JANUARY 1976/$1

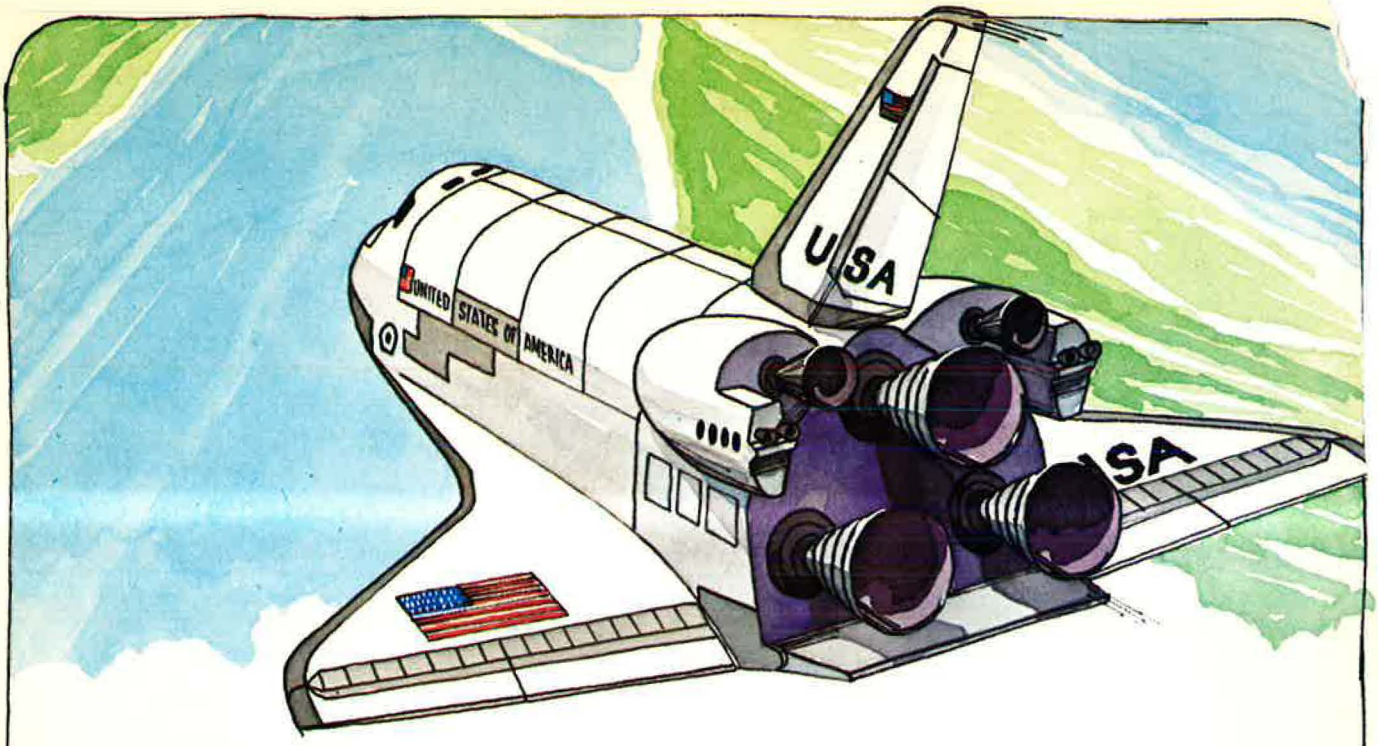
AIR FORCE

PUBLISHED BY THE AIR FORCE ASSOCIATION

MAGAZINE

U-2CT

A USAF Pilot Tells How It Feels to Fly This Tricky Trainer



We work with NASA on STOL, but we're big on the shuttle, too.

Diversified. That's Sperry Flight Systems. We're working with NASA on a number of projects not related to space, like STOLAND and the XV-15 tilt rotor programs.

In space, the shuttle has our attention at Sperry. We've simulated orbiter landings in NASA's Convair 990 and are modifying Gulfstream II aircraft to be used as shuttle trainers.

Perhaps our biggest contribution is the developmentof multiplexer-demultiplexer units for the orbiter and the solid rocket booster under contract to Rockwell International and NASA.

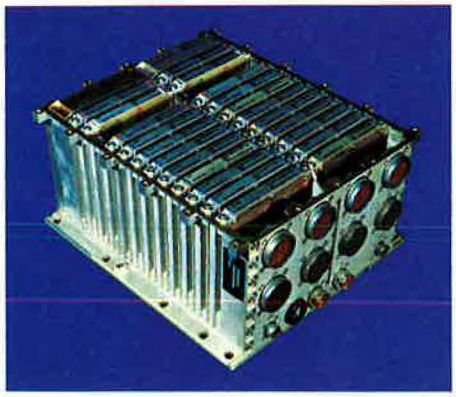
Working in conjunction with general purpose computers, MDM units will convert data from spacecraft systems into a format useable by the computer. They will also make computer signals useable by other subsystems.

Sperry MDMs can play an important role in future space shuttle payload applications.

In another related program, we have designed a shuttle payload pointing system capable of aiming a variety of space measurement devices within one arcsecond.

Our work on these varied NASA programs is an example of the breadth of our technological know-how in avionics. And we extend this knowledge to the other markets we serve... defense, commercial and general aviation.

We're Sperry Flight Systems of Phoenix, Arizona, a division of Sperry Rand Corporation, making *flying* machines do more so man can do more.



Multiplexer-demultiplexer unit.

SPERRY
FLIGHT SYSTEMS

AIR FORCE MAGAZINE
PUBLISHED BY THE AIR FORCE ASSOCIATION

This Month

ABOUT THE COVER

A strange-looking machine is the U-2CT—the trainer version of USAF's high-flying reconnaissance aircraft—and stranger still is it to fly and land this vehicle, whose landing airspeed "window" allows only one or two knots of deviation at touchdown. *See p. 42.*

Departments

JANUARY 1976
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AN EDITORIAL

Second to What?

By John F. Loosbrock
EDITOR

IN THE immediate aftermath of his summary dismissal as Secretary of Defense last November, James R. Schlesinger is said to have remarked wryly that perhaps the President had done him a big favor.

At this writing, it is becoming increasingly clear that the bitter jest was in fact a shrewd forecast. Dr. Schlesinger may well be feeling relieved in more than one sense of the term. It is a little like having lost command of the *Titanic* only hours before sailing time.

This bicentennial year is also an election year, and the Pentagon is falling victim to a unique brand of political ecumenism, with a conservative Republican Administration vying with a liberal Democratic Congress to see which can get the most credit for the deepest cuts in the military budget. While the new Congressional Budget Office is setting itself up as Capitol Hill's intrusive and dictatorial *alter ego* to the Office of Management and Budget, the White House and OMB are making line-item cuts in defense budgets for both Fiscal Year 1977 and 1978—and without consulting the Pentagon.

Meanwhile, the Department of Defense sits nervously across the river, like a hapless patient listening to competing surgeons arguing about which leg is to be amputated and who will do the carving. And all without benefit of anesthesia.

It is not our purpose here to analyze the situation in precise terms of billions of dollars, line items, or specific programs. The point is that a radical transformation is taking place in the way national defense funding decisions are being taken and in the way national defense issues are being debated and presented to the public. The impact on both the form and the substance of national defense policy will be deep and pervasive. The trends are even more worrisome than present actualities, as alarming as these are. The long-term result—and we're talking in years, not decades—will be a settling for a second-class, less-than-the-best status for the United States in terms of military, economic, and political influence in world affairs.

Such a situation would be frightening enough in and of itself. But to our admittedly skeptical eye, it will inevitably be accompanied—and the evidence is in the newspapers every day—by a euphoric national self-delusion that second-best is really good enough.

Let's take a look at some of the basic realities involved and against which the forthcoming rash of budgetary activity must be set before they can be realistically assessed:

Item: The kind of cuts being put forward, at both ends of Pennsylvania Avenue, can only be accomplished at the expense of manpower and operating and maintenance funding. (Manpower represents the lion's share of the budget, as one would expect in an all-volunte environment. After all, the American in uniform cann be expected to subsidize the taxpayer through less th equitable pay scales.) Savings in these areas are t only kind that can have immediate impact on the bu get. Unfortunately, they also have immediate impact o combat readiness and the ability to carry out mission and support national commitments.

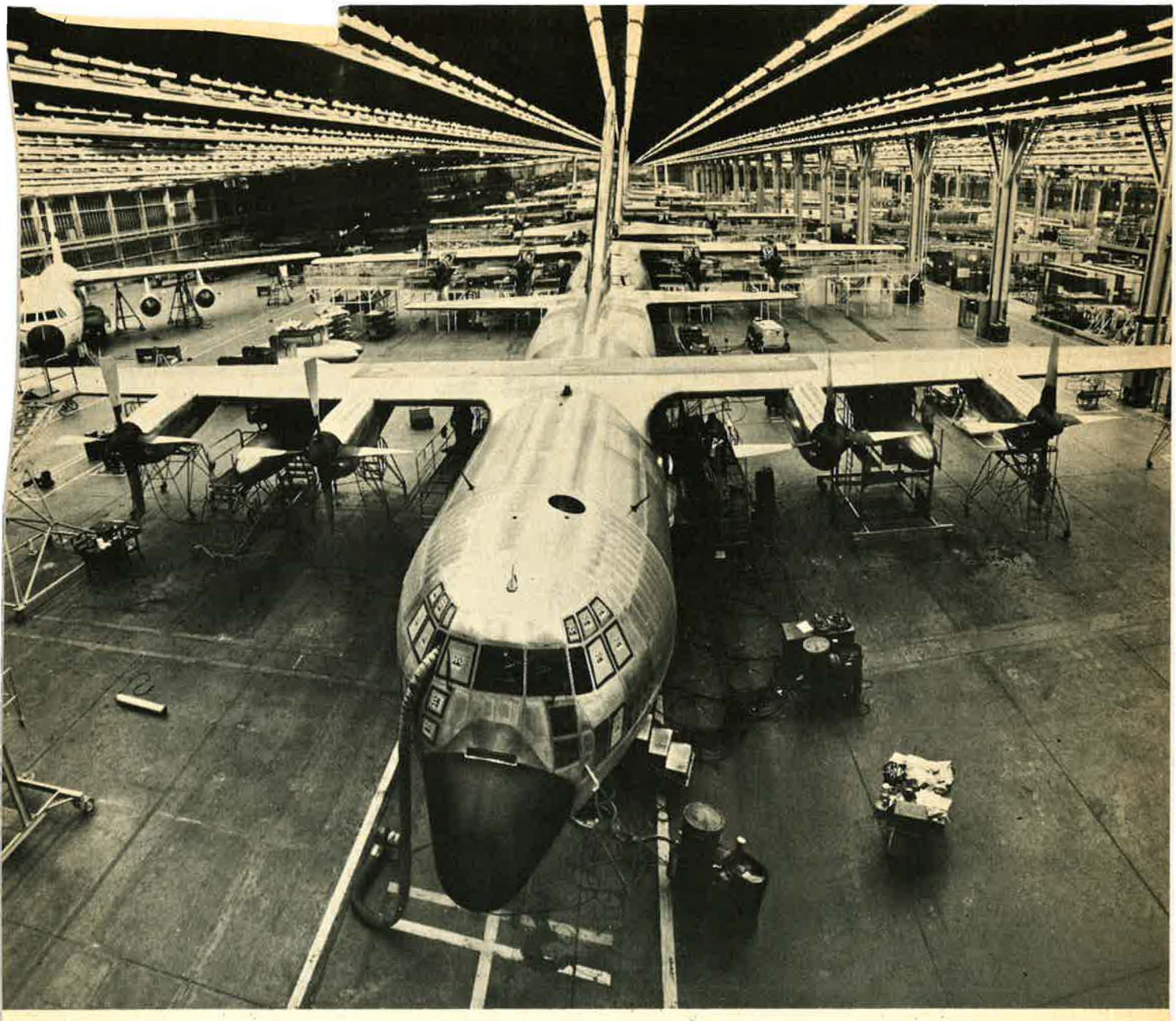
Item: In procurement, the stretching-out of produc tion and the postponement of production decisions car bring about relatively small short-term savings, but they also increase the long-term costs of equipment. The so-called "sliding to the right"—jargon for delaying o stretching out procurement—only reduces the savings inherent in mass production, increases the effects of inflation, and results in higher unit costs in the end. You can't push the hump in the rug indefinitely. Eventually you hit the wall.

Item: Defense decisions cannot be prudently made in a politico-technological-military vacuum. There has to be a reason for a defense establishment in the first place or whatever is spent on it is wasted. This reason, of course, is the threat, which is growing rapidly at the same time the United States's military capability is contracting. The Soviet statistics are alarming—twice as many people on active duty as we have, four times the rate of submarine and surface naval vessel construction, seventy percent more tactical aircraft in production, as much as an eight-to-one advantage in ground forces equipment. More significant, the US strategic advantage, while real at the moment, will dwindle as the Soviets deploy their new generation of strategic delivery systems.

AFA's 1975 Statement of Policy made the point that the maintenance of essential equivalence with the Soviets required, at the least, modest annual growth rates in defense funding. We believe this requirement still exists and will not be turned from that belief.

It is more incumbent on us to speak out than ever before. The pressures for conformity in the defense community are increasing and military men will become more inhibited, and prohibited, from voicing their views in public forums. So the need for other voices, not thus restricted, becomes ever sharper. We intend to continue to be such a voice.

Meanwhile, the President and the new Secretary of Defense, Mr. Rumsfeld, and almost everyone else in Washington, are rhetorically reiterating that the United States must maintain a defense establishment "second to none." How this is to be managed by shrinking our own forces while the competition is expanding theirs is not explained. We can only conclude that the biggest miracle since the loaves and fishes is about to take place. ■



Hercules.
The airlifter whose time keeps coming.

Years ago the world needed an airlifter able to carry cargo such as fully assembled trucks and bulldozers. An airlifter strong enough to land and take off from short dirt, gravel, sand or snowy runways. An airlifter built for quick loading and unloading without ground-handling equipment. An airlifter able to haul 45,000 pound payloads for 2,800 statute miles.

Today the world needs that airlifter more than ever. Which is why ten nations ordered the Lockheed Hercules last year.

Why do countries keep selecting Hercules? Because Lockheed has 20 years experience working with countries that need great airlift, and it keeps making Hercules better and better. To begin with, the Hercules' airframe is classic in its functional simplicity. High wings let the fuselage almost hug the ground for fast loading. A huge rear cargo opening enables tractors to drive on and off. Sturdy landing gear handles the jolts of remote fields.

Inside, Hercules is almost new with avionics systems updated from nose to tail. All basic operating systems have been improved. The 1975 Hercs, for example, will have new radar, air conditioning and auxiliary power systems.

Hercules. The timeless airlifter, chosen by 37 nations.

Lockheed Hercules

Airmail

Is It or Isn't It?

Gentlemen: I read General Clay's article, "Management Is Not Command" [September '75] with considerable interest and enthusiasm. I was even more interested in the return mail. As usual, those trained in "management science" missed the point and do not understand the concept of command.

There is considerable difference between the two although they have some common *functions*. Command is interdisciplinary and includes management, leadership, and administration; while managers may use the skills of management and leadership, they are applied in a limited or functional area. . . .

Maj. Robert D. Clark
Annandale, Va.

Gentlemen: The basic flaw in Gen. Lucius D. Clay's short treatise on Management vs. Command is that he views them as separate functions or entities. And it is not so much that some view them as synonymous, but rather that they must meld and contain common subfunctions —on occasion, an overlapping exists. The subfunctions of control, conduct, and direction are common to both management and command; therefore, it is a misconception to attempt to make a sharp separation or distinction of the two primary traits.

It is clear that General Clay has yet to learn of this absolute need for the blending of subfunctions within the subject primary traits, and his disciples are following a "williwaw." The commander must be a manager and vice versa. Both must understand football and the difference between *downs* and *plays!*

R. H. Hodges
Pelham, N. Y.

Dr. Gray's Article

Gentlemen: The *International Herald Tribune* [London] of Wednesday, October 29, 1975, refers to an article published by Dr. Colin Gray in the November issue of AIR FORCE Magazine ["SALT I Aftermath: Have the Soviets Been Cheating?"], describing him as "Associate Director of The International Institute for Strategic Studies."

Dr. Gray ceased to be an Assistant Director of this Institute at the end of September 1975 and left the Institute's employment by October 31, 1975. He was in no position to act as a member of the Institute's Directing Staff, and his views do not represent the views of this Institute.

I would be grateful to you for publishing this correction.

Christoph Bertram, Director
The International Institute
for Strategic Studies
London, England.

• *When the article in question was written and when it was accepted by* AIR FORCE Magazine, *Dr. Gray was Assistant Director of the Institute. The fact that the article represented Dr. Gray's personal views alone and not those of the Institute was clearly stated in our introductory matter. The use of the title "Associate Director" was our error.*—THE EDITORS

Concerned About NATO

Gentlemen: In view of the comments made by Gen. T. R. Milton ["NATO's Collapsing Southern Flank"] in your November 1975 issue . . . I share his concern about the serious deterioration of United States relations with both Greece and Turkey. Further, it seems ironic to me that Spain, while not a member of NATO, is probably the strongest element existing today in the NATO southern flank.

It seems to me that there are too many leaders in the countries involved who would rather look at memories of the past rather than deal with the certainties of the future. While I don't believe the Soviet Union is necessarily an easy alternative for those countries that become disenchanted with United States diplomatic errors, I think General Milton puts it very nicely when he says "we could use a few friends."

Congressman Leo J. Ryan
Washington, D. C.

Plowback IPs

Gentlemen: I read with interest Lieutenant Sharadin's letter of "protest" (October '75 issue) regarding rate supplement assignments for ATC "plowback" IPs. While I readily ur derstand his concern, I must tak exception to his allegation tha "TAC doesn't care to bring (AT IPs) aboard."

On the contrary, TAC would b delighted to receive a greater num ber of ATC Instructor Pilots. Aside from the more obvious benefits of their flying experience, we can train 1.44 "plowback" IPs with the same assets needed for one UPT graduate. That's a real savings, but it's only one side of the picture.

Another critical need is to get the UPT graduate qualified in operational aircraft as rapidly as possible —to capitalize on the investment and to meet both short- and long-term pilot requirements.

Training slots in our TAC fighter aircraft are limited. The constraint is the number of aircraft that can be used for training vs. the number that must remain operationally committed. Increasing the ratio of ATC Instructor Pilots allocated to TAC means that the Air Force must find another slot (not the rated supplement) for the new pilot.

Lieutenant Sharadin's protest is not taken lightly by TAC or those who work the pilot distribution problem at Headquarters USAF. We are working with ATC and AFMPC to increase future ATC IP assignments to TAC—while still meeting the vital need to provide UPT graduates training in operational aircraft.

Col. Herbert W. Pangle
Deputy Chief of Staff, Personnel
Hq. TAC
Langley AFB, Va.

Personnel Inequities

Gentlemen: I certainly don't want to start a series of petty bickering in your "Airmail" department, but I do feel the need to comment on a statement made by Ed Gates in his article, "The Durability of Dual Comp," which appeared in the November issue.

The statement that "Most personnel inequities associated with military life have a way of eventually getting corrected" needs either am-

ification or clarification. If Mr. ates is referring to inequities be- een Regular officers and non- egular officers, he may or may not right. However, if he is referring all types of personnel inequities entually being corrected, he has be either kidding or very misin- rmed. The inequities are every- here but they are particularly visi- e in areas such as—marital status, x, race, rank (officers vs. enlisted well as within each category), ousing, BAS, and leave policies.

Some of the inequities are his- rically inherent in our aristocrat fficer)/serf (EM) system, some re- ect the society as a whole (sex, ace, etc.), and others reflect the "welfarelike" nature of the military ersonnel policies (marital status). Regardless of their origin, these in- equities have been with us since the eginning, are with us now, and ave little or no chance of ever eing corrected.

I enjoy the magazine and par- icularly the articles by Mr. Gates.

MSgt. Jerry L. Collins
Alexandria, Va.

The author replies: I stand by my statement that most inequities "have a way of eventually getting corrected." This is the goal of both the Pentagon and Congress, though the process of removing the injus- tices is painfully slow.

Here are examples of inequity correction: (1) retirement—years ago, retirement statutes favored officers overwhelmingly, but now enlisteds and officers enjoy the same system, which is generally recognized as the most generous anywhere; (2) housing assignment policies—until a year ago, RHIP played a major role; now more weight is given to need; (3) military survivor benefit laws—earlier they were woefully inadequate, but they have been made acceptable, and equitable, in comparison with civil servants' survivor statutes; and (4) allotments for dependents—for- merly, married enlisteds were forced to make such allotments, the implication being that they were ir- responsible, but that inequity has been removed. The same applies to smoothing out assignment policies, giving military people equity with civil servants on per diem, and dozens more areas.

Of course, inequities remain, such as the BAS and BAQ problems single enlisted personnel endure. While Air Force urgently wants to correct them, it unfortunately is caught in a gigantic money squeeze and action is not possible at the moment.

If one accepts Sergeant Collins' view of the military structure as an aristocrat/serf arrangement, which I don't, then, of course, more in- equities would be perceived.

Ed Gates

Not So Large, After All

Gentlemen: A quick review of No- vember's issue surfaced at least one error that I am aware of. The caption under the A-10 pix repro- duced on page 25 claims the GAU-8 is the largest gun ever mounted on a US fighter or attack aircraft.

Not so! The Bell Aircraft P-39 car- ried a 37-mm rapid-firing cannon bore-sighted through a hole in the propeller hub. The airplane was specifically designed with its Allison engine mounted behind the cockpit so as to accommodate the 37-mm cannon in the nose. Certain models of the B-25—Gs and Hs, I think— although not designated attack air- craft, were intended for that role and carried a real whopper, a 75- mm cannon in the nose.

You'll probably take lots of flak from former P-39 jocks on this one.

Terry St. Louis
Albuquerque, N. M.

• *The flak hit! Sorry for the con- fusion. We meant largest in size, not caliber.*—THE EDITORS

380th in Australia

Gentlemen: Attention, former mem- bers, 380th Bomb Group (H), World War II! To complete an official his- tory currently being compiled per- taining to American units that par- ticipated in the defense of Australia against the Imperial Japanese Forces, contact is desired with all who served in this unit at any time prior to 1944 in aircrew, Operations, or Intelligence.

Please write, air mail, to
James D. Rorrison
P. O. Box 64
South Brisbane
Queensland 4101, Australia

Calling the 39th Fighter Squadron

Gentlemen: I am currently research- ing the 39th Fighter Squadron, which was attached to the 35th Fighter Group in Southwest Pacific in World War II. Since I received such an overwhelming response from your magazine regarding my book on P-38 aces, I would like to repeat the call to anyone who flew with the 39th during the war.

I have contacted a few of the veterans of the group and they have convinced me that the unit is well worth documenting.

John Stanaway
917 4th St., N.
Minneapolis, Minn. 55401

UNIT REUNIONS

JICA-CBI

Former members of the Joint Intel- ligence Collecting Agency-CBI, WW II, are anxious to arrange a reunion. Write

R. E. Stevens, Jr.
7269A Wurzbach Rd.
San Antonio, Tex. 78240

Keesler Male Chorus

The Keesler Male Chorus is organizing a reunion of past members to celebrate its 25th anniversary and the National Bicentennial. Activities are being sched- uled for June 11–13, 1976. All past members of the Keesler Male Chorus are invited. For further information write

Lt. Col. Leonard B. Starling
Keesler Male Chorus
Box K-156, Keesler Station
Keesler AFB, Miss. 39534

10th Photo Recon Group

There will be a reunion of the 10th Photo Recon Group, WW II, and all units and detachments that were ever a part thereof, on June 19–20, 1976, at the Marriott Hotel, New Orleans, La. Contact

Newton E. Jarrad
8080 S. Main
Houston, Tex. 77025

18th Fighter-Interceptor Sqdn.

All 18th FIS "Blue Foxes" interested in attending a reunion in 1976 please con- tact, as soon as possible

John F. Fuller
1023 W. Harnett St.
Mascoutah, Ill. 62258
Phone: (618) 566-7578

19th Bomb Group Ass'n

The 19th Bombardment Group Associa- tion, WW II and Korea, will hold its Grand Reunion at Table Rock Lake and Springfield, Mo., June 14–19, 1976. Crew members of the 19th who flew the first and last bombing missions in the South- west Pacific and Korea will be present. Former 19ers not presently enrolled please contact

Dean Anholt, Pres.
19th BG Ass'n
Box 3706 GS
Springfield, Mo. 65804

20th Air Force Association

The 20th Air Force Association has an- nounced plans for three special tours in 1976. All vets and their families are eligible to participate at greatly reduced fares. In mid-March the group will depart

Airmail

New York for a 23-day Safari and To of Africa and Brazil. In early June, for tl seventh consecutive year, the vets w depart from the West Coast for tl Mariana Islands—Guam, Saipan, ar Tinian—and Hong Kong, with stops Manila, Tokyo, and Hawaii. A later grou leaving in August will also visit tl Marianas and Hong Kong with return v Bali, the Fiji Islands, Samoa, and Tahit Details from

20th Air Force Associatio
Box 5534
Washington, D. C. 20016

27th Fighter Squadron
P-38 pilots of the 27th Fighter Squadron, 1st Fighter Group, 15th Air Force, WW II, Italy. A reunion is being held February 26–29 in San Diego, Calif. Also invited are members of the 71st and 94th Fighter Squadrons of the 1st Fighter Group. All officers and enlisted men please write for details.

W. H. Caughlin
3435 Hartzel Dr.
Spring Valley, Calif. 92077
Phone: (714) 469-7772

40th Mobile Communications
A reunion is being planned for former members of the 40th Mobile Communications Squadron, which served in England and on the Continent during WW II. Also trying to pull together a unit history. Please get in touch with

Irvin J. Kirch
34 Hoss Rd.
Indianapolis, Ind. 46217

Class 42-K
Members of Class 42-K will hold a reunion April 29–May 2, 1976, at Reston, Va. Please contact

Col. Art Salkin
905 16th St., N. W.
Washington, D. C. 20006
Phone: (202) 638-5023

Duxford 78th Fighter Group Ass'n
The 78th Fighter Group, group attached units, and 66th Fighter Wing Headquarters units based at Duxford and Sawston, Cambridge, England, during 1942–45, holds regular reunions, has a unit association, and a unit history is being written. Contact

Duxford 78th FG Ass'n
Garry L. Fry, Sec'y
174 Pauline Dr.
Elgin, Ill. 60120

452d Bombardment Group
Plans are under way for a 1976 reunion of the 452d Bombardment Group (H), England, WW II. Contact

Rom Blaylock
2103 Center Ave.
New Bern, N. C. 28560

Instant AF global communications — with help from Collins.

The Air Force Satellite Communications System (AFSATCOM) is designed to provide highly reliable global communications for multiple ground and airborne subscribers. The system consists of repeater satellites and earth terminals operating in the 225 to 400 MHz military UHF band.

Collins Radio Group, Rockwell International, is under contract with the Air Force to design and develop various types of terminals for AFSATCOM — both ground and airborne — from single channel to complex command post configurations.

Many new state-of-the-art products have been developed by Collins for use in the AFSATCOM terminals. Among them is the Air Force Growth Radio Set AN/ARC-171(V), a family of modular transceivers designed to provide a versatile selection of UHF radios at reduced costs.

Collins SATCOM systems cover the entire spectrum from 225 MHz through K-Band. Our credentials have been validated in programs including aircraft, ship, mobile packset and earth station terminals.

For further information on our many capabilities, call or write: Government Telecommunications Marketing, Collins Radio Group, Rockwell International, Cedar Rapids, Iowa 52406. Telephone: 319/395-2334.

Rockwell International

Airpower in the News

By Claude Witze
SENIOR EDITOR

The High Cost of Saving Money

Washington, D. C., December 1

The end of the year is approaching, and the usual budget uncertainties are with us again, this time more knotty and abstruse than ever. We know now, as we did not when he was dismissed so abruptly a month ago, that James R. Schlesinger believes the Fiscal 1977 budget proposals were "an important issue" in his row with the White House. The former Defense Secretary told the Associated Press the real question "is not whether we will have tributes to the concept of America's strength, but whether we are going to avoid cutting military strength and defense purchasing power further by additional budget cuts."

Only a couple of days ago, passing through Eielson AFB in Alaska, President Ford gave assurance that his Administration, "while striving to preserve world peace, remains aware that the best insurance for peace is US military power second to none." The Commander in Chief has said this before. There is no reason to believe Dr. Schlesinger hears it as anything but a tribute to a concept, the sort of "rhetoric and sentiment" on which the military establishment cannot exist.

Taking matters in the proper order, the defense appropriation for Fiscal 1976 goes to conference this week, where the Senate and House must work out 213 differences. The Senate passed its version on November 18, making it the next order of business that day after confirming the appointment of Donald H. Rumsfeld as Dr. Schlesinger's successor. The Senate voted, 87 to 7, to appropriate $90.7 billion, which is $7.1 billion less than the White House requested. The bill also included an additional $21.9 billion for the period of July to September 1976. This is to cover the transition to next October 1, now fixed by Congress as the start of the federal fiscal year, instead of July 1.

One of the 213 issues to be settled concerns USAF's B-1 bomber, which faces a crucial decision next year on whether it will be produced. The House voted $87 million for purchasing advance production parts. The Senate turned it down. Under the RDT&E category, the Senate voted $726.2 million. This is $73.8 million less than the House allowed. The figures cover the fifteen months up to next October 1.

There was an effort by Sen. Thomas Eagleton to impose an across-the-board cut in defense of $502 million. It lost, 38 to 55. There was an amendment adopted that will lead to a termination of federal support for military commissaries in five years.

With final disposition of the Fiscal 1976 budget in limbo, attention in early December is being fixed on the Fiscal 1977 money problem. Specifically, Congress and the executive departments now finally have to face up to the role of the new Budget Committees and their administrative organization, the Congressional Budget Office. The past year has provided nothing more than a dress rehearsal, because the law provided for the new procedure to acquire real billing on the marquee next month. There is a current exercise for Fiscal 1976, in which the House and Senate Budget Committees again disagreed and have gone to conference. As passed by the Senate Committee, the bill, called the second concurrent resolution on the budget, set levels of $406.2 billion for budget authority and $623.2 billion for the public debt. So far as defense is concerned, the Senate voted a ceiling of $101.5 billion, up $525 million from what the House allowed. There are many other differences to be resolved.

Under the new budget procedure, the Armed Services Committees of both houses must submit a recommendation on budget authority and outlays to the Budget Committees no later than March 15. It is a step that was glossed over a year ago because Armed Services has worked in a pattern that called for action after submission of the budget, usually late in January. This year, Chairman Melvin Price of the House Armed Services Committee is entering the ring early. He will start hearings in a couple of days, and they will not be confined to the areas of procurement, research and development, and strength levels as in the past. The law says funding for those expenses must be authorized before they are appropriated, leaving a vast area of Pentagon costs where the congressional decisions are made by the Appropriations Committees. It may turn out, and some Capitol Hill observers are already convinced this will happen, that authorization will be required for the entire budget.

Chairman Price has not been specific about this, but the thought appears between the lines, as in a memo he sent recently to the Committee Democratic Caucus:

"The [Armed Services] committee has not expressed a position regarding the defense program as a whole. We are thus in the unique position of being the only committee fully responsible legislatively for the entire defense program and yet not having expressed an overall position on the defense program except as such could be inferred from the various individual program and strength-level authorizations.

"It is my feeling that if the committee is going to carry out its responsibilities to the House, it must be diligent in its review of the entire defense program even though specific authorization of some parts of that defense budget are not required."

Then he got to the nitty-gritty:

"Therefore, in our hearings this year, I think we must give additional attention to broad defense policy and mission areas and particularly to the long-range implication of policy. The report to the Budget Committee

Figures to Paste in Your Hat

It was Sen. John L. McClellan, hairman of the Appropriations ommittee, who again put the facts bout costs in the *Congressional ecord,* as he did a year ago.

In one year the price of bread ent up sixty-six percent. The price f sliced bacon went up 186.6 per- ent. The price of milk went up 60.4 ercent.

Since 1966, the cost of running he federal government has gone rom $134.7 billion to $374.3 billion. Of that total increase—$239.6 bil- lion—only 15.1 percent is attribut- able to national defense. The re- maining 84.9 percent is being spent for nonmilitary functions and ser- vices. Also since 1966, federal spending for nondefense programs has increased from 58.5 percent of the budget to 75.4 percent. The McClellan figures show that, in the past ten years, defense costs rose sixty-five percent. Other government expenses went up 258 percent.

Aside from the fact that soldiers, sailors, and airmen eat bread, bacon, and milk, the price of their tools also is a factor, and Mr. McClellan did not deny it. In the past couple of years, he told the Senate, the cost of a Huey helicop- ter has risen fifty-two percent, an M-60 tank, sixty-nine percent; an M-113 armored personnel carrier, sixty percent; a 105-mm smoke cartridge, forty-six percent; and a tractor, sixty-seven percent.

Further figures for your hat:

In the past ten years, federal aid to education, manpower, and social services jumped 380 percent—from $4.1 to $19.6 billion.

Income security programs in- creased 343 percent—from $28.9 to $128.1 billion.

Health services, including medi- care and medicaid, increased by nearly 1,200 percent—from $2.6 to $34 billion.

Interest on the national debt in- creased by 221 percent—from $11.3 to $36.2 billion.

The Appropriations chairman, the Senate expert on these outlays, pointed out that since he has filled the job, starting with the Fiscal 1973 budget, Congress has denied $18 billion requested by the Administra- tion. Of this, $13.7 billion, or 76.3 percent, was slashed from the de- fense program, and only $4.3 billion, or 23.7 percent, from requests for other agencies and departments.

Said Mr. McClellan:

"This trend toward dispropor- tionate cuts in defense spending cannot be continued without seri- ously impairing our military readi- ness. The temptation to force only one segment of the national budget to bear the whole burden of re- ordered priorities and reduced spending should be borne equitably by all departments and agencies of government—and not virtually all of it imposed on DoD alone." ■

[due March 15] will provide a vehicle for a meaningful statement on the total national defense needs."

The hearings Mr. Price starts this week will feature experts from the expert level, rather than big names from the secretariat and military hierarchy. The Armed Services Committee will broaden its interest, going into the entire defense function budget, the alternatives, the five-year projections, the planning and programming budget system, the threat assessment, national security objectives, foreign military sales, the force structure, our capabilities and deficiencies, weapon systems and spending for strategic defense, and the outlook for the SALT negotiations.

It is anticipated that the Senate Armed Services Committee soon will launch a similar effort.

A close examination of recent debates in Congress discloses apprehension on the part of established committee chairmen over the zeal of the new Budget Committees. Control over policy objectives is jealously guarded, and it was not understood that the Budget Committees would romp in these corrals. Chairman John L. McClellan of the Senate Appropriations Committee has grilled Sen. Edmund Muskie, Chairman of the Budget Committee, on the floor. Mr. McClellan made it clear, in a debate on November 20, that Mr. Muskie must recognize the jurisdiction of the Appropriations Committee to review and act on Administration requests.

Another telling piece of evidence appears in an attack on the Congressional Budget Office by Sens. James L. Buckley and James A. McClure, both minority members of the Budget Committee. Their view used strong language:

"Much of the success of the budget process will depend on the integrity of the Congressional Budget Office. The CBO was conceived as a service organization, designed to support the work of the Congress in much the same manner as the General Accounting Office.

"If the CBO is to function effectively in a support role, it must avoid the temptation to pursue a life and a mission of its own apart from that established for it in the act.

"To date, the CBO has been unable to perform its designated role. It has been criticized both in the Congress and in the press for its alleged bias in staffing and reporting and more importantly for its apparent determination to become a policymaking and evaluating body. This criticism of CBO has been extended to the entire budget process and has resulted in a real loss of credibility."

Nowhere was that loss of credibility better illustrated than on the floor of the House when it came to consider a Fiscal 1976 budget request from CBO Director Alice M. Rivlin for more than $10 million to run her office. The Appropriations Committee cut this to less than $6 million, much to the delight of Rep. Robert E. Bauman of Maryland. Ms. Rivlin, he pointed out, gets a salary of $40,000 a year and has a staff of 165 employees running up a total payroll of about $3.5 million a year. According to the *Congressional Record,* she wants to hire a total of about 260 persons. Mr. Bauman says Ms. Rivlin "thinks of her empire as a legislative branch equivalent of the Office of Management and Budget, the GAO, as well as an institute for policy studies and recommendations."

