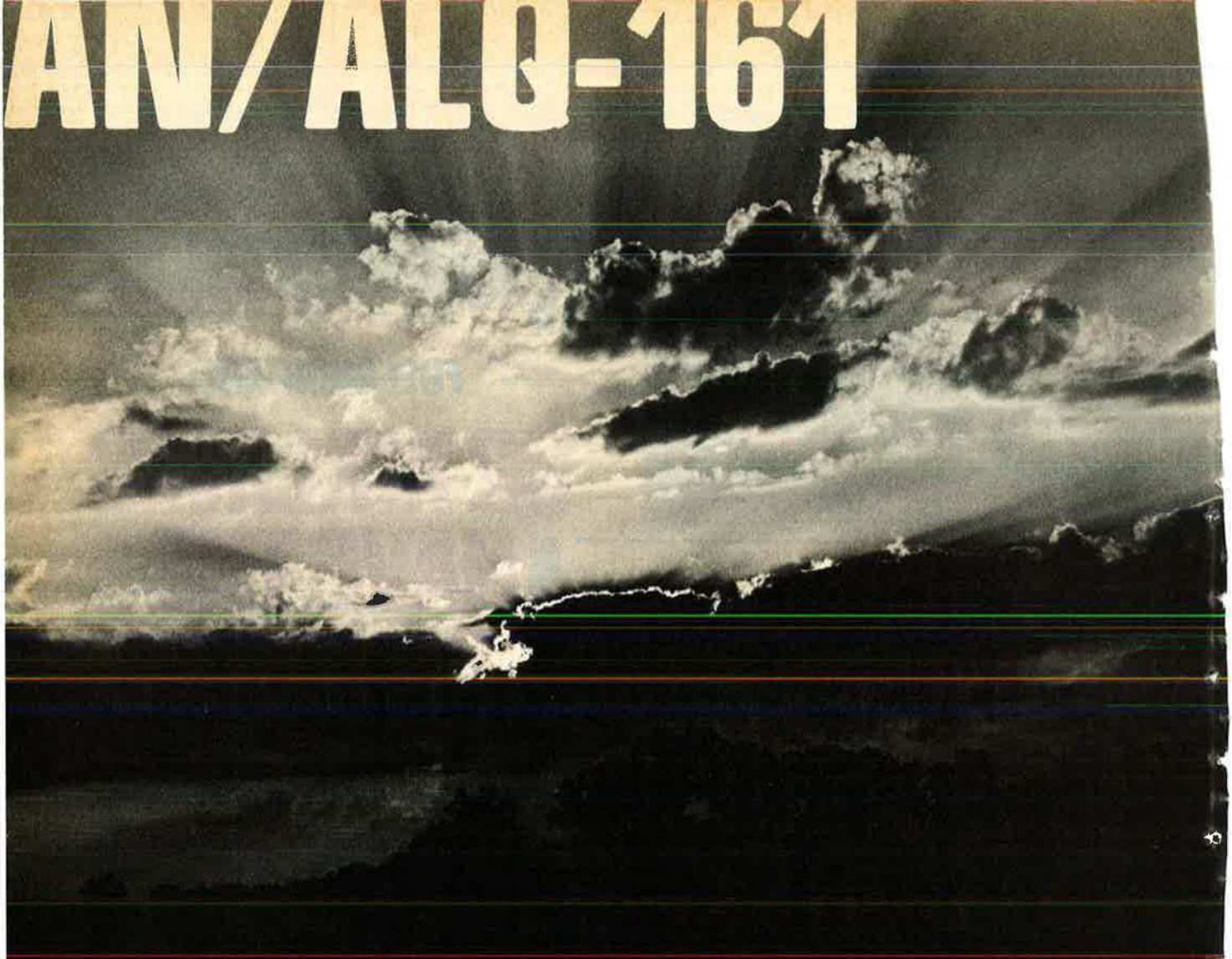

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Reade Tilley became an ace in Malta with seven confirmed kills. On three occasions Tilley attacked enemy aircraft, while out of ammunition, to protect landing RAF planes.

Douglas "Tiger" Booth was one of the first Eagles to arrive at Malta. He later transferred to the US Army Air Forces and flew fighters in Europe, earning the DFC and Air Medal with clusters.

Jimmy Peck was awarded the RAF's Distinguished Flying Cross for action at Malta. Peck and his buddy, Don McLeod, together shot down four Me-109s and a Ju-88 during their first three days there.

RAF's Distinguished Flying Cross. A 1968 book, William C. Anderson's *The Two-Ton Albatross*, said of him:

> Colonel Tilley, who resembled an out-of-training Green Bay Packer fullback, was a warm, gregarious, soft-spoken southerner. . . . A very colorful and highly controversial figure, he was the architect of the Strategic Air Command's information program during the heyday of Gen. Curtis E. LeMay. A highly skilled and dedicated man, he could charm the wings off a butterfly, or chew the transmission out of an erring subordinate, with equal aplomb. He was irascible, bloodthirsty, vindictive, insidious, unyielding, magnanimous, determined, calculating, and hard-headed. You couldn't help but like him.

An article in *Collier's* Magazine said that quick thinking by Tilley and a British pilot on a return to Malta broke up a formation of fifty Messerschmitts. The Spitfire pilots had had only seconds to decide what to do.

"If they went up, down, sideways or turned back, they were lost," the magazine said. "So they did the only thing that gave them a chance. They flew straight into the Nazi formation and put the German fighters at a disadvantage.

"If the Germans fired at the RAF planes they would hit their own also. In a flash it was all over. The Spitfires were clear, heading for their home base, and outdistancing the enemy planes. Two of the Me's burst into flames and crashed into the sea."

Tilley's citation for the DFC, awarded for great gallantry at a time when he had been credited only with destroying four enemy aircraft, said that "on three occasions by making feint attacks after having expended all his ammunition he has successfully driven off many fighters which attempted to machine gun our aircraft as they landed."

Booth, regarded by his colleagues as a typical Brooklynite, won the nickname "Tiger" because, although normally mild mannered, he could be something of a terror when his anger was aroused. One evening at Malta, when two native policemen annoyed him, he threw them both into the harbor.

Jim Peck recalls the day he saw Booth flying from a cloud on the tail of a Ju-88 with another Junkers right behind him: "While Tiger was firing at the Junkers in front, the one behind gave a long burst. His Spitfire sort of disintegrated in the explosion.

"Doug said he never remembered getting out of the cockpit. He must have been knocked out. He came to, falling through the air, and pulled the ripcord. Then he passed out again. He was unconscious when he landed."

Although Booth received no decorations in the RAF, the USAAF later awarded him the DFC and the Air Medal with three oak leaf clusters. "The DFC and Air Medal were awarded on standard citations," Booth explains. "They did not refer to anything specific; they were given for remaining alive. The US Eighth Air Force gave an Air Medal for ten completed missions and a DFC for fifty. All you had to do to get them was survive."

Jim Peck and Don McLeod, inseparable friends since their first days in the Eagle squadrons, were a Mutt-and-Jeff pair on Malta—Peck, small in stature, quick, dark-haired, with snapping black eyes, gifted with a tremendous sense of humor; McLeod, a former Boston cop, huge, stocky, well over six feet tall, and Irish as Paddy's pig.

"These two buddies used to have a lot of fun playing little games," Tilley says. "Jimmy would walk into a bar, pick out a medium-sized gent, and try to start a fight with him. When Jimmy had the fellow irritated almost to the point of being ready to flatten him, Mac would come up and say, 'What do you mean, picking on my little friend? You're not going to hit that little guy, are you?' Mac was good at double talk.

" 'I'm not picking a fight with him, he's picking one with me,' the victim would say. Then he'd take another

Vern Haugland was an Associated Press correspondent in the Pacific and Southeast Asia during World War II, and became the first civilian to receive the Silver Star. After the war, he served as AP's Aviation Editor for twenty-one years, covering, among other stories, the beginnings of the US space program. He earned NASA's praise as "the world's most experienced splashdown reporter." Mr. Haugland's earlier books include Letter from New Guinea *and* The AAF Against Japan. *He is an honorary member of the Eagle Squadron Association. He and his wife, Tess, currently live in San Clemente, Calif.*

look at the big Irishman and move down to the other end of the bar. Jimmy and Mac would start laughing, and then they would explain their act to the guy and buy him a drink."

McLeod was shot down a second time during the Malta campaign. He inflated his dinghy and was rescued by ship once again. Peck, on the other hand, boasted that he survived forty-five air battles without so much as a bullet through his plane.

"I never even got a scratch on a plane until one morning at Malta I took off and the communications system turned out to be faulty," Peck told reporters after the Malta campaign had ended. "I could get ground commands, but I couldn't talk back.

"I was told to come in, and I hit a shell crater. It didn't do the plane any good, but I wasn't hurt. In all the fighting, I haven't received so much as a scratch."

Peck attributed his good fortune to an inexpensive wristwatch, which he never removed except when taking a shower. He said the first owner of the watch was Larry Chatterton, of 71 Squadron, who was killed in a crash. The second owner was Jim Coxetter of 133, also killed in a flying accident. "I kind of figure lightning won't strike three times in a row," Peck said. "Anyhow, I have been lucky."

Peck pointed also to the occasion when Flight Lieutenant Johnston of 133 was about to land at Malta and a bomb exploded on the field fifty feet below him. "The explosion wrecked his controls but pointed the plane upwards, and he rose to about 800 feet," Peck said. "Then he took to his parachute and landed safely. He came away with only a sprained ankle.

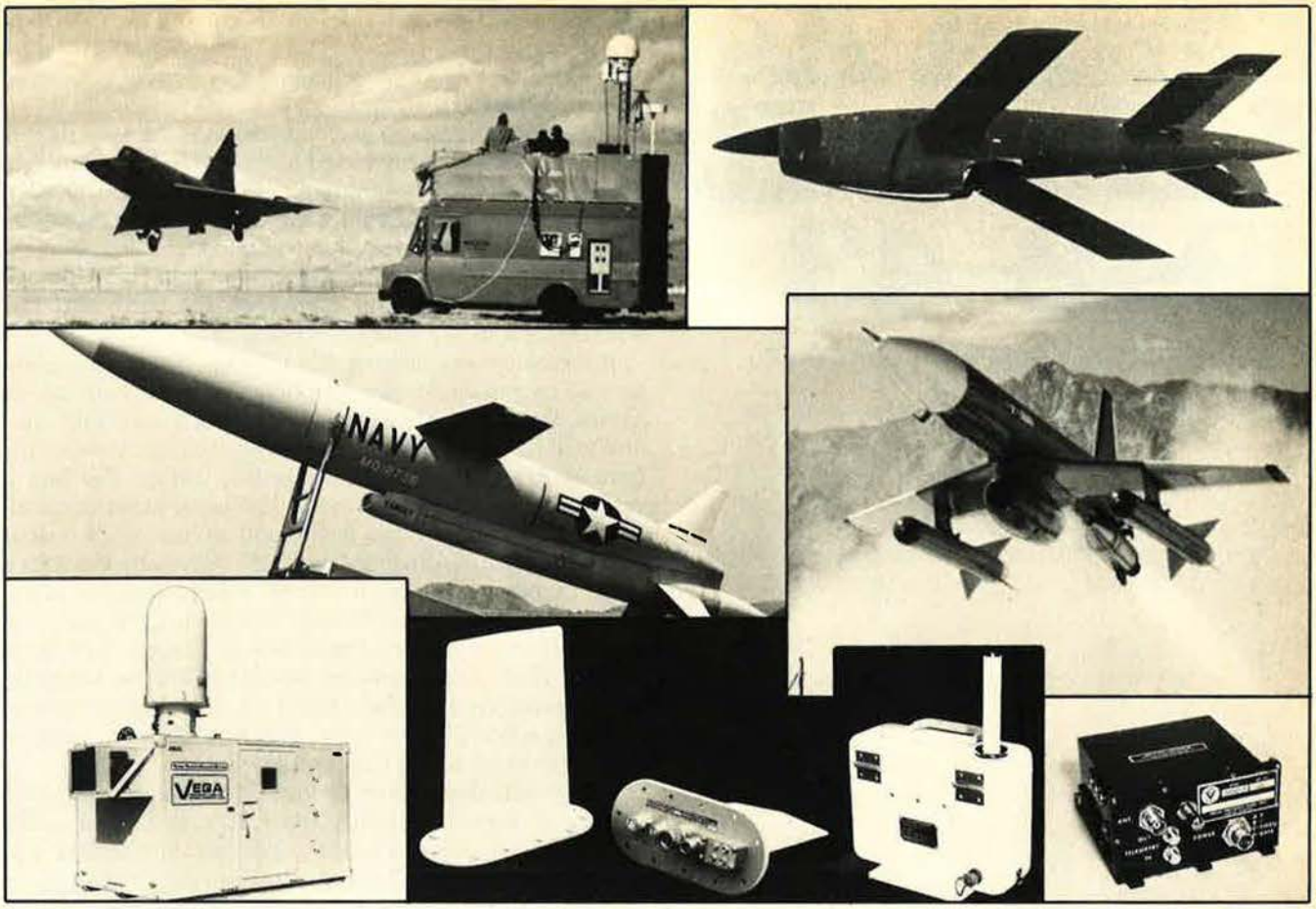
"Johnny blamed that on the fact that he didn't have his little white elephant charm in his pocket. We flyers aren't exactly superstitious, but. . . . In Johnny's case, he did have a crackup later even with the elephant along. As for me, I never fly without this lucky wristwatch."

Peck went from Malta to North Africa and got in on the heaviest action there, destroying or damaging three more enemy planes. In a single day's action, twenty-three German aircraft were shot down, and Peck received a decoration from Maj. Gen. James Doolittle, commander of the Twelfth Air Force, for his part in the combat.

Despite Jim Peck's confidence, lightning did strike a third time. Jessie Taylor recalled that in 1944 the Lockheed P-38—a fast fighter named "Lightning"—was just becoming operational with Peck's squadron in England.

"He had one, and he came over to visit us and let us fly it," Taylor said. "On his way back to his base, one engine quit. The plane augered in, and Jimmy was killed." ■

In September 1976, the Eagle Squadron Association held its reunion in England, with visits to some of the old bases. Among the American and British veterans who went to Biggin Hill, a former Eagle Squadron base in southeast England, were (left to right) R. J. Wood, a British groundcrewman; Sir Michael Duff; Dixie Alexander; P. T. Salkeld, an English intelligence officer; Bill Dunn; Danny Daniel; R. C. Wilkinson; Edward Miluck; Bert Stewart; James A. Gray; Chesley Peterson; F. D. Smith; and Reade Tilley, the president of the association. In the background is one of the later model Spitfires, regarded by many as the most beautiful fighter of World War II.



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China As I Knew It: 1942–43

BY GEN. BRUCE K. HOLLOWAY, USAF (RET.)

The author, who flew with the American Volunteer Group and the USAAF 23d Fighter Group in China, was a leading ace of that theater on his return to the States. Of that experience, he writes: "If ever in the course of history there was more romance in warfighting than that which prevailed in the skies of China from 1941–44, I don't know when it was."

THIRTY-NINE years ago, I suddenly and unexpectedly developed an acute desire to go to China. It happened under the big banyan tree of the Moana Hotel on Waikiki Beach, and the salesman was a great American named William D. Pawley.

I was stationed at Wheeler Field, an ordinary fighter pilot who had just progressed to the grade of captain in a little over three years simply by virtue of being around at the right time. It was September 1940, and I was carrying my surfboard down the beach when I saw a knot of young men clustered around someone who held their intense and undivided attention. I dropped the surfboard and walked over to see what was going on.

Bill Pawley was, among other things, a pied piper, and he was recruiting for the American Volunteer Group, or Flying Tigers of China. He spoke with great enthusiasm, and well he should since he was the principal reason this famous group of fighters came into being. Bill had a background of both business and political experience, all successful, and he was a friend and advisor of President Roosevelt. He also was a friend of China, and through a close association with Dr. H. H. Kung, Minister of Finance, hatched up the Flying Tigers idea. He sold the idea to Navy Secretary Frank Knox, Secretary of State Cordell Hull, and President Roosevelt on the US side, and worked out the details with T. V. Soong and Madame Chiang on the Chinese side. Madame Chiang, incidentally, was head of the Chinese Air Force.

It took Bill about fifteen minutes to convince me that I wanted to sign up. Shortly thereafter, it became quite clear that this was not in the cards, and the reason was Brig. Gen. Tony Frank, Commander of Air Corps Forces in Hawaii—such as they were. His reaction was something like, "No regular officer under my jurisdiction is going to relinquish his commission to join that outfit, and

The author (center) with 23d Fighter Group pilots. Fourteenth Air Force, with a maximum of about 500 fighters and 175 bombers, was unofficially credited with destroying 2,300 enemy aircraft.

that's that." And that was that, at least for then, but my appetite had been whetted. Bill had laid it all out: adventure, money, protected citizenship, and although no guarantee of protected commission, a sincere and logical reasoning that whether or not the United States went to war, the experience gained would make reinstatement as an Air Corps officer almost surely possible. That, however, was not the way General Frank saw it, and he was typical—I found out later—of many other air commanders all over the country.

To the best of my knowledge, there were no regular officers anywhere who were allowed to resign their commissions for the AVG. I don't know about career enlisted people, but Bill, with some help here and there, signed up a lot of fine people from both the Army Air Corps and Navy Reserves.

Slow (Flying) Boat to China

About a year and a half later, another equally unexpected opportunity arose to go to China. The big difference was that this time it worked.

I left New York, together with a fellow officer named Chester Snow, aboard a Boeing 314 Clipper on May 5, 1942. We were bound for Chungking, which was then the provisional capital of China and the headquarters of the US Theater Commander, Gen. Joseph Stilwell. Getting there was truly "half the fun." It took a month, and it was all by air except for one unforgettable overnight ride from Allahabad to New Delhi on an Indian train. That was the night I learned the real meaning of the term "monkey business."

Colonel Snow and I were exhausted. We shared a compartment, which was beastly hot, so we left all the windows and shutters open and went to sleep. The next thing I knew there was a lot of commotion going on, and I awoke to find the train stopped, and several monkeys in the compartment, ransacking our supply of fruit and cookies. I grabbed a stick used for propping up the windows and started flailing away, but the monkeys did not retreat very gracefully. A couple of the larger ones stood their ground momentarily, but fortunately then decided to look for a better position.

There was a lot of screaming and jumping up and down, and almost instantly a crowd (of people) gathered and joined the monkeys with more screaming and threatening gestures. A couple of the local constabulary types showed up, but did very little to restore order, at which point I suddenly remembered that monkeys were one of the sacred beasts of India. Like cows, doves, and a few other things, they are religiously untouchable. This was probably the first time anyone had ever looked harshly at those monkeys, much less attacked them, so it was understandable why they assumed an air of outraged indignation. Fortunately, the train pulled out about this time, and the rest of the night my roommate and I took turns standing guard.

We arrived in Chungking on June 3, almost a month after leaving New York, and much of the trip was over a route only recently pioneered. The Boeing Clipper looked like Noah's ark with wings, and it moved at about the same speed, taking all of the first day to go from New York to Miami. We had several breakdowns, one of which (in Belém, Brazil) required four days to repair. We traveled only in the daytime, with one exception. This was the leg across the Atlantic from Natal to Fisherman's Lake, Liberia, which was flown so as to arrive at night. There was a good reason for this.

To the north there were some German fighter planes at Dakar, and the Clipper crew wanted to get refueled and on the way to Lagos, Nigeria, their final destination, before dawn. I heartily concurred, and since it took more than three hours to refuel, we arrived at 0200 hours.

The refueling was really archaic. Fisherman's Lake was little more than a wide place in the bulrushes, with a rickety wooden dock to which we somehow managed to tie up without knocking it down. Pretty soon a gaggle of natives on a small barge showed up and started a sort of piggyback procession with cans of gasoline. The fuel was stored back in the bushes a short distance, and all but two of the workers formed the procession. The other two manned a diminutive pump on the barge, powered by a one-cylinder engine with a hit-and-miss governor, and, lo and behold, by a little after 5:00 a.m. we were ready to go. The fuel was apparently not seriously polluted, because on the leg from there to Lagos the old Clipper ran better than it had during any other part of the trip.

From Lagos to Cairo, we traveled by US Air Corps C-53 #41-20057, pilot a Lieutenant Rainer. This took three days, with stopovers at Kano and Maiduguri in Nigeria and El Fasher and Khartoum in Sudan. The most memorable of these spots was Maiduguri, where the food—at a Pan Am camp—was outstanding; the black flies the most vicious I have encountered anywhere; and a pair of full-length iguana-skin boots cost only $4.

Cairo was a nightmare, fascinating but scary. We were there eight days, all of which we spent trying to get out. Rommel was about to take the place, or so we all thought, and all of the bars and other type joints were so jammed with British soldiers (presumably with combat fatigue) that Colonel Snow and I felt this might well be the end of the line. It seemed as if there could be very few left out in the desert to fight, and the battles were so close you could see artillery flashes at night out by the pyramids in Giza, only a short distance from Cairo.

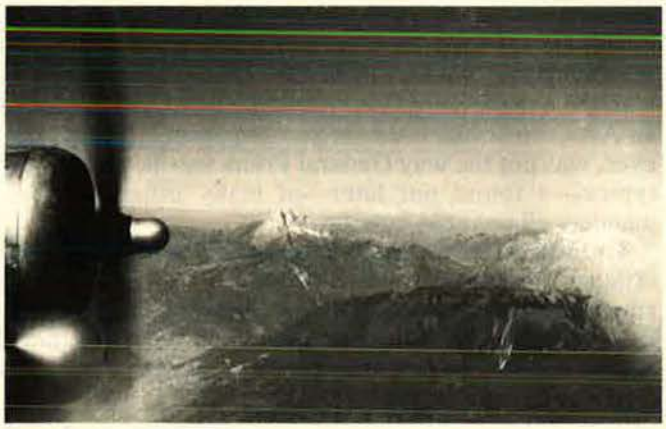
We finally secured passage eastward on a BOAC Clipper, and proceeded across the desert so low that looking out the window gave about the same impression as riding on a fast train. The Clipper was beautifully camouflaged, and we managed to escape the German fighters around Alexandria that had been occasionally molesting traffic along our route.

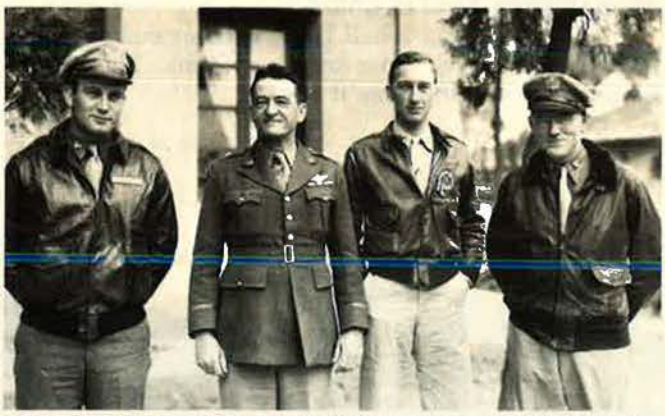
After stops at Gallya on the Dead Sea, Habbaniyah, Basra, Bahrain, Dubai, Tuwani, and Karachi, we arrived in Allahabad and parted company with BOAC. Besides my everlasting gratitude to BOAC for getting us out of Cairo, I was very impressed with the pilot. He handled the flying boat smoothly both in the air and on the water, with only one landing that you could even feel. That was on the Dead Sea, where the briny liquid is so dense it is almost like something solid.

The Flying Tigers at Last

After the train trip to New Delhi, which was out of the way but occasioned by Colonel Snow's desire to contact Stilwell's office there, we proceeded by military air to Dinjan, Assam—the jumping-off spot for the route over the Hump to China. We arrived in Kunming May 31, and I had my first meeting with Claire Chennault, who then was a brigadier general. He wasted no time in asking where I was going, and for what job, and I could answer only the first part. After explaining that my orders were to report to Brig. Gen. Clayton Bissell, Stilwell's air officer, for some kind of staff assignment, he made it quite clear that he regarded Bissell with extreme distaste. I took this opportunity to ask him to put on a little pressure for getting me assigned to the AVG, and he said something like "no way." This deflated me considerably until he explained that anything he asked General Bissell for would be automatically turned down, and added that if I could break myself loose he would be delighted to have me. I began to plot accordingly right there.

The reception in Chungking was a little dispiriting.





The prime mission of Fourteenth Air Force was to protect the Hump route over the Himalayas from India to China (top photo). Its operations expanded to include the full range of tactical fighter and bomber missions as the war progressed. Below, Brig. Gen. Claire Chennault, Commander of the AVG and later of Fourteenth Air Force, with two of his unit commanders, Col. Casey Vincent and Lt. Col. Bruce Holloway, and his Adjutant General, Lt. Col. H. E. Strickland. At right, the Fourteenth Air Force base at Kweilin. Caves in the karst formations were used for hangars and for storing supplies.

Colonel Snow and General Bissell were old friends, and Snow was put to work in intelligence, his specialty. They didn't seem to know what to do with me, so I spent about ten days drawing maps, working on clean-up, rescue, and documentary efforts for the Doolittle raiders (some of whom were still being picked up and brought out of the hinterlands), and studying everything I could find on the AVG, or Flying Tigers. My treatment was cordial, but I had to look for things to do.

After two weeks of this, I decided it constituted enough of a case to ask General Bissell for reassignment to the AVG as an official observer. Much to my surprise, he agreed. I reported to General Chennault at Peishiyi, twenty-five miles south of Chungking, on June 13, and he commented that it must have been foreordained. As events turned out, I am sure that it was, because plans to "federalize" the AVG into the USAAF's 23d Fighter Group had been in the making for some time.

