JANUARY 1975 / $1

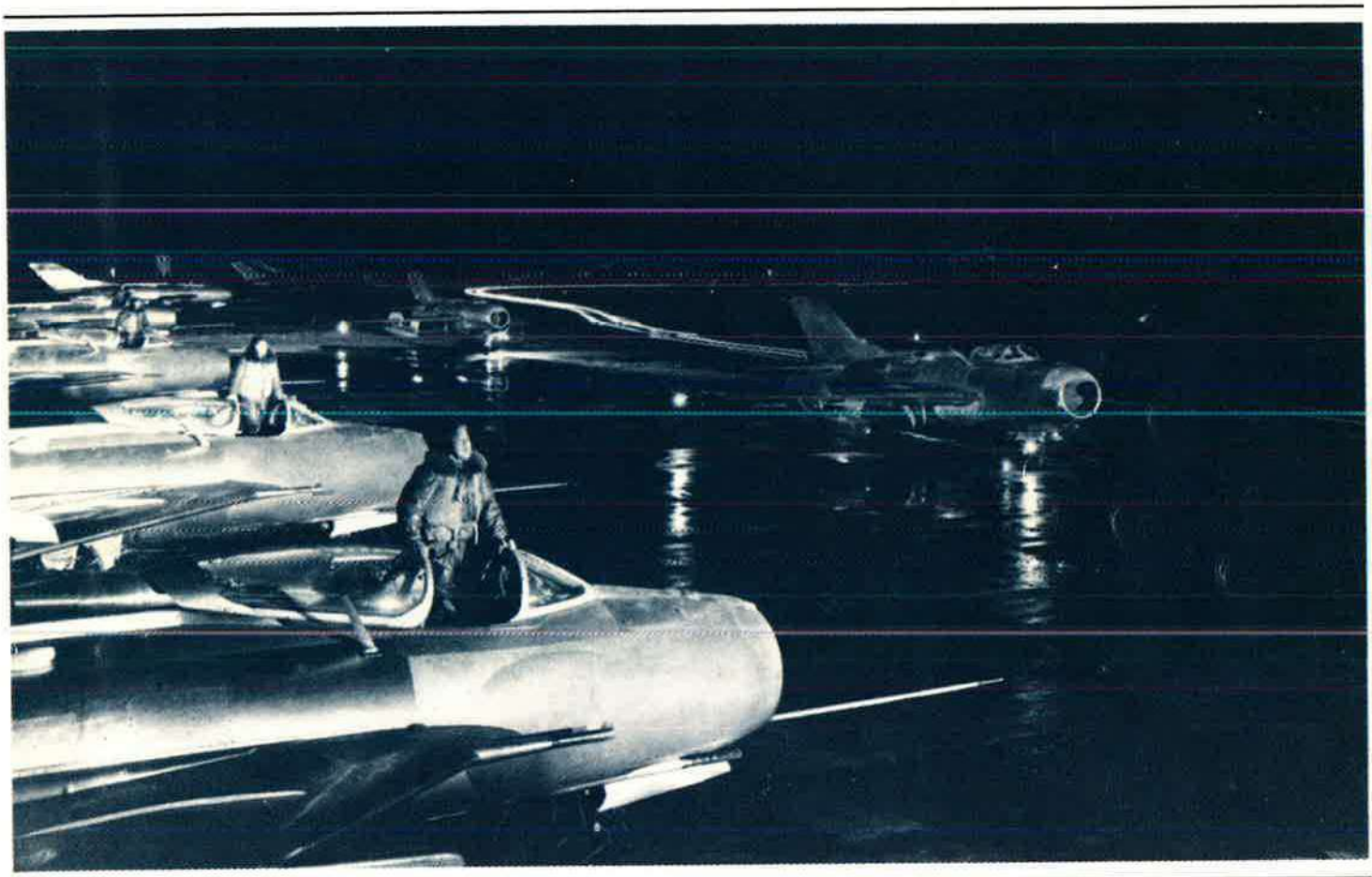
AIR FORCE

PUBLISHED BY THE AIR FORCE ASSOCIATION

MAGAZINE

A RARE LOOK AT CHINA'S AIR FORCE

Night operations photo shows Chinese Air Force all-weather fighters (counterparts to the Soviet MiG-19PF), taxiing past standard F-6 (MiG-19SF) day fighters.



ALSO IN THIS ISSUE

Outlook 1975

- Jane's Aerospace Review
- USAF's R&D Priorities
- What's Ahead for People

Need actuators that won't freeze, burn, dry out, or boil?

See Garrett, fast.

Garrett pneumatics make air do the work. Air that won't freeze or boil. That won't catch fire and burn. That works in a lighter and more reliable system, and in extreme high-temperature environments. That won't leak away, leaving you with no control.

Whether it's air, hot gas, or cold gas, Garrett knows more about pneumatics than anyone.

Use Garrett pneumatics to move things. Thrust reversers. Flaps. Spoilers. Control surfaces. Thrust vector controls. Variable engine geometry. Nozzle controls. Almost anything that has to be moved on an aircraft, propulsion engine, missile, guided bomb, or underwater device.

Garrett pneumatics. The most economical, most reliable, and safest way to move control systems—bar none.

Want proof? Write: Manager, Garrett Pneumatic Systems, AiResearch Manufacturing Company of Arizona, 402 South 36th Street, Phoenix, Arizona 85034. Or call: (602) 267-3011.

GARRETT

The Garrett Corporation One of The Signal Companies

GARRETT ACTUATORS

Make things move

AIR FORCE MAGAZINE
PUBLISHED BY THE AIR FORCE ASSOCIATION

JANUARY 1975
VOLUME 58, NUMBER 1

This Month

OUTLOOK 1975 — A Special Section

ABOUT THE COVER

Rare indeed are photos of elements of the Chinese Air Force of the People's Liberation Army. This one is of particular interest, both because of what it shows and because it is among the first released by the Chinese to any Western publication (in this case to Jane's All the World's Aircraft, *who furnished it to us for this issue. See p. 28).*

Departments

Publisher: James H. Straubel

Editor and Ass't Publisher: John F. Loosbrock

Executive Editor: John L. Frisbee

Senior Editors:
Claude Witze, Edgar Ulsamer

Military Affairs Editor: John O. Gray

Contributing Editors:
Ed Gates, Don Steele, John W. R. Taylor ("Jane's Supplement"), Maj. Fred Meurer, USAF

Regional Editors:
Stefan Geisenheyner, Editor for Europe, Sonnenberger Str. 15, D-6200 Wiesbaden, Germany. Tel: (06121) 37 23 97
Irving Stone, West Coast Editor, 10000 Santa Monica Blvd., Los Angeles, Calif. 90067. Tel: (213) 879-2447

Managing Editor: Richard M. Skinner

Ass't Managing Editor: William P. Schlitz

Director of Design and Production:
Robert T. Shaughness

Art Director: William A. Ford

Special Assistant to the Editor: Nellie M. Law

Editorial Assistants:
Nellie M. Law, Pearlie M. Draughn, Grace Lizzio, Kathryn Fuxhall

Administrative Assistant to the Publisher:
Ethel J. Vernon

Assistant for Editorial Promotion:
Robin Whittle

Advertising Director:
Charles E. Cruze
1750 Pennsylvania Ave., N.W.
Washington, D.C. 20006
Telephone: (202) 298-9123

Advertising Service Manager:
Patricia Teevan

Area Sales Managers:
Bayard Nicholas, Stamford, Conn. (203) 357-7781
James G. Kane, Chicago (312) 296-5571
Harold L. Keeler, Los Angeles (213) 879-2447
Richard Thompson, William Coughlin, San Francisco (415) 398-4444
Yoshi Yamamoto, Tokyo 535-6614

European Sales Representatives:
Richard A. Ewin, Gordon Marley
Overseas Publicity Ltd.
214 Oxford St.
London W1N OEA, England
Telephone: 01-636-8296

AIR FORCE Magazine (including SPACE DIGEST) is published monthly by the Air Force Association, Suite 400, 1750 Pennsylvania Ave., N.W., Washington, D.C. 20006. **Phone:** (202) 298-9123. Second-class postage paid at Washington, D.C. **Membership rate:** $10 per year (includes $9 for one-year subscription); $24 for three-year membership (includes $21 for subscription). **Subscription rate:** $10 per year; $2 additional for foreign postage. Single copy $1. Special issues (Spring and Fall Almanac Issues and "Military Balance" issue) $2 each. **Change of address** requires four weeks' notice. Please include mailing label. Publisher assumes no responsibility for unsolicited material. Trademark registered by Air Force Association. Copyright 1975 by Air Force Association. All rights reserved. Pan-American Copyright Convention.

BPA Circulation audited by Business Publication Audit

VLADIVOSTOK—AN EDITORIAL

NEW PARAMETERS FOR OLD PERILS

By John L. Frisbee
EXECUTIVE EDITOR, AIR FORCE MAGAZINE

THE "agreement in principle" on strategic arms entered into by President Ford and General Secretary Brezhnev at Vladivostok in late November has been attacked by both doves and hawks. The former—as well as some nondoves such as Sen. Henry Jackson—charge that it sets too high a ceiling on strategic systems; the latter that too much has been given away to the Soviets, particularly in missile throw weight. To some extent we agree with both, but we also feel that the Vladivostok agreement provides an acceptable beginning point at which to revive the stalled SALT II negotiations, provided the necessary and permitted steps are taken to ensure strategic parity.

The agreement limits both sides to a total of 2,400 long-range nuclear delivery systems, with each side free to choose whatever mix of missiles and bombers it wishes. Neither side may have more than 1,320 MIRVed missiles. Forward-based systems will not be included in the total, nor will the Soviet Backfire bomber or SAC's FB-111s. There is no prohibition on developing air- or ground-mobile missiles, no limit on the number of MIRVs per missile, and no limit on throw weight except those restrictions on silo size that are part of the SALT I Interim Agreement on offensive missiles.

"The Military Balance," compiled by the International Institute for Strategic Studies and published in the December issue of AIR FORCE Magazine, credits the USSR with having, in July 1974, 1,575 ICBMs, 636 SLBMs, and 140 heavy bombers, for a total of 2,351 strategic delivery systems. On the same date, the US had 1,054 ICBMs, 656 SLBMs, and 437 heavy bombers—a total of 2,147 delivery systems. SALT I (which did not include bombers) allows the USSR 2,568 ICBMs and SLBMs; the US 1,710. Thus, Vladivostok puts a "cap" on strategic systems at a higher level than now exists, but lower than that previously allowed the USSR in missiles alone. A mixed success.

Let's look at the implications of throw-weight disparity between the US and USSR, which would be perpetuated by Vladivostok, and at what must be done about it.

Throw weight is relevant primarily to the hard target kill capability of a missile force. A large-throw-weight missile can carry more and higher-yield MIRVs, and by its nature is more accurate than a single warhead missile. Thus, throw weight is a major determinant of whether an opponent's missile force has a first-strike capability. With its very large SS-9 missile, the still larger SS-18, and the new SS-16, 17, and 19, some of which will be deployed early in 1975, the Soviets may have a six-to-one throw-weight advantage over the US. Their missile force has a potential first-strike capability against our ICBMs if we do nothing about the throw-weight gap.

That gap can't be closed entirely, since the Interim Agreement, which allows us to enlarge our silos by no more than fifteen percent, presumably remains in effect. It can probably be narrowed to an acceptable level, however. One feasible solution is to increase the throw weight of Minuteman III and the yield of its MIRV warheads. For the longer term, there is another solution. Minuteman fills only a part of the space within its silo. A new, much larger encapsulated missile, similar to those under study in the M-X program, can be fitted into existing silos or launched from mobile platforms.

We believe it imperative to accelerate R&D work on the M-X. That probably would enable us to match the Soviets in numbers of MIRVs per missile, and by so doing greatly reduce the attractiveness to them of an all-out first strike while improving our ability to respond to a limited first strike. Granted, the yield of US MIRVs might still be smaller than their Soviet counterparts, but adequate to deal with any hard targets now foreseeable. With the greater accuracy of US missiles, we do not need the massive MIRVs that the Soviets do. But we do need more throw weight, translated into more and larger MIRVs.

Until M-X can be deployed, it would seem wise to replace some of the older, shorter range, single warhead Polaris A-3 missiles with additional Minuteman IIIs, the only existing US missile with a hard-target capability. And, as Secretary of Defense James Schlesinger has said, we shall probably need more bombers, with their hard-target capability, than are provided in current programs.

To return to the doves' criticism of Vladivostok. We agree that the ceiling on strategic systems has been set at an undesirably high level. Secretary Schlesinger says the US hopes to begin negotiations for a lower ceiling before 1980. That, too, is imperative.

It seems highly unlikely that we can deploy and maintain a modernized force of 2,400 strategic systems at an annual cost of $18 billion, as suggested by President Ford. Inevitably, our general-purpose forces—those most likely to be used in a hot war—will suffer. Already there is a wide and growing, though largely unpublicized, gap between the size of US and Soviet general-purpose forces. At the same time, our technological lead over the USSR in general-purpose hardware is narrowing. In some cases it has been wiped out. That deterioration must be remedied.

Whether the Vladivostok agreement is the unqualified success claimed by Administration cheerleaders or an unmitigated disaster as charged by its critics depends on the forcefulness with which the US pursues SALT II negotiations for genuine parity at a lower level than now agreed to. The agreement does provide specific negotiating parameters that heretofore have been lacking, and on these grounds we would, with caution and grave reservations, count it a step in the right direction. ■

TWO WORDS BACK UP THE A-7. COMBAT PROVEN.

Its survival instinct has been proven in combat.
Only 58 A-7's have been lost in 109,500 sorties — a combat loss rate of .053%.

Advanced avionics make it the most versatile attack aircraft in use.
A Doppler-Inertial-Gyrocompassing System with 4 backup modes directs navigation while radar provides ground map, terrain following, terrain avoidance, beacon mode and target ranging. The pilot is free to concentrate on the action.

The A-7 guarantees 10 mil accuracy.
That's a 2-to-1 improvement over first generation automatic toss delivery systems. A Head-Up Display and 5 computed attack modes permit weapons delivery from any direction, dive angle or airspeed.

Loiter and load capabilities make it the most versatile support aircraft available.
Originally intended for close support and interdiction, the A-7 has also flown escort plus search and rescue missions with distinction. And it's effective in both day and night operations.

Single point servicing minimizes turnaround time.
Waist-high access and built-in self-test eliminate the need for complex ground equipment.

The A-7 neutralizes targets in 1/3 the usual number of sorties.
It makes the A-7 the most accurate and cost-effective tactical air weapon system in the world.

VOUGHT
SYSTEMS DIVISION
LTV AEROSPACE CORPORATION

How the engine in the YF-16 had proved itself

Six years ago, Pratt & Whitney Aircraft began the design of the advanced technology, augmented turbofan engine, the F100.

Four years ago, the Air Force awarded Pratt & Whitney Aircraft a development contract for the F100.

Two years ago, the F100 began flying in the new F-15 advanced tactical fighter built by McDonnell Douglas—and began proving itself in the air.

So when General Dynamics began building the YF-16, they designed the F100 right in. Not only because of its power and dependability, but because the only difference between installation

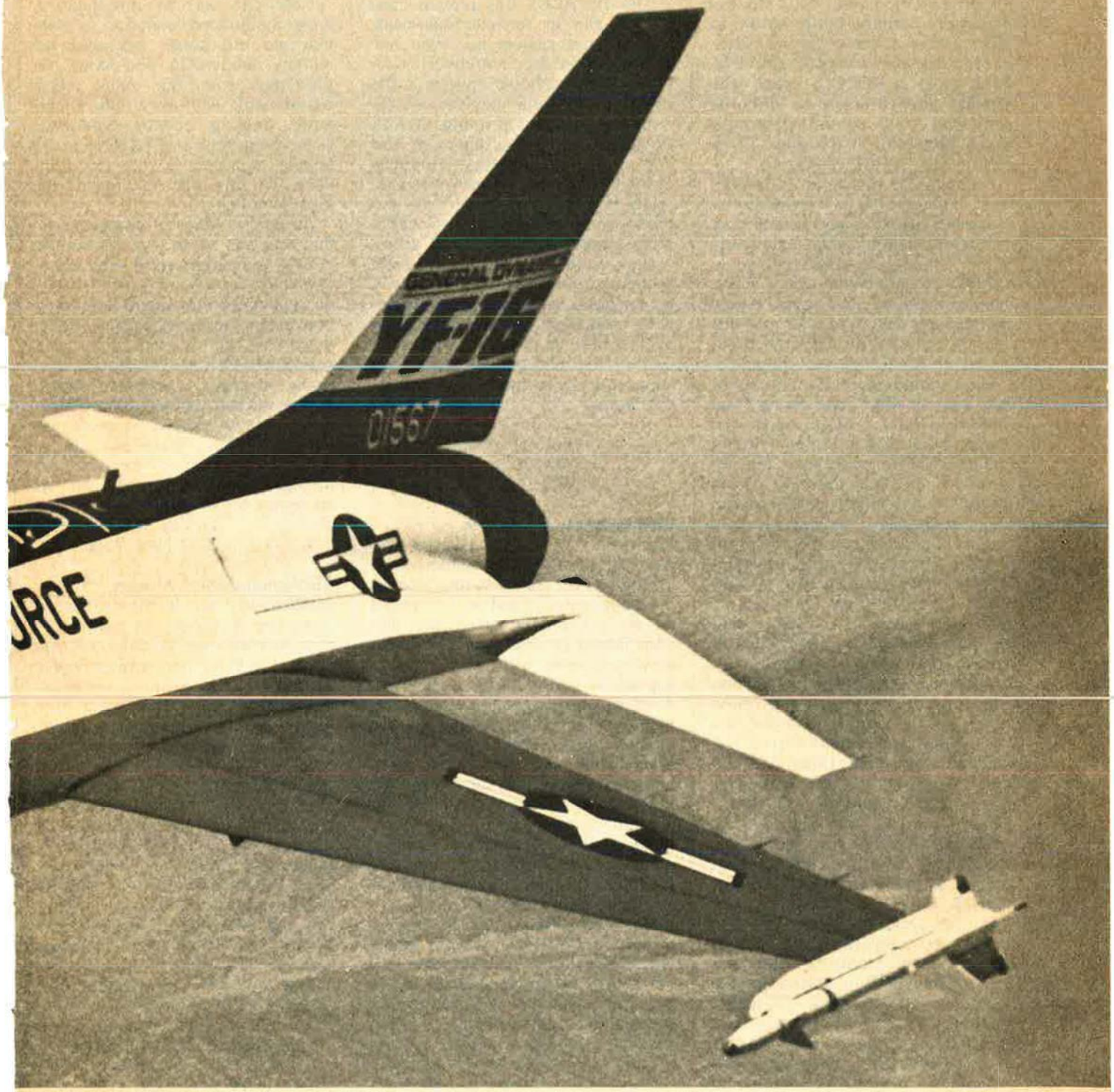
long before the aircraft ever flew.

in the F-15 and the YF-16 was a handful of bolts and a couple of adaptors.

What they installed was a proven engine. With more than 28,000 development hours now behind it. With maintenance training completed and tech manuals printed. With production under way and spare parts in the pipeline.

And while what they looked for from Pratt & Whitney Aircraft was reliability and technological leadership, what they got was more. They got an engine that had spent 2600 hours in the air before the YF-16 ever flew.

Pratt & Whitney Aircraft, Division of United Aircraft Corporation, East Hartford, Conn. 06108.



Pratt & Whitney Aircraft DIVISION OF UNITED AIRCRAFT CORPORATION

Dependability that pays off on the bottom line.

Airmail

7th ACCS

Gentlemen: As a member of the 7th Airborne Command and Control Squadron, perhaps better known to SEA combat aircrews as the Cricket, Moonbeam, Alleycat, or Hillsboro orbits of ABCCC, I read with interest your articles on airborne command and control platforms, which appeared in the July '74 issue of AIR FORCE Magazine.

I was a bit dismayed, however, that you dealt only with projected or proposed ABCCCs and in doing so neglected completely the experience of our 7th ACCS crews gained in 122,000 accident-free flying hours, most of these combat hours. Surely we have something to offer to a discussion on what an Airborne Command and Control Center should be.

First, some history. Born in Southeast Asia in 1965, and flying from Da Nang, the 7th ACCS supported combat air strikes in Vietnam during Rolling Thunder operations. Moving to Udorn in 1968, the role of the 7th ACCS expanded as the role in SEA changed.

Diverting strike and recce aircraft to more lucrative targets, assisting in SAR efforts by providing coordination of resources until "King" could get on-scene, and forwarding real-time intelligence information to the decision-makers at Seventh Air Force were some of the many roles played by 7th ACCS. Finally, moving to Korat in April 1973, our role was again broadened during the Cambodian conflict. Under the call sign "Cricket," the 7th ACCS replaced the Seventh Air Force TACC during its move from Saigon, provided FACs with target "validations," and was the last combat aircraft to leave Cambodia on August 15, 1973.

During October 1974, the 7th ACCS deployed two capsules to Alaska to participate in "Exercise Ember Dawn 75." In Alaska, for the first time outside SEA, "Cricket" employed TACAIR in support of a light infantry brigade. They did this by being able to communicate with the infantry brigade commander in order that FACs and fighters could handle tactical emergencies in minimal time. This got the infantry soldier the airpower he needed when he needed it.

The 7th ACCS has proved itself in war and in realistic exercises. It is an old system but tried and proved—it is the forerunner of future systems. Should anyone in the planning echelons consider our experience pertinent to future AWACS or ABCCC programs, they can now find us at Clark Air Base, Republic of the Philippines, where we remain ready to provide true real-time airborne command and control capability anywhere in the world today.

Until such time as the futuristic systems are in being, the 7th ACCS is available and ready for worldwide deployment in any contingency in order to properly command, control, and coordinate airpower in support of the Army/Air Force combat team.

Col. John S. Roosma, Jr.
Director of Battlestaff
7th ACCS
APO San Francisco

Champion for Ms. Cadet

Gentlemen: In reference to the article "Will the Service Academies Go Coed?" by Ed Gates, in the October '74 issue, you can put me on record as an active-duty Air Force unit commander (and as a service academy graduate) with female(s) assigned, as being wholly in favor of coed service academies. We in the military preach that people are our most valuable asset, our first responsibility, and other such platitudes, while at the same time we point to our service academies as institutions that provide their graduates with the necessary training, education, etc., to become the best qualified, hardcore, career leaders for their respective services.

How can we continue to be guilty of such double-talk? We are ignoring the basic issue, discrimination! We say by our actions that we will *not* provide equal opportunity to those future leaders of our military services who happen to be female. At the same time, we are denying those leaders (males) we do train at the academies the opportunity to work and learn together with female cadets, thereby neglecting a most important part of each graduate's development.

How can we, as graduates of these institutions, continue to claim that we are better equipped for military leadership positions? We graduates enter our initial officer assignments with very little knowledge, training, and/or experience in working with and relating to the female members of our organizations. We are also victims of this *discrimination*!

As for the issue of combat, I say that this was proved by the conflict in SEA and again by the Arab-Israeli conflict to be a dead issue. There is no real reason to regard women as unavailable for combat duty. When it comes right down to personal survival, which is what combat is really all about, I refuse to believe that a woman cannot or would not fight. Women should be given that choice and the opportunity to receive equal training. As it stands, they are denied both, and we are all losers as a result.

Lt. Col. Alan L. Thelin
APO New York

Northamptonshire Airmen

Gentlemen: I am in the process of compiling a history of aviation in this area and am anxious to make contact with airmen who served in Northamptonshire during 1942–45.

The activities of the Eighth Army Air Force are of particular interest over here and, while I have been able to make good contacts with two of the local groups, I have had little success in tracing members of the 305th Bomb Group, ex-Chelveston, and the 351st Bomb Group, ex-Polebrook. We had one fighter outfit in the county, the 20th Fighter Group at Kings Cliffe, and another was the 801st/492d Group at Harrington, which worked principally with the OSS.

The Ninth Air Force tends to get overlooked historically, but there was one unit locally, the 315th Troop Carrier Group at Spanhoe.

I would be most grateful if any ex-members of these units could contact me. While I am chiefly seeking personal reminiscences and anecdotes, I am always hopeful of

locating documents and photographs that can be copied. Anything loaned will be carefully handled and returned promptly after copying.

Michael L. Gibson
49, Meadow View
Higham Ferrers, Wellingborough
Northants, England

Where Are You, 491st BG?

Gentlemen: I am looking for all ex-members of the 491st Bomb Group, 2d Air Division, Eighth Air Force, who served in any capacity during World War II. The 2d Air Division Association has been in existence since shortly after the war and includes many groups.

It seems that the 491st Bomb Group has disappeared, and I am having a difficult time tracking them down. Any reader who was in the 491st or knows of anyone, please contact me. I will send out the latest Newsletters and other information.

Theodore Parker
V.P.—491st Bomb Group
297 Proctor Ave.
Revere, Mass. 02151

• *The following letter from Colonel Woolnough should help Mr. Gibson and Mr. Parker off to a flying start.*—THE EDITORS

8th Air Force News

Gentlemen: Now former members of the Eighth Air Force will be able to contact their unit organizations through a newly inaugurated *8th Air Force News.* If a unit organization does not yet exist, an attempt will be made to bring interested members together.

This service is being underwritten by a number of existing unit associations. Their goal is to reach a larger share of the 300,000 men who served in England with the Eighth Air Force during World War II.

At the present time, the *8th Air Force News* is in contact with representatives of thirty-one operational groups, one half of the total, and ten other units (wing and division headquarters, depots, and other units). Contact has also been established with related associations (POW, E&E, aircraft crewmen, aces, etc.).

In addition to providing unit information to individuals, the *8th Air Force News* will provide each identified unit with up-to-date news on reunion plans, newsletters, published histories, memorials, etc., of the other units.

A stamped, self-addressed envelope will provide Eighth Air Force men with the latest information on their unit and the name and address of their contact men.

Lt. Col. John H. Woolnough
Editor, *8th Air Force News*
7752 Harbour Blvd.
Miramar, Fla. 33023

Stalag Luft III POWs

Gentlemen: I am presently writing a complete history of Stalag Luft III (Sagan, Germany/Poland) and would very much like to hear from anyone who might be able to make available to me photos, unit histories, personal reminiscences, etc., that would add to the human interest and authenticity of the account.

Would also like information on reports that may have been filed with various government agencies pertaining to any aspect of life and activities at the camp.

Capt. Arthur A. Durand
396 Jennifer Jean Dr.
Baton Rouge, La. 70808

Curtis Field Homecoming

Gentlemen: The Chamber of Commerce of Brady, Tex., is planning to host a homecoming for those people who were associated with the operation of Curtis Field during its flight training program from late 1940 until it closed operation in

---

The Brothers Gill

Gentlemen: We are just writing to thank you very much for inserting our request for old flight manuals in with our letters [September '74 issue]. . . . So far, we have had a large number of interesting letters, and they confirmed our impression of Americans—that on the whole they are an extremely friendly and generous people.

We have had several people write asking us to do things for them, and we are really pleased to be able to do this, as we have had so much help from others, which we cannot fully repay. We have had letters from several people who just wanted to start a correspondence, and even one from someone who wanted to join the RNZAF and wanted to know how to do it. . . .

David and Peter Gill
Christchurch, N. Z.

Gentlemen: We subscribe to your fine journal here at the University of Virginia and find it to be an excellent aid for use in our AFROTC curriculum throughout the year.

We, too, have been following your correspondence with the young Gill brothers from New Zealand, perhaps more closely than others for we have a pair of Gill brothers here at UVa also aspiring for a career in the Air Force.

After reading of the New Zealanders' request for flight manuals, John and Tom, the Virginia Gills, collected a number of manuals and have forwarded them to David and Peter through the Arnold Air Society unit here at the University of Virginia.

Enclosed is their letter and a picture of our two cadets. Perhaps someday we'll see the Gill clan working together on combined or exchange assignment.

Col. Michael M. Miller
Commander, Det. 890, AFROTC
University of Virginia
Charlottesville, Va. 22903

The Gill brothers of the University of Virginia, Tom on the left and younger brother John on the right.

Dear David and Peter: My brother, Tom, and I found your correspondence with AIR FORCE Magazine very interesting. We both share your high enthusiasm about serving in the Air Force. Although I am restricted to ground operations, Tom will one day fly.

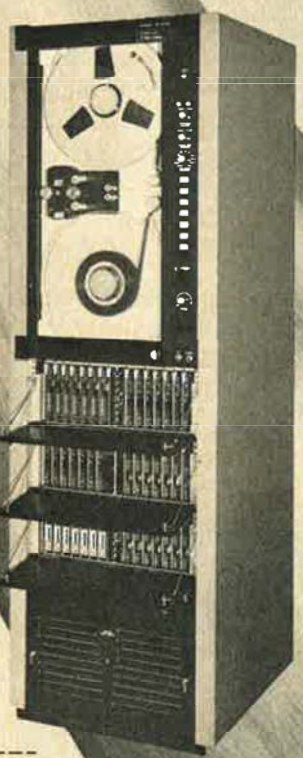
Your letters brought us into contact with flight manuals for the first time. Now, we can understand your interest in them. Anyway, on behalf of the men and women of Detachment 890 and Arnold Air Society at the University of Virginia, we would like you to have and enjoy the enclosed flight manuals.

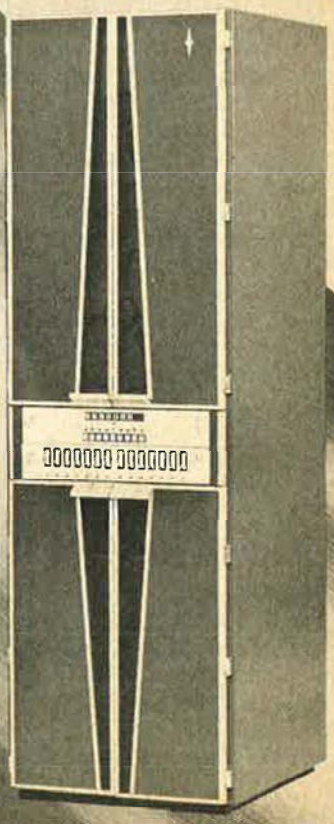
Thank you for the very interesting reading.

Tom and John Gill
Charlottesville, Va.

One for All and Four for One

Because magnetic tape recording needs differ, Bell & Howell has four precision laboratory-grade instruments to handle data acquisition and reduction requirements. • From the laboratory to remote locations, from airborne applications to submarine data collection, these Bell & Howell recorders meet the most stringent environmental and military standards. • Bell & Howell's M-14 Series meets Navy standards for use in ELINT (electromagnetic intelligence) activities. Compact, lightweight and reliable, these 14 or 28 track recorders are at home in the instrumentation laboratory or in nuclear submarines. • The CPR-4010, a 14-channel recorder/reproducer, has many of its big brothers' features. Expandable to 28 tracks, it is completely self-contained, portable and is one of the most cost-effective tape recorders available. • For performance and dependability, few recorders match the VR-3700B. Its performance specifications and characteristics are unmatched by any competing recorder. It can also record up to 80 million BPS over 28 tracks. • STARR, the State-of-the-Art Recorder/Reproducer, was designed to handle virtually every difficult data reduction task. Wide dynamic range, data integrity, spectral purity and ease of operation are major design considerations of STARR. • These, like all Bell & Howell recorders, are backed by nearly 30 years in the design and development of quality instrumentation. • For more information on how we can help you handle your recording requirements, contact William Zondler at (213) 796-9381 or fill out the coupon below. • We have four good solutions to your magnetic tape recording problems.





CEC/INSTRUMENTS DIVISION

BELL & HOWELL

BELL & HOWELL/CEC INSTRUMENTS DIVISION
360 Sierra Madre Villa, Pasadena, California 91109

Please send me information describing your laboratory-grade magnetic tape recorders.

NAME_____
TITLE_____
COMPANY_____
ADDRESS_____
CITY_____ STATE_____
ZIP_____ PHONE_____

© Bell & Howell 1975 M-14 and STARR are trademarks of Bell & Howell Company

Airmail

1945. It is our understanding that some 10,000 aviation cadets received training during that time and that probably around 1,500 civilian employees of Brady Aviation were involved.

Several close ties were made between these people and the City of Brady, but we need to get the word out to as many people as possible to make this a real event. Our plans are to have the homecoming May 2, 3, and 4, 1975, and will include activity such as a golf tournament, fishing, and a banquet. Our major problem is knowing how many to plan for.

Assistance in reaching those who contributed so much to military aviation is needed. Anyone desiring to attend or wanting additional information please write to

Harold Underwood, Mgr.
Chamber of Commerce
101 E. First St.
Brady, Tex. 76825

Former Members, 447th

Gentlemen: I have been monitoring the Unit Reunion section but do not recall any notice of the 447th Bomb Group, Eighth Air Force, based near Stowemarket, England, in WW II.

Would appreciate comments from the former members, and also any information on the group history.

Jay W. Ames
R. D. #2
Mayport, Pa. 16240

Interdiction Monograph

Gentlemen: Help is needed in telling the Southeast Asia airpower story. A group of ACSC students is writing a monograph on interdiction of the Ho Chi Minh Trail and we need human interest photographs and anecdotes about personnel, machines, and units.

Full recognition will be given individuals for any materials used. However, none can be returned without a self-addressed, stamped envelope. Send all items to

Maj. James M. Hinkle
ACSC Box 75-1344
Maxwell AFB, Ala. 36112

Origin of AVG

Gentlemen: I have just completed my Master's Degree in history with much of my study centered on twentieth century America. I have written several papers on China and the US during World War II, including one on the conception and formation of the American Volunteer Group. I thoroughly enjoyed Franklin Hibel's article on Claire Chennault in the November issue, but one important fact should be noted.

Claire Chennault, in actuality, did not conceive the idea of the AVG, as Mr. Hibel states. On page 90 of his memoirs, Chennault states that Chiang Kai-shek proposed the idea of hiring American pilots to fly American fighters. Claire Chennault was at first quite pessimistic concerning such a group, but by the time he arrived in Washington, D. C., with Gen. P. T. Mow, he was convinced the concept would work and used his expertise to provide the origins and structure of the AVG.

I thoroughly enjoy your fine publication, and articles such as Mr. Hibel's contribute a great deal to the magazine's merit.

Capt. Art Lucas
Valdosta, Ga.

Page 1

U. S. POSTAL SERVICE
STATEMENT OF OWNERSHIP, MANAGEMENT AND CIRCULATION
(Act of August 12, 1970: Section 3685, Title 39, United States Code)

SEE INSTRUCTIONS ON PAGE 2 (REVERSE)

1. TITLE OF PUBLICATION: AIR FORCE Magazine
2. DATE OF FILING: Nov. 13, 1974
3. FREQUENCY OF ISSUE: Monthly
4. LOCATION OF KNOWN OFFICE OF PUBLICATION *(Street, city, county, state, ZIP code) (Not printers)*: 1750 Pennsylvania Ave., N.W., Washington, D.C. 20006
5. LOCATION OF THE HEADQUARTERS OR GENERAL BUSINESS OFFICES OF THE PUBLISHERS *(Not printers)*: 1750 Pennsylvania Ave., N.W., Washington, D.C. 20006
6. NAMES AND ADDRESSES OF PUBLISHER, EDITOR, AND MANAGING EDITOR

PUBLISHER *(Name and address)*: James H. Straubel, 1750 Pennsylvania Ave., N.W., Washington, D.C. 20006

EDITOR *(Name and address)*: John F. Loosbrock, 1750 Pennsylvania Ave., N.W., Washington, D.C. 20006

MANAGER EDITOR *(Name and address)*: Richard M. Skinner, 1750 Pennsylvania Ave., N.W., Washington, D.C. 20006

7. OWNER *(If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding 1 percent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a partnership or other unincorporated firm, its name and address, as well as that of each individual must be given.)*

NAME	ADDRESS
Publication of the Air Force Association, a nonprofit organization, no stockholders	1750 Pennsylvania Ave., N.W., Suite 400 Washington, D.C. 20006

8. KNOWN BONDHOLDERS, MORTGAGEES, AND OTHER SECURITY HOLDERS OWNING OR HOLDING 1 PERCENT OR MORE OF TOTAL AMOUNT OF BONDS, MORTGAGES OR OTHER SECURITIES *(If there are none, so state)*

NAME	ADDRESS
NONE	

9. FOR OPTIONAL COMPLETION BY PUBLISHERS MAILING AT THE REGULAR RATES (Section 132.121, Postal Service Manual)

39 U. S. C. 3626 provides in pertinent part: "No person who would have been entitled to mail matter under former section 4359 of this title shall mail such matter at the rates provided under this subsection unless he files annually with the Postal Service a written request for permission to mail matter at such rates."

In accordance with the provisions of this statute, I hereby request permission to mail the publication named in item 1 at the reduced postage rates presently authorized by 39 U. S. C. 3626.

(Signature and title of editor, publisher, business manager, or owner)

10. FOR COMPLETION BY NONPROFIT ORGANIZATIONS AUTHORIZED TO MAIL AT SPECIAL RATES *(Section 132.122, Postal Manual)*

(Check one)

The purpose, function, and nonprofit status of this organization and the exempt status for Federal income tax purposes: ☒ Have not changed during preceding 12 months ☐ Have changed during preceding 12 months *(If changed, publisher must submit explanation of change with this statement.)*

11. EXTENT AND NATURE OF CIRCULATION	AVERAGE NO. COPIES EACH ISSUE DURING PRECEDING 12 MONTHS	ACTUAL NUMBER OF COPIES OF SINGLE ISSUE PUBLISHED NEAREST TO FILING DATE
A. TOTAL NO. COPIES PRINTED *(Net Press Run)*	138,432	148,142
B. PAID CIRCULATION 1. SALES THROUGH DEALERS AND CARRIERS, STREET VENDORS AND COUNTER SALES	1,061	412
2. MAIL SUBSCRIPTIONS	128,819	137,423
C. TOTAL PAID CIRCULATION	129,880	138,059
D. FREE DISTRIBUTION BY MAIL, CARRIER OR OTHER MEANS 1. SAMPLES, COMPLIMENTARY, AND OTHER FREE COPIES	6,274	8,633
2. COPIES DISTRIBUTED TO NEWS AGENTS, BUT NOT SOLD	- 0 -	- 0 -
E. TOTAL DISTRIBUTION *(Sum of C and D)*	136,154	146,692
F. OFFICE USE, LEFT-OVER, UNACCOUNTED, SPOILED AFTER PRINTING	2,278	1,450
G. TOTAL *(Sum of E & F—should equal net press run shown in A)*	138,432	148,142

I certify that the statements made by me above are correct and complete. *(Signature of editor, publisher, business manager, or owner)* John F. Loosbrock

PS Form 3526 July 1971

Airpower in the News

By Claude Witze
SENIOR EDITOR, AIR FORCE MAGAZINE

The New Face of Congress

Washington, D. C., November 25

So far as national security is concerned, it is less important to report that one political party gained to the other's loss than it is to comment on the shift toward the left. The new, Ninety-fourth Congress, in session by the time this issue of AIR FORCE Magazine is delivered, will be substantially more liberal than was the Ninety-third Congress. Almost without exception, the incumbents who lost were supporters of a strong defense program, and that includes the few Democrats who failed of reelection. On November 5, the voters of the country made the House of Representatives more liberal than it has been at any time since Lyndon B. Johnson's Eighty-ninth Congress, the one that legislated the "Great Society" program, went out in 1967.