It must not be forgotten that on top of the CBO, Congress has the two new Budget Committees. According to the *Congressional Staff Directory,* Mr. Muskie now has a staff of forty-four persons. His House counterpart, Brock Adams, outpaces this with sixty-two. Added to the Rivlin conclave, this makes at least 300

Airpower in the News

added to the payroll in the past year to help Congress save money. Both the House and Senate, of course, are growing desperate for more office space. Some members of the House and Senate have joined the national lamentation over the mushroom growth of government agencies.

Among all its other problems, Congress this week faces the financial plight of New York City. Well, according to today's New York *Times*, some of the city's money is being spent on the rehabilitation of Yankee Stadium, in the Bronx.

According to the *Times*, which expends more money and expertise covering sports news than it does cover ing national security news, the contract to rehabilitat the famous baseball park, signed in 1972, was expecte to cost about $24 million. It now stands at $75 millio the newspaper says indirect costs—for such thing as parking facilities, interest, and tax exemptions—ma add $150 million to the bill.

In more than three columns of newstype on th financial outrage, the *Times* at no point refers to t plea for federal help to the city nor to the cost increa as an overrun. There is no lamentation about po management or a waste of the taxpayer's dollars.

Editorially, the *Times* cannot understand why a co gressman from East Overshoe, somewhere west of t Adirondacks, looks with a cool eye on its argument f federal assistance. After all, he must finance the CB and Budget Committees and, it is possible, he ma give defense a higher priority than a sports arena i the Bronx.

The Wayward Press

Charles B. Seib is a veteran Washington newspaperman, long on the staff of the Washington Star, *now employed as ombudsman and internal critic of the Washington* Post. *In his job, he says, he tries to see the press through the eyes of the consumer—the reader. He talks to them and follows through on their complaints.*

In a recent issue of the Post, *Mr. Seib related some of the things he has learned in the process. The following is reprinted here with permission of the Washington Post Co.:*

The public is far more perceptive in its newspaper reading than many editors realize. Readers are quick to detect flaws in news handling—an out-of-context use of a quotation, a headline that sensationalizes a story or misrepresents its content, a decision on display or placement that overemphasizes a story or buries it.

Unfortunately, they are likely to assign the wrong reason to such aberrations. Often a reporter's carelessness or an editor's mistake in judgment is seen by the reader as evidence of a policy decision handed down from the top.

There are two main reasons for this. One is a traditional reluctance of newspapers to be open with readers about themselves and to admit error—or even the possibility of error. Infallibility is an institutional pose.

The news business is fascinating and complex but not infallible. Producing a totally new product every twenty-four hours has been called the daily miracle, with reason. If the public were told more about the process, it might be less inclined to accept every quirk and stumble as evidence of a conspiracy to distort the news.

The second reason for a tendency to think the worst is a pervasive distrust of the press which must be evident to every journalist who has extensive dealings with the public.

Many readers feel that the media generally, newspapers and broadcasters alike, are on a destructive rampage. They feel that the zeal that exposed Watergate is being directed toward all public institutions (except the press), and they find it frightening.

They feel further, that in concentrating on official misbehavior, much of it long past, the press is subordinating more pressing and immediate matters: the economic bind many people find themselves in, the real problem with the quality of life in today's world. And they feel that the press is imposing on them a burden of woe beyond reason.

Newspaper people react with professional indignation to the question, "Why don't you print more good news?" They say, rightly, "Our job is to present the world as it is, warts and all." But they should give some thought to the reader behind the question and the very real danger that more and more readers—and television viewers, too—will turn away from a lugubrious news diet that doesn't really interest them or concern them.

Which brings me to what I have learned about newspaper people in the past year.

Although attitudes are slowly changing, they are still resistant to responding openly and swiftly to charges of unfairness or inaccuracy.

The front page error followed by the tiny correction tucked away inside the paper is still very much with us. And the leisurely, even foot-dragging, handling of complaints contrasts strikingly with the enthusiasm with which a tip on a juicy story is explored.

Recently it took me over a month to get the editors I work with to make a decision on how to handle what I considered to be a serious complaint. It is true that they were coping with a particularly troublesome strike at the time, but even so the priority given this major complaint was much too low.

I also have come to conclude that newspeople are not sufficiently worried about the public mistrust I mentioned earlier.

Standard journalistic response is to say that distrust and even hatred are the fate of the messenger who must deliver bad news. But there is more to it than that.

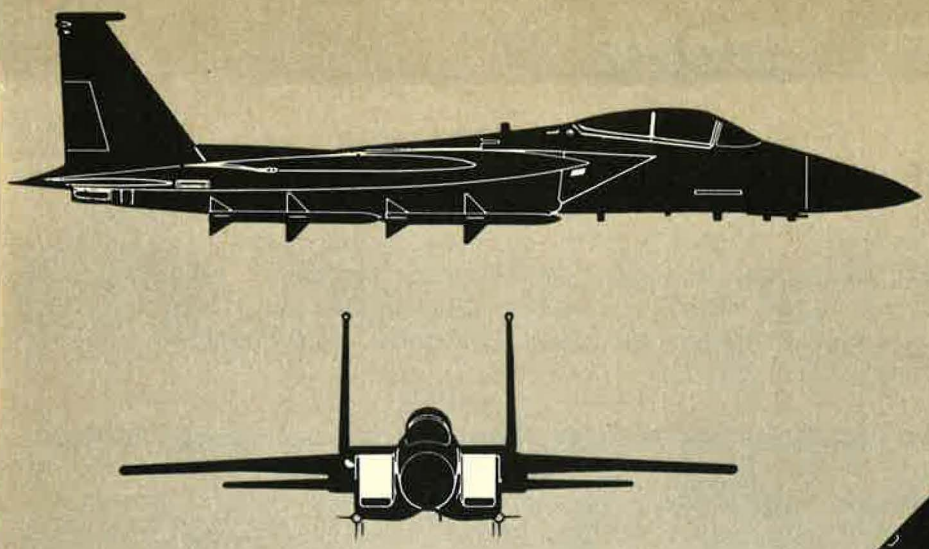
The press does not need to be loved, nor should it expect to be. As a messenger, it indeed must deliver a great deal of bad news.

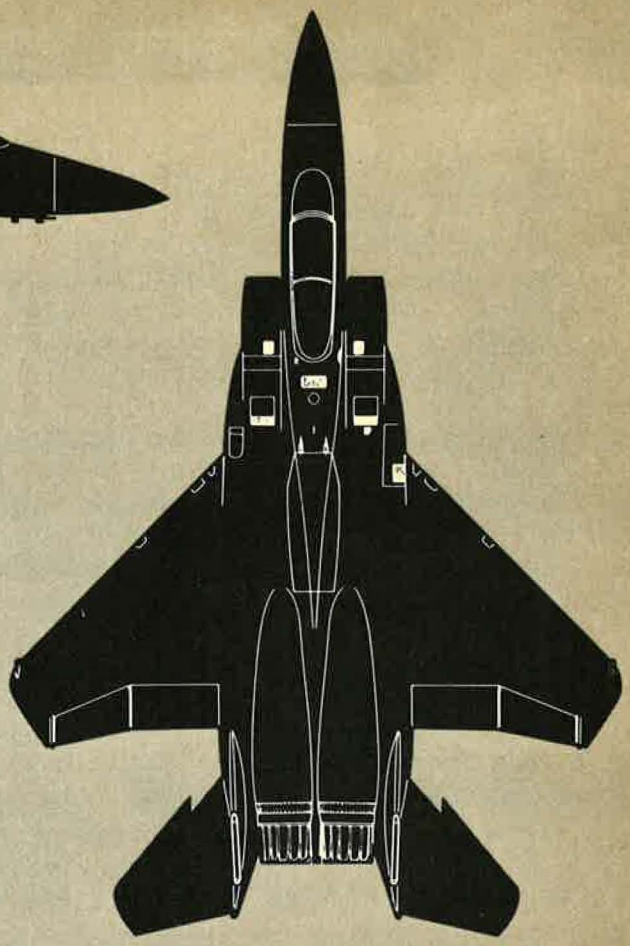
But trust is another matter. It is essential if the press is to fulfill its role in this society.

There is concern these days among journalists about threats to press freedom. But there is not a broad enough recognition that public mistrust, allowed to grow and fester, creates a climate favorable to such threats.

An atmosphere of public distrust encourages police officials to attempt to conceal arrest records, judges to issue gag orders, bureaucrats to withhold information, and Congress to consider restrictive legislation.

One way to reduce this distrust is for the press to examine some of its present practices and to be more responsive to its public and more open about its operations and its failings. If public scrutiny is healthy to the other institutions of society, it should be healthy for the press itself. And that brings me full circle to the reason for my job and for this column.





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NORTHROP

SCIENCE/SCOPE

The ability to pinpoint the location of a hostile mortar launcher, often before the first round fired hits the ground, has been demonstrated by the U.S. Army's new MLR (mortar locating radar). In preliminary qualification tests, the Hughes-built radar exceeded requirements for accuracy in locating mortars, tube-launched rockets, and multiple weapons fired simultaneously. Developed under the Army's "Design to Unit Production Cost" program, MLR is a low-cost, lightweight system for rapid deployment on frontline terrain.

The first Maverick missile test-launched with an imaging infrared seeker guided itself to a direct hit on a tank. The new IIR seeker gives the U.S. Air Force air-to-ground Maverick a day-night capability. Developed by Hughes under a joint Air Force/Navy program, it is compatible with several other missiles and glide bombs. Hughes is also integrating a laser seeker to Maverick, which homes on a laser beam reflected off a target by a forward air observer or ground "spotter".

Main sensor aboard America's new weather-watching satellite, the GOES-A (Geostationary Operational Environmental Satellite-A), is the VISSR (visible/infrared spin-scan radiometer). VISSR's high-resolution photos, transmitted to earth stations every 30 minutes, enable meteorologists to observe the growth and movement of weather patterns that may lead to hurricanes. VISSR was built by Hughes' Santa Barbara Research Center for NASA's Goddard Space Flight Center. GOES-A is the first unit of an international network of satellites for a multinational atmospheric research program to improve the accuracy of worldwide weather prediction.

The U.S.S. Spruance, first of a new class of ASW destroyers, has been commissioned by the U.S. Navy. Nine additional destroyers await commissioning and 20 more are under construction. The Spruance carries nine Hughes-built AN/UYA-4 data display consoles and is the first to have sonar linked directly to digital computers. Spruance-class destroyers can also bombard shore installations, support amphibious assaults, and perform surveillance and tracking of hostile surface craft.

While scuba divers from Jacques Cousteau's Calypso measured ocean floor reflectivity and water transparency in a recent experiment in the Central Bahamas, the multispectral scanner aboard NASA's Landsat 2 satellite measured water depths at the test site. The two sets of data -- later compared and analyzed -- could be of significant aid to maritime traffic and marine science. Communications for the experiment were relayed via NASA's Goddard Space Flight Center ATS-3 satellite, which has been in service since 1967. Both the ATS-3 and the Landsat multispectral scanner were built for NASA by Hughes.

Field testing of the lightweight laser designator (LWLD) built by Hughes for the U.S. Army Electronics Command, will begin March 1 at Fort Benning, GA. The six-month program will test the 13-lb. AN/PAQ-1 device under actual operating conditions with a variety of laser seekers and laser spot trackers. Laboratory and compatibility tests will be made at the U.S. Army Proving Grounds, Yuma, AZ. LWLD is designed for use by ground troops in designating targets for laser homing missiles or projectiles, or for laser spot trackers in conventional armament delivery systems. A dozen engineering development LWLDs have been delivered to the Army.

these farewell remarks, delivered at a Pentagon remony on November 10, 1975, former Secretary of fense James R. Schlesinger addresed the need to redefine relationship among foreign policy, defense posture, and public support . . .

The Military and National Purpose

Y JAMES R. SCHLESINGER
ORMER SECRETARY OF DEFENSE

Secretary Schlesinger at Pentagon ceremonies November 10.

The time has come to say farewell.

In so doing I should like to return to those larger issues of national purpose, raised in my remarks at the welcome ceremony some twenty-eight months ago. I do this for several reasons. First, the vitality of the nation's military establishment, its perception of itself, its precision of mission, flow from a sense of purpose deriving from that larger national unity and spirit. Second, in our Western democracies we face a testing time. Around the world the number of states with a vibrant faith in the values of freedom continues to fall. Among the remainder there has in recent years been an evident malaise. Vision and confidence have diminished; a vacuum of the spirit has appeared. It has become a grave question whether national unity, combined with freedom, still elicits a response sufficient that, in Lincoln's phrase, nations "so conceived and so dedicated can long endure."

Necessary in no small measure to the restoration of that larger vision is a revitalized sense of history—for it is that sense of history that defines us as a nation, that defines the values that we represent, and also underscores the differences between these values and the customs and values prevailing in other societies. That perception conveys to our citizens why it is that we seek to defend this particular national entity.

In a period of cultural relativism, observers comment on the problems common to all societies. Each, it is also said, has its distinctive advantages and weaknesses. Everything seems complex and gray. International trends may therefore appear to be of lesser significance. The critical distinction between totalitarian and free states becomes blurred.

We need again to sharpen our sense of values. Perhaps in this Bicentennial Year we shall rekindle an historical feel for that which defines this nation—ultimately recreating that sense of national purpose and national destiny that inspires unity.

Today, along with some serious thought, there is a widespread picking at our national institutions: government, industry, unions . . . the armed forces. A national mood of skepticism has gone too far. While a judicious skepticism indeed is always necessary, a mood of undiluted skepticism forces concentration on the inconsequential and ignores the permanent and valuable. Institutions are indispensable; they organize men for common purposes. Without them we would have unproductive conflict and no pooling of effort.

This larger social vision bears on the health of the nation's armed forces. No institution, no more than any nation or man, can live by bread alone. Unless we articulately redefine our values, identifying those we are prepared to fight for, the health of the nation's military forces will ultimately suffer.

The Department of Defense is sustained by the general health of the society, but it, in return, contributes in many ways to sustaining that social health. I cite but one. In the political and constitutional difficulties of recent years, the nation's military establishment served as a pillar of stability. All were impressed and reassured by its steady performance, and from it the nation drew confidence in troubled times.

But will the Department's ability to perform its mission display equal stability? In part, its continued strength will require a redefinition of the overall relationship among foreign policy, defense posture, and public support. Changes have occurred. From Pearl Harbor, reinforced by the Korean War, until the middle of the Vietnam War, there was only limited public debate regarding our foreign policy. Perhaps there was too little. Nonetheless, support for the defense establishment derived from that consensus regarding foreign policy—and from the established premise that politics should stop at the water's edge.

Plainly there is no emotional or political base for that attitude today. The broadest elements of foreign policy will inevitably—and properly—be debated. The rise of the third world, the dispersion of power, the breakdown of political bipolarity imply complexities that make unanimity about foreign policy unattainable. Since politics can no longer be counted on to stop at the water's edge, a major element of support for the nation's military establishment, derivative from the older attitude, has ceased.

For it we must substitute a broader understanding of the role of our military establishment—abstracted from most foreign policy alternatives. Without that understanding, our own military strength will continue to dwindle, perhaps absolutely, but certainly in relation to that of the Soviet Union. Irrespective of foreign policy debates and foreign policy alternatives, this nation's military establishment plays a critical role. Whether we are successful in pursuing détente or we hedge against the possible failure of détente, a military balance remains necessary. Debate regarding specific foreign policy actions or proposals will and should continue. But unless we are prepared to withdraw into the North American continent, the contribution of the United States to the worldwide military balance remains indispensable to all other foreign policies.

We must establish public understanding and public support on that basis. We must make this Department immune to partisan attack. To earn support, we must keep our defense establishment stable and reliable, characterized by high morale and a high ethical sense.

The nation's military structure represents the shield of the republic and the underpinning of our foreign policy. It represents the security of all our people. It is not an issue of left or right or center; the nation's military establishment must protect all and should seek support from all quarters. We must be the captive of no political group. On the Hill we seek the understanding of moderates and liberals and conservatives, Democrats or Republicans, freshmen or seniors.

We must correct this misleading impression reflected in headlines, "The Pentagon demands," which suggests that the Pentagon somehow is an organism detached from the rest of the United States or from the American public. We must convey that the military establishment is the shield of all and warrants the support of all. It is not an institution demanding something for its own purposes separate from the national purpose. We must seek support not on the basis of what it will do for the Pentagon but what it will do for this nation.

The adverse trend in military power, in the production of military hardware, military manpower, military expenditures has repeatedly been underscored. It is not a matter of theory; it is a matter of simple arithmetic. A continuation of this trend will inevitably bring a drastic and unwelcome alteration to the preferred way of life in the United States and among our allies.

Though we should pursue détente—vigorously—we should pursue it without illusion. Détente rests upon an underlying equilibrium of force, the maintenance of a military balance. Only the United States can serve as a counterweight to the power of the Soviet Union. There will be no *deus ex machina*; there is no one else waiting in the wings.

A democratic electorate has the right, every right, to allow the military balance to deteriorate. It is a decision that can be made unconsciously though by right it should be made consciously. Given the character of the modern world, that decision would be a mistake, which in the nature of things the American democracy would be denied the opportunity to repeat.

In the 1930s, there was a similar disinclination to face up to reality—etched in Churchill's volume, *While England Slept*. Let not such lethargy and, this time, irreversible developments be captured in a future volume "While America Was Self-Absorbed."

The problem faced by our democracies was put most eloquently by de Tocqueville more than a century ago:

> ". . . it is especially in the conduct of their foreign relations that democracies appear to me decidedly inferior to other governments . . .
>
> ". . . a democracy can only with great difficulty regulate the details of an important undertaking, persevere in a fixed design, and work out its execution in spite of serious obstacles. It cannot combine its measures with secrecy or await their consequences with patience."

I have referred to this as de Tocqueville's challenge. Let us be sure it is not an epitaph.

America today remains the most resilient nation in the world. Its sources of strength are deep-seated. I acknowledge her defects, which but reflect the common limitations of mankind. But I continue to see the generosity, the dedication, and the glory.

Our destiny, forged in the aftermath of World War II, lies before us—beckoning, demanding. There can be no question regarding our ultimate moral and political responsibility. The only question that remains is whether we acquit ourselves well or ill. The ultimate answer, I hope, is foreordained. Therefore, let no one here or abroad believe that this great nation will fail in its historic destiny as the principal guardian of freedom.

Good luck and God speed! ■

On November 20, 1975, Donald H. Rumsfeld was sworn in as the nation's thirteenth Secretary of Defense. In his acceptance address, he discussed the essentials of public trust and the role of . . .

US Defense in an Era of Détente

BY DONALD H. RUMSFELD
SECRETARY OF DEFENSE

Secretary Rumsfeld with President Ford at swearing-in ceremonies.

These are times of stress for nations devoted to the principles of self-government: constitutional procedures, the secret ballot, the right to a fair trial, and the rights of free speech, a free press, and the free practice of religion.

These are times when the principles that characterize political decency are threatened and when democratic leadership everywhere is challenged. Once again we are living the lesson that it is not easy for free people to govern themselves.

It is essential, in fact critical for the survival of political liberty, that we teach ourselves—for there are no other teachers—how to govern and defend ourselves in our new and changing circumstances.

No one knows the answers to all of the problems of the survival of free government, but there are some guideposts.

One essential ingredient of self-government is trust, and it works in two directions. Each public official in America has his power from the people, and from no other source. That power is entrusted under specified terms, as the people determine, to be used only for the good of the people. This is what is meant when it is said that trust is the foundation of self-government—and trust must be earned.

Certainly officials must use their own judgment, often, but ultimately, the people must judge, and it is up to them whether policies and programs stand or fall.

On this base of public trust rest our prospects for success. Our national cohesion and purpose are the source of our leadership in the world—with friends, allies, uncommitted nations, and potential adversaries. The dangers of misperception are obvious and grave.

Consider, for example, that widely misunderstood word, détente. To some détente means that peace is close to hand and that we can cease our efforts to be strong and vigilant. Others suspect it means giving advantages to potential adversaries without gaining corresponding benefits. To some of our allies détente is a sign of hope, to others a sign of danger.

This borrowed word—détente—means, literally, relaxation of tension. No one seeks to relax tension that does not exist. Détente must be seen for what it is—a word for the approach we use in relations with nations who are not our friends, who do not share our principles, whom we are not sure we can trust, and who have military power and have shown an inclination to use it to the detriment of freedom.

With such nations, with vigilance and due caution, with our eyes open, we test to see if there are ways to reduce confrontations, to lessen dangers, to put affairs on a somewhat less precarious footing, to see if there might not be some interests that we share—never forgetting that in many basic things we are fundamentally opposed. On this there should be no doubt.

Finally, I would make four points:

First, the safety of the American people and the hopes for freedom throughout the world demand a defense capability for the United States of America second to none. I am totally dedicated to that mission.

Second, we are rightly proud of the armed forces, older than our nation itself, and I will seek to strengthen that sense of pride among us all. We were born as a nation out of military struggle. We owe our national life to men and women who had the will to fight for independence. The competence and dedication of their successors in today's armed forces will be drawn upon fully.

Third, that special kind of American military professionalism that is devoted to the constitutional principle of civilian control, so fundamental to political freedom in this country—is a model for the world. One who has served in the Congress knows how indispensable it is that the defense of our country be a bipartisan and shared responsibility.

Finally, let there be no doubt among us, or in the world at large, that the continuity of American policy can be relied upon by friend and foe alike. Our defense policies are geared to the interests of this nation.

Mr. President, members of the Department of Defense, I look forward to working with you. America must pursue its goal, as it has throughout almost 200 years, as a guardian of liberty and a symbol by example and deed in the service of freedom. ■

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News, Views & Comments

By William P. Schlitz
ASSISTANT MANAGING EDITOR

Washington, D. C., Dec. 4

An important new element of the Military Airlift Command—the USAF Airlift Center—has gone operational at Pope AFB, N. C.

Establishment of the Center is in line with the consolidation of all strategic and tactical airlift under MAC's aegis late in 1974.

According to officials, "The Center is designed to provide the Air Force with centralized expertise in the areas of doctrine, concepts, tactics, employment, operational testing and evaluation of weapon systems, subsystems, and equipment, and technical studies" pertaining to airlift.

The Center is organized into three operational elements:

- The Test and Evaluation Division will manage and conduct operational tests and evaluations of new and improved equipment, and help assess hardware currently under study.
- The Studies and Applications Division will manage and conduct tactical developments and technical/analytical studies. This unit will act as focal point for joint programs within DoD, and for the improvement of basic doctrine, concepts, tactics, requirements, and procedures.
- The Logistics Division will oversee all Center logistics matters including systems reliability and maintainability, recommend product improvements, and monitor equipment modifications.

The Center was located at Pope because of the base's proximity to an Army airborne division—a primary user of tactical airlift—and to Dover and Charleston AFBs, both strategic airlift home bases.

The Center will also act as a clearing house among US Army, AFSC, the Air Force Test and Evaluation Center, TAC, and MAC to make airlift and associated activities more efficient and effective.

☆

First, entrance into the Air Force Academy (*see December '75 issue, p. 25*). Now, USAF has announced plans for a "limited" test program to train women as noncombat pilots.

Capt. Micki King, Olympic gold medalist and Air Force Academy diving coach, keeps score during physical aptitude test being taken by 2d Lt. Shirley Popper, a munitions maintenance officer at Homestead AFB, Fla. Lieutenant Popper is one of twenty-two Air Force women officers who have applied to be air training officers for women cadets soon to enter the Air Academy.

While details of the test program have still to be worked out, the first increment of women could begin training as soon as this coming summer or fall, with student pilots chosen initially from female officers already on active duty.

Currently under study are curriculum changes necessary to accommodate women trainees, as well as USAF's future requirement for noncombat pilots.

Female applicants for flight training will meet the same mental, physical, and medical criteria as males, USAF said, adding that details about the test program will be made public once approved by appropriate Air Force agencies. It is understood that Air Force planners are also considering prospects for women as navigators and as members of missile crews.

☆

In mid-November, General Dynamics chose Westinghouse Electronics, Baltimore, Md., to build the radar system for USAF's new F-16 Air Combat Fighter.

The $36 million contract involves full-scale development, with a production option by General Dynamics for follow-on radar systems.

The F-16 radar system, to be operated by the plane's one-man crew, will consist of a series of modular components weighing a total of about 260 pounds (118 kg), with key features of high reliability and easy maintenance.

According to USAF, the F-16 radar will provide air-to-air and air-to-surface combat capability. The former will include an all-weather search-and-track capability, a "look-down" mode, and an air-combat mode. The air-to-surface capability includes capacity for "blind" or bad weather, and "visual" target designation for weapons delivery and navigation, USAF said.

In edging out Hughes Aircraft Co. to produce the ACF's radar, Westinghouse has picked a plum. USAF estimates an initial requirement for 650 F-16s, plus 348 to be purchased by Belgium, Denmark, the Netherlands, and Norway.

In a related matter, both the Air Force and Pratt & Whitney (builder of the plane's engines) have established agencies in Brussels to help manage the production of F-16 components in Europe, under the cooperative agreement for purchase of the F-16. Personnel from the four European countries have already begun work at the F-16 office at Wright-Patterson AFB, Ohio.

Expected later will be test pilots of the participating nations, to join the test force at Edwards AFB, Calif.

☆

In December, the Civil Air Patrol celebrated the thirty-fourth anniversary of its founding.

CAP, organized by private pilots and lightplane enthusiasts, won high honors during World War II for an extensive program that included submarine patrol and courier service.

In current times, CAP conducts

eighty percent of all USAF-authorized air search and rescue flight hours in the US and has chalked up an outstanding record in lives saved, ranging from stranded hunters to downed pilots. CAP is also involved nationally in disaster relief activities and aerospace education *(see also item in "Bulletin Board").*

☆

The first USAF Airborne Warning and Control System (AWACS) aircraft equipped with a full complement of avionics for surveillance and the command and control mission made its first test flight on October 31, four weeks ahead of schedule.

The aircraft—a modified Boeing 707-320—is one of three planned development, test, and evaluation airframes: One is already undergoing flight testing without avionics; a third will begin flight tests in 1976.

In the October flight, the joint Boeing/USAF crew of the E-3A (Air Force designation) reflected the widespread interest in a major system acquisition. Included were representatives of TAC, ADCOM, Air Force Test and Evaluation Center, and AFSC's Electronic Systems Div.

The current test-flight phase is in preparation for formal qualification set for 1976.

☆

McDonnell Douglas Co. has been given the go-ahead to test a new type engine aboard the YC-15 prototype Advanced Medium Short Takeoff and Landing Transport (AMST), the first of which itself is in the midst of a flight-test program.

The engine is a unique CFM-56 high bypass turbofan developed jointly by GE's Aircraft Engine Group and SNECMA of France, and initially caught up in international controversy involving the "export" of a high-technology item. The CFM-56 is described as representative "of the higher-thrust, higher-performance new commercial engines offering fuel economy and increased efficiency." It is in the 22,000-pound (9,975 kg) thrust class.

(The CFM-56 is a scaled-down version of the B-1 bomber's powerplant that may prove commercially promising because of its medium size. There is something of a vacuum between so-called "big" and "little" engines. According to former Air Force Secretary John L. McLucas, the CFM-56 is also a candidate to power the future NATO AWACS aircraft.)

The McDonnell Douglas AMST prototype—a second is building—is currently powered by four Pratt & Whitney JT8D-17 fanjets, of 16,000 pounds (7,255 kg) of thrust each, and a single CFM-56 will replace one of them at a YC-15 engine station. Test of the CFM-56, to run about two months, will begin early in 1977.

Purpose of the test is to "validate physical compatibility of the higher-thrust engine with the aircraft, and explore controllability, loadings imposed on other subsystems, temperatures on flaps," and other flight characteristics, officials said.

☆

In mid-November, the Soviets successfully guided an unmanned

CAP Cadet Col. Michael R. Foster receives "Outstanding Civil Air Patrol Cadet of the Year" trophy at the recent CAP convention in St. Louis. Presenting the AFA award on behalf of National President George M. Douglas is CAP AFA adviser Kenneth Rowe of Richmond, Va. Cadet Foster is a twenty-one-year-old junior at the Colorado School of Mines, Golden, Colo., and current Chairman of the National Cadet Advisory Council. CAP's thirty-fourth birthday was in December.

The first fully equipped E-3A AWACS aircraft takes off on its maiden flight at Seattle, Wash. The plane contains long-range surveillance radar and extensive communications, navigation, display, data-processing, and identification systems for its mission as a surveillance, command and control center. See item above.

Soyuz-20 spacecraft to a link-up with their orbiting Salyut-4 space laboratory.

Soviet officials termed the mission as simply another test of their space program's unmanned ferry and resupply capability that further demonstrated automatic docking procedures first developed in the late 1960s. It has now been proven possible, they said, to conduct rescue missions or otherwise resupply orbital craft on long missions.

☆

In another launch in mid-November, the US put into orbit a special sensing satellite, Atmosphere Explorer, that will, among other things, gauge the health of the earth's ozone layer.

The satellite is distinguished in that its eccentric orbit brings it close enough to earth to be pulled by gravity into the atmosphere, if it were not for a system of small engines that propel it back into higher orbit when it gets too close.

The Atmosphere Explorer will study the ozone layer for perhaps a year, and render concrete evidence whether or not man-made pollutants are harming the protective shield, as a number of scientists have theorized.

☆

USAF has initiated a program to develop a space laser communications system capable of worldwide operation.

The system is visualized as employing three satellites in synchronous orbit with a space laser capable of transmitting a billion pieces of data per second—twenty times the volume currently moved over a commercial satellite communications link—to provide instantaneous global communications.

The laser system would relay messages among aircraft, ground stations, and other satellites.

McDonnell Douglas Astronautics Co., under a $36.3 million contract, will build the system and test it in earth orbit.

☆

USAF in 1971 began a program to demonstrate beyond question that components of the US's hardened strategic missile force could withstand the potentially devastating shock of nuclear attack.

To this end, a unique device designed by Boeing Aerospace Co.—the Heavy-Equipment Shock Test Facility—was constructed in a remote area at Vandenberg AFB, Calif. Into it went some 13,000,000 pounds (5,897,000 kg) of steel and concrete to form a structure four stories high (*see photo*), believed to be the biggest "shake table" of its kind in the free world.

Core of the system are four nitrogen-driven, hydraulically controlled pistons capable of generating a total shock force of 6,000,000 pounds (2,721,600 kg), with accelerations up to 500 times the force of gravity—occurring in just a fraction of a second. Shock effects to test specimens suspended from the "reaction structure's" eight-foot-thick ceiling can be recorded by almost 200 different sensors.

It took 13,000,000 pounds of steel and concrete to construct the Heavy-Equipment Shock Test Facility, Vandenberg AFB, Calif. The device was designed to "shake up" missile components in simulated nuclear attacks. See adjacent item.

With the three-year component evaluation program now complete, USAF has in hand a mountain of data not only for judging existing missile parts and systems but also for aiding in the design of new weapons, technicians said.

Operated by the Space and Missile Test Center for SAMSO, the reaction structure may have significant nonmilitary uses. Capable of supporting test specimens weighing up to 3,000,000 pounds (1,360,800 kg), the device could help in the design of earthquake-proof materials and buildings.

☆

The first Air Launched Cruise Missile, completed in early November, is now undergoing stringent ground tests preliminary to its first flight, tentatively scheduled for early February.

Following preflight checkout, the fourteen-foot-long (4.25 m) missile, which will constitute the latest addition to USAF's strategic arsenal, will be flown aboard a SAC B-52 for inflight testing and electronic flight simulation. ALCM's first powered flight will then be conducted at the White Sands Missile Range in New Mexico. An additional six flights are to take place by autumn of 1976.

A second ALCM was to be ready in December and a third in January, prime contractor Boeing Co. reported, adding that the fabrication and testing program is on schedule "and well within the cost targets set by the Air Force."

Officials are optimistic about ALCM's prototype testing program running smoothly because the missile contains a fully integrated guidance subsystem and a proven production engine. Also, supporting ground and aircraft launching equipment are already in USAF's inventory, since they are identical to those of the Short Range Attack Missile, well along in being deployed to SAC units.

The ALCM weighs about 1,900 pounds (862 kg) and is subsonic. To be carried by the B-1 and B-52 fleets in large numbers, each ALCM would have to be countered by air defenses individually, a complex and costly process, and one that should greatly assist manned US bombers in reaching their targets.

☆

In the summer of 1976, American industry and business will join with agencies of the US government in an official US Bicentennial Exposition on Science and Technology at NASA's Kennedy Space Center, Fla.

Capt. Michael Egan, 454th FTS, Mather AFB, Calif., became the first pilot to log 1,000 flying hours in USAF's new T-43 navigation trainer. He's currently an instructor pilot.

Aerospace World

Managed by the space agency, the exhibition will be housed in from fifteen to thirty geodesic domes thirty feet (9.1 m) high. These will be erected near the huge Vehicle Assembly Building, where US spacecraft are prepared for launch.

The exhibition will celebrate the first two hundred years of US science and technology and what is visualized for the next century. Themes will include transport, communications, food and fiber, commerce and banking, environment, housing, energy, social environment, work and leisure, health and medicine, and aerospace R&D.

☆

Under a joint NASA/Army program, a new research aircraft that will land and take off vertically like a helicopter but be powered for horizontal flight like standard turboprop planes is in final assembly at Bell Helicopter Co., Fort Wayne, Tex.

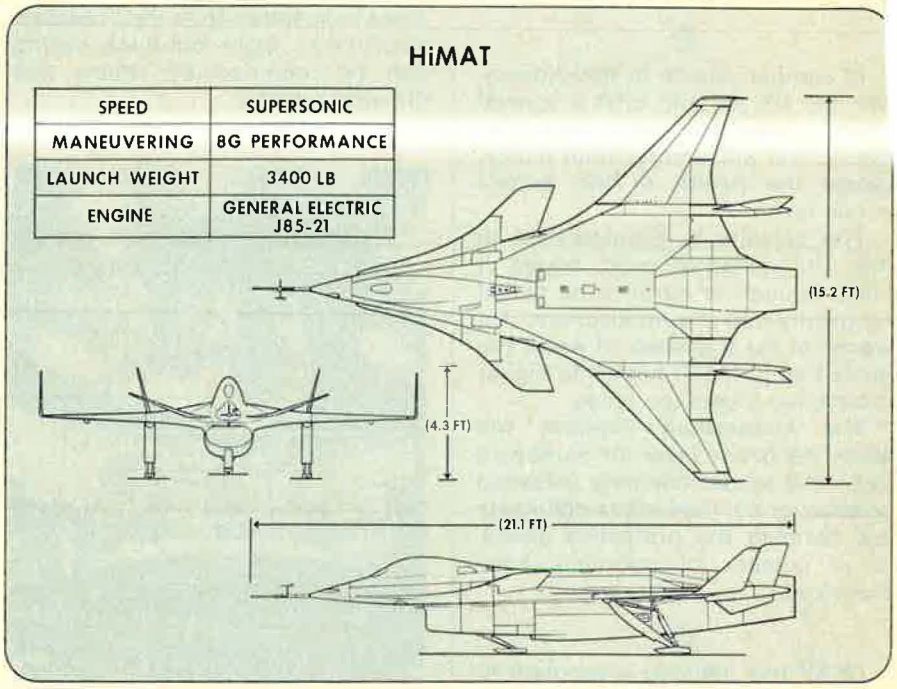
Known as the XV-15, the craft "will be tested and evaluated to provide technology to fill military and civil aviation needs of the 1980s," the space agency said.

Wingspan of the XV-15 is about thirty-five feet (10.5 m) and fuselage about forty feet (12.3 m) long. Weight at takeoff is about 12,897 pounds (5,850 kg).

Two XV-15s are currently being put together for the program, with Rockwell International supplying fuselage and tail sections and Bell the wings, rotors, and nacelles. Following wind-tunnel and airworthiness tests, the craft will be extensively evaluated by NASA's Ames Research Center and the Army Mobility Research and Development Lab, both at Mountain View, Calif. Delivery is expected in 1976, with the flight-test program continuing into 1977.