The next year and a half was sheer delightful adventure—all the way. If ever in the course of history there was more romance in warfighting than that which prevailed in the skies of China from 1941–44, I don't know when it was. Perhaps the battles of medieval knights in armor, which combined the maneuver of the horse and the striking power of the lance under human control, or the great locomotive chase of Andrew's Raiders in our Civil War are the nearest parallels.

The mission of the China Air Task Force, and later the Fourteenth Air Force, was to protect the Hump route. Over this 500 miles of airway passed all the external support for China from the time the Japanese closed the Burma Road in 1941 until the road and its extension, the Ledo Road, were opened in 1945. The stream of C-47s and C-46s that carried the tonnage from Assam bases to the Kunming terminus in Yunnan Province was rarely molested, which is understandable because of the weather and the distance from Japanese operating bases to the route.

Only on one occasion do I recall that we had to establish a type of line patrol escort when there was a brief flurry of attempted attacks on these transports, and that lasted for only a few days.

Japanese Bombing Strategy and Tactics

What I do not understand is why the Japanese never did make a determined effort to capture the Kunming area itself. This would have ended—at least for a long while—all American support for the entire China theater.

Every few months they did attack Kunming. Typically there would be about thirty bombers, and at least that many fighters, which I assume were supposed to protect the bombers. In our book the first rule of escort was to stay close to the bombers—at least close enough and high enough so that attacking fighters could be immediately intercepted and brought under fire. But they did not seem to understand this, and usually did a lousy job. Bomber losses almost always exceeded fifty percent on these raids, while the fighters cavorted around with a great show of acrobatic agility designed to draw off our defending P-40s.

Defenders, of course, should try to sucker the escort away, much in the fashion that mother birds feign a broken wing and lead predators away from their nest. We used this tactic with great success—over and over again—usually with a small, tempting number of planes, while our other flights would work over the attacking bombers.

Characteristically, the Japanese bombers attacked in a shallow V formation. There would be as many as fifteen or more bombers in one V, and they would fly with wingtips practically overlapping. Presumably this was done to maximize the defensive field of fire of their tail gunners, but it did not work very well. If we could get a flight or two through their fighter cover—as we usually could—an effective trick was to put a P-40 flight in string and rake across the bomber formation from one side to the other with the .50-caliber guns. Each of the later model P-40s had six guns, which for those days was quite a bit of firepower. We swept across the bombers' flight path with a fairly fast lateral movement, so it was difficult for their gunners to hit us. Conversely, we were always hitting some bomber in the wide but tightly packed formation, although not necessarily with enough concentration to bring it down.

The Japanese bombers (and fighters too) had delicate hydraulic systems that were a decided handicap. If the hydraulic system was punctured—seemingly almost anywhere—so as to lose pressure, the landing gear would drop down. Such was the genus of our tactic: to damage a bomber or two with each raking pass so that the increased drag of the extended landing gear would force them out of formation. Once this happened, another flight of our fighters could polish them off. Usually we would have enough gas to keep this up for quite a while, and since each time a straggler dropped out, the formation closed ranks in the same shallow V, the overall results were rather devastating. (These formations were so shallow that they might as well have been lines abreast, and reminded me of the spectacular accounts of the Battle of Cannae.)

There were only a few raids during my nineteen months in China against this unique terminus on which all action to the east depended, and each of them had three things in common. The first was that damage to our forces and facilities was light; the second that Japanese attacker losses were great; and the third was that there was no follow-up. I could never understand why the Japanese were not willing to attack for four or five days in a row. Their losses would have been sizable, but they would have run us out of gas, and ammunition too. They must have known this. It was fairly common knowledge that we operated on a shoestring, and rarely did we have enough fuel to ease that gnawing fear of what might happen.

In a low-level attack, Fourteenth Air Force fighters destroyed Japanese bombers at Shinchiku Airfield, Taiwan, prior to an attack by US bombers. Earlier, the author had flown a recce mission over the island bases.

Capture of the Kunming area would have ended it all, and without air opposition it could have been done with a modest force of paratroopers before Chinese ground reinforcements could have been marshaled. Perhaps the answer is that the Japs had their hands full. China was a relatively low-priority war theater, and they did not relish spending the effort to hold it once captured. Nevertheless, with a handful of airpower, we kept several hundred thousand Japanese in the theater at bay until the summer of 1944, when they made a frontal drive in Hunan and captured three of our bases, and until the end of the war for the rest of free China.

Fourteenth Air Force Operations

The Japanese campaigns for occupation of China began in 1937. By 1942, the situation had essentially stabilized to that which prevailed to the end of World War II. Generally speaking, the Japanese held the eastern and southeastern parts, to include Taiwan (Formosa), Hong Kong, and Hainan. This was the breadbasket, and the most industrialized portion. Their lines of communication were long, and there were many pockets of resistance within the area that they never did completely secure, so the amount of effort in terms of military manpower and equipment involved was quite large.

Much of the northwestern part was rather loosely held (by either side), but all of Yunnan, Kweichow, Kwangsi, and Szechwan Provinces were under firm Chinese control (except for the wedge of Hunan and Kwangsi taken by the Japanese in August 1944). Our air base complex stretched over most of this area, with the big Twentieth Air Force B-29 base at Chengtu being the northwesternmost and Liuchow and Nanning the southeasternmost. Until the end of 1943, the entire combatant ranks of the Fourteenth US Air Force consisted of one

Fourteenth Air Force fighters and bombers destroyed some 2,000,000 tons of merchant shipping, more than seventy naval vessels, and hundreds of river boats. Here, B-25s attack shipping in Hong Kong harbor.

B-24 group, one B-25 squadron, and five fighter squadrons. In 1944 and '45 this was very modestly increased, but the whole show would have been lost in the ground clutter of US air operations in Europe or the Pacific.

Again, our mission was to secure the Hump route and its terminal facilities. We did this with both offensive and defensive action, with the offensive part being raids on Japanese air bases. Even though this should be regarded as a large order considering the wherewithal involved, we still managed a respectable amount of additional offensive action against shipping, rail and road traffic, rice harvesting, and in close air support of Chinese ground forces. Mission management rules were simple in that if our fuel and ammunition supplies were above a certain level we conducted offensive strikes; if not, we stood down the bombers, put all fighters on defensive alert, and caught up on deferred maintenance.

For the most part, Fourteenth Air Force operations were conducted until the summer of 1944 out of five air bases: Kunming and Yunnanyi in the west, and Kweilin, Lingling, and Hengyang in the east. The best action was in the east, and the three eastern bases, which were along a line of about 180 miles stretching northeast to southwest in Hunan and Kwangsi Provinces, were well situated for both strike and defense purposes. They were centrally situated, with all manner of appropriate targets within P-40 range from river traffic on the Yangtze in the Hankow (Wuhan)–Kiukiang stretch, rice harvesting boats in the fertile lake basins around Changsha and Nanchang, and shipping and air base complexes in the Canton and Hong Kong areas. Our western bases had less action (and more defensive alert), but formed a valuable extension of these strike advantages since they were within fighter range of Hanoi and Haiphong, and the Japanese base at Myitkyina, Burma, which was occasionally used for action against transports flying the Hump.

This entire base structure was served by an incredibly effective warning net, consisting entirely of ground observers. Surprises were almost nonexistent (with one major exception at Yunnanyi on April 26, 1943). It was operated entirely by Chinese, and, despite major shortcomings in communications, produced accurate plots that were rarely more than three or four minutes later than real-time. It was a superb asset, which, together with the fortunate geography of our base structure, accounted significantly for the Fourteenth Air Force combat record.

Throughout the entire war, airpower in China operated on a very "lean mixture" of gasoline, ammunition, and ground-handling equipment. Perhaps an example of how lean this mixture actually was would be of interest. During most of the summer of 1943, we carried on rather intensive operations out of the eastern base mentioned above. This was possible because, relatively speaking, we were a little fatter on fuel, bombs, and ammo than usual, although no better off on some of the other things usually regarded as essential. Casey Vincent, one of the closest—and smartest—friends I ever had, was in command of a task force of B-25s and fighters charged with intensified strikes against air bases and transportation. I was his fighter chief for this effort, and for several weeks spent much of the time with the unit at Lingling, the center location of our three-base complex.

Although we did very little at night, daytime combat mission activity can best be described as feverish. It started at about 3:00 in the morning with fueling the aircraft, which was done by a string of Chinese maintenance hands carrying various size drums and large cans of fuel from the drum storage area right to the airplanes. We not only had no refueling vehicles or pumps, but no vehicles of any kind after a decrepit station wagon gave up early in the period. We also had no typewriter, which was in a way a blessing, and no point-to-point communication other than one hand-cranked, low-power HF set that would reach Kunming sometimes, but only between about 5:30 and 6:00 p.m. Accordingly, I would report urgent needs and operations for the day directly to Casey at Kweilin but also to General Chennault back in Kunming, since he liked to keep close tabs on what we were doing. The last part of my report was the plan for the next day's operation, and since radio blackout for our receiver usually occurred simultaneously with the end of the transmission, the only way he could change anything was to send an airplane 600 miles to tell me. This never did happen, but he didn't like the situation very much, and stiffened up the guidelines somewhat after being unable to get through to us a couple of times.

Chennault's Genius

General Chennault was a great man—there are no two

ways about it. Like all great men, he had some faults, but he was the operating heart and soul of the fantastic accomplishments of the AVG and the Fourteenth Air Force. He has been many times described as a tactical genius, but often—in my opinion—for the wrong reasons. For the most part he has been portrayed as the inventor of the two-ship fighter formation, and the "hit-and-run" technique of air fighting as opposed to the old-time characterization of "dogfighting" in a churning, turning melee. Certainly, he did espouse this, but I have never understood why it was considered a brilliant new breakthrough, or unique to Chennault. This was little more than common sense: to hit with surprise if possible, and thence immediately seek a new position of advantage from which you could hopefully hit again. They did it the same way in Europe, together with the maneuver and cover advantages of the two-ship basic formation, even though the P-51 would considerably outturn the Me-109 or FW-190. What is the sense of applying continuing concentration on an enemy in a turning fight—using lots of gas and getting nowhere—while some other enemy can surprise you? There is no way to keep your head on a swivel in such a high-G situation, and this to me was one of the most cardinal rules of survival.

Where Chennault's genius did show to greatest advantage was his ability to read the Japanese mind. Perhaps he had a source of intelligence I never knew about, but I doubt it. No matter how it was done, he perceived with uncanny accuracy what the Japanese were going to do, where they would strike and when, what they would do in reaction to what we did, the state of alert and training of different units, and how we could catch them off guard here, but not there. He rarely missed, and he was moreover a moderately conservative and eminently successful gambler. Once in a while, when our life support of gas and ammunition was very low, he would order a strike that I would have considered extremely risky, and that would have bared unnecessarily the bases we were supposed to protect at all times.

He was great at discussing things with unit commanders, and encouraged expression of our views, so more than once I stated mine and recommended against the action. Characteristically, he would say, "No, they will not immediately react," or "You will catch them off guard" or some such, and he would be right. Only one time that I remember did he give in to my strong plea not to run a certain mission because of undue risk, and as it turned out the mission probably would have been successful with minimum losses.

This worked equally well the other way, too. During the intensified action of the summer of '43, Vincent and I would occasionally see what we considered a great opportunity with acceptable risk and he would veto it. Again, we would discuss these matters with him—usually at Kweilin during his frequent visits, but sometimes back in his headquarters at Kunming. He always explained his reasons to us, and he almost always prevailed.

It was a great life with some talented and colorful people. After Bob Scott left at the end of 1942, I took command of the 23d Group, and was invited to move into General Chennault's quarters as a member of his household. The others were Casey Vincent; Brig. Gen. "Buzz" Glenn, Chief of Staff; Tom Gentry, flight surgeon; and Joe Alsop, political advisor. It was a wonderful, privileged experience, and even though I was over in the east most of the time, there was much that I learned from the Old Man in this closer relationship that would otherwise have been missed. The bottom line of this is that he was mighty, mighty good to me.

The Chinese People

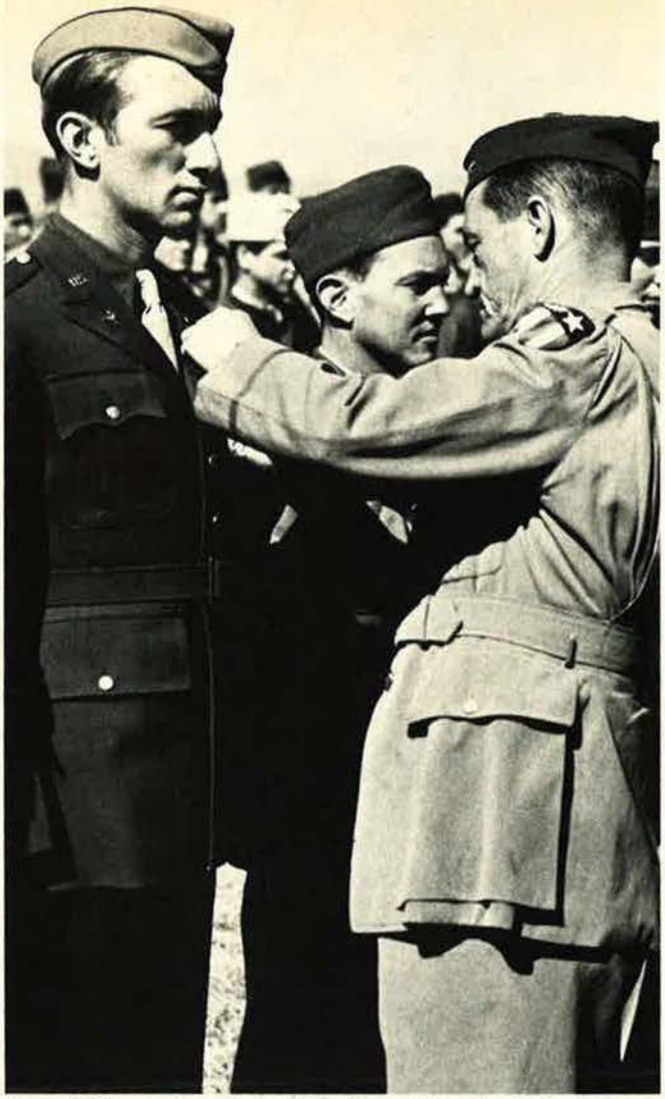
The Chinese people endeared themselves to me as other ethnic or cultural groups rarely have. It took quite awhile, but as I eventually began to think about them—their ways, customs, and life values—rather than simply to react to them as ugly Americans are noted for doing, the warmth began to grow. The first thing that began to register was that they had been doing things in certain ways and developing their code of morals and values for at least forty centuries, whereas we—barring ancestral and colonial effects—had been working on our own for less than two. This is not to say that ours are all wrong or even mostly wrong, but simply to acknowledge that we are not always right—automatically—and that one should not judge hastily the ways of others, especially when they are hosts as well as loyal allies.

I made many friends there. Some contacts have lasted to this day, and a Chinese friend is a friend for life. Their loyalty is unswerving in its intensity, and it is a bitter thing to have watched communism swallow them up, and to realize that to an appreciable degree it was of our doing—the United States of America. The latest chapter involving the Taiwan relationship is the most bitter of all, and impossible for me to comprehend within any frame of logic or national interest, much less loyalty.

General Lai Ming-tong, who rose through the ranks to become the Chairman of the Defense Chiefs of Nationalist China, is a close friend whom I still see occasionally. He is a realist, and a tough one. To me, he epitomizes the never-give-in toughness of the Chinese people, and I am encouraged about their future simply by thinking about him.

Another, to whom I have been very close both professionally and socially is Henry D. Chiu, a US citizen for twenty-five years and a recently retired Air Force colonel. He was a member of my personal staff for a long time, and our association goes back to 1942 in Peishiyi, where he was fresh out of college and part of the AVG organization. He, too, typifies the qualities of toughness, dedication, and loyalty that are so impressive. After he entered college in 1937, Japanese bombs forced the university to retreat from Peking to Changsha, and a little later to Kunming, 1,200 miles by road to the west. They walked—students and faculty—the entire distance. It took ninety days, and about half were lost to disease and other misfortunes, but those who made it persevered in their new location in spite of daily bombings, with a routine of daytime classes in the fields and nighttime study in the rubble of the dormitories.

Such are the Chinese people as I know them. They housed us and fed us (with the best that they had), built the airfields with 100,000 laborers working at one time on one field, provided our tactical warning, built our belly tanks out of bamboo, and cheered us all the way. They were the same people who, in numbers of only 16,000,000 or so under freedom, have built Taiwan in thirty years into an economic giant.



General Chennault decorates the author at Kunming in February 1943. At Colonel Holloway's left is Maj. John R. Alison, another Fourteenth Air Force ace, who later served as an Assistant Secretary of Commerce and as national president of the Air Force Association.

Gen. Bruce K. Holloway graduated from West Point in 1937. He served as a fighter pilot and group commander in China during 1942 and '43, and is credited with thirteen air-to-air victories. In 1946 he was named commander of the first Air Force jet fighter group. Other assignments included Director of Operational Requirements at Hq. USAF, Deputy Commander of the Ninth and Twelfth Air Forces and of US Strike Command (now Readiness Command), Commander in Chief of US Air Forces in Europe, Vice Chief of Staff of the Air Force, and Commander in Chief of Strategic Air Command. General Holloway retired in 1972 and now lives in Orlando, Fla.

The P-40

Any accounting of China in World War II without special recognition of the Curtiss P-40 would be, at best, incomplete. Although it was one of the more mediocre fighters of United States design, it is the most universally remembered.

The principal reason stems from its indelible association with two animals, the tiger and the shark.

There were slightly more than 15,000 of these Allison-powered single-seaters, and they were used by more countries than any other combatant aircraft ever produced. They had mission versatility that can best be described as "doing all things equally poorly," yet they were used extensively all over the globe because they were the best thing available when we went to war, with our defenses in just as neglected a condition as they are today. The early models were slightly better than useless, but the later ones—the E and subsequent series—were considerably better. Their strongest points were structural toughness and a good, reliable set of .50-caliber weapons.

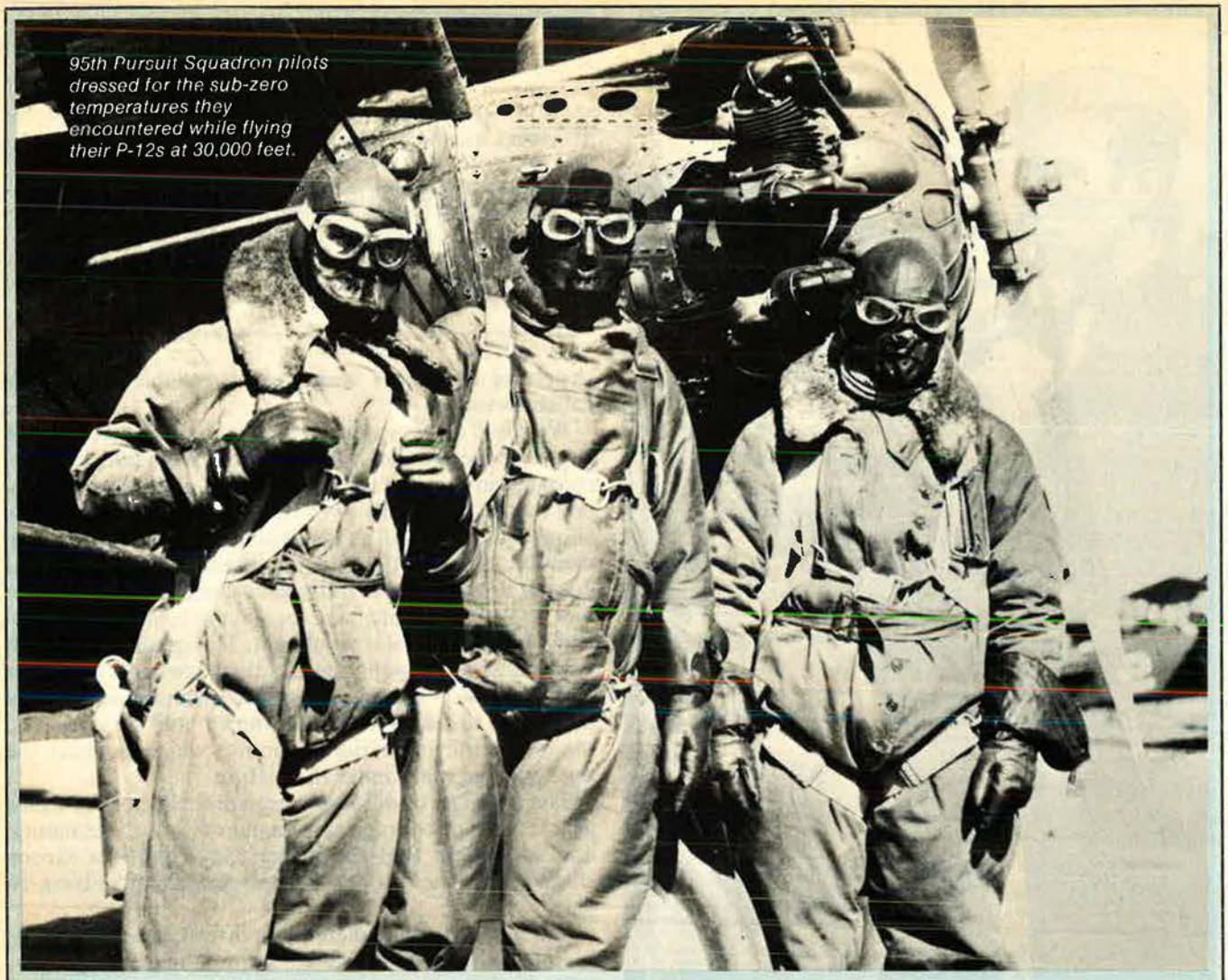
We could dive away from the Japanese fighters, which is one of the reasons why General Chennault achieved recognition for the tactical successes and the twelve-to-one record of air kills over the Japanese in China. This allowed us to prevail as much as any other factor I could mention, although the superior speed going downhill was due not to sylph-like aerodynamics but very simply to the fact that a P-40 would hang together at terminal velocity, and a Japanese fighter would not. This quality of ruggedness had strong psychological advantages, too, and these were both what I would call direct—the morale factor of being able to take a lot of punishment and survive—and the indirect or more subtle variety, which is where the tiger and the shark enter the picture.

The tiger has traditionally been associated with China as a symbol of courage and toughness, so it was natural and fortuitous that the American Volunteer Group should adopt the moniker and the emblem of "Flying Tigers."

It caught on immediately, both in China and in the United States when we were both having a rough time with the Axis powers, and the early spectacular successes of the AVG and the 23d Group provided a beacon of hope and optimism that helped tremendously to bolster the spirit and determination of both peoples.

The shark appeared very shortly after the tiger. I am not sure who thought it up, but it was a stroke of genius. The P-40 radiator cowling lends itself near perfectly to the caricature of a shark's mouth, and although many times copied on other aircraft—to include the P-51, F-105, and A-7—it never did look right on anything but a P-40. It soon became a strong symbology that identified the exploits of the Flying Tigers at least as much as the tiger itself. It identified, too, the last of the line of Curtiss Hawks—the P-40—as a stronghold of accomplishment, and as awesome, righteous power over an adversary who attacked us at Pearl Harbor on the "Day of Infamy." It doubtless stirred the desires of many young men to join the Air Corps.

The symbology persists today, and stirs the imagination of young and old. According to the Curator of the Air Force Museum at Wright-Patterson AFB, Ohio, the shark-mouth P-40E on display there attracts more attention than any other exhibit of the entire facility. Its legendary character is a reminder, too, of one of the greatest periods of American history when we forgot about our personal prejudices and imagined grievances, and all pulled and worked together. It was magnificent, and it was capitalistic democracy at its all-time best. ■



95th Pursuit Squadron pilots dressed for the sub-zero temperatures they encountered while flying their P-12s at 30,000 feet.

—Photo courtesy United Technologies Corp.

High-Altitude Pioneering in the P-12

BY JEFF ETHELL

In 1929, the Boeing Airplane Co., then a leader in fighter aviation, delivered a new pursuit plane, the P-12, to the Army Air Corps. It was a slightly modified version of the Navy's F4B that had first flown the previous year. The sleek little pursuit was one of the last of the biplane fighters. It captured the imagination of aviation buffs then, as it continues to on its fiftieth anniversary in 1979.

The P-12 played a significant role in the development of fighter tactics and equipment. A major contribution—pioneer work in high-altitude tactics—has been portrayed by Keith Ferris in his cover painting, "Biplanes at 30,000 Feet," created for this issue of AIR FORCE Magazine.

One of the first units to fly P-12s was the 95th Pursuit Squadron at Rockwell Field, Calif., commanded by Capt. Hugh M. Elmendorf, for whom Elmendorf AFB, Alaska, is named. When the first P-12s were delivered in 1929, the 95th began making individual test flights above 29,000 feet, the pursuit's specified service ceiling and several thousand feet above the ceiling of most contemporary line aircraft.

Lts. W. R. Casey and I. A. Woodring made the first formation flight to 25,000 feet. As the air grew thinner, control of the aircraft became marginal and they were forced to widen their fifteen-foot spacing. They became separated, missed their planned rendezvous over Point Loma near Rockwell, and Woodring found himself a few miles south of the Mexican border. He had not expected the high winds prevailing at altitude. After turning north and flying at full throttle for thirty minutes, he had made it back only as far as Tijuana. Not until he descended to 18,000 feet was he able to get out of the "raging gale."

Under Captain Elmendorf's leadership, the 95th began increasing the number of P-12s in its formations until eighteen or more were climbing to 30,000 feet. The pilots, bundled in arctic clothing and face masks, used oxygen above 15,000 feet, delivered through the "pipestem" system of the day. Elmendorf commented on some of the dis-

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AIR FORCE Magazine has commissioned noted aviation artist KEITH FERRIS to do twelve paintings of outstanding events in the history of military aviation for an AIR FORCE Magazine calendar.