The real irony may be that national security programs are going to suffer for the wrong reasons. The people were casting ballots to protest the state of the economy and the state of political morality. The election victors didn't promise to do anything about either one and probably won't do anything. There is no doubt about it, the liberals are undeniably in the driver's seat. Sen. Robert C. Byrd, the Democratic whip, says tax reform and national health insurance will get top priority. There will be action, he predicts, on consumer protection, unemployment, and inflation. If anyone knows what to do about the latter items, he has not identified himself. If there is one common opinion on Capitol Hill, it is that the combination of joblessness and soaring prices will keep Congress, and the nation, stymied for a long time.

Spokesmen for liberal organizations are not hiding their jubilation. Maurice Rosenblatt of the National Committee for an Effective Congress is quoted as saying advocates of a big military budget, or what he views as a big budget, will "get a real punch in the nose" from the new Congress. He thinks conservation "should become as hot an issue as civil rights in the sixties." A spokesman for the Democratic Study Group in the House hails a gain of at least forty votes "for progressive forces" in that chamber. And the Democrats do not stand alone. The Republicans, those that are remaining, have changed their nature. Of nine elected to the Senate, four belong to the so-called progressive wing. Conservative Republicans in the House were trounced.

A few days ago, as the lame-duck Ninety-third Congress paddled through its last days, Sen. Mike Mansfield, the Democratic leader, gave a speech before the Senate Democratic Conference. Disappointed by the low turnout of voters on November 5, he warned his colleagues that it is superficial to talk about "Democratic domination of the federal political structure." He listed some tasks to be done before the end of the year. Passage of a military construction bill was the only item bearing on national defense.

The majority leader then looked ahead and justified his own action in offering legislation that makes it possible to launch a wage and price control program. He said the majority of Congress probably is opposed to controls, but should be prepared to accept them. He cited an NBC poll indicating that fifty-two percent of the voters favor controls.

Mr. Mansfield didn't insert it, but another Senator made sure the results of a survey by Opinion Research Corp. got in the *Congressional Record.* This one reports that sixty-seven percent of a sample say the US should have military strength superior to that of Russia, eighty-six percent believe our research and development program should be at least as large as Russia's, eighty-five percent call for a capability to destroy Russian missiles before they hit us, seventy-four percent do not trust the Soviets to abide by the strategic arms agreement, and sixty-five percent would favor spending $20 billion a year more to regain superiority in arms if we lose it.

There will be some showdowns in the Ninety-fourth Congress on these issues. The viewpoint of the Administration appears to be that, as President Ford has put it, our strength will be "second to none." His top money-decision man is Roy L. Ash, Director of the Office of Management and Budget. Mr. Ash is alarmed by the exploding cost of social programs. If present trends continue, he says, by the year 2000 government budgets, federal, state, and local, will account for about two-thirds of the Gross National Product. The soaring figures are not in the Defense Department budget. The Library of Congress says increases in Social Security payments since 1969 have exceeded the inflation in living costs. And, according to an account in the Washington *Post:*

"The rise in federal outlays for income security, health, education, manpower, and related programs has been truly staggering. The budget document for the current fiscal year shows that federal payments to individuals, plus aid to state and local governments to finance other payments to individuals, has jumped from $22.1 billion, or twenty-four percent of the US budget in 1959, to $134.4 billion, or forty-four percent, in Fiscal 1975."

The bulge in dollar totals, from 1968 on, *were offset by reductions in defense spending.* Mr. Ash is convinced defense can't be cut any more.

A second report worth mention in this regard, despite its remoteness from the Pentagon's immediate problems, is by Arch Patton, former chairman of the Presidential Commission on Executive, Legislative, and Judicial Salaries, printed in the *Wall Street Journal.* Mr. Patton is convinced that fast-mounting Civil Service pay levels provide the "leading edge" of our inflation. The government has 2,700,000 nonmilitary employees. Last year, they were paid $33 billion in salaries. Even as of last week, those who have left and are on pensions

OF GENERAL BROWN'S REMARKS: "NOT BIGOTRY . . . BUT CONCERN"

There have not been many cool and balanced judgments made about Gen. George S. Brown's gaffe concerning American-Jewish and Israeli lobbies. One of them was by the Senate Armed Services Committee, which has rejected the demand for an investigation. Another was in the British publication *The Economist.* The editors said the remarks of the Chairman of the Joint Chiefs of Staff, made on October 10 at a skull session with a group of students at Duke University, "are probably best read not as bigotry, but as symptomatic of the concern of the American military about the Middle East." On top of this, there is the General's own admission that he "provided an unthinking shorthand answer" to a complicated question. He said he used inaccurate words "without knowledge of their emotional impact, and added he meant no affront and "those present felt none." This was borne out by a report from the campus. Peter Kahn, editor of the *Duke Law Review,* and chairman of the group that invited General Brown to appear, and a Jew, said, "There is absolutely no indication that General Brown in any way holds anti-Semitic views."

The General's remarks did contain, as he said, inaccuracies. But the thrust of his comment on the lobbies was correct. This is known by Sen. J. William Fulbright, who has criticized their activity on the floor of the Senate, and by the lobbyists themselves, who know how they mobilized pressure on the Pentagon in the past. The irony in the situation is that when the chips were down in the fall of 1973, it was General Brown who *put the* weapons in the C-5 transports and carried them to the front, as thousands cheered.

The armed forces of the US today are feeling the economic pinch and looking ahead with apprehension. The major new concern is that his critics on Capitol Hill will use the incident at Duke University to embarrass General Brown in his future appearances before the House and Senate. It is difficult to see how this will help the armed forces of Israel or the United States, and the security of both nations could be at stake. If the General has to face heavier guns at home than he ever did in battle, the cause of peace will be ill-served.

Gen. George S. Brown, Chairman of the Joint Chiefs of Staff, former Air Force Chief of Staff.

qualified for a boost in that pension. Mr. Patton took a swing at the automatic boost:

". . . a three percent cost-of-living rise is offset by a four percent boost in federal pensions, which means government pensioners actually make a profit on inflation."

He concludes that civil servants are paid too much, that there are not adequate penalties for inadequate performance, and that Congress is to blame. The push comes from the Civil Service unions: the results are felt in industry, where they inflate the cost of doing business. The Ninety-fourth Congress will face demands for further increases in pay for top officials of all branches of government. The demands will be supported by legislators who think the only fat in the budget is military fat.

It is too early, at this writing, to speculate on membership of key committees in the new Congress. That will be decided when organization gets under way in early January, and there will be some changes made. There is a common opinion, for example, that the House Armed Services Committee is too big. There have been slots for twenty-five Democrats and nineteen Republicans, for a total of forty-four. The ideal size is thirty-seven, according to committee sources.

Through defeats and retirement, the committee is losing eight members, seven of them Republican. This includes the two senior Republicans—William G. Bray of Indiana, and Leslie C. Arends of Illinois. That leaves Bob Wilson of California as the senior GOP member of the committee. On the Democratic side, only O. C. Fisher of Texas is gone, due to retirement. A second Democrat, Otis G. Pike of New York, is a candidate for a seat on the Ways and Means Committee; if he gets it, he will leave Armed Services. It is possible, if Armed Services is reduced to the so-called ideal of thirty-seven members, that there will be a single new Democrat added. Also, the Democratic caucus, which will make these decisions, will be more liberal. This means the new Democrat, if that is the choice made, will be from the dovish camp. It is predicted that Armed Services Chairman F. Edward Hébert will retain that seat, but there will be more votes against him in the caucus than he faced two years ago, when there were forty-one negative ballots for the Louisiana veteran.

If we look at the House Appropriations Committee, there are twelve vacancies, three of them among Republicans on the Defense subcommittee. Of the Republicans on that subcommittee, only Jack Edwards of Alabama will return. The Democrats were untouched. In all of the House of Representatives, thirty-six Republicans were defeated, and almost without exception they were strong supporters of DoD.

Over in the Senate, the balance of power shifts from fifty-eight Democrats and forty-two Republicans to sixty-one Democrats and thirty-nine Republicans. On the Senate Armed Services Committee, the ratio of Democrats to Republicans probably will not be changed, as it will in the House. Sen. Peter Dominick of Colorado was defeated by a liberal Democrat, Gary W. Hart. Sen. Harold E. Hughes of Iowa and Sen. Sam J. Ervin, Jr., of North Carolina have retired. There are rumors that Sen. J. Bennett Johnston of Louisiana may get one of the vacancies. The Defense Appropriations Subcommittee is unchanged.

Because the Senate traditionally has been less

friendly to the Pentagon than the House, there is some interest in the outlook for support from new members. Jake Garn, Republican of Utah, is an officer in the Air Force Reserve, once served in the Navy, and is rated as a conservative. Paul Laxalt, Republican of Nevada, also is a conservative who once served in the Army. Louis C. Wyman, Republican of New Hampshire, is moving to the Senate from the House, where he was a member of the Appropriations Committee and had a solid record of support for the Defense Department.

Among the new Senate Democrats, Hart of Colorado and John C. Culver of Iowa have to be rated as anti-defense. Hart was a McGovernite in the last Presidential campaign, and Culver comes from the House where he opposed nearly all military legislation. John H. Glenn of Ohio is conservative, a former Marine colonel and astronaut. Dale Bumpers of Arkansas also is a Marine veteran and is expected to vote along lines set by his senior, John L. McClellan, also of Arkansas. Wendell H. Ford of Kentucky served in the Army, but he is liberal enough to win the support of labor. Patrick J. Leahy of Vermont is thirty-four years old, the first Democrat elected to the Senate from that state since the Civil War, and has no military experience. Finally, there is Richard Stone of Florida, labeled as a conservative and hard-line anti-Communist.

The Great Unknown appears to lie in the Middle East. It seems inevitable there will be shaking events. They will shake Congress along with the rest of us and if any birds are shot down, they will be doves. ■

The Wayward Press

It is nearly four years since the Columbia Broadcasting System perpetrated the outrage of *The Selling of the Pentagon*, staunchly denied it had violated any canons of journalism, and then promised not to do it again. There appears to have been some improvement in the caliber of CBS newscasting since then, but not enough. A new study, called *TV and National Defense: An Analysis of CBS News, 1972–1973*, has been published by the Institute for American Strategy, and it documents the bias. The author is Dr. Ernest W. Lefever, a senior fellow of the Brookings Institution.

The conclusion he reaches should not surprise anyone. It is that for the two years under examination, the CBS Evening News "was seriously deficient in presenting a fair, full, and meaningful picture of national security developments." Backbone of the complaint is the violations Dr. Lefever found of the Fairness Doctrine, supposedly enforced by the Federal Communications Commission.

CBS Evening News, anchored by Walter Cronkite, is lopsided, the study concludes. On defense issues, the record shows CBS portrays external threats to US security as *less* serious than perceived by the Administration. It rarely gives time to the viewpoint that these threats are *more* serious than perceived by the Administration. In fact, a statistical study of broadcast references for 1972 shows that material discounting the security threat got on the screen in 61.83 percent of the script, as opposed to 3.54 percent for the opposite opinion.

Probably more serious in this era of trial about national priorities, CBS, in the period examined, failed completely to tell its listeners anything about at least two dozen developments in Russia that helped upset the balance of power. In the two years covered by the Lefever study, CBS Evening News devoted a total of one minute explicitly to a comparison of US and Soviet strength. The CBS audience of 13,000,000 heard *nothing* about the successful testing of a new Russian 4,500-mile, submarine-fired missile, the development of new land-based missiles, the testing of a Soviet satellite that can destroy US satellites, initial production of the Backfire bomber, the launching of the first Soviet aircraft carrier, or that the Kremlin spends twenty percent of its Gross National Product on defense, as compared to our 5.9 percent.

At the same time, CBS Evening News did include a broadcast about the pilferage of tableware from the Pentagon cafeteria. If patrons steal cutlery from the CBS cafeteria, that's not news.

There is one chapter in the book on how CBS covered the war in Vietnam. The network heavily favored reports that the US should not be in Vietnam, that atrocities were committed by Americans, that Washington was too heavily influenced by Saigon, and that the American public was deceived about the situation. During 1972, the book says, CBS "rarely gave US officials or other supporters the opportunity to explain or justify the government's policy toward Vietnam, while it gave critics of US involvement remarkably free rein to denounce the government. . . ." The lopsidedness this time was in a ratio of 4.25 to 1.

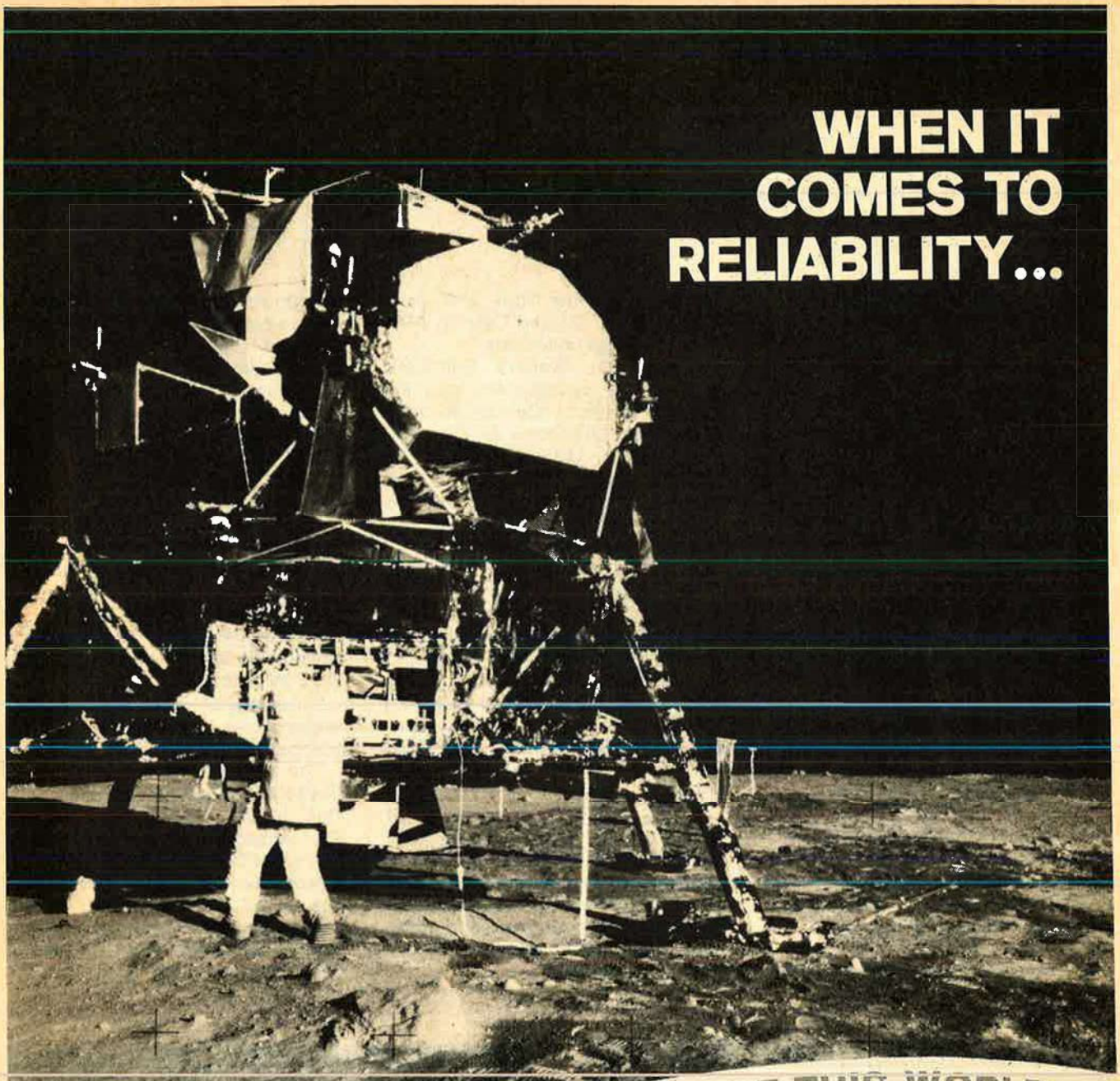
North Vietnam was given kind treatment by CBS: "Nearly 58 percent of the theme material was favorable to Hanoi or its military forces." The book is replete with tables, and here is a good example, on "How CBS Portrayed the Two Vietnams," expressed in the frequency of the themes appearing on the tube:

	Saigon	Hanoi
Armed services are doing well	33	56
Other support or commendation	6	29
Regime is treating POWs well	—	9
Regime is corrupt, repressive, or unpopular	31	1
Regime is obstacle to peace or other criticism	88	51
Armed services are doing poorly	76	18

Probably the most shocking figure in this table is the one disclosing that on nine occasions CBS, operating under a government franchise, gave air time to persons like Ramsey Clark, who tried to tell us the POWs were happy and healthy. And Roger Mudd, the study shows, did a highly favorable story about North Vietnamese General Giap. It was not called *The Selling of North Vietnam*.

There are two remaining observations that cannot be neglected. The first is that Dr. Lefever worked from the TV News Archive maintained at Vanderbilt University. CBS has gone to court in an effort to prevent this file of its newscasts from being made available to researchers.

The second is that all of the excesses practiced by CBS are, and should be, legitimate in the practice of journalism via the printed word. Freedom of the Press means just what it says. The invasion of this area by show biz, which is what the TV networks are practicing, is, and should be, governed in a different way. There is no Freedom of the Airways, comparable to the Freedom of the Press. If there is any important failing in the Lefever report, it is the failure to define this difference.



WHEN IT COMES TO RELIABILITY...

SOME OF OUR PRODUCTS ARE OUT OF THIS WORLD.

GRUMMAN AEROSPACE CORPORATION

Aerospace World

News, Views & Comments

By William P. Schlitz

ASSISTANT MANAGING EDITOR, AIR FORCE MAGAZINE

Washington, D. C., Dec. 2

Under a major Defense Department plan to cut costs and tighten the force structure, USAF, along with the other services, faces wholesale realignments of resources and personnel.

The action will affect 111 installations by 1977 and result in the elimination of 11,600 civilian defense jobs. Some 11,500 military personnel will be reassigned to combat and combat-support activities, officials said.

In the following ten years, to 1987, DoD hopes to chop into support costs by $3.3 billion, with the saving being used to beef up combat effectiveness.

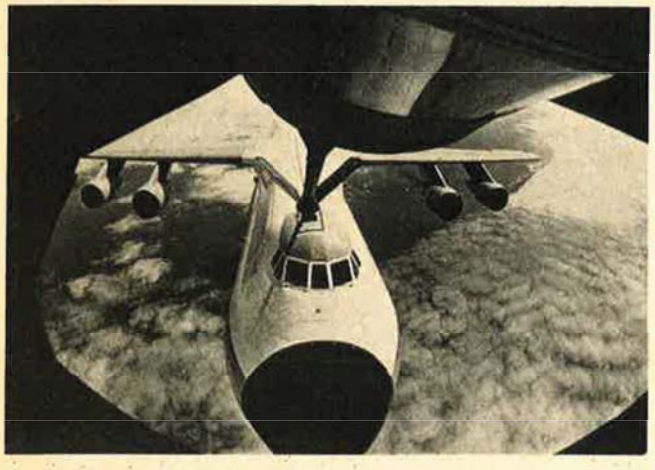
The Pentagon is also reviewing overseas support organizations.

Regarding USAF, the plan calls for the following:

- Hq., Air Force Communications Service, Richards-Gebaur AFB, Mo., will be disestablished and its management functions assigned to Hq. MAC, Scott AFB, Ill. This action will be completed by the end of FY '76.
- Three tactical air division headquarters—at Little Rock AFB, Ark., Pope AFB, N. C., and Cannon AFB, N. M.—will be inactivated.
- Air Force Systems Command labs will be consolidated and the Special Weapons Center, Kirtland AFB, N. M., and Rome Air Development Center, Griffiss AFB, N. Y., will be discontinued, with their major functions being transferred elsewhere. Air Force Cambridge Research Laboratories, L. G. Hanscom Field, Mass., will be realigned to include command control and communications work. A Wright Technology Center will be established at Wright-Patterson AFB, Ohio, and an environmental research facility at Kirtland AFB.
- The 17th Bomb Wing, Wright-Patterson AFB, will be inactivated and its B-52s and KC-135s redistributed.
- SAC refueling squadrons at Fairchild AFB, Wash., Pease AFB, N. H., and Rickenbacker AFB, Ohio, will be used to modernize Air National Guard (ANG) squadrons at Fairchild, Rickenbacker, and Little Rock AFBs, and Bangor International Airport, Me.
- Some 400 aging reciprocating engine aircraft used for administrative and support flying will be retired. Under MAC, jet-powered support aircraft will be consolidated at central sites.
- Twelve SAC satellite alert activities will close down.
- ANG units at eleven locations and Air Reserve units at two sites will be modernized.
- Seven Aerospace Defense Command radar activities will be discontinued and their traffic control functions assumed by FAA.
- Ellington AFB, Tex., will be closed and its Air Reserve and ANG units relocated.

Listed below are the USAF base realignments, with less significant changes omitted:

The SAC alert activities to close: Castle AFB, Calif.; Homestead AFB, Fla.; McCoy International Airport, Fla.; Mountain Home AFB, Idaho; Forbes AFB, Kan.; Salina Municipal Airport, Kan.; Westover AFB, Mass.; Roswell Municipal Airport, N. M.; Clinton-Sherman Field, Okla.; Amarillo Air Terminal, Tex.; Bergstrom AFB, Tex.; Hill AFB, Utah.



The Air Force's strategic airlift capabilities have been extended another giant step now that C-5 aircrews are being trained in aerial refueling techniques. This fish-eye lens photo of the huge cargo craft was taken by TSgt. Phil Tarbell from the boom operator's position aboard a KC-135 tanker on an inflight refueling mission out of Travis AFB, Calif. MAC also plans to equip its C-141s for aerial refueling.

Displaying decorations for heroic conduct while prisoners in Southeast Asia are Cols. Donald R. Burns, right, and Bruce G. Seeber, left, flanking Maj. Ronald J. Webb. Now assigned to Hq. TAC, each received the Silver Star, Legion of Merit, and Bronze Star, or oak-leaf clusters to those medals. The men were cited for their performance during extremely adverse conditions. For awards to other former SEA prisoners, see pp. 24 and 25.

A Navy Cruise Missile Inert Test Vehicle, designed by LTV. In operation, this type missile—sub-, aircraft-, or ground-launched—would be boosted to flight speed by a rocket motor, extend its wings, and fly long distances powered by a small turbofan engine. Missions: tactical or strategic.

The radar squadrons to be inactivated: 750th Radar Sqdn., Boron AFS, Calif.; 858th, Fallon AFS, Nev.; 648th, Benton AFS, Pa.; 861st, Aiken AFS, S. C.; 649th, Bedford AFS, Va.; 637th, Othello AFS, Wash.; 674th, Osceola AFS, Wis.

RELOCATIONS:

Western Air Force Reserve Region, from Hamilton AFB, Calif., to McClellan AFB, Calif.;

904th Tactical Airlift Gp., AFRes, from Hamilton AFB, Calif., to McClellan AFB, Calif.;

163d Tactical Air Support Gp., ANG, from Ontario Int'l Aprt., Calif., to March AFB, Calif.;

One sqdn. of TAC C-130s from Langley AFB, Va., to Scott AFB, Ill.;

One sqdn. of TAC C-130s from Langley AFB, Va., to McChord AFB, Wash.;

Reserve units, including an ANG group converting from F-101 to RF-4, and an AFRes tactical airlift group (C-130), from Ellington AFB, Tex., to Bergstrom AFB, Tex.;

141st Fighter Interceptor Gp., ANG, redesignated air refueling group with KC-135s, moving from Spokane Int'l Aprt., Wash., to Fairchild AFB, Wash.

CONVERSIONS:

189th Tactical Reconnaissance Gp., ANG, (RF-101), Little Rock AFB, Ark., becomes aerial refueling squadron (KC-135);

124th Fighter Interceptor Gp., ANG, (F-102), Gowen Field, Idaho, becomes tactical recce gp.;

101st Fighter Interceptor Gp., ANG, (F-101), Bangor Int'l Aprt., becomes air refueling gp. (KC-135);

127th Tactical Fighter Gp., ANG, (F-100), Selfridge ANG Base, Mich., becomes tactical airlift gp. (C-130B);

148th Fighter Interceptor Gp., ANG, (F-101), Duluth Int'l Aprt., Minn., becomes tactical recce gp. (RF-4C);

920th Tactical Airlift Gp., AFRes, (C-130B), Keesler AFB, Miss., becomes weather recce unit (WC-130);

152d Tactical Reconnaissance Gp., ANG, Reno Municipal Aprt., Nev., converts from RF-101 to RF-4;

157th Tactical Airlift Gp., ANG, (C-130), Pease AFB, N. H., becomes air refueling gp. (KC-135);

160th Air Refueling Gp., ANG, Rickenbacker AFB, Ohio, converts from KC-97 to KC-135;

143d Special Operations Gp., ANG, (C-119/U-10), Theodore F. Green Municipal Aprt., R. I., becomes tactical airlift gp.;

130th Special Operations Gp., ANG, (C-119/U-10), Kanawha County Aprt., W. Va., becomes tactical airlift gp. (C-130E);

156th Tactical Fighter Gp., San Juan Int'l Aprt., Puerto Rico, converts from F 104 to A-7D.

INACTIVATIONS:

834th Air Div., TAC, Little Rock AFB, Ark.;

832d Air Div., TAC, Cannon AFB, N. M.;

839th Air Div., TAC, Pope AFB, N. C.;

552d Airborne Early Warning & Control Gp., McClellan AFB, Calif.;

76th Aerospace Rescue & Recovery Sqdn., Hickam AFB, Hawaii;

One SAC air refueling squadron at Pease AFB, N. H.;

One squadron of 16 TAC C-130s at Langley AFB, Va.;

One of two SAC air refueling squadrons with fifteen KC-135s at Rickenbacker AFB, Ohio;

One of three tactical reconnaissance squadrons (RF-4, 18 aircraft) from the 67th TRW at Bergstrom AFB, Tex.

CLOSURES:

Matagorda Island, Tex., Air Force gunnery range;

Osceola AFS, Wis.

Ellington AFB, Tex., will be closed to all Air Force functions, with some NASA activities remaining.

PROVEN, EXPANDABLE COMMUNICATIONS-LINK FOR WIDEBAND USERS

DSCS II spacecraft have proved their ability, in orbit, as an efficient wideband data relay for the global U.S. defense communication system. With this capability, field units operate effectively with simpler equipment, fewer personnel, and less costly facilities because data is transmitted directly to headquarters.

Since DSCS II can grow with minor redesign, it is the most cost-effective candidate for the next generation of satellites of this type. Its capacity can be doubled without increasing primary power.

For detailed information on TRW's complete communication satellite systems capability, contact: Neal Jolley, TRW Systems Group, One Space Park, Redondo Beach, California 90278. Phone (213) 536-1015.

TRW®
SYSTEMS GROUP

Aerospace World

ACTIVATED:
Special Operations Sqdn., with CH-3 and UH-1N, at Eglin AFB, Fla.

☆

Six major trophies were awarded at SAC's 1974 Bombing and Navigation Competition at Barksdale AFB, La., in November, and the mammoth scoreboard told the story: The RAF outflew the USAF, while the FB-111 outbombed both the B-52 and the British Vulcan.

(In conjunction with the first such SAC meet since 1971, AFA sponsored a "New Dimensions in Strategic Deterrence" Symposium in nearby Shreveport. *See p. 48.)*

Aircraft and crews representing thirty-one units participated in the bombing competition, including four Vulcan Mark IIs from RAF's Strike Command, two SAC FB-111s, two TAC F-111s, B-52s, and KC-135s. Radar signals rather than bombs were released in the week-long exercise, and Barksdale's 1st Combat Evaluation Group handled scoring.

RAF won both the Mathis Trophy, based on combined bombing and navigation results, and the Navigation Trophy, for best celestial navigation missions: Its 230 Squadron outscored SAC's 92d Bomb Wing from Fairchild AFB, Wash., 2,097 to 2,036; and RAF 101 Squadron navigators beat out the 318th Bomb Wing, Grand Forks AFB, N. D., 367 to 357.

FB-111 crewmen of the 380th Bomb Wing, Plattsburgh AFB, N. Y., took home the coveted Fairchild Trophy as best overall wing by beating out the 68th Bomb Wing, Seymour-Johnson AFB, N. C., 2,717 to 2,568.

The 380th also took the Bombing Trophy, 1,932 to 1,855, over second-place 509th Bomb Wing, Pease AFB, N. H.

The William J. Crumm Linebacker Memorial Trophy, awarded to the B-52 unit with most high-altitude bombing points, went to Fairchild's 92d Bomb Wing, winner over the 97th Bomb Wing, Blytheville AFB, Ark., 548 to 544. The trophy honors Maj. Gen. William J. Crumm, former Eighth Air Force Commander who died in a B-52 crash in SEA July 7, 1967.

In other results, the 68th Bomb Wing from Seymour-Johnson took the Saunders Trophy as top tanker unit in a flyoff with the 410th Bomb Wing, K. I. Sawyer AFB, Mich., following a 964-all tie.

For the Best B-52 Mission Trophy, the 68th engaged in yet another flyoff, with Fairchild's 92d, to break a 1,115 deadlock.

The 68th won its third cup—Best KC-135 Mission Trophy—from K. I. Sawyer, 527 to 502. Best F/FB-111 Mission Trophy went to Plattsburgh's 380th, which edged the 27th TFW, Cannon AFB, N. M., 1,159 to 1,149. RAF's 44 Squadron had the best Vulcan mission.

☆

Tactical Air Command took possession of its first operational F-15 Eagle on November 14 with the air-superiority fighter's arrival at Luke AFB, Ariz.

The plane was piloted by Lt. Col. (Col. selectee) Ted Laudise, Commander of the 555th Tactical Fighter Training Squadron. In the back seat was Col. Frank Bloomcamp, Commander of TAC's 4486th Test Squadron, Edwards AFB, Calif., a unit that had helped put the aircraft through its earlier test paces.

Eagle 01 was greeted by a top-drawer welcoming committee, including the President of the United States (an added honor, in that it was the first visit of a US President to Luke).

Also on hand was an enthusiastic crowd of more than 22,000 military personnel and dependents and many area residents.

(A planned overflight by a second F-15 was canceled because of indication of an engine overheat.)

☆

And General Dynamics' YF-16 and Northrop's YF-17 are coming down to the wire in their scramble to win the potentially lucrative competition for the Air Combat Fighter. The Air

The first of three "Mini-Copters" built by Aerospace General for the Navy. Converting hydrogen peroxide fuel into steam and oxygen, it is pollution free. Weighing less than an average man, it can lift three times its own weight. It folds so it can be air-dropped to downed airmen.

Luke AFB, Ariz., in mid-November, scene of the arrival of USAF's first operational F-15 Eagle. Among some 22,000 welcomers was President Ford himself (see text above). Air Force One is in the background.

The second prototype of the Multi-Role Combat Aircraft (MRCA) over Great Britain on its first flight. The aircraft has been designed and is being built jointly by England, Germany, and Italy for first-line use in the 1980s.

Force is to choose between the two in January 1975.

At this writing, both aircraft have logged hundreds of successful test flights, including many hours at supersonic speeds, in one of the most problem-free development programs in memory.

In recent months, the two contenders have strutted their stuff in both the air-to-air combat role and the air-to-ground attack mission. The test flights have included in-flight weapons firing, ground strafing, bombing, and air-combat maneuvering.

All now rests with the assessments of the many pilots (including Navy—a naval version might be forthcoming) who have flown the aircraft, and other expert evaluators.

☆

A fourth-generation Sidewinder missile—the AIM-9L—has entered the joint technical evaluation phase of its development at the Naval Air Missile Test Center, Point Mugu, Calif.

While previous air-to-air, heat-seeking Sidewinders are restricted to intercepts from the rear half of their targets, the AIM-9L is designed to be launched from any angle, and even at nonafterburning targets.

A joint USAF/USN development, the new Sidewinder is said to have an improved infrared seeker (that provides the all-aspect target detection and launch capability); double delta fins for upgraded maneuverability; guidance circuit improvements for better accuracy; and a more effective target detector and warhead.

A production decision is expected in April 1975, following additional prototype testing.

☆

USAF has been testing helmet-mounted laser acquisition devices (LADs) that will enable pilots to quickly spot and attack targets designated by either ground-based or airborne lasers.

The hope is that LAD, developed by Honeywell, Inc., and under test at Eglin AFB, Fla., will cut substan-

1911 • Wayne O. Reed • 1974

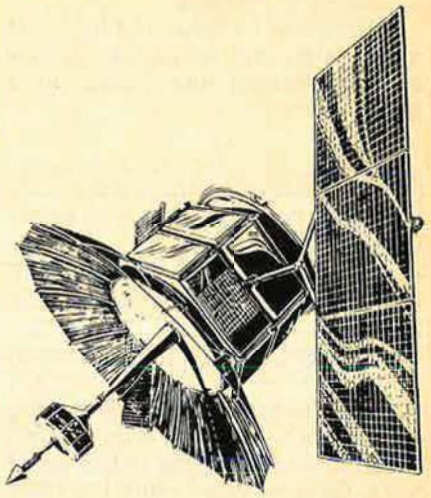
It is with deep regret that the Air Force Association reports the recent death of Dr. Wayne O. Reed of a heart attack at his home in Washington, D. C. He was sixty-three.

Dr. Reed was long associated with the US Office of Education, from which he retired in 1973 as an Associate Commissioner.

A pioneer in aerospace education, Dr. Reed advised AFA on educational matters through the years and helped establish the Aerospace Education Foundation, the AFA affiliate. He was President of the Foundation at the time of his death.

For his work, Dr. Reed was the recipient of many awards and honors, including AFA's 1960 Hoyt S. Vandenberg Award and the Arnold Air Society's General Muir S. Fairchild Award.

POWERFUL COMMUNICATIONS RELAY FOR SEA, LAND & AIRBORNE MOBILE USERS



The modular design of FLEETSATCOM permits payload variations to meet a wide range of user needs. The satellite's body-stabilized design, large solar arrays, and large antenna provide high power for effective transmission of mobile-user signals at UHF frequencies.

The hardened design also provides substantial protection against potentially destructive forms of radiation.

For more detailed information on TRW's complete capability in design, fabrication, integration and test of large communication satellite systems, contact: Neal Jolley, TRW Systems Group, One Space Park, Redondo Beach, California. Phone: (213) 536-1015.

TRW®
SYSTEMS GROUP

Aerospace World

tially into the time needed to deliver ordnance on identified targets, thus decreasing the exposure to enemy fire of aircraft on close-support or interdiction missions.

LAD works by detecting the laser designation and automatically displaying sighting information on a pilot's visor.

☆

Five aviation pioneers have been named to the Aviation Hall of Fame, Dayton, Ohio:

• **Maj. Gen. Leigh Wade,** USAF (Ret.), helped make aeronautical history with the first Round-the-World Flight in 1924 (the subject of a cover story in the March 1974 issue of this magazine). Following a distinguished Air Force career, which included service in two world wars, General Wade retired in 1955. An AFA Chapter in Petersburg, Va., is named in his honor.

• **C. R. Smith,** long-time president of American Airlines and a recognized authority on air transport, was pressed into service in World War II by Gen. H. H. "Hap" Arnold as Deputy Commander of the Air Transport Command. AFA's third President (1948–49) and Board Chairman (1949–50), he served as Secretary of Commerce in the Johnson Administration.

• **Clarence L. "Kelly" Johnson,** probably the US aerospace industry's most distinguished aircraft designer, is to retire this month as a senior vice president of Lockheed Aircraft Corp. His credits go back to the Hudson bomber and World War II's P-38 Lightning. In the postwar years came the P-80 (the first production jet), the Constellation airliner family, the C-130, F-104, U-2, and, most recently, the SR-71, which

WADE

SMITH

JOHNSON

EDP SYSTEMS
ENGINEERING
—
SYSTEMS
RELIABILITY ANALYSIS

AUERBACH

AUERBACH
ASSOCIATES, INC.

PHILADELPHIA • NEW YORK
WASHINGTON • LONDON
(215) 491-8200

Index to Advertisers

set transatlantic speed records in 1974. Father of Lockheed's famous "Skunk Works," he contributed to the design of more than forty aircraft. Awarded the National Medal of Science in 1964 by President Johnson, Mr. Johnson was also the recipient in both 1963 and '64 of AFA's highest aerospace science award—the Theodore von Kármán Trophy.

• **John Knudsen Northrop,** another outstanding aircraft designer, started his career in World War I, was later associated with Donald Douglas, and helped found Lockheed Aircraft Corp. He designed the Lockheed Vega in 1927 and the Northrop P-61 night fighter during World War II. He is also credited with the concept of the flying wing bomber, the F-89 Scorpion, and the

NORTHROP

Snark missile. More recently, Northrop Aircraft Corp., which was founded in 1939, has produced the F-5 International Fighter and the YF-17, an Air Combat Fighter prospect for USAF.