The XV-15 is designed with wingtip-mounted nacelles to house modified Lycoming T-53 1,500-hp engines, transmissions, and rotors. These tilt to provide either a helicopter-type configuration or a horizontal position for high-speed flight, NASA said.

Designed to fill the electricity needs of twenty-five homes is this ERDA experimental wind energy turbine at NASA's Plumb Brook Station near Sandusky, Ohio. The huge windmill, built by Lockheed-California, is part of Project Independence—a move to reduce US reliance on foreign energy sources. Wind energy research promises bountiful returns.



Two test and research aircraft are to be built for a NASA-sponsored project dubbed Highly Maneuverable Advanced Technology. See details on p. 21.

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Based on the research aircraft, future military configurations could carry as many as thirteen soldiers at speeds of about 300 knots (556 km/hr), which is about twice the speed of today's helicopters. The XV-15 will also be quieter than helicopters and turboprops, the space agency reported.

☆

In another NASA-sponsored aircraft development project called HiMAT, for Highly Maneuverable Advanced Technology, a "go" has been given for the fabrication of two test and research vehicles.

To be developed by Rockwell International's Los Angeles Aircraft Division, and scheduled for delivery in 1977, the two vehicles will be unique in that they will be designed for remote piloting and will be subscale.

According to the company, HiMAT will reflect advance design technologies as well as make wide use of composites in fabrication. HiMAT will measure 6.4 m (about twenty-one feet) long by 4.6 m (about fifteen feet) wide, and weigh in at 1,542 kg (3,400 pounds).

Plans call for HiMAT to be tested at the NASA Flight Research Center, Edwards AFB, Calif. Launched from a B-52 mother ship and powered by a GE J85-21 engine, HiMAT will be flown from a ground station using cockpit-mounted TV, radio telemetry, and radar. The aircraft will land on the adjacent dry lakebed on skid landing gear, much like the famous X-15.

As an RPRV (Remotely Piloted Research Vehicle), HiMAT will "provide a highly cost-effective means of flight testing advanced, high-risk technology without the cost of man-rating the aircraft and associated risks to pilots," officials said.

☆

Crewmen of USAF's Operation Streak Eagle (*see July '75 issue, p. 32*) were presented the 1974 Mackay Trophy during ceremonies at the Pentagon in mid-November.

The three—Lt. Col. Roger J. Smith, Maj. David W. Peterson, and Maj. Willard R. Macfarlane—were cited for their role in piloting an F-15 Eagle to break all then-existing time-to-climb flight records in January.

The trophy, presented by Air Force Chief of Staff Gen. David C. Jones and sponsored by the National Aeronautic Association, is presented annually to USAF members judged to have participated in the most meritorious flight of the year.

☆

NEWS NOTES—Two volunteer escorts aboard the C-5 evacuation transport that crashed near Saigon on April 4—**Dr. Merrit W. Stark** and **Miss Thelma L. Thompson**—each have been presented the **Air Force Civilian Award for Valor.**

Dr. Richard L. Porter, GE Aerospace Group's manager of scientific and technological affairs, has received the **Decoration for Exceptional Civilian Service**—USAF's highest civilian citation—"for his contributions to the development of many of the nation's major defense systems."

On November 18, USAF conducted its first night launch of the **Imaging Infrared Maverick Missile** (AGM-65D—*see also December '75 issue, p. 26*). Fired from an F-4 Phantom, "it scored a perfect hit," an official reported.

Died: Dr. Clanton W. Williams, former University of Houston president and AFA member who was the first AAF historian and who founded the Air Force history program during WW II, of a heart attack in November at the base hospital, Maxwell AFB, Ala. ■

SECRETARY McLUCAS'S FAREWELL MESSAGE

John L. McLucas has left the post of Secretary of the Air Force to become FAA Administrator, after almost seven years as USAF Under Secretary and Secretary. He was sworn in as Under Secretary on March 17, 1969, and as Secretary on July 18, 1973. At press time, no replacement had yet been named. On his departure, Mr. McLucas wrote the following to the men and women of the Air Force:

"It has been inspiring and gratifying to be Secretary of the Air Force. I will miss the extraordinary people who have made the Air Force the vanguard of the nation's armed forces.

"I am proud of Air Force men and women, old and young, airmen and officers, of all colors and races, active and reserve, military and civilian, those still serving and those whose careers have ended. Your talents, dedication, and hard work have made the Air Force an eminently respected military force as well as a national leader in social advancement. You have proved yourselves skilled airmen, motivated citizens, and responsible Americans.

"I am proud of Air Force accomplishments—an unmatched record of service to our nation. Awesome military power has been ready at all times to safeguard our freedom as a people. The US economy has been strengthened and the American way of life improved by the technological progress and spinoffs your efforts have produced. At the same time, the Air Force has remained at the forefront of the nation's drive to improve our social environment, to elevate the stature of the individual, and to insure equal opportunity for all our citizens. I have enormous faith in your future achievements.

"I am proud that the Air Force has maintained high levels of morale, readiness, and effectiveness—despite cuts in personnel and equipment, despite the trauma of Southeast Asia, and despite criticism from some sectors of society. You have weathered these tribulations—you have overcome them and continued to strengthen the Air Force in spirit and capability.

"I am proud of Air Force efforts to build integrity and credibility to a new high because these are the keys to sustained public confidence and support. Air Force people are serving our country with as much candor as ardor, finding and correcting mistakes, always striving to improve. Your dedication to unexcelled stewardship in the use of the human and material resources provided by the American people is making the Air Force a better servant of the nation.

"As I leave the Air Force, it is with deep pride in the way you are meeting your responsibilities. I have confidence that the Air Force will continue to be a pacesetter in setting and achieving new goals in efficiency of operations as well as in improving the environment in which our people work. It has been my honor and privilege to serve alongside the devoted Americans of the world's finest Air Force."

(For statements by outgoing DoD Secretary James R. Schlesinger, and his replacement, Donald H. Rumsfeld, see pp. 13 and 15.)

AIR FORCE
January 1976 Magazine

JANE'S AEROSPACE REVIEW 1975/76

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

A British authority in the field of aviation reports on worldwide developments in military, commercial, and general aviation and outlines some technological prospects for the last quarter of this "century of flight."

JANUARY 1976 begins both the US Bicentennial Year and the final quarter of what future historians may call the century of flight. Back in 1900, flying meant little more than drifting downwind in a balloon, while the world waited, unknowingly, for two young Americans named Wilbur and Orville Wright to fly successfully in a powered airplane three years later. Today, in a far more violent age, many in the Western world are waiting anxiously for America to make up its mind to build meaningful numbers of the combat aircraft that alone may guarantee a peaceful close to our century. More imminent, experts believe, is a first glimpse of the Soviet "Backfire" Mach 2 plus, variable-geometry bomber, sniffing for secrets of NATO's European defenses as it sweeps over the North Sea, unrivalled in its class except by a yet-unarmed prototype of USAF's B-1.

Eventually, if the Air Force gets its way, there will be 244 B-1s, making up the most effective manned strike force ever conceived; but how soon, or certain, is "eventually"?

Statistics quoted last June, by Maj. Gen. Harry M. Darmstandler, then Special Assistant to the Chief of Staff, USAF, for B-1 Matters, reminded his audience that in 1967, just eight years earlier, the Soviet Union had 200 long-range bombers. Eighty percent of them remained operational in 1975, the other forty having been converted to tankers, with "Backfire" about to become available in large numbers. By comparison, USAF had 555 unit equipment (UE) heavy bombers in 1967 and 330 in 1975. Soviet ICBM strength increased from 475 launchers to more than 1,600 in the same period, while the US total remained unchanged at 1,054. Similarly, with the US Navy's force of 656 submarine-launched ballistic missiles unchanged in quantity, the number of Soviet SLBMs increased from 120 to more than 700.

Quantity must be balanced against quality. However, each of the first two quarters of our century was marred by a world war, and the pattern of history displays clear lessons for those who now control military budgets.

By 1925 the airplane, pioneered by America, had played a dramatic part in the first of the great wars, and then had gone on to establish a network of peacetime passenger services throughout much of the industrialized world. Yet none of the combat airplanes used in France in 1914–18 had been designed in America; and the only substantial US passenger airline of that era was Aeromarine Airways, which carried 30,000 people by flying-boat in four years before giving up in 1924. So quickly can national leadership vanish.

Another quarter-century, another world war (made inevitable by the apparently invincible might of an aggressive nation), and the US had regained the initiative. Armed with the only bombers in the world carrying nuclear weapons, it was supreme as a military power in 1950. Britain seemed to be setting the pace commercially with the first jet airliner, the de Havilland Comet; but its leadership was to be as brief as America's monopoly of "the bomb." Within a decade, airlines were equipping primarily with Boeing 707s from Seattle and Douglas DC-8s from Long Beach, while the Soviet Air Force boasted increasing numbers of nuclear-armed jet bombers and strategic missiles.

Technology's Accelerating Pace

In the brief period between then and now, Soviet Cosmonaut Yuri Gagarin took the first historic step along a path through space that led twelve US astronauts all the way to the surface of the moon and back safely. Progress in commercial aviation has produced the Boeing 747, with up to 500 seats and the most impressive safety record in flying history, as well as the supersonic Anglo-French Concorde. Progress in military aviation is demonstrated theoretically by the B-1, and in everyday service

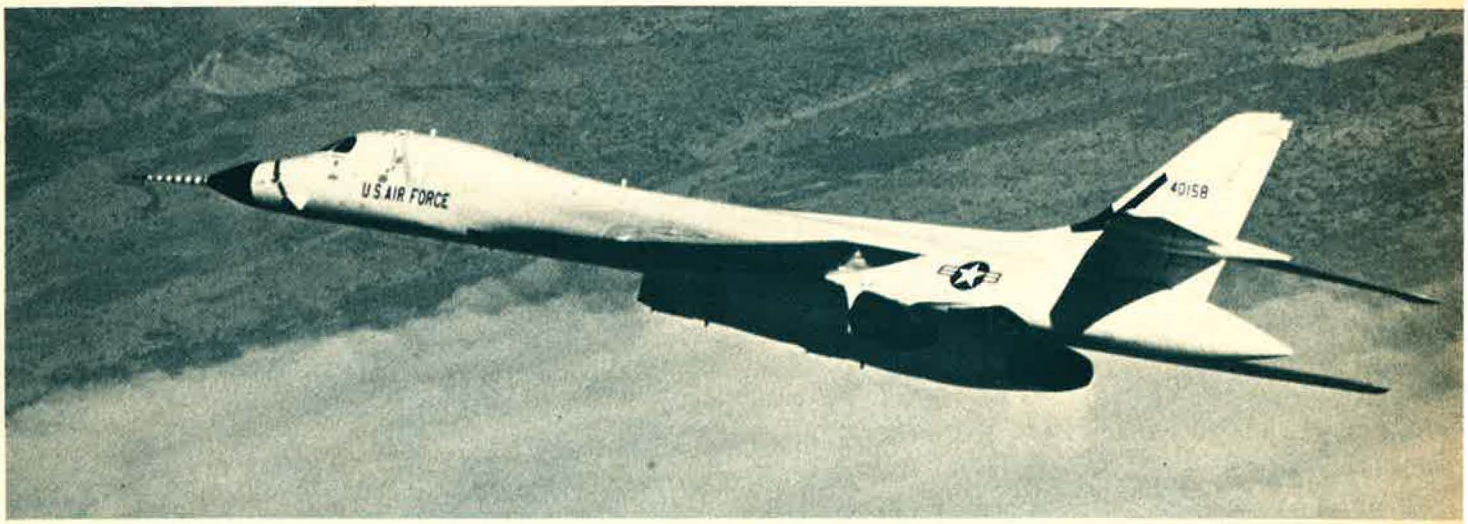
by the British Hawker Siddeley Harrier. Critics of this still-unique V/STOL combat aircraft, on the score of short-range/small payload, must have noted that the RAF had no hesitation in dispatching the Harriers of No. 1 Squadron on a flight-refueled transatlantic hop from the UK to Belize, in November 1975, when the small garrison in that Central American self-governing colony felt in need of additional air support.

The Harrier has notched up a victory for technology of the kind that the B-1 and other, newer, types must follow. A design so revolutionary could hardly have been expected to demonstrate its full potential overnight, especially when budget restrictions limited engine development and prevented planned increases in payload. A mere twelve months ago the Harrier's future looked bleak. Since then, twenty-four uprated single-seat Sea Harriers have been ordered for the Royal Navy, with large export purchases in prospect; and the US Marine Corps has announced a requirement for 336 AV-8Bs, blending the basic Harrier design with a larger, supercritical wing and enhanced range/payload capability. Production is expected to be split 60/40 between McDonnell Douglas in the US and Hawker Siddeley, earning at least $1 billion for the UK manufacturer and its engine partner, Rolls-Royce. Encouraged, Hawker Siddeley can now envisage a Mach 2 V/STOL strike aircraft based on the Harrier/AV-8B by the late 1980s.

Variable geometry is another area in which early technological problems and criticism of cost-effectiveness have been overcome, to the benefit of performance and general capability. For the F-111, which progressed from initial disaster to a final period of brilliant success in Vietnam, acceptance came too late. Grumman's superb F-14 Tomcat fighter has encountered those economists who refuse to acknowledge that it costs a great deal of money to stay alive in a period of détente.

The B-1 has yet to win that battle and be funded for full production, though there is a growing awareness of its qualities. The first large aircraft designed specifically to operate with high survivability in a nuclear environment, it offers the quick reaction, rapid acceleration, and structural hardness needed to survive a surprise attack. It is large enough to carry a huge load of nuclear weapons on intercontinental missions, yet is so smoothly curved from almost any angle that its radar signature is unbelievably small. Its own ECM devices are designed for speedy reprogramming to counter new enemy radars and the weapons they guide. And it can make its penetration either at near sonic speed at very low altitude or at supersonic speed at high altitude.

Recognizing these facts, non-Americans often show too little sympathy for those who are expected to underwrite Western security with sums as vast as the $20 billion, or more, needed



When USAF's B-1s enter the inventory, they will "make up the most effective manned strike force ever conceived."

The Hawker Siddeley Harrier may evolve into a Mach 2 V/STOL strike aircraft by the late 1980s.

for 244 B-1s. It seems, often, that the immediate problem is in Washington where, having failed to kill the B-1 program completely, critics have harassed the aircraft's supporters into a succession of rearguard actions. Some features of the B-1 that were considered vital to the performance of its allotted task, with impunity, through the 1980s and '90s have been nibbled away. It was decided, for example, to dispense with engine intake variable geometry, reducing the B-1's maximum speed from Mach 2.2 to a suggested Mach 1.6 at height, in the interests of a reported $230 million cost-cutting operation.

The Air Combat Fighters

There are, fortunately, growing indications that the Royal Navy and the Soviet Air Force are not alone in beginning to get the combat aircraft they want. In last January's "Jane's Aerospace Review," the writer told about going to Edwards AFB, Calif., to study the General Dynamics YF-16 and Northrop YF-17 prototypes then being evaluated under the USAF's Air Combat Fighter (ACF) program. He commented: "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 be to build both the F-16 and F-17 to meet the somewhat differing requirements of the USAF, US Navy, and NATO air forces in Europe."

Other people held different views. When the USAF announced that the F-16 appeared to meet its requirements better than the F-17, it was made clear by Congress that it expected the US Navy also to order F-16s in the interests of economy and standardization. The Navy made it equally clear, in May 1975, that it wanted the Northrop fighter or something very like it.

The USAF said it had chosen the F-16 because the prototypes were fifteen seconds faster in accelerating from Mach 0.9 to 1.6 than were the YF-17s, so beating by a wide margin the principal threat aircraft. Their ferry range was claimed to be 350 nm greater than that of the YF-17s, and their air superiority radius 200 nm better when carrying two Sidewinder missiles and 500 rounds of 20-mm ammunition. The sustained turn rate of the F-16 prototypes at 30,000 feet was said to be 0.5° per second better than that of the YF-17s at Mach 1.2 and about the same at Mach 0.9. In a ground attack role, there was nothing to choose between the two designs.

The Navy made it clear that its choice was not between the original YF-16 and YF-17 but between paper developments of these types proposed by an LTV Aerospace/General Dynamics partnership and a McDonnell Douglas/Northrop partnership, with the first-named company in each team to be prime contractor for any aircraft ordered. It explained that the source selection for its Naval Air Combat Fighter (NACF) was one of the most extensive and complete in the history of NAVAIR. The aircraft selected had to complement the F-14A Tomcat in replacing all the Navy's F-4s and A-7s.

Such a requirement was hardly compatible with the original ACF concepts of low cost and light weight. This alone justified a new designation of F-18 for the McDonnell Douglas/Northrop uprated version of the YF-17 that was chosen as the required NACF. Available details can be found in the December "Jane's Supplement" to this magazine.

If the aircraft survives fierce opposition from sections of Congress and critics in the military services and industry, the F-18 fighter version

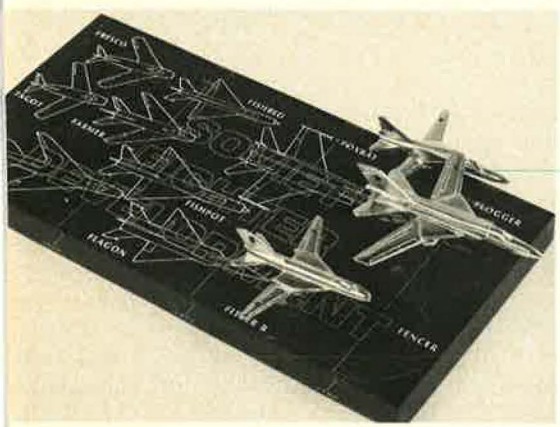
The General Dynamics F-16, winner of both the US competition for an Air Combat Fighter and that of a consortium of four NATO nations.

will have two 16,000-pound-thrust afterburning General Electric F404 engines, giving almost a one-to-one thrust-to-weight ratio at the fighter escort takeoff weight of 33,600 pounds. Its performance is estimated to be potentially better than that of any known Soviet air-superiority fighter, with greater agility than the F-14 during close-in fighting.

The A-18 attack model is intended to achieve ninety-five percent commonality with the F-18, the main difference being substitution of a laser target seeker and forward-looking infrared (FLIR) pod in place of the fighter's Sparrow missiles. It will lack the great load-carrying capability and range of the A-7, but will offer improved survivability and accuracy of attack, and is expected to serve also in a reconnaissance role.

By the time the YF-17 has been transformed into the F-18/A-18, it is unlikely to prove an inexpensive partner for the Tomcat. One Pentagon budget analyst is alleged to have remarked: "We're going to build a low-cost fighter no matter how much it costs." Grumman protested that it would have been cheaper to extend manufacture of the F-14 than to evolve the entirely new F-18. To emphasize that it was not alone in considering variable geometry essential for modern first-line fighters, it produced a quantity of small desk plaques for presentation to selected officials and military leaders in a position to influence defense policy. Each was engraved with the silhouettes of eight Soviet fighters, starting with the MiG-15 of 1947, and carried tiny models of the three formidable new first-line fighters known to NATO as "Fitter-C" (Su-20), "Flogger" (MiG-23), and "Fencer" (Su-19)—*all* with swingwings like Grumman's F-14.

The Orao ground-attack fighter, which first flew in August 1974, was developed jointly by Romania and Yugoslavia. Two hundred or more may be built for their air forces.



These three new Soviet fighters, the Su-20, MiG-23, and Su-19, all have swingwings. Su-19 was developed specifically for ground attack.

Soviet Designs and Designers

This plaque gave a first informed indication of the size and general configuration of the Su-19, which had been described by Adm. Thomas Moorer, former Chairman of the US Joint Chiefs of Staff, as "the first modern Soviet fighter to be developed specifically as a fighter-bomber for the ground attack mission." Subsequent information enabled a Jane's artist to produce the three-view drawing that was reproduced on p. 47 of the October '75 AIR FORCE Magazine. Studied alongside the latest drawings of the Tupolev "Backfire" variable-geometry bomber and the MiG-23 fighter, this reflects both the general high standard of modern Soviet military design and the attention paid to achieving minimum cross-section. Everything that cannot be packed into the smallest practicable airframe seems to be hung outside, resulting in cluttered exteriors but basic airframes that repay close study by designers in the West. (Since the Su-19 drawing was produced, sightings of the aircraft have suggested that, when fully swept, the outer wings have the same leading-edge sweep as the fixed center-section glove, rather than compound sweep.)

It may be significant that a new generation of men is now responsible for Soviet aircraft, following the death of Artem Mikoyan, Pavel Sukhoi, Nikolai Kamov, Mikhail Mil, and

Andrei Tupolev, and the semiretirement of others of the old school of General Designers. "Backfire," in particular, is quite beautiful, if such a term can be applied to a bomber able to carry nuclear missiles. And "Backfires" in operational squadrons obviously are a great deal more potent than paper B-1s in future US budget requests.

Even in tactical airpower, the time is coming when it will no longer be wise to rely on Western superiority in techniques like flight refueling, and aircraft like the Boeing E-3A AWACS, to offset Soviet numbers. Last spring, Gen. Robert J. Dixon, TAC Commander, revealed that the Soviet Air Force had reached numerical parity with USAF in tactical fighter aircraft. He added that if approval was given for the numbers of F-15s, F-16s, A-10s, and AWACS in current and future budget plans, he was not worried; if the trend was otherwise, he was worried. Since then, the AWACS, in particular, has not fared well in budget deliberations in the House.

When assessing the capability of combat aircraft, it is difficult to gauge how much relevance one should place on performances achieved in record attempts. The "Streak Eagle" F-15 that captured eight time-to-height records in early 1975 was specially prepared for the program. The MiG-25 that quickly snatched back the two top records is referred to as an E-266M in the Soviet Union, the suffix letter indicating, presumably, a modification of the standard MiG-25/E-266. Nonetheless, the fact that the E-266M set a record of four minutes and eleven seconds to 35,000 m (114,830 ft), a height the F-15 had not attempted to reach, reveals something more of the potential of the world's fastest combat aircraft.

While Soviet helicopter development burgeons, competitive evaluation between the Hughes YAH-64 (top) and Bell YAH-63 (above) Advanced Attack Helicopter prototypes will continue for many months.

New Helicopter Horizons

Of even greater concern to US manufacturers is the series of records set by Soviet women pilots in a Mil helicopter designated A-10. Even the designation raises a problem, as products of the Mil design bureau have always borne "Mi" or "V" prefixes in the past. It is believed that the "A" prefix stands for Arsen'ev, near Vladivostok, where the helicopter was built, and that all Soviet aircraft will be identified in future by the initial letter of the towns where they were manufactured.

Whether or not this is true, it seems virtually certain that the A-10 was one of the military assault helicopters known to NATO as "Hind" and identified formerly as Mi-24. If this proves to be so, records of 212 mph over a fifteen to twenty-five km straight course, 200 mph over a 1,000-km circuit, and climb to 6,000 m in seven minutes, 44.5 seconds, must raise a few eyebrows. Two groups of these helicopters, each able to carry eight troops, four antitank missiles, and 128 rockets, are based at the northern and southern extremities of the NATO front line across Europe. There is good reason to believe that one standard version has an undernose gun turret, making the Mi-24 (or A-10) a unique combination of troop transport and gunship, with outstanding performance.

Again it seems that the Soviet armed forces are getting the aircraft they want, now and in large numbers, while the West trails. Bell's HueyCobra, first genuine helicopter gunship, is a fine combat aircraft of proven ability; but the Bell YAH-63 and Hughes YAH-64 Advanced Attack Helicopters, designed to replace it, are engaged in a prolonged competitive evaluation that is not expected to lead to a production order until 1979. Meanwhile, the prospect of the US Army's getting a new heavy lift helicopter has receded with cancellation of the Boeing Vertol XCH-62, though the prototype was almost completed.

An Integrated European Industry?

Following Britain's confirmation of Common Market membership last June, the four major European helicopter manufacturers (Westland, UK; Aérospatiale, France; Agusta, Italy; and MBB, Germany) signed a memorandum of understanding which provides guidelines for possible future cooperation in research, design, development, and production. Earlier, BAC and Hawker Siddeley of the UK, Aérospatiale of France, and Dornier, MBB, and VFW-Fokker of Germany had signed an agreement to work together to meet European airline requirements for the 1980s.

It remains to be seen whether or not words

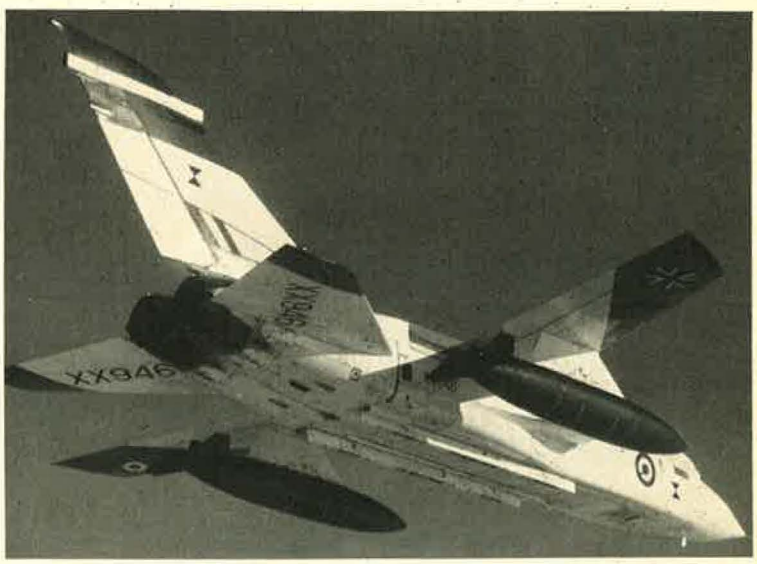
The Fairchild Republic A-10, with its 30-mm cannon, will be a highly effective tank killer.

will be translated into concerted action. The airliner group is said to be concentrating on expressed requirements of Air France, British Airways, and Lufthansa for 190/220-seat and 120/140-seat transports, but the economic climate is hardly encouraging for anything ambitious, and UK government plans to nationalize BAC, Hawker Siddeley, and other manufacturers add to uncertainty about the future.

The efforts of AECMA (European Association of Aerospace Manufacturers) to bring about a completely integrated European industry were dealt a further blow by four of France's neighbors who were seeking a replacement for their aging F-104s. After being wooed for months by Dassault, Saab, General Dynamics, and assorted outsiders, Belgium announced its choice of the F-16 in early June 1975. Norway, Denmark, and the Netherlands had already expressed their preference for this General Dynamics fighter, rather than the Mirage F1-E or the Saab Viggen; so the US manufacturer was assured of joint contracts for a total of 306 F-16s, with options on forty-two more.

French reaction was swift and predictable. Speaking at the 1975 Paris Air Show, Prime Minister Jacques Chirac said: "We are bound to be struck by the contradictions between the intentions that were declared and the decisions that were taken. France, which is deeply attached to building Europe, can only deplore this." Equally, however, one must remember that the aircraft proposed by France to meet its neighbors' needs was a version of the Mirage F1, which had been advertised proudly in the aviation press as "un avion 100% français." Such an interpretation of "European" is very different from that exemplified in aircraft like the MRCA, Jaguar, and Concorde, which are *internationally* European. The chairman of Dassault recognized that the decision to buy the F-16 must have been influenced to a degree by the fact that France is not a military member of NATO.

By sharing in the manufacture of these F-16s, then assembling and flying them, Europe will improve vastly its own level of technology while getting the best aircraft for the job. The competence of its own aerospace industry is proved by aircraft like the MRCA and, of course, the Concorde.



The Anglo-German-Italian MRCA is capable of filling ground attack, interceptor, and reconnaissance roles. A total tri-nation buy of about 400 is projected.

SST Struggles for Survival

This month will see the first supersonic airline services departing Paris and London—not for the United States, which one might expect, but for Rio de Janeiro and Bahrain respectively. "Soon there will be only two kinds of airlines," states an advertisement in the world's press: "Those with Concorde and those which take twice as long." But this pioneer SST is unwelcome at New York because it is no quieter than the first-generation jet airliners that have been tolerated for nearly two decades.

Tests carried out at Casablanca, on behalf of the Port of New York authorities, showed that Concorde is, in fact, less noisy than 707s and VC10s on the approach, when noise abatement procedures are applied. Its lateral noise, 650 m to the side of the runway, is marginally

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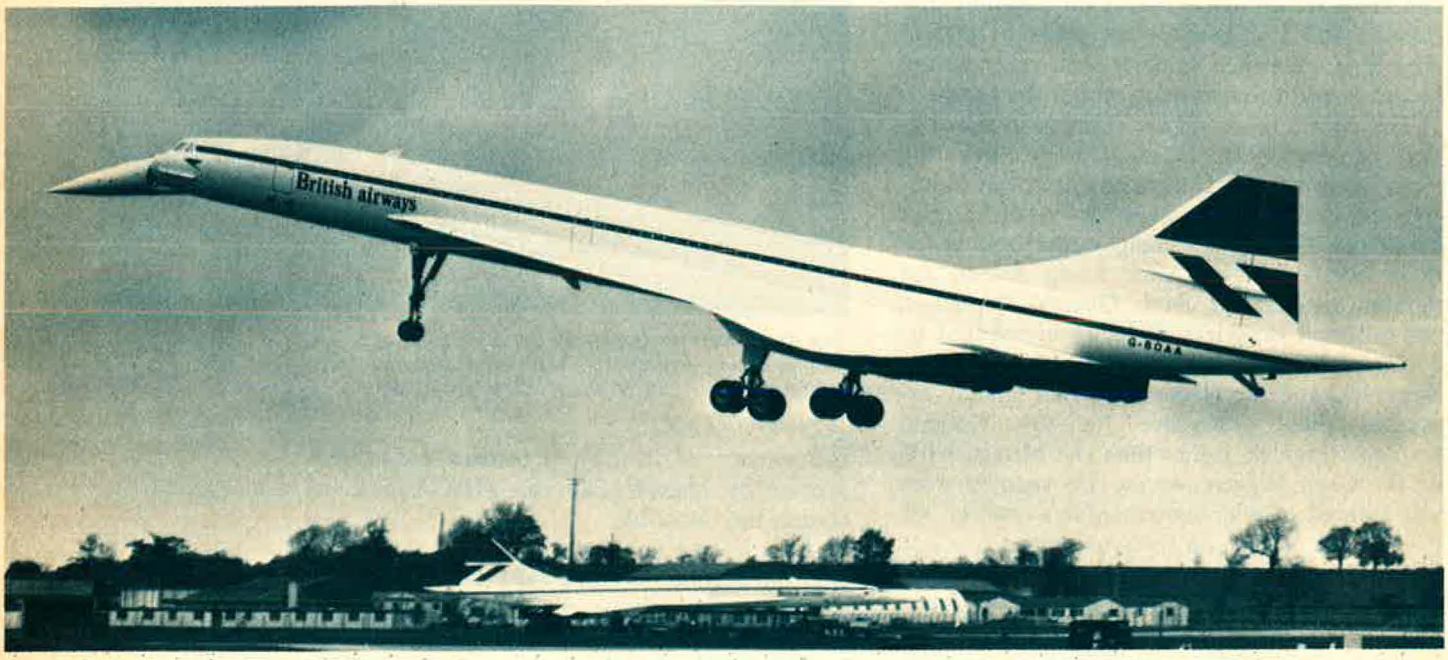
worse than that of the 707 but almost identical with that of the VC10; the noise is also lower-pitched and does not last for so long.

Allegations that Concorde engine exhaust emissions, at cruising heights above 50,000 feet, would damage the earth's ozone layer and increase skin cancer risks by allowing more ultraviolet rays to reach the ground were investigated by Aeronautical Research Associates of Princeton as part of the US government's Climatic Impact Assessment Program. They concluded that Concorde posed no immediate threat to the environment, as it would take 125 aircraft of this type to produce the smallest change in the ozone layer discernible by man over ten years of comprehensive monitoring (0.5%). In a sunlit sky, it seems likely that any destruction of ozone by nitrous oxides from an aircraft and the normal production of new ozone are very nearly in balance. In contrast, natural variation in the ozone layer can be as much as thirty percent in one day.

Fourteen airlines once listed as customers for the Anglo-French SST relinquished their options, leaving only Air France and British Airways with firm orders for a total of nine aircraft, with the likely purchase of five or six more by the airlines of China and Iran. Fearful of losing business, yet unwilling to take a costly gamble, the rest of the world's operators have joined together through the International Air Transport Association (IATA) to compel the British and French airlines to charge a twenty percent fare premium for the privilege of flying Concorde. We can only wait and see if the whole concept of supersonic transportation will be killed by such premiums, coupled with the protests of the environmentalists. If so, life will be just a little less adventurous.



The sixth production Concorde SST lands after its maiden flight. This month, the Concorde will enter service with British Airways and Air France, flying to Bahrain and Rio.

What Lies Ahead?

Aerospace, as a whole, seems to be on a technology plateau. The YF-12A continues to retain its ten-year-old world airspeed record. There is still no airplane faster than the X-15A. The X-24B, last known rocket-powered aircraft in commission, has made its final powered flight. There are no firm plans for sending anyone else to the moon, for orbiting cosmonauts and astronauts simultaneously so that they can work together in space, or for building airplanes larger than the Boeing 747.

Yet, despite all the killjoy factors, there is still magic and excitement in aviation. What young man of spirit would not relish sitting at the controls of the little F-16? Only a few thousand will ever do so, but many more will assuage their thirst for adventure in tiny, exotic homebuilts like Jim Bede's BD-5 and Burt Rutan's VariViggen. Everywhere the "homebuilt" movement prospers, with an incredible variety of designs that range from a 276-mph baby jet to the incredible eight-horsepower Flybike and the 100-pound Birdman TL-1, now rated as "world's lightest."

Even the professional level is not restricted to the big, economically powerful nations. Romania and Yugoslavia have had the courage and skill to produce their own jet combat aircraft, the Orao, rather than rely on deliveries from the major powers, which could have strings attached. Brazil's industry is attracting more and more orders from its South American neighbors, and has delivered or is building

Homebuilts are growing in popularity. This Birdman TL-1, weighing 100 pounds with its 15-hp engine, went on the market in 1975.

Bandeirante twin-turboprop transports for Uruguay, Uirapuru primary trainers for Bolivia and Paraguay, and Universal basic trainers for Chile. Australia is exporting Nomad twin-turboprop STOL utility aircraft to Indonesia, Peru, and the Philippines. Like the products of China's little-publicized industry, these are all good aircraft, not unique in any way but manufactured to high standards of craftsmanship and integrity.

Under the twin incentives of inflation and the energy crisis, research is taking new directions. NASA's supercritical airfoil, for example, was designed originally to increase performance. It gave a fifty percent better turn rate and twenty percent improvement in rate of climb when tested on a baseline F-111A at Mach 0.9 at 10,000 feet. Of suddenly greater significance was a fuel saving of eight to twelve percent. By applying supercritical technology to the USAF's new Advanced Medium STOL Transport aircraft, it has been possible to project fuel savings of up to half a billion gallons during the life of a 300-plane fleet.

Instead of accepting the high development costs of totally new aircraft, Lockheed has calculated that it could reduce the fuel consumption of its TriStar airliner by twenty-five percent by fitting a larger-span supercritical wing; switching to composite materials for the tail fin, ailerons, some secondary structure, and fairings; changing to mixed-flow engine nacelles; using active (automatically variable) controls except for flutter suppression; and fitting redundant stability augmentation systems on the longitudinal axis, in conjunction with a minimized horizontal tail size consistent with a small degree of static instability.

Looking further ahead to when there might not be any hydrocarbon fuels to save, the Air Force, at Wright-Patterson AFB, Ohio, has been studying the feasibility of a nuclear-powered aircraft twice the size of a C-5 Galaxy. Other fuels under consideration include liquid methane, liquid hydrogen, and even coal. The imagination runs riot at such a prospect; but it is worth remembering that, in 1944, in Germany, Dr. Alexander Lippisch was studying a tiny 1,025-mph delta-wing interceptor, the LP-13A, which burned powdered coal fuel in its ramjet duct.