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WW I Fokker Dr.1 Triplane
Loening Amphibian
F-16
T-6 Texan trainer
B-47 Stratojet
Navy F-8 Crusader

Keith Ferris, son of an Air Force career officer, grew up around airplanes. He has been painting them for more than 25 years and is one of the best known aviation artists. He is a member of the Union-Morris (New Jersey) Chapter of the Air Force Association.

Renowned for technical accuracy and attention to detail, Ferris has a unique ability to portray his subject as if seen through the eyes of a pilot.

In addition to many one-man shows, Ferris has more than 20 paintings in the permanent Air Force Art Program collection. He painted the dramatic mural of a B-17 in the World War II gallery of the National Air and Space Museum, Washington, D.C.

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9/79

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coveries that would influence the use of fighters in the future:

"At our highest altitude the thermometer registered forty degrees below zero. It was so cold that vapors from the exhaust froze, forming white clouds behind the planes. . . . From the ground, observers could see long streaks of milky-white vapor spread across the sky although they could not see our planes. This was the first time, they said, they had noticed streaks of this sort from planes flying in formation. These frozen trails of the upper sky would have easily given away our position to the enemy."

At those altitudes the P-12s were pushing their limits; any abrupt movement of the controls caused a stall. Elmendorf noted that "at 30,000 feet it became virtually impossible to maintain any semblance of formation," but pilots could hold separations of 150 feet.

After one high-altitude flight, Lieutenant Woodring recalled that "the plane feels logy. The motor doesn't sound the same, the explosions being somewhat more dull than at lower levels. Noises do not seem so loud. When I let up on my oxygen supply, things seem a little dark. The sun begins to fade. But after a good whiff of oxygen, things brighten up and noises seem louder."

In April 1930, the 1st Pursuit Group from Selfridge Field, Mich., and the 95th Pursuit Squadron flew their new P-12s to Mather Field, near Sacramento, for a month of field exercises. In all, 150 pursuits and bombers gathered to fly against each other as Red and Blue forces, the first time so many aircraft had operated away from established bases.

Two significant elements were added to the exercises—radio and high-altitude formation flying. Captain Elmendorf directed his flight leaders from his own P-12 while following the overall commands of Lt. Col. Frank Andrews, who was flying in the lead bomber. Andrews's report foreshadowed tactical developments of the future:

"During attack, strong hostile pursuit attacked us from the north. Radio message to our pursuit warning of the approach of the enemy prevented a surprise, and the resulting attack on the enemy prevented interruption of our attack on the Presidio and Crissy Field."

Jeff Ethell's interest in aviation was kindled by his father, a career Air Force officer and fighter pilot. Mr. Ethell is a pilot himself and has worked at the Smithsonian's Air and Space Museum as a researcher. For the past ten years he has been a full-time aviation writer and is the author of many articles and six books—largely on aviation history. He lives in Richmond, Va.

The altitude and radio control demonstration by P-12s at the Mather exercises was impressive. Fighter pilots were enthusiastic about their altitude advantage, their virtual immunity from surprise, and their ability to choose whether to engage the enemy or not.

Little more than a decade later, long-range, heavily armed escort fighters would be needed to protect strategic bombers in the thin air over Europe. High-altitude escort tactics, pioneered by Air Corps pilots of the '30s, laid the groundwork for the fighters' role in the bomber offensive that brought victory during World War II. Much of that pioneering was done in the Boeing P-12. ■

—Photo courtesy United Technologies Corp.

These early 95th Squadron P-12s had 450-hp P&W Wasp engines, a top speed of 170 mph, and a range of about 500 miles.

He won the first James Gordon Bennett International Balloon Race in 1906 and three years later was one of the first two Army pilots trained by the Wrights. In World War I, he commanded the Second Army Air Service in France. As Assistant Chief of the Air Corps from 1926–30, he organized the Air Corps Training Center at Randolph Field, and was hailed on his retirement in 1941 as "Father of the West Point of the Air."

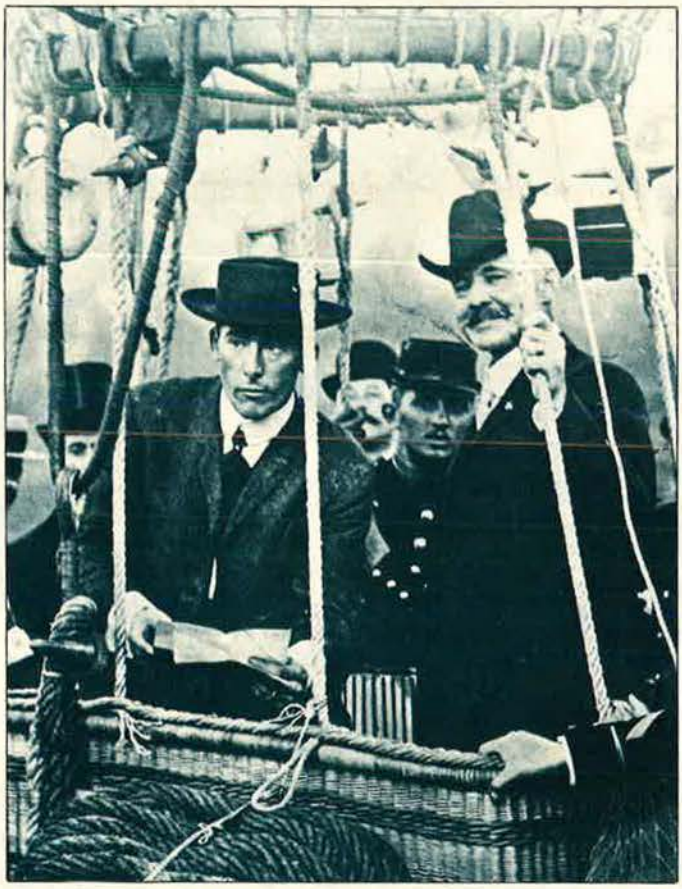
Maj. Gen. Frank Purdy Lahm

BRIG. Gen. Frank Purdy Lahm, a member of the West Point class of 1901, was Assistant Chief of the Air Corps in the late 1920s. His principal mission was to consolidate the Air Corps Primary Flying Schools at Brooks and March Fields and the Advanced Flying School at Kelly Field to form the Air Corps Training Center at Randolph Field. My first meeting with him in 1930 was not particularly intimate. When he pinned on my pilot's wings at Kelly Field graduation, I was a second lieutenant of Field Artillery, temporarily assigned to the Air Corps for flying training. He was a flying brigadier general, still an endangered species only five years after Billy Mitchell's court-martial.

His benign influence on flying training was considerable. The flying schools, particularly the primary schools, appeared to be operating on the principle of showing a student how to execute a maneuver, daring him to duplicate it, and washing him out when he failed. Thirteen members of my West Point class of 1927 entered primary training in July 1929. Twelve were washed out for lack of "inherent flying ability."

BY GEN. LAURENCE S. KUTER, USAF (RET.)

My class felt that the instructors, most of whom were new graduates of the flying school and freshly commissioned as second lieutenants in the reserve, were primarily concerned with keeping us, regular second lieutenants with three years of service, from becoming pilots, eligible to transfer to the Air Corps and fill the few vacancies in the regular service that were allotted to the Air Corps.



Lieutenant Lahm, left, with Maj. Henry Hersey, prior to liftoff in the first James Gordon Bennett International Balloon Race, 1906. General Lahm later participated in developing American balloon units in WW I.

After General Lahm took control, a much smaller percentage was eliminated and then for more understandable reasons. At a time when student officers at Brooks Field were tolerated in the officers' club but urged to do their socializing elsewhere, Mrs. Lahm invited wives of student officers into their quarters. The Lahms were early proponents of the family spirit in the service.

My last association with the General occurred twenty-four years later and was somewhat more intimate. As Commander of the Air University, I invited him, Maj. Gen. Benjamin D. Foulois, and Brig. Gen. Thomas DeW. Milling to Maxwell AFB. There, Gen. Carl A. Spaatz, the first Chief of Staff, US Air Force, was moderator in a long, joint interview during which those early airpower pioneers recorded their experiences. The sequence of some of the following excerpts from those tapes is rearranged for continuity. General Lahm made no claims to fame and spoke with modesty. At that time he was seventy-seven years

old. General Lahm's words follow, just as he spoke them:

"On October 1, 1907, I was in France. One day my father [who was the European representative for the Remington Typewriter Co.] walked into the garden where I was sitting outside of Paris, with the two Wright brothers. That was my introduction to Orville and Wilbur Wright.

"My father had become interested in the Wrights in December 1905 when he first heard that they had actually flown, and his contact with them was more or less continuous from December 1905 up to the summer of 1907.

"By the end of 1904 they realized they had something that might be of value. They had inquiries from foreign governments about their machine, but they didn't want foreign governments to get it before our own government had a chance, so on January 15, 1905, they wrote to their congressman down in Washington, who contacted the War Department, as recorded in a letter from the Board of Ordnance and Fortification, which was charged with new inventions. The Board went on to state that they were not furnishing funds for the development of aircraft, etc. They turned it down, in other words.

"October 9, 1905, after they had flown over half an hour, they wrote directly to the Board of Ordnance and Fortification. Again they got a noncommittal reply. . . . There was some reason for that. They [the Board] had put up $50,000 for Langley's machine, which had not flown, and they had been roundly censured by the public and by the press for wasting money on such a thing as a flying machine.

"In the spring of 1907 some members of the Aero Club of America wrote to the President, [Theodore] Roosevelt. He passed it down to the Secretary of War, Taft, and that got to the Board of Ordnance and Fortification—so they had to sit up and take notice. However, they replied again, this time stating that they didn't have the money—so again they turned the Wrights down."

General Lahm was asked when he first became interested in flying.

"My father, at the turn of the century," he said, "had become interested in the Aero Club of France, which was an outfit that made balloon ascensions, and he became a pilot. He bought a balloon of his own, which he named after my sister.

"I was an instructor at West Point and had the summer of 1904 off, so I went abroad. When I got over there, he initiated me into the balloon game. In 1905 I was again on leave as an instructor. I went back to France and finished my instruction and got my pilot's license in the summer of 1905, a balloon pilot's license. That was what got me into the game."

Frank Lahm was the winner of the James Gordon Bennett International Balloon Races in France in 1906.

"After discussions with my father and the Wright brothers in Paris, I was firmly convinced that the Wright brothers were all they said they were, that they would produce a flying machine that would be of use, I thought, to the government. So I took it upon myself that fall, in October 1907, to write a letter to the Chief Signal Officer, Brig. Gen. James Allen.

"Anyhow, by the fall of 1907, the late fall, Wilbur Wright returned from France, and at last the Board of Ordnance and Fortification advised him to appear before them, which he did in December 1907. He made a very favorable impression. He didn't make any great claims, and that led to specifications being drawn up for an airplane.

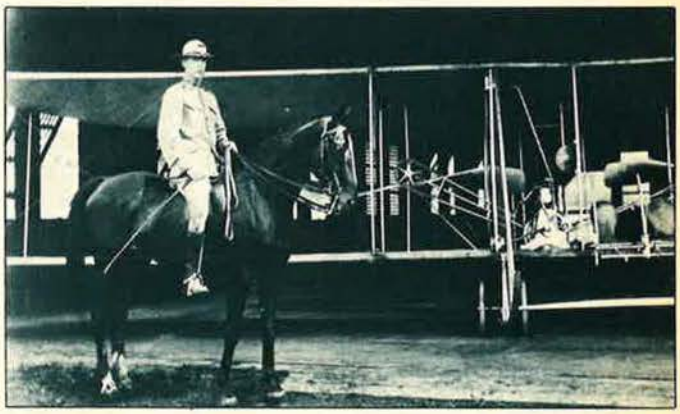
"The specifications were the joint efforts of the Board in Washington and the Wright brothers, as the Wright brothers told them about what they could do, and the specifications were based on that—[an] airplane that could fly forty miles an hour, that could carry two people and fly for an hour, capable of landing and taking off without undue delay, and capable of dismantling and loading on an escort wagon to be transported.

"Forty-one bids were received when the advertising for bids went out with these specifications, and the prices varied all the way from $100 to $10 million for an airplane, and one man said he was sure that his airplane would fly at least 500 miles an hour. To make a long story short, three of the bidders were offered contracts. . . . One was made . . . with a Mr. A. M. Herring, who offered a plane for $20,000, and [one with] the Wrights who offered one for $25,000."

President Theodore Roosevelt was persuaded to make the $25,000 available for the Wright bid by a group of three officers: General Allen, Capt. Charles deF. Chandler, and Lieutenant Lahm.

"A contract was signed on February 10, 1908, and Orville Wright came to Fort Myer, Va., on August 20, 1908, with that airplane. He went through some tuning-up flights and incidentally he hadn't had a whole lot of time in the air himself at that time. Neither of the Wrights had. . . . They got around the field once and tried to land when they saw they were going to run into a little shed we put up down there, so they brought it down in the rain and cracked a skid. However, he went on tuning up and finally was ready to take off again. On September 9, 1908, he flew fifty-eight minutes, I believe it was, and when he came down he came over to me and asked me if I would like to go up a little. You can guess my answer. So we made a short flight of about six minutes. On September 9, he also took up Maj. [George] Squier of the Signal Corps and again on the twelfth of September.

"On the seventeenth, he took up Lt. [Thomas] Selfridge, and they had an accident and cracked up. Lieutenant Selfridge was



Frank Lahm, a Cavalry officer detailed to duty with the Signal Corps, organized an aviation service in the Philippines in 1912.

killed. That ended the experiment for that year.

"The following year, 1909, both brothers came back, brought their plane there in July, and on July 27, Orville picked me up for an endurance flight, an hour—an hour and twelve minutes. [The flight established a world endurance record.] On July 30, came the speed test. By that time it was decided that they had fulfilled the contract, although it required teaching two officers to fly, and [Lt. Frederic E.] Humphreys of the Corps of Engineers and myself were designated.

"In October 1909, Wilbur Wright, the other brother, took on Lieutenant Humphreys and myself, and after some three hours or more we were soloed and were told we were pilots. That was a little exaggeration, but we had Lieutenant [George C.] Sweet of the Navy attached to us both years, so I asked Sweet if he'd like to go up and he said 'Yes,' so I carried a passenger and qualified as a pilot."

After an observation that the Signal Corps had been blamed for holding back aviation, General Lahm was asked why the responsibility for aviation was assigned to the Signal Corps in the first place.

"The basis for that decision goes back to Civil War days," General Lahm replied, "when the Signal Corps had a balloon service for two years. Balloons were very useful for observation purposes. . . . The Topographical Engineers had [the balloon service] first. Then it was decided that the balloon was a means of communication because they ran a telegraph line from the balloon down to the ground and the observer reported by telegraph. As a means of communication, it was assigned to the Signal Corps and was by law a Signal Corps responsibility.

"The present Air Force should be traced back to August 1, 1907. On that date an order was published to establish an Aeronautic Division of the Office of the Chief Signal Officer."

General Lahm continued by quoting from that 1907 order. " 'The operations of this division are strictly confidential and no information will be given out to any party except from the Chief Signal Officer of the Army or his authorized representative. Charles deF. Chandler of the Signal Corps is detailed in charge of the Division and Corporal Edward Ward and PFC Joseph E. Barrett will report to Captain Chandler for duty under this new directive. James Allen, Brigadier General, Chief Signal Officer of the Army.'

"It might be interesting to add that the personnel . . . was reduced shortly after by the desertion of the first class private. Other officers were simply detailed for duty with the Signal Corps, and when they got there the Chief Signal Officer would put them on aeronautical duty. So that was just one of the duties of the Signal Corps along with telegraph, telephone, heliograph, etc.

"The officers that belonged to this unit were: Captain Chandler, detailed on August 1, 1907; Lieutenant Selfridge on August 3, 1907; Lieutenant Lahm on August 8, 1907; and Lieutenant Foulois on July 8, 1908."

General Lahm remained active in the Aeronautic Division and became a leader in the Aviation Section of the Signal Corps. Early in World War I, as a captain, he was ordered to the United Kingdom and France to study their systems of equipping, training, and employing airships, and to prepare programs for the development of American balloon companies. His programs had to be mailed back because General Pershing kept him in France as G-3 of the First Army, AEF, until October 1918, when he was made a colonel and Chief of the Air Service, Second Army.

During World War I, General Lahm kept a detailed day-by-day diary. After the Armistice he was kept on with occupation forces. The last entry in his diary records his return home August 10, 1919.

General Lahm recorded in great detail the places he went and the leaders with whom he worked, conferred, or perhaps only observed. It is a long and impressive list. Unhappily, he wrote nothing about official actions he took or the roles he played in many conferences.

His list included the Allied political leaders—Albert I, King of the Belgians; the Duke of York, later George VI; Winston Churchill; Clemenceau; Poincaré; the military leaders—Douglas Haig, Trenchard, Foch, and Joffre; and in the American Army a long line of successive Chiefs of Staff—Pershing, Summerall, Hines, MacArthur, Craig, and George C. Marshall.

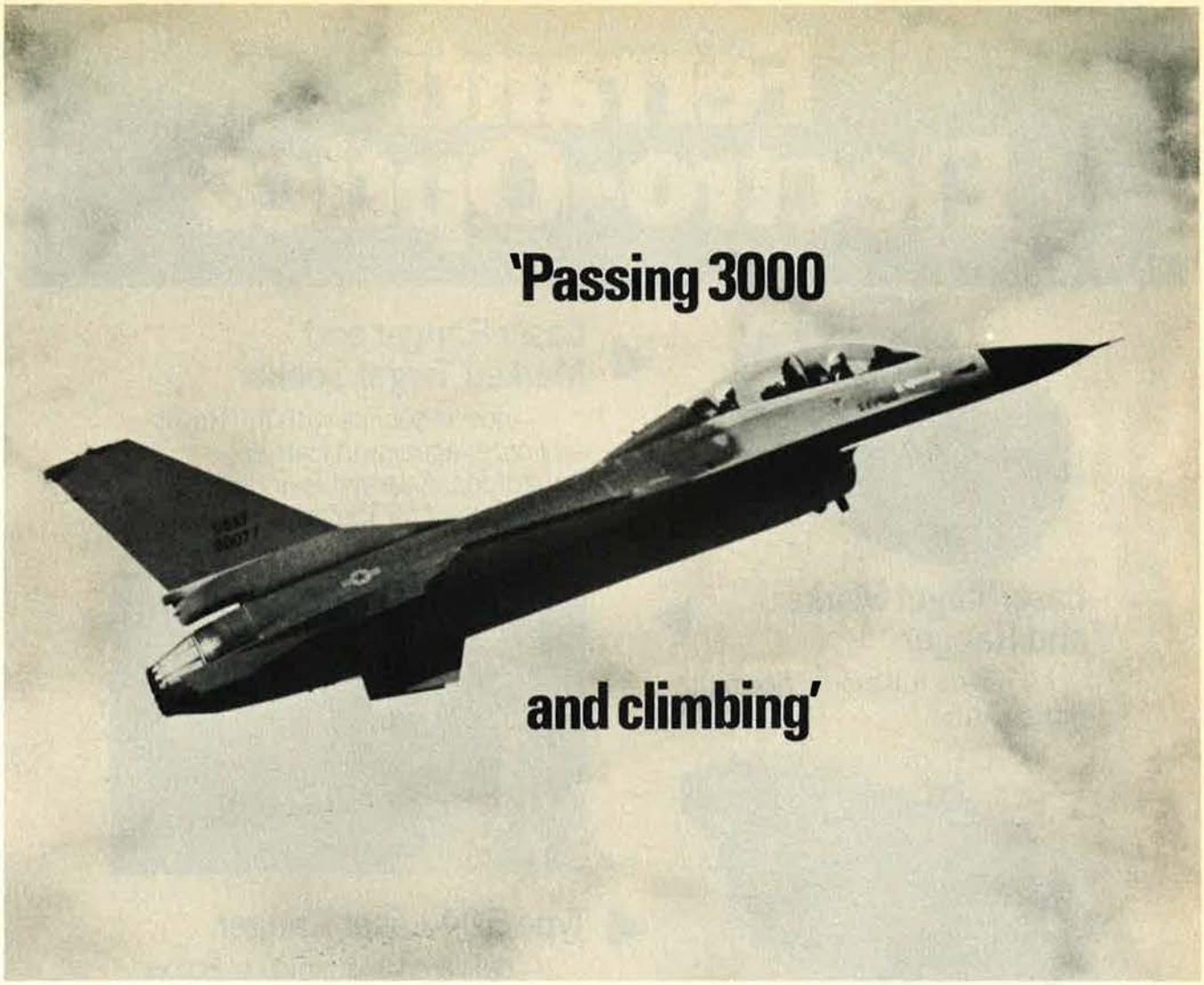
After several assignments in the States, Lahm was named Assistant Chief of the Air Corps in 1926. He was interrupted in his mission of establishing the Air Corps Training Center and sent back to Europe in 1931 as the Military Attaché for Air to France and Belgium. There he reported the response, or lack of it, of our World War I Allies to the resurrection of German airpower under Hitler.

As he approached his sixty-fourth birthday and mandatory retirement, he was promoted to major general. His final command was the Air Corps Training Center, which he had originally organized at Randolph Field. On the thirtieth of November 1941, elaborate retirement ceremonies acclaimed Frank Lahm quite properly the "Father of the West Point of the Air."

When an Air Force Academy and a US Air Force were only gleams in a few eyes, the Training Center had already grown to proportions far exceeding any plan of 1926. A week after General Lahm's retirement came Pearl Harbor. The Training Center then underwent still more massive growth and produced hundreds of thousands of American pilots and crew members for World War II.

General Lahm continued in active support of the Army Air Forces and, for the first seventeen years of its life, the United States Air Force until the end of his exciting, creative, and productive life at the age of eighty-five. He was an original Airpower Pioneer. ■

Gen. Laurence S. Kuter graduated from West Point in 1927. He flew with Claire Chennault's aerobatic team in the 1930s, and was one of the four authors of the plan for using US airpower in World War II. During the war he was commander of an Eighth Air Force bomb wing, deputy commander of the Northwest African Tactical Air Force, and deputy commander of AAF in the Pacific theater. Between operational tours he served as General Arnold's Assistant Chief of Plans, and as his representative at the Yalta Conference. After the war General Kuter commanded MATS (now MAC), the Air University, PACAF, and NORAD. On his retirement in 1962 he became Executive Vice President of Pan American Airways. General Kuter now resides with his wife in Naples, Fla.



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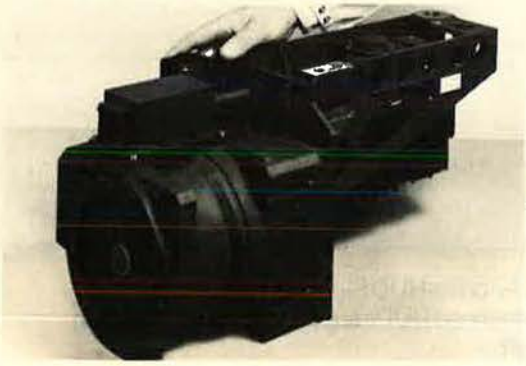

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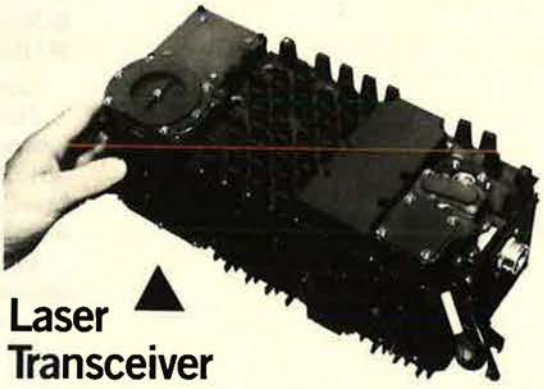

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The European members of NATO are increasingly disturbed by the malaise that has beset the US. Among their worries is a shortage in our NATO forces' O&M funds, which is, in effect . . .

Tethering the Team Captain

By Gen. T. R. Milton, USAF (Ret.)

OF ALL the summers in memory, this was the summer of our discontent. Discontent with the energy crisis and the seeming hopelessness of any solution to it; discontent with our politicians, from the President on down; and just general discontent. It is a long while—maybe all the way back to the Great Depression—since Americans took such a gloomy view of things.

It is a mood that Europeans find unsettling, if not downright alarming. For in spite of the evident prosperity in much of Europe, the United States remains the foundation on which are based both the prosperity and security of that considerable part of Europe that remains outside the Soviet orbit.

Thus it is not surprising to sense a feeling among Europeans that it is time we got over the vapors and reassumed the proper attitude for a captain of the team. The very symbol of that team captaincy is our military commitment to the Alliance. What with one thing and another, the symbol needs a little refurbishing these days.

In the first place, there is the matter of money—or, rather, the lack of it.

US dollars now tend to bring out condescension in hotel cashiers, and the sleazy little men who used to trade for dollars on the black market have presumably long since found a more profitable commodity. Our forces in Europe are paid, naturally, in dollars. That they are not paid enough dollars, or that their anemic dollars won't buy enough to allow them to look like the representatives of a great and powerful nation is, I suppose, just one of those things. But it is, nevertheless, a fact. The American military, once outrageously overpaid by European standards, is now a group of foreigners living very close to the knuckle, as the British put it.

That is in itself a bad enough erosion of the great American symbol, but money is also affecting the actual combat readiness of our NATO force. Operation & Maintenance funds are perilously short. United States Air Forces in Europe will fall, this year, $89 million shy of what they consider their minimum essential operating budget unless there is a supplemental allowance. This is not the sort of deficit that can be made up by a few economies here and there. The USAFE people have already, and long since, made those economies. This is a very real shortfall in operating money, and it can only be made up by cutting back, naturally, in operations and maintenance, which is another way of saying pilots won't fly very much and airplanes will be a little short on spares.