• **T. Claude Ryan** became a pilot in the Army Air Service in 1921 and established his own school of aeronautics a year later. Ryan Airlines, which offered the first scheduled passenger service in the US, later became known as Ryan Aeronautical Co. With Ryan-designed and -built monoplanes dating from 1925, the most famous was flown to Paris in 1927 by Charles Lindbergh. During World War II, Mr.

RYAN

Ryan built training planes and developed the first jet-powered VTOL fighter, the Vertijet. The company today is a leader in RPV technology.

☆

The Air Force has added to its bare-base capability with the development of a new Portable Airfield Light Set (PALS) that can be easily assembled to provide approach and runway lighting for tactical aircraft operating at night and in bad weather.

The air-transportable PALS can be operational in less than twenty-four hours and is designed to withstand a temperature range from twenty-five degrees below zero Fahrenheit to 125 degrees above.

Already tested at Wright-Patterson AFB, Ohio, one such system, built by Technology, Inc., of Dayton, Ohio, is to be further evaluated in its air mobility role by TAC at Eglin AFB, Fla.

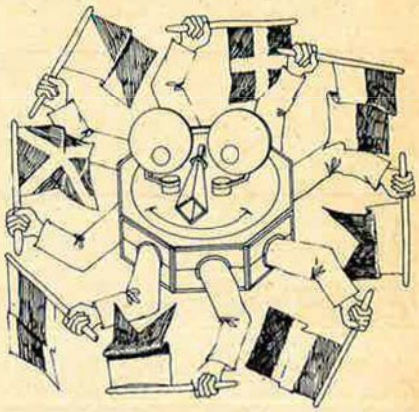
☆

Among current NASA research projects are two that may have far-reaching effects, in terms of resources and materials.

The space agency is looking into the use of fuels derived from oil shale and coal to power aircraft engines. The object is to determine if such hydrocarbon fuels refined to less stringent specifications than those presently in use can run jet engines and other fuel systems efficiently.

Oil shale sources are abundant in the US, and while economical fuel-extraction processes are not yet in hand, most authorities in the field believe it is only a matter of time. This is signficant because air-

MORE COMMUNICATIONS PAYLOAD WITHOUT HEAVIER SATELLITES



Electric propulsion for North-South stationkeeping gives you more communications capacity, revenue, and growth. You can reduce hydrazine propellant load, add electric propulsion, and save perhaps 200 pounds which you can put into more cost-effective payloads.

TRW is developing a colloid thruster system for the Air Force that gives more than 1350 seconds of specific impulse on our test stand. Qualification is planned this year.

Since 1960, we have advanced electric propulsion technology in thrusters, power conditioners, batteries, solar arrays, mission and system analysis, and spacecraft interaction. In our unique facilities, we have obtained extensive spacecraft interaction data on mercury, cesium, and colloid thrusters.

For more information, call Ben Davis, TRW Systems Group, One Space Park, Redondo Beach, California 90278. Phone: (213) 536-3847.

TRW®
SYSTEMS GROUP

Hercules.
The airlifter that keeps acting newer and newer.

Outside Hercules looks much as it did when it first rolled off production lines. Inside it acts like new.

You begin with a simple functional airframe that is almost timeless in its capability to handle airlift missions. Then you improve the operating and avionics systems every chance you get.

The result: the world's most modern tactical and country-building airlifter. An airlifter so sturdy and functional that seven nations reordered it in 1974 and three others chose it for the first time.

The high Hercules wing lets the cargo floor almost hug the ground for fast loading and unloading. Sturdy landing gear lets Hercules go where the cargo is needed. Hercules lands on short dirt, sand, gravel or snowy runways. The huge 9′ x 10′ rear cargo opening lets bulldozers and trucks roll out, fully assembled and ready to go to work.

Inside that simple airframe, all Hercules' systems have been improved. The 1975 Hercs, for example, will have new radar, air conditioning and auxiliary power systems.

Since Hercules first flew, the range has gone from 1,600 to 2,800 nautical miles. Payload has been increased from 30,000 pounds to 45,000 pounds, and even 50,000 pounds in some models. And 37 nations have chosen this timeless airlifter.

Lockheed Hercules

Aerospace World

craft now account for nearly eight percent of *total* petroleum consumption in the US—and demand is growing as air transport continues to expand.

Among tests under way at NASA's Lewis Research Center, Cleveland, is the effect of oil shale fuels on advanced, low-pollution jet engine combustors.

The Air Force is cooperating in this venture and another NASA program involving the use of boron-epoxy reinforced composite materials in aircraft wing structures. The aim here is to develop lighter, stronger, and longer-lasting aircraft.

The Air Force has already accepted delivery of one of two C-130s on which the composite materials are used in the wing midsection, including the inboard engine mounts. The 314th Tactical Airlift Wing, Little Rock AFB, Ark., will test-fly both C-130s.

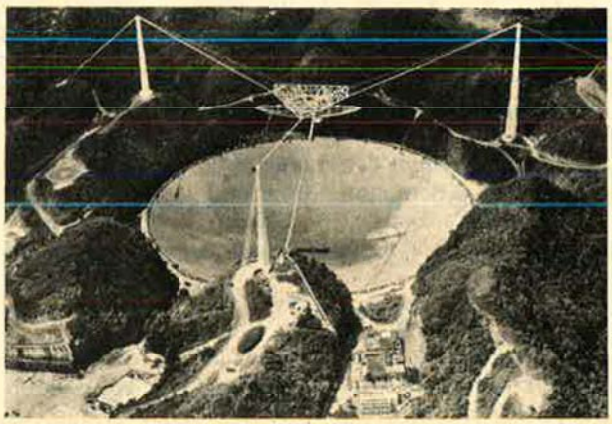
Theoretically, the weight saved in using the lighter materials can be added to payload. Structural fatigue also should be reduced, NASA said.

☆

Scientists at Arecibo in Puerto Rico have begun operation of the most powerful radio-telescope ever built.

In a first major experiment that might not bear fruit for thousands of years, if ever, a three-minute beam of immense power was transmitted from the facility on November 16. The signal, consisting of coded information about man and his existence on earth, was aimed at a huge cluster of some 300,000 stars, called Messier 13, beginning at the edge of the Milky Way. With a theoretical fifty-fifty chance of intelligent beings existing somewhere in Messier 13, the beam might be intercepted and its recipients respond in kind, but not right away—it will take the message 24,000 years to reach its target and that long for any reply to come back.

In any event, transmission of the beam is only the initial highlight of a two-year program scientists have planned for the Arecibo installation. The telescope complex is equipped with a 450,000-watt radio and radar transmitter, which will be used in precise studies of nearby planets. The key to this work is the facility's energy-collecting "dish," totaling twenty acres in area—or more than all the collecting areas of the world's optical and radio-telescopes put together. This allows an almost incredible concentration of energy, producing beams of such intensity, for example, that they can penetrate the sixty miles of clouds covering Venus for accurate mapping of the planet.



Arecibo Observatory in Puerto Rico has the world's largest energy-collecting "dish." With it, scientists can concentrate enormous amounts of energy for planet mapping and other work. The powerful radio-telescope at the facility recently was used to send a message from mankind to outer space (see item below).

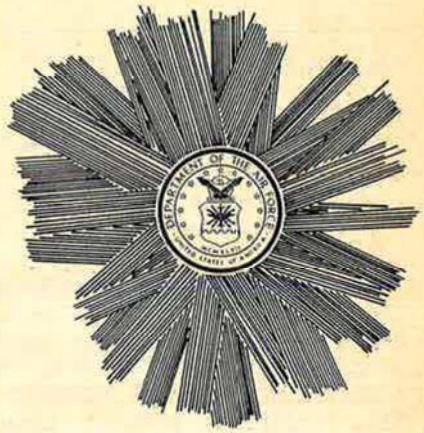
The National Center of Astronomy and Ionosphere operates the Arecibo Observatory for the National Science Foundation and Cornell University.

☆

NEWS NOTES—The **Air Force Museum** is looking for **aviation cadet uniforms** of 1922–24 vintage. Check your attic and contact the Museum's Curator, Wright-Patterson AFB, Ohio 45433.

And the **Air Force Reserve** is looking for **recently retired loadmasters** to serve in its C-5A associate program, with immediate openings at Dover AFB, Del., and Travis AFB, Calif. ■

WE CAN TURN YOU ON AND KEEP YOU ON FOR 7 TO 10 YEARS



Name your space power level, lifetime, and hardness requirement, and we'll deliver complete power systems to any Air Force spacecraft contractor.

For long-life, high-reliability missions ranging from 7 to 10 years, we're at work on advanced nickel-cadmium, and lightweight nickel-hydrogen cells and batteries. We're improving the life and efficiency of solar cells and arrays, as well as hardening them to survive Van Allen, nuclear, and other radiation. We're also developing solar collector thermal power systems.

Our 17-kW Skylab Solar Array System was the first solar power plant to deliver sustained bulk electric power to a manned space station. There's plenty of energy up there, unlike down here. Let us tap it for your spacecraft.

Call Bill Goss, TRW Systems Group, One Space Park, Redondo Beach, California 90278. Phone: (213) 536-1974.

TRW®
SYSTEMS GROUP

Airman's Bookshelf

Sino-Soviet Relations

The Coldest War: Russia's Game in China, by C. L. Sulzberger. Harcourt Brace Jovanovich, New York, N. Y., 1974. 113 pages. $5.95.

How does an obscure, ink-stained reviewer approach a book whose author makes it known in a space of four pages that he has had discussions with Adenauer, de Gaulle, Tito, Vinogradov, Manac'h, Schumann, and Malraux? The best idea perhaps is to go straight to the substance of the matter.

The title of the book does not reflect fully its content. Much of the space is taken by diversions into the history and nature of China, with little equivalent material about Russia. The China coverage is, to say the least, somewhat discursive. There is wide-ranging (although superficial) discussion of such disparate matters as native dress, Chinese fiction, and Maoist ideology. Much of the book suggests that a zealous research assistant had been turned loose in the rich files of the New York *Times.*

There are small, but disturbing, errors in this work. Did the Soviet Union renege on its promise to send a "sample atom bomb" in 1969 (p. 5) or did this happen in 1960 (p. 95)? Actually, this is an oversimplification in one part of an involved process of Soviet assistance. On page 100 we are told that certain high military officials "disappeared from sight with Lin." These men disappeared at about the same time as Lin Piao, but whether they, too, were in the crashed airplane is a matter still unknown. In this same passage it is said that Li Tso-peng was the Air Force commander. Two pages later, in a list of some twenty-five names of people purged, Wu Fa-hsien is assigned this job. Wu is correct. Li was political commissar of the Navy.

The approach to the task of forecasting Sino-Russian relations is cautious and largely conventional. "When Mao passes" is the great cliché in the China-watching business, and it naturally enters here. While Mao survives, the anti-Soviet spirit will prevail. The US arrangement will help deter Russian violence. The prospect for major conflict between the two, while always present, is not really great because of the open-minded consequences and dire events that could characterize the war.

As becomes a prudent man, most predictions are carefully hedged. Whether any now-visible candidate for future power has the necessary support of the People's Liberation Army is an open question and one of first-order importance.

The purpose of this book is not clear. What place it may claim on one's shelf does not come through with any impact. It is short, and this commends it, but it would be unwise to accept some of the facts, figures, and analyses without corroboration. Not a book for the ages.

—Reviewed by Col. Angus Fraser, USMC (Ret.).

Churchill—A Jaundiced View

Generalissimo Churchill, by R. W. Thompson. Charles Scribner's Sons, New York, N. Y., 1973. 252 pages. $8.95.

R. W. Thompson believes that Winston Churchill can be considered a great war leader only if one judges Churchill from a distance. If examined closely, in his view, Churchill was a poor Prime Minister and a near disaster as Generalissimo. Thompson's theme is that the Prime Minister, a faulty strategist and worse tactician, frequently usurped British military decision-making during the first three years of World War II. The author focuses on Churchill's unwarranted interference with Generals Wavell and Auchinleck, successive Commanders in Chief of the Middle East. Thompson argues successfully that Churchill made these men scapegoats for his own costly military blunders.

The British Prime Minister is not the only one to fall prey to Thompson's disapproval. It is his thesis that America entered the fray with only its own interests in mind. He castigates Churchill's subordination of himself and Britain to President Roosevelt. Thompson refers mystically to the "American blood" coursing Churchill's veins, blaming it for the "ominous split" in Churchill's loyalties.

The author also criticizes the British bombing effort. He calculates that Churchill used fifty-five percent of Britain's industrial resources to produce heavy bombers, starving the other services of fighter, reconnaissance, and transport aircraft, and other crucial war materiel. Here again Thompson sees historical forces at work, prompting Churchill to employ an air arm to avoid losses of life similar to World War I.

The book has many weaknesses. Thompson tends to ramble, and goes off on irrelevant tangents. He includes too many insignificant historical facts and individuals. Scholarly appendages are limited. The author is guilty of numerous historical mistakes: for example, he twice emphasizes that BOLERO and ROUNDUP were the same operation.

Generalissimo Churchill is useful in parts. Especially well done is Wavell's and Auchinleck's dealings with Churchill. Unfortunately, no whole emerges, and Churchill remains a one-dimensional figure. Thompson is better suited to writing accounts of campaigns and individual theater commanders than history encompassing entire wars and important leaders.

—Reviewed by Cadet First Class (now Lt.) Edward M. Whalen, USAF Academy. Lieutenant Whalen has been awarded a Fulbright Scholarship.

New Books in Brief

Economic Regulation of Domestic Air Transport, by George W. Douglas and James C. Miller III. US airlines have been regulated by the Civil Aeronautics Board and its predecessor since 1938, when the industry was in its infancy. The authors examine a broad range of regulatory issues affecting the airlines, review recent CAB policies, and conclude that, under conditions now fundamentally different from

those of the developmental years, regulation has led to inefficiencies. They offer recommendations for improving the performance of both the industry and the CAB. The Brookings Institution, Washington, D. C., 1974. 211 pages with index. $8.95.

Break Out: Famous Military Escapes of the World Wars, by Graeme Cook. This is a collection of five fast-moving accounts of escapes from camps in Germany, Britain, Singapore, and Norway. Taplinger, New York, N. Y., 1974. 191 pages. $7.50.

Eva and Adolf, by Glenn Infield. The author, a retired Air Force officer who has contributed several articles to this magazine, throws considerable light on the shadowy figure of Eva Braun, Hitler's mistress, and on the extent of her influence over the Führer. Infield draws heavily on materials collected by Judge Michael A. Musmanno of the Pennsylvania Supreme Court, who was one of the judges at the Nuremberg War Crimes Trials. The Musmanno Archives were opened to the author by the Judge's family after his death. These records, recently declassified official files, and Infield's extensive interviews with surviving Nazis, provide new insights into the character of the two subjects and of many top-ranking Party members. Grossel & Dunlap, New York, N. Y., 1974. 330 pages with index. $10.

For All Mankind: America's Space Programs of the 1970s and Beyond, by L. B. Taylor, Jr. This survey of US space developments, written in layman's language, provides many examples of how the space program is now benefiting mankind everywhere. E. P. Dutton, New York, N. Y., 1974. 307 pages with index. $8.95.

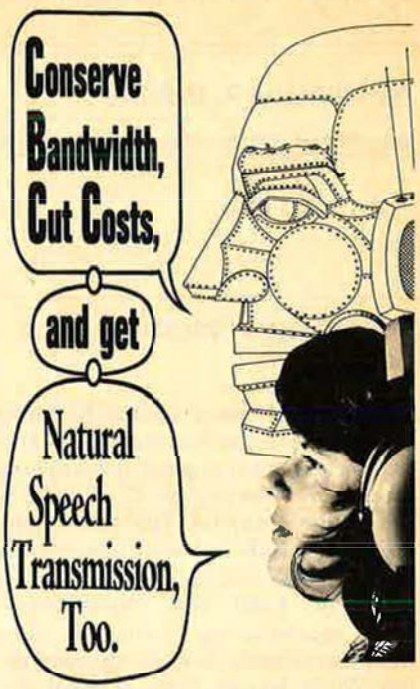
More There I Was, by Bob Stevens. This large-format paperback contains more than sixty of the popular "There I Was" cartoon features, all of which have appeared in AIR FORCE Magazine in recent years, plus a collection of the words to "those lusty wartime songs of airmen." It's a companion volume to Bob Stevens' earlier *There I Was* collection and is bound to bring a chuckle to all readers, whether you're part of the Air Force of today or of yesteryear. Copies may be ordered by mail from The Village Press, P. O. Box 310, Fallbrook, Calif. 92028. 128 pages. $3.95 (plus 30¢ postage and handling, if ordered by mail).

Hunters From the Sky: The German Parachute Corps 1940–1945, by Charles Whiting. The story of Germany's World War II airborne troops is told in this collection of combat narratives. Although the power of these elite troops was broken by the heavy casualties they suffered in their assault on Crete, Nazi paratroop units did continue to take part in combat operations until the closing month of the war. Stein and Day, New York, N. Y., 1974. 232 pages. $8.95.

The Illustrated History of the Submarine, by Edward Horton. Here is an account of the development of underwater vessels, from centuries-old schemes that were technically infeasible to the nuclear submarines of the 1970s. Doubleday, Garden City, N. Y., 1974. 160 pages. $10.

The Soviet Presence in Latin America, by James D. Theberge. In this short overview, the author demonstrates the complexities of Soviet relations with the Latin American nations. Among the issues examined are Soviet relations with the more leftist governments, the Kremlin's cooperation with Cuba in subversive activities, Soviet naval power in the Caribbean, and the influence of Communist parties in Latin America. Theberge concludes that the Soviets are not likely to upset détente for the sake of an area so distant from them, and still within the sphere of American influence. On the other hand, the USSR will continue to exploit political situations that could be manipulated to its advantage. Crane, Russak, & Co., New York, N. Y., 1974. 109 pages. $4.95.

While he was Chief of Staff of the US Army, Gen. William C. Westmoreland asked senior Army officers to write monographs about Vietnam operations and support activities in which they had been involved personally. Three recent releases in this series of Vietnam Studies are: *Cedar Falls—Junction City: A Turning Point,* by Lt. Gen. Bernard W. Rogers, 172 pages, $2.00; *Logistical Support,* by Lt. Gen. Joseph M. Heiser, Jr., 273 pages, $2.75; and *Tactical and Materiel Innovations,* by Lt. Gen. John H. Hay, 197 pages, $2.20. Department of the Army. Government Printing Office, Washington, D. C. 20402, 1974. ■



Our Voice Processing Lab is staffed with people who are trained in linguistics as well as in mathematics, programming, and electronics. They've developed techniques that maintain excellent voice quality even at quite low data rates.

Add to that the fact that they're backed by one of the most advanced LSI hardware capabilities in industry and you've really got something going for you.

You can have a custom-designed system implemented in production quantities at a lower cost than you'd probably guess.

Contact Tom Weston. TRW Systems Group, One Space Park, Redondo Beach, California 90278. Phone: (213) 536-1176.

TRW®
SYSTEMS GROUP

MIA/POW Action Report

By William P. Schlitz

ASSISTANT MANAGING EDITOR, AIR FORCE MAGAZINE

The League's "Display of Concern"

In mid-November, several hundred League of Families members and supporters from around the country staged a "Display of Concern" in the nation's capital. The event consisted of a rally and a protest march to the White House.

There, 1,300 red carnations—each representing a missing Vietnam serviceman—were thrown on the White House lawn in symbolic concern for the lack of progress in the accounting effort.

Asked about the effectiveness of the League protest, E. C. "Bus" Mills, Executive Director of the MIA/POW organization, deemed it a "moderate success," in that it served to move the Administration off dead center on the issue.

Said Maureen A. Dunn, League Board Chairman, "We feel the President should give the POW/MIA issue the high priority it deserves—a priority above amnesty for draft dodgers and deserters and above concern for Soviet citizens who wish to emigrate" from the USSR.

Lt. Gen. Brent Scowcroft, an Air Force officer who is Deputy Assistant to the President for National Security Affairs, met with three League leaders and discussed the League's recommendation that a task force or commission be established to develop and execute a plan for getting an accounting of those missing in SEA. In September, the League called for the creation of such a body and said that it should be composed of representatives from the highest levels of government, to include the Congress, State Department, and DoD. Its chairman should be directly responsible to the President, Mr. Mills said, and the League should be authorized direct communication with it. At this writing, League leaders were eagerly awaiting word from the White House concerning their recommendation.

In the League's view, if Secretary of State Henry Kissinger made absolutely clear to the world that accounting for the missing was among his top priorities, greater cooperation would be forthcoming. The League recommendation also asked President Ford to seek Soviet and Chinese help in opening the boundaries in SEA. League spokesmen said that the International Red Cross or even a third party—perhaps a neutral country—would be acceptable in continuing the accounting searches in SEA. At the very least, communication should be maintained with the North Vietnamese and the Pathet Lao.

Emmet Kay, the last American known to be held captive in Southeast Asia and recently released, was among a number of former POWs who supported and attended

—Photo by Thomas W. Cookinham

Left, Rear Adm. (then Capt.) Jeremiah A. Denton, Jr., USN, returns from captivity in Southeast Asia. Above, with Mrs. Denton at early 1974 commissioning ceremony of his son James. Admiral Denton, in November 1974, was awarded a Navy Cross for his "extreme resistance" to North Vietnamese torture.

the "Display of Concern." As a prisoner in Laos, Mr. Kay observed that the native population had great respect for the dead of whatever nationality and carefully marked the graves of the deceased. It is his belief that this would help greatly in any accounting procedure, at least in that part of SEA.

In a related matter, there is pending legislation in both houses of Congress that would prohibit "presumptive findings of death" of missing US servicemen by the Service Secretaries until the President decided that "all avenues" of accounting have been explored and an "exhaustive search" has been conducted. Also, the sections of the US Code under which PFODs are allowed are to be studied by the House and Senate Armed Services Committees, which will offer recommendations and views regarding constitutionality.

Following retirement ceremonies at the Air Force Academy in November, Lt. Col. Paul A. Kari, right, displays the seven decorations awarded him. Six of these were for Colonel Kari's conduct during nearly eight years as a North Vietnamese POW. Lt. Col. Dick Abel, left, accompanied the first group of prisoners released in February 1973, among them Colonel Kari.

Ex-POWs in Politics: A Tale of Woe

All four former Vietnam War POWs who opted for politics since their return from SEA went down to defeat in the November election.

- **Leo K. Thorsness,** formerly an Air Force lieutenant colonel and a Medal of Honor recipient who spent six years in captivity, was an early threat to unseat Democratic Sen. George McGovern in South Dakota, but his momentum faded during the campaign.
- In California's Thirty-fourth Congressional District, former Navy Lt. **David Rehmann,** also a six-year POW, lost in his race for Congress against Santa Ana Mayor Jerry Patterson, the Democratic candidate.
- In Maine, Democrat **Mark L. Gartley,** a former Navy lieutenant and four-year POW, failed in the Second Congressional District contest against Rep. William S. Cohen, the Pine Tree State's only Republican in Congress. The incumbent was believed to have been helped rather than hurt by his stand on Watergate as a member of the House Judiciary Committee.
- And, **Quincy Collins,** a former Air Force colonel and seven-year POW, was defeated in a congressional race in Georgia's Seventh District against Democrat Larry McDonald.

To many observers, it was the contenders' inexperience in running political campaigns that contributed in a substantial way to their defeat, particularly as economic issues become of more and more concern to voters.

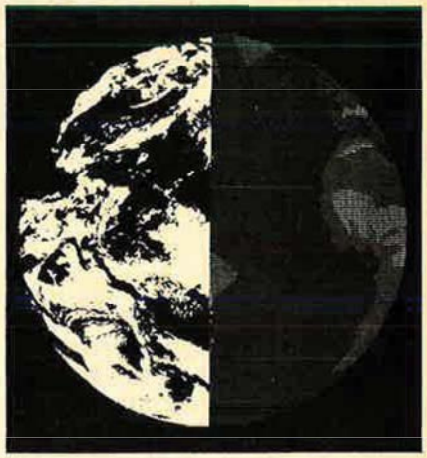
On Behalf of MIA Families

Acting for all the services, USAF has begun to gather case histories in support of legislation that would provide payments for unauthorized moves families made while their men were MIA.

The bill, H.R. 13482, would pay for such hardship moves by families of men missing one year or more, retroactive to February 28, 1961, the date generally accepted as the start of US involvement in the Southeast Asian war.

Hearings are expected this year. ■

WHAT YOU GET IS MORE THAN WHAT YOU SEE



Our signal processing research facility squeezes out the full value implicit in your sensor data. We're working all across the frequency spectrum from acoustic to X-ray, using a minicomputer and a modular collection of application software.

Color density slicing lets you selectively add color to highlight latent information in drab imagery. Information packing lets you look at two bands instead of four.

Or you can apply other algorithms to enhance the images or aid in classification of multispectral data.

Perhaps you can apply our IR track assembly techniques for your applications in systems requiring multi-target detection and track-while-scan.

Want to see acoustic/sonar signal processing or electronic waveform processing? Write Box R4-2174, TRW Systems Group, One Space Park, Redondo Beach, California 90278.

TRW®
SYSTEMS GROUP

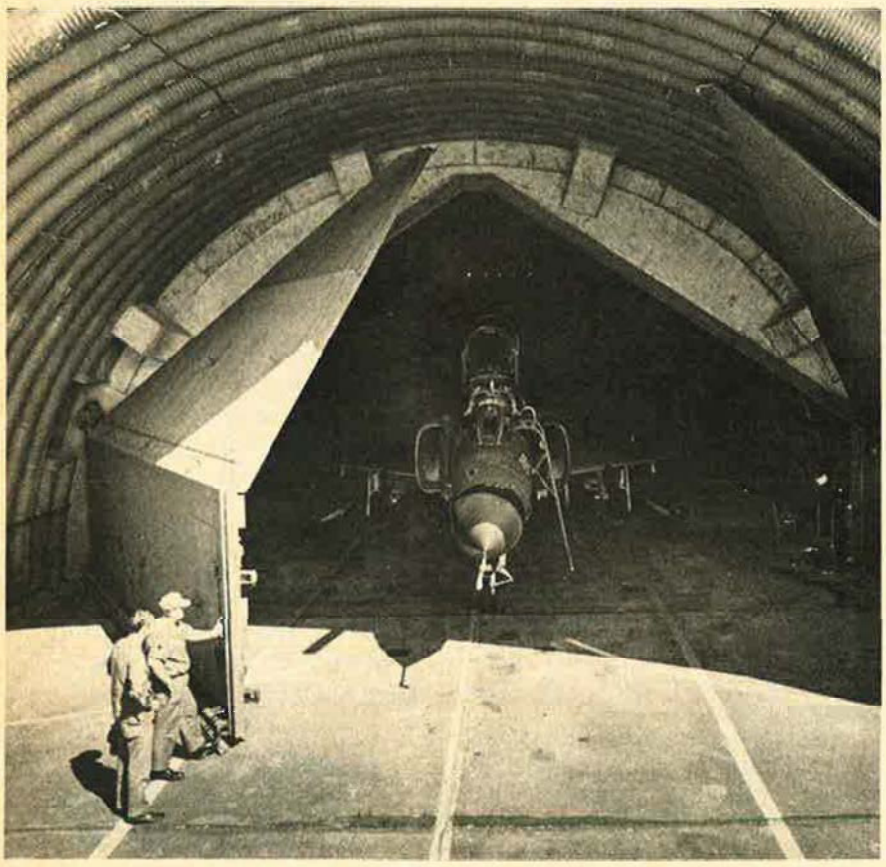
The Mystique of NATO's Nukes

By Gen. T. R. Milton, USAF (Ret.)

It is so much easier to worry about something you understand—and have worried about before—than it is to take on the unknown. And so it is with NATO. Having lived for more than twenty-five years with the highly visible specter of a Russian military threat to Europe, the NATO functionaries are comfortable with it. The Soviet military threat in Europe is a problem they can grasp. Anyone—certainly anyone who has seen that monstrous floodlit minefield marking the border between the Federal Republic of Germany and East Germany—can grasp it.

Over the years of NATO's existence, the budgets have been drawn up, and the troops, the ships, and the airplanes deployed on the basis of this threat. A good sensible approach to a straightforward problem.

And just in case the Soviets, and their Warsaw Pact, did not think these forces sufficiently menacing, NATO has had, for many years, nuclear weapons. Some are fairly large and are designed to be carried on fighter aircraft. Some are small, as nukes go—battlefield weapons, to be fired by 105-mm howitzers, or implanted as land mines, or used in air defense missiles. In all, there are about 7,000 nuclear warheads in NATO, according to a generally accepted figure first announced by former Secretary of Defense Robert S. McNamara in 1966. These 7,000 warheads are United States property and are under US custody. They are quite apart from the British nuclear weapons in RAF Strike Command and in the British Polaris submarines, although the British weapons are also dedicated to NATO.



The US has about 7,000 nuclear warheads in the NATO area, all under US custody. They range from nuclear artillery shells to weapons that can be delivered by tactical fighters such as this F-4.

So, you see, NATO has a rather considerable atomic arsenal. What is more, there are aircraft on alert to carry out nuclear strikes.

The purpose of this nuclear capability is to provide meaning to NATO strategy—the so-called Flexible Response strategy, or, to give its formal name, MC 15/3.

MC 15/3 did not spring full-blown from some planner's brow. It began as MC 15/2, the so-called trip-wire strategy, in the days when the United States had a virtual monopoly on nuclear weapons, and the Russians had an equally clear conventional advantage in Europe.

As the years went by, and the Soviets pulled up with us in nuclear weapons, it became less and less plausible to rely on a strategy calling for instant nuclear response to any attack. Or, at least, it became less plausible to everyone in NATO except France. The French have a respectable nuclear capability, and they openly disagree with the strategy of flexible response. It is their evident intention to respond to any real attack with nuclear weapons. Happily, while they do not sub-

scribe to our strategy, or to the principle of NATO's integrated command structure, they see the same potential enemy the rest of us do.

But that is beside the point. NATO, except for France, accepted the notion that the strategy should be broadened to include a determined conventional defense against conventional attack while retaining the option to employ nuclear weapons as and when necessary.

This is the factor in the strategy that causes the worry. Nuclear weapons, all agree, are an essential adjunct to the NATO conventional forces. And since NATO is clearly and avowedly defensive in nature, these nuclear weapons are simply last-ditch defensive measures that will never be used unless the other side provides the provocation.

Still, there is a worry. No country wants to become a nuclear battleground. Hence, from time to time, the whole subject of NATO's nuclear weapons comes up for discussion. Small, clean nuclear weapons are suggested as alternatives to the present stockpile. Sen. Sam Nunn (D-Ga.) has attached an amendment to the 1974 Military Authorization bill freezing the European nuclear stockpile pending a study to determine "the overall concept for use of tactical nuclear weapons in Europe." It further directs that the study include steps that can be taken to develop a rational and coordinated nuclear posture by NATO consistent with the proper emphasis on conventional forces.

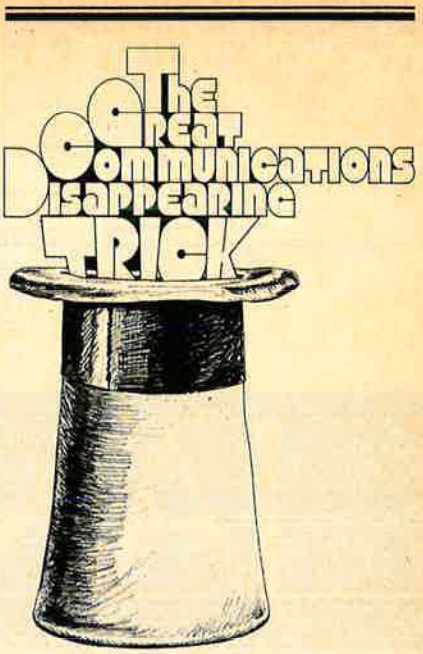
Without attempting to predict the course this study will take, let me just say that it will, inevitably, tread on some very treacherous ground.

One of the beautiful things about the NATO strategy in its present form is that there is, surrounding it, a certain mystery. Nuclear weapons are part of NATO's arsenal and strategy. NATO intends to use them if sufficiently provoked. When will that be? And where? Who knows?

To go back to our opening thesis, that it is easier to worry about the known than the unknown, it applies equally to the Soviets. So long as NATO's strategy has an element of the unknown, even the irrational, in it, the Soviets must ponder the odds on any military adventure when they don't have all the facts. While the Soviets talk tough, and, in fact, *are* pretty tough, they have never been adventurers. A key element of Soviet military doctrine is prudence. If they start something—an attack, a campaign—they will have, if history is any judge, assured themselves in advance of a high probability of success.

Studies are fine things, sometimes, but a study that attempts to rationalize the NATO nuclear weapons policy may, unless it is very carefully done, simply wreck the mystique of the present strategy of flexible response. ■

NATO's nuclear arsenal also includes weapons of the RAF Strike Command and those assigned to the Royal Navy's Polaris submarines. RAF Strike Command has six squadrons of these Vulcan bombers, which, though dating back to the 1950s, are still a potent deterrent.



Spread-spectrum RF communication drops your message down to the level of background noise and transmits it almost undetectably. You don't interfere with other people's transmission because they don't even know you're on the air.

At the receiver, your message is detected on the basis of a timing signal. Then it's bumped up out of the noise so it can be decoded and reconstituted in plain language.

TRW's spread-spectrum design and development capability is backed by one of the most advanced LSI hardware capabilities in industry. You can have a system custom-designed and implemented in production quantities at surprisingly low cost.

For more detailed information, please contact Frank R. Skalbania or Carl D. Boland, TRW Systems Group, One Space Park, Redondo Beach, California 90278. Phone: (213) 535-2242.

TRW®
SYSTEMS GROUP

The Editor of *Jane's All the World's Aircraft* compares the aerospace technology of East and West—both present and planned—and warns the US against scrimping on defense spending. Averting war is still a question of strength, he says in this overview of the world of aerospace . . .

JANE'S AEROSPACE REVIEW 1974/75

BY JOHN W. R. TAYLOR
EDITOR, JANE'S ALL THE WORLD'S AIRCRAFT

SURBITON, SURREY, ENGLAND

THE late Nikita Khrushchev asserted that the Soviet Union, being able to bury the West economically, had no need to crush it in war. It would be irresponsible to deny that possibility in a period when great companies like Rolls-Royce, Lockheed, and Pan American World Airways have had to contend with the threat of economic disaster. Even worse would be to permit the need for careful budgeting to so weaken the West's military capability that it no longer possessed a viable defence. Already, Western governments are too often asking, "Can we afford it?" when the correct question is, "Can we afford *not* to have it?"

How much is it worth to stay alive?

Such a question must nag repeatedly at the mind of anyone who, like the writer, journeyed to Palmdale, Calif., in the last weeks of 1974 to inspect the prototype of Rockwell's mighty B-1 strategic bomber. Latest estimate of the cost of a production B-1, including R&D, is $76.4 million in 1985 dollars, and the USAF has stated a requirement for 244 such aircraft. Few people rate highly its chance of receiving some $15 billion from overstretched Department of Defense funding to produce them, and alternatives are being studied.

Most attractive in terms of cost are schemes that extend or enhance the usefulness of existing weapons. Recognising that the Soviet Union got the better deal under the initial SALT I strategic arms limitation agreement, in terms of current throw weight and eventual accuracy of delivery, the US is testing the practicability of air-launching Minuteman ICBMs instead of deploying them in underground silos. A first live test, on 24 October 1974, proved the feasibility of extracting a Minuteman by drogue parachutes from the

Minuteman ICBM is air-launched from a C-5A's cargo hold in first feasibility test of this extraction technique. Here, the missile is being pulled free by drogue parachutes.

open hold of a C-5A transport aircraft, in flight, and then igniting the ICBM for a normal trajectory to its target. Such a scheme, developed for full-scale operational use, would probably employ military versions of the Boeing 747 as carrier-launchers.

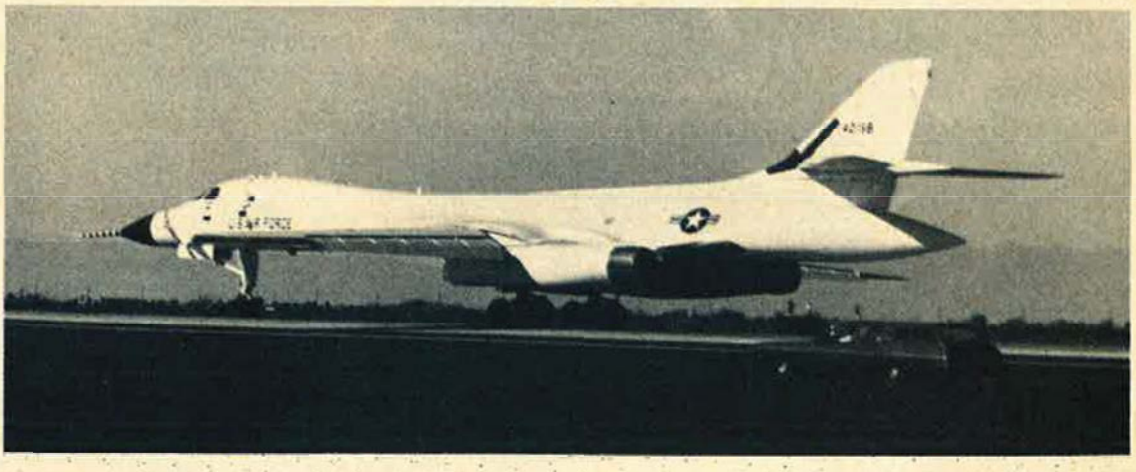
How the DoD must regret the years that have been lost since cancellation of the pioneer Skybolt air-launched ballistic missile programme in December 1962.

In a further effort to maintain America's strike power in the event of B-1 program reduction or cancellation, members of the House and Senate have kept open the F-111 production line with an FY '75 order for twelve aircraft not requested by the USAF. This represents the kind of fainthearted move of which the West must beware. Excellent though the F-111 and its strategic bomber variant, the FB-111, are, the latter could never undertake the role of the B-1, which has an immense weapon load, intercontinental range, and sophisticated combat equipment.