To maintain supplies of domestic and industrial electricity in the future, Boeing has conceived a satellite almost twenty-two square miles in area which, hovering motionless in space, could beam to earth twice the generating power created at the Grand Coulee Dam in the eastern part of the state of Washington. And the ten-week NASA Ames-Stanford 1975 summer study projected a 10,000-inhabitant "city in space" that might be built in the next fifty years, at the point where terrestrial and moon gravities balance.

What off earth will our industry think of next? ■

Jim Bede in his 240-knot BD-5J baby jet. The Microturbo TRS 18 turbojet engine develops 202 pounds of thrust. USAF has evaluated it for a variety of possible missions.

While the US faces serious external challenges, the structure on which its foreign policy and national security rests is being subjected, on a broad front, to a new and sophisticated . . .

Assault on Military Institutions

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

The November purge of Secretary Schlesinger was widely, and understandably, lamented by people worried about the security of this country. He was exceptionally well-informed and qualified for the job of Secretary of Defense. It is, then, with some hesitation that I venture the opinion that his leaving will not —and this is the real point—and should not seriously or for long afflict the institution he headed. No one, however well-qualified, should be able to make lasting changes in the character of our national defense in the space of a few years. Program changes, administrative changes, changes in emphasis, certainly, but not fundamental philosophical changes.

The Marine Corps recently celebrated its 200th birthday, an event that no one who could read or hear was allowed to ignore. It was celebrating on this 200th birthday, apart from its battle honors, its survival as an institution: an institution that has proved impervious to change for change's sake despite the efforts of other services, Presidents, and even an occasional off-beat Commandant. The Marines survive and prosper basically because they are an institution.

The institutional nature of military forces has been an important factor in holding them together in lean times. It is an essential ingredient in that mysterious thing called esprit. It accounts for such apparent anachronisms as the sight of airplane mechanics marching in a parade. If a service—be it Army, Navy, Marines, or Air Force—loses its cloak of institutionalism, it becomes an easy target for radical change.

In this curious and dangerous era, an era where the US is no longer clearly supreme in the world, and where our nation's internal problems are increasing geometrically, we need desperately to hang onto our military standards. To hang onto them, they must first be acknowledged as standards and then made articles of faith.

All this is by way of expressing my alarm at what appears to be a new and sophisticated assault on the military institutions. The American Federation of Government Employees is reportedly about to mount an effort to unionize the military, a notion that should be thoroughly exposed to the public by the media. Curiously, it is getting little publicity, a situation that must please those union chieftains who may be contemplating dues rolling in from this untapped new source.

The Dutch military has been inflicted with a union, and with predictable results. The Dutch Army has all the outward martial appearances these days of the late Poor Peoples' Army. Maybe appearances are deceiving, but they are also unsettling to anyone with a traditional outlook. It is discouraging that much of the press coverage of this new and experimental military union has been favorable.

Then there is the recent outcry over the case of Sergeant Matlovich, of whom we will undoubtedly hear more. Perhaps there was a columnist or television commentator somewhere who applauded the Air Force's rigid attitude on homosexuality in the military. If there was, I missed him. Most of the comment expressed bewilderment at the callousness of the military in this enlightened age.

There is an effort afoot to do something about discharges. It is, one learns, patently unfair to discriminate in the granting of various kinds of discharges. All should leave the service equal, regardless of performance.

Another crack in the institutional wall is evidenced by certain former officers—and the Air Force seems to have its share—who have joined the opposition. They prattle happily to the keyhole reporters about what they know, or think they know, about misdeeds and mistakes in their old service.

In times past such people kept their grievances to themselves. Perhaps, in those days, there wasn't any money in it, or no one would listen. For whatever reason, these turncoats are a modern phenomenon and an alarming one. They are one more sign of erosion in the institutional image. Institutions, to survive, must have character.

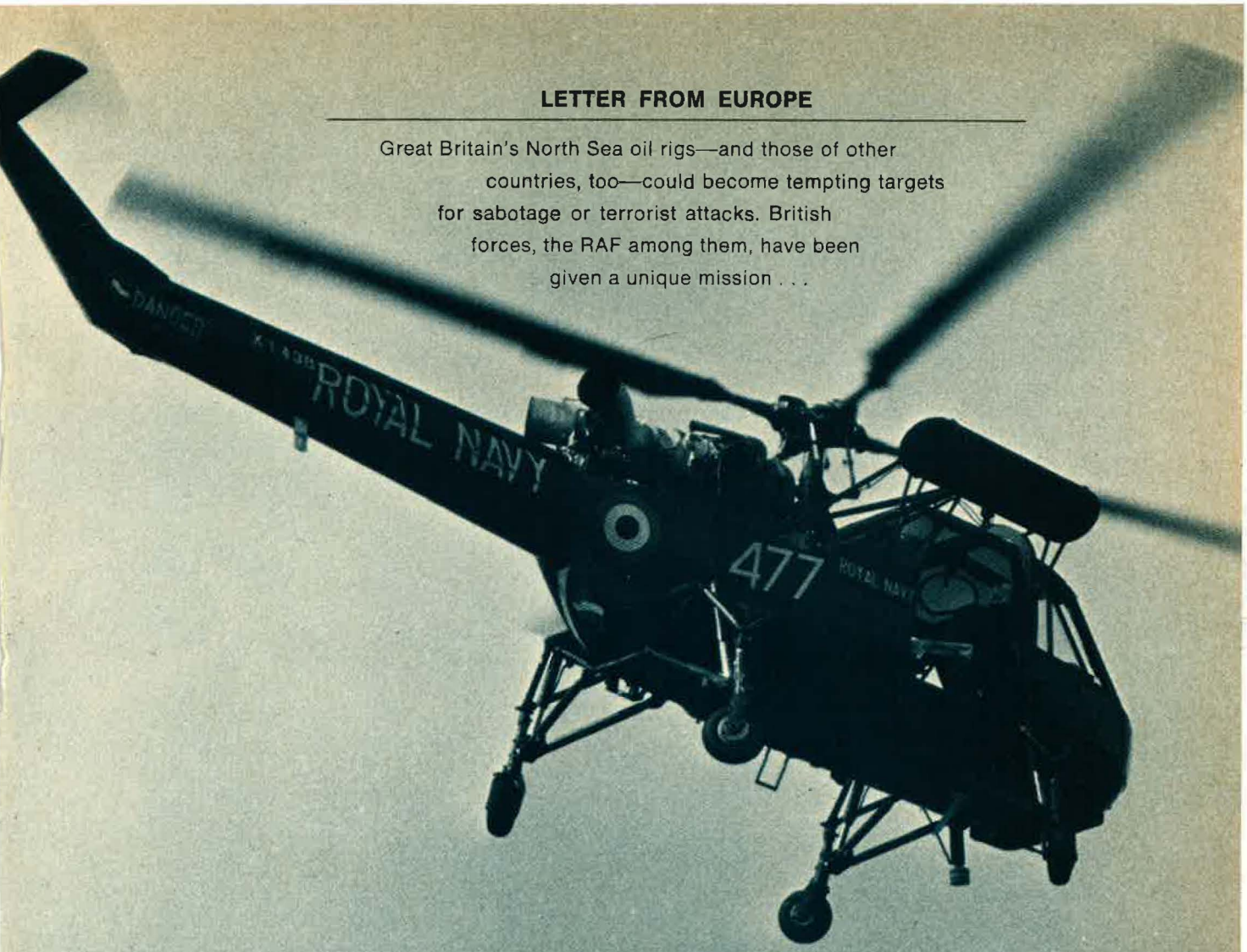
Which brings us back to the original point. It is far better to have good Secretaries and, for that matter, good Chiefs of Staff, than it is to have poor ones. In these times, it is even essential that we have good ones, and we can be thankful in that regard. But the institution will outlast the personalities if, that is, they are truly institutions.

The strength of the Air Force, or any service, is, in the end, measured by the quality and the loyalty of its people. You get the quality, and engage the loyalty, in direct proportion to the confidence the people have in the institution. They must have confidence in the importance of their jobs and in the stability of the organization. They must, in short, believe in the system. Some years, the personalities in charge will make things better, and other years different personalities will make things worse. But in the end it should not matter. If the institution is sound, and has the right standards, it will survive and prosper.

Arlington Cemetery, as we all know well, is full of indispensable men. ■

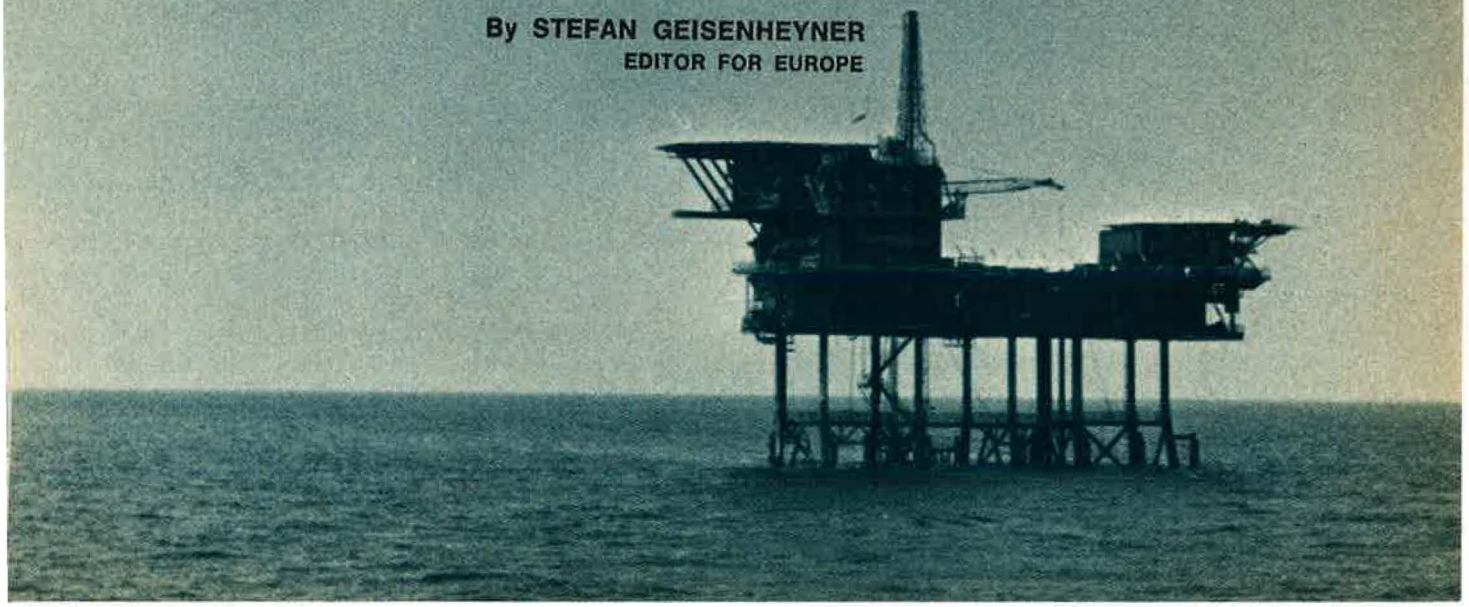
LETTER FROM EUROPE

Great Britain's North Sea oil rigs—and those of other countries, too—could become tempting targets for sabotage or terrorist attacks. British forces, the RAF among them, have been given a unique mission . . .



GUARDING BRITAIN'S LIQUID GOLD

By STEFAN GEISENHEYNER
EDITOR FOR EUROPE



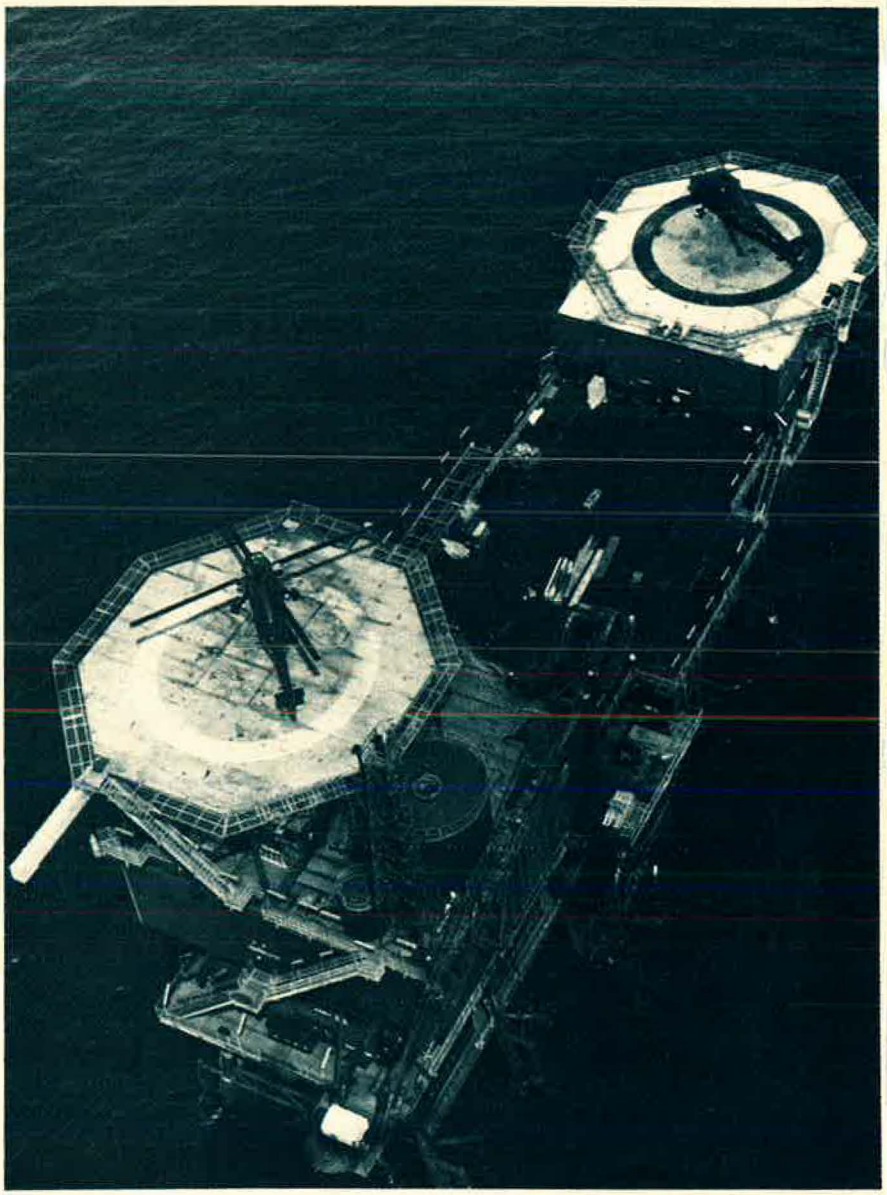
THE age-old proverb that wealth creates problems is once more proved, and on a large scale, by the events and fears surrounding European oil fields beneath the North Sea. These fields, most of them midway between England and Norway, are being tapped with the help of complicated drilling and pumping platforms of immense value.

Already billions of francs, pounds, marks, and kroner have been invested to survey and develop the fields, which promise to supply the energy-hungry West European nations with enough oil and natural gas to make them largely independent of Middle East oil later in this century. The North Sea oil fields are for Europe what the Alaskan North Slope is for the US—insurance against economic blackmail.

During a routine antiterrorist exercise, British Royal Marine Commandos take up defensive positions (above), on a North Sea gas platform after having been flown in by helicopters (right) from a nearby RAF base.

When the first oil was discovered in the late 1960s, the nations bordering on the North Sea partitioned the sea bottom according to a complicated formula based on the length of their shorelines. (*See "North Sea Oil—NATO's Refuge or Ruin?" February '75 issue.*) Thus, Norway and Britain hold the lion's share, followed by the Netherlands. Their offshore oil rigs are highly vulnerable to sabotage or covert attack by hostile nations or terrorist groups. But problems created by development of the oil fields are political as well as military. They involve both NATO and the EEC (European Economic Community), which are essential to Western European unity.

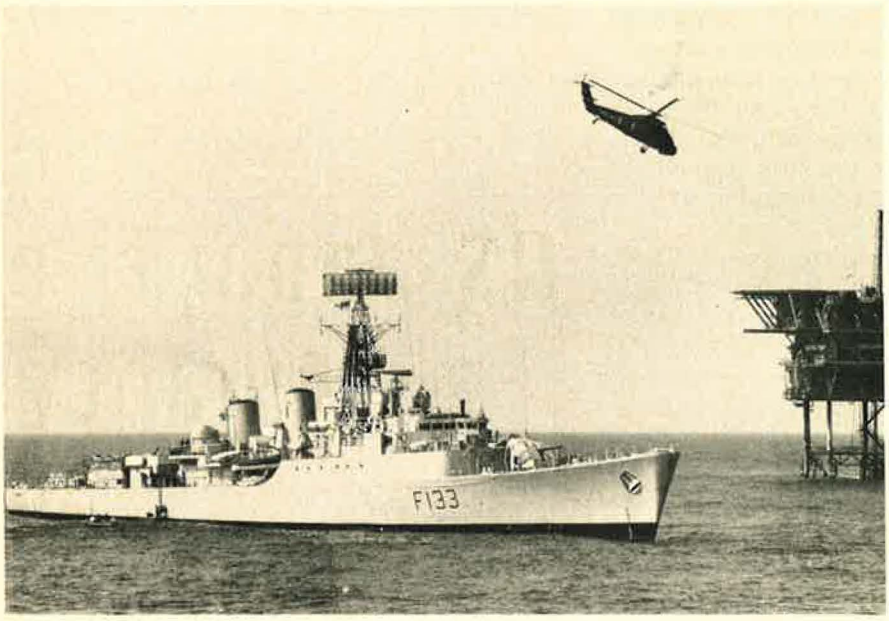
While Britain has to cope with a potential problem of terrorist attacks on its drilling rigs, Norway finds itself in a political quandary which, handled carelessly, might create a serious international situation. Norway, with a large part of its land uninhabitable mountains, and supporting a population of 4,000,000, is now potentially the richest nation of Europe. The Norwegian government has taken measures to curb real estate speculation and to brake its oil fueled inflation. It is estimated that by 1980 Norway will produce more oil and natural gas than Algeria. The operating wells are located mainly in the southern part of the Norwegian North Sea sector, which encompasses roughly one-fifth of that nation's sea-bottom territory.



Though Norway at present has little to fear from terrorist groups, it has to face other complications. Norway's northernmost sea and land territories border on the USSR. Test drilling promises additional riches to come from the offshore regions in the Barents Sea, but here the government treads very carefully in opening the potential oil fields for drilling, because its sphere of interest collides with that of the USSR. The sea-bottom borders between the two nations are not yet internationally defined. Norway has not joined the eleven-nation Oil Council of the West, apparently to demonstrate that it is not putting any pressure on its Eastern neighbor.

The offshore oil rigs are not easily

defensible against major attacks, and Norway feels the best way to protect its rights against a superpower is by diplomacy. Norway may one day have to make political concessions regarding her NATO and EEC affiliations to appease the Soviets. The USSR might gladly concede some sea territory to Norway in order to create another crack in the NATO structure.



This Royal Navy frigate patrols North Sea British oil/gas platforms in conjunction with the Royal Air Force, which provides around-the-clock long-range surveillance flights.

Britain does not have this particular problem, but it is beginning to flex its political oil muscles. Britain had agreed that, during an international conference between industrial and developing nations, it would let the EEC speak for its interests as part of a joint European stand. In October 1975, it revoked that understanding. [Early in December, Britain again reversed her position on this issue.] After all, Britain's existence depends on her oil properties which, allegedly, are already heavily mortgaged to keep the economy going. Nevertheless, they promise to make the nation largely independent from major energy imports by 1980.

Britain is the only European nation taking active measures to protect its oil fields against potential physical threats. The threats are real and are voiced by terrorist groups, who might or might not operate on their own volition.

The terrorist phenomenon in Europe needs explanation. The oil crisis has spawned unusual and unexpected problems everywhere. These relate not only to rising fuel prices and the disturbed military and financial balance of the world, but to curious side effects as well. A typical but serious problem is rising unemployment. This, in turn, has fathered discontent and unrest among the younger generation, resulting in accelerated development of the already existing radical political trends prevalent among the fifteen- to twenty-five-year age group. A dangerous offshoot of such generally harmless "anti-establishment" movements are terrorist cells that, armed with modern weapons, want to change the present social order to bring about "justice, peace, freedom, and equality to the oppressed masses."

Senselessly in many ways and therefore unpredictable, they strike at government executive organizations as well as at private enterprise. Several attacks have been made on energy sources of European nations, such as nuclear powerplants and oil tank farms in Germany and France. A tank farm in Alsace blazed for days after a rocket attack by terrorists.

Special attention is being given by authorities to protecting such vital installations. These measures now include Britain's North Sea oil fields.

The presently volatile terrorist scene in Britain, accentuated by the Northern Ireland conflict that has led to terrorist actions in London and elsewhere, might find a target in the offshore oil rigs. A successful attack would strike a serious blow at the national economy, and this is exactly what the enemies of the "establishment" want—a chance to create social and economic disorder in which they can operate and prosper best.

The Royal Air Force and the Royal Navy have been charged with protecting the offshore oil rigs. Regular round-the-clock surveillance flights are made by long-range RAF aircraft to detect ships, boats, and submarines operating or loitering in zones barred to any traffic not concerned with oil or gas rigs. Fighter-bombers stand by to lend muscle to this surveillance. Ships of the Royal Navy with helicopters and strong Marine detachments aboard are on call in locations from which they can reach suspicious vessels or threatened oil platforms on short notice. Regular exercises are conducted under all weather conditions to prepare these forces for any eventuality.

There is, of course, the possibility that the expected oil riches of the North Sea may prove to be a chimera. Because of its extremely difficult production circumstances, it is much more costly than Mideast oil. If the price of the latter is lowered in a well-planned economic war, it could put the North Sea oil rigs out of business. Europe's oil finds should therefore be considered only as insurance against blackmail until other energy sources have been developed and introduced. Those nations trying to cure their economic woes primarily with the fleeting riches of their oil wells, and at the expense of European unity, are ill advised. In the long run, united Europe will offer better security for the West.

But for the present, at least, the North Sea oil fields have created a novel military problem. It probably is inevitable that, like Britain, other nations participating in the oil venture will create special defensive forces to protect their offshore properties, regarded as of fundamental importance to their economies. ■

Aspiring sincerely to an international peace based on justice and order, the Japanese people forever renounce war as a sovereign right of the nation and the threat or use of force as a means for settling international disputes.

In order to accomplish the aim of the preceding paragraph, land, sea, and air forces as well as other war potential will never be maintained. The right of belligerency will not be recognized.

—Article 9, Japanese Constitution (1947)

For a variety of reasons, Japan, the world's third-ranking economic power, maintains a totally defensive military posture at a cost of one percent of her GNP. Although she depends heavily on the US for her security, this seemingly unequal arrangement is vital to our national interests.

The US-Japanese Alliance and Stability in Asia

By COL. ANGUS M. FRASER, USMC (RET.)

IN JULY 1975, Prime Minister Takeo Miki said that his forthcoming visit to Washington would be of utmost importance in strengthening relations between Japan and the United States and thus would contribute more to both countries and the world. In the Joint Communiqué of August 6, President Ford and the Prime Minister expressed the conviction that the Security Treaty between the two nations had "greatly contributed to the maintenance of peace and security in the Far East."

They further said that the Treaty was an indispensable element of the basic international political structure in Asia. The long-term interests of both countries were served by its continued maintenance. This testimony to the durability of an alliance, at a time when the future of US relations and policy in Asia was under critical review, was most welcome. But what actually *does* the Treaty mean to the security of the parties?

Japan's Situation

Japan does not operate a global security system, as do the two superpowers, and thus affronts the generally held idea that there must be some symmetry between economic status and military strength. If Tokyo believed this, she would field the world's third-largest armed forces, since that is where Japan ranks among the economic powers. Actually, for a number of reasons, Japan maintains a very low, nonaggressive military posture. There is a complex of ideas and examined experience that operates on the processes of military thought in Japan. Some of the more important ones are:

- The "nuclear allergy" induced by Japan's unique experience as the only target ever struck by these weapons.
- The constitutional constraint on military forces as it appears in Article 9, quoted above. Legally and emotionally, this principle has a strong effect on many people.
- The opinions and attitudes of other nations, particularly those that had experience with Japan in World War II.
- The cost of modern military forces.
- An acute awareness of the vulnerability of Japan proper and the supply lines that maintain her.
- The growing focus on détente and the consequent lessening, in Japan's view, of prospects for major conflict.

• The perceived lack of utility of armed forces in dealing with Japan's unique problems. There are latent factors that might operate to offset those listed, including historically powerful nationalism and the possibilities of changed attitudes in management and labor should prosperity decline sharply because of another's military power. Given the force of the attitudes noted above, and awareness of the state of Japan's defense forces, what may be the strategic role and significance of Japan?

The experience of World War II left the Japanese people with a deep antipathy toward war as a tool of national policy. The Occupation, under General MacArthur, led and pushed toward massive political and social change. One of the products was the Constitution. National police and coast guard units were established, but any appearance of regular military forces was avoided. The Korean War led the Occupation authorities to encourage expansion in the size and mission of the existing forces. Quietly, but very effectively, Japanese maritime units assisted the US Navy in Korea by sweeping mines there.

Since Korea, the forces have undergone significant transformation, but political considerations have been strong enough to assure that self-defense remained the primary function. Any new weapon or system is carefully examined by the government's political opposition for offensive capabilities. Too-close alignment with the US is sometimes questioned, both within and outside the ruling party. A recent manifestation of the climate appeared in the government's reiteration of its policy of avoiding command and operating arrangements that would integrate Japanese and American forces into single units. The need for consultation at the political level was again stressed.

Whatever the effects of moral, political, and ideological conditions may be, Japan faces the constant fact of her vulnerability to the weapons of modern war, and most particularly to nuclear attack. No place in Japan is more than seventy-five miles from the sea. The concentration of heavy industry in the Tokyo-Yokohama-Osaka area is the heart of Japanese productivity. More than half of this complex could be destroyed by about sixty weapons comparable to those used at Hiroshima and Nagasaki in 1945. A recent news story put the situation in more up-to-date terms, saying that "eight well-placed ten-megaton bombs [far from the largest size] could obliterate the central parts of Japan's industrial belt, where the great majority of its people live and work."

The economy of Japan depends completely on imported raw materials to maintain anything like a reasonable prosperity and standard of living. The oil situation is frequently cited as the most critical and important demonstration of this fact. In 1973, Japan imported approximately 275,000,000 tons of oil, more than ninety-eight percent of total consumption. About fifteen percent of this came from Indonesia; the rest from the Middle East and Persian Gulf. Visualize the magnitude of this operation: 4½ tankers, each the equivalent of 200,000 tons, must enter Japanese ports every day. If all tankers were of this uniform size and moved constantly at fifteen knots, there would be a ship either going to or coming from Japan every fifty miles between the head of the Persian Gulf and Honshu.

The experience of the recent oil crisis left Japan feeling that her interests were of secondary importance to those of Western Europe, that there was little that military force could do to ameliorate the situation, and that Japanese well-being rested on an extremely fragile base. Into this situation there entered the People's Republic of China, beginning to exploit its newly developed resources. In one year (1973) China sold Japan more than 3,000,000 tons of oil. Chinese production capacity is now estimated to reach 50,000,000 tons by 1980, with massive further expansion likely. A share of this would help Japan, but it does not—and cannot—promise to replace that solid base of Middle East oil upon which modern Japan has been built. China's entire estimated output for 1980 would keep Japan going for just over two months at 1973 consumption rates. What is true of oil is also true of such other essentials as iron ore. Japan unaided could be brought to desperation very quickly by effective sea blockade and submarine attack.

The actual perceptions of the leadership tend to lessen concern over defense. The threat from China is not taken too seriously at the moment. China's over-water offensive capability is very modest; further, the Japanese simply do not see the occasion for war between the two nations. China, for its part, has been suggesting to visitors that Japan's Treaty with the US is a necessary stabilizing element in Asia today. The Soviet Union is more dangerous in Tokyo's thinking, but the vast spread between the force that Moscow could project and the maximum response that Japan might be able to produce at any time in the reasonable future reinforces the basic operational concept that Japan's only hope is to depend on US nuclear deterrence and to hold out under conventional attack until the US could intervene. Should Washington not react effectively, there is no hope for Japan in any case.

Logic, then, demands that resources not be directed to hopeless causes. The integrity of the American commitment offers the only reasonable security for Japan. The Self-Defense Force (SDF), even granting some modest ability to operate for a period, is still clearly the rent that Japan pays on the Seventh Fleet and the Pacific Air Forces. This is not intended to impugn the motives or actions of Japanese leadership; rather, the situation represents the best

Since his retirement from the Marine Corps in 1964, the author, Col. Angus Fraser, has been a research analyst and consultant on Asian affairs. Colonel Fraser served in North China at the close of World War II and was Senior Marine Adviser to the Republic of China in the early 1960s. He is a graduate of the British Joint Services Staff College and of the National War College, and is author of The People's Liberation Army: Communist China's Armed Forces, *published by Crane and Russak in 1973. His article "What's Going On in China?" appeared in the June '74 issue of this magazine, and he frequently reviews books on China for "Airman's Bookshelf."*

position obtainable, given the resources and vulnerability of Japan.

Japanese Defense Planning—Politics and Money

The role of consensus is a major aspect of the mechanics of Japanese politics. The Liberal Democratic Party (conservative and business-oriented) is made up of several factions whose goals and programs cover a fairly wide range. The success of a faction is dependent in part on the financial support and backing of business groups. In practice and principle, the several factions have to reach agreed positions and policies in order to govern. The representation for increased armaments and a more aggressive strategic policy includes a few of the old conservatives, some interests that would profit from expansion of the SDF, and a group of younger politicians whose memory of the past is not as sharp as that of their elders. It is correct to say, however, that while this group is politely heard, it lacks the strength to have real effect in changing direction. Opposition elements, all of which take a stand opposing the LDP in defense matters, exercise some influence by the process of abstention or absence if a measure really distasteful to them is being pushed.

Trying to avoid the ruthless use of the majority's power often induces caution and some reluctance in the ruling party and, consequently, leads to plans and programs that will satisfy the minimum requirements of as many groups as possible. It is normal for the opposition to question the government about observance of constitutional restrictions on the size and function of forces, commitment to US strategies, and the use of bases by American forces. The net effect of the built-in need for consensus is to inhibit the introduction of measures that would substantially increase defense costs or capabilities, or appear to make Japan too dependent on Washington.

The system for producing military plans and programs makes civilian influence strongly felt. The staffing of the Japanese Defense Agency (JDA) includes a preponderance of civilian bureaucrats at decision-making levels. The Agency itself does not have ministry rank, being part of the Prime Minister's office. After plans are drafted and processed in the JDA headquarters, any having budget implications must clear party and legislative committees before going to a vote. The Finance Ministry is particularly powerful, but the total constraining effect of priorities that override defense requirements is a product of many influences.

A good demonstration of the way this works may be inferred from the budget submitted in January 1975 for the Fiscal Year beginning April 1, 1975. In a $100 billion budget, amounts requested included: Social Security—$13.1 billion; public works—$9.7 billion; education and science—$8.8 billion; agriculture—$7.25 billion; defense—$4.4 billion. This last figure equals 6.3% of the operating budget. For comparison, this percentage in FY '73 and FY '74 was, respectively, 6.55% and 6.39%. The maintenance of military budgets at one percent or less of Gross National Product has become institutionalized to the point where violation would be a serious political hazard unless there had earlier been general acceptance of a new order of threat to the country.

It is this phenomenon that excites some Americans, whose national military requirements run between six and seven percent of GNP. While the Japanese defense budget increases steadily in the actual amounts allocated, increases do not alter defense percentage shares of resources or the comparative weight of the demands of other programs. The problems of inflation have, as will be seen, forced major cutbacks in some very important programs for improving and expanding defense capabilities.

Japanese Defense Planning—Posture and Equipment

In 1957, the Cabinet produced "Basic Policy for National Defense." This document has since dominated articulation of strategic policy, at least in its public expression. The basic purpose of defense is said to be prevention of aggression, direct or indirect, and if invaded, to repel the attacker. The principles of defense were listed as support for the activities of the United Nations, promotion of national welfare and enhancement of the spirit of patriotism, gradual development of effective defense power, and coping with aggression by recourse to security arrangements with the US, pending effective functioning of the UN. Recent treatments of defense matters, including the Defense White Paper of October 1970 and the LDP-sponsored study on security policy of July 1973, invoke the earlier statement as the source of principle.

More recent statements do not in any significant way depart from guidelines that continue effectively to control the general size and shape of the several components of the Self-Defense Forces. Although there are hedges and reservations over the long-range possibility of purely defensive nuclear weapons, there has been no influential advocacy for systems that would not comport with the spirit of the 1957 pronouncement.

Japan's defense materiel production has been systematized into a series of Defense Buildup Plans. These plans now cover five years and are implemented by annual budgets. The current Plan, the Fourth, runs from FY '71 to FY '76. (The Japanese fiscal year begins on April 1.) There have been discussions of changing to something more nearly like a "rolling" plan in which long-term goals are revised and restated annually.

The authoritative International Institute for Strategic Studies, in "The Military Balance

1975–1976," gives these figures for some of the principal elements of the Self-Defense Forces:

Ground SDF—155,000 men.
13 divisions (1 mechanized) and 13 brigades of various types; 600 Type 61 tanks and 430 Type 60 armored personnel carriers; 250 helicopters.

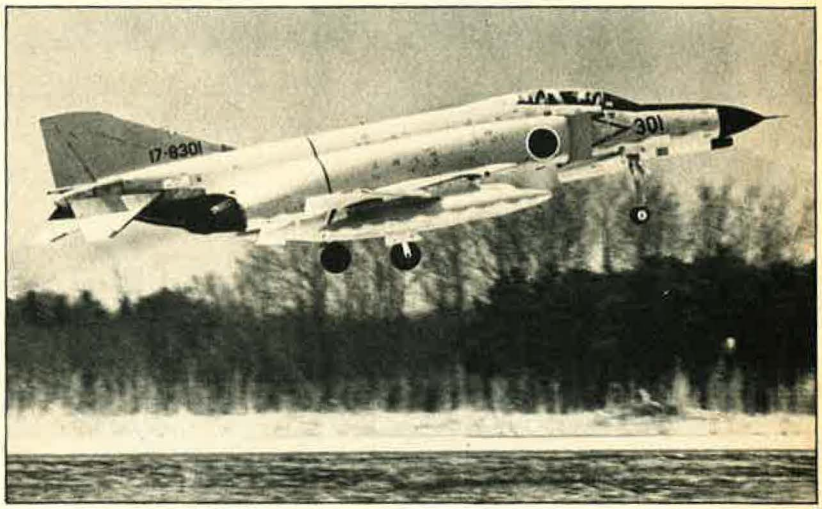
Maritime SDF—39,000 men.
15 submarines; 29 destroyers, two with three helicopters and others with combinations of ASROC and helicopters; 16 frigates, 8 maritime squadrons with assorted types of aircraft.

Air SDF—42,000 men.
445 combat aircraft, including 5 fighter-ground attack squadrons with 150 F-86F; 9 interceptor squadrons with 170 F-104J, 80 F-4EJ, and 30 F-86F; 10 RF-4E and 5 RF-86F (reconnaissance); 2 transport squadrons with C-46, YS-11, and C-1 aircraft.

In-place air defenses include 140 Hawk missiles, five groups of Nike-J surface-to-air missiles, and a Base Air Defense Ground Environment with twenty-eight control and warning units.

The units and weapons listed here are, of course, only part of the total force, but as main systems they serve adequately to support some assessment of the modest power which Japan disposes. The general impression of defensive orientation is reinforced by the small numbers of amphibious vessels and the absence of any sizable airborne capability. The plan to mechanize a total of five ground divisions, all to be stationed on Hokkaido, would indeed strengthen defenses there if hostile landings were attempted. According to some observers, the military logistics system is inadequate, particularly in ammunition and POL manufacture, storage, and distribution. There are also said to be gaps in early warning and air defense control networks.