All of which raises a few questions about our role in the Alliance. It is one thing, although somehow shameful, for our troops in Europe to be poverty stricken, but perhaps we could find a way to conceal that fact. To some extent it is already being concealed as economic pressures keep the American military and their families more and more inside the fences.

A lack of operating money, however, is not so easily dealt with. It will result inevitably in a sharp and obvious decline in the effectiveness of our European-based forces.

Gen. Sir John Hackett, along with Air Chief Marshal Sir John Barraclough and some other military notables, has written a wonderful scenario in *The Third World War: August 1985.* [*See "Airman's Bookshelf," July '79 issue.*] It is wonderful, not only because our side wins in the end despite the odds and a Warsaw Pact surprise attack, but because the people telling this story have impeccable credentials. They are not just spinning a commercial yarn. The book has a compelling credibility.

Nonetheless, the scenario in *The Third World War* presupposes a higher state of readiness in the NATO forces—and very much including our US Air Forces in Europe—than will be the case if the operating funds deficit continues. It is just not possible to produce highly trained and operationally ready forces, and most certainly not air forces, on a poverty budget.

All of which raises a question about the seriousness of our European commitment and our continuing role as the leader of Western defense. It just does not make any sense to spend a substantial portion of our entire defense budget on NATO forces only to ensure they are second rate once they are in place. Corporation employees living badly, and receiving miserly support from the home office, are not likely to produce much profit for the shareholders. Military forces in similar circumstances are not logical favorites to win a Third World War, or even, and this is just as scary, to discourage it from starting. ■

Personnel Outlook: Nine-tenths Overcast

Personnel problems—including compensation, attacks on benefits, shortages in critical skills, and the glacial pace of some remedial actions—"could easily pose a threat to national security" despite "a new sense of understanding on the part of Congress and the Administration."

BY ED GATES
CONTRIBUTING EDITOR

THOSE nagging people problems the Air Force leadership has been wrestling with just won't go away. Some of them, in fact, are getting worse. These difficulties don't make newspaper headlines. TV ignores them. The general public has virtually no knowledge of them.

Yet they are problems of enormous magnitude, especially to the military community. If they show no improvement, before long they could easily pose a threat to national security. Staggering pilot losses, alarming shortages of engineers, a continued drought of medical officers, and assorted woes with navigators plague the 96,000-member USAF officer corps.

Enlisted recruiting, despite heroic efforts by the Recruiting Service and assistance from many quarters—retirees and groups like AFA—lags seriously. Authorities foresee a shortfall this year of up to 2,500 recruits, until now an unheard-of development for the Air Force.

Enlisted retention is in somewhat better shape, with first-term reenlistments at around forty percent. Yet authorities are nervous about the decline in second-term reenlistments, from sixty-nine percent in September 1977 to sixty-one percent last May. And they wince at the growing number of new recruits who are not high school graduates. Eighty percent of the youths USAF recruited during the first eight months of FY '79 held high school diplomas; five years ago the rate was a healthy ninety-one percent. The lower the percentage of high school grads, the greater the disciplinary and other manning and training problems a military service encounters.

For example, the Army, the service leading in early dropouts, disciplinary problems, and related woes, is getting only fifty-eight high school graduates out of every 100 youths it recruits.

Officials at Hq. USAF are "working" the various manpower difficulties as hard as ever. A knowledgeable, "take-charge" executive, Lt. Gen. Andrew P. Iosue (pronounced "OS-way"), recently became the USAF DCS/Manpower and Personnel, taking on what is probably the toughest set of people problems any personnel chief has shouldered since USAF became a separate service.

The Dependents Bombshell

General Iosue could easily have done without one more headache—the recent junior enlisted travel (JET) overseas dependent bombshell Congress tossed him (and other service leaders) a few weeks after he arrived at the Pentagon from San Antonio, where he commanded the Lackland AFB Military Training Center.

Late last year, the lawmakers, after years of prodding by the services, approved JET benefits for young families assigned to and from overseas. The services vigorously publicized what they considered a rare major new benefit. And they vowed to fight for the same entitlements for junior enlisteds Stateside.

That all now appears to be in a shambles. The Senate, in the FY '80 military authorization bill, recently voted to kill outright the overseas JET. It directed a ten percent cut in the number of military families abroad by October 1980 and a thirty percent slash by 1984.

About the same time, the House cut $90 million out of the FY '80 military construction appropriations bill. The services needed these funds for overseas dependent projects: schools, leased housing, and quarters furniture. The House also told the Pentagon to replace the three-year accompanied tour to foreign lands with unaccompanied tours of twelve months and eighteen months.

These salvos sent shock waves throughout the Air Force hierarchy, and Air Staffers promptly fired back

their protests. They lined up support to try to overturn the JET and kin curb moves. USAF's response to the drastic actions refuted the legislators' claims that too many dependents live abroad, that their presence costs the government too much, and that they would adversely affect readiness.

Instead, USAF has declared, recruiting and retention would suffer because families will not stand for the lengthy separations necessitated by one-year or one-and-one-half-year unaccompanied tours. The service emphasizes that eighty-four percent of its enlisted force would have to endure at least four unaccompanied tours under such a format.

Removing the JET will also increase hardship cases, authorities point out, because many young families will go abroad anyway. General Iosue noted that short unaccompanied European tours for USAFE tactical aircrews will greatly increase the portion of their tours they must spend in theater checkout. "It could turn Tactical Air Command into a huge, expensive training organization," he told AIR FORCE Magazine. USAF's position is complicated further by reports that high Army circles support short overseas tours.

The overseas JET and tour problems may be resolved with final congressional action expected soon on the authorization and appropriations measures. But even if the drastic early actions are overturned, the military community will regard the episode as a stab in the back, as an unforgivable attack on benefits that could easily be repeated next year, and the next.

Too many members of Congress appear to have no conception of the explosion touched off throughout the military community by even suggesting kin curbs overseas. The lawmakers' adverse tampering with the issue exacerbates each personnel/manpower problem the Air Force is facing.

Other Negative Signals

Why was the Air Force already saddled with grave personnel woes before this latest donnybrook? Much of the difficulty stems from the lack of adequate compensation. The troops and their families have had many months to burn over the 5.5 percent pay cap (the second in two years) since President Carter proposed it last January. And during that period they have seen inflation gallop ahead, labor and management negotiate fat wage-guideline-busting pacts, government officials call for such new irritants as hospital outpatient "nuisance" fees, and Presidential plans to charge them for parking at government lots.

USAF's key player in the battle to overcome its manning woes is Lt. Gen. Andrew P. Iosue, the new DCS/Manpower and Personnel, Hq. USAF. He has a broad personnel background, both at the Manpower and Personnel Center, Randolph AFB, Tex., and at the Pentagon. General Iosue also commanded the Air Force Recruiting Service. A product of the University of Massachusetts AFROTC, he began his military career in July 1951 as a medical service officer. He later earned his wings, served with tactical fighter and troop carrier outfits, and flew more than 200 combat missions in SEA.

The troops note furthermore the government's continued foot-dragging on improving the Survivor Benefits Plan, establishing a variable housing allowance, and eliminating other sore spots. The removal of GI Bill educational benefits for persons entering service after December 31, 1976, is another negative factor, since its so-called "replacement," the Veterans Educational Assistance Program (VEAP), is inadequate. USAF enlistees shun it like the plague.

These and other deficiencies, piled one on top of the other, appear to be disenchanting more and more service members. They also undermine the recruiting effort, military authorities insist. "These compensation issues are crucial to the rank and file, yet Congress isn't interested and the executive branch thinks only of cost-effectiveness," said one highly regarded USAF source.

An overstatement to be sure, but all these negative signals—perhaps still best characterized as "erosion of benefits"—remain a major cause of USAF's leading personnel dilemma—the pilot exodus.

Rated Retention Issues

Pilot loss rates are now the highest in recent history. For every 100 pilots entering their sixth year of duty, seventy can be expected to leave by their eleventh year, based on current experience. This compares with only forty-eight separations just two years ago when pilot retention began to sag. It translates into about 3,000 pilot departures this year, a period in which the training system is producing only 1,050 newly graduated replacements. The training rate will be increased starting in FY '80.

No one knows when pilot attrition will bottom out and, hopefully, start a recovery. Many corrective measures have been laid on or are in the works. The Air Force is pushing hard for a raise in flying pay, and it is giving pilots and navigators more say in their future assignments.

The service recently adopted a continuation plan, increased pilots' chances for gaining Regular Air Force status, and improved promotion chances for all line officers. In all these areas, officials feel, pilots now enjoy excellent career opportunities, and the outlook for navigators and nonrateds, particularly those with engineering and other technical skills, is also favorable.

These combined changes create a new measure of job security for pilots; their chances of elimination for promotion failure are almost nil. The up-or-out system, in effect, has been pretty much defanged.

Earlier, the Air Force bowed to the overwhelming demand from rated and nonrated officers to scrap the controlled Officer Effectiveness Report system. Some still fault the service for not removing all past

controlled OERs from each officer's file.

Tossing bones to the pilot community, of course, can generate unhappiness in other quarters. While nonrated officers understand the need to curb pilot losses, they are far from thrilled about some of the new remedies. One nonflying captain, in a discussion with AIR FORCE Magazine, said disparagingly, "they're [USAF] sure taking care of the pilots. . . . "

Pilot attrition has increased sharply in recent years as a result of factors ranging from inadequate compensation to promotion uncertainties. USAF is working vigorously to rectify these problems and to halt the "erosion of benefits."

Those potentially juicy jobs with the airlines remain the major reason so many USAF flyers shed their blue uniforms. The airlines are what General Iosue calls the big "pull" factor in the "push-pull" formula that is eroding USAF's pilot ranks. The "push" refers of course to the OERs, promotion uncertainties, and other related irritants now being modified or eliminated.

USAF officials, meanwhile, are not overly encouraged by projections that hiring by the airlines will drop from about 4,000 this year to perhaps 2,000 next year. They point out that the "draw" from the lines is starting to pull from smaller Air Force year groups.

General Iosue and his associates are counting heavily on securing new flight-pay legislation that would raise current rates fifty percent. The USAF-initiated plan would also provide yearly flying pay raises based on basic pay increases, and establish bonuses, worth up to $5,000 annually, for critically needed flyers. Raises are long overdue. Back in 1955, most military pilots drew $180–$220 a month in flying pay, which then equaled forty-four percent of their basic pay. Rates were raised slightly five years ago. If the new proposal goes through, most flyers will draw a more reasonable $370 per month, though it would still be less than twenty percent of their basic pay. Enlisted crew members, who currently draw only a maximum of $105 per month for flying, would also receive a fifty percent hike.

Officials know the proposal falls far short of parity with airline pay. But the planned legislation, moving through Pentagon checkpoints at an agonizingly slow pace, aims to show that the Air Force is concerned and values its crew members highly. The flight pay raise "signals [the] value of aircrews to [the] institution and [the] leadership commitment to them," one Hq. USAF briefing paper explains. Unfortunately, the measure probably won't be fully coordinated and dispatched to Congress for action this year, informed sources told AIR FORCE Magazine.

The navigator "problem" is less crucial, though nav attrition has risen and in turn has sparked an increase in replacement training. Last year, the Air Force got 472 new navs from its Undergraduate Navigator Training program; this year the target is 600. Advanced navigator training rates are increasing also.

What irks many veteran navigators and concerns USAF's top management is the reluctance of commanders to work navigators into unit commander and operations officer billets. This change was supposed to start five years ago. But as Chief of Staff Gen. Lew Allen, Jr., declared in a recent letter to his top field chiefs, "only a handful [of navigators] have been assigned to head flying units or serve as operations officers.

"Flying unit commanders will be the key element in our future senior leadership structure. . . . Navigators who demonstrate leadership potential should be professionally developed and considered for operational command at all levels along with similarly qualified pilots."

Meanwhile, some 1,600 pilots and navigators who have been flying desks—they're in the "rated supplement"—will be ordered back to flying duty within the next year.

Womanpower: USAF's Salvation?

Womanpower may be USAF's salvation in keeping its ranks filled. The service this fiscal year is looking for 68,000 nonprior-service (NPS) recruits, including 13,300 young women. That's almost twenty percent of the total sought, and they're signing up in quota-busting numbers.

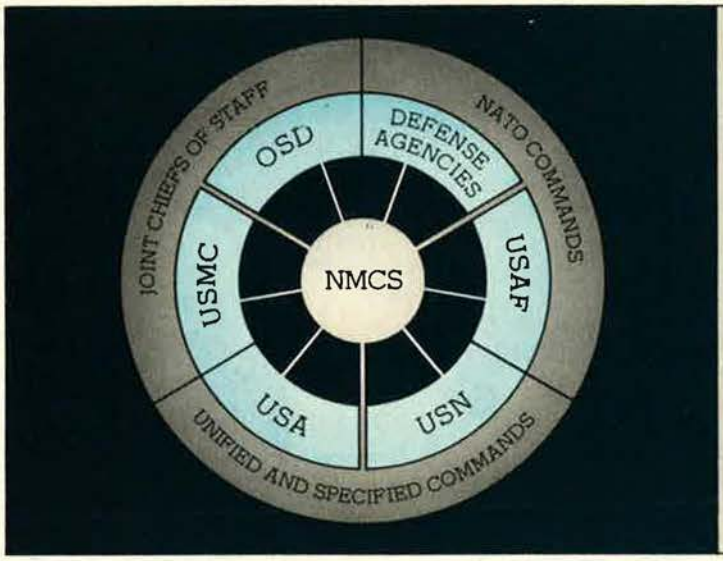
The shortfall is 100 percent male. The NPS shortage for the entire year is being projected officially at 2,000–2,500 men.

This trend has caused the Air Force to again increase future distaff strength goals. Currently about 52,000 of USAF's 560,000 active-duty members are women. The new goal is 97,000 females on board in five years. The implications are many.

Some problems have already surfaced. One concerns assignments: the more women in uniform, the more in-service marriages. Assigning both members of such unions to the same base at the same time, which the Air Force always tries to do, becomes more difficult. Under the big buildup, it may prove impossible in some cases.

Another problem stems from the training of women flyers. Law bars them from flying "aircraft engaged in combat missions," a situation Under Secretary Antonia Handler Chayes has told Congress "is creating serious morale and assignment problems" for men and women. USAF's solution: support the recent Defense Department legislative plan that Congress eliminate the restriction and let the services establish their own pilot-navigator use policies.

It is imperative that if the nation's command/control/communications systems (and the intelligence that informs them) are to do their jobs, they must endure as long as the centers and facilities they support. Endure what? Endure all credible threats to their



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Bumper Crop of New Lieutenants

Officer Training School production goes up and down like a yo-yo, depending on USAF requirements. In FY '77, for example, needs were low so only about 700 new officers came through the Lackland AFB, Tex., school. Most were engineering and technical (E&T) types.

But this year, with high officer attrition, OTS has mushroomed. Its recruiting "objective" alone has soared to almost 4,500, a total that officials say should produce—after dropouts and washouts—about 3,500 second lieutenants.

For FY '80, which begins next month, the OTS entry quota now exceeds 5,600, of whom an expected 4,400 will be commissioned. There are more than 1,400 openings for S&E hopefuls, almost as many for pilot and navigator contenders, and the rest in administration, communications-electronics, air traffic control, aircraft maintenance, supply, intelligence, and many other nontechnical career areas. This marks the first time in years such large quotas have gone to so-called "soft-core" areas. Officials hope many airmen will be contending.

The OTS buildup means that almost 1,200 students will be in school at the same time. To accommodate them, the Air Training Command NCO Academy, collocated with OTS, has been temporarily closed. It is slated to reopen on a reduced basis next month.

There's obviously not room for most of them to become commanders. Headquarters officials report they're keeping close tabs on the navigator situation, and if necessary will trot out new utilization policies.

E&T and Medical Shortages

Then there is the "E&T problem." Advancing technology has ballooned USAF's need for officers with engineering and technical expertise. E&T job requirements now number about 12,000, but fewer than 11,000 of them are filled. Recruiters are scouring campuses for near-graduates in engineering, mathematics, computer technology, physics, and related fields. For its FY '80 Officer Training School (OTS) program alone, the service needs 1,400 officer candidates in the E&T skills, four times the number procured in FY '78.

Complementing this OTS surge are USAF's 5,760 AFROTC scholarships, most awarded to students going the E&T route. A strong, persistent selling job by Air Force officials for 740 more AFROTC scholarships will, hopefully, win congressional endorsement this year and provide additional E&T officers in the early 1980s.

Airmen are also getting a better-than-ever crack at a government-subsidized college education because of an expanded Airman Education and Commissioning Program (AECP). The Air Force expects to enroll 300 more airmen in AECP next fiscal year. On winning their degrees, they'll attend OTS, become second lieutenants, and step into other hard-to-fill E&T jobs.

Recruiting E&T types off the campus is tough going because the military's starting pay of about $13,000 falls well short of the $19,000 industry offers, according to the College Placement Council Annual Survey. A graduate degree reportedly pays off even better, a situation the Air Force hopes to counter soon by sending more junior officers to graduate school for their master's degrees. "If you can't hire them, train them yourself—that's the philosophy behind this move," one official said.

The overall signals are still not favorable because the demand for young engineers is increasing in the civilian sector. The services will remain hard pressed to compete.

A related OTS development finds the service opening up more USAF commissioning opportunities in a flock of nontechnical skills (*see accompanying box*).

The widest pay gap between military specialists and their civilian counterparts remains with physicians. According to the Surgeons General of the military services, those still in uniform are growing more unhappy about the gap. The Surgeons General are pressing Congress to revamp medical officer pay scales and bring them reasonably close to civilian physician salary levels.

Otherwise, USAF's medical officer shortage—about 400 MDs, most in critical specialties—figures to worsen. "If adequate compensation is not offered to our scarce health professionals this year, the majority of those eligible to leave will do so. Our country cannot afford to let this happen," USAF's top medic, Lt. Gen. Paul W. Myers, has been telling congressional committees.

General Myers is pushing also for new funds to refurbish aging medical facilities and to purchase new equipment. Both actions are held essential to attracting and keeping medical officers. The main step that USAF has taken to improve physician retention so far has been to raise their promotion opportunity.

A House Armed Services subcommittee has been working on a new medical pay structure containing sizable increases, though at press time it was unclear whether or not Congress will approve the legislation this year. The legislators appeared willing to sweeten the scholarships awarded medical students in exchange for a hitch in service as doctors. Without improved scholarships, the services' physician rolls are expected to shrink further and medical care to suffer still more curtailment.

Pilots, E&Ts, and physicians—they are the "big three" in the Air Force's list of "people" trouble spots. Genuine early solutions appear unlikely, though a new sense of understanding on the part of Congress and the Administration concerning military members' problems would certainly help calm the waters. ■

New Efforts to Retain Pilots

Because the two-year-old "pilot problem" shows no signs of improvement despite a flurry of "initiatives" taken by Hq. USAF and field commanders, the service is setting up a separate retention office at the Military Manpower and Personnel Center, Randolph AFB, Tex.

Functioning directly under Center Commander Maj. Gen. LeRoy W. Svendsen, Jr., the new shop is headed by Lt. Col. (colonel selectee) Daniel Taylor. Pilot retention efforts "will require concentrated and sustained emphasis," DCS/Personnel Lt. Gen. Andrew P. Iosue said in establishing the office. It will "pull together the numerous efforts that are currently under way at the headquarters level, undertake a fresh look at the total retention problem, and provide a single point of contact to ensure responsiveness to the needs being surfaced by MAJCOM retention studies," he said.

The staff of the new retention office was expected to be in place and operating by mid-August.

English Spoken Here

In the last twenty-four years, more than 34,000 military people from fifty nations have learned to speak English at the Defense Language Institute's English Language Center at Lackland AFB, Tex. The Center has a vital role in putting an important element of US foreign policy—the Foreign Military Sales program—into action.

BY MAJ. CHARLES G. TUCKER, USAF
CONTRIBUTING EDITOR

VISITING the Defense Language Institute's English Language Center at Lackland AFB, Tex., is like attending an international convention. The Center's average enrollment is about 1,400 students. On any day it is not unusual to meet military personnel from as many as thirty-five nations.

On the Center's campus, one encounters a varied array of uniforms, rank insignia, and accents that reflect equally diverse customs and ideologies. One student may come from a nomadic tribe that lives in tents, while his classmate may be a prince raised in a palace. Students rank from E-1 to brigadier general, although most are enlisted men and junior officers. Each spring there is a noticeable increase in the number of senior officers who attend prior to enrolling in the Air Command and Staff College and other service schools in the fall.

Some civilians, mostly English teachers employed by their home country's military services, also study at the Center. Students, generally not accompanied by their families, live in dormitories on base. The ten percent who are accompanied are almost all from Middle Eastern countries and live in the neighboring San Antonio suburbs.

Away from the campus, students reflect the dress, diet, and religious practices of their native lands. In the classroom, however, varying backgrounds, customs, and ideologies are subdued. Membership in the profession of arms and the goal of learning the English language are unifying forces.

Another common denominator, and the factor that places students of different ranks and nationalities into the same seven-to-nine member sections, is the ability to communicate in English. Probably the most often used term at the Center is ECL—English Comprehension Level—a measuring instrument created at the Center and used worldwide by the US Defense and State Departments to quantify English language proficiency. At Lackland, the ECL is used initially for section assignments, and periodically to measure the progress of individual students.

A Complex Mission

Training at the English Language Center is part of the US Foreign Military Sales (FMS) program. FMS contracts usually specify that the US will train foreign personnel to operate and maintain the equipment sold. The English Language Center teaches members of the foreign government's military services to comprehend the vast collection of reading materials, manuals, and other instructional devices associated with American weapons and military training.

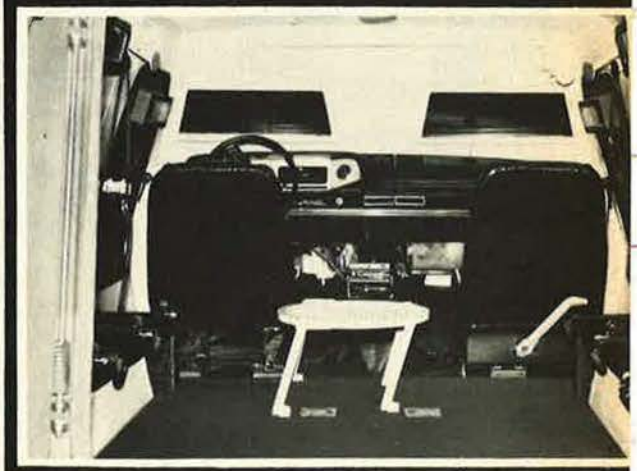
Center officials say that about ninety percent of the cost of teaching English is paid for by the foreign governments. The balance is handled through International Military Education and Training program as Grant Aid. The FMS price cover students' on-base quarters and tuition. Last year, about $2 million in base support costs were paid to the Lackland housing and utility accounts.

Students are taught enough English to attain a prescribed English comprehension level that will qualify them to enter one or more of the thousands of DoD courses offered to foreign nationals at more than 100 Army, Navy, and Air Force training installations. The nature of the advanced training determines the language proficiency required, and ranges from five to sixty weeks. Students also are taught technical vocabularies used in the advanced courses. This adds as much as seven weeks to the basic English course. Students spend an average of four hours in the classroom with an instructor and practice an additional two hours a day in a language laboratory equipped with individual recording and playback carrels, where they practice speaking, hearing, and reading English.

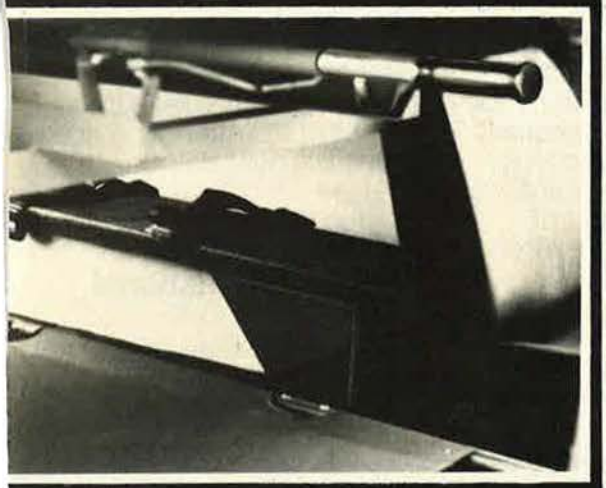
Besides teaching basic English skills, the Center conducts three courses designed to prepare foreign instructors to teach and manage English language training programs at military installations and schools

COMMANDO Ranger *Chosen . . .*

For The Safe And Effective Transport Of Troops And Equipment



Armored Personnel Carrier



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The Cadillac Gage Commando Ranger is the result of fifteen successful years of armored vehicle design and manufacturing. Its mission is safe highway transport with an off-the-road capability. The Commando Ranger offers ballistic protection, run-flat tires, automatic transmission, heater, and air-conditioning as standard features, while incorporating a proven and reliable 4 x 4 heavy-duty chassis. The Ranger extends the opportunity to move personnel effectively and safely.

It can also be configured as a command or turreted vehicle.

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A new beginning in flight research.

On Friday, July 27, at 8:07 A.M. a remotely piloted research aircraft making its maiden flight was launched from a B-52 45,000 feet above the test range at NASA's Hugh L. Dryden Flight Research Center at Edwards, California. The historic flight, termed excellent by NASA, commenced a test program designed to double the transonic maneuverability of U.S. fighter aircraft of the 1990s.

Built under a joint NASA/U.S. Air Force contract by Rockwell International's North American Aircraft Division, the 3,400-pound, half-scale, highly modular aircraft is known as HiMAT, for Highly Maneuverable Aircraft Technology.