Nor can the life of the veteran B-52 be extended indefinitely. One reason is portrayed dramatically in a film which begins by showing the flight deck of a B-52 during a high-speed flight through turbulence at low altitude. No combat crew should be expected to undergo such a frightening shake-up as a matter of course. By comparison, simulator experience has suggested that the Low Altitude Ride Control (LARC) foreplanes fitted to the B-1 should ensure a comparatively smooth flight for its crew under similar conditions. Just how smooth is shown in a simulator sequence in the same film.

A force of B-1s would help to restore the parity of East/West deterrent capability that was eroded by SALT I, and no more time

The B-1 starts its taxi tests at Palmdale, Calif. The upper photo shows the start of a run to test wheels, brakes, and steering subsystems and evaluate ground-handling qualities. All went well as the B-1 hit top speed of 50 knots (lower photograph).



should be lost in taking the production decision. The B-1's Soviet counterpart, a Tupolev variable-geometry strategic bomber known to NATO as "Backfire", is already entering service and has been refined considerably since the first dozen or so R&D models were built. Adm. Thomas Moorer, former Chairman of the US Joint Chiefs of Staff, warned a year ago that "when deployed with a compatible tanker force, it constitutes a potential threat to the continental United States". If the Soviet Union, with little tradition of strategic bombing in war, feels the need for such an aircraft, can America afford to abandon the even-more-impressive B-1?

Bomber/Air-Defence Balance

A glance through the Soviet pages of the 1974–75 *Jane's* should leave no doubt that Russia is continuing to develop and manufacture at high priority every type of modern combat aircraft. Sufficient variable-geometry Su-20 ("Fitter-B") and MiG-23 ("Flogger") tactical fighters are available to permit deployment among the Soviet Union's allies and friends, in eastern Europe and the Middle East. The newer Sukhoi fighter-bomber, known to NATO as "Fencer", is in the same class as the F-111; and even "Backfire", which weighs two and one-half times as much as an FB-111 and is about four-fifths as large as the B-1, does not represent the ultimate in Soviet bomber design.

Under test in 1974 at Ramenskoye, near Moscow, Russia's equivalent to Edwards AFB, was a large tandem-delta strategic bomber prototype designed by the Sukhoi bureau, with a take-off weight in the 300,000 lb class. Its configuration includes rear-mounted delta wings with a leading-edge sweep of 65° and small foreplanes of similar planform. Performance is believed to be in the high supersonic range.

In view of this activity in bomber development, the progressive disbandment of continental US anti-aircraft defences seems as much of a gamble as reluctance to press on quickly with the B-1.

By the time this article appears in print, all except one Nike-Hercules SAM battery in the US will probably have been phased out. All Aerospace Defense Command's F-102 interceptors are scheduled for retirement by mid-1976, leaving only 242 F-106s and 124 F-101s for possible retention throughout the decade. It is emphasised that squadrons of Navy F-14 and Air Force F-15 fighters and SAM-D missiles could augment continental US defences, but these are the same forces that frequently are deployed elsewhere in a crisis.

It can be argued that there is little point in providing a defence against bombers while the SALT I agreement leaves both the US and Soviet Union wide open to annihilation by nuclear strategic missiles. This glosses over the

fact that many levels of warfare are possible short of the mutual suicide of an all-out ICBM exchange. The Soviet Union, certainly, shows no sign of neglecting its home defences against air attack, with more than 2,500 interceptors and 9,800 SAM launchers in current service. About half of the fighter squadrons are equipped with the latest types of aircraft, comprising Yak-28P "Firebars", Tu-28P "Fiddlers", Su-15 "Flagons", and Mig-25 "Foxbats". After the Yom Kippur War, there is little need to comment on the quality of Soviet SAMs. The highly mobile SAM-6 ("Gainful") in particular represents a degree of sophistication and technological achievement that was not expected to be reached until the 1980s.

There could be no better indication of the dangers of underestimating the capability of Soviet designers, and the DoD must not ignore Admiral Moorer's warning that "By the late 1970s the Soviet Union may have interceptors with a look-down/shoot-down radar/missile system, and may deploy a new AWACS [airborne warning and control system aircraft] with a look-down capability over land, as well as water".

The Lightweight Fighter

One of the first encouraging signs of US awareness of new dangers is the decision to evolve an air combat fighter (ACF) from the YF-16/YF-17 prototypes, which were intended originally as mere technology demonstrators. Anyone who has had the opportunity to study and sit in the cockpit of the prototypes, and talk to their pilots, will appreciate how much has been achieved by not tying their designers to a too-rigid specification. By asking only for a lightweight fighter that would fully explore the advantages of emerging technologies, and reduce the uncertainties of full-scale development and production of any future fighter, the DoD has acquired two very remarkable designs. Their test pilots, sitting on inclined ejection seats, have pulled up to 9*g*, without pressure suits, while manoeuvring at height. Mark 84 2,000 lb bombs have been dropped at Mach 0.95 at low altitude with no hint of flutter or any loss of stability. Air firing trials have been made with both air-to-air missiles and installed M-61 20 mm "Gatling" guns.

Contenders for the new air combat fighter (ACF) are the General Dynamics YF-16 (upper photo) and Northrop's YF-17.

The YF-16, built by General Dynamics, has demonstrated the ease with which pilots can adapt to innovations like a minimum-displacement side-stick control and fly-by-wire. The Northrop YF-17 has vindicated its designers' hopes for its unique wing root leading-edge extensions, which vastly increase the basic maximum lift and straighten the airflow into the engines. From brake release, it has climbed to 46,000 ft in under three minutes, a rate of climb that is claimed to better that of a fully loaded F-4 by some 20,000 ft.

Much more could be written about both types. Soon after this issue of AIR FORCE Magazine is published, the USAF is expected to select one of them for large-scale production. It would be a tragedy if the other type were then abandoned, and the sensible course might well be to build both the YF-16 and YF-17 to meet the somewhat differing requirements of the USAF, US Navy, and NATO air forces in Europe.

The search by Belgium, Denmark, the Netherlands, and Norway for an F-104 replacement has generated considerable controversy

First close look at a Tupolev Tu-28P (NATO "Fiddler") Mach 1.75 interceptor, with "Ash" infra-red missile on inboard pylon under the aircraft's port wing.

British Prime Minister Harold Wilson describes the multi-role MRCA as "cheaper and better for us than any other alternative" aircraft.

during the past year. The original contenders were the winner of the YF-16/YF-17 fly-off, the Swedish Viggen, and the French Mirage F.1 with M53 turbofan engine. Subsequently, BAC of England suggested that an economical and more versatile solution might be a mixture of Mirages and Jaguars.

The Viggen was always regarded as something of an outsider, despite its superlative qualities, being produced by a non-NATO country specifically to meet its domestic needs. Gen. Paul Stehlin, former French Chief of Air Staff, then created a political storm by suggesting that the YF-16 and YF-17 were technologically far more advanced than the Mirage F.1—a view that was described by a prominent Gaullist Party leader as "an aggression against France", prompting the General's tendered resignation as Vice-President of the French National Assembly.

The European Outlook

Like the YF-16/YF-17 decision in America, NATO's choice in Europe is awaited with interest and may eventually involve more than one type of fighter. In fact, it has never been more difficult to predict the future for the aerospace industry of the West. Will the Concorde ever have an opportunity to display its full potential, especially after the huge increase in fuel costs which must affect it more than most commercial transports? Will the MRCA multi-role combat aircraft be produced in the large numbers originally specified by the British, German, and Italian Air Forces, despite its initially-promising test programme, at a time of economic problems? Will Britain's Socialist government go ahead with its expressed purpose of nationalising the country's aerospace industry? And so on. . . .

At the risk of being proved wrong very rapidly by events, the likely answer to all three questions appears to be "Yes".

Firm orders for the Concorde still total only nine aircraft, for British Airways and Air France, with the likelihood of six more going to China and Iran. But can other operators

The second pre-production model of Britain's pioneer SST, the Concorde, is an ornament at Los Angeles International Airport during a demonstration tour of the Americas last fall.

ignore the kind of performance demonstrated by the second pre-production model of this pioneer supersonic transport on 17 June 1974? It took off that day from Boston, Mass., at the same time as an Air France Boeing 747 left Paris on a normal scheduled service to Boston. The SST landed at the French capital's new Charles de Gaulle Airport after a flight of 3 hours 10 minutes. Sixty-eight minutes later, refuelled and revictualled, the Concorde took off for the return journey to Boston, recording a westbound flight time of 3 hours 8 minutes. In doing so, it landed before the 747, having made the round trip in less than the normal time for a one-way crossing.

The case for the MRCA is even simpler to explain; without it there can hardly be a Royal Air Force by the end of the decade. Furthermore, it would be the height of stupidity for any government to launch the career of a newly-nationalised aerospace industry by cancelling one of its largest programmes.

—Photo courtesy Novosti Press Agency

The Russian SST, shown here at one of the Moscow area airports, began route-proving flights early in 1974. The Tu-144 is expected to enter service sometime this year.

One of the major criticisms that might be levelled at Britain's present privately-owned industry is that it has shown too little willingness to undertake new projects without massive government support in recent years. While sympathising with the industry's concern for its investors' money, there is no doubt that Hawker Siddeley's proposal to abandon further work on the HS 146 short-haul transport, in the summer of 1974, strengthened the hand of those who claim that the aerospace industry would fare better under nationalisation.

On the other hand, private industry has much of which to be proud. By exporting £463,342,000 worth of aviation material from Britain during the first nine months of 1974, the industry had already exceeded by nearly £50 million the total for the whole of 1973. Bearing in mind that the industry sells craftsmanship and know-how rather than vast quantities of raw material (the so-called conversion factor), aerospace might well be Britain's most productive export industry.

All that might be added usefully at this time is that nationalisation under bureaucrats would be disastrous. Conversely, the experience of Shorts and Rolls-Royce suggests that a high degree of success is possible when a national company is controlled by the right blend of first-class engineers and economists. What bureaucrat could appreciate the logic of agreements under which Shorts help to keep themselves busy by building wings for the Fokker-VFW Fellowship in Northern Ireland, while Fokker-VFW is responsible for producing the outer wings of Shorts' SD3-30 at Amsterdam? Yet such arrangements help to smooth out the peaks and troughs that would otherwise have a disastrous effect on employment stability and the effective utilisation of facilities during the development/production/rundown life cycle of any product.

The huge and unexpected increase in fuel cost, which hit the airlines so hard, came as something of a blessing for certain aircraft manufacturers. Coinciding with regulations demanding unprecedented standards of aero-engine quietness and cleanliness, it focussed attention on the new generation of wide-bodied airliners with quiet, economical turbofan engines. Sales of the multi-nation A300 European Airbus, in particular, began to gain momentum after a slow start.

This has encouraged BAC and Hawker

Holder of the world speed record for helicopters, the S-67 Blackhawk here rolls on its back to start a split-S turn, a manoeuvre Sikorsky considers normal for a combat helicopter.

Siddeley of the UK, Aérospatiale of France, and Dornier, MBB, and VFW-Fokker of Germany to announce that they now plan to work together in order to meet European airline requirements of the 1980s. Officials of the various companies have stressed that discussions are at an early stage, and that no decision has been taken on the type or size of aircraft that will figure in the programme. It is hoped to draw in other European manufacturers in due course; so, despite the current dominance of the world market by US companies, Europe clearly intends to remain competitive.

Soviet Disappointments

Russia, on the other hand, seems to have had a thoroughly disappointing year in commercial air transport. Four production examples of its Tu-144 supersonic airliner are reported to have begun route-proving flights in early 1974, primarily between Moscow and Vladivostok, via Tyumen, carrying urgent freight and mail on some occasions. This suggests that the aircraft could well precede the Concorde into service, sometime this year. However, China, so long an operator of Soviet transports, has bought ten Boeing 707s from the US and is taking delivery of 35 Tridents from Hawker Siddeley of the UK, with Concordes to follow. EgyptAir, after accepting eight tri-jet Tu-154s, has withdrawn them from its fleet and now operates nine Boeing 707s, with the prospect of adding Boeing 727s or 720s, and Lockheed TriStars. There are even persistent suggestions that the Soviet Union will itself enter the wide-bodied era with Boeing 747s and/or TriStars, although the US has shown little enthusiasm for the idea that these might be built in Russia.

This is understandable in the light of Sikorsky's experience. After helping to build up thriving helicopter industries in the UK and Italy, by licensing manufacture of its products and "exporting" technology, it now has to face tough competition from these countries in the world market, sometimes being outpriced by versions of its own basic designs. Little wonder that co-production is now preferred increasingly to license agreements.

China's Growing Industry

Details have been given in a *Jane's* Supplement to AIR FORCE Magazine of how the Philippines plan to create a commercial aircraft industry by co-operating with Britten-Norman of the UK in producing Islander light transports *(see p. 113, December '74 issue)*. Meanwhile, on the mainland of Asia, the Chinese industry continues to meet the demands of its own huge air forces and those of some of its friends overseas.

Until recently, news of these aircraft, and of their high quality, came mainly from places like Pakistan, which operates three squadrons of F-6s (Chinese-built MiG-19s). Now China itself has established very welcome contact with *Jane's*, as evidenced by the photograph on the front cover of this issue. It is interesting in that it shows both day and limited all-weather fighter versions of the F-6 in service with the Chinese Air Force.

Several other military aircraft of original Soviet design continue in production in China, including the Tu-16 and Il-28 twin-jet bombers and the MiG-21 fighter, which is known as the F-8. At least sixteen F-8s have been supplied to Tanzania. However, the new F-9 is, interestingly, a development not of this Mach 2 delta but of the sweptwing F-6. Few details are yet available, but reports suggest that it has wings of extended span, lateral air intakes to permit use of a pointed nose radome, an increased take-off weight of around 22,000 lb, and a maximum speed approaching that of the F-8.

Little is known at present about China's helicopter industry, except that there is one. Elsewhere in the world, the past twelve months have brought significant advances in rotating-wing design and technology.

Military Helicopters

Most important completely-new type to be identified in large-scale service is undoubtedly

Sikorsky YUH-60A, first of the important UTTAS prototypes to fly, on 17 October 1974. Advanced features include swept blade tips, canted tail rotor, and low profile.

the Soviet Mil Mi-24 (NATO "Hind-A") assault helicopter, of which the first authentic description appeared in the August 1974 *Jane's* Supplement to this magazine. Its development in growing numbers in East Germany should add impetus to the US Army's UTTAS (Utility Tactical Transport Aircraft System) programme, aimed at producing a replacement for the Bell UH-1D/H Iroquois, of which more than 7,000 have been built. Boeing Vertol and Sikorsky are in competition for the production contract, with two designs that are very similar in specification and appearance. Each is powered by two 1,500 shp General Electric T700-GE-700 turboshaft engines, and accommodates a crew of three and eleven troops. Only the Sikorsky YUH-60A had flown, with considerable success, at the time of writing. In view of the urgency of the programme, and Sikorsky's willingness to offer production models at a fixed price even at this stage, this must give the YUH-60A an edge over its rival.

Sikorsky is not participating in the other important US Army programme, for an advanced attack helicopter (AAH). Competitive flight testing of two Bell YAH-63 and two Hughes YAH-64 prototypes is expected to begin at the end of this year. They promise to be very effective tank-killers, with an armament of heavy guns, TOW missiles, and rocket pods. However, they should by no means rule out interest in Sikorsky's S-67 Blackhawk, which carries a much heavier weapon load, holds the world's helicopter speed record at 220.885 mph, and has demonstrated its remarkable manoeuvrability on countless occasions.

When the prototype was lost at the 1974 Farnborough Air Show, during a demonstration roll, it was suggested that helicopters should not be subjected to such manoeuvres, and loops, in public, as they are not expected to do so in military service. Sikorsky strongly rejects this criticism, pointing out that the Blackhawk is a genuine combat aircraft, intended to attack not only tanks and other ground targets but high-speed close-support aircraft. After popping up from cover to fire its weapons against a ground-strafing fighter, it might well have to manoeuvre rapidly and violently to escape the attention of follow-up enemy fighters. That this is no mere expression of theory after an accident is borne out by the fact that many of Sikorsky's senior executives, at the highest levels, have performed loops and rolls in the gunner's seat of the Blackhawk.

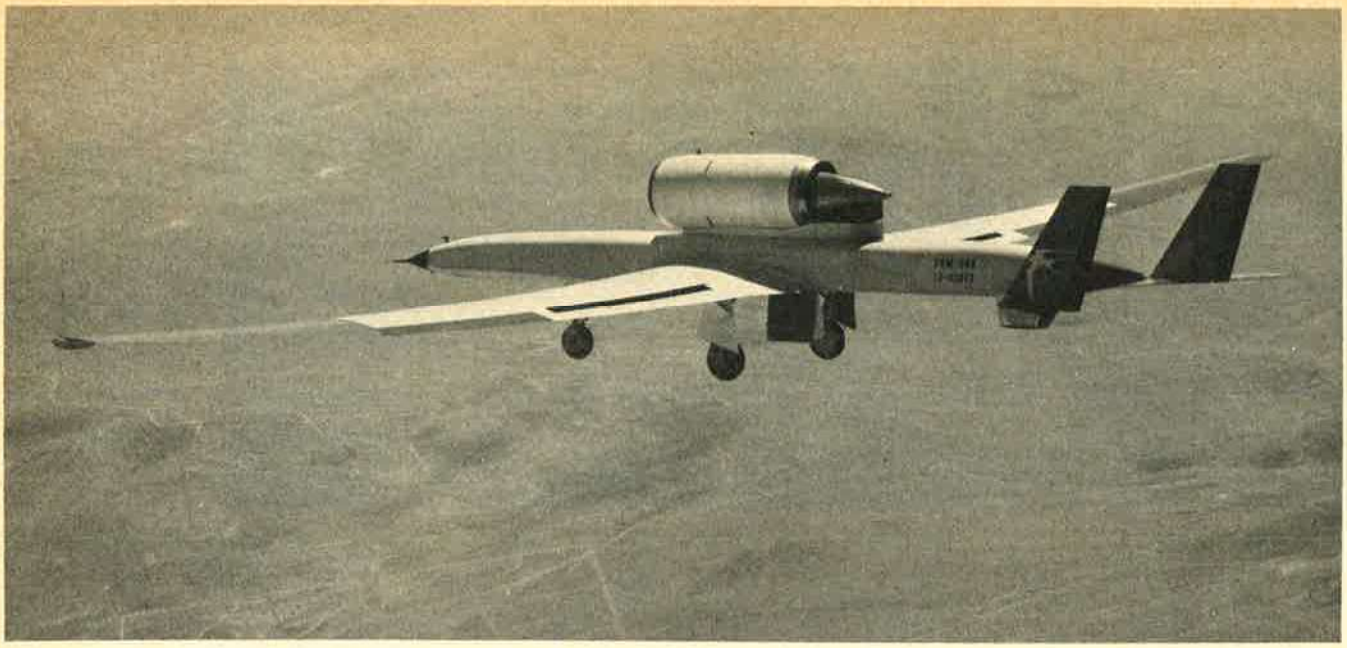
New Uses for RPVs

Main enemy of the Blackhawk on the domestic market—like that of the B-1 and so many other key combat aircraft—is the restricted DoD budget. Nowhere is this more apparent than when one begins to study the RPV scene. Many of the tasks performed by remotely piloted vehicles are highly classified; this has helped to make them the least understood and least appreciated of all America's military aircraft. Nor is it generally known that the Soviet Union is aware of the capabilities of such vehicles, although reports of "flying saucers" observed over countries such as West Germany and Sweden, on the Soviet borders, should have offered sufficient hints of this fact.

Nobody needs to convince the Israelis of the worth of RPVs for a wide variety of tasks. During the Yom Kippur War, in October 1973, they had to sacrifice Northrop Chukar RPVs that they could ill spare, as decoys to attract Soviet-built SAMs that would otherwise have claimed even-more-precious combat aircraft and crews.

While the writer was visiting the Pentagon in November, there was considerable excitement because Teledyne Ryan's YQM-98A Compass Cope R had taken off on a test flight twenty-four hours earlier and was still airborne. How easy for this Englishman to envisage an important application for such an RPV!

A statement issued by Britain's Ministry of Defence during 1974 commented that "The UK Air Defence Region during recent years has received more trade from Soviet long-range



Teledyne Ryan's design for the Compass Cope long-endurance, high-altitude RPV program is this YQM-98A vehicle. Last fall, one made a test flight lasting more than 24 hours.

aircraft flying round the North Cape of Norway and down towards the British Isles than any other NATO air defence region." It is an expensive business to maintain a fighter force at instant readiness to investigate such visitors; it also has the inherent danger implicit in the adage that "familiarity breeds contempt."

One British TV film, taken from an RAF interceptor, showed a Russian air gunner in a Tupolev electronic reconnaissance bomber waving to the man sent up to escort his aircraft. But what would happen if, one day, the mission of the intruder were different and the fighter pilot was met by a bomber defence missile rather than by waves and smiles? Ground controllers in the UK might have no immediate clue as to whether the fighter had been shot down or had simply fallen victim to an equipment malfunction. Ten minutes of uncertainty might separate life and death for whole nations in a nuclear age.

Imagine, now, that the RAF fighters could be replaced by an RPV like the long-endurance Compass Cope. Sensors on board it could do as good a job of identifying the intruder as any human aircrew. If the RPV were attacked, it would be simple to learn from onboard equipment what had caused the loss of signal, and there would be no loss of human life in doing so. Furthermore, Compass Cope is large enough to carry air-to-air missiles of its own, with which to strike first if the incoming flight proved to be bent on more than the customary reconnaissance.

Day-long Compass Cope surveillance over the Indian Ocean could also be invaluable, especially when the reopening of the Suez Canal makes access to that ocean even easier for Soviet warships. However, it must never be forgotten that RPVs are equally helpful to both East and West.

At the moment, the Soviet Navy uses the 170-ton Tu-95 (NATO "Bear-D/F") bomber, packed to the gunwales with men and costly avionics, to provide targeting data for its missile launching ships. There is no reason why such aircraft should not be replaced by mini-RPVs, weighing perhaps 125 pounds each, quick to produce, easy to transport and deploy, and so shaped that each appears no larger than a small bird on a radar screen.

Technology, Weapons, and Peace

It will never be easy to find the money required to retain technological leadership in every essential category of piloted and pilotless aircraft. Fortunately, much of the technology is common. Forward-looking infra-red research by Philco-Ford, for example, has evolved a truly remarkable lightweight unit which could provide navigation and target acquisition facilities for manned aircraft, RPVs, and missiles. It could have particular significance for Western Europe, where frequent cloud cover and bad weather limit the effectiveness of standard TV seekers fitted to weapons like the Maverick air-to-surface missile.

While being grateful for the lessened tension and expenditure that result from the SALT I agreement and its planned successors, we must never forget that freedom from major war for a generation has stemmed from the availability to both sides of advanced weapons of ultimate destruction, against which no defence is practicable as yet. By the time we reach SALT VI or VII, we could be at the stage where all weapons are banned except crossbows and shillelaghs. Then, once again, those nations having the most men will have the advantage. In the light of several thousand years of history, who would claim that peace lies in that direction? ■

The author, John W. R. Taylor, is Editor of *Jane's All the World's Aircraft*, a position he has held since 1959. The "Jane's Supplements" appear regularly in this magazine. This fall, Mr. Taylor toured US aerospace facilities and addressed an AIAA-sponsored RPV Technology Symposium in Tucson, Ariz.

The Air Force is caught between budgetary shortfalls induced by inflation and the need to respond to staggeringly large and diverse Soviet R&D programs. Secretary McLucas and other Air Force leaders examine the critical requirements of national defense and discuss . . .

USAF's R&D Priorities for 1975

BY EDGAR ULSAMER
SENIOR EDITOR, AIR FORCE MAGAZINE

Illustrations by Cliff Prine

DOUBLE-DIGIT inflation, as a ranking Defense Department official recently pointed out, is bringing the United States and its allies to the brink of unilateral disarmament. Defense Department forecasts, even though optimistically premised on early easing of inflation, hold out the specter of a $16 billion shortfall in major weapons procurement in the next five years. The Air Force's share, Air Force Secretary John L. McLucas told AIR FORCE Magazine, "is about one-third, or more than $5 billion," a figure that will have to be "revised upward" if the current annual ten percent decline in purchasing power can't be brought down to "between five and seven percent within the next two years."

Not surprisingly, Dr. McLucas and other Air Force leaders interviewed stress that inflation "sets the tone and pace for how the Air Force will do its job in the coming year."

Inflation's impact on the Air Force budget is impervious to easy remedies and can be countered only by drastic economy measures or, as the Editor of this magazine recently wrote, "by a lowering of one's standard of greatness"—not an acceptable solution. The Air Force is revamping its priorities and stretching its resources. Lt. Gen. William J. Evans, USAF's Deputy Chief of Staff for Research and Development, sees as the Air Force's motto for 1975: "'Develop, buy, manage, and operate cheaper.' Technology, together with innovative techniques, can help us solve our money problems."

Secretary McLucas spelled out these basic alternatives: The most obvious step is to "present to Congress the best case we can for why the inordinately high rate of inflation" has hurt crucial programs and "ask for relief." Otherwise, "we will have to adjust our development and acquisition programs. We believe that we will have a combination of these two conditions, that we will be given some relief but that this won't be enough to offset the effects of inflation."

Senior Air Force leaders realize, of course, that after winning approval—only two months ago—for what on the surface appears to be a record budget, now is not a good time to ask for supplemental funding, especially since "the Congress, in passing the FY '75 appropriations, knew that we needed more money, but at the same time felt that the Air Force had to take some cuts, along with everyone else." While Dr. McLucas did not rule out an Air Force request for supplemental FY '75 funding, he considered it more likely that "shortfalls affecting the most important programs will be covered out of the FY '76 appropriations."

General Evans believes that USAF's austere R&D budget will necessitate deferring "new starts while still maintaining our modernization effort." Three R&D areas being accented, he said, are life-cycle costing, increased automation of weapon systems to reduce manpower requirements, and wider use of simulators to reduce some categories of flight training. (DoD's overall POL bill stems in the main from training. In spite of a fifteen percent cut in fuel consumption, DoD's annual fuel costs have increased from $1.3 billion to $3.5 billion during 1974.)

Life-cycle costing, General Evans explained, projects and adjusts a system's total operating and maintenance costs over its life span. In the case of such aircraft as the A-10 and the Air Combat Fighter, the contractor is given important incentives to design the system and all critical subcomponents to maximize reliability and minimize down-time and maintenance costs.

General Evans pointed out that the F-15's avionics, especially its radar, make it possible for one crew member to "handle a more complicated weapon system better than could the two crew members of its predecessor, the F-4." Similar reductions in crew size apply to the B-1, compared to the B-52. Equally important, General Evans said, are the scheduled cuts in ground crew time required to maintain USAF's newest aircraft and other weapon systems.

Secretary McLucas said that the Air Force has been on a cost-paring campaign for some time: "We have closed about thirty percent of our major bases, cut our headquarters personnel some forty percent, and reduced our overall manpower by about thirty percent during the past eight years." Cuts of this kind, he predicted, "will continue, although we are approaching a point where total force capabilities are being affected." Further cuts in Air Force

O&M (Operations and Maintenance) funds would curtail readiness levels, and significant reductions in research and development would have intolerable consequences.

Programs that the Air Force views as "sacrosanct" include the B-1, AWACS, the A-10, the F-15, the Air Combat Fighter (ACF), and, to a degree, the M-X follow-on ICBM program, Dr. McLucas told AIR FORCE Magazine.

Protecting Basic Research

Another area that the Air Force plans to protect is basic research. (DoD's overall investment in R&D and acquisition, measured in constant dollars, has declined from $30 billion in FY '73 to $26.5 billion in FY '75, while Soviet spending in advanced military technology keeps increasing at an annual rate of about five percent.) Stressing that basic, as opposed to applied, research is the foundation for decisive technology advance in the years ahead, Secretary McLucas maintained that the present trend—a decrease of more than fifty percent since 1967, from the equivalent of $139 million to $78 million—"can't be permitted to continue."

Air Force leaders have issued instructions that "we can't continue to solve our acquisition problems by going out of the basic research business." USAF's future policies will not only be keyed to "holding the line" on basic research but also provide for realigning tasks assigned to the Air Force laboratories and to the academic research community.

Secretary McLucas told AIR FORCE Magazine that recent studies of Air Force-sponsored research by a special panel headed by USAF's Assistant Deputy Chief of Staff for R&D, Maj. Gen. Kenneth R. Chapman, plus analyses by the Scientific Advisory Board, brought out "convincing evidence that we should not decimate further the ranks of those who [in the universities] have loyally and effectively supported us. It is psychologically important that we acknowledge the importance of basic scientific research conducted by the academic community in our behalf by maintaining an adequate level of work of this type."

There will be a reallocation of principal efforts "with the laboratories concentrating on applied research, and the university researchers stressing basic research." (General Chapman told AIR FORCE Magazine that Dr. Theodore von Kármán's "New Horizons" study after World War II "wisely" provided for Air Force in-house basic research to establish the service's scientific credibility. Almost thirty years later, USAF's scientific credibility is "no longer in question" and the bulk of basic research should now revert to the academic community.) The role of such organizations as the Air Force Cambridge Research Laboratories at L. G. Hanscom AFB, Mass., and the Rome Air Development Center at Griffiss AFB, N. Y., "will, therefore, have to be changed somewhat," Secretary McLucas explained.

USAF's Chief Scientist, Dr. Michael I. Yarymovych, told this reporter that maintaining adequate university research levels is critically important for other reasons: Graduate students tend to stay in the field of their primal training. If the military services fail to provide opportunities for young scientists and engineers to specialize in defense-oriented disciplines, the nation's already severely depleted pool of technical talent will shrink further.

A recent NASA report shows that college enrollments in aerospace engineering dropped from 3,200 junior class students in 1968 to 800 last year. The aerospace industry already is encountering problems in recruiting young engineers, and the US is in "very real danger" of losing its lead in aeronautics. Exacerbating the problem is the reduction in defense business that has produced major contractions in in-

The present decline in basic research funds "can't be permitted to continue."

dustry and a loss of some 200,000 employees during the past two years.

As defense business shrinks, the industrial base available to the military services begins to erode as well. Today, only 5.7 percent of the US Gross National Product is defense-related—roughly half the GNP percentage of a decade ago. Defense Secretary James R. Schlesinger warned recently that in some instances "we find ourselves reduced to a single supplier of vital military goods, with considerable uncertainty as to whether we can generate enough orders to keep one producer in production. . . . While the Soviets produce thousands of tanks a year, we are struggling to build to an annual rate of some 800. New aircraft are coming off the lines at a rate of about 600 a year [compared to a World War II annual peak rate of 50,000], and helicopter production over the last decade has fallen by a factor of ten."

New Horizons II

Dr. Yarymovych accented the importance of basic research. With rare exceptions, Air Force weapon systems developed over the past decade were evolutionary improvements of older concepts and "if history is any guide, the time is ripe for major breakthroughs." Because Air Force R&D has been confined to "modernization," he added, "we are reaching a situation of diminishing returns, where every little step forward becomes more and more expensive and difficult."

These factors, along with incontrovertible evidence of steadily increasing Soviet efforts, have led to an intensive Air Force study known as "New Horizons II." It seeks to pinpoint specific research goals that may reshape the Air Force in the 1985–2000 period. *(See November 1974 issue, "USAF's R&D Riddle: How to Do More With Less.")*

Secretary McLucas hopes that New Horizons II, a four-month, long-range planning study, will help in avoiding "technological surprise in the years to come and will help in keeping our minds open and our research sufficiently active to prevent other people from coming up with innovations that we haven't thought of." New Horizons II, he said, also seeks "new concepts in the deployment of various technologies that may already be in existence." The Air Force had developed the concept of guided or "smart" weapons years before they were deployed in a decisive way in Southeast Asia, and Secretary McLucas suggested other technologies may be in a similarly latent state.

The Space Potential

A major concern of New Horizons II is the potential of advanced military space technology. Dr. Yarymovych believes that the United States has "bottomed out in our dismissal of space as a useful medium," and that

The US has "bottomed out in our dismissal of space as a useful medium.'

such programs as the Global Positioning System (GPS), a twenty-four-satellite network designed to provide worldwide position fixing in the next decade, "will have truly revolutionary consequences over a spectrum that extends from the foot soldier to close air support and to other space systems."

The Air Force's Chief Scientist attributed speculation about alleged high vulnerability of military space systems to "inadequate understanding of the phenomena involved."

In the case of GPS satellites operating at altitudes of about 10,000 nautical miles, a potential aggressor "will have to attack each satellite independently, which is not only difficult and expensive but also precludes surprise."

Systems of this type, he pointed out, are being hardened enough to thwart simultaneous attack on a number of space satellites by a single enemy space weapon. The satellites themselves, he said, are going to be "quite jamproof" and the ground stations "are also going to be well protected" against ballistic missile attack. Finally, airborne Air Force systems are available to "patch up local gaps if one or two satellites are lost for whatever reason."

On balance, Air Force studies indicate that the only conceivable attack on major satellite systems would require full-scale nuclear war, which makes other essential systems "at least as vulnerable as satellites."

Economic factors are important in Air Force space plans. Manned aircraft and personnel costs are skyrocketing while the National Space Transportation System—the so-called Space Shuttle—promises "fairly inexpensive spaceflight. Satellites become economical to the point where we can afford sufficient redundancy to stand the loss of some of them."

"An air-launched ICBM has considerable appeal as a follow-on or variant of the . . Minuteman."

The Space Shuttle's ability to place systems into orbit at lower costs and to retrieve them suggests other ways to cut costs. At present, most space systems are overdesigned, because once one is placed in orbit there is no way to repair it. Thus, military satellites become obsolete long before they wear out. The Shuttle (at the end of this decade) "might make it possible to build less expensive, shorter-lived systems that we can retrieve," he suggested.

USAF's ICBM Program

Strategic deterrence, the Air Force's single most important task, is not immune to inflationary pressures, Secretary McLucas warned. Referring to the recent Minuteman I light-off following its extraction from a C-5 by parachute, Dr. McLucas confirmed that "an air-launched ICBM has considerable appeal as a follow-on or variant of the current Minuteman deployment. The intrinsic advantages of an air-launched system are extremely high survivability, the ability to use existing bases, and the fact that this basing mode requires no additional geography, whereas a land-mobile system would."

Militating against air launch, he conceded, is that "such a system could not be implemented without buying some new aircraft, which wouldn't be cheap. By the time we have new aircraft, we may find out that the system's effectiveness could be increased by changing the ICBM to achieve a better match with the carrier, which would make for a fairly expensive program."

Even so, the virtues of a small but highly survivable air-launched ICBM force may outweigh these economic drawbacks, Secretary McLucas suggested. Any wide-bodied commercial jet or the C-5 would make a suitable ICBM carrier, but the smaller aircraft, such as the DC-10, might not be able to accommodate as many ICBMs as can the 747, he added.

An important new initiative is Pave Pepper, a Minuteman modified to accommodate more MIRVs (multiple, independently targetable reentry vehicles) than the currently deployed Minuteman III, Secretary McLucas told AIR FORCE Magazine. Involving "probably" the development of a new first stage to cope with the increased weight, advanced guidance systems, and warheads with improved yield-to-weight ratios, Pave Pepper's development and deployment would take "a number of years. The best we can do now is to fully define its specifications and make the decision to develop it as soon as possible," according to Dr. McLucas.

Developing such a system is almost certain to involve a prototype phase, and initially would not cause the Air Force to close out the option of converting older Minuteman II missiles to the three-MIRV-capacity Minuteman III, the Secretary explained. (The FY '75 budget permits the Air Force to build a limited number of test and replacement missiles and thus keep open the option of replacing older Minuteman II missiles with Minuteman IIIs. The currently authorized mix consists of 550 Minuteman IIIs and 450 Minuteman IIs.)

Pave Pepper, if put into full-scale development, will probably be called Minuteman IV, and "shows significant advantage whether deployed in an air-launched or fixed-silo mode.

"A force of these missiles [deployed on special carrier aircraft] would constitute a commanding deterrence for any potential aggressor because in trying to figure out how to neutralize our ICBMs he runs into the problem of a large force he can't get at at all."

The same advantage holds if the Air Force were to decide to deploy Pave Pepper in fixed silos, according to the Secretary: "Even if an enemy assumed that somehow he could knock out ninety percent of our [1,054] ICBMs, the one hundred or so missiles left [for a US second strike] might be the ones with additional MIRVs and therefore represent a retaliatory capability that no rational aggressor would want to be exposed to." (In his discussion with AIR FORCE Magazine, the Secretary forcefully expressed his belief that "no rational adversary would ever think that he could dig out almost all our ICBMs.")

The follow-on ICBM project, known as the M-X program, Dr. McLucas said, represents a high Air Force priority and is among the "inviolate programs in the current budget cycle to the extent that we must maintain an aggressive R&D effort in this field." At the

same time, the Air Force is faced with a dilemma because the M-X is still in an evolutionary state: "On the one hand, we can see a pressing need to bring the system's pacing components into some form of hardware development, but on the other we have not yet completed studies of what constitutes the ideal approach to a follow-on ICBM design."

Asked about integrating the US Army's proposed Site Defense System (a follow-on ABM system) into the Minuteman force, the Secretary said, "We have not resolved whether or not there will be a Site Defense program. This question, like several others, depends on the outcome of the Strategic Arms Limitation Talks."

The strategic weapon development that ranks "first" in priority among all Air Force programs, the Secretary said, is the B-1 strategic bomber, at this writing about to begin flight testing. Assessing its basic cost-effectiveness, Secretary McLucas said, the B-1 can be considered cost-effective in terms of the number of widely dispersed separate targets that it can attack with unparalleled flexibility, as well as the amount of resources that the Soviets have to devote to defending against it.