The Fourth Defense Buildup Plan put forward an impressive modernization program, within the limits of the general constraints described earlier. Time brought problems. Shipyards complained that they were forced to accept "red ink" orders. Recruiting for ground forces, even in a time of reduced civilian opportunity, was not overly successful. Most seriously, the oil and associated world economic conditions forced reexamination of programs. The depth of the commitment to holding the budget line is reflected in the fact that budget overrides or supplementary military appropriations have not appeared. Instead, the content of military programs and the level of sophistication of



The Japanese Air Force has some 445 combat aircraft, about two-thirds in an air defense role, and eight Navy maritime squadrons for reconnaissance and patrol. Top, a specially designed flying boat for operations in choppy seas. Middle, the McDonnell Douglas F-4EJ, built in Japan by Mitsubishi for the Japanese Air Force. Above, the T-2, a Japanese-designed and -built supersonic trainer.

The JAF has two transport squadrons and an SAR wing. Top, the Japanese-built C-1. Above, the Kawasaki/Boeing KV-107-II-4 helicopter.

some newer items have been reduced. The following table gives some insight into the way the problem of inflation was handled:

ITEM	ORIGINAL INCREASE (over end 3d Plan)	FINAL INCREASE (as of FY '74)
F-4EJ fighters	76	46
C-1 transport aircraft	30	13
Destroyers/escorts	23	13
Submarines	9	5
New Main Battle Tanks	290	160
Helicopters (Army)	230	190

This is only a sampling of reductions in program goals, and further cutbacks appear for FY '75 and FY '76. Of great significance is the identity of some of the items eliminated or sharply reduced in number. Originally, it was planned to build four modern new destroyers with helicopter-carrying capability. Two 8,000-ton ships were to accommodate six helicopters each; two smaller vessels each were to operate three. As of this writing, only one of the smaller vessels remains in the program. High-performance aircraft acquisition is also being substantially slowed.

American grant military aid to Japan ceased in 1965. For FY '71, procurement from the US for licensing and actual materiel came to about $135 million. As would be expected, Japanese industries are gaining in their share of the military market. Under the Third Plan, that share was 62.4% and is expected to be eighty-one percent in the Fourth. Recent economy measures and cutbacks have further reduced the US portion of the market.

Japan has moved steadily toward the ability to produce most of the armaments she needs. The shipbuilding industry can cope with any demand that could be made of it. Ground force equipment is no problem for Japanese industry. Superior tanks and other combat vehicles do not strain the system. Although Japan is now making an excellent military transport aircraft and a jet plane that can be configured for training, ground support, and surface attack missions (FST-2), the government comes to the US for first-line fighter-interceptor needs. At this time, Japan is building, under license, the F-4EJ. The "next-generation" fighter is under active consideration. A party has recently traveled to Europe to look at production there, but it is more likely that the choice will be made from among the oncoming products of the US, with manufacture in Japan under license continuing.

It is in the field of sophisticated electronics for all services and air defense systems that Japan is most dependent on the US. The R&D and production bases of the Japanese electronics industry could no doubt support SDF demands for the full range of land, sea, and air, but against this capability must be weighed the cost of broad front programs and the need for extended production runs to amortize their cost. Expansion of effort is discussed, as in a

plan to produce indigenous airborne early warning equipment. This program was dropped because of time and cost considerations.

Politically, Tokyo would be restrained from reducing the "per item" costs of military equipment by selling to other nations. This would create concern in many quarters over the implications of expanded production capacity on the strategic posture of Japan herself.

The Physical Potential of the Self-Defense Forces

It is extremely unlikely that any substantial defense problem can be solved by the forces in being and projected in current plans. In September 1973, Mr. Kubo, the Director of the Defense Bureau in the JDA headquarters, told the Cabinet Committee of the Upper House that the naval force could provide one-sixth to one-seventh of the escorts needed to protect the seaborne traffic into the home islands over two 1,000-mile routes—one from the southeast and one from the southwest. Air forces, he said, could deal with thirty percent of 800 incoming aircraft. It was later announced that Mr. Kubo was misquoted, but no substitute figures appeared.

In an article in the Washington *Post* of August 6, 1975, Don Oberdorfer recounts "Osamu Kaihara, the former secretary-general of the government's National Defense Council, recently estimated that Japan's small air force would be effective for about ten minutes against a powerful conventional enemy. He said the navy would last two to three days, and the ground forces four to five days before being overwhelmed."

The Japanese situation has been extensively played out and analyzed. The rules and assumptions about what would be needed to sustain Japan, and for how long, have varied widely and, thus, so have results. One thing is inescapable: Japan would require extensive air and sea assistance if under serious attack by, say, the Soviet Union. Japan's forces could not operate at any distance or for sustained periods far from home bases.

The Value of Japan in US Asian Affairs

American officials, including one President, three Secretaries of Defense (most recently Dr. Schlesinger on August 29, 1975), and many others have urged the Japanese to "do more" in their own defense, with the recurring implication that Japan has had a "free ride" toward her present prosperity because the US has assumed a major share of the defense burden. This line disturbs Japanese leaders and seems to produce little useful change. Slow, incremental progress is being made, but until Japan's perception of danger increases, and then only when a military response is seen as effective, will defense programs increase significantly.

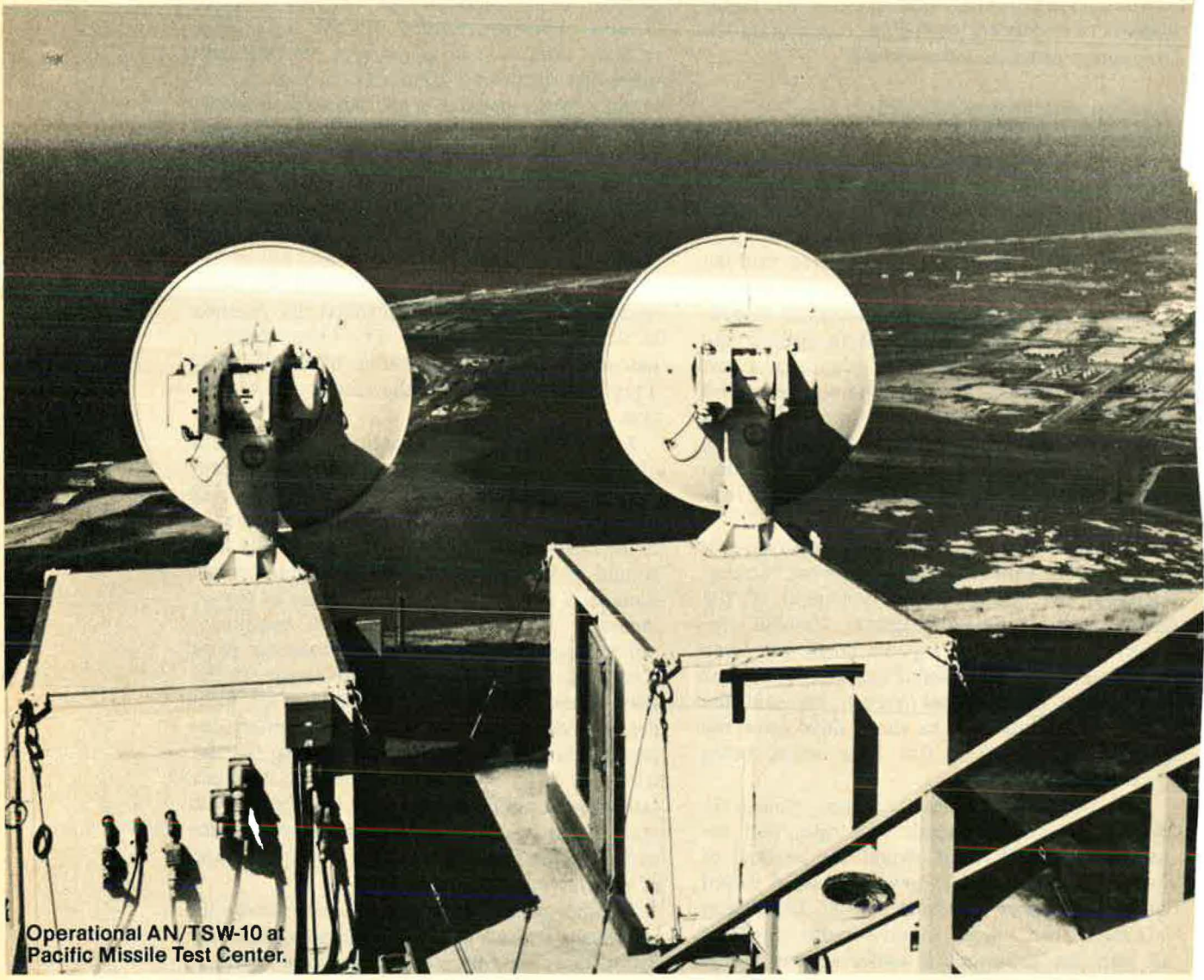
It is proper to ask what the US really needs from Japan. The answer has two components—one political, one physical. Even though Japan lacks intimidating military power, she is still a major actor on the Asian scene. The ability to produce the goods needed for progress towers above all other nations in the area. Aid and support for the backward or less well endowed is most important. Further, by *not* engaging in military expansion or adventures, the Japanese quiet the disturbing memories of past performance. In the positive sense, Japan is a sturdy political ally. In the face of the "Nixon Shocks" (arrangements for President Nixon to visit China, and abandonment of the gold standard, both without prior notification to Japan), Tokyo had to make her own arrangements with the People's Republic of China and adjust her production style in several vital industries. Most importantly, Japan had controlled her reaction to the Indochina situation. The Prime Minister has reaffirmed the importance of the Security Treaty and of Korea in the security of his nation.

In the realm of physical action, any expansion of military capability, within the bounds of conventional defense, would be welcomed by US officials, but no one wants to see an aggressive or nuclear-armed Japan. Problems in this field should not obscure what is most important: American access to and use of bases in Japan, including Okinawa. This use is a continuing political issue in Japan. Requirements for prior consultation are potentially troublesome. In the Diet, it has recently been asserted that US withdrawal from Indochina destroys the earlier concept of American operations extending to "the fringes of Asia." Questions of land use, nuisance factors, and public danger arise frequently. The recent plan to consolidate a number of US activities in the Kanto Plain area may quiet some of the clamor.

In other places, there are even more troubling problems. Taiwan is not an alternative base location after the Shanghai Communiqué, issued during Nixon's 1972 visit to China. Thailand has invited US forces to leave. Philippine President Marcos is searching for new arrangements, the nature of which is not really known, for Clark Field and Subic Bay. If bases in Japan were not available, the unattractive alternative would be major displacement of the center of gravity of the American strategic system in Asia to the eastward, with all the costs and loss of efficiency that such a move entails.

The uncertainties and frustrations within the Japanese-American relationship are built in. They must be accommodated, because they are not likely to disappear. While using all reasonable means to encourage expansion of Japan's part in her own defense, it must not be forgotten that access to such major bases as Kadena, Yokosuka, and Yokota is by far the most important contribution Tokyo can make to the quest for peace and stability in Asia. ■

Putting it all together for an



Operational AN/TSW-10 at Pacific Missile Test Center.

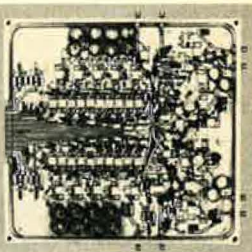
ITCS. Today the Integrated Target Control System (ITCS) stands as a fully matured system. The family of state-of-the-art ITCS equipment includes three types of vehicle subsystems, and long range, short range, and airborne control stations.

The system is now operating routine target missions at California's Pacific Missile Test Center. Controlling multiple drones with time division multiplex. Handling all-attitude maneuvers. Operating at distances to 250 miles. It has also controlled drones from shipboard installations. And ITCS has never lost a single drone.

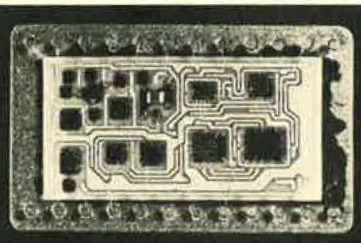
Second generations will soon enter fleet certification.

advanced battlefield RPV link.

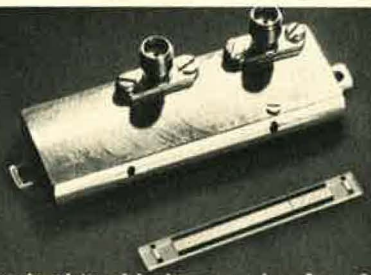
Motorola combat surveillance drone test during late 1950s.



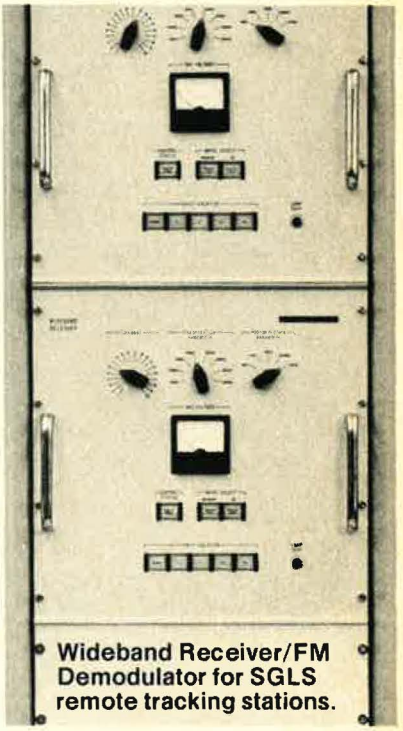
Transversal filter portion of adaptive equalizer compensates for distortion in wideband systems (above 1 gbps).



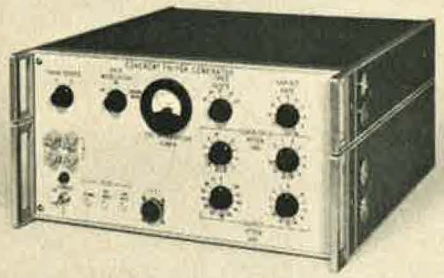
Secure communications analog to digital converter uses aluminum tracks for ultra-high reliability.



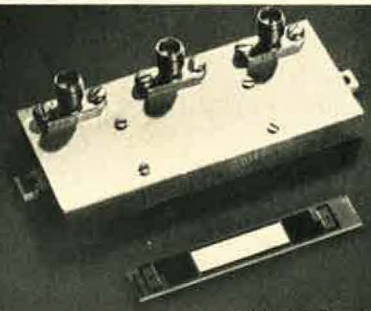
Hundred-tap bi-phase coder. A surface acoustic wave device used for pulse compression.



Wideband Receiver/FM Demodulator for SGLS remote tracking stations.



Unique coherent frequency hopper for simulating variable AJ parameters.



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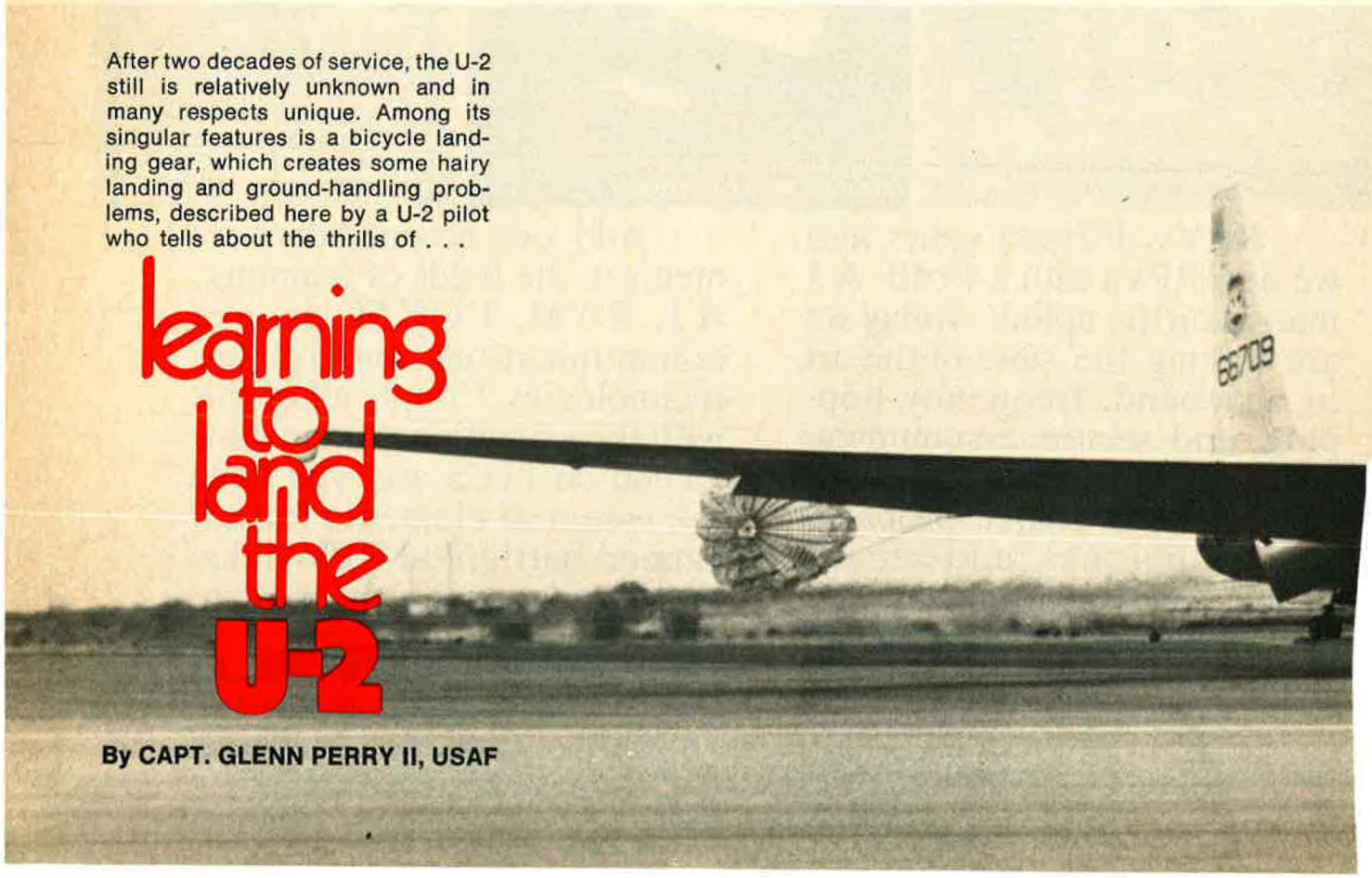
After two decades of service, the U-2 still is relatively unknown and in many respects unique. Among its singular features is a bicycle landing gear, which creates some hairy landing and ground-handling problems, described here by a U-2 pilot who tells about the thrills of . . .

learning to land the U-2

By CAPT. GLENN PERRY II, USAF



AFTER six months of screening, ground school, and lead-in flight training—and of wondering whether I have what it takes to fly the U-2—I'm about to be put to the test. A pilot's initial U-2 flight has lost a little of its tension and sense of somewhat macabre anticipation since the dual-controlled U-2CT came into service, but there still remains an air of excitement unmatched for some since those first few flights in undergraduate pilot training.

I have flown five different types of aircraft, but this bird is markedly different as I am reminded by the sea of white-topped staff cars gathered by the runway for the festivities. Initial qualification flights, particularly "IQ-1," have traditionally produced some anxious moments as the new pilot struggles to overcome the aircraft's strange landing characteristics, and attempts to plant the machine's bicycle landing gear squarely on the runway.

I've spent many hours in the U-2 cockpit becoming familiar with the layout, but everything is still a bit mysterious as I sit in the front seat and get strapped in by the life-support technicians. Even on low-altitude flights, all hookups are performed and double-checked by a team of two specialists. With an enthusiasm born of both professional pride and concern that I might overlook a portion of the support systems preflight, they lean in to check every connection, warning light, and gauge. Once I've run through the checklists leading to engine start, a final check of my equipment is made by a brother U-2 pilot serving as "Mobile." In a time-honored ritual that seems as solemnly ceremonial as it is necessary, he closes the canopy and watches as I latch it from the inside and remove the appropriate safety pins.

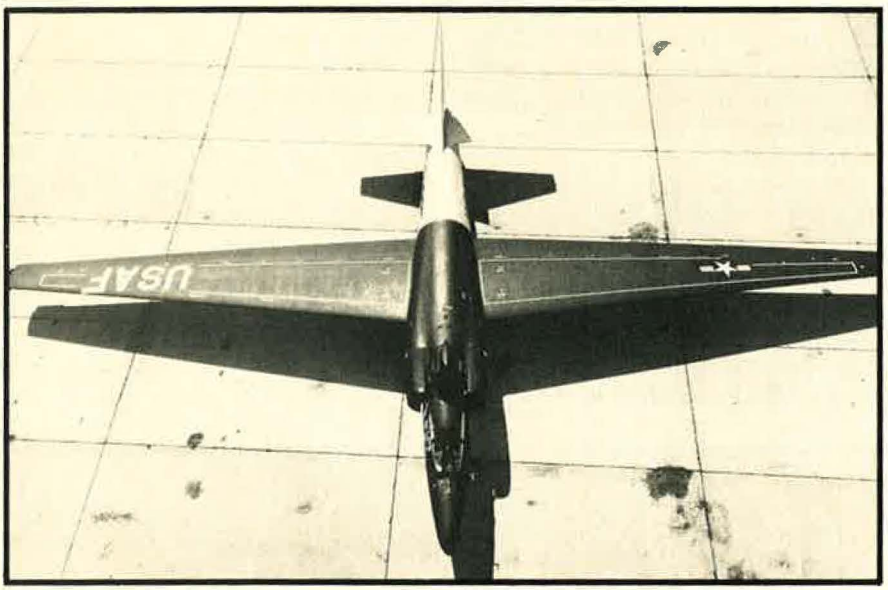
Above and behind me the instructor Pilot (IP) in the rear seat has completed his checks and is ready to start the engine. The U-2CT was constructed by inserting a second cockpit in the fuselage behind the original. The resulting bulbous appearance has spawned numerous jokes, but the peculiar configuration gives the IP excellent visibility and control from the back seat.

The engine cranks up smoothly as the IP makes the start on this flight. I am reminded immediately of the reference to the distinctive whine of the U-2's engine, made by Francis Gary Powers, the U-2 pilot who was shot down over Russia on May 1, 1960, in his book, *Operation Overflight.* I find it an unusual sound, possibly because of the seeming incongruity between the delicate airframe and the absurdly powerful engine.

Mobile monitors all phases of takeoff and landing from a radio-equipped El Camino pickup truck powered by an old but very potent 396 CID engine. Generally, he acts as an extra pair of eyes to make up for very restricted outside visibility from the aircraft cockpit. Mobile calls that the ground crew is clear, and we creep forward, the wings supported by outrigger wheels called "pogos," which are pinned to sockets far out on each wing. On every flight except IQ-1 the pins are removed on the runway to allow the pogos to drop free as soon as the flexible wings develop lift. Today, however, they are double-pinned and will be left in place in order to give me one less variable to think about during the landing.

Full-Stall Landing

We proceed to the end of the runway and I take the aircraft for the first time, to do a high-speed taxi exercise. I am congratulating

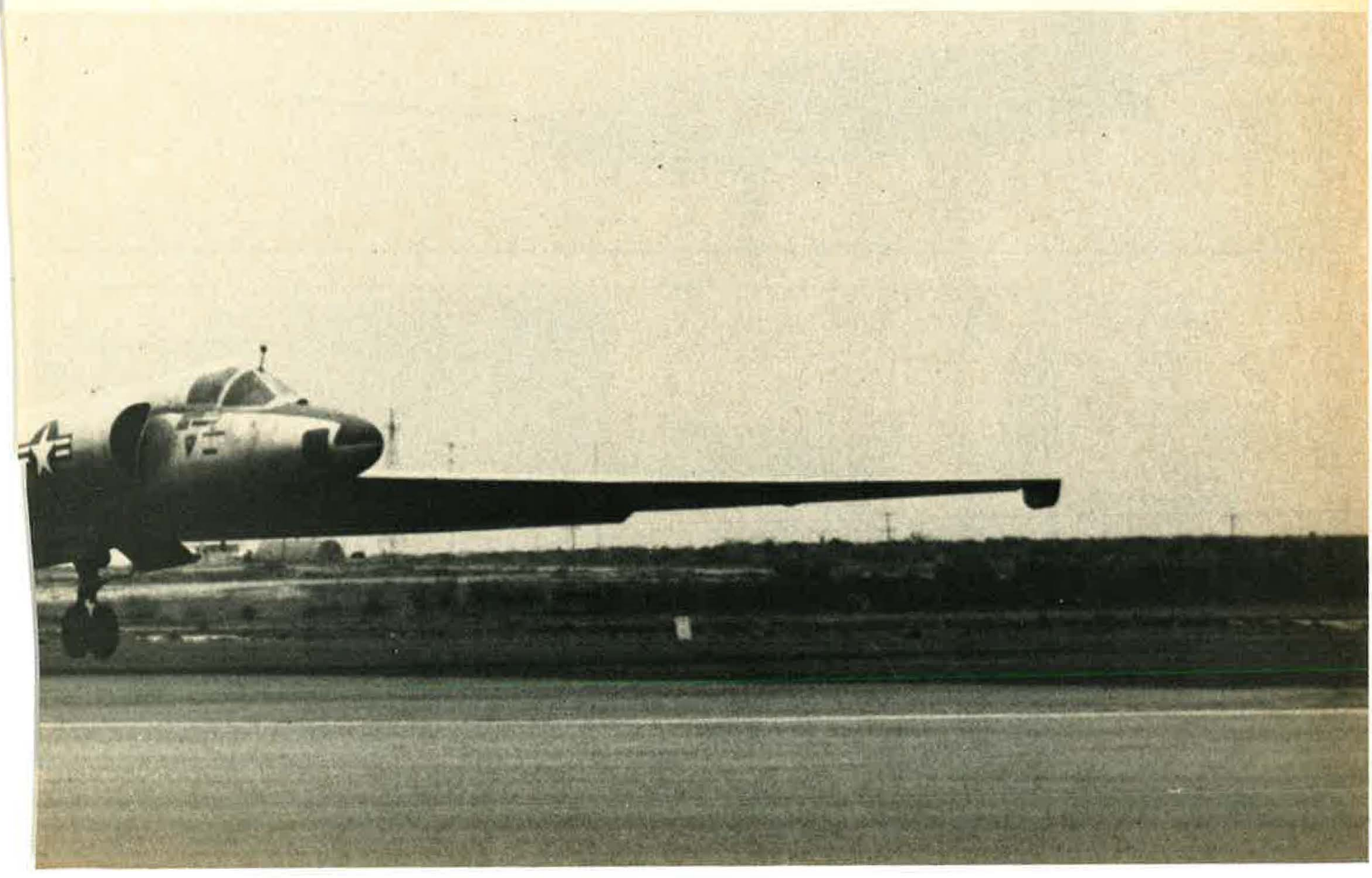


myself for exceptional performance in handling my first tail-dragger, when the IP barks, "Fly the wings!" and I realize that the left pogo is on the ground. At airspeeds of about ten knots the wings are flyable even though the aircraft is not. Proper technique demands that the wings be held absolutely level throughout the ground roll. That is no easy task when all other controls are being worked feverishly in order to track straight down the runway!

I am trying to avoid a ground loop when we finally come to a stop. All this effort and I'm not even airborne yet!

The IP takes the bird and demonstrates a maximum performance takeoff—"launch" might be a better word. In only a few hundred feet we leap off the ground and climb nearly straight up. With the gear down and pogos installed we can still maintain an attitude that makes the attitude indicator completely worthless. I

The U-2CT training model is shown above left. At left is a U-2D. Its long wing and low wing loading make it suitable for many types of high-altitude, long-range missions.



keep waiting for the back side of a loop, but it never comes.

Following some air work, we return to the traffic pattern for touch-and-go landings. The first one—a demonstration by the IP—shows graphically what kind of learning situation I am about to face. A perfect landing in the U-2 is made only by meeting a demanding set of criteria. The IP sets a fine example as he reaches the end of the runway at between five and ten feet altitude and exactly on his computed threshold speed. Then the throttle comes to idle, and he continues a steady descent as the Mobile vehicle dashes madly down the runway behind us, its aged engine straining to the breaking point.

The Mobile Officer calls off our height above the runway, and I suddenly realize how tough it's going to be to see out of this thing. The glare shield and instrument panel obscure everything except side vision and a tiny glimpse of the far end of the airfield. "Eight feet . . . six feet . . . four . . . two . . . one foot . . . holding one foot . . . tail's coming down . . . one foot . . . hold it off!"

The U-2 shakes violently, stalls completely, and slams sharply onto the runway. I am informed over interphone that that was a perfect textbook landing—two point with no crab and in a full stall from one foot. Anything else would in all probability have resulted in a skip, bounce, or wing drop, for the U-2 lands only when it is ready—at the stall speed. The idea is to get the damn thing to quit flying altogether and stay on the ground. Unfortunately, unlike most other aircraft, the landing airspeed window allows only a one- or two-knot deviation at touchdown.

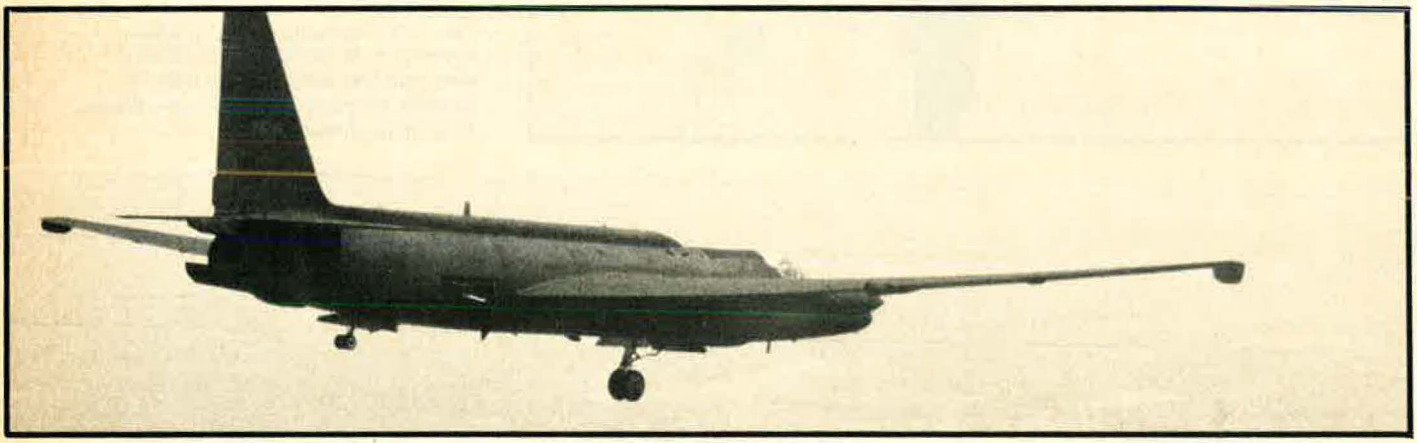
The next landing is to be mine, and I'm justified in feeling that the entire world is watching. Every home-base U-2 landing during daylight hours is videotaped for later analysis. So now, despite having been intimidated by reading numerous accident reports, terrified by watching an actual landing accident on tape, and worried by the incessant question and implication, "Do you really want to do this?", I am about to give it a bloody go.

Tiger by the Tail

My pattern is rough and crude, and I am impressed with the effort needed to fly the U-2. It is like a headstrong child: It demands constant attention to make it obey. I have been briefed to "make it do what *you* want," and the reason for this admonition is becoming abundantly clear.

Somehow I manage to maneuver to the landing threshold at approximately the correct airspeed and altitude. I pull the throttle to idle and listen for Mobile's calls: "Eight feet . . . six . . . four . . . three . . . two . . . one . . . hold it off." Sloppy, but I luck out. It is nowhere near the desired full stall, but at least it is close to two points, and the bird does not come back off the runway.

But once I'm on the runway, my



Many U-2s have been modified and redesignated. At right is an "A" model. Above, a "dog house" equipment housing has been added atop the fuselage, and the same aircraft becomes a "C."

problems have only begun. All my briefing and determination to the contrary, I allow the stick to go forward in an obvious gesture of relief at being on the ground in one piece. The tail breaks loose and starts to do its own thing from one side to the other. I desperately jab at the rudders and finally reduce the oscillations to something manageable. The unavoidable impression is that any minute now this thing is going to swap ends.

"Raise your right wing." I have completely forgotten about the wings and am rolling along on the right pogo. "Raise your left wing." Wings-level eludes me completely as I bounce from one pogo to the other.

"Flaps are up. Reset trim and go when ready." One glance inside the cockpit to check the trim, and I'm headed off the runway again. I slam the rudder, add power, and breathe easier as we end that torment by becoming airborne.

Regardless of what it looks like from the outside, the airplane is landed most of the time with all flight controls moving from stop to stop. Inputs are constant and extremely quick, almost violent. Any bump or change in wind moves the nose drastically and calls for immediate corrections. Even an operationally ready pilot is limited to fifteen knots of crosswind component, as the aircraft weathervanes to the point that full rudder is necessary to keep it lined up with the runway.

The remainder of my landings are a little better, but my control on the runway does not improve at all. It seems that all I have learned is how to recover from one disastrous situation after another. I haven't yet had to relinquish control of the thing to the IP, but I am certainly aware of his presence. I wonder at the anxiety that must have been experienced by those poor souls who had to learn to fly the machine solo before the time of the dual-controlled training model.

Finally we make a full stop, and I realize how exhausted I am. Taxiing back to the parking ramp I look inside the cockpit for an instant and the plane wanders off the center line. Even at ten knots, the beast wants to destroy me!

We shut down the engine, and I crawl wearily out of the tiny cockpit, apprehensive about how my performance measured up and slightly discouraged at the thought of having to review the videotapes. I glance sheepishly to the base of the ladder where a friendly face greets me with, "Not bad," and I realize that my troubles were normal and that almost everyone else has suffered through the same experience.

I feel a slight glow of confidence, but I have so much to learn in a very few flights. Continued improvement is an absolute requirement. There is no margin in the program for weakness. There can be no average U-2 pilots. They must *all* be good.

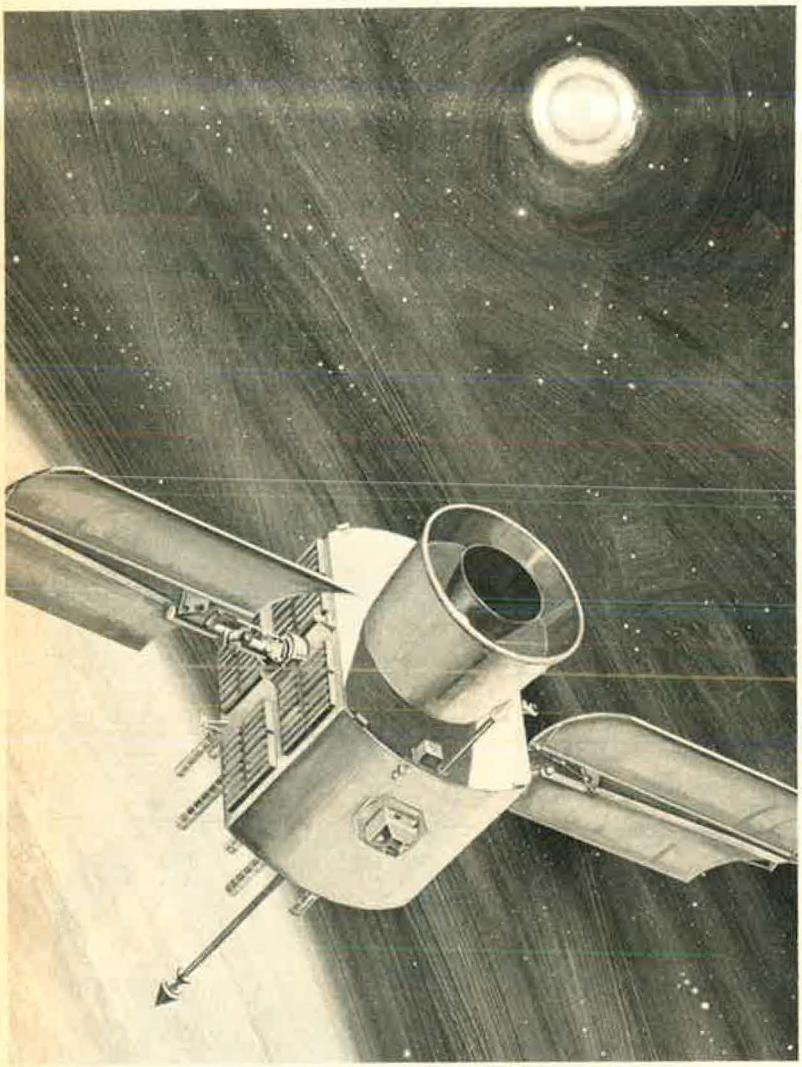
Tomorrow they take away my training wheels. ■

U-2 FACTS AND FIGURES

Designer and Manufacturer	Lockheed Aircraft Corp.
Primary Mission	Ultrahigh-altitude strategic reconnaissance and research. (Following data for all models other than U-2R, except as noted.)
Length	49 feet, 7 inches (U-2R, 63 feet).
Height	13 feet (U-2R, 16 feet).
Wingspan	80 feet (U-2R, 103 feet).
Wing Area	565 square feet (approx.).
Weight	17,270 pounds, with wing tanks; 15,850 pounds clean; maximum takeoff weight, more than 21,000 pounds.
Powerplant	Pratt & Whitney J75-P-13 (17,000 lb thrust) for all existing models.
Maximum Payload	About 3,000 pounds.
Fuel Capacity	1,385 gallons, with two 105-gallon wing tanks.
Range	More than 3,000 statute miles.
Speed	Cruising, 400 knots; maximum at 40,000 feet, 528 knots.
Ceiling	More than 70,000 feet.
First Flight	August 1955.
Crew	Pilot only in most; a few two-seaters have been built.
Escape System	Ejection seats installed after a U-2 was shot down over Russia in 1960.
Production	More than 55 U-2s are believed to have been built, including these model designations: U-2A, U-2C, U-2D, U-2R, U-2CT (Training), WU-2 (Weather), U-2EPX (Electronics Patrol Experimental), and HASP U-2 (High-Altitude Sampling Program). Since production has stopped, newer model designations are modifications of older models.