The main emphasis of the HiMAT flight test program will be on high G maneuvers in the transonic flight envelope. This is the 600-800 mph range where superior aircraft performance is most difficult and significant — and where most fighter vs. fighter air combat occurs. In subsequent flight tests, the HiMAT aircraft is expected to demonstrate ability to sustain twice the turn rate of current fighters at both transonic and supersonic speeds.

HiMAT has bridged the gap between wind tunnel model testing, simulators and other ground tests and full-scale, man-rated systems. It's a direct transition from ground testing to flight testing of high-risk technology. The HiMAT is flying proof that the future of aviation is happening now, at Rockwell.

Rockwell International

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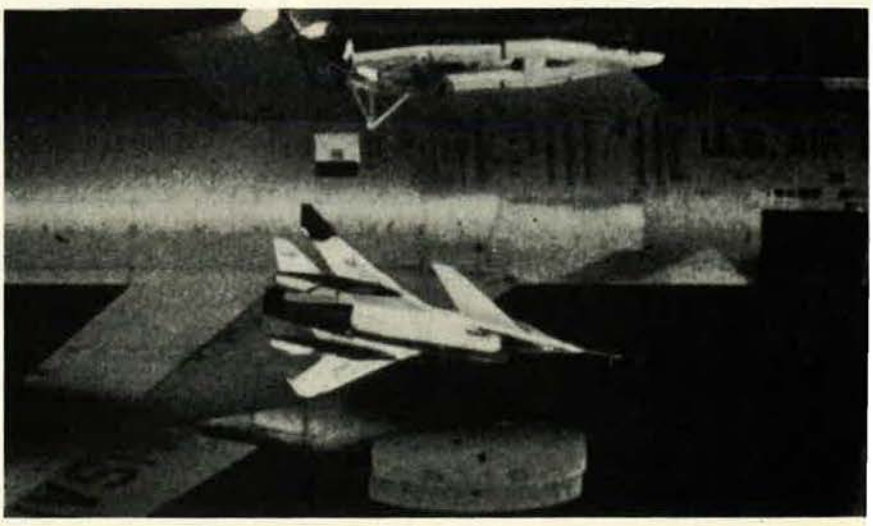


in their home countries. The English Language Center has helped establish fifty English language programs in foreign countries. The Center also sends consultant teams to visit foreign military English language schools overseas and to provide management clinics. The Center currently has nine overseas detachments that monitor English language programs in seven countries.

A lesser known part of the Center's operation is the development and distribution of teaching materials and testing instruments, published and marketed as "The American Language Course." Last year's sales of these books and tapes to foreign countries amounted to half a million dollars. In addition, the state of California purchased 200 sets to teach English to migrant workers.

Training Record

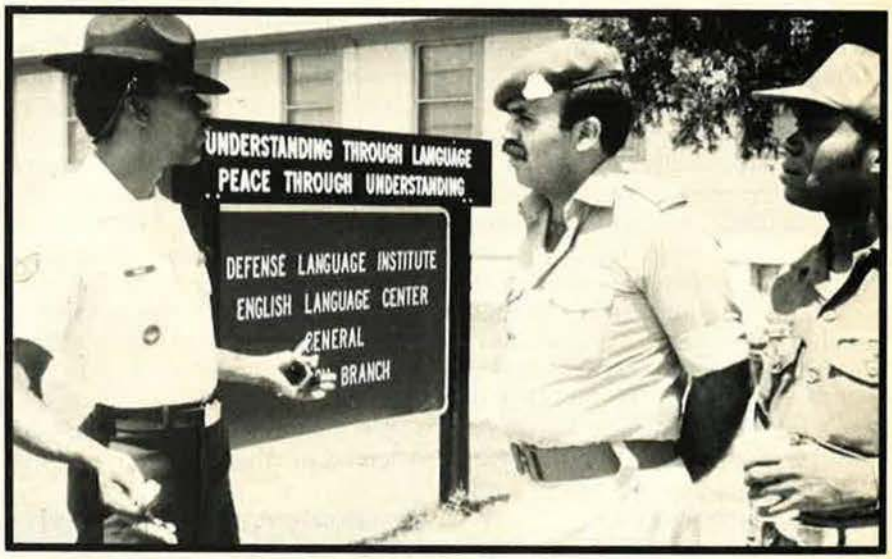
In its twenty-four years of operation, more than 34,000 military students from fifty nations have been trained at the Center. The Air Training Command became executive agent of the Center on October 1, 1976. Previously, it had been a part of the Army's Training and Doctrine Command (TRADOC), which still serves as executive agent of the DLI Foreign Language Center at Monterey, Calif., where US military personnel learn foreign languages.

The English Language Center's faculty and staff include 360 civilian employees and seventy military members divided among the Air Force, Army, and Navy. Instructors are Civil Service employees, with extensive experience in teaching English as a second language. Many instructors have graduate degrees, and a few hold doctorates.

The nature of the Center's student population makes for unique management problems, according to Lt. Col. Don Cosovac, Center Commandant. "While ours is a training mission, it's not a military training mission." Still, the Center maintains a strong military environment. Students are assigned to one of three student squadrons based on their country of origin. These squadrons are commanded by US officers in the grade of captain or major (or the equivalent). Each squadron commander is assisted by a Squadron Training Instructor (TI), a US Army, Navy, or Air Force NCO. The Center's TIs are distinguished from their counterparts in service BMT programs by a maroon "Smokey" hat, chosen to reflect the "purple-suit" image associated with Defense Department-level assignments. Training Instructors check for proper military bearing in the students and correct errors in courtesies and uniform wear. Students say the TIs are a readily available source of answers on Americana, and are often asked questions they would not ask of an instructor or a commissioned officer. The TIs are also willing to help the students practice their new vocabularies.

In the Mixed Country Squadron, officers and NCOs of different nationalities are billeted together, but Lt. Cmdr. James M. Scoggin, the Squadron Commander, told AIR FORCE Magazine this poses no problems. "Our students recognize the importance their governments place on their being here. They also know the obligation they have as visitors to the US to be a representative for their nation." Commander Scoggin said that "in the past, mixing officers and NCOs of the same nationality in the same section was a bigger concern." If an officer was unable to answer a question in class, an NCO would say that he, too, did not know the answer in order to avoid embarrassing his superior. Center officials say that is taken into consideration when assigning officers and NCOs of countries where this is a traditional practice.

Each country has its individual chain of command headed by a Country Liaison Officer (CLO) or



Above, training instructor SSgt. Ronald B. Smiley talks with students between classes. The TIs are NCOs from all branches of the US armed forces, and assist students with military, academic, and personal problems. Lower photo: Mrs. Betty Valdez conducts a class at the Institute. Taught entirely in English, the classes are small and mixed by nationality.

its senior student at the Center, usually a major or lieutenant colonel equivalent. These officers serve as administrators of their country's students in the San Antonio area. They also serve as a liaison between the students and their US commanders. American authorities have no court-martial or disciplinary jurisdiction over foreign students, so the CLOs also function in this role. They are assisted by the senior students who serve as spokespersons for their countries, attend to protocol obligations, assist in student disciplinary matters, and conduct additional training after hours as the home government deems appropriate. Off base, students are subject to the local civil laws.

Student Life

Preference for food and meal times varies considerably among the students, and the Center tries to cater to these differences. The dining hall is divided into separate officer and enlisted operations. No attempt is made to specialize in entrees peculiar to one nationality, but research has revealed a number of food preferences common among most students. Available at every meal are rice, fresh fruit, cooked and raw vegetables, ice cream, soft drinks, juices, milk, and cheese. Religious customs of several countries dictate that a purely vegetarian meal be available. The dining hall always offers a choice between highly seasoned and bland meat dishes, and uses only butter and vegetable oil for cooking.

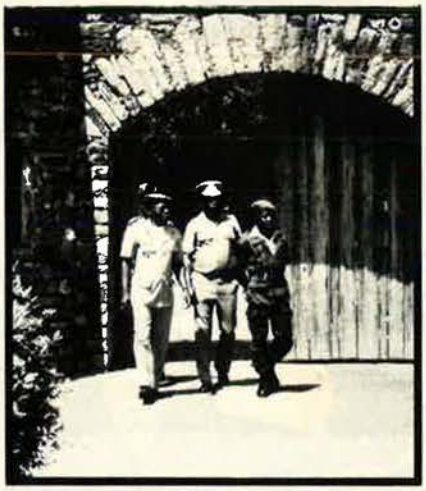
Only a few students are authorized by their home governments to own or operate motor vehicles while assigned at Lackland. Most who are allowed to own an automobile purchase a new, American-made model. Students' infatuation with autos, stereo equipment, and American clothes appears to be no different from American service members' buying habits during their overseas assignments.

Making students comfortable in their dealings with Americans off and on base is a major concern at the Center. Students are given distinctive name tags that bear their name, nationality, and military rank. Officers wear their American equivalent insignia on tags hung from their right breast pockets, thus alleviating some of the confusion associated with foreign insignia that resemble American insignia of a different rank.

The range of San Antonio's weather means that students from certain countries need summer and winter-weight uniforms not required in their home climates. In these cases, and others where replacement items are difficult to obtain from home, students are permitted to purchase and wear US military clothing, provided it is shorn of US buttons and devices. Still, it is a startling experience for an Air Force basic trainee at Lackland to meet a twenty-two-year-old officer wearing a blue, class "A" uniform and a flight cap sporting general officer braid and a single star—the insignia of a lieutenant in the Saudi Arabian Royal Air Force.

There is an abundance of evidence throughout the ELC campus that demonstrates the concern of the home nations for their students' welfare and morale. Recognizing the need for a new soccer field, foreign government funds were made available to build one near the students' dormitory. The field includes bleachers and an underground drainage system. The first floor of a dormitory was converted into a religious facility, where many students go for Moslem religious services.

The Center's curriculum includes orientation on American customs and such practical instruction as making purchases in retail stores, general pedestrian safety practices, and local laws on drinking and driving. Special emphasis is placed on dealing with US law enforcement officers. The Center also conducts seminars for the San Antonio Police Department on the various customs of the student's native countries. This program was started after a series of incidents when students responded to policemen in ways that would be considered routine in their own countries, but impolite in the US. There has never been an alcohol or drug problem with the foreign students at the Center.



Three DLI students visit the San Jose Mission near San Antonio. Students are taken on field trips that expose them to historic, cultural, and recreational aspects of American life.

Assisting the Center's formal orientation training is a special Lackland program called American Members of International Goodwill to Others, or AMIGO. AMIGO exists to make allied students and their families feel welcome during their stay in the US. Participation by guests and hosts is voluntary and is open to American service members, civilian employees, and local residents. Each host and hostess is given specific guidance concerning the customs and traditions of the students they sponsor. In turn, they provide their guests an opportunity to sample American customs. The Center sponsors monthly special AMIGO events including visits to dinner theaters, drag races, rodeos, parties, educational and sports events, and trips to neighboring Texas cities. A number of communities and San Antonio businesses, churches, civic clubs, and schools have AMIGO clubs.

The Center's role in US Foreign Military Sales programs makes it an instrument of US foreign policy. The size of the Center's enrollment and the distribution of nationalities change with the vicissitudes of international relationships. For example, after the Middle East peace agreement, the Center was alerted to expect more Egyptian students in the near future.

By its exterior appearance, the Center could easily be mistaken as another of the USAF training units at Lackland. However, a visit to the Center reveals the unique nature of its mission. The English Language Center has a prominent role in converting one of the many elements of US foreign policy into action. ■

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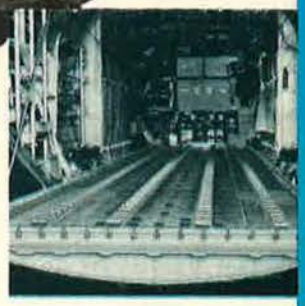
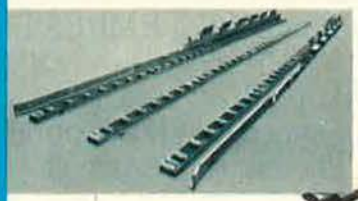
Worldwide airlift...the ability to quickly and effectively move necessary manpower and material to troubled areas regardless of terrain, climate or accessibility...is an important requirement in today's world. Brooks & Perkins has been the leader in designing, developing and manufacturing aircraft cargo equipment and restraint systems to provide greater expediency in air logistics and air delivery for over 15 years.



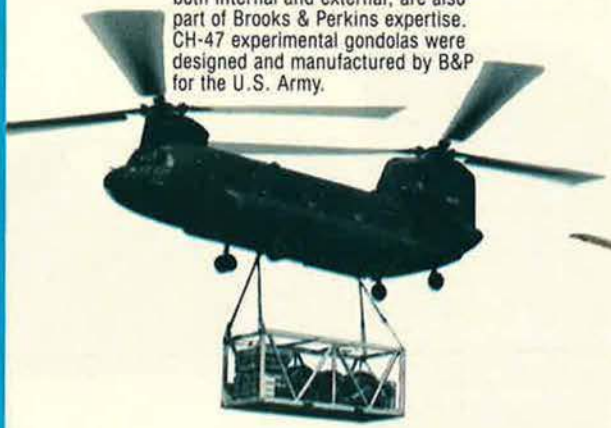
Most Lockheed C-130 "Hercules" in operation today feature a Brooks & Perkins cargo handling system. Latest is the Dash 4A System which is suited to all modes of cargo delivery...airland, high-altitude aerial delivery or low-altitude parachute extraction delivery (LAPES).



Brooks & Perkins has designed and produced the cargo handling system for the G-222, Aeritalia's STOL utility aircraft. This mock-up shows the dual rails with restraint locks and the roller conveyors.

Cargo handling systems and/or components by Brooks & Perkins are also in the C-141 Starlifter, C-5 Galaxy and deHavilland Buffalo. Recently, B&P has participated in the new USAF C-141B stretch program providing the cargo system fuselage plugs.

Helicopter cargo handling systems, both internal and external, are also part of Brooks & Perkins expertise. CH-47 experimental gondolas were designed and manufactured by B&P for the U.S. Army.



An internal dual-rail cargo handling system was developed and produced by B&P for the CH-53G (Germany) to increase cargo capacity and to provide rapid load/off-load capabilities. This system was recently demonstrated in a CH-53D for the U.S. Forces.

Future airlift requirements may be met by the unique features of a totally new prototype cargo system Brooks & Perkins has designed for the Boeing YC-14 AMST aircraft.

For more information on B&P's complete line of air cargo equipment, contact: Air Cargo Systems Group; 12633 Inkster Road; Livonia, MI 48150; (313) 522-2000.

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Both the 8A and 8B are available in rack mountable and ruggedized rack mountable configurations. Ruggedized rack mountable configurations meet military standards Shock MIL-S-901C and Vibration MIL-STD-167-1.

For computer-oriented multi-point systems requiring synchronous transmission, bisync protocol and clustering capability, there's our 40/8C. It operates in EBCDIC or ASCII and is compatible with 3270 host software.

Our newest member, the 40/8D, combines the local features of the message-oriented 8B with the bisync line control features of the computer-oriented 8C. The 8D is compatible with 3780 type host software. It can be switched between a synchronous multi-point ASCII system and an asynchronous point-to-point Baudot system.

And now our entire TEMPEST Family, from 40/8A through 40/8D, is on the SCOCE TQS Preferred Products List as having met all requirements of NACSEM 5100.

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Perspective
Comment & Opinion

By Capt. Ralph G. Hallenbeck, USAF, HANSCOM AFB, MASS.

USAF Organizational Development

"Do you have a problem or complaint?", a new poster on bulletin boards throughout the Air Force reads. It then goes on to list a plethora of grievance channels Air Force members can use to voice their specific problems. There are several difficulties and dangers inherent in this new emphasis on using grievance systems to solve personal and morale problems. *(See January '79 issue, p. 56.)* The primary danger is that it heightens expectations and offers false impressions of Air Force ability to solve personal problems.

No grievance channel can change the realities of the OER/APR processes, assignment policies, temporary duty, or pay and benefits. Today's complaints are largely with "the system." But commanders must deal within the policies and regulations of the system and, let's face it, so must everyone else. The answer then is to improve the system, or in management jargon, organization development (OD).

The goal of OD is to make the organization more effective by changing its structure and procedures to better achieve *both* the goals of the organization and the individual. It is a long-term scientific and systematic process whose key aspect is the *participation* of the organizational members. The following are my views on one way OD can be implemented to improve the system, and why we need it:

In 1976, I analyzed the Air Force Management Improvement Group (AFMIG) survey of civilian employees for my graduate thesis at AFIT. AFMIG was a special action group established in March 1975 by direction of the Chief of Staff with the charter to "make a good service better." A major portion of the AFMIG activity centered on designing and administering three large-scale surveys to 10,996 military, 10,637 military spouses, and 17,110 civilian Air Force employees. Two of the AFMIG members were instructors at AFIT (Lt. Col. Roger Manley and Lt. Col. "Chuck" McNichols). These two officers and their students validated the application of some powerful computer methods to analysis of the surveys. My experience with the AFMIG surveys convinced me the following was a workable and extremely cost-effective form of OD.

1. AFMIG-type surveys can be administered on the local level and centrally processed (AFIT has existing facilities and programs for central processing). The logical candidate to administer surveys and study problems on the local level is the respective Social Actions Office.

2. The same survey information can be compiled and analyzed in the aggregate to provide information to the Air Staff or MPC regarding service-wide policies and procedures.

3. The attitudes and suggestions of Air Force personnel could thereby be consulted before implementing new policies and procedures. Survey results not only can help design better systems, but can help anticipate problems in many cases.

4. Survey results would be widely disseminated. Local survey results would be published in the base newspaper and service-wide results in *Air Force Times* and AIR FORCE Magazine. Everyone could refer to an Air Force baseline.

5. Some organization such as the Leadership and Management Development Center (LMDC) would become responsible for the long-range planning of organizational development. LMDC's location at Air University would provide the advantage of utilizing the inputs of SOS, ACSC, and Air War College students. (These are vast and underutilized resources.) This expertise would be supplemented by AFIT students.

What I have roughly outlined here is a framework for Air Force organizational development. Although the resources and framework already exist, it would obviously take some high-level guidance to define and implement such a scheme. In arguing for OD, I would like to pose the following as consequences of not having some form of OD:

1. A lack of data for advocacy of Air Force policies and programs, resulting in congressionally imposed policies.

2. Uninformed decision-making and a lack of feedback between leaders and followers resulting in an adversary relationship.

3. Further alienation of service members and increased feelings they can have no voice in the determination of their career policies. Increased demands of special factions (pilots, engineers, doctors, Air Staff) for exceptional treatment.

4. Underutilization of the vast talent and knowledge of the Air Force people who might have a better idea.

5. A vicious circle wherein personnel shortages lead to increased demands on key people which leads to more resignations.

6. Institutionalization of the "organizational man" who fills the squares, doesn't rock the boat, covers his six o'clock, and spends his career gaming the system instead of trying to improve it.

I believe I could make a good case that the above consequences are really current-day realities. Grievance systems cannot solve these problems and may aggravate them. Organizational development offers a structured approach to problem-solving which involves *participation* of Air Force people and fosters the idea that they are part of "the system."

OD is being used by several large corporations. It would require no new personnel, no new facilities, and few implementation costs. Making a better Air Force is a *joint* responsibility. Getting better requires getting people involved.

Captain Hallenbeck is at present an Acquisition Project Officer in the E-3A System Program Office at Hanscom AFB, Mass., an assignment he has held since 1976. A 1969 graduate of the Air Force Academy and then an assistant football coach at the Academy, he served in Vietnam in 1971–72 as an O-2A Forward Air Controller. He spent the next three years as a T-38 instructor pilot at Williams AFB, Ariz., before earning his MS degree in Systems Management at AFIT, Wright-Patterson AFB, Ohio.

Airman's Bookshelf

The President's Plane

The Flying White House, by J. F. terHorst & Col. Ralph Albertazzie. Coward, McCann & Geoghegan, Inc., New York, N. Y., 1979. 350 pages. $11.95.

The authors have written a fascinating account of the growing love affair of the White House with aviation.

Jerry terHorst is a former White House Press Secretary for President Ford, and Ralph Albertazzie was the pilot for the "Flying White House" during the Nixon Administration.

The two detail the planes, the pilots, and the historical events that are a part of the story of Air Force One, the radio call sign for a plane in which the US President is flying.

Building on their own experience with interviews and research, the authors have developed a detailed record of the "Flying White House," from Franklin D. Roosevelt to Jimmy Carter. It is a fascinating story for anyone with an interest in flying or presidential history.

Roosevelt was the first Chief Executive to travel by air and the first to fly abroad. He achieved these distinctions in January 1943 when he flew in the Dixie Clipper from Miami to Casablanca in North Africa to meet with Prime Minister Churchill and Allied military leaders to plan the invasion of southern Europe.

It was his Republican cousin, Theodore Roosevelt, who was the first President to fly, however. The airplane was only a few years old in 1910 when Teddy, nineteen months out of office, flew in an aircraft built by Orville and Wilbur Wright. In the years since, flight has written many chapters in presidential history.

The book records the round-the-world flights of Lyndon Johnson and Richard Nixon, and the flight by Harry Truman to the famous meeting with General MacArthur on Wake Island. It reports that in October 1963, President Kennedy decided while on Air Force One to sell American wheat to the Soviet Union as a step toward improved relations.

President Nixon, according to John Dean, dictated a memo to his secretary during a flight suggesting that Charles Colson "check on" Democratic National Chairman Larry O'Brien's business affairs. Dean suggests the memo may have started the chain of events that led to the break-in at the Watergate offices of the Democratic National Committee in the spring of 1972.

Light moments also are recorded.

The book reports President Truman's order to buzz the White House, not once, but twice. It occurred during a jet-fighter demonstration over Washington that had brought Mrs. Truman and her daughter to the White House roof.

When President Truman asked whether the plane could "dive on them" like a jet fighter, his pilot, Lt. Col. Henry Myers, said somebody would "catch hell for it."

"I've got broad shoulders," Truman replied.

Through Air Force One, the President has been freed to perform duties and ceremonies that otherwise would be impossible or at least extremely inconvenient. President Johnson flew to Australia to attend a funeral. Nixon flew to China for an unprecedented series of talks with the leaders of Communist China. Today, it is routine for the President to fly across the country, attend a function, and fly back to the White House the same day.

The aerial trips of Presidents are remarkable when it is realized that no President traveled abroad until Theodore Roosevelt sailed to Panama in 1906. And no President before FDR traveled outside the continental limits of the United States more than once.

The Military Airlift Command's Special Air Missions unit at Andrews Air Force Base outside of Washington, D. C., by providing the planes and crews for such trips, gives the President an invaluable assist in his conduct of national and world affairs.

—Reviewed by Bonner Day, Senior Editor.

Reflections on Airpower

Air Power in the Next Generation, edited by Dr. Edgar J. Feuchtwanger and Group Capt. R. A. Mason, with articles by Lt. Gen. Ernst-Dieter Bernhard, Air Chief Marshal Sir Neil Cameron, Prof. John Erickson, Air Vice Marshal John A. Gilbert, David E. Greenwood, Maj. Gen. Lloyd R. Leavitt, Jr., Air Chief Marshal Sir Frederick Rosier, Brig. Gen. Raphael Sivron, John T. Stamper, and David Tidy. The Macmillan Press Ltd., London, England, 1979. 151 pages with glossary, index, and photographs. About $23.

These papers are the result of a symposium, held at the University of Southampton in cooperation with the Royal Air Force Staff College, that focused on the economic, political, technological, and strategic environment in which the Royal Air Force might be operating in the future.

The discussions have a strongly European flavor, with emphasis on NATO vis-à-vis the Warsaw Pact. Each paper is a complete statement, yet the ten chapters hold together well.

Early chapters contain some interesting observations on the basics of airpower. Cameron thinks air operations should be viewed from the aspect of the "ends rather than means," and suggests this definition of airpower: "The use of the air to project power."

Greenwood reviews economic constraints to examine the size, shape, equipment, and deployment of the United Kingdom's future contribution to NATO's air order of battle. He notes that national security is only one of society's objectives and must compete through the "political adjudication of the resource claims for all purposes." The military services of the United Kingdom are unlikely to receive increased budget allocations in the foreseeable future; "the United Kingdom may not in the future be able to contribute a 'full spectrum' tactical air force to NATO's order of battle." Tidy further amplifies budgetary constraints as they apply to doctrinal concepts.

Many on this side of the Atlantic will find interesting Erickson's "The Expansion of Soviet Air Power," Leavitt's "Lessons from South-East Asia," and Sivron's "Air Power and Yom Kippur."

Sivron believes that the Israeli experience in the Yom Kippur War proves that air forces have not been rendered obsolete or even ineffective by modern air defense systems.

Leavitt discusses a wide range of topics relating to air strategy during the Vietnam War, then makes this startling observation: "In a democratic society, you must relate with and influence the press. The low profile which we attempted to acquire during our years in Vietnam was a self-defeating profile. I do not believe you can fight a war in a democracy without open press coverage. . . ."

Erickson gives an overview of the expansion of Soviet airpower, including some useful analysis of both Soviet weapons and doctrine.

The remaining chapters discuss airpower and weapon technology, the changing operational environment, and some airpower options for the future. This slim book may seem short on pages, but it is rich in variety and depth.

—Reviewed by Maj. Gene E. Townsend, USAF, Contributing Editor.

New Books in Brief

The Clouded Lens, by James H. Noyes. A former Deputy Assistant Secretary of Defense for Near Eastern, African, and South Asian Affairs says misunderstanding of American policy in the Persian Gulf is threatening a healthy interdependence between the US and the Gulf countries. He exposes the myth that Gulf leaders are medieval tyrants and demonstrates that the legitimate defense concerns of the Gulf states have made them increasingly dependent on the financial health and stability of the West. Notes, bibliography, index. Hoover Institution Press, Stanford University, Stanford, Calif., 1979. 144 pages. $6.95.