ACF's Rising Star

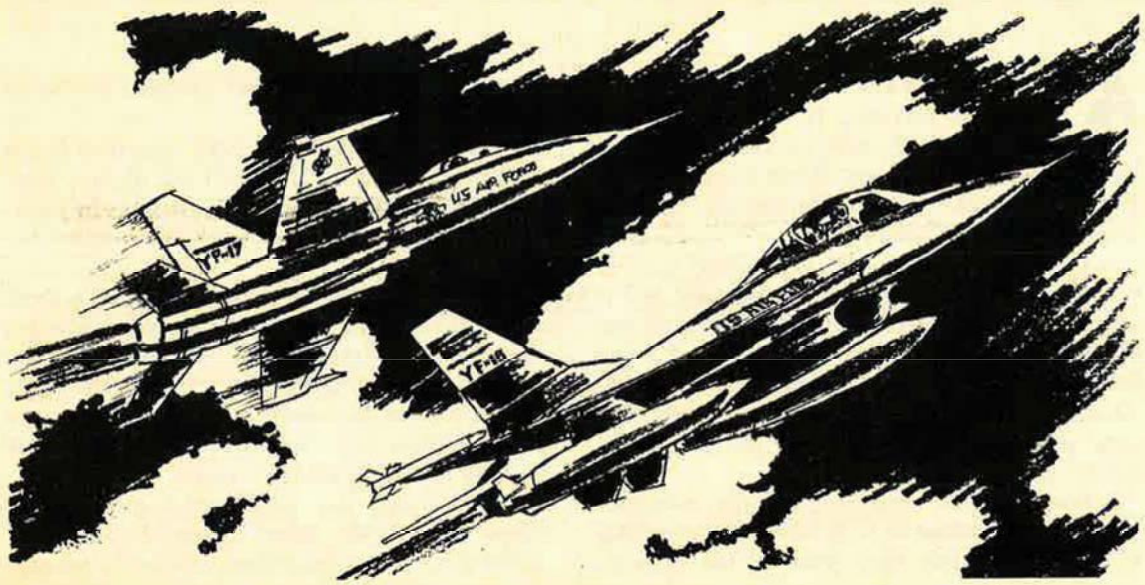
The new year will be decisive for the Air Combat Fighter (ACF), which offers a chance for expanding the USAF force structure. This development was previously known as the Lightweight Fighter program. Secretary Schlesinger, Dr. McLucas told AIR FORCE Magazine, let the Air Force know that if its leaders "are really serious about buying a lower-cost [relative to the F-15] air combat fighter, then DoD won't take the money [that is saved in the process] away from you, meaning the Air Force can buy more aircraft" than originally programmed. He cautioned, however, that "if weapon-systems costs continue to escalate at the rate they have been, we might be lucky to keep what we have now," even allowing for the economies realized from an ACF.

The Secretary pointed out that ACF has moved up in "importance on our scale of priorities because of service-wide acceptance of the merits of complementing the F-15 with an aircraft that is considerably cheaper and, therefore, available in larger quantity." The Air Force is determined to "keep the Air Combat Fighter as simple as possible in order to keep its price down." DoD's position is "that the Air Force's ACF will not be compromised by attempting to achieve commonality with the Navy's requirement [for a fighter/light attack aircraft]."

At the same time, DoD and the Navy hope "that out of ACF will come something that by slight variation can be made to satisfy the Navy's needs. The Air Force, in the meantime, has amended [its contractual arrangement with the ACF contractors] to the effect that we reserve the right to incorporate into the final Air Force specifications any features from the Navy's lightweight fighter study that might be beneficial to the Air Force," according to Secretary McLucas. On the other hand, if, after careful study, DoD and the Navy reach the conclusion that an ACF derivative can't meet the Navy's need, then "it appears that the Navy would be authorized to go out to industry with full solicitation for a separate VFAX development. We believe in the high/low mix concept and don't want to push up toward the F-15 weight and cost level. Rather than do that, we would buy more F-15s," the Secretary said.

The Air Force plans to complete the ACF source selection by January 15, 1975, choosing either General Dynamics' YF-16 or Northrop's YF-17. The winning aircraft is a strong candidate for large foreign sales, in addition to the 650 aircraft the USAF plans to buy.

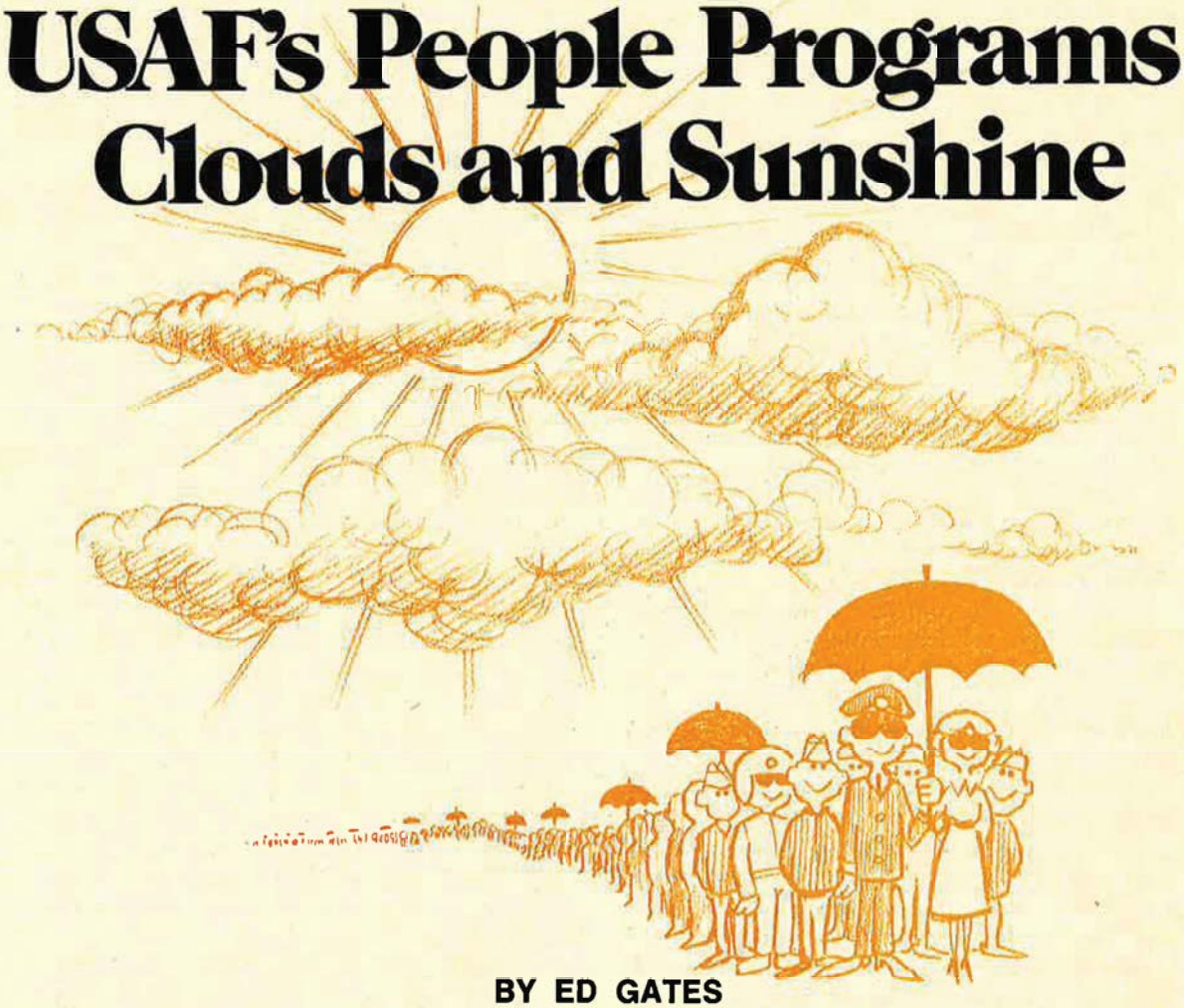
This program and its potential for improving the US balance of payments appear to be *the* bright spot in the coming Air Force year. ■



The Air Combat Fighter "will not be compromised by attempting to achieve commonality with the Navy's requirement."

Not all personnel benefits have eroded despite severe cuts in some areas, fewer new starts, and the prospect of further RIFs. Pay raises have exceeded inflation, and the Air Force is fighting to save other benefits. The forecast for . . .

USAF's People Programs: Clouds and Sunshine



BY ED GATES
CONTRIBUTING EDITOR, AIR FORCE MAGAZINE
Cartoons By Gary Hughes

As it begins a new year, the Air Force, like the other services, is under mounting pressures to shave or erase various established "people" programs, forget about launching new ones, and invoke more dollar-saving "innovative management" practices.

Calendar 1975 will be highlighted by further force cuts, including more outright RIFs, and far fewer transfers. "Belt tightening is the number one concern across the Air Staff," one Pentagon general recently told his associates. Another declared, "We are undergoing the most stringent budget survey of the past thirty years."

Soaring costs, inflation, and the Administration's determination to hold federal spending to $300 billion this fiscal year are the culprits. USAF personnel funds and projects are being squeezed accordingly.

But the forecast for USAF members is not all bad. Far from it. It's much less gloomy than those who talk about "serious erosions of benefits" would have the military community believe.

Lt. Gen. John W. Roberts, USAF's Deputy Chief of Staff for Personnel, acknowledges that "we've lost ground in some areas." But the top Air Force military personnel official insists that "we have had some substantial gains and in the balance have maintained a favorable net position over the past few years."

Active-duty pay is the major gainer. Nine raises since 1967 have increased pay rates eighty percent, outdistancing inflation by twenty-

five percent. That weighs heavily on the plus side of the ledger.

Meanwhile, important changes designed to improve conditions of service and life in general for many blue-suiters are in the offing. They range from expected improvements in recreational programs, through a reduction of irritants linked with uniform wear and billeting rules, to RIF pay for enlisted members.

Yet the budget squeeze and its impact on personnel programs will continue to dominate the headlines in the months ahead. This became inevitable when Congress appropriated $7.2 billion in USAF personnel money for FY 1975, $250 million shy of the initial request. And that appropriation, eroded each day by inflation, doesn't include the quarter of a billion dollars the Air Force soon must secure to cover the October 1974 military pay raise.

Travel-transportation benefits that the Air Force wants extended to all lower ranking members were ditched completely by Congress, largely because of the cost. The lawmakers also slashed transfer funds, terminal leave money, and other projects. The real shocker was their gutting of the airman commissioning program *(see December '74 issue, p. 123)*, although USAF officials are pressing for new funds that would reopen enrollments late this year.

Constant waves from the White House, the Defense Department, and Congress assure that all kinds of existing military personnel programs are subject to pruning.

And what about new benefits or entitlements? Few containing any sizable price tag will emerge this year. The White House's Office of Management and Budget (OMB) made that clear recently when it denied a Pentagon request to extend the $30-a-month family separation allowance to lower enlisted grades, despite the fact that they need it most.

In its rejection, OMB declared that "any new entitlements should be limited to those which are vital to the All-Volunteer Force objectives or are offset by recommended reductions in other personnel programs." The family separation stipend for the lower graders meets neither, OMB added.

Also working to block any new pay provisions or entitlements for the near future is the Quadrennial Review of Military Compensation, to be conducted by Defense throughout 1975. This is a top-level examination of all pay and allowances. And military compensation is being scrutinized by the Defense Manpower Commission, a blue-ribbon panel established to achieve efficiencies and savings in the manpower area.

Major Legislative Proposals

The mainstays of Defense's 1975 personnel legislative program are carry-overs from last year—the Defense Officer Personnel Management Act (DOPMA), and the Retirement Modernization Act (RMA). Initial hearings on both have been conducted. Full implementation of these measures would save—not cost—Uncle Sam money.

DOPMA would establish USAF's long-sought permanent officer grade ceilings. It also provides for an all-Regular officer corps at the eleven-year-service point, sets up machinery to forcibly retire less effective senior officers, and includes other long-needed management reforms. DOPMA rates a good chance of enactment late this year or early next.

Selected parts of RMA, such as enlistee RIF pay, are expected to survive the law-

Congress frowned on extending travel benefits to the lower ranks . . .

makers' review of that measure. But not the section that would cut back the present fifty percent retirement formula for twenty years' service to thirty-five percent. The outcome of other controversial provisions of RMA is in doubt.

Minor items, such as extending from one to three years the time in which the government will pay for a retirement move, and raising the number of ROTC scholarships, are expected to appear on the Pentagon's legislative shopping list for 1975. Defense also plans to try again for relief on the retired pay inversion snafu, so that service members who retired after October 1, 1974, won't continue to receive smaller pensions than those who retired earlier.

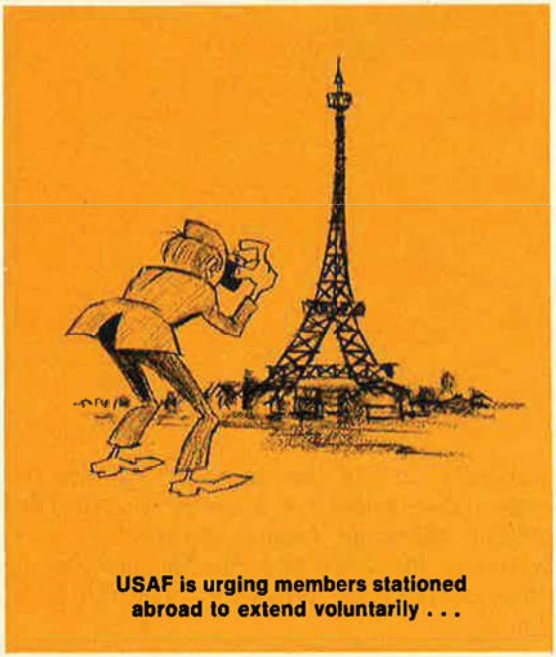
OMB killed the Pentagon's first relief plan last summer, but even if it changes its mind this year, the outlook for elimination of the pay inversion remains poor. Capitol Hill sources feel that the House Armed Services Committee will not support the bill for fear it would pick

up an amendment to recompute retired pay. Committee leaders continue to oppose any form of recomputation.

This year, Defense may ask Congress to amend the Survivor Benefit Plan by ending annuity deductions when the beneficiary dies before the retiree. The President, in action that should pave the way for this needed change, recently approved a bill allowing federal and postal retirees to stop deductions in such circumstances.

One new Defense proposal that does require substantial financing has received enthusiastic Air Force support. It would extend travel benefits to E-4s with under two years' service (those with more than two years are eligible now) and to E-3s. The plan covers three-fourths of the married Air Force members not now authorized full travel benefits, leaving only 9,000 married lower graders still ineligible.

This new travel entitlement would cost USAF alone an estimated $37.8 million annually. But General Roberts and others consider it of such overriding importance—"a priority volunteer force objective to correct a serious irritant which adversely impacts on morale"—

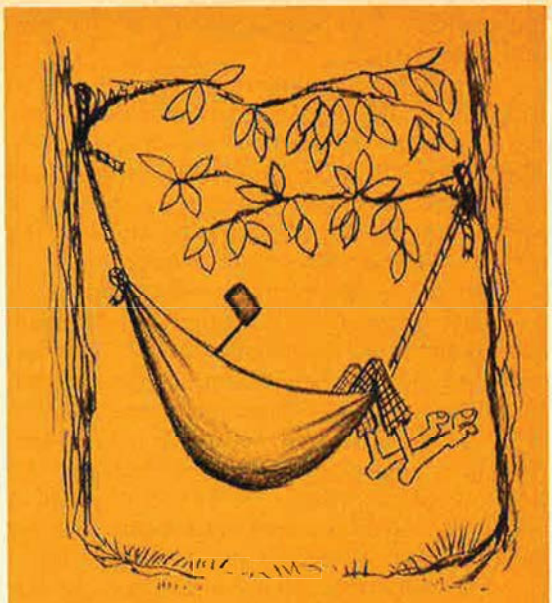


USAF is urging members stationed abroad to extend voluntarily . . .

that the price tag is justified. Whether the proposal, which would replace the more expensive and broader plan Congress rejected last year, can attract OBM and congressional endorsements this year is questionable, however.

RIFs and Reassignments

As active-duty and retired pay raises add a couple of billion dollars annually to military personnel expenditures, and as inflation compounds the problem, it's small wonder that Air Force authorities are deeply involved with the permanent change of station (PCS) and force reduction problems. Big money is involved in both.



Those who retired after October 1, 1974, get less than those who retired earlier . . .

In PCS funds alone, USAF came up nearly $100 million short of the normal $640 million PCS requirement this fiscal year. This spurred the service's recent decision to eliminate 45,000 transfers in FY 1975 by extending many tours involuntarily and urging members who are stationed abroad to extend voluntarily.

More drastic move cutting measures will follow if the initial steps don't attain the savings required. Extending overseas tours involuntarily is a possibility, though top authorities say they'll resist that step to the very last.

The government, meanwhile, has cut active-duty Air Force strength from a Vietnam-era high of 908,000 in 1968 to the present 630,000. Though no one knows the ultimate level-off point, authorities predict the service will drop below the 600,000-member mark within the next twelve months.

One official, Director of Manpower and Organization Brig. Gen. Jack I. Posner, pointed out that while Air Force spends an estimated forty-six percent of its budget on people-related programs (less than the other services), that percentage could rise to sixty or sixty-five percent before long, if the size of the force remains unchanged. And that would be anathema to Congress and the Administration.

Chopping manpower, therefore, is the government's main answer to the personnel budget squeeze. It's extremely painful for career people turned loose against their wishes, but it does save dollars.

Air Force has removed some of the sting linked with forced reductions by opening many "early out" doors for officers and airmen. But still more officer RIFs are scheduled, starting with about 600 next June. During FY 1976, which begins in July, one early estimate calls

BALANCE SHEET:
MAJOR PERSONNEL ENTITLEMENTS-BENEFITS

ITEM	POSITIVE	NEGATIVE	FUTURE
PAY COMPARABILITY	Nine raises since '67; rates up 80% and 25% ahead of inflation.	Oct. '74 raise split between pay and allowances, thus less than rise in living costs; $36,000 salary ceiling.	Difficult to maintain comparability.
TRAVEL PAY	Mileage allowance up; dislocation allowance up (tied to BAQ); E-4s with over 2 years get benefits.	Cost of gas, food, and lodging increased more than allowances.	Bleak; out-of-pocket expenses will top allowances.
AVIATION CAREER INCENTIVE PAY (ACIP)	Boosts flight pay for young officers.	Senior officer pay cut or eliminated; must meet "gate"; reduces assignment flexibility.	ACIP should satisfy congressional pressure, stabilize situation; some won't meet "gate."
COMMISSARY	Prices 20–40% lower than commercial; many facilities modernized.	Surcharge hike from 3% to 4% probable to provide facility improvements.	Continued lobby group pressure to eliminate commissaries, exchanges, but expect to hold line.
RETIREMENT			
Present System	Good, competitive plan; 50% of basic pay at 20 years.	Pay inversions; no proviso for recomputation.	Retirement Modernization Act (RMA) in Congress.
RMA	Has RIF pay for EM; return of equity for under 20 years, more pay for over 24 years; can address pay inversion.	Integrated social security and military retirement; two-step annuity; pay inversion.	Best vehicle to deal with problem; AF will press for favorable provisions.
Survivor Benefits	Retirees can protect 55% of pay; SGLI up to $20,000.		No erosion.
PROMOTIONS			
Airmen, NCOs	Visible, equitable system for E-4s through E-7s.	Still no solution to E-8, E-9 visibility.	
Officers	Hike flow kept viable despite force cuts; OGLA relief okd; DOPMA moving.	Phase points slowed; hike opportunity trimmed.	Adequate annual programs seen; DOPMA will provide single promotion system.
MEDICAL CARE	Family practice plan; MD assistants; scholarships; new MD bonus.	Medical shortfall; shift of some on-base kin care to CHAMPUS.	Long-term doctor shortage; cut in service to dependents, retirees.
LEAVE	30 days annually; more liberal ways for using.	Pressure to end lump-sum payments on re-up, retirement.	Continued pressure to use leave as vacation, not income; legislative curb possible.

for involuntary separation of more than 2,000 officers, though that projection could change up or down. Regular officers remain immune to these forced reductions.

What about the look ahead for the major entitlement-benefit items—pay, retirement programs, promotions, medical care, and so on? Authorities provided a "balance sheet" of these and other benefits, complete with a forecast of what the future holds. The necessity to hold down costs is implicit in several items on the list, shown in part in the accompanying table.

The total thrust of the balance sheet indicates that, while some erosion is possible, traditional benefits are not going down the drain. Promotion and retirement programs appear in

The percentage of families adequately housed has increased to 84% . . .

reasonably good shape for the long run. At press time, however, a temporary freeze on some federal and military promotions was reported in the works as a "one-shot" money saver.

The Housing Outlook

Family housing is shaping up well. Air Force notes that from FY 1973 to the present, the percentage of families adequately housed has increased from sixty-nine to eighty-four percent. And even though Congress recently denied the services funds to build new housing specifically for married lower graders, 6,000 of USAF's married E-1s through E-4s actually live in government family quarters.

The cost bind will reduce the Air Force request for new family housing to about 1,000 units this year, according to Col. John E. Catlin, Jr., Chief of the Hq. USAF Housing Division. He disclosed, however, that Air Force is seeking $50 million annually to improve existing quarters. This ambitious request is 150 percent more than the $20 million Congress approved for the same purpose in USAF's FY 1975 construction program.

Authorities hope to improve all older Air Force quarters over the next several years. The total estimated price tag: $275 million.

USAF's bachelor housing objectives for the coming years are equally impressive. They call for apartments for all officers; private rooms and private baths for all NCOs; private rooms and semiprivate baths for all airmen; reduced quarters allowance forfeiture for inadequate quarters; and optional residency (on or off base) for all officers and NCOs.

More immediate improvements are forecast for various morale, welfare, and recreational programs. Officials hope to provide more and better recreational equipment and facilities. More FAMCAMPs (there now are family campgrounds at thirty-two Air Force bases) "will become a necessity," and aero clubs will continue to provide "a safe operational flying environment." Headquarters also cited "improvements in the recent past in automotive hobby shops, bowling centers, craft and hobby shops, golf courses, and special services supply." Authorities have pledged to push for further improvements.

Other Personnel Projects

There are reliable forecasts for the year ahead concerning a host of other personnel-manpower projects. Here are some of them:

- **The new officer effectiveness report program.** Inroads on effectiveness rating inflation will become evident, and selection boards should find it easier to identify truly outstanding officers for promotion.
- **Temporary lodging quarters.** Though no more welfare funds are available, "other possibilities" exist for increasing units above the present number of about 1,000. Rates for these motel-like facilities are about one-third those of commercial motels.
- **Dependent-retiree medical care.** The Administration's long-awaited study on military care is expected to be released early this year. It should touch off heated controversy, for its recommendations reportedly will demand reductions in dependent care.
- **Quality of the force.** It will remain the highest of all the services. The quality of new Air Force recruits should top last year's favorable record.
- **Graduate education program.** Further pressures on the Air Force to curtail this project are seen, but USAF has a vigorous rebuttal. Already down from 2,500 man-years in FY 1969 to a projected 1,340 by FY 1977, further cuts will damage R&D capability and may threaten national security, Air Force contends.
- **Retention of legal officers.** Retention remains at an unsatisfactory sixteen to seventeen percent, compared with a desired thirty-five percent figure. Headquarters is staffing "an enhanced JAG promotion system" that would offer stay-in incentives.
- **Schilling Manor.** The Air Force will continue to support this project with central welfare funds so that families whose sponsors are sent overseas-remote may have a decent place to live, at what was formerly Schilling AFB, Kan.

Air Force officials are working overtime to ease the strains created by the personnel money shortage. In numerous cases, solutions are beyond their control. The overall situation presents new challenges to Air Force leaders this year to explain, and members to understand, what's behind the various retrenchments. And it should not be forgotten that the general public faces equally difficult times in 1975. ■


YJ101 engines for the YF-17
The extra margin of twin-engine reliability at no extra cost.
That's why J101 power for the Air Combat Fighter makes a lot of sense.
GENERAL ELECTRIC
205-98

Speakers at AFA's Symposium on "New Dimensions in Strategic Deterrence" assessed the staggering array of new Soviet nuclear weaponry. In this, the first of two special reports, AIR FORCE Magazine reveals that the Soviets have embarked on history's greatest strategic buildup . . .

HOW RUSSIA IS TIPPING THE STRATEGIC BALANCE

BY EDGAR ULSAMER
SENIOR EDITOR, AIR FORCE MAGAZINE

The Soviet Technological Threat

- The Soviets are ready to deploy four new types of ICBMs with warheads ranging from one-half to twenty-five megatons, a supersonic intercontinental bomber, and an improved submarine missile system.

- The Soviets are working on new reentry vehicles, apparently terminally guided for maximum accuracy.

- The SS-19 Soviet ICBM can carry six fully MIRVed warheads, each about twice as big as the RVs of Minuteman III. The SS-18, largest new Soviet missile, carries eight RVs even larger than those of the SS-19.

- The Soviets have been testing sophisticated warheads with yields in the three- to four-megaton range, probably to be deployed on the new family of ICBMs, making the USSR's MIRVed warheads about twenty times more powerful than those of the US.

- The supersonic "Backfire," a strategic long-range bomber in the sense of the B-1, is entering the Soviet operational inventory.

- The Soviet Union is making major strides in concealing its missile submarines and countering those of the US.

- The Soviets have stepped up development work on superpower laser weapons.

★ The Administration's claim that the danger of nuclear war has been reduced to "negligible proportions" was arrived at without the concurrence of Soviet leaders. US assumptions about USSR motives in pursuing détente have "little to do with reality" and ignore Russia's publicly proclaimed goal of military-technological supremacy over the US, coupled with nuclear war-fighting and war-winning capabilities.

★ The sheer mass of strategic weaponry is on a sharp upward curve, with the momentum "on the side of the Soviet Union." Specifically, the USSR is preparing to deploy four new ICBMs, including one that carries up to eight warheads, has a potential accuracy (CEP) of a quarter mile, and could make "an excellent hard-target killer." This carefully balanced ICBM force, with warhead sizes from 500 kilotons to twenty-five megatons, is being rounded out with an improved submarine and sub-launched missile and the deployment of the new, long-range Backfire, a "strategic bomber in the B-1 sense." Following behind these strategic weapons apparently are "superpower laser weapons" and advanced reentry vehicles able to maneuver and home on targets with vastly improved accuracy.

★ The principal challenge before the US is the reversal of erosive budgetary trends that threaten to jeopardize "our capacity for credible deterrence" and that point the nation toward "second-class power status," by either design or drift.

These facts and conclusions were central topics of AFA's Symposium on "New Dimensions in Strategic Deterrence," held in Shreveport, La., November 13–14, in conjunction with the Strategic Air Command's 1974 Bombing and Navigation Competition. SAC's Commander in Chief, Gen. Russell E. Dougherty, was the Symposium's keynote speaker, and Dr. Malcolm R. Currie, Director of Defense Research and Engineering, the banquet speaker. Senior representatives from the organization of the Joint Chiefs of Staff, Hq. USAF, and other joint and major Air Force commands as well as specialists in Soviet affairs and NATO experts addressed the audience of military, industrial, and civic leaders.

Dr. Malcolm R. Currie, DoD's Director of Research and Engineering, predicted the start of history's most massive strategic weapons deployment by the Soviet Union in 1975.

Despite smiles during the keynote address, Gen. Russell E. Dougherty made a solemn assessment of strategic balance.

A common thread of the presentations and discussions was the danger that this nation's high hopes for détente, combined with inflation-induced budgetary pressures, may blur the realities of frantic Soviet weapons development and deployment. Analyzing the USSR's great strategic momentum, General Dougherty foresaw the potential for a tilt in the strategic balance "decisively in its favor," eroding the credibility of US strategic deterrence. US inability to resist coercion and threats because of Soviet superiority, he reasoned, would affect the future of this country in a way that is "awesome to contemplate. This potential for Soviet superiority—for upsetting the delicate balance and gaining strategic advantage—is real."

Dr. Currie's message was equally grave: "I can tell you that the coming year will probably see the start of the most massive deployment of new strategic nuclear weapons in history—and those will be Soviet weapons."

Mounting Soviet Momentum

The Soviet Union will probably begin deployment of all four of its new ballistic missiles, providing an awe-

some combination of accuracy, high numbers of reentry vehicles, hard-target kill capability, and "potential for ever-increasing destruction," Dr. Currie told the AFA Symposium. The Soviets tested a new one- to three-megaton warhead in August 1974 and, "within recent days," a three- to four-megaton weapon, according to Dr. Currie, who disclosed these details about the USSR's new ballistic missiles to which such warheads could be fitted:

- The SS-19 can carry six fully MIRVed RVs, or twice as many, "each twice as big," as can Minuteman III. (With the Minuteman III warhead reported to be 170 kilotons, it can be inferred that the SS-19 accommodates six warheads with a yield of about 340 kilotons each.)
- The largest new Soviet missile, the SS-18, has been flown with a single large RV and also with eight RVs "larger than those of the SS-19 but also quite accurate." While the US has information suggesting a quarter of a mile CEP (circular error probable) for SS-18 warheads, Dr. Currie cautioned that figure "may be somewhat overstated," but the missile still would be "an excellent hard-target killer."
- The SS-17 appears to be a "city destroyer" that by US standards carries four "very large" RVs.
- SS-16 test flights have carried a single large reentry vehicle and "could be deployed either in a fixed or land-mobile mode—or both."
- The Soviet Union is not freezing ICBM technology with its new families of weapons, but is working on advanced reentry vehicle concepts, including terminal maneuvering and homing guidance, which "could lead to very precise accuracy."
- The Soviet Union "recently" stepped up development work on "superpower laser weapons."

In a noteworthy comment, Dr. Currie said: "For some years there has been a vigorous R&D contest between efforts to conceal missiles under water and efforts to detect, track, and destroy them. The contest continues at a fast pace, and I don't know which technical effort will succeed. I do know that the Soviet Union is making major strides in its efforts both to conceal its missile submarines and to counter ours."

Predicting the Soviets will deploy the long-range Backfire bomber in 1975, he said that with refueling, it "has intercontinental range and could be used as a strategic bomber in the B-1 sense. It will also have a deeply disturbing capability against our fleets at sea." Equally disturbing, he said, is the new SS-N-X-13 ship-vs.-ship missile, which "we believe has maneuvering based on radar homing." This missile, he added, typifies the array of tactical as well as strategic weapons the Soviets are developing and deploying that "are excellent in technical capabilities and . . . entirely different from anything we have tried to develop."

Terming the Soviets' new missile development "simply staggering," Dr. Currie said "the concentration of R&D effort needed for development of four all-new missiles, new bus-type dispensing systems, new MIRVed payloads, new guidance, new type silos, new launch techniques, and new warheads exceeds anything seen previously in history. . . . They will gain expanded target coverage, plus improved prelaunch survivability, plus a substantial added hard-target kill capability.

A leading expert on Soviet affairs, Dr. Leon Gouré warned that the Soviet goal is still military superiority and that the threat of war is not negligible.

"If we want the insurance policy of deterrence rather than the grievous losses of war," the US must be willing to pay the necessary premiums, especially if the current SALT negotiations produce no meaningful results.

Dr. Currie, third-ranking official of OSD, set forth these "essential" elements of US deterrence: First, US strategic forces must be able to survive a first strike with enough strength to assure the destruction of the attacker's cities and industries. Second, they must allow a precise and sure military response against "any kind of target [to] provide active deterrence even if a first nuclear shot has been fired, [and] to bring war to an end before devastation becomes cataclysmic." The third imperative is "perceived equality" with the strategic forces of the USSR; anything less "could deter ourselves and force us into otherwise unnecessary concessions. The enemy must not see any exploitable gap in our forces, such as an inability to conduct a limited and controlled nuclear engagement against military targets."

The fourth requirement of deterrence, according to Dr. Currie, is long-term technological equivalence, including advances in throw-weight, accuracy, system reliability, survivability, and yield-to-weight ratios. A significant advantage in any of these areas by a potential adversary would threaten US deterrent capabilities.

The US objective at SALT is not to lose any element of the deterrence arsenal, but to assure that both sides "simply deter at a lower level of forces and budgets."

New Targeting Plans

In his keynote address to the Symposium, General Dougherty described some new ways the US is applying its strategic deterrent: "We at SAC and the Joint

General Dougherty autographs a flight helmet during a Symposium break as Dr. Gouré chats with Gen. Lucius D. Clay, NORAD Commander, who was one of the speakers. To his right are Maj. Gen. Charles F. Minter, Jr., 8th AF Commander, and Lt. Gen. William F. Pitts, 15th AF Commander.

Target Planning Staff are engaged in planning that will provide for a range of preplanned choices for consideration in responding to a range of potential provocations less than major nuclear attack." This means the use of nuclear power in "a wider variety of discrete and discriminating ways in order to resolve conflicts without resort to the ultimate nuclear sanctions" by communicating US intentions to an enemy as unmistakably as possible.

"We want to show an enemy that we can and will deprive him of selective military and/or economic resources vital to his warmaking ability; that we can and will deprive him of benefits from any contemplated nuclear escalation on his part; to encourage him to disengage his forces and withdraw from open aggression; to warn him of the severity of the impending consequences if he does not cease his aggressions; to force him to terminate an active threat, intimidation, or conflict at a relatively low level of intensity . . . and on terms advantageous to us."

While assured destruction remains the bedrock of US strategic planning, it "is no longer the full measure of our strategic nuclear tasks. Rather, flexible, variable, selective nuclear responses are being developed that will put his nuclear forces, his conventional forces, and his economic resources at risk, totally or selectively," General Dougherty explained.

Specific Requirements

Enumerating this country's key strategic R&D requirements, Dr. Currie stressed that the US "must have a manned penetrating platform for flexibility in operations and for deterrence for the foreseeable future. That platform must be technically advanced in order to reliably penetrate improving Soviet defenses. A new joint strategic bomber study . . . shows that of all of the optional technology available to us, the B-1 technology is the most effective for survival, penetration, and destruction of targets." The Soviets, he pointed out, came out of SALT I with more ICBMs and SLBMs as well as far greater throw-weight than the US. "We balance that advantage to a major degree with our own advantage in bombers. If we give up our bombers or depend entirely on bombers [of a type] which the Soviets might feel could not survive, penetrate in substantial numbers, and destroy, then the balance of forces could be destroyed and the risk of US losses in negotiation, in crisis, or in war could be unacceptably high."

Another vital "strategic hedge," he said, is the M-X program, a follow-on ICBM to Minuteman III. It can provide survivable mobile basing, added throw-weight "if the Soviets do not agree to curbs on total throw-weight," and better accuracy. Equally essential is the development of a longer-range, quieter, more powerful Trident SLBM system, needed to offset new Soviet systems and to hedge against Soviet breakthroughs in ASW (antisubmarine warfare).

An important counter to Soviet attempts to gain strategic superiority is "our intensive cruise missile R&D program, which involves new guidance, and which will enhance the effectiveness of the bomber and submarine forces."

Warning Is the Key to Survival

Deterrence, NORAD's Commander in Chief Gen. Lucius D. Clay, Jr., told the AFA Symposium, "is the sum of strategic offense *plus strategic warning.*" The United States possesses this capability, with many of its sensing systems "either operating in . . . or very near to" a real-time (instantaneous) warning, he said. New communications links, new computers, and better software are being added. Because the dated, makeshift system now used for SLBM detection is approaching obsolescence, NORAD "is getting a new, more sophisticated system . . . of phased-array radars . . . [that can] detect the new long-range, sub-launched missiles that have entered the Soviet inventory."

Another new NORAD system is the large "precision phased-array radar for monitoring Soviet ballistic missile activity . . . under construction at Shemya AFB in the Aleutians." It is one of the world's largest radars, capable of tracking several targets simultaneously.

Other systems that enable NORAD to perform its new primary mission of "global aerospace surveillance, warning, and assessment of ballistic missile attack," General Clay said, include the satellite early warning system using an undisclosed number of satellites in geosynchronous orbit that, through infrared sensing techniques, "give us instant warning of sub-launched missiles as well as land launches." The over-the-horizon, forward scatter radar system, the Ballistic Missile Early Warning System (BMEWS), and the space detection and tracking system round out the US ballistic missile warning capability.

In response to a question, General Clay disclosed that the US strategic warning capability covers FOBS (fractional orbital bombardment systems) known to be in the Soviet inventory and seemingly meant to defeat the US warning capability by attacking from an unexpected

The gravity of Symposium discussions shows in the faces of listeners. The two-day event in Shreveport's spacious civic center attracted hundreds.

direction. The US satellite sensor system, he said, "with few exceptions, gives us complete coverage of any launch area, and while we might not be able to tell a FOBS instantly, we can tell the launch point and azimuth," which apparently is sufficient information for NORAD's Combat Operations Center computers to permit rapid FOBS detection.

US capabilities in ballistic missile warning stand in marked contrast to those needed to detect an impending low-level bomber attack, which General Clay described as "marginal." But a number of programs are in progress that will permit NORAD to meet its other key mission—control of the sovereign airspace of the United States and Canada. This includes AWACS and the requirement for a follow-on fighter "to replace our aging F-106. A number of outstanding fighters are being developed, and I believe that one of them could be fitted to our needs. We are looking at the F-15. The F-16 or the F-17 . . . might be the answer," General Clay told the AFA audience. (Preliminary AFSC studies indicate that either of the two lightweight fighters will have a radius of action of about 1,000 nautical miles when used as an interceptor, or more than adequate for the ADC mission, since even the best land-based detection system is too limited to provide for intercepts beyond that range.)

An F-106 replacement, General Clay said, would also "give us an air defense capability against a limited attack with augmentation from other forces [TAC, the Navy, and the Marine Corps]." NORAD, he said, would prefer to retain the intercept mission rather than rely solely on augmentation from other military organizations. "It takes a degree of centralization, of specialized ADC-oriented radar training, of knowing how to work with the Army missiles, and similar qualities, to justify a dedicated air defense force. But this is not to say that an augmentation couldn't be used effectively," the NORAD Commander in Chief pointed out.

The Command's air defense warning continues to be provided by the Distant Early Warning (DEW) Line, coupled with the over-the-horizon backscatter system (OTHB). The latter, he disclosed, "is well along in its development, eliminates the line-of-sight restrictions of conventional radar, and increases our detection from hundreds of miles to thousands of miles. Four of these radars would give 360-degree coverage of our entire land mass from the ground up to extreme ranges. Proposals for construction of the first site in Maine in 1975 are being studied."