The author, Capt. Glenn Perry II, graduated from the US Air Force Academy in 1966. After a three-year tour in KC-135s, he served for a year as a Forward Air Controller in Vietnam. On his return from SEA, he was assigned to the 58th Weather Reconnaissance Squadron as an RB-57F pilot. Since 1973, he has been a U-2 pilot with the 349th Strategic Reconnaissance Squadron, based at Davis-Monthan AFB, Ariz.

The Pervasive Importance



GPS NAVSTAR will consist of twenty-four satellites and provide ultraprecise navigation and velocity data for strategic as well as tactical systems.

THE long hiatus in US ICBM development that began in 1968 with the cancellation of USAF's WS-120 large-throw-weight missile program could end during 1976 when USAF's MX program is likely to achieve prototype status. MX is, and presumably will continue to be for at least two more years, a collection of technological options for a large follow-on ICBM with a throw weight several times that of Minuteman III and capable of mobile basing.

Lt. Gen. Thomas W. Morgan, the new Commander of AFSC's Space and Missile Systems Organization (SAMSO), told AIR FORCE Magazine that a DSARC (Defense System Acquisition Review Council) meeting, authorizing development on MX, will probably take place "in the first part of 1976." DSARC I is not expected to authorize more than prototype development and test of key systems elements to support selection of a specific configuration and deployment mode several years hence. Stressing the fluid state of the MX program, General Morgan said that in all likelihood "it will be silo-based, but with mobile deployment options." Although the current emphasis is on a ground mobile system, he said it "would be premature" to rule out selection of an airmobile system.

The SAMSO Commander explained that the current MX Advanced Technology Program is "not a program for a follow-on missile as such" and remains one step removed from the integrated, systematic effort "essential to actual development of our next generation ICBM." He expressed "more than a little concern that there is not yet a definite follow-on missile program, because I think that we are running out of time for the preliminaries. Even with the advanced technology and the basing options that the current program gives us as the building blocks for our next missile, we must not underestimate the lead time that a new major missile system will inevitably cost us. The Advanced ICBM Technology Program is of great potential value, but I feel strongly that we must lose no time now in using it as a stepping-stone to prompt development of the specific advanced system that we refer to as MX."

Two factors intensify DoD and USAF concerns about accelerating MX, as the Air Force Association's 1975–76 Statement of Policy hinted at *(See November '75 issue.)* First, recent Soviet ICBM tests indicate that the USSR has found an ingenious way of overcoming the so-called fratricidal effect (debris, turbulence, and emissions from the detonation of one warhead either destroying, damaging, or diverting other warheads approaching the same target area at approximately the same time) by

Space, already a significant military medium, is becoming even more important as computer miniaturization makes it possible to assign complex command control and communications functions to satellite systems. In this first media interview, the new Commander of SAMSO examines . . .

# of USAF's Space Mission

BY EDGAR ULSAMER, SENIOR EDITOR

synchronized use of high-beta (fast), relatively small, reentry vehicles as well as low-beta (slow), big-yield warheads.

If deployed by the same ICBM against the same hardened target, such as a Minuteman silo, the time lag between the "fast" and the "slow" warhead is sufficiently long so that the fratricidal effects of the first one will be largely dissipated by the time the second one arrives, especially if the high-beta RV is exploded above the ground to minimize debris ejection. This technique could increase the so-called kill probability of Soviet ICBM attacks on fixed-silo ICBMs. The second reason why MX is gaining in priority is that there is little likelihood that the Minuteman production line can be kept open indefinitely.

MX Design Options

MX, as presently envisaged, is not meant to replace all or even a majority of USAF's fixed-silo ICBMs. "The concept is not to take 1,000 Minuteman missiles and to make them mobile. Rather, the concept is for a small mobile force in addition to the silo-based missiles," according to General Morgan. Such a mix is thought to be the most economical approach to assure a survivable ICBM force from 1985 on.

MX, General Morgan believes, will be in the 150,000-pound class and won't require extensive, costly modification of existing silos. These silos "represent a terrific investment, are being hardened, and provided with updated command and control systems." US defense planners see no pressing need to match the Soviets in the throw weight of their largest missile, the SS-18, that is putatively in the 15,000-pound range. An MX throw weight, roughly equal to that of the Soviet SS-19 and about half that of the SS-18, is considered adequate to meet all future deterrence requirements, given the high level of US guidance technology.

Several important questions concerning MX's guidance and warheads will remain open until the missile's design is agreed on, but a general goal, to provide "optimum accuracy and yield," is firm, according to General Morgan. Candidates for guidance involve both mid-course and terminal guidance techniques, including tie-ins with NAVSTAR global positioning system, according to Dr. Malcolm R. Currie, Director of Defense Research and Engineering. Since they don't depend on external sensors, such as radar altimeters and antennas, current inertial guidance systems are relatively invulnerable to the electromagnetic pulse of a nuclear weapon's detonation. But if the need arises to drive missile accuracy substantially beyond present levels, "launch inertial systems may not do as well as we would want even though there is still room for significant improvement," the SAMSO Commander suggested.

The reentry vehicle options under consideration for MX include the MK 12A, the so-called LABRV (for large ballistic reentry vehicle), currently under development by the Energy Research and Development Administration (ERDA), and possibly a new design, especially if some systems are held to a single warhead because of SALT. The Advanced ICBM's throw weight makes possible wide flexibility in terms of RVs, so that a mix of reentry vehicles can be deployed on one missile, according to General Morgan. The increased number of MIRVs on MX will not cause degradation of the weapon's hard target kill capability. The Advanced ICBM is likely to include a cannister and variable geometry nozzles. Cannisterization or encapsulation makes possible silo cold launches and at the same time offers advantages in case of mobile basing; variable geometry nozzles, fashioned on the order of a collapsible drinking cup, permit full utilization of the silo's volume, which can't be enlarged substantially under the terms of the SALT accord.

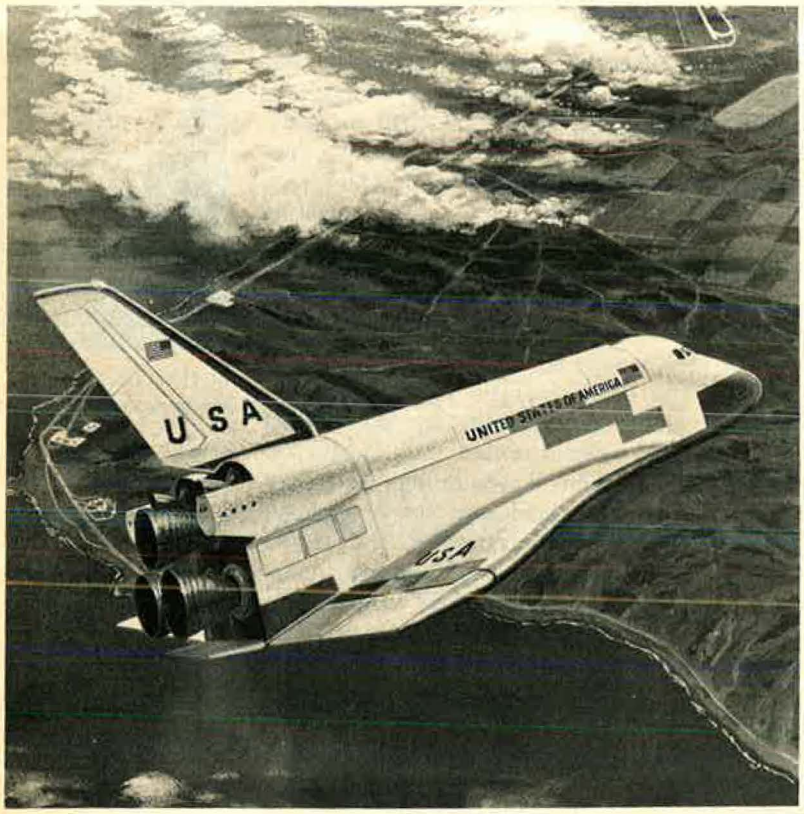
Describing ground-mobile systems currently under consideration as part of MX, General Morgan said they involve variations of the "shell game" principle by using more shelters than there are ICBMs: "To take out any significant number of our force, an enemy would have to dissipate his own attack to an extremely costly and probably unacceptable degree. Another basing mode under consideration is a long trench, hardened to the appropriate degree, in which the missiles might be placed anywhere along the entire length. This would have the added advantage of being a line target, rather than the more easily fixed point target. These

Lt. Gen. Thomas W. Morgan, Commander of AFSC's Space and Missile Systems Organization.

basing modes essentially employ shell-game tactics to increase survivability. The enemy can know where the shelters are without knowing at any given time where the missiles are."

The Revolutionary Global Positioning System

By 1984, SAMSO's Global Positioning System (GPS), known also as NAVSTAR, for Navigation System Using Time and Ranging, will be able to fix the position of any point on or near the earth with an accuracy, horizontally and vertically, of ten meters. The system, based on current projections, will be able to measure



Early in 1983, the Air Force is expected to begin operation of the Space Shuttle from the DoD launch facility at Vandenberg AFB, Calif.

velocity with an accuracy of 0.03 meters per second. Under development by SAMSO for DoD-wide use, GPS, when fully deployed, will consist of twenty-four satellites to generate continuous navigation signals using broad-spectrum techniques and very long pseudo-noise codes to provide secure, jam-resistant operation. Users of the system, be they SLBMs, aircraft, tactical missiles, or foot soldiers carrying an eight- to twelve-pound manpack receiver, remain passive, thus precluding electronic detection as well as saturation of GPS.

Dr. Currie predicted in congressional testimony that GPS will have "revolutionary effect on both strategic and tactical warfare . . . and open vast new opportunities for multiplying force effectiveness manyfold. Ultimately, we may be able to use NAVSTAR to complement our accurate inertial guidance systems." The GPS satellites carry precise atomic clocks, synchronized to common system time. Navigation signals, including satellite location and clock data, are generated continuously and broadcast by each satellite.

GPS works in a manner akin to LORAN but does so in a three-dimensional mode, rather than the latter's two-dimensional position fixing. GPS users receive signals from satellites from which they derive position, velocity, and system time information. The twenty-four satellites of the complete system will be in a subsynchronous, circular, 10,900-nautical-mile orbit, which means that on the average between eight and nine satellites will be in view of any point on or near earth at a given time.

The GPS system will be developed and deployed in stages. By mid-1977, six satellites will be in orbit to permit tests of various forms of user equipment and to support a DSARC decision to move into Phase II of the program. That step will increase the number of GPS satellites on orbit to nine, which, according to Dr. Currie, can be used to improve SLBM and ICBM guidance. By 1981, these satellites are slated to provide a worldwide two-dimensional as well as a periodic three-dimensional position-fixing capability.

Concurrently, limited production of some categories of user equipment will get under way during Phase II of the GPS System. Finally, DSARC III will lead to full development of all twenty-four satellites as well as to production of all classes of user equipment.

Applications envisioned for NAVSTAR are pervasive in terms of military missions, and include precision weapons delivery; en route navigation for space, air, land, and sea; aircraft runway approach; photo mapping and geodetic surveys; aerial rendezvous/refueling; missile navigation system updating; air traffic control and common grid targeting; range instrumentation and safety; and search and rescue operations.

Three types of user equipment are in early development. The most sophisticated unit, called the GPS high-performance receiver, is meant for both fighter and bomber aircraft and retains maximum accuracy under severe dynamic stress and jamming. Cost of the unit is expected to be $20,000 to $30,000, depending on the degree of integration with other onboard avionics required. The installed weight of the unit is not expected to exceed forty pounds. Among the first candidates for this receiver, which requires about 1.6 cubic feet of interior space is the F-16 Air Combat Fighter.

The GPS low-cost military receiver can be thought of as a highly precise, three-dimensional TACAN and will cost about $10,000. Keyed to

minimum life-cycle cost, this unit weighs between twenty and thirty pounds.

The GPS manpack receiver eventually may find comprehensive application, not only with the Army and Marine Corps but also for strategic and tactical missile guidance. Stressing electronic miniaturization, the manpack unit is both small and rugged and has low power requirements. Including its battery, the unit is expected to weigh between eight and twelve pounds and cost about $15,000.

GPS user equipment will undergo initial test at the Yuma, Ariz., Proving Ground early in 1976 with the help of a simulated satellite constellation called the inverted range. The GPS System is being managed by the NAVSTAR Joint Program Office at SAMSO, manned by military and Civil Service staffs from the Army, Navy, Air Force, Marine Corps, and Defense Mapping Agency. Rockwell International's Space Division at Seal Beach, Calif., is building the space-based portion of the system with General Dynamics' Electronic Division of San Diego, Calif., and Magnavox Advanced Products Division of Torrance, Calif., providing the control and user segments.

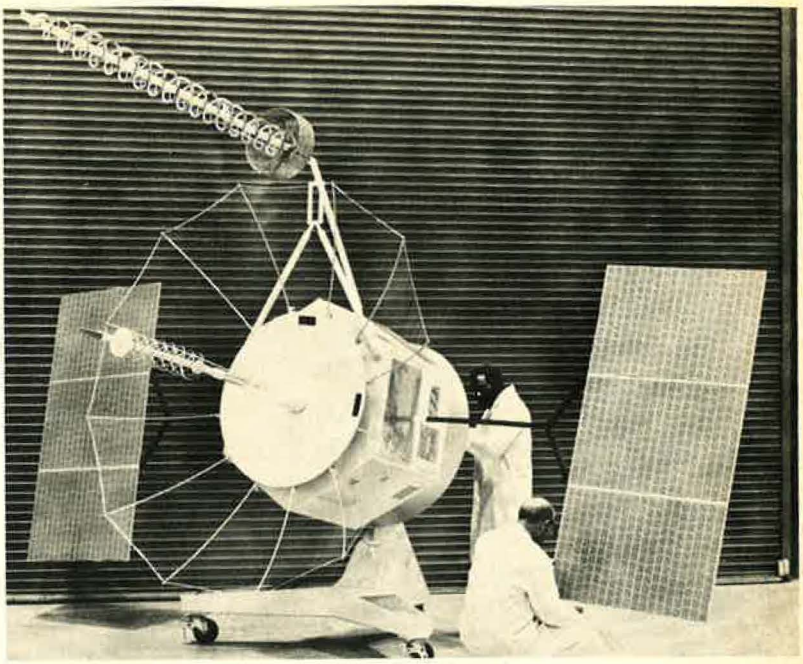
The Space Transportation System

By early 1983, the Air Force is expected to launch the first vehicle of the Space Transportation System, or Space Shuttle, from the DoD launch, landing, and maintenance facility at Vandenberg AFB, Calif. The Space Shuttle, under development by NASA for civilian and military use, consists of an Orbiter, an external tank, and two solid rocket boosters. The Orbiter, which is fully flyable, and the rocket boosters are reusable. The tank is expended on each launch. The Shuttle, General Morgan said, "can deliver payloads of up to 65,000 pounds to a 150-nautical-mile circular orbit at a lower operational cost per flight than the Titan IIIC system, which has a payload capability of 30,000 pounds under the same conditions. I see the 1980s—the time when the Shuttle becomes a proven quantity—as a time of major reappraisal of the role of space in the Air Force future."

Space operations, he said, "offer solutions to some of the major problems besetting our national defenses today," including loss of foreign bases. The Shuttle will be used to bring back to earth malfunctioning payloads or satellites requiring refurbishment, and is designed to provide a "much more benign launch environment than that presently available," according to General Morgan.

Until the Shuttle facility at Vandenberg becomes operational, all missions will be flown from NASA's Kennedy Space Center (KSC) in Florida and controlled by the agency's Johnson Space Center (JSC) in Texas. During this interim period, Orbiter command and control of Shuttle launches with DoD payloads will be exercised from JSC. Flight crews will be provided by NASA, using Air Force pilots detailed to the NASA astronaut corps.

Ultimate management of the Shuttle system is not yet decided on, but several specific solutions are under joint DoD and NASA consideration: A joint DoD/NASA management partnership; DoD-only management; or the creation of a new agency responsible for all systems operations.



Sophisticated antenna system of FLTSATCOM, scheduled to become operational in 1977, is being tested by SAMSO and TRW Systems Group. Both the Navy and Air Force will use this communications system.

Until the Shuttle is fully proven, USAF plans to maintain a backup booster capability and to design payloads so that they can be launched by both systems. After that time, cost savings from eliminating the backup system and by simplified payload design will be realized.

In September 1975, the Air Force announced that the Shuttle's Interim Upper Stage (IUS), needed to place DoD and other Shuttle payloads into geosynchronous and other high-energy orbits, will employ solid rather than liquid motor technology and become available by 1980. The Orbiter can achieve only relatively low earth orbits, in the 100 to 400 nautical-mile range. A large percentage of military payloads requires higher orbits, thus necessitating an additional propulsive stage. The IUS is to perform this task until a permanent upper stage becomes available. Development of the IUS will be tailored to that of the Shuttle in terms of schedule.

DSCS's Evolution

The Defense Satellite Communications System came into being in the second half of the

last decade with the launch of twenty-seven satellites, five of which are still operational after eight years in orbit. This system, and its successors, provide the Defense Department and other government agencies with critically important voice, digital, and imagery transmissions over long distances.

The second phase of DSCS got under way when a development contract was awarded in 1969 to provide a far greater volume of communications, up to 1,300 simultaneous phone calls, or better than a thousandfold increase. Two DSCS II satellites were launched in December of 1973. Two additional satellites were scheduled to be placed in orbit on May 20, 1975, but due to a malfunction of the Titan IIIC launch vehicle's inertial guidance system, they failed to achieve orbit and fell into the Pacific Ocean six days after launch. These satellites will be replaced. The design life of DSCS II satellites is five years.

RCA engineers inspect DoD weather satellite (ISS), scheduled for launch by SAMSO early in 1976.

DSCS III, scheduled to achieve operational status in 1980, becomes necessary because DSCS II is already saturated and because future systems will require comprehensive antijam capabilities. DSCS III, designed for a life cycle of ten years and capable of increased support of tactical and strategic users, will be equipped with multibeam antennas and a jam-resistant command and control system. It will be able to handle more than 1,300 two-way phone conversations simultaneously.

Among other communications satellite systems for whose development and launch SAMSO is responsible is FLTSATCOM (Fleet Satellite Communications). That system, consisting of four relatively large satellites in geosynchronous equatorial orbit, will furnish "near-global" coverage in terms of high-priority communications of the Navy, Air Force, and other DoD users. Scheduled for first launch in 1977, FLTSATCOM operates in the ultrahigh frequency range that allows use of low-cost terminals and simple antennas with good jam resistance. FLTSATCOM provides the Air Force with twelve narrow-band and one wide-band communications channels.

Closely linked to FLTSATCOM is one of DoD's most urgent command and control nets, the Air Force Satellite Communications System (AFSATCOM). Made up of a share of FLTSATCOM and communications packages such as UHF transponders on other host satellites, AFSATCOM will provide a survivable and highly reliable communications net for command and control of Single Integrated Operational Plan (SIOP) forces before, during, and after a nuclear attack.

AFSATCOM links the National Command Authorities to all elements of the airborne SIOP force through UHF terminals on all Airborne Command Posts, the bomber fleet, strategic support aircraft, missile control centers, and other selected ground sites. AFSATCOM's means of communication is two-way hard-copy teletype. Global in scope, AFSATCOM I provides a "modest" antijam capability and some degree of survivability to physical attack because of redundancy of its spaceborne segment, especially that portion which, according to Dr. Malcolm Currie, is installed on "classified host satellites." A follow-on version of this system, AFSATCOM II, is to be defined and put into development by the end of FY '77 with "emphasis on a major upgrade in antijam survivability and improvement in satellite physical survivability," Dr. Currie told Congress.

Key to AFSATCOM's survivability are two experimental satellites, LES 8 and 9, scheduled for launch early in 1976. The two spacecraft will test the feasibility of "high-power radioisotope thermoelectric power sources," (onboard nuclear power generation in place of the highly vulnerable solar panels of conventional spacecraft), elimination of the conventional satellite attitude control sensors that are vulnerable to nuclear effect by substituting a new gyro system, and other techniques to enhance survivability in the case of attack by conventional or nuclear armed space interceptors.

SAMSO is "pretty sure" that the Soviets have no dormant nuclear armed space weapons deployed at this time, General Morgan told AIR FORCE Magazine. But, "by the same token we are fairly sure that they have tested weapons that could be put into space," he added.

While the specifics of how SAMSO plans to achieve high survivability of military spacecraft are classified, General Morgan is sanguine that spacecraft can be protected adequately. Considerable progress is being made in hardening spaceborne computers against various forms of radiation that emanate from nuclear explosions and cause secondary emissions that damage or destroy the computer and its memory. There are design techniques "to bleed off these charges so that they don't get inside the computer and burn up its insides," General Morgan said.

Last year, the Air Force, at the request of USAF Chief of Staff Gen. David C. Jones, conducted a long-range planning study called New Horizons II that projected the likely thrust of military space operations in the 1990s and underscored the value of space to the Air Force in the years ahead. USAF's outlook on space was summed up by General Morgan in these words: "The space program has sometimes been criticized as a luxury our nation can't afford. I earnestly believe that within the next decade it could well prove itself one of the best bargains our country ever invested in for its long-term defense."

Satellites for

TRW's leadership in the technology of satellite communications is demonstrated by two powerful military communication satellites. One of these, DSCS II, is in operation now with a pair of dedicated spacecraft in orbit over the Atlantic and Pacific oceans. When the first full constellation of DSCS IIs is complete, it will provide a global network for the U.S. Air Force and other military users.

An additional system, FLTSATCOM, is now in production for the Government. It will further increase the Defense Department's capability by providing direct communication with mobile terminals anywhere on the surface of the globe.

With the technology that has been developed for these systems, TRW is exceptionally well qualified for the development of such important commercial communication satellites as Intelsat V and TDRSS.

TRW
SYSTEMS GROUP

One Space Park, Redondo Beach, California 90278

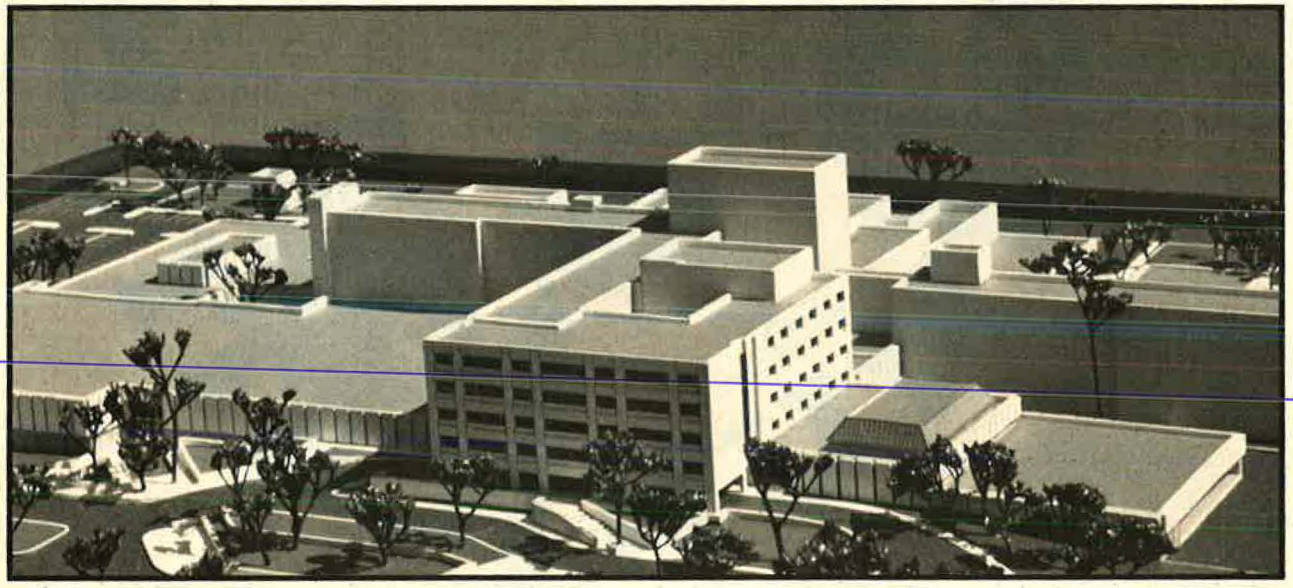
FOUR years ago the Department of Defense disclosed plans to reshape the military medical establishment by concentrating almost exclusively on the needs of active-duty personnel and shifting most on-base dependent and retiree care to civilian facilities. Reducing physician strength forty percent (and dental officer strength by thirty percent) was the way the new look would be attained. Most dependents, retirees and their families, and survivors of deceased service members—these groups now comprise nearly 8,000,000 of the 10,000,000 persons eligible for military medical care—would have to look to CHAMPUS or elsewhere for their health needs.

Revelation of the Pentagon's startling plans stunned the military community. But Defense's scheme—it would have sliced USAF's then 3,800 physicians to a mere 2,280—met stout resistence from military medical officials and the rank and file of the troops.

It didn't come off. USAF today, with a considerably smaller active-duty force, has about 3,150 medical doctors out of 3,500 authorized. Officials expect to make up at least part of that shortage.

Still, "medicare" remains under the gun; threats to different facets of the system persist. During recent years, the medical care picture Defense-wide has been punctuated by doctor shortages, high personnel turnover, long waits for attention by patients, flaps over CHAMPUS, growls over the administration of the doctor bonus, and budget crunches.

As military manpower dwindled during the past several years, numerous bases—and their medical facilities—closed down. Retirees in the immediate areas joined the already large numbers who could not secure on-base care. The tightening of CHAMPUS regulations early last year added to the concern among the service community that its most prized fringe benefit was being torpedoed.



When completed in 1979, the $43 million renovation of the Keesler AFB Medical Center, Miss., will resemble this artist's detailed conception. Wilford Hall Medical Center, Lackland AFB, Tex., is also due for a major refurbishing.

Fretting over possible gutting of the military medicare program had not diminished when, just last March, then Defense Secretary James R. Schlesinger told Congress the government was seriously thinking about "basing the size of military in-house medical operations and facilities primarily on the medical needs of our active-duty forces . . . rather than on active-duty personnel plus dependents and retirees. . . ." An echo of the earlier warning.

At the same time, an on-going interagency study group (including Defens

USAF's two top Medics report innovations in staffing, facilities, and procedures that have put . . .

USAF Medicare on the Mend

BY ED GATES,
CONTRIBUTING EDITOR

and HEW) was preparing to endorse the same proposition—that on-base facilities would be trimmed to accommodate mainly the active-duty force; other customers would have to go elsewhere.

Road to Recovery

But there's been a change in signals. Talk of barring dependents and retirees from base care has disappeared. Much of the "get tough" language originally slated to appear in the interagency medical study has been modified. And the services are urging dependents and retirees to use base facilities and fill up the empty beds at many installations.

Medical care in the Air Force, according to its two most prominent practitioners, Surgeon General Lt. Gen. George E. Schafer and his Deputy, Maj. Gen. Benjamin R. Baker, is making a modest comeback. General Schafer recently acknowledged that only a year ago "there was a lot of gloom and doom about our ability to continue to provide comprehensive health services."

This concern, General Schafer said, has been "significantly alleviated" by a string of recent successes the USAF medical service has enjoyed—in recruiting established physicians from civilian practice, the medical scholarship program, family practice training, doctor "extender" projects, physician bonuses, more training for corpsmen, hospital modernization, and procurement of modern equipment.

General Baker told AIR FORCE Magazine, "We have passed the low-water mark." He looks for a reasonably good year ahead.

Top-notch care is continuing for the troops, General Baker said. He noted that USAF's noneffectiveness rate dropped from 6.8 per 1,000 members in 1968 to 6.0 last year. The average length of hospital confinement plunged from 8.6 to 6.6 days, a cut that helps explain why many beds are available in various USAF hospitals.

"For retirees and dependents, available space is improving, and we are trying hard to fill all beds," General Baker said. He urges persons who were turned away earlier because of lack of space to "try again—the situation may have changed."

Outpatient care also has improved at some bases, and several clinics have extended their hours. Meanwhile, Hq. USAF medical officials are pressuring hospital personnel to improve their techniques in dealing with patients, in person and on the telephone.

Still, General Baker acknowledged, many retirees and dependents, like civilian patients visiting nonmilitary facilities, continue to face long waits for attention. And he's not overlooking budgetary problems.

Defense-wide, health care expenditures are budgeted at about $3.5 billion this fiscal year, including $550 million for CHAMPUS. Congress at press time was making cuts in these figures, an action that caused Defense's Deputy Assistant Secretary for health services, Sherman Lazrus, to forecast a severe medical dollar crunch this year. Mr. Lazrus told AIR FORCE Magazine he sees additional reductions in CHAMPUS services surfacing soon. Mr. Lazrus is particularly concerned about the impact of inflation—which Defense has not allowed for in medical

Lt. Gen. George E. Schafer was appointed USAF Surgeon General in August of 1975.

Doctor staffing is undoubtedly the rosiest spot on the USAF medical care horizon.

budget planning—on military health care programs in the near future.

Staffing Innovations and Improvements

Doctor staffing is undoubtedly the rosiest spot on the USAF medical care horizon. Until recently, the turnover was awesome and recruiting arduous, but the picture has improved swiftly.

Authorities attribute much of this change to Variable Incentive Pay, or doctor bonus. Laid on in late 1974, VIP gives certain medics $9,500 to $13,500 additional annual pay for service beyond their original commitment. Approximately 1,500, or ninety-five percent of the Air Force doctors eligible for VIP, have extended from one to four years in order to receive it. That's a large boost for stability and increased experience in the medical service.

Executive agency budget cutters, however, have been pressing to reduce VIP payments by denying them to some physicians (*e.g.*, administrators and commanders not directly involved in treating patients) and trimming them for others. But top service medical authorities have firmly opposed these pressures. For the time being, at least, they appear to have won the "battle of the bonus."

An early test is nearing, for the bonus authority expires next June 30. Air Force leaders will push hard for renewal, claiming that withdrawal would undermine the entire health care program. They note that with the bonus added to regular pay, military doctors approach what they could expect to earn in civilian practice. As a result, physicians and medical students are looking on military service more favorably.

General Schafer cited the following other "positive things" responsible for strengthening Air Force medical services:

• **Civilian Physician Procurement by the Recruiting Service.** This program has surpassed USAF's "most optimistic expectations." In mid-November, 400 civilian doctors had accepted Air Force commissions and 160 more had been selected. Fear that this program might attract second-raters from the civilian medical ranks has not materialized, General Schafer told AIR FORCE Magazine. He's pleased with their expertise and performance. These newcomers sign contracts for two to four years of service.

• **Health Professions Scholarship Program.** This project, called "increasingly successful," provided USAF 230 new doctors last fiscal year and will produce 285 in FY '76. And 1,300 USAF doctors-to-be are in medical school under the program. Applicants number twice the available spaces.

• **Family Practice.** A family practice unit test program started at Homestead AFB, Fla., in 1972. Highly successful, it was expanded to Bolling AFB, D. C.; Luke AFB, Ariz.; Patrick AFB, Fla.; War-

Major Building Program

To keep its worldwide medical plant modern and efficient, Air Force has vigorously pursued a major building and refurbishing program. As of late last year, additions, alterations, or improvements were being made on medical or dental facilities at eighteen bases. Scores more are in the design, preliminary study, or need-identified stages.

Scheduled for completion this calendar year are hospital improvements at March AFB, Calif., and Eglin AFB, Fla.; a new composite medical facility at Yokota AB, Japan; dental clinic and dispensary improvements at Kadena AB, Okinawa; new dental clinics at Barksdale AFB, La., Shaw AFB, S. C., and Dover AFB, Del.; and a dental clinic addition at Keesler AFB, Miss.

The two largest projects in USAF's long-range medical building program will provide $97.5 million worth of alterations and additions for the 1,000-bed Wilford Hall Medical Center, Lackland AFB, Tex., and $43 million for an overhaul of the Keesler Medical Center. Construction bids for both projects are due to be advertised early this year. Completion is estimated in 1979–80.

Approximately eighty projects at other bases are earmarked for eventual completion under the long-range plan. The more ambitious of these—each will cost more than $20 million—are for Andrews AFB, Md.; Minot AFB, N. D.; Scott AFB, Ill.; Travis AFB, Calif.; Wiesbaden, Germany; and Wright-Patterson AFB, Ohio. The Wright-Pat construction, calling for enlargements and improvements to the hospital and dental clinic, will cost an estimated $50 million. The project is scheduled for inclusion in the FY '78 budget; thus, the work wouldn't be completed until the early 1980s.

ren AFB, Wyo.; Air Force Academy, Colo.; and Beale and Mather AFBs, Calif. The service also started its own in-house residency training program for family practitioners at Andrews AFB, Md., Wright-Patterson AFB, Ohio, and Scott AFB, Ill., with Carswell AFB, Tex., scheduled to be added next June. This highly popular project will continue to expand as more general practitioners become available.

- **Physician Extender Training.** Formal training projects have already produced 500 NCOs, nurses, and others with supplementary skills who can handle "a significant portion" of USAF's primary care workload. The plan is to boost the number to 840 by July. General Schafer said that the "extenders, properly supervised, should provide quality primary care to our many beneficiaries, while sparing higher trained medical staff for those cases requiring their training and expertise."
- **Training of Medical Corpsmen.** Heretofore, up to half the new corpsmen trained on the job following schooling in medical fundamentals. Starting this fiscal year, all corpsmen are receiving formal training to the "3" level, thus assuring they will be more proficient when they report to hospitals and clinics for duty.
- **Facilities and Equipment.** USAF's long-range plan to modernize its hospitals, clinics, dispensaries, and dental facilities is on schedule and every year a half dozen or so are replaced, improved, or enlarged (*see accompanying box for details*). The outlook for equipment replacement "has never been brighter," said General Schafer. He added that purchases in FY '76 "should significantly improve our professional hardware and keep us abreast of the state of the art."

The Cost Squeeze and CHAMPUS

All this is fine, but the knotty problem of how to slow down the ever-rising costs of military medical care casts a disturbing shadow. The Air Force's total health care bill this fiscal year is expected to reach almost $1 billion. And since such care is generally considered a fringe benefit, at least for the dependents, retirees, their dependents, and survivors, the services are prime targets of government budget cutters. At press time, the government was seriously considering imposing a $3.80 fee for outpatient visits by military dependents in base facilities. Also under consideration was a slight increase in the dependent in-patient rate. Officials visualize large-scale savings in medical budgets and a reduced demand for outpatient care.