Getting Off the Ground: The Pioneers of Aviation Speak for Themselves, by George Vecsey and George C. Dade. The "greats" in aviation—from T. Claude Ryan to John K. Northrop—offer their own views of a thrilling era. Barnstormers, stuntmen, pilots, World War I aces, designers, stewardesses, and parachutists reminisce about the early days. Photographs, index. E. P. Dutton, New York, N. Y., 1979. 304 pages. $12.95.

Happy Jack's Go-Buggy, by Jack Ilfrey. This memoir of a US fighter pilot's experiences during World War II has been praised by General Doolittle as "readable, interesting, and provocative." The introduction, written by Eddie Rickenbacker while the book was still in manuscript form, says the book has the "freshness, the unadulterated ideals, the patriotism, the excitement that only a twenty-one-year-old shavetail second lieutenant could feel going off to war." The author, who destroyed six German aircraft in North Africa and two in Europe, wrote the book in 1946. Flying Aces' Enterprises, 127 Lewis St., San Antonio, Tex. 78212, 1979. 210 pages. $9.45.

HERK: Hero of the Skies, by Joseph Earl Dabney. This year marks the

Airman's Bookshelf

twenty-fifth anniversary of the first flight of the C-130 Hercules, the versatile Air Force transport. Here is the story, much of it told by "Herk" pilots, from development through Vietnam to its present use in forty-five countries. Photographs, appendix. Copple House Books, Lakemont, Ga., 1979. 416 pages. $12.95.

Jeppesen/Sanderson Aviation Yearbook 1979, edited by Gordon Girod, a former faculty member of the Air Force Academy. Significant aerospace events that occurred in 1978 are detailed in this annual reference. It contains articles reprinted from several aviation publications, including AIR FORCE Magazine, on general, commercial, military, and sport aviation activities. Color photos, index. Jeppesen Sanderson Inc., Denver, Colo., 1979. 442 pages. $14.95.

Man in Flight: Biomedical Achievements in Aerospace, by Eloise Engle and Arnold Lott. Oysters played a role in America's space program. They didn't go to the moon, but they were injected with lunar material from the Apollo flights to determine ill effects. This highly readable book, commemorating the fiftieth anniversary of the Aerospace Medical Association, probes a "young" science that was born in the balloon age: aerospace medicine. Chapters cover physiological problems of spaceflight, the use of animals in space medicine research, and accounts by physicians, scientists, and pilots on experiments they conducted on themselves. Photos, chronology, bibliography, index. Leeward Publications, Inc., Annapolis, Md., 1979. 400 pages. $16.95.

A Matter of Two Chinas, by William R. Kintner and John F. Cooper. The Carter Administration violated the first rule of diplomacy, the authors contend, when it announced a new policy: recognition of the People's Republic of China and "de-recognition" of the Republic of China. That rule is: Don't give something away without getting something in return. In this analysis of America's China policy, the authors discuss the political and moral implications of the new policy and demonstrate how the US can salvage credibility and reassure its allies. Foreign Policy Research Institute, 3508 Market St., Science Center, Philadelphia, Pa. 19104, 1979. 127 pages. $6.

The Myth of Victory: What Is Victory in War?, by Richard Hobbs. The author, who has combined active military service with a career in international relations, wrestles with one of society's greatest problems: the need for reconciliation between the democratic dislike of war and the appropriate use of the military instrument in world politics. Analyzing victory in past wars, he looks at differing concepts of victory in the world today. Victory, he concludes, is a function of the political objective attained and the price paid. Victory is not an end in itself, but simply a means to other

ends of policy. Notes, appendix, bibliography, index. Westview Press, Boulder, Colo., 1979. 566 pages. $25.

Securing the Seas: The Soviet Naval Challenge and Western Alliance Options, by Paul H. Nitze, Leonard Sullivan, Jr., and the Atlantic Council Working Group. A distinguished group of knowledgeable Americans, hand-picked by former Deputy Secretary of Defense Paul Nitze, met over a two-year period to consider the projected threats to free use of the seas. The group traced the evolution of Soviet and US naval forces and looked at the relative strengths and interdependence of Western Alliance and Communist Bloc economies. They considered the growing significance of Third World navies and developed possible crises and wartime missions in all major naval theaters for both conventional and nuclear wars. The group presents twenty-one sets of recommendations to meet the Soviet naval challenge. Photos, appendix, notes. Westview Press, Boulder, Colo., 1979. 464 pages. $24.

Strategic Survey 1978, by the editors of the International Institute for Strategic Studies. In this reference book on international military trends, the editors conclude that the year saw "the growing pluralism and diversity of the international scene, the diffusion of power, and the inability of the major countries to shape and control events." The book includes a summary essay, "Perspectives," chapters on "New Factors in Security," "The Super-Powers," and "Arms Control." Each major geographical area is examined for military trends. A valuable reference is the chronology section, which records significant security events around the world. The International Institute for Strategic Studies, London, England, 1979. 140 pages. $6.

25th Anniversary Pictorial History of the Air Force Academy, edited by Burt Andrus. Highlights in pictures of the Academy's first quarter century, including an appreciation by Gen. T. R. Milton, USAF (Ret.), ten illustrations by aviation artist Keith Ferris, and a full-page contribution by cartoonist and artist Milt Caniff. Association of Graduates, USAFA, Colo. 80840, 1979. 250 pages. $25.

United States Diplomatic Codes and Ciphers, 1775–1938, by Ralph E. Weber. A reference on American diplomatic cryptography, from the American Revolution through the late 1930s. These secret systems masked confidential diplomatic correspondence and reports. Codes and ciphers published in this book will enable historians to read secret State Department dispatches before 1876, and to understand code designs after that time. Appendix, index. Precedent Publishing Inc., Chicago, Ill., 1979. 633 pages. $49.95.

U. S. Policy Toward Korea: Analysis, Alternatives, and Recommendations, by Nathan N. White. The author, who is a fellow at the Institute for Sino-Soviet Studies, George Washington University, Washington, D. C., offers four options for US policy toward South Korea and evaluates the case for each. Appendix. Westview Press, Boulder, Colo., 1979. 231 pages. $17.

—Reviewed by Robin Whittle

The Bulletin Board

Pay Talk, Not Action, Escalates

The Defense Department in late July finally sent to Congress its long-pending plan to overhaul the retirement system, and at the same time announced formation of still another pay study. The new probe will look at special and incentive-type pays as well as the adequacy of military compensation generally. It may last six months.

But in announcing the compensation study, Assistant Secretary of Defense (Manpower, Reserve Affairs and Logistics) Robert B. Pirie, Jr., said it will also focus on the pay of new recruits. A hefty raise for them, which some authorities feel is needed to meet manpower requirements, could make adequate future raises for careerists more difficult to obtain.

Meanwhile, the services' campaign for a larger than 5.5 percent general raise next month seems to have fizzled. Defense Secretary Harold Brown squelched it when he told the services to support the Administration.

Also in mid-summer, the Air Force's push for a fifty percent flight pay boost remained bogged down in the Pentagon. With DoD's new pay study under way—it includes an examination of flight pay—it seems likely to remain that way. However, Mr. Pirie didn't rule out reasonably early action on USAF's proposal. He told AIR FORCE Magazine, though, that USAF is looking for a "short-range" solution to the pilot-retention problem while his DoD probe will center on the "long-term" aspects of flying pay.

Secretary Brown convened a news conference to bless the proposed Uniformed Services Retirement Benefits Act (USRBA), which has been more than two years in the making (and has been outlined in recent "Bulletin Board" columns). Dr. Brown lauded USRBA's "early withdrawal option" under which members could draw benefits with as little as ten years' service. Many current service people will choose the USRBA provisions if it is enacted into law, he predicted.

To help sell the active-duty force on USRBA, Defense is distributing throughout the military community hundreds of thousands of copies of a specially prepared twelve-page pamphlet outlining the provisions.

The USRBA faces opposition from Capitol Hill because it will increase, not decrease, military retirement outlays until the early 2000s. Rep. Les Aspin (D-Wis.) unloaded a salvo the same day Secretary Brown sent the USRBA package to Capitol Hill. Mr. Aspin said it still offers a "pot of gold" after twenty years on the job and encourages people to drop out of service in their late thirties and early forties. He also hit the "free ride" he said careerists get by not having to contribute "toward one of the most lavish pension schemes in the world."

There has been a bewildering succession of pay commissions, quadrennial reviews, and other military compensation studies over the past twenty years. Most fell on their faces and, almost without exception, were shelved. About the only recommendations to become law were those of the Second Quadrennial Review, in 1971, advocating more money for military doctors and a modest increase in flying pay.

Though the previous pay studies' track record is poor, it's just possible Defense's new pay probe may achieve some results. It is primarily an in-house probe, headed by Secretary Pirie, but the principal day-to-day players are active-duty compensation experts. Two of the main ones are USAF Cols. Leon Hirsh, the DoD Director of Compensation, and Paul Arcari, the Hq. USAF Entitlements Division chief. Both can be expected to make strong pitches for improving pay levels.

Veteran observers of the military pay scene have yet to see any major compensation study meet its original completion target date. Accordingly, there is considerable doubt that the Pirie group will complete its work by the end of this year as it says it intends to do.

Secretary Pirie, in announcing the new study, said he was concerned with the "effect of the rising minimum wage on entry-level pay." In 1975, he said, basic pay for a recruit was 115 percent of the minimum wage; today it is eighty-three percent and, with built-in minimum wage boosts and a projected 5.5 percent military pay raise coming up, recruit pay could be only eighty percent of the minimum wage by 1981.

Comptroller Jumps into Pay Act

Comptroller General of the US Elmer B. Staats has jumped into the confused military compensation picture. Mr. Staats, who heads the General Accounting Office, wants Congress to establish a permanent independent military compensation board. He said it should be free from the pressure of parties having a strong interest in the results. It would evaluate alternative solutions, propose legislation to Congress, and "continuously monitor" the pay system, he declared in a recent report. The Defense Department disagreed with the Staats proposal, saying it didn't want a "headless fourth branch of the government" interjecting itself into DoD operations.

Retirees Get 6.9 Percent Raise

Retired military personnel and federal employees received a 6.9 percent CPI pension increase September 1, payable October 1. Combined with the 3.9 percent CPI boost they received in March, the yearly hike comes to 10.8 percent. Active-duty members and federal workers, whose pay is not tied to CPI, are being held to a probable 5.5 percent increase again this year.

This "depressed" active-duty raise combined with the retirees' twice-a-year increase is making early retirement more attractive. Near-retirees can visualize retired pay as large or larger than their active-duty paychecks. At press time, the plan to give retirees one annual CPI raise instead of the present two was being debated on Capitol Hill.

Earned Income Credit Pay Set

Service members in the US whose annual gross income (including spouse's income) is under $10,000

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can now, if they meet the complicated eligibility rules, collect earned income credit (EIC) advance payments. The maximum EIC pay is $41.67 per month.

The program stems from the Revenue Act of 1978. It provides that employers, *e.g.*, Uncle Sam, must make advance payments of the EIC with wages paid after June 30, 1979, to qualified employees (members) who request it from them by filing the necessary forms.

The Air Force advises members to check out the rules and procedures for filing with base accounting and finance offices. Persons who receive advance EIC and later find they are not eligible will have to pay it back when they file their annual income tax returns.

Agent Orange Probes Intensify

The controversy erupted in March 1978 when a Chicago TV program suggested strongly that servicemen exposed to Agent Orange (AO) in Vietnam between 1962 and 1971 are subject to a variety of serious health problems. AO is one of the herbicides used to destroy tall grass and defoliate trees, thus erasing enemy hiding spots.

Thousands of queries and hundreds of claims for disability compensation from former 'Nam veterans have since poured into the Veterans Administration. Interestingly, virtually none of the claims is from so-called "Ranch Hand" personnel, USAF

AFA Believes . . .

Flaws in the Survivor Benefit Plan

One government program is making a profit for Uncle Sam. That profit, now running into hundreds of millions of dollars, is at the expense of retired military people, especially at the expense of those who can least afford it—the retired enlisted group. The program is the Survivor Benefit Plan (SBP).

This shocking assessment of the program emerged during hearings held in late summer by the Manpower and Personnel Subcommittee of the Senate Armed Services Committee, on Sen. Strom Thurmond's bill, S. 91, proposing legislation to improve SBP. AFA and other military associations submitted testimony supporting badly needed improvements in the survivor plan.

How could this disgraceful SBP situation have happened? An answer to that crucial question was provided at the hearings by Richard Danzig, DoD's Acting Principal Deputy Assistant Secretary for Manpower, who stated:

". . . the present . . . plan provides that the annuities that would otherwise accrue to survivors must be reduced at age 62. The offset is measured by 100% of the amount of Social Security receipts that the survivor would be entitled to as a result of the deceased's contributions to Social Security during his or her military service. However appropriate or inappropriate this policy was at the time of its enactment in 1972 [*AFA cautioned against inclusion of this offset at that time*], it raises two serious difficulties at present.

"First, as a result both of the radical readjustment in Social Security benefits effective on the first of the year and the more gradual annual adjustments of those benefits to keep pace with real wage growth, this offset has bit more and more deeply into the value of the survivor benefit program with each passing year. I understand that the legislative history suggests . . . a Congressional intent to structure the survivor benefit program so that 60% of the costs would be borne by the participating member (in the form of reduced retirement annuities during his or her lifetime) and 40% by the government.

"As the Social Security offset has swelled, the costs of the program have proportionately declined. Because, however, the premiums for participation are legislatively set, the percentage of the cost borne by the member has steadily risen. We now estimate to our dismay, that . . . officers bear some 76% of the cost of their participation and enlisted members pay some 110% of these costs. The enlisted proportion is particularly high because their lower retirement annuities are more heavily decremented by the relatively higher Social Security payments. Our present distress about this situation is compounded by projections suggesting that enlisted payouts may rise as high as to 236% of these costs of the program by 1987.

"Second, the variable nature of the Social Security offset is distressing because it makes uncertain all calculations of the future offset, and, therefore, masks the true value of participation in the Survivors Benefit Program . . . ."

If we read these and other associated figures correctly, it means that the government not only is paying nothing on the costs of SBP, but in fact is reaping a windfall profit ($800 million in the past six years, estimated to increase to $4 billion by the year 2000) that goes into the general fund to be used for whatever purposes the budgeteers decide.

As Mr. Danzig pointed out, there are several reasons for this sorry state of affairs—but, in our estimation, no good reason why the government did not take corrective action long ago.

To take an extreme example of the inequities now present in the SBP program, let's look at the plight of an enlisted widow whose husband retired in 1973 and elected to participate in the SBP at the minimum base level of $300, which would then have provided a monthly survivor's annuity of $165. His contribution at the outset was $7.50 a month. Now assume that he dies in 1990 when his spouse reaches the age of sixty-two. By that time, based on current projections of inflation and CPI increases, his adjusted monthly cost will have risen to $53.54 and the projected monthly annuity to $418.21. However, at the widow's age sixty-two, the Social Security offset becomes effective. Her SBP annuity will accordingly be reduced by $342 a month (the projected Social Security annuity in 1990), and she will receive from SBP $76 a month rather than the $418.21 a month on which her husband's SBP contributions were based.

Needed now is swift action on passage of S. 91 which, while not a final solution, at least would move the SBP back to its original relative value and, in the words of a DoD spokesman, "restore the government's part of the bargain to that state which current participants believed it was when they signed up." Dod has stated that it will support S. 91. The House, in past Congresses, has twice passed similar legislation overwhelmingly. We trust the Senate will move out smartly on S. 91 before concerns for reelection start jamming calendars.

AFA believes there is no reason for further delay. As we said in our testimony, "It is ironic that a program originally intended to provide survivor benefit protection to those military retirees who need it most . . . contains so many provisions deterring them from participation in the program."

The Survivor Benefit Plan as it now stands was characterized in the hearings as possessing "debilitating flaws" and, in more graphic language, as a "ripoff." We submit, and would hope that the Congress would agree, that the US government cannot, in good conscience, continue to make a "profit" at the expense of military retirees and their survivors.

—JAMES A. McDONNELL, JR.

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New affiliation

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members who sprayed the chemicals and were the most heavily exposed group. Some of them were drenched by AO.

Health problems other veterans worry about include cancer, hand tremors, impotence, producing deformed children, psychological woes, and a skin condition called chloracne. Government agencies have been searching for a link between exposure to AO and the present or future health of those veterans and their offspring.

So far, they haven't found one. "There is no conclusive scientific evidence . . . that any of the symptoms, other than chloracne, are related to any of the chemical components of Agent Orange or other herbicides used in Vietnam," according to the Veterans Administration. It adds that chloracne, a skin rash, is not serious and is of short duration.

VA officials say the agency has examined more than 2,000 veterans purporting to be victims of Agent Orange. Its numerous other studies of the problem include a computer analysis of medical data generated through treatment of 1,200,000 patients a year, seeking to spot any common medical problems possibly due to herbicide exposure. Other agencies probing human exposure to herbicides include the Department of Health, Education and Welfare and the National Academy of Sciences.

But critics—Vietnam veterans, members of Congress, and others—accuse the government of foot-dragging. They score VA's refusal to approve disability compensation claims from veterans exposed to AO. There's not time to wait for lengthy government studies, according to Rep. David E. Bonior (D-Mich.), himself a Vietnam-era veteran who heads the Vietnam Era Veterans in Congress. The government "must presume presumptive disability," Mr. Bonior declares.

Other veterans told a recent congressional hearing that their exposure to AO in 'Nam resulted in a variety of health problems. One claimed his exposure to AO resulted in his daughters' now suffering "skin rashes, muscle cramps, and a tumor of the face and hypertension."

Another attributed the multiple birth defects suffered by his daughter who was born in 1971 to his exposure six years earlier. Others made similar allegations. The Dow Chemical Co. reports that it and other corporations that manufactured AO are fighting twenty-two lawsuits filed by Vietnam veterans. Dow, like the government, says there is no evidence that the herbicides are injurious to health.

Critics, who say there is no proof that Agent Orange does not cause problems, contend the government should pay the compensation claims. VA's response is that in order to compensate a vet for permanent disabilities caused by military service, "there must . . . be a disability or symptom, not just a fear of one. There must also be a logical basis for a presumption that a given disability had its inception during the individual's military service."

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The Air Force, meanwhile, is about to jump headlong into the dispute by launching an exhaustive study of the health of the 1,200 Ranch Hand members. Starting next month, detailed medical questionnaires will be sent to them, and later they will receive physical exams at Brooks AFB, Tex. Follow-up physicals will be given in subsequent years. Throughout the study, expected to last six years, USAF will match the Ranch Hand data against an 1,800-member control group of similar age and ethnic characteristics but who were not exposed to AO.

While critics contend six years is too long to wait for answers, Air Force officials expect to come up with some "preliminary findings" in about a year.

Compensation, DIC Hikes Near

The House has approved an 8.3 percent boost in veterans' disability compensation and survivors' dependency-indemnity compensation, while the Senate Veterans Affairs Committee has endorsed a 10.7 percent raise in both stipends. The full Senate is expected to approve the latter figure, after which a final compromise figure of around 9.5 percent is anticipated. The raise will be effective October 1. Recipients include 2,265,000 veterans with permanent service-connected disabilities and 323,515 surviving spouses and children of veterans who have died of service-connected causes.

Congress, for some unknown reason, does not tie disability comp and DIC payments to the CPI. Instead, it goes through the laborious task of voting an increase each year which is close to the actual CPI index.

DOPMA Revived in Senate

The long-stalled Defense Officer Personnel Management Act (DOPMA) got partially untracked in midsummer when a Senate Armed Services subcommittee finally held hearings and prepared to report out an amended version.

The subcommittee's major changes remove some teeth from the up-or-out rules and authorize selective continuation of passed-over officers, reduce the number of senior officers, allow some non-Regulars on active duty after the eleventh year of service, and require Academy graduates to serve two years before receiving Regular commissions.

The changes, however, are subject to modification or removal when the full Senate acts and sends the measure to the House Armed Services Committee. Twice previously, the House has approved the Pentagon's version of DOPMA without significant change.

Time is becoming a factor in the DOPMA stakes. The measure contains the permanent grade tables the Air Force requires by the end of September, when its present temporary promotion authority expires. As reported in the July "Bulletin Board," a substitute bill allowing a simple extension of the present grade table was waiting in the wings in case DOPMA fails again.

The up-or-out amendments do not upset the services as much as previously. Air Force, in fact, has just offered continued active duty to 100 non-Regular officers who have suffered their second passover to temporary major. Half of them are pilots, navigators, and engineers. Present law, of course, prohibits retention of Regulars twice deferred for permanent promotion.

Wilson: Reinstate GI Education Benefits

"The old wartime GI Bill should never have been allowed to expire," Rep. Bob Wilson (R-Calif.) told the House recently. So he promptly introduced H.R. 4647, which restores most of the educational benefits and supersedes the unpopular Veterans Educational Assistance Program

Ed Gates . . . Speaking of People

The Warrant Officer Wrangle

A powerful element of Congress, the House Appropriations subcommittee that handles military funds, has spent considerable time the past year, and some before that, badgering the Air Force to appoint its physician assistants (PAs) as warrant officers, instead of commissioning them. USAF has resisted strongly.

The lawmakers on the purse-string group want to save money, a worthy aim. But they mistakenly believe that because of the lower pay and eventually reduced retirement outlays, WOs would cost the government less than officer PAs and do a commendable job in the process. The Air Force disagrees. However, the Defense Department and the other services are in the pro-PA warrant officer camp, leaving the Air Force without allies.

The lawmakers, in more recent months, also seem to have become enamored with the idea of making future USAF pilots warrant officers instead of second lieutenants. More money saving, supposedly.

A bombshell exploded in July when, in its mark-up of the FY '80 military spending bill, the subcommittee decided that future Air Force PAs and five percent of next year's new pilots and navigators must be given warrant, not commissioned, status.

The PA move was not wholly unexpected. The pilot-nav action was a shocker, and Hq. USAF officials are determined that the order must be overturned before the full measure completes the legislative cycle. They promptly began explaining to other influential congressmen and their aides how a part-commissioned, part-warrant officer rated force could lead to all kinds of troubles. They view the five percent rated WO increment—that's seventy-nine of planned FY '80 Undergraduate Pilot Training production—as a pro-WO foot in the door that would grow to disastrous proportions.

Management, procurement, training, promotion, and retention problems would escalate, Air Force leaders say. Pilot retention, now at an all-time low, would skid even further under a rated force containing warrant officers.

As for commissioned physician assistants, USAF has about 380 of them and, based on earlier Defense Department approval, had promised to commission a smaller group now in training. These plans are now in a shambles due to the subcommittee declaration; the turmoil in USAF medical circles is doubtless at a very high level.

Air Force Surgeon General Lt. Gen. Paul W. Myers has been telling Congress and anyone else who will listen that his PAs are doing a tremendous job. In a typical outpatient clinic, they can "handle eighty percent of the people who walk through the door," General Myers declares. Other sources go even further, claiming that without the PAs to help plug the physician shortage in recent years, the Air Force medical establishment would be in near collapse.

How can nurses get commissions and PAs not, other quarters ask in wonderment at the anti-PA fire. That the PAs rate commissions is easily demonstrated, yet the other services don't see it that

(VEAP) that applies to persons entering service in 1977 and thereafter. H.R. 4647 provides a maximum of thirty-six months of educational assistance.

To cash in on the Wilson measure, a person must complete two years of honorable service. AFA regards this as an excellent improvement over the old GI Bill which covered all persons "released under conditions other than dishonorable."

Mr. Wilson, underscoring the importance of education as an enlistment incentive, pointed out recent Air Force recruiting shortfalls. Other new personnel bills include:

- **S. 1426** (Dole, R-Kan.) would allow enlisted members honorably discharged after being involuntarily released from service or denied reenlistment to exclude from their income taxes "a constructive amount that they would have received if entitled to severance pay." Dole hit the Pentagon for paying severance money to civilians and military officers but not enlisted people.
- **H.R. 4643** (Solar, D-N. Y.) would extend veterans health care eligibility to members of the armed forces of Poland, Czechoslovakia, and the Soviet Union in World Wars I and II who are lawful permanent residents of the United States.
- **S. 1354** (Cohen, R-Me., and others) would force the President to send Congress a report on the manpower needs of the services. The report would include recommendations for legislation needed to ensure an effective and equitable mobilization capability. In a related development, the White House has come out in opposition to draft registration, an issue hotly debated on Capitol Hill almost every day.

CAP Enhancement Measures Plugged

The colonel commanding the Civil Air Patrol's Congressional Squadron has introduced legislation to give the national organization more recognition and ease its financial burdens. He is Rep. Lester L. Wolff (D-N. Y.), who flew CAP antisubmarine missions during World War II.

In separate measures, Wolff recently introduced bills:

- Making December 1 National Civil Air Patrol Day. The organization, whose volunteers receive no compensation for their services, fly seventy-five percent of all search and rescue missions in the US. Last year this amounted to more than 24,000 flying hours as CAP members saved ninety-one lives. The auxiliary will be thirty-eight years old next December 1.
- Exempting aircraft owned and operated by CAP squadrons from taxation under a 1970 law that has been costing the organization about $18,000 a year.
- Entitling CAP cadets eighteen and over to compensation available to senior CAP members in the event of death or disability and increasing the compensation level for both groups to $600.

The government for years has ignored appeals for modest allocation of funds for the organization, so it is supported primarily by contributions from members themselves. The only federal help is reimbursement for the cost of fuel and lubricants used in authorized Air Force missions.