Soviet Intentions

The Soviet Party Chief, Leonid Brezhnev, informed the Russian people, following the summit meeting with former President Nixon last summer, that "it would be extremely dangerous if the opinion became firmly established in public circles that everything is now completely in order and that the threat of war has become illusory." Dr. Leon Gouré, Director of Soviet Studies at the Center for Advanced International Studies of the University of Miami, contrasted this and similar public statements by Soviet leaders with US eagerness to treat détente as a *fait accompli,* which he said was typified by Secretary of State Henry Kissinger's recent statement that the danger of nuclear war now has been reduced "to negligible proportions."

The current US debate about détente, Dr. Gouré claimed, "is all too often colored by assumptions about Soviet motives, intentions, and priorities, [assumptions] which largely mirror our own and which have little to do with reality. . . . Little attention is paid to what the Kremlin candidly and persistently asserts to be its view of the scope and limits of détente or, as it prefers to call it, peaceful coexistence."

The Soviets, for instance, state forthrightly that the danger of war persists, since the struggle between capitalist and Communist systems will continue even under peaceful coexistence. As Brezhnev said, "The world outlook and class aims of socialism and capitalism are opposite and irreconcilable." Peaceful coexistence, as Brezhnev has said recently, is a means to an end, a "special form of the class struggle in the international arena," and "the struggle and rivalry between socialist and capitalist countries is a part of and one of the forms of the world class struggle."

Dr. Gouré cited other official Soviet comments to show that the Russian leaders see peaceful coexistence as a means for fostering "anti-imperialist" revolutionary and "national liberation" movements while at the same time "limiting the freedom of action of the most reactionary aggressive circles of the bourgeoisie," thereby assuring "favorable conditions for the worldwide victory of socialism." Nor does peaceful coexistence spell the end of Soviet commitment to what the Kremlin euphemistically calls "just wars," Dr. Gouré explained. In his speech in Havana, Cuba, early last year, Brezhnev declared: "We are not pacifists. We are not for peace

Dr. Malcolm R. Currie, right, and Martin M. Ostrow, AFA Board Chairman, have General Dougherty's attention at the Symposium banquet prior to Dr. Currie's address.

at any price, and we are not, of course, for any freezing of the social-political processes inside countries." Brezhnev and others have candidly warned the Russian people that "we all well know that wars and acute international crises are far from being a matter of the past," and that all talk "about an end of the era of wars and the arrival of an era of universal peace is premature and dangerous," according to Dr. Gouré.

The Soviet affairs expert also maintained that "while claiming to accept the principle of 'equal security,' the Soviet leaders have consistently rejected the concept of stable deterrence based on a balance of assured mutual destruction, arguing that such a balance is inherently unstable." Instead, they continue to boost Soviet military capabilities at a high and unbroken rate. In consonance with this policy, the Central Committee of the Soviet Communist Party declared that "the all-round strengthening of the combat might of its armed forces always has been and will remain the sacred duty of our Party, of the Soviet government, and people," a statement echoed by Soviet Defense Minister Marshal Grechko.

The pivot of Soviet defense policy, Dr. Gouré said, is "the more, the better. . . . What they have in mind is not military equality or parity, but superiority." In May 1974, Defense Minister Grechko announced that "measures are being taken for the further improvement of the material-production base of the defense industry, and the necessary scientific and technical, economic, and military prerequisites are being created for the new qualitative leap ahead in the development of arms and combat equipment."

The Soviet leaders realize that deterrence may fail, Dr. Gouré pointed out, and, therefore, "they believe that the Soviet Union needs not only a credible deterrence capability, but also a war-fighting and war-survival capability." In their view, he explained, "a true war-fighting and war-survival capability not only makes deterrence credible, but, under proper conditions, can assure victory, even in nuclear war. Indeed, Soviet leaders condemn as 'bourgeoisie pacifists' those in the West who claim that no one can win it, and instead persist in speaking of 'victory' in nuclear war."

According to Dr. Gouré, the Soviet requirements for victory include "superiority in missiles; a preemptive attack which would, in addition to counterforce targets, seek to destroy the enemy's general defense potential; and to ensure survivability there must be strong active and passive defense." The latter requirement was underscored in a recent book by Defense Minister Grechko.

If anything, détente has intensified the drive to keep Soviet society mobilized through "military-patriotic" education, with all citizens from eleven years on having to "learn civil defense, practice urban evacuation and dispersal, emergency rescue and repairs, build shelters, disperse and harden industry, and so on."

Untouched by either fuel shortages or the economic turmoil gripping the West, the Soviet Union now sees itself as dealing with the US "from a position of strength," and "seeks to exacerbate the oil crisis and to exploit the disarray in the West to gain its objectives. In particular, some Soviet leaders have indicated recently that they even see new opportunities in the West, not only for an upsurge of the 'class struggle' . . . but also for the coming to power of leftist regimes, including the Communists, in a number of West European countries." Two months ago, Party Chief Brezhnev acknowledged that the conditions in the West "call forth a new powerful wave of class struggle."

This spirit of Soviet expansionism, the Soviet affairs expert suggested, makes it imperative for the US, "as never before to make certain that there are no doubts in the Kremlin's mind about our capability and will to counter Soviet probes and to meet Soviet challenges at any level." ■

(This report on AFA's Symposium on "New Dimensions in Strategic Deterrence" will be concluded in the next issue of AIR FORCE *Magazine.)*

MANY seasoned F-86 veterans have sadly declared that the Sabre was the "last of the sports models." After a flight in the F-5E Tiger II, however, some of those same jocks happily proclaim that a sports model is still among us. The Tiger II, a joy to fly, offers a significant combat capability while maintaining the size and simplicity of a sports model.

The latest of Northrop Corp.'s T-38/F-5 family, the F-5E has the same classic lines and simple beauty as the Talon and Freedom Fighter that have prompted many to say, "That's how an airplane should look."

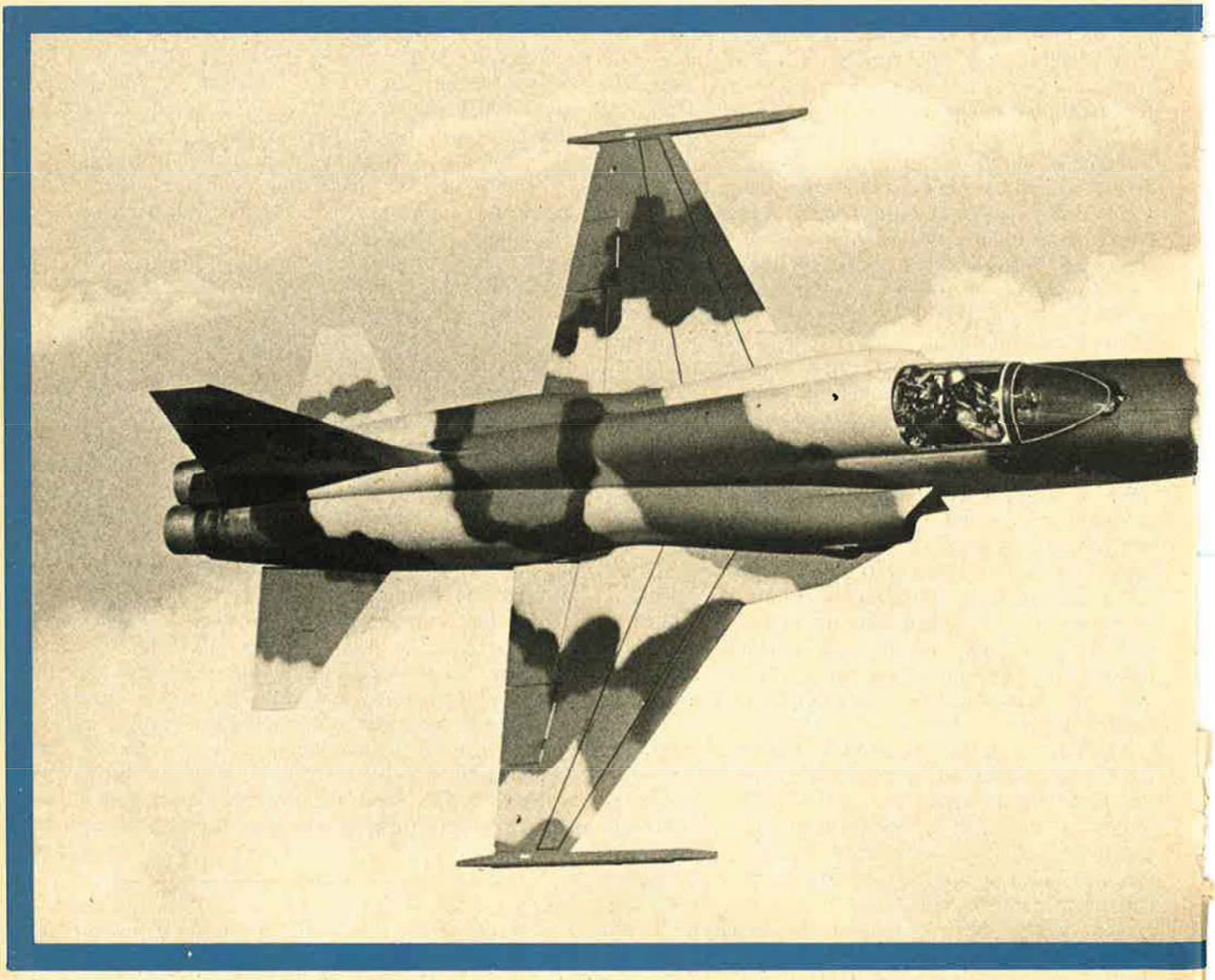
Only if you are very familiar with the F-5A will you be able to distinguish the subtle external differences between the "A" and "E." The same 20-mm cannons protrude menacingly from the top forward nose section. The same Sidewinder heat-seeking missiles adorn the wingtips. However, the "E" has a radar and gunsight that compute the firing envelopes for the guns and missiles and let the pilot use them with deadly accuracy. As a secondary role, the F-5E offers a credible air-to-ground capability, with five ordnance-carrying stations, qualified for most conventional munitions up to a 2,000 pounder on the centerline.

The fuselage is longer and wider than the "A," allowing more internal fuel capacity. The wings are equipped with maneuvering flaps, both leading and trailing edges. Once the pilot selects the proper configuration, the wings are automatically programmed to varying positions as a function of airspeed. And there is a leading edge extension filling in the area where the wing leading edge meets the fuselage. These improvements to the wing, coupled with about twenty-seven percent more thrust from the J85-GE-21 engines, make the "E" a much more maneuverable aircraft than its forerunner.

Gunfire Mission

Come along as I narrate a typical air-to-air gunfire test mission. The flight today will be with a full load of 560 rounds of 20-mm ammo. The aircraft has already been uploaded and is waiting in the "hot gun" area near the end of the runway. The F-4 that will tow my target has the dart target loaded and will launch in time to meet me at the gunnery range.

As I approach the aircraft, the crew chief comes to meet me with the maintenance forms and takes my helmet. He is proud of his aircraft



and confident that she's in tip-top mechanical condition. The armament crew also is standing by as I prepare to launch.

I'll make a walk-around inspection, more from habit and compliance with regulations than from necessity, since there are so few things to check on the preflight. Panels are secure, the tires look good, and there are no fuel or hydraulic fluid leaks. I pause momentarily to look into the gun bays and note the streams of 20-mm cartridges snaking out of the ammo cans, through the feed chutes, and stopping just short of the gun cylinders. The armament crews will give one last tug on the gun-arming lanyards just before I taxi, drawing the first cartridges into firing position, and the guns will be "hot."

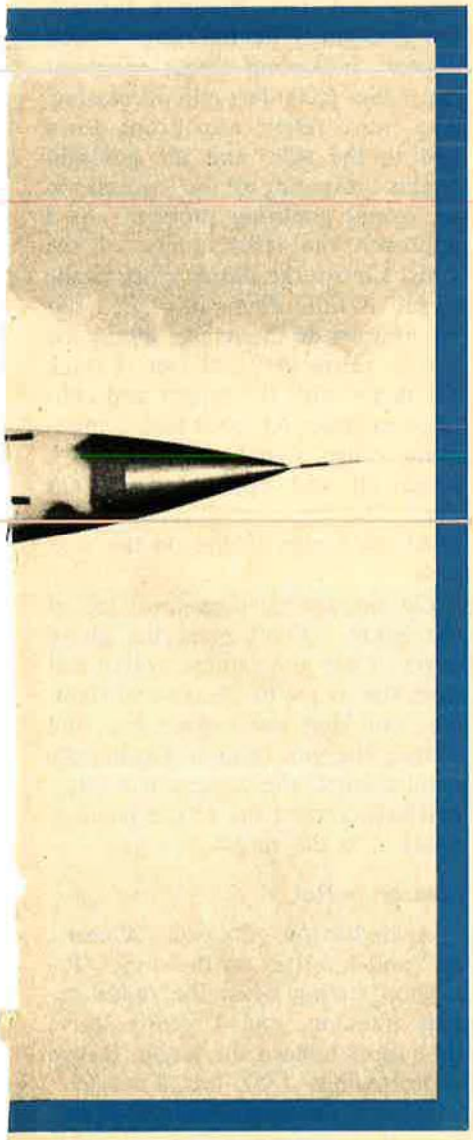
After I buckle the leg straps of my parachute and step onto the boarding ladder, I glance back along the fuselage and tail section and note once again the sleek, clean lines of this tiny craft.

The crew chief helps me buckle in. We comment on the probability of hitting the dart on today's mission. We have been pleased with the successes of previous air-to-air gunnery missions. He makes a last check of my parachute harness, lap belt, and oxygen hose connection, steps down, and removes the ladder. The ground power unit is already winding up to full speed, and I signal for starting air.

The engines start quickly and in a matter of seconds both are humming at idle with all gauges "in the green." There are so few things to check on the after-start checklist that I have the feeling I must have missed something. I recheck the radar switch in standby, the gunsight ON, all the armament switches safe, and my canopy jettison and ejection seat safety pins removed, before signaling the armament crew to arm the guns.

Holding my hands up to assure the crew I'm not touching any switches, I watch as the armament specialist yanks the arming lanyards to crank the first rounds into the guns. I'm reminded of scenes from old movies in which World War I fighter pilots charge their guns just before engaging the enemy.

The gun bay doors are closed, and I signal the crew chief for "chocks out," as I hold the brakes. I have tower clearance to taxi. Acutely aware of my hot guns and where I point them, I ease out of the "hot gun area" and taxi to the end of the active runway. I complete my pretakeoff checklist and call the tower for takeoff clearance as I push



A PILOT REPORT

THE F-5E TIGER II: A 'Sports Model' With Punch

BY LT. COL. JOHN H. TAYLOR, USAF

Above, Tiger II on takeoff—loaded for bear. Right, in vertical climb (note tail camouflage blend with topographical background).

the nose gear hike switch. This feature of the F-5E raises the aircraft's nose thirteen inches to a near takeoff attitude. It's a new feature in the "E" and provides a much shorter takeoff roll.

The tower has cleared me for takeoff, so I taxi onto the runway, line up and hold the brakes tightly while I push both throttles to military power. The little bird lurches and strains as the engines wind up, but I hold her in check until all the gauges settle down. When I release the brakes and select afterburner, she leaps forward and accelerates rapidly, forcing me back in the seat. I ease the stick back at about 135 knots and fly off at 150 after rolling about 2,000 feet.

I raise the landing gear and monitor the flap indicator as the flaps automatically transition through the three maneuver positions with the increasing airspeed. Approaching 300 knots, I terminate the afterburners and bring the flaps full up. Airspeed continues to build rapidly as I increase my climb attitude and turn out toward the gunnery range.

Dry Run

My radar controller is standing by on the radio test frequency and clears me to climb on out to rendezvous with the tow target. The F-4 crew has already reeled out the dart and is orbiting over the range.

I briefly check the cockpit, pausing to make some fine tuning adjustments to the radar, and then set up the gunsight. I also initiate fuel crossfeed to begin balancing the fuel systems. The additional 600 pounds of fuel in the "E" is all in the right-hand system and thus requires balancing at the beginning of the flight. I flip the switch to start the crossfeeding, and the system will automatically resume normal feeding when it senses a balanced condition.

I level at 25,000 feet since the gunnery range is relatively close and the tow aircraft is flying at 23,000 feet. If I had far to go, I would press on up to around 40,000 feet for best cruise performance. At that altitude, the engines lean back to about 750 pounds per hour of fuel consumption each, while pushing the bird along at 0.9 Mach.

As I level off, throttle back to cruise power, and trim the aircraft, I note again with satisfaction its beautiful handling qualities. Slight pressures on the control stick are enough for normal climbs, descents, and heading changes. And I'm always aware of the tremendous roll rate and turn rate potential of the craft if I really need to maneuver it to the maximum.

I've spotted the target aircraft now and am maneuvering into position behind and above the tiny dart trailing behind. The tow pilot will fly a figure-eight pattern, climbing during one loop of the eight and descending during the other. He will clear me to shoot at the dart only during the turns so his aircraft will be well out of the line of fire.

We're ready to begin. My first pass will be "dry," to get the feel of the pattern while I check out the radar lock-on capability and the gunsight operation. I'm cleared in. All armament switches are rechecked "safe," and I peel off the perch to attack the dart.

Two blips appear on the radarscope. I press the acquisition button, and the radar locks onto the closer target—the dart. Looking through the gunsight, I see the range analog appear, indicating target range at just under 6,000 feet and decreasing. The entire reticle also drops down and to the side, and the gunsight begins computing all the variables of the aerial gunfiring problem. As I approach the lethal range of the guns, I move the pipper close to the target. A little diamond-shaped signal appears on the reticle, telling me I'm in range at 2,700 feet. I track the target with the pipper and continue to close. At 1,000 feet, a minimum range signal appears and I break off and up, and call, "Off dry." The fire control system looks good, so I plan to fire on the next pass.

On the short, wings-level leg of the figure eight, I raise the guard cover of the gun/camera switch and push the toggle to "Guns and Camera," making the trigger hot and arming the gun camera. During the gunfire burst, the camera will automatically record the reticle position relative to the target.

Cleared in Hot

Again the tow pilot calls, "Cleared in," and I roll in on the target. It's a good feeling when the radar begins tracking, and I gently move the pipper toward the target. Range is decreasing—5,000 feet, 4,000 feet, 3,000 feet. I'm approaching in-range,

F-5E TIGER II—FACTS AND FIGURES

Manufacturer	Aircraft Division of Northrop Corp.
Type	Supersonic tactical fighter.
Powerplant	Twin General Electric J85-GE-21 turbojet engines, each delivering 5,000 pounds of thrust.
Length	48 feet, 2 inches.
Height	13 feet, 4 inches.
Wingspan	26 feet, 8 inches.
Maximum Takeoff Weight	24,083 pounds.
Wing Loading	71 pounds per square foot (air-to-air combat); 135 pounds per square foot maximum.
Speed	Mach 1.6 at sea level.
Crew	One.
Armament	Two M-39 20-mm guns; two AIM-9 missiles; five pylons for 7,000 pounds of ordnance.
First Flight	August 11, 1972.
Production	163 F/RF-5E and two F-5Fs produced as of October 31, 1974; orders currently in excess of 550 aircraft.
Variants	The F-5F, two place fighter/trainer companion model, first flew on September 25, 1974. The RF-5E reconnaissance version has four 70-mm KS-121 framing cameras arranged in three tandem bays, a field-interchangeable radar nose, and six available camera arrangements with 1.5-, three-, and six-inch focal length lenses.

The author, Lt. Col. John H. Taylor, has been flying USAF fighters for fifteen years. His experience has included the F-86L, F-101, F-102, F-104, F/RF-4, and, most recently, the F-5. He accumulated 127 combat sorties in Vietnam in the F-4, flying out of Phu Cat Air Base. He completed the Aerospace Research Pilot School at Edwards AFB, Calif., in 1967 and has been an experimental test pilot in the years since. Colonel Taylor is currently the Director of the F-5E Joint Test Force, charged with the development, test, and evaluation of the F-5E and F-5F aircraft.

but the dart still looks small. It's at this point that I most appreciate the good flying qualities of my aircraft. It's difficult under the best of conditions to make the pipper and target merge and stay together while firing. To remedy this difficulty, the sight in the F-5E was mechanized with a snap-shoot option, allowing the pilot a good hit probability by merely making the pipper move toward the target and firing as the two are about to merge.

On this pass, I plan to track the target while firing. At 2,700 feet, the in-range signal appears. My test data card calls for firing at 2,000 feet. The range analog moves through 2,500 feet. I press the trigger to the first detent and feel the gun gas deflector doors open. Those doors are just forward of the gun barrels and function to disperse the gun gases. Without them, large quantities of hot gun gas would be ingested into the engine intakes and likely cause engine stalls. The gun camera is now running and recording the pipper position. The dart should be visible on the film at this range.

Two thousand feet. I press the trigger ever so gently to the second detent. Suddenly it feels like the whole front of the aircraft has turned into a pneumatic jackhammer. I'm aware of the tracers streaking out and arcing down toward the dart. Smoke is rushing by the canopy. Some of it finds its way into the cockpit, and the strangely pleasant odor reinforces the nearly overwhelming stimulation to sound and feeling as the M-39s each pump out at a rate of about 1,500 rounds a minute. All these sensations are over in a second or two as I release the trigger and call, "Off." I don't know if any of the bullets found the dart on that pass, but we'll examine the dart closely later to check for holes. We'll also carefully assess the gun camera film.

I repeat the gunnery pass again and again. I'm becoming more adept at pipper placement with each pass and more aware of such things as airspeed, G loading, length of burst, and exact firing ranges. On one firing pass, I note a small "puff" on the dart as a bullet tears through the aluminum honeycomb and plywood of one of the wings.

Finally, I squeeze the trigger and get nothing but silence. The guns have fired out. The mission is over. I "safe" the armament switch and move into position to check the dart. There are several holes. With a feeling of satisfaction, I break off and turn toward home plate.

I relish the feeling of a successful test mission. The little Tiger II has a lot of combat capability. Produced for the Military Assistance Program, it has developed into a fast seller in the Foreign Military Sales arena. It should do well in its design role.

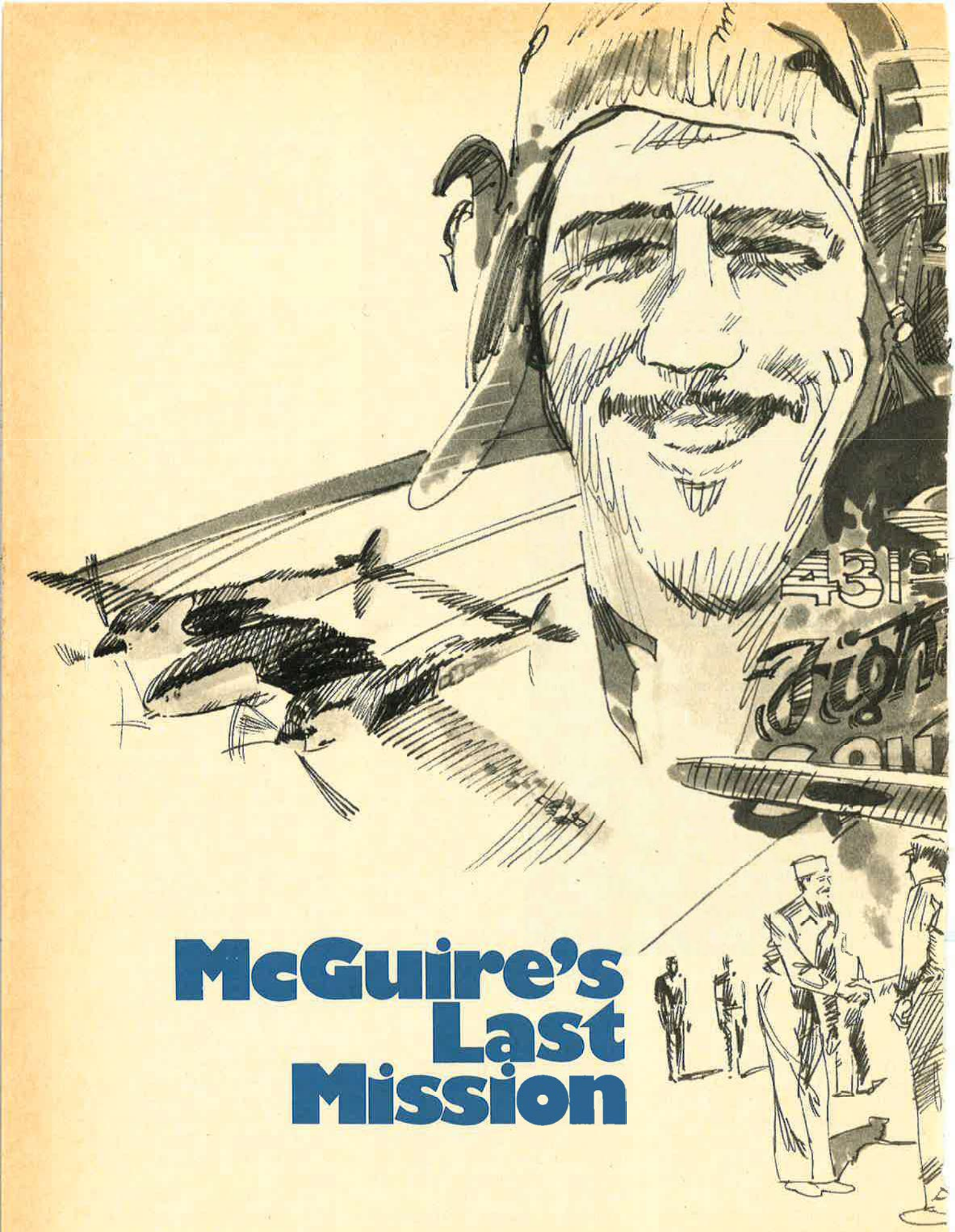
I ease down and swing around to the initial approach. As I roll into the break, I drop the maneuver flaps and note the nice, solid feeling of the aircraft as I pull her around in a tight pattern. Down goes the landing gear, and the flaps continue to shift downward with decreasing airspeed.

On final approach, the on-speed doughnut of the angle of attack indexer is showing 145 knots airspeed. Coming over the runway threshold, I ease back on the power and begin the round out. The nose seems high, but I hold the aircraft off until about 125 knots. There's a drag chute available, but I don't use it. The F-5E is so easily stopped that the chute is rarely used. There's also an emergency arresting hook if the brakes should fail and a barrier engagement becomes necessary.

Slowing to taxi speed, I do a "180" on the runway and head back to the de-arm area. The crew is waiting to check the guns and disconnect the arming wires.

As the crew chief waves me into the parking spot, installs the chocks, and gives me the "cut-engines" signal, I reluctantly chop the throttle to "OFF." The flight has ended too quickly.

The F-5E is a beautiful little bird—truly the latest of the sports models. ■



McGuire's Last Mission

On January 7, 1945, Maj. Thomas McGuire led a fighter sweep over the Philippines, looking for the three victories he needed to pass Maj. Dick Bong's record and become America's leading ace. The full story of what happened that day, thirty years ago, is told for the first time, by one of McGuire's fellow pilots.

BECAUSE the landing at Leyte Island in October 1944 had marked the promised return of Gen. Douglas MacArthur to the Philippines, the follow-up invasions at Mindoro Island and at Lingayen Gulf on the west coast of Luzon were somewhat anticlimactic news. Yet, the fighting in the air was no less ferocious than it had been over the beachhead at Tacloban on Leyte's northeast coast.

Within a fifteen-day period beginning on December 15, 1944, no fewer than seventy Japanese aircraft were shot down over Mindoro by the Fifth Air Force. Other Japanese fighters and bombers flamed from the skies over nearby Negros Island as the Lockheed P-38 Lightnings of the 49th Fighter Group, "The 49ers," and the 475th, "Satan's Angels," patrolled Negros when en route to Mindoro.

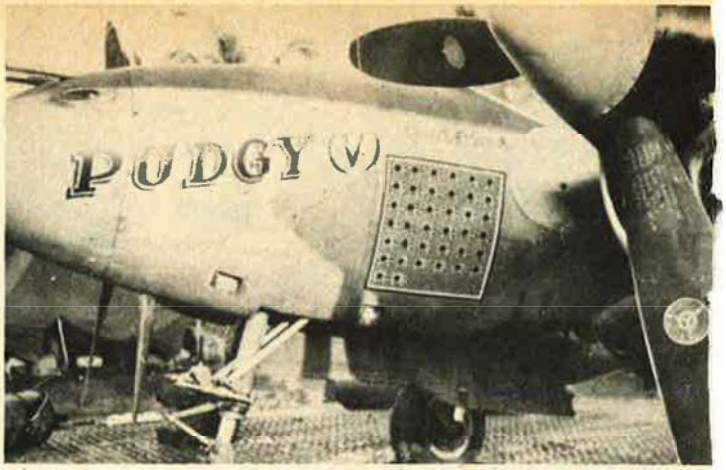
To bar the Americans from using Mindoro as a base and to preclude the invasion at Lingayen Gulf, the Japanese High Command threw in every available fighter and bomber. For the first time, the US Navy felt the might of the "Divine Wind," the kamikaze. In spite of effective patrolling by the Fifth Air Force, the Japanese flew more than 400 sorties against Allied reinforcing convoys, sinking or damaging twenty ships.

The battle for the skies over Mindoro was as vicious as any fought in the Southwest Pacific area. One of the Fifth Air Force pilots drawn into those murderous skies was a slight, steely-eyed extrovert from the 431st Fighter Squadron of the 475th Fighter Group. His name was Maj. Thomas Buchanan McGuire, Jr.

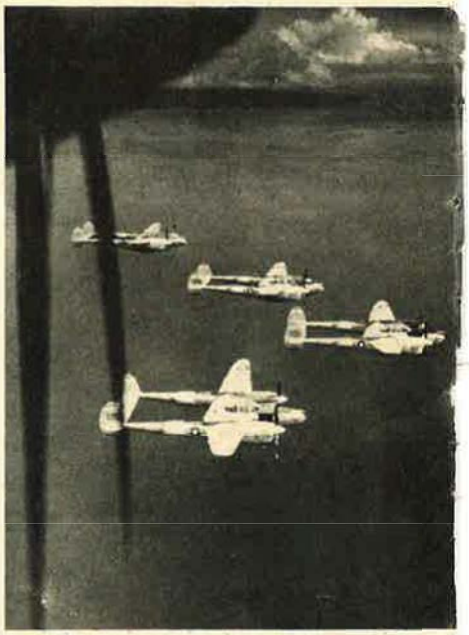
En route to Mindoro in his Lockheed P-38 on January 7, 1945, he led a fighter sweep over Negros Island, seeking his thirty-ninth victory. This is the story of that

BY CARROLL R. "ANDY" ANDERSON
—Illustration by Fred Holz

sweep—the last mission for Thomas McGuire, one of this nation's leading aces. It is a story buttressed by the recent testimony of a Japanese fighter pilot who was there on that fateful day. And it refutes the long-held belief that McGuire and his formation were engaged by a single plane, flown by Japan's second-ranking ace, Shaichi Sugita.



McGuire's P-38, Pudgy V, with thirty-eight victory flags and space for four more. Below, P-38s of the 475th Fighter Group on a mission over the Philippines.



Shooting for No. 1

The dynamic young man from Ridgewood, N. J., was America's leading active ace with thirty-eight confirmed victories. His score was second only to that of Maj. Richard Ira Bong, who had recently received the Medal of Honor and completed his second tour of duty with the Fifth Air Force. Bong had forty Japanese aircraft to his credit. McGuire wanted to be No. 1, and he was due to go home in February. Time was running out for him.

The January 7 mission had originated the night before when a group of 431st fighter pilots gathered in one of the ramshackle tents that passed for home. They heard McGuire say, almost casually, "How about going out on a four-plane sweep tomorrow? Thropp, you want to go?"

"Hell, yes, Major," replied Thropp. "I'd like to go."

Within minutes, Lt. Douglas S. Thropp, Jr., Capt. Edwin R. Weaver, and Maj. Jack B. Rittmayer had volunteered and the fighter sweep was organized.

With sure dispatch, McGuire finished the cockpit check of his twin-engine fighter the next morning. The big P-38 and the three others from "Daddy Flight" were sitting at the edge of the Marsten strip at Dulag on Leyte Island. It was dawn, 0615.

McGuire's own P-38, an L model named *Pudgy V,* was grounded, and he strapped into the cockpit of another carrying the 431st Squadron number 112. Its Allison engines were idling softly as McGuire glanced down the metal-surfaced runway, then to the distant hills. At Dulag and Tacloban, the fighter pilots still warily eyed those green peaks before taking off.

Any reflected shimmer of the early morning sun on metal would mean the approach of a Japanese strafer heading for the strip and the nearby LSTs and merchant ships. Although the danger was less than it had been during the Leyte landing, a strafing attack still could happen.

McGuire's squinting eyes scanned the skies over the mountains and found them free of Zeros.

With its tail booms bobbing up and down as he pumped the P-38's brakes, McGuire eased the aircraft onto the runway. Captain Weaver gunned his Lightning into the wingman position, slightly to the rear of McGuire's fighter. The element leader, Major Rittmayer, on loan from the Thirteenth Air Force, prepared to follow McGuire and Weaver, with Lieutenant Thropp bringing up the "Tail-End Charlie" position.

McGuire's eyes flicked to the clock on the instrument panel. The cockpit clocks seldom worked, but this one did and it read 0620. His airplane was ready for combat—its four .50-caliber machine guns and 20-mm cannon ready to fire when he squeezed the button.

The P-38 was the nemesis of the Japanese Air Force in the Southwest Pacific area, and McGuire was the perfect man for the plane. His confidence, bordering on cockiness, made him the complete master of the Lockheed Lightning.

Within the span of sixteen months, he had sent thirty-eight Japanese planes plunging to their doom from the skies of New Guinea and the Philippines. His shooting eye was so phenomenal, his reflexes so perfect, his judgment so positive that an aura of invincibility surrounded him.

Within forty-five days after his arrival in the Philippines, McGuire had claimed fourteen victories. He had scored single victories on November 1, and again on the tenth. These were followed with a double victory on November 12 over Cebu Island, where he destroyed two Jack fighters.

Three years to the day after that "Day of Infamy," December 7, 1941, Mac blazed an Oscar while leading a patrol over Ormoc Bay. He duplicated the morning event that afternoon by shooting down a Tojo fighter over the same bay.

On December 13, he flamed a Jack over Tanza strip on Negros Island. This relatively easy fight was followed by a mean melee on Christmas Day over Mabalacat Airdrome on Luzon, during which McGuire shot down three Zeros while protecting B-24 bombers.

Over Clark Field the next day, Mac led his squadron into another angry fight in which he closed to within 100 feet of a Zero pilot who

Majs. Dick Bong (left) and Mac McGuire, the top-ranking aces of World War II. Shortly after this picture was taken, Bong, with forty victories and the Medal of Honor, completed his second combat tour in the Pacific.

was systematically gunning a much-battered B-24. McGuire's guns exploded the slashing Zero, freeing the badly riddled Liberator from certain destruction. Within thirty minutes, Thomas Buchanan McGuire shot down three more Zeros.

In two days of hard fighting, 431st pilots destroyed twenty-five enemy fighters to bring the squadron tally to 214. Through it all, McGuire flew victorious and virtually unscathed. Those two latter missions would mean the coveted Medal of Honor for him.

Weather Ahead

But this was another day, bright with the potential for plenty of fighting. McGuire checked his wingman's position, rocked the ailerons of his Lightning to signify his readiness to roll, and then eased in the throttles until the Allisons were producing close to maximum power.

Streamers of condensed moisture swirled back from the counter-rotating props as the Lightnings accelerated down the runway. Unlike the staccato bark produced by the Curtiss P-40 or the bellow of the Republic P-47, the sound of the P-38 was a muted, gentle rumble.

Behind McGuire and Weaver, Jack Rittmayer led the element in Lightning No. 43-28836. Rittmayer had been with McGuire in the November 12 fracas over Cebu Island, when Mac had shot down the two Jacks, and again on December 7, when McGuire claimed two more of the enemy. Weaver had flown with McGuire several times and was an experienced fighter pilot from the African campaign.

Second Lt. Douglas Thropp, the twenty-one-year-old "Tail-End Charlie," was no novice to aerial combat, having flown fifty-three missions and 133.5 combat hours. He had shot down an enemy plane over Damulog, Cebu, on December 7, 1944, which had boosted the 431st Squadron's score to 177. Thus, McGuire's flight this day was composed of four experienced pilots, each with knowledge of fighter tactics and proven ability. Professionals they were, and they now pulled out of formation one by one to blow the tape off their gun barrels as they tested their armament.

The mission was under way, a hell-for-leather fighter sweep to Negros Island, and from there to Mindoro, where they expected the hunting to be excellent.

McGuire leveled the flight at 10,000 feet, and using the cruise-control technique advocated by Charles Lindbergh, he retarded the rpms, mixture controls, and throttles until the Lightnings were loafing through the sky at 170 miles an hour. Crossfeed switches were flipped, and fuel began moving upward from the external belly tanks to the gas-hungry Allisons.

McGuire loosened his shoulder harness and relaxed as much as his tense nature permitted. His surveillance of the sky was constant and thorough. The gray eyes worked through a section of the canopy, disregarding plexiglass imperfections, scratches, and grit, searching—always searching—high and low, ahead and behind, for the glint of the sun on metal or for the telltale movement of an enemy plane.

This was no game to be played in the cloud-flecked sky. You lived or died by how well you could see movement above and behind you, by how well you scanned a break in the clouds as your fighter skimmed beneath, or by how often you sensed a reflection from up sun.

West of Leyte Island, the weather thickened. The sunny upper reaches of the sky dissolved into masses of brooding blackness beneath the glistening anvil tops of the approaching thunderheads. McGuire tightened his shoulder harness and led the Lightnings, still in the sunshine, down toward the base of the weather front. There was no opening at 10,000 feet. The overcast grew to ten-tenths cover, foreboding and threatening. It became prematurely dark.