The cost squeeze results in nonmilitary people—economists, analysts, and cost-control experts—all looking over the shoulders of medical leaders and trying to tell them how to run their business. General Schafer, in resisting these pressures, notes that these people "are concerned mainly with quantities, whereas our medical personnel are concerned with qualities. We focus on humanism and the economists focus on utilitarianism, and this is where we clash."

He said it would be a "betrayal of our trust" to yield to factions that may "drive a wedge between the medical people and the personal care they give a patient."

Actually, Air Force holds that it provides dependent and retiree care at less cost than civilian sources charge under CHAMPUS. For example, in FY '74 dependent-retiree care in USAF facilities cost approximately $180 million, but "had we farmed this workload out to CHAMPUS, it would have cost the government $323 million," General Schafer said.

Even the interagency medical study acknowledges that the military services do the job at a reduced cost.

Still, with inflation and the number of retirees steadily rising, CHAMPUS outlays are going in the same direction. That is why a major Air Force goal is to get patients to use on-base facilities more, and CHAMPUS less. Success here would not only trim CHAMPUS outlays, but also fill empty beds and perhaps even muffle congressional criticism over military medical expenditures.

The House of Representatives for several years has needled the Pentagon about rising dependent and retiree health care costs. In response, Defense last February and March cut out some of the questionable benefits provided under the broad CHAMPUS umbrella. These included payment for pastoral, family, and marital counseling; special education; sexual counseling; treatment of obesity; reconstructive surgery justified on psychiatric needs; and perceptual or visual training.

Fearful that pressures on Defense to restore them would succeed, Congress recently voted to specifically bar funds for several of these items. And, according to Defense officials, more cuts in CHAMPUS services are on the way. USAF medical leaders agree that last year's CHAMPUS reductions were "relatively gentle" and

The knotty problem of how to slow down the ever-rising costs of military medical care casts a disturbing shadow.

Providing the fast-growing military retirement community with health care will continue to cause problems.

agree that the next round "will be tougher."

The House has also quarterbacked another drive to trim CHAMPUS costs, via a "fifty-mile nonavailability" rule. For some years, dependents residing within thirty miles of a military facility have had to secure a "statement of nonavailability" (that the facility could not provide the required care) in order to use CHAMPUS.

However, the House recently voted to extend the distance to fifty miles, thus forcing more persons to try for admittance to military hospitals rather than automatically turning to CHAMPUS. The Senate said that before agreeing it wanted, by next June, a report from Defense on the extent the present rule is honored and how much would be saved by going to fifty miles.

In a related and perhaps even more significant development, the Senate recently told the Pentagon to make a study of CHAMPUS and advise on the feasibility of (1) "converting to a contributory system," or (2) replacing CHAMPUS with the federal civilian employees' Blue Cross–Blue Shield health system.

Big Business

Providing the fast-growing military retirement community with health care will continue to cause problems. Presently there are 1,100,000 retirees Defense-wide (more than half the size of the active force). Counting their families, they number around 3,000,000. And they keep growing; last August the Air Force alone retired 5,731 persons!

Unfortunately, the distribution of retirees around the country places too many beyond the range of military hospitals with empty beds, whereas bases in popular retirement areas cannot accommodate many eligibles. And the situation will worsen if additional bases are closed. The last major medical care wallop retirees suffered occurred in 1973 when thirteen military hospitals, five of them Air Force, closed. Combined they had more than 3,400 beds.

Besides worrying about costs and fighting budget cutters, USAF medical leaders face such diverse problems as keeping up with medical technology, and making sure that health beneficiaries and government leaders alike don't forget the medical service's primary mission: to keep the troops healthy, on the job, and ready to fight should an emergency occur.

While USAF's physician manning improves, its complement of dentists, nurses, and other specialists remains at or near authorized strength. All told, nearly 50,000 persons—from corpsmen to Surgeon General—serve in the USAF medical force at 142 facilities. This includes 1,475 dentists, 3,800 nurses, 315 veterinarians, 1,300 biomedical service officers, 1,400 medical service corps officers, 27,200 corpsmen, and 9,000 civilian employees.

The entire medical team handled more than 15,000,000 outpatient visits and 300,000 admissions last year. They conducted more than half a million physical exams, issued 20,500,000 prescriptions, delivered 32,169 babies, and completed some 18,000,000 dental procedures.

That's big business, and anything but an isolated operation. Military medicine is part of the national debate on health care delivery—costing $118 billion annually—going on throughout the government and medical circles. Most authorities believe some form of national health insurance will surface in the next few years. What shape it may take and its impact on the military community are difficult to forecast.

The Air Force health care team, meanwhile, feels it is second to none in providing high quality care to its beneficiaries. Provided the resources, it fully intends to keep things that way. ■

Legitimate Procedures

Air Force's Surgeon General is more than a little annoyed over press reports that suggest USAF physicians spend much of their time doing face lifts and breast augmentations. In a recent address, Lt. Gen. George E. Schafer "put things in perspective" by noting that during a recent twelve-month period in which USAF's 142 medical facilities admitted 300,000 persons and had 15,500,000 outpatient visits, there were 133 face lifts (three on generals' wives) and 178 breast augmentations.

All were "legitimate medical procedures," General Schafer declared. He scored the press for ignoring "the importance of these procedures for training, the reconstructing or repairing damage from cancer or trauma, or other factors." He deplored the fact that "the day-to-day functions of our medical people in providing health care to thousands of Air Force families get no recognition."

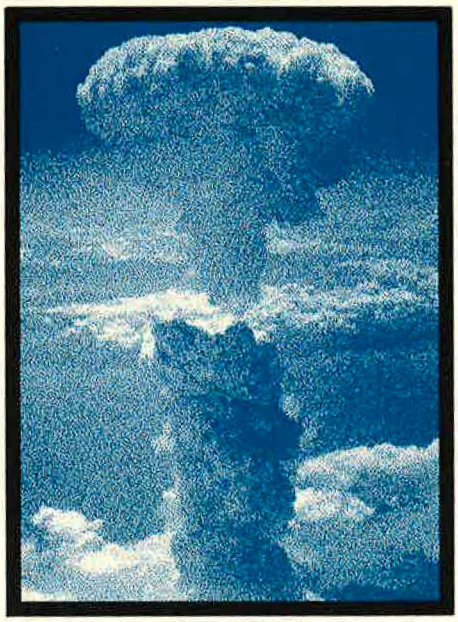
NUCLEAR WAR

The Life-and-Death Issues

FEW issues of national policy rival in emotional impact the specter of "megadeaths" associated with nuclear war; probably none is as unpredictable and as devoid of concrete information. Yet the quintessence of strategic deterrence rests on imagining the unimaginable and, when seen through a would-be aggressor's eyes, on convincing him that his potential gain isn't worth the price of admission.

Future historians may well treat Dr. James R. Schlesinger's stewardship over the US Department of Defense as the heyday of the art of deterrence. Under his direction, deterrence matured into an instrument for rationally and systematically controlling the threat of nuclear war or, in the worst case, for terminating it at the lowest possible level of intensity.

Deterrence, in the last analysis, is terror manipulated in a peacekeeping role. Flexible, or limited, deterrence is at the low end of the scale of terror. That scale extends from the relatively few deaths, measured in thousands, and the localized destruction associated with a limited attack on military targets (limited counterforce), to the wholesale annihilation of an all-out (countervalue or assured destruction) attack on an adversary's industrial and economic centers. It is, of course, not easy to find solace in the casualty forecasts of even the most limited nuclear conflict, but there is no arguing the fact that they provide a firm basis for the concept of flexible deterrence as espoused by the Defense Department under Dr. Schlesinger's aegis.



Thinking the unthinkable, the consequences of nuclear war to the nation and the world, is essential to the formulation and modernization of US deterrence policy. A recent study by DoD of the casualty potential associated with various forms of nuclear conflict illuminates this grim subject.

The difficulty in "quantifying" the consequences of various levels of limited nuclear attacks stems from the absence of empirical data (except for Hiroshima and Nagasaki) and, most importantly, from the wide range of variables that can be fed into any number of credible scenarios. Consequently, even the most meticulously researched casualty assessments can be made to look suspect by insinuating that the underlying scenario is unrealistically optimistic. This opportunity for rhetoric is not overlooked by those who oppose the concept of flexible deterrence.

In September 1975, the Subcommittee on Arms Control, International Organization, and Security Agreements of the US Senate's Foreign Relations Committee released the most comprehensive findings to date, compiled by

BY EDGAR ULSAMER
SENIOR EDITOR

the Defense Department and other agencies, on the effects of limited nuclear war. The central conclusion of these analyses is that in attacks on military targets one side can limit in a meaningful way the other side's civilian casualties. Moreover, the difference in casualties between a war fought on the basis of assured-destruction objectives and one seeking the destruction of only the adversary's offensive strategic capabilities is vast, probably involving a factor greater than ten to one.

According to the DoD assessment, a limited attack on important military targets in the US would cause relatively few civilian casualties. In the case of a nuclear strike against the nation's heavy military air transport fleet and the associated MAC airlift bases, the toll could be as low as 70,000. In the case of an attack on the 200 ICBM silos of the Malmstrom AFB, Mont., complex (about a fifth of the US ICBM total), DoD's casualty estimate ranges from 120,000 to 310,000. In the case of a comprehensive attack on all of SAC's ICBMs and bombers, as well as the Navy's SSBN (ballistic missile submarines) bases, casualties would range from 3,200,000 to 16,300,000, with 6,700,000 the most probable toll. By contrast, an attack on the US industrial and economic centers could be expected to cause about 100,000,000 casualties, according to the DoD study.

Nuclear Weapons' Characteristics

When a thermonuclear weapon of a given yield explodes on or near the surface of the earth, the ranges of the immediate effects are "fairly well defined," according to a DoD assessment conducted under the direction of the Department's Deputy Assistant Secretary for Strategic Programs, E. C. Aldridge, Jr. (The study was undertaken at the subcommittee's request and followed its guidelines. The assessment is an extension of detailed testimony given before the subcommittee by Dr. Schlesinger in September 1974.) Within a certain radius from ground zero, destruction "due to blast and shock, initial nuclear radiation, and thermal effects will be so great that survival of inhabitants in conventional structures is improbable. At considerably greater distances from ground zero, the immediate effects will be weaker or nonexistent and the delayed effects, those . . . associated with the radioactivity present in the fallout, will predominate. It is the phenomenon of radioactive fallout that introduces the greatest uncertainty into assessments of the casualties that would be

'...the USSR has significant control over the number of expected US fatalities... from such an attack.'

expected to result from nuclear attacks on the United States," according to the DoD analysis.

Radioactive contamination of the earth's surface by a nuclear blast occurs in two ways. One results from the generation of neutrons (subatomic particles that are lethal in large doses), which are captured by the soil; the other is caused by fallout of radioactive particles from the cloud formed by the explosion. The amount of contamination and its distribution over the earth's surface, according to the DoD study, "are principally dependent upon the energy yield of the explosion, the relative contributions of fission and fusion to the yield, the height of burst, the nature of the surface over, or on, which the detonation occurs, and finally the meteorological conditions at the time of the explosion and shortly thereafter. For a given amount of fallout distribution, the number of fallout casualties that can be expected to occur is determined primarily by the protection afforded the local populace against residual nuclear radiation."

Thermonuclear weapons have two principal parts: a fission trigger (in fact, an atomic bomb) that initiates the fusion process, or burn, of the second, thermonuclear, part. The relative sizes of the two parts can be adjusted to achieve different results. The fission segment is the principal cause of fallout. The term "clean" nuclear weapons—meant only in a relative sense—indicates that the fission trigger has been made as small as possible in relation to the fusion segment. Conversely, nuclear weapons can be made "dirty" by emphasizing the fission portion and through use of materials with a long radiation half-life in order to prolong the contamination of a given area. The so-called cobalt bomb falls into this category.

The DoD study, based on current intelligence estimates, assumes use of Soviet nuclear warheads whose yield is derived slightly more from the fusion portion than from the fission segment

Various Nuclear Effects

Strategic planners assume that nuclear attacks will involve two forms of weapon detonation—in the air above the target, or on the ground, right on top of a hardened target. (A third technique, involving a heavy, shielded warhead penetrating deep into the ground before detonation, is still being explored, but appears to have sizable drawbacks and limited advantages.)

The highest degree of lethality (destructiveness) from an accurately delivered warhead is obtained through air bursts at relatively low altitudes. This so-called optimum height of burst varies, depending on the weapon's yield and other factors. In an operational sense, the advantages of such a detonation could well be negated by the ultra-precise fuzing required as well as by the attendant magnification of guidance errors. Warheads descend on their targets at an angle, thus compounding the problems of fuzing accuracies of a weapon exploded above the ground compared to one detonated on the ground.

Nuclear scenarios are further complicated by the so-called fratricidal effect that can destroy or deviate a warhead that follows too closely behind the detonation of a prior one. Yet, for a high probability of success in an attack against a given target, an aggressor is almost certain to assign two reentry vehicles (RVs) against it. In order to do this while minimizing fratricidal effect, the attacker is most likely to burst the first RV and groundburst the second.

Assumptions about the numerical atio between air- and groundbursts are rucial to casualty estimates. A warhead hat is detonated on the ground spews p much more debris and, therefore, an cause several times the number of allout casualties as would a weapon of he same yield that is exploded in the ir.

he Protection Factor and opulation Density

Probably the most effective ways for n attacker to minimize civilian casualies are by selecting targets that are not ear large population centers, and by hat the DoD assessment calls "target ffset." This means attacking a military rget in a way that deliberately minizes the casualties in nearby urban reas. While it may seem incongruous iat an aggressor would be so conerned about collateral damage, defense trategists count on reasonable efforts o spare the civilian population in case f limited nuclear exchanges.

A related and equally decisive factor ecting casualties is the relative degree protection against residual nuclear liation afforded the local population lowing an attack. According to nalyses by DCPA, the Defense Civil reparedness Agency, the radiation ose rate inside a standard brick resience without basement is likely to be o more than twenty percent of the ite encountered on the outside; the ose rate that will prevail in a resiential basement would be about four ercent of that encountered outside the ilding. Casualty estimates are affected a decisive but debatable way by asmptions about the percentage of the S population that might seek shelter.

eteorological Variables

Basic environmental conditions exist- at the time of an attack and within few days thereafter can significantly ect casualties. Dust, fog, rain, and ow can't be predicted, yet will help ermine how far out the burst's rmal energy is propagated and reby affect the nature and size of fire storm that accompanies nuclear sts. These factors were not measured the DoD analyses because of the erent high degree of uncertainties.

nother meteorological factor, wind, ore predictable, at least on a sea- l basis, according to the Defense artment study. The number of caties (the combined total of fatalities and nonfatal injuries) resulting from an attack on all major strategic weapons concentrations in the US can change by

Deputy Assistant Secretary for Strategic Programs E. C. Aldridge, Jr., directed DoD's study on the effects of limited nuclear war.

a factor of three, depending on wind conditions. Prevailing winds in the primary US military target areas can be assumed to be at their strongest in March and November. Typical wind patterns cause the least spread of nuclear contamination in June and July, according to DoD's findings.

DoD's Casualty Predictions

Casualties from a massive attack on US industrial and transportation centers can be calculated reasonably precisely, according to DoD. In such a case, between 95,000,000 and 100,000,000 of the US's 150,000,000 urban population would be casualties. Assumptions about casualties resulting from comprehensive attacks on all major military targets or from a limited attack on such targets are subject to the variables mentioned earlier. Defense Department analysts, therefore, base their estimates on attack scenarios ranging from worst to best case, but centered on what can be considered most probable. All scenarios are predicated on current intelligence estimates and are "written" to be militarily effective from the attacker's point of view. The effects of weapons yield and burst height were found to be crucial.

In an attack on the 150 ICBM silos of the Whiteman AFB complex near Sedalia, Mo., about 170 miles west of St. Louis, a strike by two RVs per silo with a yield of 550 kilotons each, detonated in the air at optimum burst height, would cause 2,000,000 casualties. The same kind of attack with three-megaton warheads detonated on the ground would drive up the casualty toll to 10,300,000.

In the case of a comprehensive attack on 1,054 ICBM silos, SAC's forty-six bomber bases, and the Navy's two SSBN support bases, DoD's first scenario assumed one optimum height and one groundburst per ICBM silo; a pattern attack against the bomber bases; one optimum height burst per SSBN base; and optimum utilization of available population shelters. Militarily, such an attack, based on Soviet ICBM accuracies determined by current intelligence, would result "in sixty percent [silo] destruction; severe damage to virtually all aircraft hangars, administration buildings, and maintenance facilities located on each SAC base; destruction of any aircraft flying within eight nautical miles of any of the forty-six SAC bases; ninety percent probability of capsizing or rupturing the pressure hulls of the SSBNs in port; severe damage to virtually all SSBN storage facilities, administration buildings, wharves and piers, and mechanical handling facilities located within 1.5 nautical miles from ground zero," according to the DoD assessment.

The resultant civilian casualties would be 3,200,000. The casualty toll jumps to 16,300,000 with two changes in the same scenario: going from air-burst to ground-burst in attacks on ICBM silos, and assuming only limited utilization of available shelters. Yet the military effectiveness of such an attack would be slightly below that of the first scenario, with only fifty-seven percent of the USAF ICBM silos destroyed.

In summary, the study reconfirms this coldly comforting verity of nuclear war: As the assumed perpetrator of a "limited nuclear attack against selected military targets in the US, the USSR has significant control over the number of expected US fatalities that could result from such an attack." Maintaining US strategic deterrence at a level of perceived equality, and with a broad range of flexible options to deter limited or general nuclear attack, obviously must remain the cardinal defense requirement of the United States. ■

Airman's Bookshelf

Pessimistic Prognosis

Can America Win the Next War? by Drew Middleton. Charles Scribner's Sons, New York, N. Y., 1975. 262 pages. Indexed. $8.95.

Drew Middleton, military correspondent of the New York *Times,* is exactly that. He is a former AP war reporter of World War II vintage. His copy was professional thirty years ago, and he still gives *Times* readers factual reports on our military problems and capabilities from all over the world. He is not interested in petty items about the price list and silverware in the dining rooms used by senior officials in the Pentagon or how many limousines are parked at the River entrance. He does write about what the Russians are doing to arm Syria, and how they are training to whip NATO. Or, from Scott AFB, about the strategic role of the Military Airlift Command. He gives the facts about a British military training program in Egypt, or the development of a new family of incendiary weapons, disclosed by scholars in Stockholm. He is one of those rare newspapermen who have earned the respect of the community they write about.

Can America win the next war?

The author's answer is that we can win a low- or medium-intensity war, but only if the American people accept the reasons for fighting and support the war.

The outlook for an American victory in the event of a major war in Europe is dim.

If any conflict escalates into nuclear war, all bets are off. Speculation is futile, Mr. Middleton says, and he disagrees with those who talk about how a target can be "taken out." For the next five years, a short time, the US will hold a margin over Soviet Russia in strategic nuclear capability, "but no one is likely to push the button."

The author is most upset about what has happened to NATO. Moscow announced more than twenty-five years ago that it was determined to smash this alliance, and Mr. Middleton offers evidence that the Soviets have almost completed the mission. He says that US military men in Europe count today on only two allies, England and West Germany. But, they "cannot provide reliable estimates of the resolution of governments in London and Bonn under the threat of attack by nuclear missiles."

Further:

"NATO's success as a deterrent to conventional Soviet attack in Central Europe during the long, inconclusive duel with the Russians has obscured the obvious facts that, if a major war comes, the United States will have to fight it virtually alone and that, in a prewar crisis, the United States will have precious little time for preparation."

When he looks at our readiness, Mr. Middleton finds both good and bad news. What is bad is frequently awful. Our US Army needs a lot of education about the nature of its adversary; it probably is prepared for the wrong war. He is highly critical of the Army's love affair with the helicopter, which bloomed in Vietnam but probably will wilt in the next round. There is a quote from an Israeli officer that tells the story: "The MiG arrives . . . vroom! You lose one helicopter." Our Army faced no hostile airpower in Vietnam, and reporter Middleton thinks it has forgotten what kind of damage can come out of the skies.

So far as USAF is concerned, the author is properly concerned about the missile balance and, considering Soviet deviousness, how long we can maintain even a slight advantage. He sees a requirement for more airlift, reviews the bomber, tactical fighter, and close support areas. He says they remain essential elements, but, please, don't overlook the enemy's capabilities. He says USAF is a "far more uncertain organism" than its leaders think. The suggestion is that USAF should temper its interest in technological advances with more attention to military and political events:

"The service [USAF] reached its apogee in the opening rounds of the Cold War when it, and it alone, was the only force, American or allied, capable of restraining and, if necessary, defeating the growing Soviet power. Today, with the Soviet threat to the United States assuming new forms and Soviet power extensively deployed far outside the continental boundaries of the USSR, the Air Force seems intellectually unprepared for the diversified Russian challenge."

Can America Win the Next War? should be required reading, particularly for young people, whose experience—if any—was confined to the Vietnam disaster. The low- or medium-intensity war that Mr. Middleton considers most likely will be won only with the kind of public support that was lacking for our adventure in Indochina. He speculates that when this war comes, it may be in the Middle East, where Uncle Sam already is deeply committed to support Israel. Another possibility is that Russia could threaten Yugoslavia. The Yugoslavs, with a long history of resistance, may fight and need our help. Despite the fact that we did not help Hungary in 1956, Mr. Middleton reports that Yugoslavia is "high on the list of potential flash points."

The author has kudos for the military leadership of our country. His prize comment:

"Urban and suburban Easterners, especially 'the bright young people,' take a condescending attitude toward officers. The observant, however, will often be struck by the superior education of the officers compared with their critics."

It is a sentence that should be posted for the attention of certain staff employees in the US Senate and House of Representatives.

—Reviewed by Claude Witze, Senior Editor of this magazine.

Soviet Ground Forces Doctrine

Sizing Up the Soviet Army, by Jeffrey Record. The Brookings Institution, Washington, D. C., 1975. 51 pages. $2.50.

At a time when the Soviets are placing emphasis on a dramatic buildup of their conventional forces, the appearance of this compact factual analysis of the Soviet Army is most timely. Complete with number of useful charts and statistical material, it provides an excellent overview of the Red Army.

This study focuses on several significant features. First, the sheer size of the Red Army is awesome indeed. The author points up that upon complete mobilization the Soviet Army, with 1,800,000 in active status, would contain five times the number of maneuver battalions that are now assigned to all US Army divisions and separate brigades as well as those in the Reserve components. We see a Red Army heavily committed to blitzkrieg with a great preponderance of armor and mechanization but with an inadequate logistical tail that would make sustained operations almost untenable.

The author cites evidence of a backing away from a deep reliance on early use of tactical nuclear weapons as a corollary to the blitzkrieg stance. Most Westerners have always regarded this doctrine as both fallacious and self-defeating. Equally foolish is the present Soviet doctrine that assigns a sustained advance rate in the offense of seventy miles a day to its armored and motorized rifle formations.

Of particular interest to US observers, in the all-volunteer climate of today, is the fact that manpower for the Soviet Army is provided under a system of universal military service. Under their 1968 law, men are conscripted at age eighteen for a minimum of two years of active duty. However, from age sixteen to eighteen, Russian youths receive compulsory military training at facilities located at their schools, factories, and farms.

Despite the book's brevity, *Sizing Up the Soviet Army* is chock-full of useful information and some interesting insights into gradual changes that appear to be occurring in Soviet doctrine for the employment of its ground forces. The most important of them, of course, is the growing acceptance by the Soviets that war in Europe may be conventional, not necessarily nuclear, and may be of longer duration than they had previously professed.

—Reviewed by Maj. Gen. Robert F. Cocklin, USAR, Director of Public Affairs, Association of the US Army.

New Books in Brief

Duel Between the First Ironclads, by William C. Davis. The author skillfully unfolds the drama that led to the clash of the ironclads *Monitor* and *Merrimac* at Hampton Roads, Va., in 1862. These Yank and Rebel monsters were to affect unalterably the future of naval warfare, and change the course of the Civil War. At times the colorful personalities involved in the story clashed as fiercely as the iron ships to which they were linked. A well-documented study; based on letters, diaries, and memoirs. Photos, drawings, notes, index, and map. Doubleday & Co., New York, N. Y., 1975. 201 pages. $8.95.

The Military and Society, edited by Maj. David MacIsaac, USAF. Proceedings of the Fifth Military History Symposium held in 1972 at the Air Force Academy and attended by more than 300 visitors from throughout the US, Canada, and the United Kingdom. Eminent speakers discuss the politicalization of the military; the role of military leadership in national development; the military role in a developed society; the military in American society; the study of military affairs on college campuses; the teaching, writing, and publishing of military history; ethnicity, race, and the American military; and, the military as a social force in American society. US Government Printing Office, Washington, D. C., 1975. 164 pages. $1.90.

Soviet Perceptions of the Chinese Succession, by Morris Rothenberg. Continuing Chinese hostility toward the Soviet Union has caused Soviet authorities to be increasingly preoccupied with the forthcoming succession and subsequent chances of improved relations between the two countries. The author analyses current Soviet thinking on the issues at stake, and probes possible Soviet actions during the succession. Center for Advanced International Studies, University of Miami, Suite 1213, 1730 Rhode Island Avenue, N. W., Washington, D. C., 1975. 32 pages. $2.00.

Tell It to the Dead: Memories of a War, by Donald Kirk. The author, an award-winning journalist, records the evolving attitudes of American GIs from the beginning of heavy American involvement in Vietnam to the end. He documents how the defeat of America's interests and aims in Indochina was forecast long before it happened—not by diplomats and generals, but by the men who were fighting the war. Nelson-Hall, Inc., Chicago, Ill., 1975. 215 pages. $6.95 hardcover, $3.95 paperback.

War: An Unpretty Picture, text by Albert R. Leventhal. War with all its pain and sorrow is pictured in graphic detail in this compilation of photographs taken during fourteen wars—from the Crimea in 1854 to Vietnam in 1973. Caught by the camera's eye are heroism, excitement, horror, a weird kind of glamor, physical destruction, and personal desolation. A&W Visual Library, New York, N. Y., 1975. 252 pages. $7.95.

These recently published Adelphi Papers will interest students of military/political affairs: *Military Power and Political Influence: The Soviet Union and Western Europe,* by R. J. Vincent, 29 pages; *Oil and Influence: The Oil Weapon Examined,* by Hanns Maull, 37 pages; *Precision-Guided Weapons,* by James Digby, 24 pages. Copies may be ordered from The International Institute for Strategic Studies, 18 Adam St., London WC2N 6AL, England. $1.50 each postpaid.

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. Seven recent releases in this series are: *Allied Participation in Vietnam,* by Lt. Gen. Stanley R. Larsen and Brig. Gen. James L. Collins, Jr., 189 pages, $2.45; *The Development and Training of the South Vietnamese Army 1950–1972,* by Brig. Gen. James L. Collins, Jr., 163 pages, $2.30; *Financial Management of the Vietnam Conflict 1962–1972,* by Maj. Gen. Leonard B. Taylor, 109 pages, $1.85; *Law at War: Vietnam 1964–1973,* by Maj. Gen. George S. Prugh, 161 pages, $2.30; *Sharpening the Combat Edge: The Use of Analysis to Reinforce Military Judgment,* by Lt. Gen. Julian J. Ewell and Maj. Gen. Ira A. Hunt, Jr., 248 pages, $3.05; *The Role of Military Intelligence 1965–1967,* by Maj. Gen. Joseph A. McChristian, 182 pages, $2.45; *The War in the Northern Provinces 1966–1968,* by Lt. Gen. Willard Pearson, 115 pages, $1.90. Department of the Army, Government Printing Office, Washington, D. C. 20402, 1975.

—Reviewed by Robin Whittle

The long process of developing an important segment of future USAF leadership begins with 1,500 dedicated Reserve officers who serve in every state and abroad as admissions counselors for the Air Force Academy. Soon to be augmented with women Reservists, they are . . .

USAFA's LIAISON OFFICERS

With all its sophisticated aircraft and weaponry, today's Air Force needs men of the same character, endurance, and courage as Billy Mitchell, Carl Spaatz, and the other pioneers of military aviation. The expanding role of women in the service has created a need for women who have these same qualifications.

A key element in locating the right type of Academy applicant is the corps of dedicated Reserve officers known as Air Force Academy Liaison Officers, or LOs. It is their responsibility to provide, in their home communities, admissions counseling to prospective Academy applicants.

How did a Reserve officer program become involved in the development of USAF's future leadership? In the early days of the Academy, the number of prospective candidates who needed individual counseling and guidance was so great that Academy personnel could not fulfill the requirement.

In 1957, a "foster Alumni" plan was begun, using Air Force Reserve officers as admissions counselors, much as civilian institutions use their alumni for that purpose. Some 300 Reservists answered the call to form a nationwide counseling team. These men came to the Academy for intensive briefings by members of the faculty and staff, in preparation for their counseling responsibilities.

Today there are more than 1,500 LOs, located in all fifty states and several locations overseas, stretching from Thailand to Germany. Maj. James C. Logan is in charge of the far-flung admissions liaison network. He supervises the program through 100 Liaison Officer Coordinators who are senior Reserve officers and veteran LOs.

Success of the LO information and counseling program is evident in a number of ways. About ninety-five percent of the Class of 1979, admitted to the Academy last July, had been counseled by Academy LOs. The attrition rate in the past two entering classes has declined during the rigorous basic training period, conducted the first six weeks after admission. The decline has been attributed partially to the LOs, who prepare candidates in advance through candid information about the stringent requirements of this training.

Another indication of success is the fact that both West Point and Annapolis have followed the Air Force example, and have revamped their alumni programs to include Reservists from their services.

Gen. David C. Jones, the Air Force Chief of Staff, has taken an active interest in the Academy LOs, and has brought the Reservists and Academy active-duty people into a closer team operation. General Jones has emphasized the need for a viable LO program, and outlined the kinds of assistance that bases can provide.

In addition to their work with young people in civilian communities, the LOs are available to counsel Air Force youths about opportunities to attend the Academy as sons or daughters of career officers and enlisted men. The LOs also visit bases to talk with Regular and Reserve airmen who are eligible to apply for the Academy in special nominating categories.

Academy cadets have become active in the LO mission by donating their free time, when at home on leave, to counsel students in junior and senior high schools. LOs arrange the schedules for these "cadet grassroots" appearances

Many Academy alumni have volunteered to become Academy admissions counselors, augmenting the Reserve LO program.

The LOs accrue Reserve training points for their work, but serve without pay, using their own offices and homes as points of contact for school guidance counselors, students, and parents who have questions about the Academy. Many also represent the Air Force within their communities on special occasions.

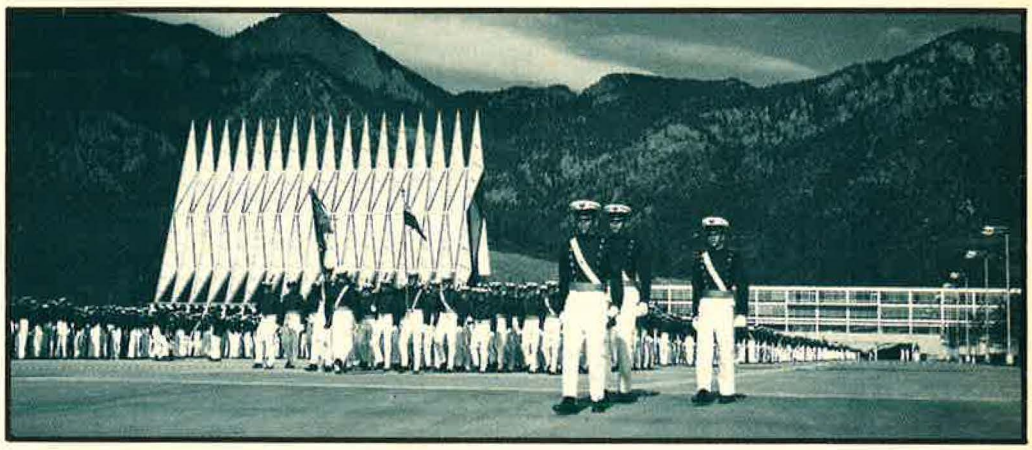
The mission of the LO program is being expanded now that women may be appointed to the military academies. Women LOs will be added to the program to assist in counseling female cadet applicants. It is important that women candidates for appointment recognize the demanding nature of educational and training experiences at the Academy. With some exceptions in physical and military training, Academy programs for men and women cadets will be identical. At least for the time being, however, women who hope to become Air Force pilots will not take T-41 flight training. *(See also "Aerospace World," p. 17.)*

What motivates the Liaison Officer to contribute so much of his time and effort to this program? Major Logan believes the answer is in one word—satisfaction. Few other Air Force Reservists have such rewarding duty. The personal contact with young people and the contribution the LO makes to their career choice is unique within the Reserve Forces. Many LOs remain active in the program even after their retirement from the Reserve.

The Air Force Academy Liaison Officer program is approaching its twentieth anniversary. From a beginning as surrogate alumni of an institution too new to have its own graduates, the LO program has grown into a continuing and indispensable element of the Air Force Academy structure. Its future is assured by the achievements of its past. ■

Chief of Staff Gen. David C. Jones presents "Outstanding Liaison Officer Coordinator" award to Col. Eugene A. Scalise, Glastonbury, Conn.

Col. Clifford J. Lawrence, Utah LO Coordinator, with Air Academy cadet appointees.



The end result of LO efforts: a Cadet Wing of the nation's finest.

The Bulletin Board

By James A. McDonnell, Jr.
MILITARY RELATIONS EDITOR

PCS and Other Turbulence

USAF in late 1975 was hammering out plans to lengthen duty tours and make drastic cuts in PCS expenditures. The big drive, spearheaded by the Hq. USAF DCS/Personnel, Lt. Gen. Kenneth L. Tallman, should affect thousands of members starting this calendar year. Many can expect longer stays at their present bases, he said in an interview with AIR FORCE Magazine.

The new push follows a congressional slash of $32 million in USAF PCS funds for this fiscal year, plus pending Administration plans to invoke steep new military personnel money cuts in the FY '77 budget. "We must save additional millions in PCS money this year," General Tallman asserted. That's a Herculean feat, considering that much PCS money goes for unavoidable acquisition, training, and separation moves.

Vice Chief of Staff Gen. William V. McBride launched the "get tough on PCS" project in November with a warning to major commanders. Headquarters, about the same time, opened overseas tours to voluntary extension. Meanwhile, Hq. USAF set up a "PCS Turbulence Ad Hoc Group," which quickly advanced five "initial actions." General Tallman said he planned to launch them promptly after receiving comments from commands.

The most sweeping step will eliminate designated Stateside tour lengths except in the Washington, D. C., area. This means an end to mandatory PCS moves on completion of ROTC duty, major command headquarters tours, and assignments with separate operating agencies.

The Air Force Enlisted Men's Widows' Home—Teresa Village—Fort Walton Beach, Fla., was officially dedicated recently in ribbon-cutting ceremonies. Taking part, left to right: Maj. Gen. Howard M. Lane, ADTC Commander; Rep. Bob Sikes (D-Fla.); Widows' Home Executive Director Dominick Masone; and Gen. William V. McBride, USAF Vice Chief of Staff.

There are about 11,000 officers and 28,000 airmen on such CONUS tours now. The move, in effect, will establish minimum tour lengths and thus "requires specific action to initiate individual reassignment requests only after completion of minimum periods on station and

GENERAL MEYER, FORMER SAC CHIEF, DIES

Gen. John C. Meyer, fifty-six, former Air Force Vice Chief of Staff, and Commander in Chief of the Strategic Air Command, died December 2, 1975, at his home in Marina Del Ray, Calif., of an apparent heart attack. He had retired in August 1974 after an Air Force career that spanned three decades.

A leading American ace in the European theater during World War II, he flew 200 combat missions and was credited with destroying twenty-four enemy aircraft in aerial combat. In 1950, he assumed command of the 4th Fighter Group, leading it into combat in Korea, where he destroyed two enemy fighters.