Short Bursts

Air Force personnel officials are fuming at the Administration's plan to sock military members, along with government civilians, with **parking fees at the Pentagon** and various other military sites. Service people view the move as another cut in benefits. Pentagon parking rates are expected to range up to $20 per month. Supporters of parking fees at government lots in Washington note that nongovernment workers in the area pay $50–$75 per month to park in public garages.

The Air Force in mid-July issued a hurry-up appeal for thirty-two crack NCO **radio maintenance people** to volunteer for **"duty" in the 1980 Presidential campaign.** Yes, that's right. Seems the Secret Service went to the Defense Department with its "requirement" for "communications

way. Neither does a recent Defense Department study, which holds that all military PAs should be warrant officers.

The other services, as of the end of FY '78, had the following numbers of WOs on active duty: Army 13,287, Navy 2,967, and Marine Corps 1,146. The Air Force total? Two, both carryovers from the Headquarters decision twenty years ago to phase out the WO force; they'll retire mandatorily next year.

When the Air Force halted its WO appointments in 1959, there were nearly 5,000 on board. The decision was to limit normal NCO progression to the then new E-8 and E-9 supergrades. USAF's leadership would have preferred the countdown to be a quiet one. But career airmen and various groups who viewed the pay and prestige that accompanied a warrant appointment as superior to the rewards of the new supergrades wouldn't hear of it. They wanted the program reinstated, and have pressured the service to do just that on many occasions.

USAF officials explained that the phaseout was based on the idea that "warrants were an unnecessary layer of supervision between commissioned officers and NCOs." Reinstitution was reviewed extensively in 1974, 1976, and as recently as last year, and in each case the Air Force concluded that a warrant program would not provide optimum use of its manpower."

The Appropriations group, in hearings early this year, first advanced the idea that the Air Force might solve its heavy pilot dropout problem by appointing new pilots as warrants, or commissioning them as limited-duty officers (LDOs). Cost-effective, it also suggested.

Willard H. Mitchell, a personnel executive with the Office of the Secretary of the Air Force, responded that the Air Force wouldn't be able to attract college graduates as warrant officers. Thus, any warrant pilots would have to be noncollege men. However, he pointed out, flying school washouts among noncollege trainees would soar, and pilot-training costs would skyrocket. This would more than offset any savings between officer and WO pay, he said. He cited Army helicopter pilot training statistics, which show that the washout rate among noncollege grads (warrants) is fifty percent greater than the rate for helicopter trainees with college degrees.

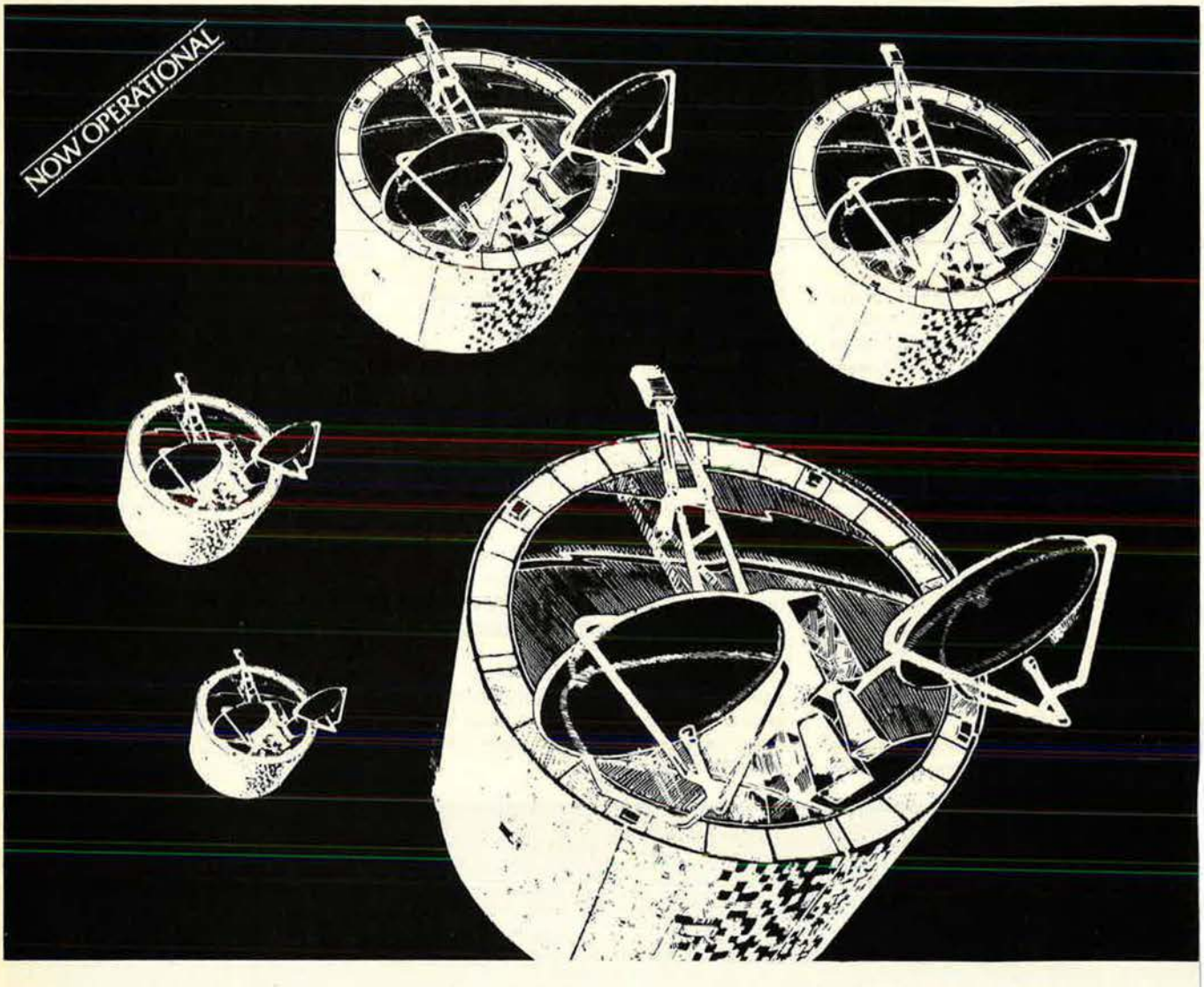
Furthermore, Mitchell declared, warrant officer pilots, lacking the pay and prestige of commissioned officer status, would defect to the airlines faster than commissioned members.

Air Staff officials more recently echoed the Mitchell case against warrant officer pilots and navigators. They insist that the present system is working. "Our E-8 and E-9 NCOs are doing the jobs that warrant officers would do and doing them at less cost. . . . We don't need them. . . ." Another complicating factor about WOs is that, as rated performers, they would stay in the cockpit; there are only four warrant grades, so in effect they would be limited-duty officers, though drawing less pay than LDOs.

There is speculation in the Pentagon that the Appropriations group is much more steamed up over warrant rank for PAs than it is for flyers. This thesis holds that the subcommittee ordered the five percent slice of next year's new pilots and navs into the WO fold as a bargaining chip, and that later in the legislative cycle it would agree to backtrack on the rateds to nail down its position on the PAs.

In any case, personnel planners and medical leaders face some more trying times. Forcing PA warrants down the Air Force's throat will dim the luster of that program. Tampering with the rated force is a dangerous tactic. Pointing either group into a warrant officer force will touch off new demands for WO appointments in all the career fields. ■

TWO MORE PARTNERS IN NATIONAL DEFENSE



Two more spacecraft in the Defense Satellite Communications System (DSCS II) were successfully placed in orbit December 13, 1978. Joining those already in space, these TRW-built telecommunications satellites form the first high capacity, worldwide, military space communications system for command and control.

DSCS II greatly improves our capacity for keeping our worldwide forces in close touch with strategic commanders throughout the Department of Defense. DSCS II is being acquired by the U.S. Air Force Space and Missile Systems Organization for the Defense Communications Agency.

TRW also builds FleetSatCom, the most powerful telecommunications satellite in orbit...and is developing the Tracking and Data Relay Satellite System (TDRSS) of telecommunications satellites for Western Union to serve NASA and commercial users.

TRW is the nation's leader in military and government telecommunications satellites.

TWO MORE SUCCESSFUL SPACECRAFT

from a company called **TRW**

The Bulletin Board

support" for the big political extravaganza. DoD in turn tagged USAF for thirty-two E-5s and E-6s in radio maintenance (AFSC 304X4) or closely related specialties. The EM, who will travel in advance of candidates, will work mainly in telephone and radio operations and repair. But first—next month—Secret Service agents will train them. The airmen will return to the Air Force after the Presidential elections in November 1980.

The **new E-9 selection list** contains 3,512 names—twenty-three percent of the 15,216 eligibles. The average selectee is 39.5 years old and has 19.8 years of service. The hikes began August 1.

The Army has agreed, under congressional pressure, to appoint a civilian as **manager of the military's Hale Koa Hotel,** the luxury inn on Waikiki Beach, Hawaii, it operates for active-duty and retired service members. The lawmakers plan to phase out appropriations for the hotel; they want it self-supporting, which means rates probably will go up.

The **Air Force Commissary Service's third anniversary sale** will run from October 15 through November 15. AFCOMS Commander, Maj. Gen. Charles E. Woods, says patron savings will come close to $2 million. ■

John H. Moxley III has been named Assistant Secretary of Defense (Health Affairs), a key Pentagon post that had been vacant for months. Moxley was vice chancellor for health sciences and dean of the School of Medicine at the University of California, San Diego.

Senior Staff Changes

PROMOTIONS: To be ANG **Major General:** Jay G. **Benton;** Roger W. **Gilbert;** Richard M. **Scott.**

To be ANG **Brigadier General:** Jack R. **Brasher;** John G. **Brosky;** Fred W. **Cross;** Wayne C. **Gatlin;** Harold G. **Holesinger;** Robert H. **Hormann;** Charles D. **Kelley;** James D. **Montgomery;** Donald E. **Richards;** Curtis D. **Roberts;** Charles A. **Sams;** Floyd E. **Snyder;** David S. **Taylor;** Robert G. **Urquhart;** Dale E. **Wainwright;** Leslie E. **Whitehead;** Willie L. **Whitman,** Jr.; Albert W. **Wright;** James E. **Young.**

RETIREMENTS: M/G Carl D. **Peterson;** M/G Robert L. **Thompson,** Jr.

CHANGES: M/G Walter H. Baxter III, from Cmdr., 24th NORAD/ADCOM Rgn., Malmstrom AFB, Mont., to Air Dep., Hq. AFNORTH, Kolsaas, Norway, replacing retiring M/G Carl D. Peterson . . . **B/G Tommy I. Bell,** from Dep. Dir. for F-16 Matters, DCS/RD&A, Hq. USAF, Washington, D. C., to Dep. Dir., Dev. & Prgm., DCS/RD&A, Hq. USAF, Washington, D. C. . . . **B/G John H. Bennett,** from Cmdr., 86th TFW, USAFE, Ramstein AB, Germany, to Cmdr., 24th NORAD/ADCOM Rgn., Malmstrom AFB, Mont., replacing M/G Walter H. Baxter III . . . **B/G Louis C. Buckman,** from Cmdr., 42d Air Div., SAC, Blytheville AFB, Ark., to Cmdr., 3d Air Div., SAC, Andersen AFB, Guam, replacing M/G Andrew Pringle, Jr. . . . **B/G Harry Falls, Jr.,** from Asst. for Readiness, Hq. USAFE, Ramstein AB, Germany, to Cmdr., 86th TFW, Ramstein AB, Germany, replacing B/G John H. Bennett . . . **M/G (L/G selectee) Lincoln D. Faurer,** from Dir., J-2, USEUCOM, Vaihingen, Germany, to Dep. Chairman, NATO Mil. Committee, Brussels, Belgium . . . **M/G Billy B. Forsman,** from Dep. Dir. for Current Intel., DIA, Washington, D. C., to Dir., J-2, USEUCOM, Vaihingen, Germany, replacing M/G (L/G selectee) Lincoln D. Faurer.

B/G Delbert H. Jacobs, from Dep. for F-15, ASD, AFSC, Wright-Patterson AFB, Ohio, to DCS/Dev. Plans, Hq. AFSC, Andrews AFB, Md. . . **B/G George J. Kertesz,** from Ch., Air Sec., MAAG, Teheran, Iran, to Dep. Dir. of Ops. & Readiness, DCS/OP&R, Hq. USAF, Washington, D. C., replacing B/G David L. Patton . . . **B/G Stanley C. Kolodny,** from Base Dental Surg., USAF Regional Hosp., ATC, Sheppard AFB, Tex., to Asst. Surg. Gen. for Dental Svcs., OTSG, Bolling AFB, D. C., replacing retiring M/G Robert L. Thompson, Jr. . . . **B/G Charles McCausland,** from Cmdr., Def. Log. Svc. Cen., DLA, Battle Creek, Mich., to Cmdr., Def. Contract Admin. Svcs. Rgn., DLA, Los Angeles, Calif. . . . **M/G William L. Nicholson III,** from V/C, Hq. Fifteenth AF, SAC, March AFB, Calif., to Dir., Defense Mapping Agency, Washington, D. C.

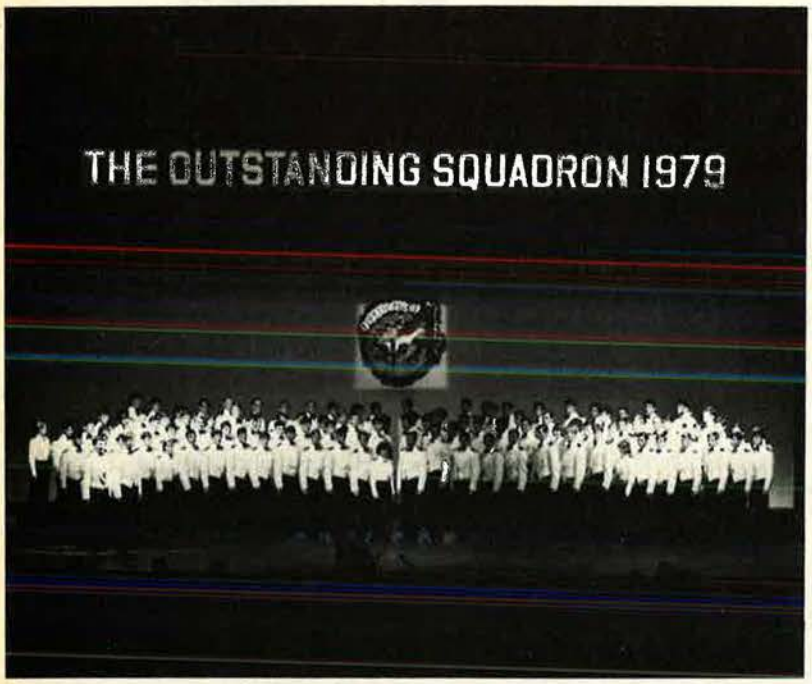
B/G Robert C. Oaks, from Asst. for Gen. Officer Matters, DCA/M&P, Hq. USAF, Washington, D. C., to Asst. for Readiness, Hq. USAFE, Ramstein AB, Germany, replacing B/G Harry Falls, Jr. . . . **M/G Leighton R. Palmerton,** from Dep. Dir., Log., J-4, JCS, Washington, D. C., to Dep. Dir. for NATO AWACS Matters, DCS/OP&R, Hq. USAF, Washington, D. C. . . . **B/G David L. Patton,** from Dep. Dir. for Ops. & Readiness, DCS/OP&R, Hq. USAF, Washington, D. C., to Cmdr., 4th Air. Div., SAC, F. E. Warren AFB, Wyo. . . . **M/G Andrew Pringle, Jr.,** from Cmdr., 3d Air Div., SAC, Andersen AFB, Guam, to DCS/Ops., Hq. SAC, Offutt AFB, Neb., replacing M/G Jack L. Watkins . . . **B/G Carl R. Smith,** from Asst. Dir. for Joint NSC Matters, DCS/OP&R, Hq. USAF, Washington, D. C., to Sen. Mil. Asst. to Sec. of Defense, Washington, D. C. . . . **B/G William E. Thurman,** from Dep. for Comm. & Info., ESD, AFSC, Hanscom AFB, Mass., to Cmdt., Def. Sys. Mgmt. College, Fort Belvoir, Va.

B/G Rudolph F. Wacker, from Cmdr., 81st TFW, USAFE, RAF Bentwaters/Woodbridge, UK, to Cmdr., 42d Air Div., SAC, Blytheville AFB, Ark., replacing B/G Louis C. Buckman . . . **M/G Jack L. Watkins,** from DCS/Ops., Hq. SAC, Offutt AFB, Neb., to V/C, Hq. Fifteenth AF, March AFB, Calif., replacing M/G William L. Nicholson III.

SENIOR ENLISTED ADVISOR CHANGES: CMSgt. Richard C. Platt, from 51st Command Support Gp., Osan, Korea, to Senior Enlisted Advisor, ARPC, Denver, Colo., replacing retiring CMSgt. Posie W. Barker. ■

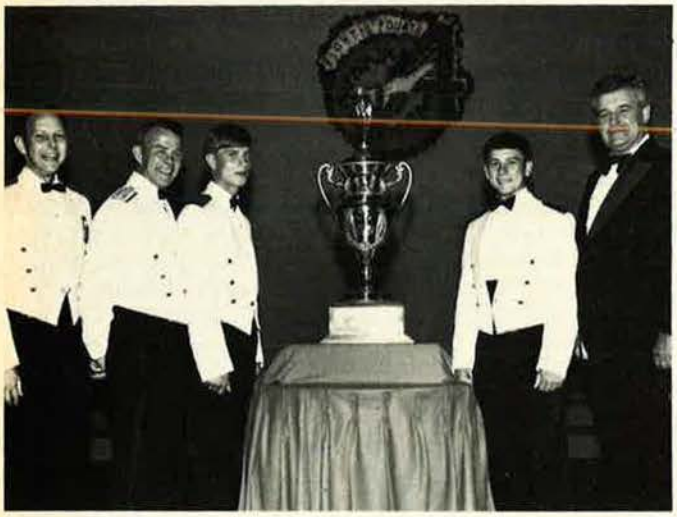
20TH ANNUAL OUTSTANDING SQUADRON DINNER

A Photo Feature



A milestone was reached this year when, for the twentieth time, AFA honored the cadets of the Air Force Academy's Outstanding Squadron. Shown here prior to the program on the stage of the Broadmoor Hotel's International Center in Colorado Springs, Colo., are the cadets of the "Fightin' Fourth," 1979's recipients.

During the formal program, AFA National President Gerald V. Hasler presented AFA Life Memberships and AFA's Outstanding Squadron Trophy to the squadron's two commanders. Cadet Schmidt responded on behalf of the entire squadron.



Admiring AFA's Outstanding Squadron Trophy are, from left, Brig. Gen. Harold W. Todd, speaker during the program and the first graduate of the Air Force Academy to pin on general stars; Lt. Gen. K. L. Tallman, Academy Superintendent; Cadet Lt. Col. Stephen D. Schmidt, the fall term commander; Cadet Lt. Col. Robert A. Roberge, the spring term commander; and AFA President Gerald V. Hasler.

The dinner traditionally brings the Academy and community leaders together. From left to right: Terry McAuley, Sales Manager for Pikes Peak Distributing; Mrs. Robert Hunter; Lt. Col. Robert W. Hunter, Director of Information at the Air Force Academy; Mrs. Elmer W. J. Wienecke, and CMSgt. Elmer W. J. Wienecke, Senior Enlisted Advis at the Academy.

Getting together prior to the dinner are, left to right, Brig. Gen. Harold W. Todd; Gene Rayburn, host of television's "Match Game" and this year's master of ceremonies for the dinner; Mrs. Tallman and Lt. Gen. K. L. Tallman; Mrs. Nilda Hasler, wife of AFA's President; and the Hon. John A. Hewitt, Jr., Assistant Secretary of the Air Force for Financial Management. Secretary Hewitt, a graduate of the Air Force Academy, spoke to the cadets on behalf of the Secretary and Chief of Staff of the Air Force.

Guests greet General Todd during the dinner dance. From left, Brig. Gen. Thomas C. Richards, Commandant of Cadets; Brig. Gen. Harold W. Todd; Mrs. Thomas C. Richards; Mrs. James F. Wheeler; and Maj. James F. Wheeler, Executive Director of the Association of Graduates of the USAF Academy.

Military and AFA guests present included, from left, Maj. Gen. Cecil Fox, Commander, Oklahoma Air Logistics Center and Mrs. Fox; William Webb, Oklahoma AFA State President, and Mrs. Webb; Mrs. Kregel and Vic Kregel, AFA National Director; Ms. Sally Beck; and Maj. Dennis R. Weddle, Director of Protocol for the Academy.

AFA's Industrial Associates support the program. Shown here with Brig. Gen. Robert S. Berg and Mrs. Berg (center) are IBM representatives R. M. Perez, D. K. Tomajan, and M. G. Tucker.

From left: Former Superintendent Lt. Gen. A. P. Clark, USAF (Ret.), and Mrs. Clark with Brig. Gen. William Orth, Dean of Faculty at the Academy and Mrs. Orth.

Shown with the trophy are (from left) President Hasler, Mr. Rayburn, AFA's Chairman of the Board George M. Douglas, and Assistant Secretary of the Air Force for Financial Management John A. Hewitt, Jr. The following week Chairman Douglas again presented the trophy before the Cadet Wing during Organizational Awards Day (see "AFA News").

This Is AFA

The Air Force Association is an independent, nonprofit, aerospace organization serving no personal, political, or commercial interests; established January 26, 1946; incorporated February 4, 1946.

The Association provides an organization through which free men may unite to fulfill the responsibilities imposed by the impact of aerospace technology on modern society; to support armed strength

OBJECTIVES

adequate to maintain the security and peace of the United States and the free world; to educate themselves and the public at large in the development of adequate aerospace power for the betterment of all mankind; and to help develop friendly relations among free nations, based on respect for the principle of freedom and equal rights for all mankind.

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USAF Academy, Colo.

VICE PRESIDENTS

Information regarding AFA activity within a particular state may be obtained from the Vice President of the Region in which the state is located.

Cecil G. Brendle
P. O. Box 2584
Montgomery, Ala. 36105
(205) 281-7770
South Central Region
Tennessee, Arkansas, Louisiana, Mississippi, Alabama

George H. Chabbott
33 Mikell Dr.
Dover, Del. 19901
(302) 697-3234
Central East Region
Maryland, Delaware, District of Columbia, Virginia, West Virginia, Kentucky

Amos L. Chalif
162 Lafayette Ave.
Chatham, N.J. 07928
(201) 635-8082
Northeast Region
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Earl D. Clark, Jr.
1030 Pawnee St.
Kansas City, Kan. 66103
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Midwest Region
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P. O. Box 2800
Rapid City, S.D. 57709
(605) 348-1660
North Central Region
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529 Andros Lane
Indian Harbour Beach, Fla. 32937
(305) 867-4056
Southeast Region
North Carolina, South Carolina, Georgia, Florida, Puerto Rico

R. L. Devoucoux
270 McKinley Rd.
Portsmouth, N.H. 03801
(603) 436-5811
New England Region
Maine, New Hampshire, Massachusetts, Vermont, Connecticut, Rhode Island

Dwight M. Ewing
P. O. Box 737
Merced, Calif. 95340
(209) 722-6283
Far West Region
California, Nevada, Arizona, Hawaii

Alexander C. Field, Jr.
2501 Bradley Pl.
Chicago, Ill. 60618
(312) 528-2311
Great Lakes Region
Michigan, Wisconsin, Illinois, Ohio, Indiana

Francis L. Jones
4302 Briar Cliff Dr.
Wichita Falls, Tex. 76309
(817) 692-5480
Southwest Region
Oklahoma, Texas, New Mexico

Edward C. Marriott
9001 E. Mansfield Ave.
Denver, Colo. 80237
(303) 733-2479
Rocky Mountain Region
Colorado, Wyoming, Utah

Margaret A. Reed
P. O. Box 88850
Seattle, Wash. 98188
(206) 575-2875
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A tribute to . . .

Donald W. Steele, Sr. 1922–1979

IT WAS hot and sunny that August 7 in Virginia's Shenandoah Valley. A pleasant day, not steaming as it had been for a month or so. St. Matthew's Cemetery in New Market, Va., is small and old but well kept. Comfortable, you could call it, and comforting. A monument referring to the "Lost Cause" dominates the rows of weathered old gravestones, some dating back 150 years or more.

The Air Force Honor Guard moved precisely but reverently through the traditional rubric of a military funeral—the carrying of the casket to its appointed place, the three-volley salute from the firing squad, the mournful epitaph of "Taps" from a true-toned bugler, and the folding of the flag. Everything seemed to fit perfectly together at those last sad rites for Donald W. Steele, Sr., the late Associate Executive Director of the Air Force Association—born April 10, 1922, in Washington, D. C., died in Fairfax, Va., August 2, 1979, of cancer.

Don Steele had to be the best-loved person on the AFA national staff. Certainly he was the best known. And in his case the words are synonymous for, if the cliché be pardonable, to know him was to love him. His work at AFA, first as Assistant for Field Organization, then as Director and eventually Associate Executive Director for Field Operations, kept him in close contact with the Association's grass roots whence he came. Officially Don came on the AFA payroll in 1964, but already he had donated untold hours, days, and months to the Association in more than fifteen years of service as a volunteer, including posts on national committees, as state president, and chapter

president. This writer's first memory of him goes back to the 1953 national convention in Washington, and he was at every convention thereafter. He literally became part of the national staff at convention time, using precious days of his vacations to do so.

As staff coordinator of AFA's field network, Don was a one-man traveling buffer zone between the national organization—national officers, the Board of Directors, and national staff—and the more than 300 AFA units scattered among all fifty states. He was responsible—through sheer dedication, an incredibly heavy workload, and unflagging good humor—for the exceptionally fine working relationship that exists among these critical elements of the Association. That is his legacy to the membership, leadership, and professional management of AFA.