Throttling back, Mac gradually led Daddy Flight to 6,000 feet, surrendering strategic height. To get through what was clearly a very threatening storm, he would lead Weaver, Rittmayer, and Thropp under the lowest layer of clouds.

Daddy Flight apparently had the sky to itself. The VHF radios were silent. If anyone else was on patrol over Negros in this weather, they were saying nothing.

But there *were* other planes in the air.

Enter Oscar and Frank

Warrant Officer Akira Sugimoto of the 54th Sentai [squadron] was tired. Headquarters had detailed him and one fighter pilot from each of the sentais on Negros Island and Luzon to fly search missions for an American reinforcing convoy headed for Mindoro or Lingayen. The fleet was to be attacked with bombs or by whatever means were necessary to sink the ships. Sugimoto, old and wise to the ways of aerial combat, had no illusions about the implications of the command, "whatever means." The idea of dying for his Emperor was not a shocking thought for him. He had known always that if the moment for a supreme decision came, his response would be immediate and automatic. But his search had been fruitless.

The weather was bad and had grown worse, and Sugimoto knew the despair of being unable to locate the Yankee ships, if indeed there were any nearby. The enemy seemed to be everywhere, but nowhere. With the weather so bad, an entire fleet could be hiding below the clouds and neither he nor his comrades could have seen it.

Sugimoto dropped his green Ki-43, the Nakajima Hayabusa known to American pilots as "Oscar," be-

low the cloud cover as he flew back to the strip at Fabrica.

Elsewhere in the dismal skies, twenty-one-year-old Sgt. Mizunori Fukuda was heading home, too. After flying with an operational training unit at Heito, Formosa, in April 1943, and assignments to other training units, he had been posted forward to the newly formed 71st Sentai, equipped with the new Nakajima Ki-84 Hayate, Japan's finest fighter. The "Frank," as it was known by its Allied code name, was an exceptional fighter by anyone's standards, and Fukuda felt fortunate to be a pilot in the 71st. The Frank was much faster than the Zero, and although its rate of turn was not as good, it could outclimb and outdive the Zero.

The Frank's top speed was almost equal to the Lightning's. Fukuda liked the sensitivity of its controls, and because he was a youngster relatively new to combat, he had no built-in prejudices toward the plane.

Sergeant Fukuda was flying home to Manapla strip on Negros Island. His search for the American convoy also had been unsuccessful. En route to the field, he sighted a Hayabusa cruising below the darkening cloud cover that was over most of Negros Island. Fukuda carefully eased his green Frank alongside the Oscar flown by Sugimoto, and waved to his comrade in arms.

They flew together for a few moments in the camaraderie of formation flying, and then Fukuda broke away to land at Manapla. The Oscar continued on to the nearby Fabrica strip.

Meanwhile, the Lightnings flashed through the final wisp of scud and were in the clear. Ahead of them, surrounded by green fields and rolling hills, lay the Japanese strip at Fabrica.

Four sets of eyes immediately swept the ground searching for low-flying Japanese aircraft.

Ten miles northeast of the enemy drome, the Lightnings descended to 1,700 feet, still at slow speed. It was going to be a long mission, and McGuire held the flight to 175 mph.

McGuire led Daddy Flight directly to Fabrica strip, arriving over it at 0700. The flight lazily circled for five minutes at 1,400 feet, but none of the fifteen parked fighters gave any indication of taking off,

LETTER FROM A FORMER JAPANESE PILOT

Much of the author's description of Japanese participation in Maj. Thomas McGuire's last mission came from across the Pacific—from one of the participants.

The Japanese pilot who shot down Maj. Jack B. Rittmayer and who saw McGuire's P-38 burning on the ground verified Sugimoto's participation in the dogfight in a letter written thirty years after the battle to the author, Bob Anderson.

Now fifty-one years old, Mizunori Fukuda, pilot of the Ki-84 Hayate, or Frank, was contacted at Anderson's request by a Japanese historian, Yasuho Izawa. Fukuda's translated message, part of which appears here, said:

Mizunori Fukuda (front row, center), then an instructor, with six of his students. All but Fukuda died in combat over the Philippines or in the Okinawa campaign.

"The other day I received your letter from Mr. Izawa, and I am the man who fought over Negros in the morning of January 7, 1945. It is an unforgettable event even now."

In his letter, Fukuda disclosed that his initial intention after joining the battle was to ram Major Rittmayer's P-38.

"I broke away below just prior to the collision. At about ten meters distance, my opponent totally filled my field of view and I was resigned to my fate, feeling sure we would collide. I chose this method of attack since, being confronted by three P-38s in a head-on set-up, I felt I didn't have a prayer.

"Reflecting back on that fight, if the remaining two P-38s had continued the action for another five minutes, I would have run out of gas and probably would not be on this earth. Also, I still wonder today what would have happened to *all* the planes if my initial ramming tactics had really succeeded, since I was still carrying a 150-kg bomb with an impact fuze."

Mr. Fukuda sent his best wishes to his former adversaries, saying: "I would never have thought that air combat of so long ago would allow destiny to give me, today, the unique opportunity to correspond in good friendship with men against whom I once squared off in mortal combat. I would be delighted if we could continue our correspondence in the future.

"Also," he added, "please send my best regards to Mr. Douglas Thropp and Mr. Edwin Weaver."

Fukuda also requested that this "message to all members of the 475th Fighter Group" be forwarded to them:

"We fought each other in the nightmare of war, but after thirty years it is my pleasure that we, Americans and Japanese, lead the world in each [our] own way, and I hope to help each other [sic] with mutual understandings ever after. I hope you, the former members of the 475th Fighter Group, will take an active part in world peace with good health."

He signed his letter:

"Former Flying Sergeant of the Japanese Army,"

Mizunori Fukuda
Namise 2908, Togo-cho
Satsuma-gun
Kagoshima Pref. 895-11, Japan

nor was there any flak. McGuire, who had been ordered not to strafe, altered course for the Japanese dromes on the western coast of the island. The radio remained silent.

"Bandit, Twelve O'Clock Low!"

Ten or fifteen miles from Fabrica strip, Capt. Edwin Weaver sighted what he identified as a single green-colored plane about 500 feet below Daddy Flight. It was approaching head-on and was no more than 1,000 yards away.

Weaver's voice, filled with urgency, barked over the radio, "Daddy Leader! This is Daddy Two! Bandit, twelve o'clock low!"

In the brief moment it took McGuire to acknowledge the call, the enemy plane, piloted by Sugimoto, had flown directly beneath the American flight.

Within seconds after Fukuda left him for Manapla, Sugimoto had suddenly sighted the Lightnings directly ahead and above his small fighter. While he watched, the leading enemy plane began a lazy diving turn to the left. Recognizing McGuire's intentions, Sugimoto applied full power and jerked the Oscar into an almost vertical climbing, slow-speed turn. He knew his aircraft was incapable of outrunning the big P-38s, so he would stand and fight! He began firing at the number three Lightning.

At that moment, Sergeant Fukuda had settled his Ki-84 into its final approach into Manapla with gear and flaps down. He glanced toward Fabrica just in time to see the briefly befriended Oscar attack four Lockheed P-38 Lightnings. Instantly, he retracted his landing gear and applied full throttle, carefully milking up the flaps. He could see the Oscar dogfighting the Yankee planes, darting in close as the Americans continued to bank sharply to the left, apparently trying to hem in his comrade.

No one in Daddy Flight had dropped their belly tanks, which were almost full. Perhaps McGuire thought this would be only a brief encounter on their way to Mindoro, where the hunting would be good. All he needed to beat Dick Bong's record and become America's leading ace were three more victories and maybe one extra for good measure. Mac's confidence was such that on the nose of his P-38 *Pudgy V* back at Leyte, space for forty-two victory flags had been blocked out. With those spaces filled, he would have his ticket home!

During World War II, the author, Carroll R. "Andy" Anderson, flew eighty-nine combat missions in P-38s with the 433d Squadron, 475th Fighter Group. He verified the details of McGuire's last mission through correspondence with Japanese military historians, who located Fukuda, and with the two surviving members of McGuire's formation. Now the owner of a camera shop in Tracy, Calif., Anderson is still an active pilot.

Sugimoto knew none of this. Even if he had, it wouldn't have deterred him! Using the quickness of his fighter, he flipped it tighter to the left and squeezed off a burst at Doug Thropp, whom McGuire had moved into the number three slot when Major Rittmayer had earlier reported a minor malfunction in his P-38.

The crafty Japanese pilot, bold and aggressive, pulled his turn tighter and tighter until he had a good lead on Thropp's Lightning. Thropp, looking back and down, could see the muzzle flashes of Sugimoto's machine guns. The tracers searched for his P-38, and Thropp couldn't understand how the Japanese could miss at this range. "If I had a rock, I could hit the sonovabitch," Thropp thought.

He skidded the Lightning, and then straightened for a brief moment while arming the belly tank drop switches preparatory to releasing the heavy tanks. At that moment the radio crackled with a command from McGuire, "Daddy Flight! *Save your tanks!*"

Sugimoto drove his Oscar closer to Thropp. Rittmayer wracked his P-38 to the edge of a stall and fired one burst from his guns which temporarily drove off Sugimoto. Still, it did not take him out of the fight. Turning even more tightly, Sugimoto drew a bead on Weaver and fired.

"Daddy Leader! This is Weaver! He's on me now!"

The urgency in Weaver's voice was clearly evident. Weaver knew the Japanese was no ordinary pilot. He was a true "wild eagle" of Nippon, and he damn well meant to kill him, Thropp, Rittmayer, and McGuire if he could!

Weaver tightened his bank slightly, skidding at the same time to throw off the Oscar pilot's aim. The green-colored Oscar clung tenaciously to Weaver's jinking Lightning, Sugimoto firing frugally. He wasted no ammunition in long, undisciplined bursts.

The Fatal Snap

Weaver's P-38 was now inside and slightly below McGuire's fighter. McGuire used all his skill to bring his guns to bear on the enemy plane. Ordinarily, a Lufbery circle would have worked, but not this time. The Lightning shuddered at the edge of a stall. McGuire felt it. He had to feel it!

It was not an uncontrollable maneuver in the P-38. The stable fighter had been stalled in all attitudes and the pilots had survived by simply releasing the back pressure on the control yoke. McGuire's response should have been instinctive and immediate. He knew what was happening, but his people were in trouble, and with just another couple of inches of lead he could put his guns on their tormentor.

The P-38 struggled. Now the yoke buffeted McGuire's gloved hand. The fighter slammed into a full stall. The control yoke continued to buffet lightly, but it was mushy and limp as the Lightning snap-rolled in one wild gyration and plunged inverted to the ground, 200 feet below.

Weaver did not see the impact, but he saw an explosion and fire on the ground. He knew someone in the flight had crashed.

With the P-38s scattered, Sugimoto broke off the attack and sped north, climbing fast for the base of the clouds. Doug Thropp now saw the fire on the ground, and led the three Lightnings after the fleeing Oscar. Thropp fired a three-second burst just as the enemy plane disappeared into the overcast.

Sugimoto's Oscar had taken a mauling from Rittmayer and from Thropp's last burst. Now he had to get the crippled fighter down. The

mountains posed a problem, but as he glided below the cloud base, well away from the fight, he found a flat spot and landed safely. He saw bedraggled Filipinos appear and run toward his plane. Sugimoto died from six bullets fired into his chest. Within minutes, the guerrillas had stripped the body of its clothing and melted back into the jungle.

Then Came the Frank

Sergeant Fukuda was approaching the fray at top speed when he saw the blazing crash on the ground and the Oscar zoom up into the clouds. He found the P-38s beneath the overcast and attacked head-on, squinting through his sights at one of the Lightnings. With proper lead established, he squeezed the trigger, and Doug Thropp's P-38 shuddered as the gunfire slammed into his port engine.

Weaver saw what he believed to be the original attacker returning. Pulling up the nose of his Lightning, he got off a quick burst, but without visible results.

Jack Rittmayer wracked his P-38 into a hard right 180 degree turn in pursuit. Fukuda, seeing the maneuver, swung around and attacked from ten o'clock high. His guns rumbled, sending a stream of slugs smashing into Rittmayer's plane, shattering the canopy, gouging the wing root, and virtually destroying the center section. Fukuda sped by so close that for a brief instant he could see a red or purple scarf around Jack Rittmayer's neck.

The big Lightning swerved and plunged straight down. A huge explosion mushroomed from a point approximately a mile and a half from the village of Pinanamaan, where McGuire had crashed.

Fukuda now turned his attention to Weaver, attacking from astern. Thropp's P-38, although above and behind, was no serious threat, as smoke continued to pour from the damaged engine.

Unable to close the gap between himself and Weaver, Fukuda wrenched the Frank about and sighted in on Thropp. The climbing P-38 reached the overcast and disappeared just as Fukuda began to fire.

Seeing the enemy plane also disappear in pursuit, Weaver reversed course and began searching in and out of the clouds without success. Just as quickly as the "wild eagle" had seized the initiative, he relinquished it, leaving the sky to the two remaining Americans.

"McGuire, this is Thropp. McGuire, this is Thropp. Do you read? Do you read?" There was no answer, and it was then that both Thropp and Weaver knew who had crashed.

"Daddy Four, this is Weaver. I'm right behind you. Let's go home!" Thropp now knew that Rittmayer was gone, too.

The struggle was not yet over for Sergeant Fukuda as he flew his badly damaged Frank back to Manapla. Weaver had gotten in some telling shots.

In the landing pattern, only one of the plane's main gear locked in the down position. The aircraft flared, stalled, and touched down. With a horrendous crash, it cartwheeled onto its back in a cloud of dust. Fukuda half-crawled and was half-dragged from the wreckage. His ground crew later counted twenty-three bullet holes in the aircraft.

Thropp landed at Dulag at 0755, followed by Weaver ten minutes later.

Flyer's Flyer

Word of McGuire's death swept through the 475th Fighter Group and the Fifth Air Force like wildfire. No one wanted to believe the Iron Major from Hades Squadron was gone.

Gen. George C. Kenney was to say, "His loss was one of the worst blows I took in the whole war."

In all the years following the war, comparatively little has been written about the feisty little major from New Jersey, and most of that has been standard fare. No one has written of his beloved, battered 500-hour hat, into which Lt. Joe Price indelicately smeared Limburger cheese one night on Biak Island during a going-home party for Maj. Warren R. Lewis of the 433d. Nor about his uncanny ability to shoot from deflection in the manner of the great Danny Roberts and Ed Cragg. And no one has told about this hard-as-nails, tough little guy who agonized over the letters he had to write home to the parents of the men in his squadron who were killed in combat or forever lost in the jungles of New Guinea.

And, finally, no writer has ever acknowledged that McGuire commanded, "Daddy Flight! *Save your tanks!*" Why did he give such an order when it was contrary to combat rules?

Pilots of the 431st Fighter Squadron and those who knew him in the 432d and 433d could only surmise why he failed to heed an elemental rule, one he personally espoused: "Drop your tanks on entering combat!"

Perhaps without realizing it, a pilot of the 431st may have summed it up best when he said:

"Hell, Mac figured on getting this one Nip easy. Then they'd go up to Mindoro and Mac would get two or three more, break Bong's record, become a lieutenant colonel, and go home a hero. Why drop your tanks for one lousy fighter, when the odds are four to one?"

Whatever the reasons, and they can only be surmised, McGuire was probably fatigued from his many hours of combat and made a bad decision. He expected more from the Lightning than it could give, and America lost one of its premier fighting men. But it was not Japanese bullets that felled him.

His body was returned to the United States where, in the presence of General Kenney and other high Air Force dignitaries, he was laid to rest in Arlington Cemetery with the full military honors befitting a recipient of the Medal of Honor.

As the war approached its end, Sgt. Mizunori Fukuda was transferred to the 101st Sentai on Okinawa, where he survived the fierce aerial battles over that island. Today, he lives on Kyushu, Japan.

Edwin Weaver and Douglas Thropp returned to civilian life after the war and were unaware, until they were contacted while this story was being written, that they had, in fact, engaged two enemy planes that day thirty years ago.

Today, when the former P-38 jocks of the 475th gather to hoist a few and recall the days of yore, they speak of McGuire—Mac—as a flyer's flyer. He would have liked that. ■

The Bulletin Board

By John O. Gray
MILITARY AFFAIRS EDITOR, AIR FORCE MAGAZINE

Housing Assignment Equity

Early this year, the Air Force, in an important personnel policy shift, will give lower-ranking enlisted and officer families a better shot at on-base housing. Heretofore, rank has been the sole basis for assignment of USAF family quarters, but under the new rules, the date a person applies also will carry weight. "Bumping" of lower ranking applicants will be eliminated.

Enlisted housing will be split into two categories—one for E-4s through E-6s, and one for E-7s through E-9s. Applicants will compete only in their appropriate category. This differs from the present system whereby all NCOs compete against each other, and where lower graders who have long been on a list may be bumped by members who outrank them.

Under the new plan, an applicant won't be bumped after he has been on a waiting list for a month. (The one exception is "key and mission-essential" personnel.) Low rankers, though they will continue to start at the bottom of the lists when applying, will work their way to the top much sooner than heretofore. Conversely, higher rankers will advance more slowly.

The three officer family housing assignment categories will remain unchanged—O-6, O-4 and O-5, and company grades. Except for O-6s and above, who will still be aligned by date of rank, the new policy on moving up the list from date of application will apply.

Air Force, with 355,000 families requiring housing but with only 152,000 units available, has been under steady pressure to drop rank as the only criterion for assignment. In fact, wives attending USAF's latest Career Motivation Conference urged the service to assign housing solely on the basis of date of application, with no regard to rank.

Hq. USAF authorities rejected a "180 degree switch," but endorsed the new plan as an important step in extending equity to younger members. Complaints from senior AFers who believe housing is an integral element of RHIP (rank has its privileges) are expected.

In a related matter, Air Force housing assignment officials reported that their objective is to allow "optional residency" for all single members—to live off base if they wish and still collect their basic allowance for quarters (BAQ). However, attaining that goal is some distance away. Congress recently reduced by $10 million the BAQ funds earmarked for single USAF members to reside off base. Under the current cost squeeze, the service is not launching new projects that would increase BAQ outlays.

Only single majors and above have a legal right to live off base and collect BAQ, a privilege numerous other bachelors view with much envy.

Career Improvements Weighed

Altogether, the Career Motivation Conference delegates (*see above item*) submitted 124 separate recommendations for improving life in the Air Force. Typical examples: (1) approve pants suits for Air Force women for normal wear; (2) give E-9s a larger household goods weight allowance; (3) eliminate "white-glove" inspections when occupants are leaving family quarters; and (4) adopt new benefits such as a Stateside variable housing allowance. Headquarters is looking over the entire list and may adopt some —if they don't contain a price tag.

Drinking Curb in Spotlight

If "two-for-one" and "happy-hour" events are still on some Air Force club programs, they may not be much longer. And other practices that tend to promote the consumption of liquor on Air Force bases are also being quietly eliminated.

It's part of a revitalized project, sparked by USAF's top leadership, to discourage the excessive use of alcohol. The push started last summer when Vice Chief of Staff *Gen.* Richard H. Ellis told commanders to send in their "initiatives" for curbing alcohol abuse so that all elements of the service could consider adopting them.

Headquarters recently compiled a list of twenty-nine specific actions different commands said they are

Leaders of the Arnold Air Society/Angel Flight were received recently at Hq. USAF by Under Secretary James W. Plummer, an AAS honorary member. From left, Cadets Danny D. Marrs, Kansas State Univ., and Kerry Kearns, Univ. of Kentucky, and Angels Patje Henneke, Oklahoma State Univ., and Jana Cannon, Texas Tech.

The Bulletin Board

taking. "Many have considerable merit for widespread implementation," Maj. Gen. Ray M. Cole said in a letter bucking the list to major air commanders. General Cole is Assistant DCS/Personnel, Hq. USAF.

Heading the list is discontinuing liquor sales at clubs during duty hours. Before becoming Chief of Staff, Gen. David C. Jones laid on such a policy at clubs in USAFE. Other items on the list (1) rule out beer in dining halls or airmen dorms; (2) discourage sale of double shots, "drinking competitions," and serving "zombies"; and (3) urge elimination of such terms as "attitude adjustment" and "social lubricant" for party times. The traditional "promotion party," at which liquor flows freely, courtesy of the promotee, may also be on the way out. It's on the list of items Headquarters is circulating. More positive moves, such as one command's program "highlighting alternatives to alcohol abuse during holidays," are also on the list.

Vietnam-Era Bonuses

Michigan has become the seventeenth—and quite possibly the last—state to approve a bonus for Vietnam-era veterans. The Michigan bonus, which has a ceiling of $600, was approved by a referendum in the November 5 elections. Application details have not been completed.

None of the thirty-three states that have not voted bonuses for Vietnam-era service has given any indication of doing so, according to Bill Drach, an authority on bonuses. Mr. Drach, who heads the Army Times Publishing Company's Service Center, noted that only twenty states paid a Korean War bonus, and just twenty-four approved bonuses for World War II service.

Two states now paying bonuses for Vietnam-era service recently reopened the application period for eligible veterans who never collected their WW II and Korean War bonuses. They are Connecticut and Illinois.

Typical Vietnam veteran bonus payments are $500, though the spread is from $100 in Illinois to $1,600 in North Dakota. Illinois and some other states also provide $1,000 for survivors of service members killed in Vietnam. Vermont's bonus goes only to enlisted members and veterans. Ohio, paying up to $500, recently reported that an estimated 160,000 eligibles on active duty had not applied.

Besides Michigan, the following states have approved Vietnam-era bonuses: Connecticut, Delaware, Illinois, Indiana, Iowa, Louisiana, Massachusetts, Minnesota, Montana, North Dakota, Ohio, Pennsylvania, South Dakota, Vermont, Washington, and West Virginia. Guam also approved a bonus. Termination dates for applying in Guam and Delaware have expired.

Veterans bonus offices are generally located in the capitol buildings in the state capitals.

Capt. Peter R. Hefler recently earned a master's in business administration while commuting for twenty months between his home in Westport, Conn., and his post in New York City.

Joint-Service Training

Substantial savings are possible through expansion of joint-service training, numerous quarters believe. Defense Secretary James R. Schlesinger, for one, has pointed out that training costs more than $6 billion annually and ties up about 350,000 persons, or some sixteen percent of the active force.

An important step in this direction is a full-time study under way by a group called the Interservice Training Review Organization. It's checking the feasibility of joint-service undergraduate pilot and navigator training. Such a step would consolidate the flying training that is now performed by each service.

Joint-service basic training? Negative, Defense says. "Each service should provide the first level of training to its own members in order to orient and motivate them to the roles and missions of that service and to inculcate the service's standards, customs, and traditions," the Pentagon declares. To which USAF officials say, "Amen!"

Flying Hours Juggled

Some career Air Force flyers, because of reductions in aircraft inventories and total authorized flying hours, haven't been able to get in sufficient flying time to maintain proficiency.

Accordingly, Hq. USAF has authorized major air commands to move rated officers slated to leave active duty within two years to nonrated and nonoperational flying positions. These transfers must be okayed by the Military Personnel Center, but, once approved, those whose duties are changed "will not . . . fly." This paves the way for careerists to get the extra time.

Legislative Roundup

On the legislative front at press time:

- The Comptroller General was quietly conducting a study for a House Armed Services subcommittee on how the services validate their requirements for O-4s and above. The CG's report, due in February, could play a key role in congressional decisions coming up on the Defense Officer Personnel Management Act (DOPMA). Hearings on DOPMA undoubtedly will probe deeply into grade ceilings, "grade creep," and related issues. The Comptroller General heads the General Accounting Office, the arm of Congress that watchdogs federal spending.
- The possibility that service members retired for disability might lose their long-held tax exemption status evaporated temporarily in late November. That's when the House Ways and Means Committee dropped from a general tax reform bill the provision curtailing current tax-exempt privileges.

The Administration, however, is expected to press again for their removal next year. While it seems improbable that the new Congress will go along, AFA will keep close tabs on the situation. Earlier, AFA President Joe L. Shosid, in a letter to Ways and Means Chairman Wilbur D. Mills, expressed the Associa-

tion's "grave concern" over threats to the tax-exempt provisions *(see last month's* AIR FORCE *Magazine, p. 35).*

• The only piece of major military personnel legislation expected to clear Congress before it adjourned last month was the measure allowing the Army to RIF Regular captains and below. Air Force and the other services haven't sought similar authority. The bill, which cleared the Senate earlier, was slated to get House Armed Services Committee approval in late November.

The House Committee, according to a spokesman, also scheduled staff studies and "possibly brief hearings" in December on the Retirement Modernization Act. But action on the controversial plan, which overhauls the present nondisability retirement system, was put off until later this year.

• A conference committee had still not been appointed to iron out

Ed Gates . . . Speaking of People

Equity Allowances That Might Have Been

Several justifiable and perfectly logical military pay-allowance proposals have never quite made the grade. One of the biggest mysteries is the absence of a special housing and general cost-of-living allowance system for personnel stationed in some areas of this country.

Years ago, Uncle Sam adopted such an arrangement for military people and their dependents stationed in the more expensive foreign locations. In some places, the stipend is a cost-of-living allowance (COLA), in others a housing allowance (HA), and in some areas both. The more widespread payment is the housing money which, theoretically at least, enables a family overseas to be housed as well as it might in the States without the payment.

The actual rates, which vary widely, are reviewed frequently and changed to reflect updated costs in comparison with what it would cost families living off the base in the States.

The overseas allowance system, though complex, seems to have worked reasonably well; the concept is based on simple equity. It is well established and seemingly immune from adverse tampering by federal budget cutters, although more and more military compensation items are coming under closer scrutiny.

The wonder is that a similar plan was not adopted years ago for members residing within the continental US. (Fortunately, Alaska and Hawaii, with their fantastically high living costs, are covered by the overseas allowance system.)

While costs are up everywhere it remains true that today's eroded dollars go farther in San Antonio than in Washington; in Montgomery, Ala., than in San Francisco; in Tampa, Fla., than in New York City, and so on. So a strong case definitely exists for a CONUS variable housing allowance (VHA). Yet its immediate chances are nil, though just a few years ago it was a different story.

Then, proponents with the office of the DCS/Personnel, Hq. USAF, pushed the VHA with vigor. Detailed cost studies were conducted and plans for framing a legislative proposal were advanced. But they foundered, mainly over cost considerations, which were becoming strong deterrents to additional people programs. Even a modest VHA scale of payments for Stateside residents would cost each service $20 million annually, one study showed.

With the cost crunch mounting in successive years, the VHA proposal has been moved far back on the burner despite sporadic efforts to keep the idea alive. For example, one of the recommendations stemming from last summer's USAF-wide Career Motivation Conference urged the government to provide a VHA.

It's interesting to speculate that, had a few key people in the Pentagon thrown their weight behind the proposal at the proper time, when financial constraints were much less severe than today, Stateside members might now be enjoying equal allowance treatment with their friends abroad.

Several other "might have been" compensation items come to mind. One is a Stateside temporary lodging allowance. TLA has been authorized for years overseas, so why shouldn't it operate Stateside too, many service people keep asking. TLA covers the period, usually up to thirty days, when a family must use commercial facilities for meals and lodging on arrival at, and departure from, a foreign duty station.

Civil Service employees enjoy Stateside TLA payments, and many private firms give their people the equivalent. But not the military; Defense has rejected it because of "high-cost and low Project Volunteer priority."

Boosting single members' regular quarters allowances to married rates is perhaps the most deserving special pay action of them all. Certainly the lower rate that bachelors receive raises questions over the credibility of Pentagon assertions of equal treatment among uniformed members.

The proposition has been examined closely by officialdom, but the high costs required to bring about equality apparently convinced *leaders to drop the* idea. But a concerted push at the highest Pentagon levels a few years ago might have done the trick. Equalizing BAQ payments for single members would cost USAF alone $50 million annually, according to a recent official estimate.

Defense, under the current budget climate, is not about to ask Congress to approve new programs of such scope. And the lawmakers won't take the initiative. Many congressmen, in fact, are smarting from widespread charges of the service community that "military benefits are being eroded" and that much of the fault rests with the lawmakers. The latter, however, feel they have done very well by servicemen and women.

Special pay for remote-duty assignments is another compensation item Pentagon authorities have toyed with. Air Force examined the idea nearly twenty years ago. Later, it hammered out rate charts for dismal, faraway bases. Considerable enthusiasm was generated among prospective assignees to Thule, Greenland, and other unpopular remote locations. But the proposition faltered.

Still, remote-duty pay appeared earlier this year on a list of proposals the Air Force weighed in connection with the All-Volunteer Force. USAF noted, however, that the item had been "deferred because of priorities established in light of current fiscal constraints. It will remain under consideration for later development."

That probably means permanent burial. Yet, with an extra shove by the right people sometime in the past, remote-duty pay might long since have become a regular piece of the military compensation package.

The main hope for these "might have been" items now appears to rest with studies under way and to follow, which would overhaul and simplify the entire military pay structure. A brand-new compensation system presumably would contain provisions for recognizing, maybe as a percentage of "basic salary," a few special duty, bachelor, and geographical cost situations. ■

differences in separate House and Senate bills raising per diem for federal civilian employees to $35 and increasing their travel mileage allowances.

• Congress sent the President a bill boosting GI education benefits by 22.7 percent and later overrode Mr. Ford's veto of it.

Energy-Savings Leader

Energy-conscious Air Force has been praised by the Defense Department for slashing energy consumption twenty-seven percent (in FY 1974 over FY 1973), compared to Navy's twenty-four and Army's nineteen percent reductions.

Official emphasis on conserving energy will continue, and perhaps increase, as Defense and the Air Force keep peppering the field with suggestions and directives. A recent TIG Brief, for example, spells out "seven ways to reduce fuel consumption in household heating."

USAF's civil engineers, meanwhile, report that extra insulation, storm doors, storm windows, and lock-in thermostats limiting air-conditioning and heating are now routine projects in housing construction and improvement programs. The service is also pushing water savings by installing shower flow control devices and special flush toilets in construction projects. The latter use as little as three gallons with each flush, compared with nearly eight gallons used by older models.

"Total Force" Policy Pushed

Assistant Secretary of the Air Force (Manpower and Reserve Affairs) David P. Taylor believes 1975 will find greater awareness of the "total force policy" (the full, equal partnership of the Reserve and active-duty forces). In an interview with AIR FORCE Magazine, Secretary Taylor related how top management is underscoring the policy: An aide, in briefing Chief of Staff David C. Jones on the transfer of 128 KC-135s to the Air National Guard, referred to the ANG's "taking over" the tankers. General Jones promptly interrupted the briefer and explained that the action "is not a takeover, but a shift of functions" in concert with the total force program.

San Antonio leaders learn more about USAF officer training by attending OTS classes. "Operation Classmate" is a USAF/Chamber of Commerce project at Lackland AFB, Tex. Here, AFA regional VP Stanley Campbell and Brig. Gen. W. C. Moore.

The tanker transfer, incidentally, will take five years to implement fully.

On other points, Secretary Taylor:

• Said he sees additional new missions for USAF's Reserve Forces during the next year. One of them, he hopes, will be the plan allowing ninety-day mobilization for up to 50,000 Reserve Forces members short of a national emergency. He said the program, which requires congressional blessing, should have a good psychological impact on both Regular and Reserve personnel because the latter can say, "Look, there doesn't have to be a holocaust to get us involved. . . ."

• Forecast tough sledding for the Air Force in trying to meet Reserve Forces recruiting goals. "We need to make high school students more aware of the Reserves," he said, adding that he wasn't ready yet to recommend a Reserve enlistment bonus.

• Scored the growing tendency of congressional elements to dictate to the services on matters the services can best decide themselves. Examples: mandating strength cuts of various headquarters and not letting the services decide the issue of Reserve members' eligibility to use base exchanges. Taylor calls these "legislative infringements" into the military's management process, and fears such interference may worsen.

Pay Plans Proliferate

The oft-proposed plan to lift the ceilings on government pay received renewed attention late last year. Congressional staffs were working up legislation to raise the lawmakers' annual salary above the present $42,500.

Such a move would permit the $36,000 ceiling on military basic pay and Civil Service salaries, as well as higher rates now paid cabinet-level officials, to rise too. Major generals bumped up against the basic pay ceiling for the first time with the October 1974 pay raise, while three- and four-star officers reached it much earlier.

Raise advocates claim the government cannot keep executive talent under present ceilings. The lawmakers, however, have not allowed executive agency officials to draw more than they do. And the solons have been afraid to boost their own pay because they feared adverse voter reaction. So a stalemate has prevailed for several years.

Outcome of the new thrust to break the ceiling is highly uncertain.

New calls, meantime, have surfaced for a military salary system to replace the present compensation hodgepodge. One came from Rear Adm. Lester E. Hubbell, USN (Ret.), who first advanced the proposition in the late 1960s while heading a Defense Department compensation study. His latest plan would model the military system on the Civil Service pay structure. The Association of the US Army also publicly endorsed a military "salary package" recently. But chances of the government adopting a salary system anytime soon are remote.

One pay matter is certain: a retired pay raise of 7.4 percent effective January 1, 1975.

Colonels' List

Headquarters has chosen 565 lieutenant colonels for promotion to temporary colonel, although the

quota allowed selection of 625. The slippage, entirely in the line officer competition, reflects the declining force structure, charges of "grade creep," and other restraints. The overall selection rate was eleven percent, while thirty-seven percent of officers eligible in the primary zone for the first time were chosen.

Once again, eligibles turned down several times before fared poorly. Only six of 1,829 LCs up for the fourth through the tenth time were selected.

Other noteworthy statistics: selectees range in age from thirty-four to fifty-one; only one nonline officer—a chaplain—was chosen from the secondary zone; of the twenty-six unidentified general officers who comprised the selection board (one a three-star), eighteen are pilots, one is a navigator, and seven are nonrated. Seventeen board members held graduate degrees, including four doctorates.

Maintenance Savings Eyed

Economy and efficiency in maintenance activities are targets receiving new attention under an Air Force project called the Maintenance Posture Improvement Program. It stems mainly from the alarming budget squeeze affecting all Air Force activities. Maintenance officials from Hq. USAF and major commands were to meet at Offutt AFB, Neb., last month to explore "any and all ways" savings might be attained. "We're also looking at the way the airlines do the job; perhaps we may adopt some of their methods," a Hq. USAF official told AIR FORCE Magazine.

A major difference between the airlines and USAF is that the former enjoy considerably greater personnel stability than the Air Force.

Short Bursts

The Air Force again is shaving AFROTC production, from about 3,600 new officers this fiscal year to 3,000 in FY 1976, part of the personnel strength cutting drive; only a few years ago annual AFROTC production topped 4,500. A plan to overhaul the Reserve Officer Personnel Act (ROPA) is being cranked up in the Pentagon. Another new Defense proposal would let some active Reserve Forces members earn more than sixty retirement points a year.

Hq. USAF says it will fight any attempt to "bring the dependents back" from overseas. The idea, advanced in some government circles as a possible economy measure, brought this comment from Air Force personnel authorities: "Short, unaccompanied tours are the most expensive in terms of PCS costs. . . ." Meantime, the drive to curb PCS transfers has hampered Air Force efforts to reduce job overages and fill shortages among its supergrades (E-9s and E-8s).

Various organizational shuffles and consolidations are reported near, including dissolving PACAF Headquarters, Hickam AFB, Hawaii. At the Pentagon, the Air Staff office monitoring the food service, commissary, and clothing store programs, long part of the DCS/Systems and Logistics, will be moved to the Civil Engineering shop.

Commands are being "strongly encouraged" to help their outstanding athletes make the US Pan American Games team (this year) and the Olympic team (next year). In another upcoming competition, by March 1 commands will nominate contenders for the Military Wife of the Year awards, to be held in Washington May 30, 1975. Nominees need not belong to a wives' club, Headquarters said.

As forecast, at its recent semiannual meeting, the Defense Department's Advisory Committee on Women in the Services (DACOWITS) increased its demands. Examples: It called on Defense to (1) give women equal chances at promotion to star rank regardless of available slots, and (2) battle for the right to enroll women in the service academies. . . . Meantime, advocates of coed academies won a minor legal skirmish when the US Court of Appeals ruled that a federal judge must conduct a full trial on the female admittance question. The judge earlier had held that the services were justified in barring women from the academies.

The Veterans Administration, sensitive to charges that it isn't doing enough for Vietnam-era veterans, reports that (1) thirty percent of its $14 billion budget for FY 74 went to members of that group, although it represents only a small part of the total veteran population, and (2) the agency employs about 24,500 Vietnam-era vets, almost double the average for other federal agencies. . . . VA on January 1 began paying dividends to about 600,000 Korean conflict veterans who carry "RS" and "W" prefixed NSLI policies.

Congratulations to the following:

• The Air Force Reserve's **304th Rescue Sqdn.,** Portland International Airport, Ore., for saving the lives of four persons and rescuing five others during a recent five-day period.

• The winners of the Air Force Meritorious Recreation Award for 1974—**George A. DeCoux,** recreation director, Keesler AFB, Miss.; **SSgt. Roy J. Debow,** NCOIC of the auto hobby shop, Clark AB, P. I.; and **AIC James H. Burton,** intramural sports director at Charleston AFB, S. C.

• **SSgt. Michael McIntyre,** an Andrews AFB, Md., security policeman, for winning the big prize in the Maryland state lottery in November—$50,000 a year for twenty years.

Senior Staff Changes

RETIREMENTS: B/G Clarence J. **Douglas,** Jr.; M/G John M. **McNabb;** M/G Robert L. **Petit.**

CHANGES: M/G Louis O. Alder, from DCS/Comptroller, to DCS/Data Automation (Asst. for Advanced Logistics Systems), Hq. AFLC, Wright-Patterson AFB, Ohio . . . **B/G Robert S. Berg,** from Dir., J-2, USSOUTHCOM, Quarry Hgts., C. Z., to DCS/Intelligence, J-2, NORAD/CONAD, and DCS/Intelligence, Hq. ADC, Ent AFB, Colo., replacing retiring M/G John M. McNabb . . . **B/G William P. Comstock,** from Cmdr., US Forces Azores, and Cmdr., 1605th ABW (MAC), Lajes Field, Terceira, Azores, to Asst. DCS/Programs & Rqmts., J-5, NORAD/CONAD, and DCS/Programs & Rqmts., Hq. ADC, Ent AFB, Colo. . . . **B/G George A. Edwards, Jr.,** from Asst. DCS/Logistics, to IG, Hq. TAC, Langley AFB, Va., replacing B/G Malcolm E. Ryan, Jr.