Don clocked more airborne hours than an average B-52 crew. A quick calculation of how he spent his time shows more than half of each year's weekends were occupied with field trips—to state conventions, regional workshops, national committee meetings, and, of course, national conventions. He seldom took a bona fide vacation; instead he worked in a day or so of personal time while on AFA business. He was a superb ambassador in a slot where diplomacy, tact, and understanding of the other fellow's problems are essential elements. Don also had a knack for gathering an exceptional staff and eliciting the kind of loyalty he himself exemplified.

In spite of the demands of his work, Don found time for a full family life that seemed to deepen and richen with the years. His strongly supportive wife, Mary, participated helpfully, notably as a volunteer at national conventions. Their family includes two daughters, Mrs. Deborah Dralle of Burke, Va., and Mrs. Catherine Morris, of Manassas, Va., and two sons, Capt. Donald W., Jr., US Army, currently in Heidelberg, Germany, and Gary, of Richmond, Va. There are two granddaughters and four grandsons.

The family suggests that expressions of sympathy be in the form of contributions to the Aerospace Education Foundation, 1750 Pennsylvania Ave., N.W., Washington, D. C. 20006.

Don's last months were lived in the shadow of his ravaging disease, often in pain and eventually in debilitating weakness. Yet he returned from his last trip on behalf of AFA, to the Texas state convention in San Antonio, on June 30. In less than five weeks he was dead. The ability to work and to contribute during his last days were, we are sure, his greatest solace.

Speaking for all his AFA family, we miss you, Don Steele.

—JOHN F. LOOSBROCK

AFA News

By Don Steele, AFA AFFAIRS EDITOR

MSgt. Terry L. Wetzel, 71st Aerospace Rescue and Recovery Squadron (MAC), at Elmendorf AFB, Alaska, is presented the Major Norman C. Miller Memorial Award by Anchorage AFA Chapter President Adam Johnston. Lt. Gen. Winfield W. Scott, Jr., Commander of the Alaskan Air Command, participated in the awards banquet presentations. The award is for rescue heroism in Alaska. Sergeant Wetzel was instrumental in rescuing eighteen people in the Alaskan wilderness last year.

Prior to their retirement, two of the Air Force's major air commanders were honored at the annual organization meeting of Scott Memorial Chapter, Ill. Gen. William G. Moore, Jr. (left), Commander in Chief, Military Airlift Command, and Maj. Gen. Robert Sadler (right), Commander, Air Force Communications Service, received individual service recognition plaques presented on behalf of AFA by Scott Memorial's reelected president, Bob Eisenhart. The Chapter named the recipients as honorary members and presented them with AFA life memberships. The meeting, held at the Scott AFB NCO Club, attracted more than 170 persons.

COMING EVENTS

AFA's 33d Annual National Convention, Sheraton-Park Hotel, Washington, D. C., September 16–19 . . . **AFA's Aerospace Development Briefings and Displays,** Sheraton-Park Hotel, Washington, D. C., September 18–20 . . . **AFA's 1979 Symposium,** "New Defense Horizons—Changing Strategies for a Changing World," Hyatt House Hotel, Los Angeles, Calif., October 25–26 . . . **Air Force Ball,** Century Plaza Hotel, Beverly Hills, Calif., October 26.

Lt. Col. Robert L. Swetzer, USAFR, of the Madrid, Spain, Chapter presented the AFA Medal to Cadet Maj. David Small, 71st AFJROTC Squadron, Torrejon American High School, Torrejon AB, Spain. In the background is the Ju-52 presented to the squadron by the Spanish Air Force in 1973. Cadets keep the aircraft in flying condition.

chapter and state photo gallery

AFA Board Chairman George M. Douglas presented the Association's Outstanding Squadron Trophy to Cadet Squadron 4 during June Week awards ceremonies at the Air Force Academy. Maj. Dennis P. McGurk (far left) is the squadron's Air Officer Commanding. Cadet Lt. Col. Stephen D. Schmidt (hand on trophy) and Cadet Lt. Col. Robert A. Roberge (center) served respectively as squadron fall and spring semester commanders.

The H. H. Arnold, N. Y., Chapter's Man of the Year Award was presented to Gen. Robert J. Dixon, USAF (Ret.), president of Fairchild Republic (right). Presenting the award is AFA life member Congressman Lester Wolff (D-N. Y.), an Arnold Chapter member.

Patty Lynch of State College, Pa., received the Carl Long Science Award at the recent Pennsylvania State Convention. Presenting the award is Deane Sterrett, President of Beaver Valley Chapter, who was selected as AFA Pennsylvania Man of the Year. At left is Gerald V. Hasler, AFA President, who was the luncheon speaker, and, at right, LaMar Schwartz, outgoing Pennsylvania State President.

New Defense Horizons

Changing Strategies for a Changing World

A National Symposium of the Air Force Association.
Hyatt House Hotel, October 25–26, 1979, Los Angeles, California

An authoritative, across-the-board analysis of the state of our national security—including a review of the changing policies and conditions that determine the future makeup of our military forces, our hardware requirements, and geopolitical considerations.

FEATURING:

The Hon. Hans M. Mark, Secretary of the Air Force

Gen. Lew Allen, Jr., Chief of Staff, USAF

...and other top DoD and NATO leaders, CINCs,and Major Air Commanders

Whether you are in aerospace industry, in defense-oriented science and engineering fields, or are a civic leader concerned about our nation's defense posture, you should not miss this uniquely illuminating preview of our emerging global strategy.

Registration for all Symposium events is $80.
For information and registration, call Jim McDonnell or Dottie Flanagan at (202) 637-3300

Air Force Association, Suite 400, 1750 Pennsylvania Ave., N.W.
Washington, D.C. 20006

AFA

AFA News photo gallery

Stuart Popp, newly elected president of the Missouri State AFA, presented the 1979 Spirit of St. Louis Chapter Airmen of the Year awards at the Missouri State Convention hosted by the St. Louis Chapter. From left to right are TSgt. Marvin Ogletree; TSgt. Roger Hudson; CMSgt. Eric Alexander, senior enlisted advisor of the Missouri Air National Guard, who helped in the presentation; Stuart Popp; SrA. Curtis McNeal III; and SSgt. Daniel George.

Polly Murphy, President of AFA's General Bruce K. Holloway Chapter and newly elected Tennessee State Vice President, and Jack Westbrook, Tennessee State President, observed Vietnam Veterans Week, May 28–June 3, in a tree-planting ceremony honoring those who served in Southeast Asia. The event was attended by representatives of all the armed forces.

Ms. Pat Cramer, Program Director of WTVN-TV in Columbus, Ohio, recently spoke about the "Myths of Television" to a joint meeting of the Mid-Ohio and Eddie Rickenbacker Chapters at Rickenbacker AFB. With her (left) are Francis Spalding, Rickenbacker Chapter President; Bob Puglisi, Ohio State President; and Roy Haberlandt, Mid-Ohio Chapter President.

20% Dividend Paid for 1978 Reduces Net Cost to All-Time Low

New, Low-Cost Protection for the High-

HIGH OPTION PLUS

CURRENT BENEFIT TABLES

Insured's Attained Age	STANDARD PREMIUM: $10 per month Basic Benefit*	HIGH OPTION PREMIUM: $15 per month Basic Benefit*	HIGH OPTION PLUS PREMIUM: $20 per month Basic Benefit*
20-29	$85,000	$127,500	$170,000
30-34	65,000	97,500	130,000
35-39	50,000	75,000	100,000
40-44	35,000	52,500	70,000
45-49	20,000	30,000	40,000
50-54	12,500	18,750	25,000
55-59	10,000	15,000	20,000
60-64	7,500	11,250	15,000
65-69	4,000	6,000	8,000
70-74	2,500	3,750	5,000
Aviation Death Benefit*			
Non-war related	$25,000	$37,500	$50,000
War related	$15,000	$22,500	$30,000
Extra Accidental Death Benefit*	$12,500*	$15,000*	$17,500*

*The Extra Accidental Death Benefit is payable in addition to the basic benefit in the event an accidental death occurs within 13 weeks of the accident, except as noted under AVIATION DEATH BENEFIT (below).

*AVIATION DEATH BENEFIT: The coverage provided under the Aviation Death Benefit is paid for death which is caused by an aviation accident in which the insured is serving as pilot or crew member of the aircraft involved. Under this condition, the Aviation Death Benefit is paid in lieu of all other benefits of this coverage. Furthermore the non-war related benefit will be paid in all cases where the death does not result from war or an act of war, whether declared or undeclared.

OTHER IMPORTANT BENEFITS

COVERAGE YOU CAN KEEP. Provided you apply for coverage under age 60 (see "ELIGIBILITY") your insurance may be retained at the same low group rates to age 75.

FULL TIME, WORLD WIDE PROTECTION. The policy contains no war clause, hazardous duty restriction, combat zone waiting period or geographical limitation.

DISABILITY WAIVER OF PREMIUM. If you become totally disabled at any time prior to age 60 for at least a 9-month period, your coverage will be continued in force without further payment of premiums as long as you remain disabled.

FULL CHOICE OF SETTLEMENT OPTIONS. All standard forms of settlement options, as well as special options agreed to by the insured and United of Omaha, are available to insured members.

CONVENIENT PAYMENT PLANS. Premium payments may be made by monthly government allotment (payable to Air Force Association), or direct to AFA in quarterly, annual or semi-annual installments.

DIVIDEND POLICY. AFA's primary policy is to provide maximum coverage at the lowest possible cost. Consistent with this policy, AFA has provided year-end dividends in all but three years (during the Vietnam War) since the program was initiated in 1961, and basic coverage has been increased on six separate occasions.

ADDITIONAL INFORMATION

Effective Date of Your Coverage. All certificates are dated and take effect on the last day of the month in which your application for coverage is approved, and coverage runs concurrently with AFA membership. AFA Military Group Life Insurance is written in conformity with the insurance regulations of the State of Minnesota. The insurance will be provided under the group insurance policy issued by United of Omaha to the First National Bank of Minnesota as trustees of the Air Force Association Group Insurance Trust.

EXCEPTIONS: There are a few logical exceptions to this coverage. They are:

Group Life Insurance: Benefits for suicide or death from injuries intentionally self-inflicted while sane or insane will not be effective until your coverage has been in force for 12 months.

The Accidental Death Benefit and Aviation Death Benefit shall not be effective if death results: (1) From injuries intentionally self-inflicted while sane or insane, or (2) From injuries sustained while committing a felony, or (3) Either directly or indirectly from bodily or mental infirmity, poisoning or asphyxiation from carbon monoxide, or (4) During any period a member's coverage is being continued under the waiver of premium provision, or (5) From an aviation accident, either military or civilian, in which the insured was acting as pilot or crew member of the aircraft involved, except as provided under AVIATION DEATH BENEFIT.

ELIGIBILITY

All active duty and retired* personnel of the Armed Forces of the United States, members of the Ready Reserve* and National Guard*, Armed Forces Academy cadets*, and college or university ROTC cadets* are eligible to apply for this coverage provided they are under age 60 and are now, or become, members of the Air Force Association.

*Because of certain restrictions on the issuance of group insurance coverage, applications for coverage under the group program cannot be accepted from non-active duty personnel residing in either New York or Ohio. Non-active duty members residing in these states, however, may request special application forms from AFA for individual policies which provide coverage quite similar to the group program.

OPTIONAL FAMILY COVERAGE
(may be added to any of the above Plans)
PREMIUM: $2.50 per month

Insured's Attained Age	Life Insurance Coverage for Spouse	Life Insurance Coverage for each Child*
20-39	$10,000	$2,000
40-44	7,500	2,000
45-49	5,000	2,000
50-54	4,000	2,000
55-59	3,000	2,000
60-64	2,500	2,000
65-69	1,500	2,000
70-74	750	2,000

*Between the ages of six months and 21 years, each child is provided $2,000 coverage. Children under 6 months are provided with $250 coverage once they are 15 days old and discharged from hospital.

Please Retain This Medical Bureau Prenotification For Your Records

Information regarding your insurability will be treated as confidential. United Benefit Life Insurance Company may, however, make a brief report thereon to the Medical Information Bureau, a nonprofit membership organization of life insurance companies, which operates an information exchange on behalf of its members. If you apply to another bureau member company for life or health insurance coverage, or a claim for benefits is submitted to such a company, the Bureau, upon request, will supply such company with the information in its file.

Upon receipt of a request from you, the Bureau will arrange disclosure of any information it may have in your file. (Medical information will be disclosed only to your attending physician.) If you question the accuracy of information in the Bureau's file, you may contact the Bureau and seek a correction in accordance with the procedures set forth in the federal Fair Credit Reporting Act. The address of the Bureau's information office is P.O. Box 105, Essex Station, Boston, Mass. 02112. Phone (617)426-3660.

United Benefit Life Insurance Company may also release information in its file to other life insurance companies to whom you may apply for life or health insurance, or to whom a claim for benefits may be submitted.

-from AFA Military Group Life Insurance

overage Up to $170,000

APPLICATION FOR
AFA MILITARY GROUP LIFE INSURANCE

United of Omaha

Group Policy GLG-2625
United Benefit Life Insurance Company
Home Office Omaha Nebraska

Full name of member _____
Rank Last First Middle

Address _____
Number and Street City State ZIP Code

Date of birth (Mo. Day Yr.)	Height	Weight	Social Security Number

Please indicate category of eligibility and branch of service.

- ☐ Extended Active Duty
- ☐ Ready Reserve
- ☐ National Guard
- ☐ Retired
- ☐ Armed Forces Academy
- ☐ ROTC Cadet
- ☐ Air Force
- ☐ Other _____ (Branch of service)

Name and relationship of primary beneficiary

Name and relationship of contingent beneficiary

This insurance is available only to AFA members

- ☐ I enclose $13 for annual AFA membership dues (includes subscription ($9) to AIR FORCE Magazine).
- ☐ I am an AFA member.

Please indicate below the Mode of Payment and the Plan you elect:

Mode of Payment	Standard Plan Member Only	Standard Plan Member And Dependents	High Option Plan Member Only	High Option Plan Member And Dependents	High Option PLUS Plan Member Only	High Option PLUS Plan Member And Dependents
Monthly government allotment. I enclose 2 month's premium to cover the necessary period for my allotment (payable to Air Force Association) to be established.	☐ $ 10.00	☐ $ 12.50	☐ $ 15.00	☐ $ 17.50	☐ $ 20.00	☐ $ 22.50
Quarterly. I enclose amount checked.	☐ $ 30.00	☐ $ 37.50	☐ $ 45.00	☐ $ 52.50	☐ $ 60.00	☐ $ 67.50
Semi-Annually. I enclose amount checked.	☐ $ 60.00	☐ $ 75.00	☐ $ 90.00	☐ $105.00	☐ $120.00	☐ $135.00
Annually. I enclose amount checked.	☐ $120.00	☐ $150.00	☐ $180.00	☐ $210.00	☐ $240.00	☐ $270.00

Names of Dependents To Be Insured	Relationship to Member	Dates of Birth Mo. Day Yr.	Height	Weight

Have you or any dependents for whom you are requesting insurance ever had or received advice or treatment for: kidney disease, cancer, diabetes, respiratory disease, epilepsy, arteriosclerosis, high blood pressure, heart disease or disorder, stroke, venereal disease or tuberculosis? Yes ☐ No ☐

Have you or any dependents for whom you are requesting insurance been confined to any hospital, sanatorium, asylum or similar institution in the past 5 years? Yes ☐ No ☐

Have you or any dependents for whom you are requesting insurance received medical attention or surgical advice or treatment in the past 5 years or are now under treatment or using medications for any disease or disorder? Yes ☐ No ☐

If YOU ANSWERED "YES" TO ANY OF THE ABOVE QUESTIONS, EXPLAIN FULLY including date, name, degree of recovery and name and address of doctor. (Use additional sheet of paper if necessary.)

I apply to United Benefit Life Insurance Company for insurance under the group plan issued to the First National Bank of Minneapolis as Trustee of the Air Force Association Group Insurance Trust. Information in this application, a copy of which shall be attached to and made a part of my certificate when issued, is given to obtain the plan requested and is true and complete to the best of my knowledge and belief. I agree that no insurance will be effective until a certificate has been issued and the initial premium paid.

I hereby authorize any licensed physician, medical practitioner, hospital, clinic or other medical or medically related facility, insurance company, the Medical Information Bureau or other organization, institution or person, that has any records or knowledge of me or my health, to give to the United Benefit Life Insurance Company any such information. A photographic copy of this authorization shall be as valid as the original. I hereby acknowledge that I have a copy of the Medical Information Bureau's prenotification information.

Date _____, 19 ____ _____
Member's Signature

9/79
Form 3676GL App

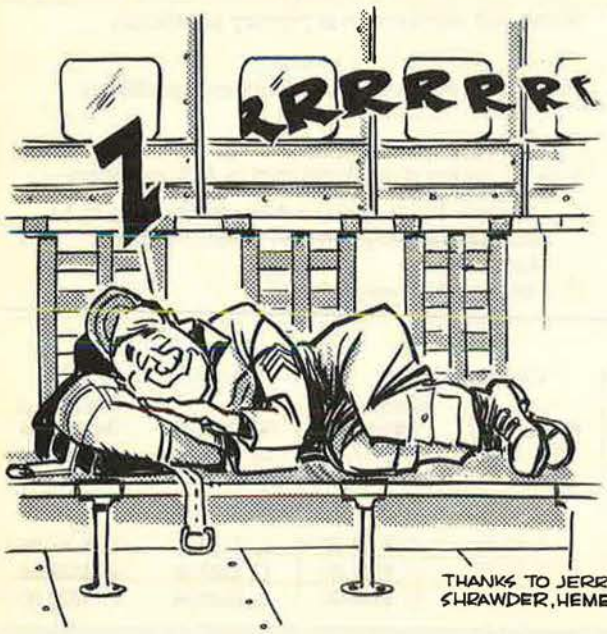
Application must be accompanied by a check or money order. Send remittance to:
Insurance Division, AFA, 1750 Pennsylvania Avenue, NW, Washington, D.C. 20006

Bob Stevens'

"There I was..."

BAILOUT STORIES FROM SEVERAL WARS - OR SOMEWHERE IN BETWEEN. THESE ARE ALL ALLEGEDLY TRUE ... and, AS WE ALL KNOW, TRUTH IS FUNNIER THAN FICTION.

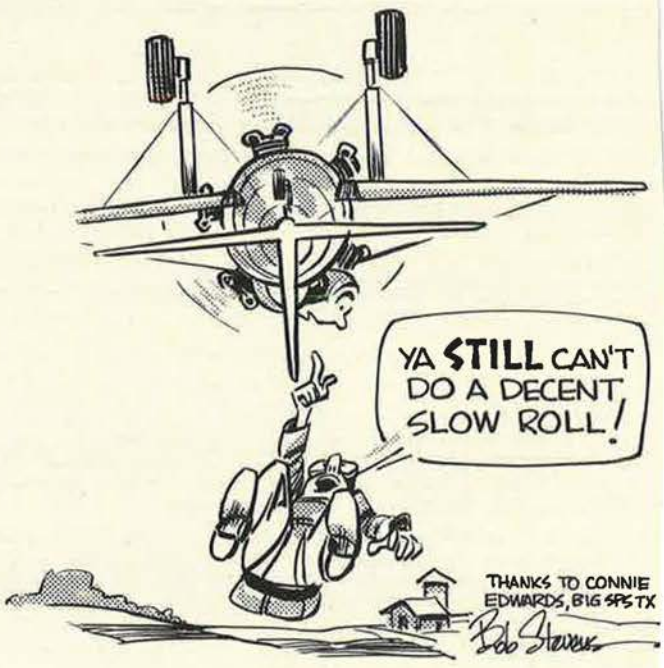
OUR FIRST SUBJECT - A C-46 CREW CHIEF NAMED DON BUSSART - COULD SLEEP ANYWHERE - ANYTIME. PARKED ON THE RAMP, HE'S SAWIN' LOGS WHILE ANOTHER BIRD RUNS UP ON THE NEXT PAD...



THANKS TO JERRY SHRAWDER, HEMET CA

SINCE WE'RE ON CONDITIONED REFLEXES, WWII CREWS GOT ***THE WORD*** EARLY ON-

INSTRUCTORS ARE INSTRUCTORS TO THE END - EVEN WHEN THEY FORGET THEIR SEAT BELTS...



THANKS TO CONNIE EDWARDS, BIG SPRS TX

Bob Stevens

When the free world needed advanced electronic warfare technology,

E-Systems made it.

E-Systems is a world leader in the development of complex electronic warfare technology. While E-Systems is widely recognized for achievement in all areas of defense electronics, the company is perhaps most highly regarded for being able to deliver complex EW systems capable of operating in whatever environments they are needed.

Throughout E-Systems, we solve difficult problems in a way that is on time, on target, and in line with estimates.

These are just a few of the reasons that E-Systems provides leadership in the fields of electronic warfare, communications, navigation aids, sophisticated electronic data handling products, command and control systems, aircraft maintenance and modification, and solar energy.

Do you have a tough problem? Get in touch with E-Systems. We're the problem solvers.

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P.O. Box 226030,
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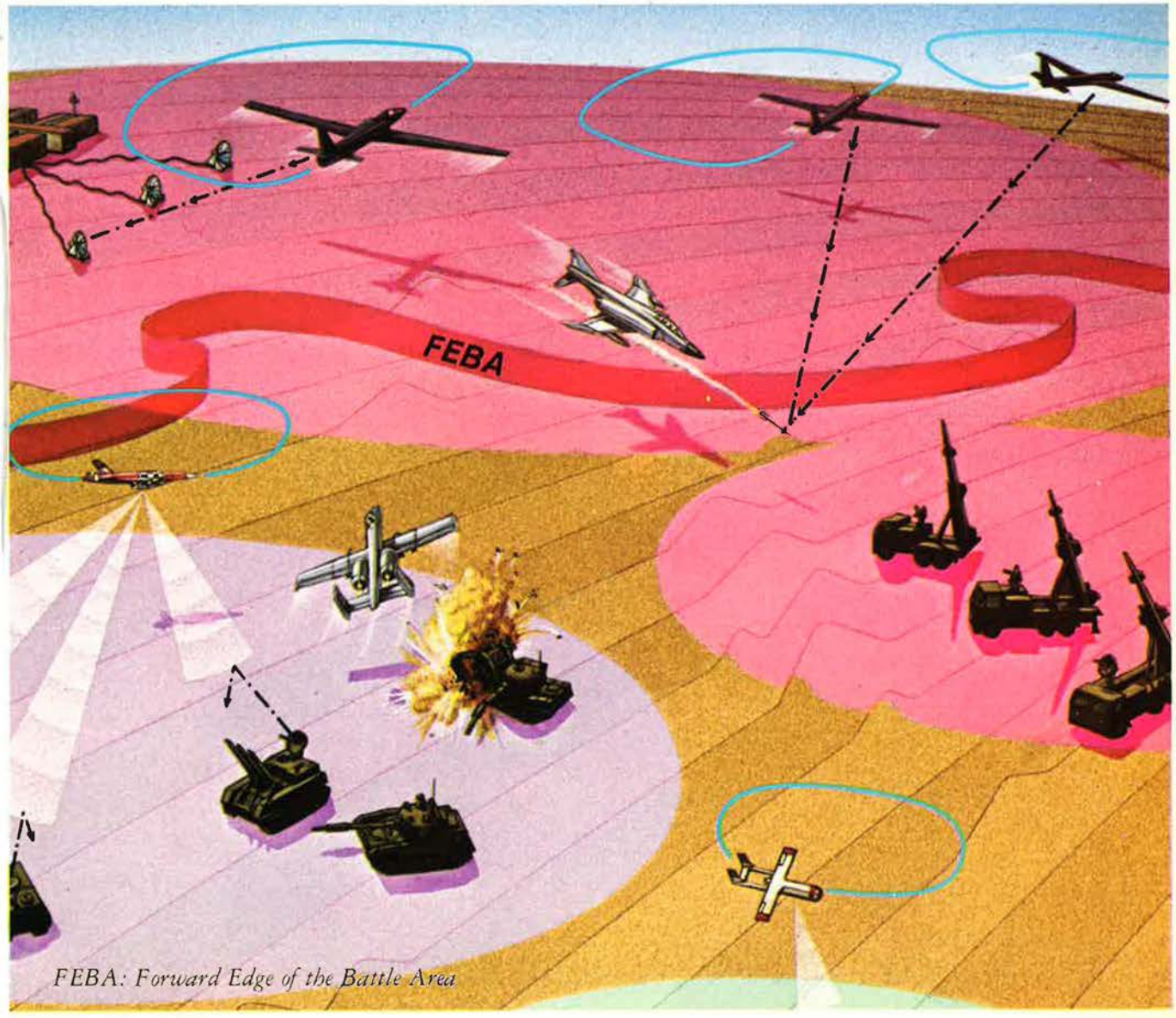
The problem solvers.



FEBA: Forward Edge of the Battle Area

The F-15 rises for the defense.

The F-15 has been chosen by the U.S. Air Force to fill the Nation's pressing need for a new interceptor for strategic and worldwide defense.

The all-weather Eagle offers high probability of kill at long range. It has the avionics and maneuverability for quick identification and subsequent attack. It has advanced identification systems and a multi-mode, jam-resistant radar. The new F-15C offers more internal fuel plus FAST Pack pallets for extra range.

Effective in head-on, beam and tail engagements, the Eagle's firepower and Mach 2.5 speed make large raids vulnerable to even limited numbers of F-15s.

And as the USAF already flies the Eagle in the Tactical Air Command, commonality can save tax dollars while providing superior air defense.