M/G Raymond B. Furlong, from Dep. Asst. Sec. of Def. (Legislative Affairs), Washington, D. C., to Cmdr., Sheppard TTC, ATC, Sheppard AFB, Tex., replacing retiring M/G Robert L. Petit . . . **B/G Thomas H. McMullen,** from Systems Program Dir., A-10, ASD, AFSC, Wright-Patterson AFB, Ohio, to V/C, USAFTAWC, TAC, Eglin AFB, Fla. . . . **B/G Milton E. Nelson,** from Dep. Dir., J-3 (NMCC), Jt. Staff, OJCS, to Cmdr., 1st Comp. Wg., Hq. Cmd. USAF, Andrews AFB, Md., replacing retiring B/G Clarence J. Douglas, Jr. . . . **B/G Malcolm E. Ryan, Jr.,** from IG, to C/S, Hq. TAC, Langley AFB, Va. . . . **B/G Erskine Wigley,** from student, Defense Language Institute, Monterey, Calif., to Cmdr., US Forces Azores, and Cmdr., 1605th ABW (MAC), Lajes Field, Terceira, Azores, replacing B/G William P. Comstock.

—Compiled by Kathryn Foxhall

Here are the current members of four of the Air Force Association's committees and two of the councils. The membership of the other committee and the rest of the councils will be reported here next month.

AFA's Committees and Councils

Executive Committee


Ostrow


Shosid


Harris


Gross


Hasler


Campbell


Douglas


Larson


Mazer


Straubel

Composed of the Chairman of the Board (who also acts as Committee Chairman), the President, Secretary, Treasurer, and the Chairman of the Constitution Committee, plus four other members and one ex officio (nonvoting) member, the Executive Committee acts as and for the Board of Directors, and exercises authority over all officers, committees, and councils of the Association between meetings of the Board. The Executive Committee also functions as the Resolutions Committee, with the National Secretary, Martin H. Harris, as Chairman. Members are Martin M. Ostrow, Beverly Hills, Calif., Chairman; Joe L. Shosid, Fort Worth, Tex.; Martin H. Harris, Winter Park, Fla.; Jack B. Gross, Hershey, Pa.; Gerald V. Hasler, Endwell, N. Y.; Stanley L. Campbell, San Antonio, Tex.; George M. Douglas, Denver, Colo.; Jess Larson, Washington, D. C.; Nathan H. Mazer, Ogden, Utah; and, as an ex officio (nonvoting) member, AFA's Executive Director, James H. Straubel, Fairfax Station, Va.

Finance Committee


Gross


Douglas


Harris


Keith


Ostrow


Shosid


Hasler

Composed of the Treasurer as Chairman, and four other members appointed by the President, plus the President as an ex officio (voting) member, and the Treasurer of AFA's Aerospace Education Foundation as an ex officio (nonvoting) member, the Finance Committee is responsible for recommending the Association's fiscal policy. Members are Jack B. Gross, Hershey, Pa., Chairman; George M. Douglas, Denver, Colo.; Martin H. Harris, Winter Park, Fla.; Sam E. Keith, Jr., Fort Worth, Tex.; Martin M. Ostrow, Beverly Hills, Calif.; Joe L. Shosid, Fort Worth, Tex., ex officio (voting); and Gerald V. Hasler, Endwell, N. Y., ex officio (nonvoting).

Constitution Committee


Hasler


Brosky


Stewart


Shosid

This Committee is responsible for a continuing review of the Association's National Constitution and By-Laws and for recommending amendments and updating. Members are Gerald V. Hasler, Endwell, N. Y., Chairman; John G. Brosky, Pittsburgh, Pa.; Hugh W. Stewart, Tucson, Ariz.; and AFA President Joe L. Shosid, Fort Worth, Tex., ex officio (voting).

Convention Site Committee


Shosid


Ostrow


Gross

Responsible for recommending suitable sites for a National Convention. Members are Joe L. Shosid, Fort Worth, Tex., Chairman; Martin M. Ostrow, Beverly Hills, Calif.; and Jack B. Gross, Hershey, Pa.

Organizational Advisory Council


Price


Harris


Lawson


Nedder


West


Shosid

This Council considers matters pertaining to State and Chapter programming, membership solicitation, reporting procedures for field units, and the like. Members are Jack C. Price, Clearfield, Utah, Chairman; Alexander E. Harris, Little Rock, Ark.; Robert S. Lawson, Los Angeles, Calif.; Edward T. Nedder, Hyde Park, Mass.; A. A. West, Newport News, Va.; and Joe L. Shosid, Fort Worth, Tex., as ex officio (voting) member.

Total Force Advisory Council


Shosid


Isaacks


Hall


Watson


Chabbott


Waxman


Rowe


Lamb


Morley


Lund


Farkas


Wilson


Price

This year for the first time, and in keeping with the Association's long-standing policy of providing complete support of the Department of Defense's Total Force Policy, the Total Force Advisory Council was established. The Council consists of AFA's National President as Chairman, plus the Air Reserve, Air National Guard, Civilian Personnel, Retiree, Medical, Civil Air Patrol, Air Force Junior ROTC and Air Force Senior ROTC Advisers; and the Chairmen of AFA's Airmen, Junior Officer, Government, and Organizational Advisory Councils. With all members representing specialized areas, the Council serves as an invaluable source of counsel to the Association's President. Members are Joe L. Shosid, Fort Worth, Tex., Chairman; Brig. Gen. James D. Isaacks, Jr., USAFR, San Antonio, Tex., Air Reserve Adviser; Lt. Col. James C. Hall, ANGUS, Denver, Colo., Air National Guard Adviser; Robert M. Watson, Wright-Patterson AFB, Ohio, Civilian Personnel Adviser; Col. George H. Chabbott, USAF (Ret.), Dover, Del., Retiree Adviser; David Waxman, M. D., Kansas City, Kan., Medical Adviser; Kenneth A. Rowe, Richmond, Va., Civil Air Patrol Adviser; Col. Thomas E. Lamb, USAF (Ret.), Irmo, S. C., Air Force Junior ROTC Adviser; Lt. Col. William G. Morley, USAF (Ret.), Springfield, Va., Air Force Senior ROTC Adviser; CMSgt. Harry F. Lund, Brooks AFB, Tex., Chairman, Airmen Council; Capt. Richard L. Farkas, Offutt AFB, Neb., Chairman, Junior Officer Advisory Council; Maj. Gen. Winston P. Wilson, USAF (Ret.), Arlington, Va., Chairman, Government Advisory Council; and Jack C. Price, Clearfield, Utah, Chairman, Organizational Advisory Council.

AFA NEWS

By Don Steele
AFA AFFAIRS EDITOR

Alamo Chapter President Frank Manupelli, right, poses with four of the guests of honor at the Chapter's recent dinner meeting at the Oak Hills Country Club in San Antonio, Tex. They are, from left, TSgt. Robert D. Mengel, Kelly AFB NCO of the Quarter; Sgt. Jerry Busby, USAFSS NCO of the Quarter; A1C Nancy Willis, Lackland AFB Airman of the Quarter; and Sgt. Susan A. Deason, Brooks AFB NCO of the Quarter. Adm. Noel Gayler, Commander in Chief, Pacific, was the guest speaker.

CMSgt. Thomas N. Barnes, Chief Master Sergeant of the Air Force, was the featured speaker at a recent meeting of the Olmsted Chapter of Harrisburg, Pa. Chapter President Donald V. Snyder, center, and AFA National Treasurer Jack B. Gross, right, welcomed Sergeant Barnes to the meeting.

Lt. Gen. Ernest C. Hardin, Jr., center, Deputy Commander in Chief, Readiness Command, was the guest speaker at the South Carolina AFA's 1974 Convention at Myrtle Beach AFB Officers' Club. Head-table guests included, from left, Mrs. Moore; South Carolina AFA President Burnet Maybank; General Hardin; Mrs. Curry (wife of Col. William Curry, Commander, 354th TFW); Grand Strand Chapter President Lt. Gen. Joseph Moore, USAF (Ret.); and Gen. William C. Westmoreland, USA (Ret.), former Chief of Staff, US Army. Maj. Gen. A. M. Hendry, Jr., USAF (Ret.), was elected State President for 1974–75.

Charles L. Backus, Jr., right, Vice President, Central Region, Rockwell International, received the Wright Memorial Chapter's Man of the Year Award at its annual Dinner Dance held recently in the Wright-Patterson AFB, Ohio, Officers' Club. Mr. Backus was cited for his outstanding support of AFA principles and activities. AFA National Director Jack Withers, left, was the master of ceremonies, and Chapter President Fred Orazio, center, presented awards. Brig. Gen. Thomas H. McMullen, A-10 program director, and Ralph C. Lenz, Jr., an Air Force aeronautical engineer, were named corecipients of the Chapter's 1974 Aerospace Power Award.

Principals at the annual Engineering Awards Banquet, recently cosponsored by AFA's Wright Memorial Chapter and the Aeronautical Systems Division (AFSC), included, from left, Charles F. Tiffany, who received the Outstanding Systems Engineer Award for 1974; AFA National Director Joe Higgins, the guest speaker; Chapter President Fred D. Orazio; and Lt. Gen. James T. Stewart, ASD Commander, who was the master of ceremonies.

Official USAF Photo by Frank Perry, 375th ABW

CHAPTER AND STATE PHOTO GALLERY

Maj. Gen. Kenneth R. Chapman, center, Ass't DCS/R&D, Hq. USAF, was the guest speaker at a recent dinner sponsored by the Lawrence D. Bell Chapter of Buffalo, N. Y. Distinguished guests included, from left, William Gisel, President of Bell Aerospace Co. and Past President of the Chapter; Robert Kelso, President of Calspan Corp. and a member of the Chapter Council; General Chapman; Chapter President Wayne Hawk, Executive Vice President of Moog Inc.; and Ted Connet, Executive Vice President of Sierra Research. More than 250 community leaders attended the dinner.

—Photo by David L. Black

Aviation pioneer Betty Robertson Uhl, the guest speaker at a recent meeting of AFA's Greater St. Louis, Mo., Chapter, receives a corsage from Chapter President Donald Kuhn. Mrs. Uhl, who has been named National Aviation Woman of the Year, gave a personal view of St. Louis aviation history, including the beginning of commercial aviation and air mail flights in the midwest, and of a young pilot named Charles Lindbergh, who flew the initial airmail runs.

More than fifty members of the AFJROTC unit at Spokane's Medical Lake High School recently received orientation flights in private airplanes through a program sponsored by AFA's Spokane, Wash., Chapter. This program, organized by Clyde Stricker, a Past President of the Chapter and of the Washington AFA, has been so successful that it is now listed in the school's annual catalog. In the photo, from left, AFJROTC Cadets Tim Coles, Lelvin Bright, and John Katz are shown being briefed by Will Alton, a member of the Chapter and the Airport Director.

Rocky Mountain Chapter President Grace Kyle and Lt. Col. Robert Graff, operations officer with the SAC satellite unit at Hill AFB, Utah, discuss the furnishings and decorations to be used in "Project Homespun," an activity sponsored by the women's chapter of the Utah AFA to make living facilities at Hill AFB more comfortable for the SAC alert crews from Beale and March AFBs in California who rotate periodically to Hill AFB as part of SAC's satellite basing program.

—Photo by John A. Foster

The first Annual Far West Regional Conclave, hosted by California's General Jimmy H. Doolittle Chapter, was chaired by Robert S. Lawson, then Vice President for AFA's Far West Region, and featured a briefing by AFA National President Joe L. Shosid. Will Rogers, Jr., was the guest speaker at the Honors Banquet. H. L. "Bud" and Anna Keeler, AFA's West Coast Manager and Assistant to the Manager, respectively, accept the Region's Special Commendation Award from AFA President Shosid, right. AFA National Director Edward A. Stearn received the Region's "Mr. AFA 1974" award.

Capt. Donald R. Price, center, an AFA member for some fifteen years, visited the El Camino Real Chapter's AFA Display at the Sunnyvale AFS, Calif., Open House, where he received a briefing on Chapter activities from E. P. "Wally" Wallaker, left, Vice President for Membership; Chapter President Gerald S. Chapman, right center; and Robert Vaughan, right, a member of the Chapter Council and a former AFA National Director.

During a dinner and reception hosted in his honor by the Minnesota AFA, Gen. David C. Jones, center, USAF Chief of Staff, visits with Keith R. Johnson, left, Vice President for AFA's North Central Region; and Col. Douglass S. Benham, right, Commander, 133d Tactical Airlift Group, Minnesota Air National Guard.

Head-table guests at the Homecoming and Testimonial Dinner honoring Gen. David C. Jones, USAF Chief of Staff, and sponsored by AFA's Minot, N. D., Chapter, included, from left, Chapter President Warren Sands; Col. Charles E. McCartney, Jr., Commander, 91st Strategic Missile Wing; North Dakota Governor Arthur A. Link; General Jones and son David; Representative Mark Andrews (R- N. D.); and Minot Mayor Chester M. Reiten.

—Photo by William A. Belanger

At a luncheon during the AFA State Presidents' Annual Orientation Meeting in Washington, D. C., AFA President Joe L. Shosid, right, presents an AFA Citation to Col. William W. Carpenter, Jr., as Mrs. Carpenter looks on. Colonel Carpenter, Director of Information at Headquarters Command, Bolling AFB until his recent retirement, was cited for his dedicated service to the USAF and the nation, and his outstanding support of AFA activities.

—Photo by Robert A.Flournoy, Va. ANG

During a dinner meeting cosponsored recently by the Richmond and Leigh Wade Chapters, Brig. Gen. James N. Fogle, center, retiring Commander of the 20th NORAD Region/ADC Air Division at Fort Lee AFS, Va., was cited for his outstanding support of local AFA activities. With the General are Richmond Chapter President Jon R. Donnelly, left, and AFA National Director A. A. "Bud" West.

Col. (B/G selectee) Dan Brooksher, right center, departing Commander of the 4600th ABW, Peterson Field, Colo., received a pair of AFA cuff links from officers of the Colorado Springs Chapter in appreciation of his outstanding support of the Chapter's activities. Chapter officers, from left, Ken Johnson, Vice President (Membership); SSgt. Kathy Southall, Advisory Council; and Vice President (Programs) "Kort" Kortemeyer made the presentation before Colonel Brooksher's departure for his new post as Commander, 26th NORAD Region/ADC Air Division, Luke AFB, Ariz.

This Is AFA

The Air Force Association is an independent, nonprofit, airpower organization with no personal, political, or commercial axes to grind; established January 26, 1946; incorporated February 4, 1946.

OBJECTIVES

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 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 to all mankind.

PRESIDENT
Joe L. Shosid
Fort Worth, Tex.

BOARD CHAIRMAN
Martin M. Ostrow
Beverly Hills, Calif.

SECRETARY
Martin H. Harris
Winter Park, Fla.

TREASURER
Jack B. Gross
Hershey, Pa.

NATIONAL DIRECTORS

John R. Alison
Arlington, Va.

Joseph E. Assaf
Hyde Park, Mass.

William R. Berkeley
Blue Jay, Calif.

John G. Brosky
Pittsburgh, Pa.

Dan Callahan
Warner Robins, Ga.

Daniel F. Callahan
Nashville, Tenn.

Edward P. Curtis
Rochester, N.Y.

James H. Doolittle
Los Angeles, Calif.

George M. Douglas
Denver, Colo.

Herbert O. Fisher
New York, N.Y.

A. Paul Fonda
Washington, D.C.

Joe Foss
Scottsdale, Ariz.

George D. Hardy
Hyattsville, Md.

Alexander E. Harris
Little Rock, Ark.

Gerald V. Hasler
Johnson City, N.Y.

John P. Henebry
Chicago, Ill.

Joe Higgins
N. Hollywood, Calif.

Joseph L. Hodges
South Boston, Va.

Robert S. Johnson
Woodbury, N.Y.

Sam E. Keith, Jr.
Fort Worth, Tex.

Arthur F. Kelly
Los Angeles, Calif.

George C. Kenney
Bay Harbor Islands, Fla.

Thomas G. Lanphier, Jr.
LaJolla, Calif.

Jess Larson
Washington, D.C.

Robert S. Lawson
Los Angeles, Calif.

Curtis E. LeMay
Newport Beach, Calif.

Carl J. Long
Pittsburgh, Pa.

Howard T. Markey
Washington, D.C.

Nathan H. Mazer
Ogden, Utah

J. P. McConnell
Washington, D.C.

J. B. Montgomery
Newport Beach, Calif.

Edward T. Nedder
Hyde Park, Mass.

J. Gilbert Nettleton, Jr.
New York, N.Y.

Jack C. Price
Clearfield, Utah

Julian B. Rosenthal
Decatur, Ga.

John D. Ryan
San Antonio, Tex.

Peter J. Schenk
McLean, Va.

C. R. Smith
Washington, D.C.

William W. Spruance
Wilmington, Del.

Thos. F. Stack
San Mateo, Calif.

Edward A. Stearn
San Bernardino, Calif.

Hugh W. Stewart
Tucson, Ariz.

Arthur C. Storz
Omaha, Neb.

Harold C. Stuart
Tulsa, Okla.

James M. Trail
Boise, Idaho

Nathan F. Twining
Hilton Head Island, S.C.

A. A. West
Newport News, Va.

Jack Withers
Dayton, Ohio

Chaplain Roy M. Terry
(ex-officio)
National Chaplain, AFA
Melbourne Beach, Fla.

Paul A. Foster
(ex-officio)
National Commander
Arnold Air Society
Norman, Okla.

Capt. Richard L. Farkas
(ex-officio)
Chairman, JOAC Executive Committee
Offutt AFB, Neb.

CMSgt. Harry F. Lund
(ex-officio)
Chairman, Airmen Council
Brooks AFB, Tex.

VICE PRESIDENTS

Information regarding AFA activity within a particular state may be obtained from the Vice President of the Region in which his state is located.

Stanley L. Campbell
119 Bluehill Rd.
San Antonio, Tex. 78229
(512) 342-0006
Southwest Region
Oklahoma, Texas, New Mexico

Robert L. Carr
2219 Brownsville Rd.
Pittsburgh, Pa. 15210
(412) 884-0400
Northeast Region
New York, New Jersey, Pennsylvania

Earl D. Clark, Jr.
4512 Speaker Rd.
Kansas City, Kan. 66106
(913) 342-1510
Midwest Region
Nebraska, Iowa, Missouri, Kansas

Floyd F. Damman
14010 Marsha Lane
Whittier, Calif. 90602
(213) 675-4611 ext. 4778
Far West Region
California, Nevada, Arizona, Hawaii

Richard Emrich
6416 Noble Dr.
McLean, Va. 22101
(202) 426-8256
Central East Region
Maryland, Delaware, District of Columbia, Virginia, West Virginia, Kentucky

Lyle W. Ganz
1536 N. 69th St.
Wauwatosa, Wis. 53213
(414) 771-8325
Great Lakes Region
Michigan, Wisconsin, Illinois, Ohio, Indiana

John H. Haire
2604 Bonita Circle
Huntsville, Ala. 35801
(205) 453-5499
South Central Region
Tennessee, Arkansas, Louisiana, Mississippi, Alabama

Roy A. Haug
1st Nat'l. Bank Bldg., Room 403
Colorado Springs, Colo. 80902
(303) 636-4296
Rocky Mountain Region
Colorado, Wyoming, Utah

Keith R. Johnson
4570 W. 77th St.
Minneapolis, Minn. 55435
(612) 920-6767
North Central Region
Minnesota, North Dakota, South Dakota

Andrew W. Trushaw, Jr.
204 N. Maple St.
Florence, Mass. 01060
(413) 586-1634
New England Region
Maine, New Hampshire, Massachusetts, Vermont, Connecticut, Rhode Island

Herbert M. West, Jr.
3007-25 Shamrock, North
Tallahassee, Fla. 32303
(904) 488-1374
Southeast Region
North Carolina, South Carolina, Georgia, Florida, Puerto Rico

Sherman W. Wilkins
4545 132d Ave., SE
Bellevue, Wash. 98006
(206) 655-8822
Northwest Region
Montana, Idaho, Washington, Oregon, Alaska

The YF-17 proves its point.

The Northrop YF-17 air combat fighter has accomplished the essential elements of its exhaustive flight test program. Originally scheduled for a year, it was done in less than six months.

A remarkable achievement for a new prototype aircraft with prototype engines. And for the U.S. Air Force/Northrop management team.

225 flights in less than six months. First flight, June 9. 225th flight, December 7.

Mach 2 plus. Supersonic flight without afterburners. Rate of climb more than 50,000 feet per minute. Air combat maneuvering 40 to 50% better than any operational fighter in its class.

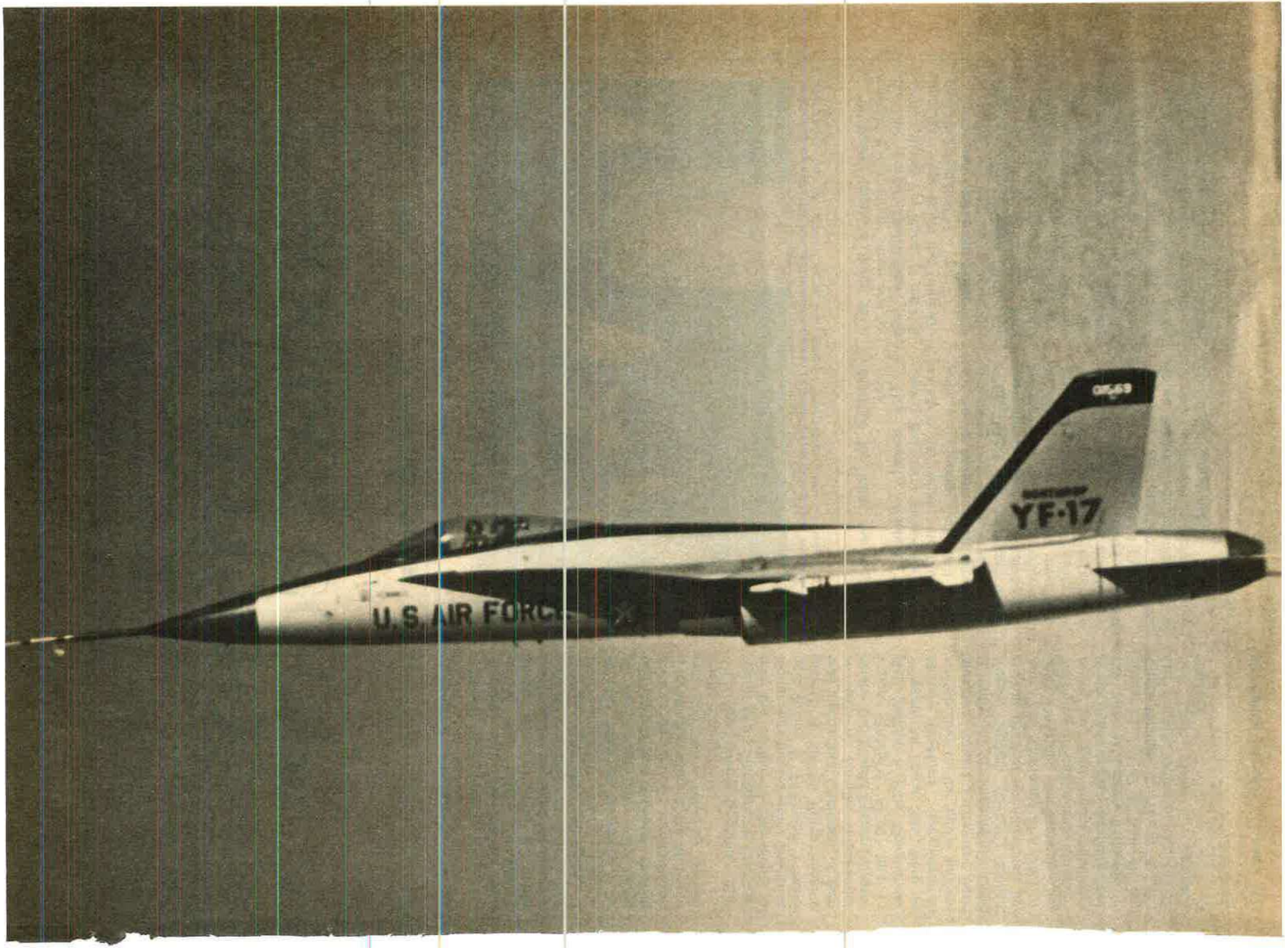
And the extra dependability of two engines at no extra cost. Twin General Electric J101-GE-100s. Proven performance in tests with one engine out.

Altogether, a convincing demonstration of reliability. Of high performance at low cost. And successful management by Northrop and the U.S. Air Force of the design-to-cost philosophy.

Again.

Northrop, 1800 Century Park East, Los Angeles, CA 90067, U.S.A.

NORTHROP


YF-17
U.S. AIR FORCE

Third Annual Air Force Ball

ON OCTOBER 26, 700 VIP GUESTS ATTENDED THE THIRD ANNUAL AIR FORCE BALL AT THE BEVERLY WILSHIRE HOTEL, BEVERLY HILLS, CALIF. EVEN IN THE LAND OF SPECTACULARS, THE AFA-SPONSORED BENEFIT WAS CALLED . . .

'A MILITARY SOCIAL COUP'

BY DON STEELE
AFA AFFAIRS EDITOR

Honored guests at the ball included, from left, General Chairman Gwynn H. Robinson; Mrs. Robinson; USAF Chief of Staff Gen. David C. Jones; Mrs. Jones; Air Force Secretary John L. McLucas and Mrs. McLucas.

"If there's such a thing as a military social coup, score one for the Air Force Association." So wrote Sharon Fay Koch, of the Los Angeles *Times*, about the Third Annual Air Force Ball.

Sponsored by the Air Force Association, the ball was held at the Beverly Wilshire Hotel in Beverly Hills, Calif., last October 26. Proceeds from the annual $100-a-plate, fund-raising function go to Scholarships for Children of American Military Personnel (SCAMP) to assist deserving children of US servicemen killed or missing in action, or prisoners of war in the Southeast Asian conflict; and to the Aerospace Education Foundation, AFA's education affiliate. The three annual functions have raised more than $100,000 for these two organizations.

The Beverly Wilshire Hotel's Grand Ballroom, beautifully decorated in red, white, and blue, and with a glittering black and white Air Force insignia, was filled with more than 700 VIP guests.

Bob Hope, who has spent more than thirty years entertaining US military men and women around the world, highlighted the evening's entertainment. The Fifteenth Air Force Band, La Fonda Restaurant's Mariachi los Camperos, and Manny Harmon and his orchestra provided music for listening and dancing.

During the program, the first three SCAMP scholarships and a Jimmy Doolittle Fellow plaque were presented *(see photos)*.

Top political, military, aerospace industry, and AFA leaders were among the many distinguished guests, some of whom are shown here. Others included Representatives Chet Holifield (D-Calif.), Victor V. Veysey (R-Calif.), and Andrew J. Hinshaw (R-Calif.); the Hon. Frank A. Shrontz, Assistant Secretary of the Air Force (Installations and Logistics); Air Force General Counsel Jack L. Stempler; Dr. Harold Brown, a former Secretary of the Air Force; and California's Attorney General Evelle Younger.

Lt. Gen. Jimmy Doolittle, USAF (Ret.), AFA's first National President and the holder of the Medal of Honor, was the Honorary Chairman, and Gwynn H. Robinson, a major general in the Air Force Reserve, was the General Chairman. Lt. Gen. Kenneth W. Schultz, Commander, Space and Missile Systems Organization (SAMSO), AFSC, and Lt. Gen. William F. Pitts, Commander, Fifteenth Air Force, SAC, were the Military Co-Hosts. Committeemen contributing to the ball's success included: Ronald J. Gray and Earle E. Patty, Jr. (Arrangements); Linda Hussey Haggin (Decor); William Hickok (Budget and Finance); Jo-Ann Doell (California AFA Liaison); John De Haan (Invitations); Dick Weinberg (Program and Entertainment); and Earl Blount (Publicity). Protocol and Military Advisers were: Col. Jack M. Lowery, Fifteenth Air Force; Lt. Col. C. B. Kelly III, and Capt. William C. Young, USAF's Los Angeles Office of Information; and Capt. Sally L. Davidson, SAMSO. ■

Distinguished guests at the ball included, from left, Gwynn H. Robinson, General Chairman; Gen. David C. Jones, USAF Chief of Staff; AFA Board Chairman Martin M. Ostrow, the founder and President of SCAMP and the man who initiated the Air Force Ball; and Gen. Samuel C. Phillips, Commander, Air Force Systems Command.

AFA President and Mrs. Joe L. Shosid, left, visit with Mr. and Mrs. Bob Hope during the cocktail reception at the Third Annual Air Force Ball. Mr. Hope received a standing ovation before and after his appearance on the program.

Among the distinguished guests at the ball were, from left, retired Lt. Gen. James H. Doolittle, the Honorary Chairman of the Ball; Gen. Robert J. Dixon, Commander, Tactical Air Command; Mrs. Doolittle; Hon. John M. Maury, Assistant Secretary of Defense (Legislative Affairs); and actor James Stewart, one of the founders of AFA.

Mrs. Joe Doolittle is designated Jimmy Doolittle Fellow Number One as she receives the plaque and medallion from James H. Straubel, right, Aerospace Education Foundation Executive Director. AFA President Joe L. Shosid, center, offers congratulations. The presentation, resulting from more than sixty separate donations from AEF trustees, AFA Board members, and AFA staff members, was their expression of deep appreciation and great affection for the Doolittles, and a special tribute to her. Each Jimmy Doolittle Fellow plaque represents a tax-deductible $1,000 contribution to the Aerospace Education Foundation.

Recipients of the first three $1,000 SCAMP scholarship checks are, from left, Don I. Williamson, Jr., of Louisville, Ky.; Michael Farrell Sullivan of Austin, Tex.; and Michael K. Duffy of Colorado Springs, Colo.

Bob Stevens'

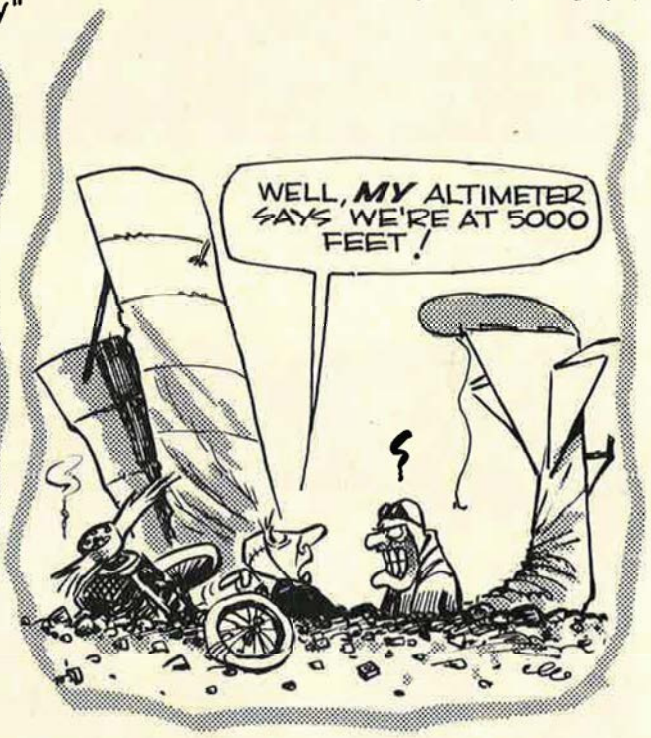
"There I was..."

THESE ARE *ACTUAL* EXCERPTS FROM REGULATIONS "CONCERNING OPERATION OF AIRCRAFT" AS SET FORTH BY THE U.S. AIR SERVICE, CIRCA 1920:

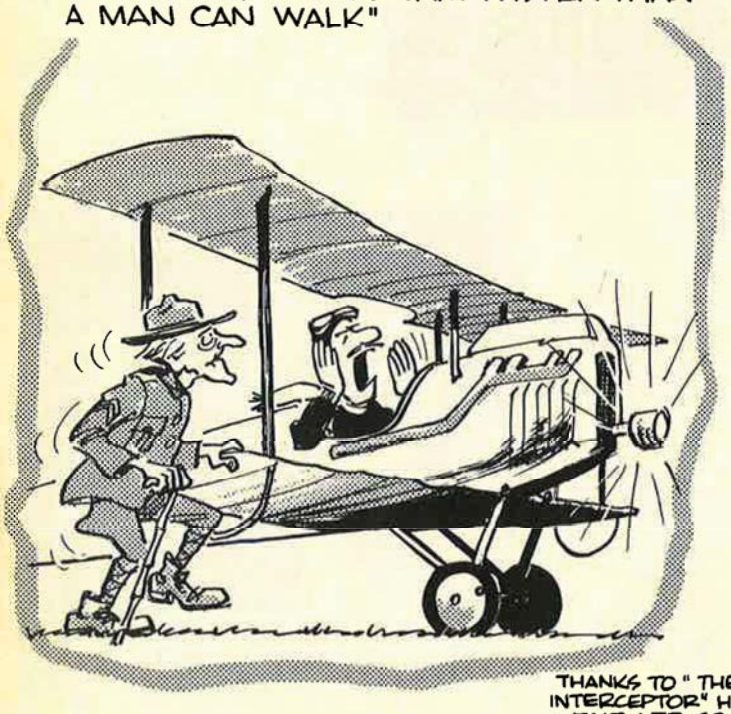
"DON'T TAKE YOUR MACHINE INTO THE AIR UNLESS YOU ARE SATISFIED IT WILL FLY"

((OFFICIALLY, IT'S A "GARY FLYING MACHINE")

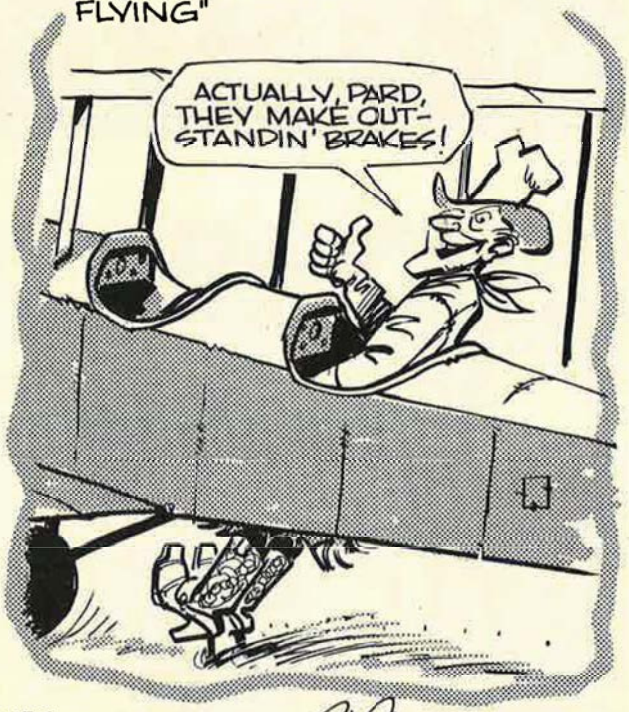
"DO NOT TRUST ALTITUDE INSTRUMENTS"



"NO MACHINE MUST TAXI FASTER THAN A MAN CAN WALK"



"PILOTS WILL WEAR SPURS WHILE FLYING"



THANKS TO "THE INTERCEPTOR" HQ ADC, ENT AFB, CO.

Bob Stevens

We hope you never need it.
But if you do,

we hope you <u>have</u> it.

It's the Sundstrand Ground Proximity Warning System (GPWS).

And it warns of impending terrain strikes under virtually any flight condition: Negative climb after takeoff. Excessive closure rate with a hill or mountain in level flight. Excessive sink rate under 2500* ft. radio altitude. Any penetration under 500 ft. altitude with gear up, and under 200 ft. altitude with flaps up. And excessive duck under the glide slope on an ILS approach.

The warning issued by the Sundstrand GPWS is unmistakable — a flashing red lamp that says PULL UP, accompanied by a Whoop Whoop aural signal and a voice that commands "Pull Up!"

The system requires no crew inputs. It cannot be deactivated. It's fully automatic. It's nuisance free. It's on duty at all times when you're airborne.

And the only way to silence the warning is to pull up out of the danger zone.

The Sundstrand Ground Proximity Warning System. For those rare times when you may really need a reliable ground proximity warning. Call the Avionics Marketing Department at 206/885-8567 for full details and a flight demonstration.

*ARINC radio altimeter installations.

Aviation's first true ground proximity warning system.

SUNDSTRAND A-111

SUNDSTRAND DATA CONTROL, INC., REDMOND, WASHINGTON 98052 SUBSIDIARY OF SUNDSTRAND CORPORATION

The DC-10 tanker/cargo jet:

Optimum way to upgrade U.S. military airlift capability.

Recent events have dramatically emphasized the importance of military airlift and at the same time have highlighted the need for increasing the non-stop range of the airlift fleet. Aerial refueling is a low-cost way of increasing the range of the airlift fleet.

The DC-10 aerial refueling capability will permit the airlift fleet, operating from U.S. bases, to reach all major areas in the world. In addition, the military DC-10 tanker and cargo capability can support an integrated deployment of tactical fighters and their associated unit support. The DC-10 tanker/cargo aircraft represents the most economical solution in terms of initial cost, total cost of ownership and fuel consumed.

The lower unit cost of the military DC-10 compared to contemporary four engine wide-bodied transports permits the purchase of more DC-10s for a given investment. The resulting larger DC-10 force offers increased flexibility, with capability to support simultaneous worldwide operations.

The DC-10 is proving day after day in commercial service that its fuel, operating and maintenance costs are low and its departure reliability record is high—important considerations for military operations.

MCDONNELL DOUGLAS

DC-10 tanker capability was demonstrated in company-funded flight test in October, 1971.