After command assignments in ADC, SAC, and TAC, and duty as Director for Operations of the Joint Staff, Office of the Joint Chiefs of Staff, General Meyer was selected as Air Force Vice Chief of Staff in August 1969. He served in that capacity until chosen in 1972 to head SAC, the position he held until retirement.

In the beginning days of the Air Force Association, General Meyer, then a lieutenant colonel, was one of the small group of AAF officers who gave generously of their time and energy to get the new organization off the ground. He remained a member and firm supporter of AFA until his death.

Serious and intent, the Joint Chiefs of Staff posed for this recent photographic portrait. From left to right, they are the US Army's Gen. Frederick C. Weyand; US Navy's Adm. James L. Holloway III; JCS Chairman USAF Gen. George S. Brown; Air Force's Gen. David C. Jones; and the group's newest member, Marine Corps Gen. Louis H. Wilson, Jr.

only when USAF requirements elsewhere dictate the need for a PCS move."

The Turbulence Group next recommended that members who volunteer for an extended overseas tour, totaling four or five years, receive priority assignment consideration and a base of choice. This is to be started with officers first, with airmen to follow in three months.

Other actions will (1) encourage voluntary consecutive overseas tours within the same theater, (2) provide local career broadening assignments, and (3) make on-base housing available for continued occupancy by dependents of sponsors who are reassigned to unaccompanied tour areas.

The latter project, which excludes Alaska, will be limited to personnel living in on-base quarters or mobile-home parks at the time of the member's reassignment. Some bases may be excluded from this process.

Coming up very soon, General Tallman said, are longer mandatory accompanied and unaccompanied tours at all overseas locations with more than 1,000 personnel. He also promised early changes aimed at slashing USAF's gigantic expenses for moving household goods.

Besides the PCS money cuts, the lawmakers recently trimmed $8.6 million from the $28.6 million Air Force sought for officer separation pay in FY '76. This puts the pressure on the service to RIF fewer than the 1,000 officers it earlier planned to turn loose next spring.

General Tallman indicated that USAF might be able to hold the spring RIF to fewer than 1,000, but he was worried that the FY '77 budget crunch may force an even larger number of officer force-outs during that year. A final decision on the size of the upcoming RIF was expected this month.

At a recent meeting of AFA's H. H. Arnold Memorial Chapter, Tenn., were, from left, Maj. Gen. Jessup D. Lowe, USAF (Ret.), former Arnold Engineering Development Center Commander; Chapter President Tom Bigger, a lieutenant colonel in USAFR; Col. Oliver H. Tallman, present AEDC Commander; and Maj. Gen. Lee V. Gossick, USAF (Ret.), guest speaker and former AEDC Commander.

The authority in DOPMA to early-retire senior officers via "selective continuation" boards is urgently needed to distribute the RIF burden more equitably, General Tallman said.

At another point the personnel executive said the money squeeze has made it impossible for the Air Force to give airmen subsistence money on weekends. Earlier, the service had planned to provide weekend BAS by now. General Tallman said that a wide range of other personnel programs are in funding trouble.

AFA: Don't Change Discharges

The Air Force Association has urged Congress not to tamper with the military's "three-tier" system of discharges. The request, from AFA President George M. Douglas, came as a House Armed Services subcommittee opened extensive hearings on bills to change the system for awarding administrative discharges and for the review of all discharges.

President Douglas noted that 97.6 percent of USAF's administrative discharges are "Honorable," 1.9 percent are "General," and only 0.4 percent are "Undesirable." This three-tier system "is eminently fair," he said. Changing the system to provide only two discharge designations, as provided in two of the bills, would penalize those whose service has been slightly less than Honorable but not Dishonorable, Mr. Douglas said.

Defense and service witnesses also opposed most of the provisions of the raft of discharge bills before the subcommittee. One bill would

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forbid any indication on the discharge certificate of the type or basis for discharge. Another would allow disability discharges for members separated for drug addiction and provide for retroactive honorable discharges in many cases.

Mr. Douglas cited the high percentage of USAF members receiving honorable discharges as proof that the present system does not arbitrarily discriminate, as critics have charged. USAF's present system is "far superior" to any proposed changes, he said.

Hearings were to continue in early December. A subcommittee spokesman predicted the group would report out "some kind" of a bill.

Guard Technician Bill Law

The National Guard technician retirement bill, strongly supported by the Air Force Association, was signed into law in November. When Guard technicians became federal employees in 1969, they were given retirement credit for only fifty-five percent of their state service. The new measure provides full credit for such service. Maj. Gen. Francis S. Greenlief, Executive Vice President of the National Guard Association of the US, personally thanked AFA for its support of the measure.

JAGs Lose Pay Bid

Supporters of extra money for military JAGs finally got a day in court late last year, but for naught. A House Armed Services subcommittee considered a measure giving JAGs an extra $100 to $250 a month based on their grade, plus continuation bonuses for those agreeing to serve beyond their initial commitment.

Proponents say the extra compensation is needed to improve retention and increase JAG experience levels. But the Pentagon's military personnel policy chief, Vice Adm. John G. Finneran, told the subcommittee there are plenty of young military lawyers available and retention might improve without a raise. Furthermore, he said, the Defense Department can't spare the $7.6 million the measure would cost. The subcommittee agreed and defeated the measure seven to two.

Pay Issues Hearing Up

Controversial pay charts published by the Senate claim that military personnel receive from $7,305 to $54,611 annually in "total compensation," the sum of pays and benefits. Furthermore, they hold that military members outdraw government civilians by a tidy margin. A typical colonel, for example, supposedly receives the equivalent of $43,305, compared to $38,849 for a GS-15.

Similar differences apply throughout the pay scales down to E-4/GS-4, according to the charts that are part of the Senate Appropriations Committee report accompanying the FY '76 military spending bill.

The report, not surprisingly because of the sensitive nature of pay comparability claims, has drawn fire from both the military and civil servants.

The Senate Committee said it "is not yet in a position to state unequivocally that the military . . . is or

Ed Gates . . . Speaking of People

The Career Officer Steeplechase

With the services shrinking in size, officer retention improving, and promotions being trimmed, military officer jobs are becoming increasingly competitive. And with it, the officer corps is fast becoming the most screened, examined, and scrutinized large group of employees in the country.

The competition begins early. Would-be officers are "looked at" closely for acceptance in ROTC, the Academies, and officer training programs. Those winning commissions are monitored by supervisors and OER raters. It's not long before they square off with the selection-promotion system and its worrisome up-or-out features; this is repeated every few years.

Non-Regular officers also face periodic Regular selection boards, and this stiffens the competition for them. In recent years, large groups of officers also have been looked at by the dreaded RIF boards, and considerable numbers ejected as a result. RIF panels are now permanent fixtures.

Additional formalized screening lies ahead. Under DOPMA, the pending Defense Officer Personnel Management Act with its multiple changes in officer personnel rules, "selective continuation" boards will make an appearance. These will examine field-grade officers for early retirement and, while USAF plans to go lightly on them, a new "threat" is added. And felt by several thousand officers.

This succession of competitive hurdles and threats to job security is a unique circumstance not shared by management-level groups in government or the private sector. And the fact that only small percentages of the officer force are actually checked out by such screenings is no measure of the strain many times that number of people undergo.

For every officer a board cuts loose, a dozen other persons have sweated it out. And agonized. The latest RIF panel, for example, weighed more than 2,000 officers, and most had faced a similar board the previous year. The more frequent the screenings, the more nervous all in the consideration zones become. Some quarters contend that the impact on job performance is adverse, that continuing uncertainty about a military career and advancement within it make too many people too jittery to perform their best.

Others hold that the stiff competition is precisely what's needed to shake out marginal performers and spur others to greater heights.

The statistics clearly show that the battle to remain in a USAF officer's uniform has heated up. Air Force exits for promotion failure, as reported in the November '75 AIR FORCE Magazine, jumped from 175 in FY '73 to 874 in FY '75. Add the 1,115 RIFs of that last year and the total forceouts during FY '75 reached nearly 2,000.

USAF officer strength, meantime, was tumbling from an earlier 135,000 to about 110,000. It has since dropped to 100,000.

DOPMA's rule in the new competitiveness shows up in reduced "promotion opportunity." Required by DOPMA, though implemented during the past two years before its passage, promotion opportunity has skidded as follows:

is not better paid than [their] civilian counterparts." But it predicted its comparisions would provide "some surprises." The senators acknowledged that no attempt had been made to (1) place a value on the "special hardships of military life," or (2) determine if work requirements are equal.

They urged the Pentagon to "educate" service people on "the actual extent of their entitlements." The pay system should be modernized to make it less confusing, they added. And the senators were impressed by a new General Accounting Office report that declares that service people underestimate their total compensation. GAO said it surveyed 70,000 service people and discovered that more than sixty percent underestimated their "true annual compensation."

The military compensation package used in the charts includes BAQ, BAS, basic pay, and tax advantage, plus dollar estimates for retirement accrual, health care, exchange-commissary benefit, and the government's Social Security contribution. The Civil Service package includes salary, overtime, retirement accrual, life insurance, and health benefits.

Examples of the report's comparisons follow:

Military Grade	Comparable GS Grade	Pay-Benefits Military	Pay-Benefits Civil Service	Military Advantage
O-7	GS-17/16	$48,886	$41,350	$7,536
O-6	GS-15	43,305	38,849	4,456
O-3	GS-11/10	24,004	19,749	4,255
E-6/5	GS-5	14,711	11,551	3,160
E-4	GS-4	9,915	10,375	−460

In other pay developments:

- The Comptroller General has urged sweeping changes in the federal pay system, which is linked to the military system. One proposal would abolish automatic in-grade raises for longevity and give them only for merit. This report was being examined by the Office of Management and Budget in connection with its study of a pending report from the President's Panel on Federal Compensation.
- The Air Force reported results of a survey of 17,000 of its civilian employees: forty-two percent said they feel their salaries are better than military pay, while only twenty-two percent said military salaries are better. On fringe benefits, fourteen percent of the civilians said theirs were better, while sixty-six percent felt the military's were better.
- Early action is expected in Congress to remove the one percent "kicker" in the federal-military retirement system that boosts pay raises. Initial hearings were held recently by a House subcommittee.

"Apprentice" E-4s

The Air Force plans, effective January 1, to lay on a two-level E-4 arrangement under which persons assuming that grade from now on will be designated "apprentices," not NCOs as heretofore. Accompanying this major change will be "below-the-zone" promotions to E-4, the first for any enlisted grade.

Apprentice E-4s will not become NCOs until they complete (1) an extended supervisory training pro-

To	Previous Opportunity	Present Opportunity
Captain	100%	95%
Major	90%	80%
Lieutenant Colonel	75%	70%

Promotion opportunity statistics, it is recalled, represent the accumulated chances of promotion any particular officer year-group has over a several-year period. Thus, there are hundreds more passovers than the figures would appear to allow. Looked at another way, the cuts in promotion opportunity, according to USAF, are in the process of reducing the number of promotions through FY '79 as follows: to captain 1,508, to major 2,423, and to lieutenant colonel 711.

With the transition to DOPMA approaching, several thousand officers are nearing crucial screenings, with their future employment in the Air Force at stake. Included are:

- Some 1,700 officers already passed over once for permanent promotion. Under DOPMA, they face a special board that will decide their fate.
- About 4,000 officers who earlier failed temporary promotion. They'll face the next regularly scheduled board for their grade; nonselection will mean departure within six months.
- Some 5,000 current non-Regulars in the nine- through sixteen-year groups whom Air Force will screen for Regular commissions. Some are in the above group with temporary promotion failures. Virtually all of the others, however, are expected to be chosen for Regular, Headquarters has disclosed. Still, until it's nailed down in writing, the uncertainty remains.
- Modest numbers of field graders who, under DOPMA, will be looked at by selective continuation boards. USAF's plans call for about 160 lieutenant colonels and seventy colonels to be early-retired the first year, followed by almost negligible numbers in subsequent years. All majors not chosen for LC under DOPMA will be "selectively continued" in service to retirement at twenty years, USAF has decided.

Overall, a good many of USAF's active-duty officers face early screening under DOPMA. Add the RIF panels, the OER scrutiny, and the routine, day-to-day checks—and the entire evaluation process becomes a sizable production.

Civilian life has nothing like it. Nor does Civil Service, where career employees in all grades undergo far fewer crucial screenings and enjoy unusual job protection. And in the military, enlisted members do not face RIFs; nonselection for promotion seldom prevents them from completing twenty-year careers. The competition in all these groups just isn't there.

The military officer, on the other hand, puts his career on the line time after time. And while it may make nervous wrecks of some, one school of thought holds that it has a generally beneficial impact. Thus, it is said, officers who survive early screenings develop a special confidence and pride of accomplishment that helps them overcome rough spots and forge ahead.

They begin to thrive on competition, and as they gain experience, they become important additions to USAF's leadership pool. This dovetails closely with the service's basic concept of pointing all officers toward being potential chiefs of staff.

That a great many USAF officers survive this network of tough career checkpoints speaks well for the high quality of the force. ■

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gram, (2) twelve months in grade E-4, and (3) at least thirty-six months in service. And they must be recommended for "E-4, NCO" by their unit commander.

Officials also said a written examination may be required.

On meeting these requirements, a formal ceremony will be held and the member will receive a "certificate of appointment" to wear NCO stripes (present E-4 insignia). New insignia were being developed for E-4 apprentices (and for E-2s and E-3s), though USAF said it is essentially the regular E-4 design but without the star.

Persons already holding E-4 rank will remain NCOs. The new E-4 apprentices will retain normal E-4 entitlements and will continue to be addressed as "sergeant."

The below-the-zone promotions, for "truly outstanding" E-3s, will begin March 1. Selectees will advance up to six months before their contemporaries.

The new program is an outgrowth of recent USAF studies leading to NCO structure changes *(see November '75 "Bulletin Board").* Officials said the E-4 change "provides a realistic experience base before becoming an NCO while providing those first-term airmen with leadership/supervisory ability the incentive to progress to NCO status."

Pot, Job Rules Eased

Until recently, USAF required that most first-time marijuana users (and possessors) be at least temporarily relieved from duty and entered into "rehabilitation." But the policy worked poorly; some members smoked pot to avoid unpleasant details. In other cases supervisors, not wishing to lose the services of good workers, "looked the other way" when informed of a pot violator. The latter's services were held too valuable to lose.

The automatic release-from-duty rule, if firmly applied to many skills, could make a severe dent in a unit's available manpower. Accordingly, Headquarters has changed the rule to state that "appropriate punitive or administrative action can be taken without requiring rehabilitation and/or removal from assigned duties."

It's now up to the immediate commander to decide if the first-time marijuana offender should be pulled off work. Even if he stays on the job, he can still be fined, denied privileges, or otherwise punished. Air Force considers the new approach "a minor adjustment" to make the drug-abuse program more efficient and to obtain "greater productivity" from offenders.

CAP in Trouble?

The Senate Appropriations Committee, claiming that the Civil Air Patrol is experiencing serious difficulties in equipment and aircraft, has told USAF to beef up its support for the auxiliary. "CAP is not able in some respects to fulfill its mission," the committee charged late last year. It told USAF to restress its support of CAP and make sure its needs are met.

A CAP spokesman at the organization's headquarters, Maxwell AFB, Ala., told AIR FORCE Magazine there was "concern" among CAP officials about aircraft and equipment, but he denied that the organization is in trouble. He noted that a CAP "supply bill," which would authorize acquisition of uniforms and excess Defense equipment, has been languishing on Capitol Hill for several years. AFA's 1975 General Resolution No. 20 strongly supports passage of legislation aimed at strengthening CAP's search capability.

Civilian Personnel Health

The Headquarters USAF Civilian Personnel Office has urged field CPOs to establish close ties with voluntary community health organizations and thus improve the health of the civilian work force. The campaign is an outgrowth of a recent program at one base conducted by the American Heart Association. The Association examined 1,500 base employees and found forty-one percent with a coronary risk factor and many others with other ailments. The Heart Association can conduct similar screenings at other bases, and Headquarters added that the American Cancer Society, American Diabetes Society, and other voluntary health organizations can provide similar services.

Distaff Corner

In a surprise move, the Air Force has disclosed plans to let women become transport pilots. It's a token program but still is another step forward for the ladies. Meanwhile, Headquarters was choosing fifteen female lieutenants to serve as air training officers (ATOs) for women cadets at the Air Force Academy; they'll act as upperclass members until female cadets reach upperclass status.

As of late November, USAF has received 1,500 inquiries about Academy cadetships from young women around the country, but only 110 applications. Officials said they weren't worried, and hopefully a deluge of applications have now come in, thus providing a healthy selection base for the expected 150 coed appointments. Applications for the upcoming class close January 31.

Base Closing Bait?

The Defense Department has heaped encomiums on Amarillo, Tex., and its leaders for shaking off the economic woes accompanying the closing of Amarillo AFB in 1968 and replacing them with a thriving industrial-aviation-educational complex. Their efforts have created more jobs than were lost, and the city now has a 3.8 percent unemployment rate (less than half the national rate), according to Deputy Defense Secretary William P. Clements, Jr. He recently passed out awards to city leaders for their splendid conversion efforts, and the Pentagon publicized his accompanying speech. Doubtless he was hoping various congressmen who are blocking closing of surplus military bases were listening.

Short Bursts

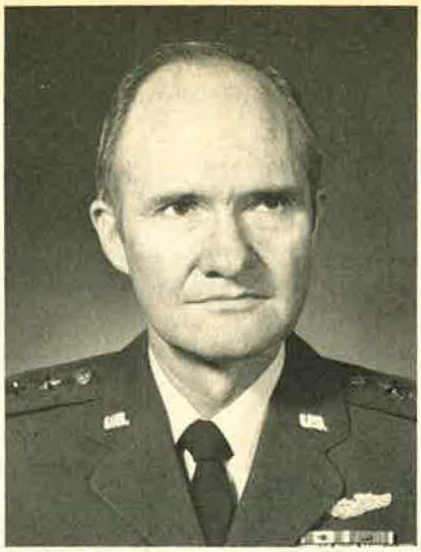
The military services have variable incentive pay (VIP) to attract and retain physicians. And now the Veterans Administration has something similar—an added stipend for its hospital doctors of up to $7,000 a year, plus additional amounts depending on seniority, medical specialty, and other factors. Full-time VA dentists have received a $3,500 annual salary boost, plus chances for additional amounts. VA hospitals have been hard-pressed to hold doctors and dentists, which explains why the raises have been granted.

Air Force has no plans to let Academy graduates take early outs, although the House Appropriations Committee has been leaning on the service to do so. Too much money invested in them, USAF says. The congressional critics counter that this is inconsistent, since pilots get early-out opportunities and their training cost

much more than putting a man through the Academy. The influential House Armed Services Committee opposes early releases for Academy grads.

Congratulations to Maj. Sveinbjorn C. Sveinbjornsson, Capt. Michael J. Terry, SMSgt. John W. Evans, and Ishmael W. Lowe—they're winners of USAF's Open Mess Manager Awards for 1975. All were cited for saving their respective clubs money—Sveinbjornsson at Loring AFB, Me.; Terry at Lajes Field, Azores; Evans at Travis AFB, Calif., and Nakhom Phanom AB, Thailand (he managed the NCO clubs at both sites during the award period); and Lowe at Ent AFB, Colo.

The Defense Department is strongly opposing legislation that would give civilian fire fighters at military bases huge pay raises. Some 10,500 such persons work alongside military firemen at more than 300 military installations. The proposed legislation would kite their overtime pay. A typical example, Defense said, is a GS-5, Step 4 fireman whose pay would jump immediately from $11,686 to $17,295. Pentagon witnesses denounced the bill as wasteful and unnecessary in hearings on the measure held by a House Post Office and Civil Service subcommittee.



On December 1, 1975, Lt. Gen. Brent Scowcroft was retired in his current grade. He has replaced Henry Kissinger, whose deputy he had been since April 1973, as Assistant to the President for National Security Affairs. Prior to that, General Scowcroft was Military Assistant to the President.

New Air Force temporary one-star selections were made in mid-November and probably will have been announced by the time this appears in print. Three important hike boards are slated to convene at Hq. USAF this month: temporary captain January 5; temporary lieutenant colonel (combined with regular commissioning and senior school selections) January 26; and a Reserve one- and two-star panel, January 29.

Nonprior service airmen with the Air Force Reserve and Air National Guard who don't perform satisfactorily will be ordered to forty-five day active-duty training tours, instead of being called up for up to two years. The change—it's actually a Defense Department test—will stay in effect at least until June 30, 1976.

Senior Staff Changes

RETIREMENT: L/G Brent **Scowcroft** (*see photo*).

CHANGE: M/G Guy E. Hairston, Jr., from Director of Information, Office of the Secretary of the Air Force, Hq. USAF, Washington, D. C., to Deputy Assistant Secretary of Defense (Public Affairs), DoD, Washington, D. C. ■

NAMES OF USAF'S NEW BRIGADIER GENERALS ANNOUNCED

PROMOTIONS: Fifty-two Air Force colonels have been nominated for advancement to temporary brigadier general. At an average age of forty-six years, four months, they also average almost twenty-four years of service (five years, two months in grade). Among them, the officers hold one doctorate degree, thirty-three MAs, and sixteen BAs. Of the fifty-two, thirty-nine are pilot-rated, one is a navigator, and eleven are nonrated. There is one physician, Col. John W. Ord. By far the most—nineteen—were commissioned through ROTC. The officers and their current assignments:

Christopher S. **Adams,** Jr., Cmdr., 12th Air Div. (SAC); Bernard **Ardisana,** V/C, USAFSS; William J. **Becker,** DCS/Log., AFSC; Emil N. **Block,** Jr., Cmdr., 438th MAW (MAC); Robert M. **Bond,** Dep. Dir., Gen. Purpose Forces, DCS/R&D, Hq. USAF; Richard T. **Boverie,** Acting Dir. of Program Analysis, NSC; Donald J. **Bowen,** C/S, AFCS; Bill V. **Brown,** Chief, Strat. Ops. Div., J-3, OJCS; George M. **Browning,** Jr., Cmdr., 26th TRW (USAFE); John T. **Buck,** Cmdr., 3245th ABGp. (AFSC); Louis C. **Buckman,** Asst. Dep. Dir. for Opnl. Forces, DCS/P&O, Hq. USAF; George C. **Cannon,** Jr., Cmdr., 23d Air Div. (ADCOM);

Gerald J. **Carey,** Jr., Asst. DCS/Ops. for Control and Support, TAC; William E. **Carson,** Cmdr., 63d MAW (MAC); Robert W. **Clement,** Cmdr., 2750th Air Base Wing (AFLC); Philip J. **Conley,** Jr., C/S, AFSC; James S. **Creedon,** Cmdr., 14th FTW (ATC); Harry J. **Dalton,** Jr., Acting Dir., SAF/OI, OSAF; James E. **Dalton,** Cmdr., ARPC; Joseph B. **Dodds,** DCS/Comptroller, ATC; Jay T. **Edwards** III, Asst. DCS/Mat. Mgmt., AFLC; Herbert L. **Emanuel,** Dep. Dir. for Per. Plans & Policy, DCS/Personnel, Hq. USAF; James C. **Enney,** Asst. Dep. Dir. for Info. Sys., DIA; Harry **Falls,** Jr., Asst. DCS/Ops., ATC; Billy B. **Forsman,** Defense Air Attaché, Israel; Clyde H. **Garner,** Cmdr., 81st TFW (USAFE); Paul T. **Hartung,** DCS/Engineering & Services, MAC; William W. **Hoover,** Exec. to C/S, SHAPE;

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A sustaining force of AFA is the work of its many dedicated men and women who volunteer to serve as Committee and Council members and Advisers. This month we introduce the current members of four Committees and two Councils, together with twelve AFA Advisers. Members of the remaining Committees and Councils will be presented next month . . .

AFA's Committees, Councils, and Advisers

Executive Committee


Shosid


Douglas


Harris


Gross


Hasler


Mazer


Larson


Ostrow


Alison


Straubel

Composed of the Chairman of the Board (who also serves as 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 on behalf of the Board of Directors 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 Joe L. Shosid, Fort Worth, Tex., Chairman; George M. Douglas, Denver, Colo.; Martin H. Harris, Winter Park, Fla.; Jack B. Gross, Harrisburg, Pa.; Gerald V. Hasler, Johnson City, N.Y.; Nathan H. Mazer, Roy, Utah; Jess Larson, Washington, D.C.; Martin M. Ostrow, Beverly Hills, Calif.; John R. Alison, Arlington, Va.; and, as an ex officio (nonvoting) member, AFA's Executive Director, James H. Straubel, Fairfax Station, Va. *(In addition to the functions listed here, the AFA President, George M. Douglas, also serves as ex officio (voting) member of each standing Committee and Council unless his status is otherwise prescribed in the Constitution or Bylaws.)*

Finance Committee


Gross


Assaf


Price


Keith


Clark


Stewart


Nettleton


Markey


Hasler

Composed of the Treasurer, who serves as Chairman, and seven other members appointed by the President, the Committee is responsible for recommending fiscal policy to the AFA President. The Treasurer of the Aerospace Education Foundation serves as an ex officio (nonvoting) member. Members are Jack B. Gross, Harrisburg, Pa., Chairman; Joseph E. Assaf, Hyde Park, Mass.; Jack C. Price, Clearfield, Utah; Sam E. Keith, Jr., Fort Worth, Tex.; Earl D. Clark, Jr., Kansas City, Kan.; Hugh W. Stewart, Tucson, Ariz.; J. Gilbert Nettleton, Jr., New York, N.Y.; Hon. Howard T. Markey, Washington, D.C.; and Gerald V. Hasler, Johnson City, N.Y., ex officio (nonvoting).

Constitution Committee


Ostrow


Brosky


Nedder

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 Martin M. Ostrow, Beverly Hills, Calif., Chairman; Hon. John G. Brosky, Pittsburgh, Pa.; and Edward T. Nedder, Hyde Park, Mass.

Convention Site Committee


Douglas


Shosid


Gross

The Committee is responsible for recommending suitable sites for a National Convention. Members are George M. Douglas, Denver, Colo., Chairman; Joe L. Shosid, Fort Worth, Tex.; and Jack B. Gross, Harrisburg, Pa.

Organizational Advisory Council


Campbell


Blankenship


Callahan


Hall


Haug


Johnson


Stearn


Taylor


Thayer


West

This Council, composed of distinguished AFA field leaders, advises the President on matters pertaining to state and chapter programming, membership solicitation, reporting procedures for field units, and like matters. Members are Stanley L. Campbell, San Antonio, Tex., Chairman; David L. Blankenship, Tulsa, Okla.; Dr. Dan Callahan, Warner Robins, Ga.; James C. Hall, Denver, Colo.; Roy A. Haug, Colorado Springs, Colo.; Keith R. Johnson, Minneapolis, Minn.; Edward A. Stearn, San Bernardino, Calif.; Liston T. Taylor, Lompoc, Calif.; Kenneth C. Thayer, Ava, N.Y.; and Herbert M. West, Jr., Tallahassee, Fla.

Total Force Advisory Council


Huston


Schroeder


Reals


Chabbott


Rowe


Lamb


Morley


Watson

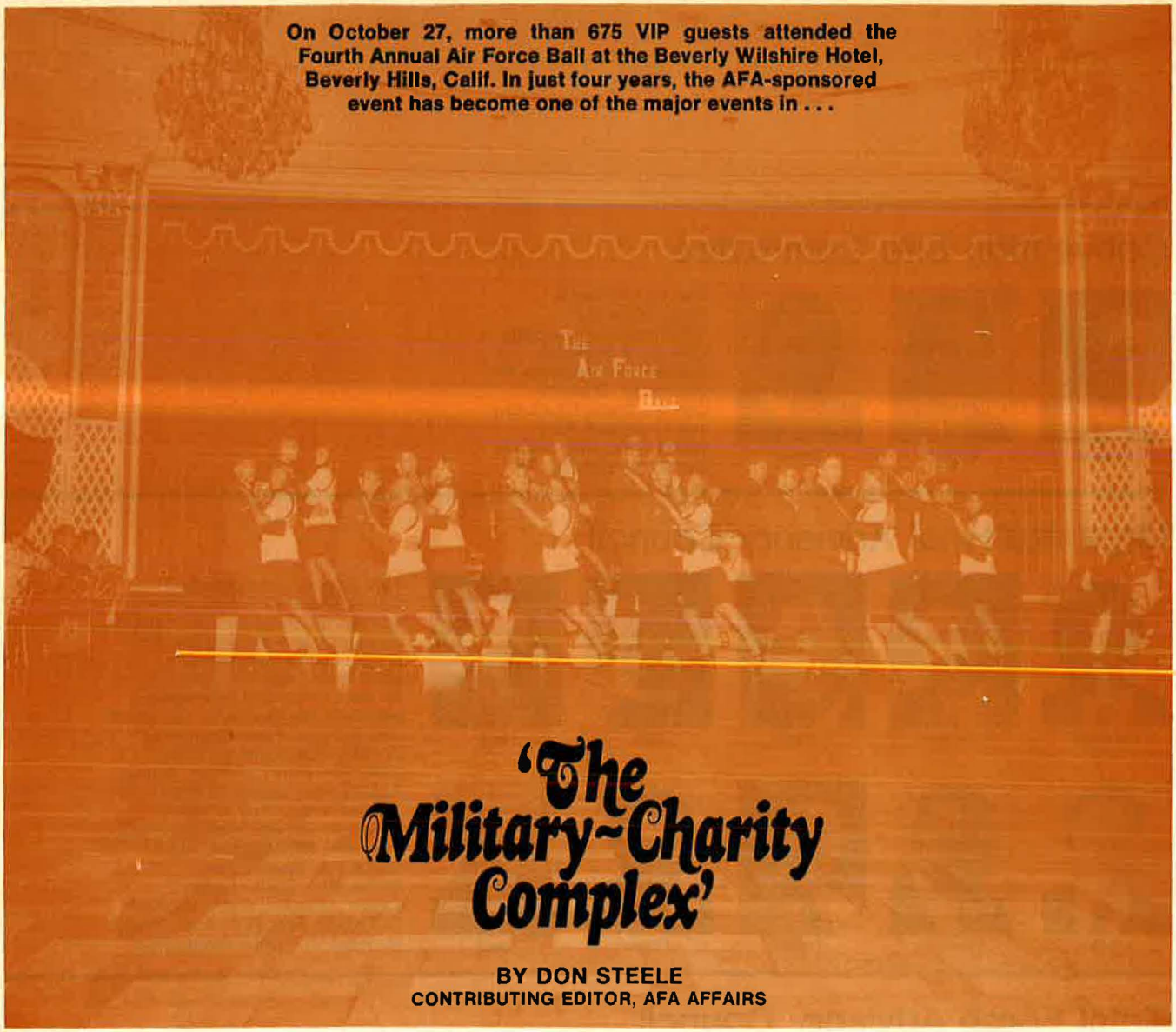

Noerr


Sams


Wilson


Campbell

Last year AFA established a Total Force Advisory Council to provide the AFA President with specialized counsel across the spectrum of the total force. The success of this Council has led to its continuance. Each Council member, in addition to serving on this Council, serves as the specialized Adviser to the President in his particular area of expertise or as the Chairman of a specialized Council. Members are Brig. Gen. John W. Huston, USAFR, Annapolis, Md., Air Reserve Adviser, Chairman; Brig. Gen. Darrol G. Schroeder, Davenport, N.D., Air National Guard Adviser; Brig. Gen. William J. Reals, USAFR, Wichita, Kan., Medical Adviser; Col. George H. Chabbott, USAF (Ret.), Dover, Del., Retiree 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; Robert M. Watson, Wright-Patterson AFB, Ohio, Civilian Personnel Adviser; CMSgt. David C. Noerr, Norton AFB, Calif., Chairman, Enlisted Council; Capt. Monroe S. Sams, Jr., Scott AFB, Ill., Chairman, Junior Officer Advisory Council; Maj. Gen. Winston P. Wilson, USAF (Ret.), Arlington, Va., Chairman, Government Advisory Council; and Stanley L. Campbell, San Antonio, Tex., Chairman, Organizational Advisory Council.



On October 27, more than 675 VIP guests attended the Fourth Annual Air Force Ball at the Beverly Wilshire Hotel, Beverly Hills, Calif. In just four years, the AFA-sponsored event has become one of the major events in . . .

'The Military-Charity Complex'

BY DON STEELE
CONTRIBUTING EDITOR, AFA AFFAIRS

THE Fourth Annual Air Force Ball enhanced the tradition of elegance set by its predecessors, scored another social coup for its sponsor—the Air Force Association—and firmly established the function as one of the major military-oriented charity events in the country.

The Ball was held on October 25 in the beautifully decorated Grand Ballroom of the Beverly Wilshire Hotel in Beverly Hills, Calif. Net proceeds from the annual $115-a-plate, fund-raising function go to Scholarships for Children of American Military Personnel (SCAMP) to assist deserving children of US servicemen from all the military services who were killed in action, missing in action, or prisoners of war in the Southeast Asian conflict; and to the Aerospace Education Foundation, AFA's education affiliate, to be used in its program of adapting and making available to high schools and community colleges throughout the country occupational education courses developed by the USAF. The four annual functions have raised more than $150,000 for these two worthy organizations.

President Gerald R. Ford was the Honorary Chairman of the Ball. Gwynn H. Robinson, Maj. Gen., USAFR, was the General Chairman and the master of ceremonies. Martin M. Ostrow, founder and President of SCAMP, and a former AFA National President and Board Chairman, presented four $1,000 SCAMP scholarships, assisted by Air Force Secretary John L. McLucas; Air Force Chief of Staff Gen. David C. Jones; T. R. Stuelpnagel, a member of SCAMP's Board of Trustees and a leader in the Association of the United States Army; and Brig. Gen. Robert Arter, USA, Assistant Division Commander (Maneuver), 7th Infantry Division.

Top government, military, and industry guests, together with key AFA leaders, mixed with Beverly Hills society and Hollywood celebrities, and danced until 2:00 a.m. to the music of the Fifteenth Air Force Band under the direction of Lt. Daniel Schmidt, and Steve Paietta and his Orchestra.

Miss Carol Lawrence, star of stage and screen, thrilled the audience with her stirring rendition of our National Anthem. The "Footprints of Freedom," a group of AFROTC Cadets and Angel Flight "Angels" from Brigham Young University in Provo, Utah *(see photo above)* highlighted the evening's entertainment with songs supporting America, its flag, its ideals, and its independence. The Fifth Annual Air Force Ball is planned for Saturday evening, October 30, 1976. ■

From left, AFA Board Chairman Joe L. Shosid, Carol Lawrence, Air Force Secretary John L. McLucas, Mrs. Douglas, AFA President George M. Douglas, and Mrs. McLucas.

Gwynn H. Robinson, left, General Chairman of the Ball, greets Air Force Chief of Staff Gen. David C. Jones and Mrs. Jones as they enter the Ballroom.

Among the many distinguished guests at the Ball were, from left, Mrs. Evans; Gen. William J. Evans, Commander, Air Force Systems Command; Mrs. Doolittle; Lt. Gen. James H. Doolittle, USAF (Ret.), AFA's first National President and holder of the Medal of Honor; Mrs. Stewart; and actor Jimmy Stewart, one of the founders of AFA.

During the evening, the four SCAMP scholarship recipients visited with SCAMP President Martin M. Ostrow, a former AFA National President and Board Chairman; and AFA National Director Robert S. Lawson, who, with Mrs. Lawson, chaperoned them during their visit to Beverly Hills. Shown are, from left, Dana Ruth Kingsbury, Carmichael, Calif.; Dennis J. Giannangeli, Colorado Springs, Colo.; Lynn Standerwick, Bellevue, Neb.; Mrs. Lawson; Mr. and Mrs. Ostrow; Juliet Anne Crittenberger, McLean, Va.; and Mr. Lawson.

The military cohosts, from left, Lt. Gen. Thomas W. Morgan, Commander, Air Force Space and Missile Systems Organization; Mrs. Morgan; Lt. Gen. Bryan M. "Jack" Shotts, Commander, Fifteenth Air Force; and Mrs. Shotts.

Seven Air Force NCOs and their wives were guests of California AFA leaders and units. Here they are shown with AFA National Director Edward A. Stearn, fifth from left, the California AFA Liaison Chairman for the Ball, and, on his right, Mrs. Stearn.

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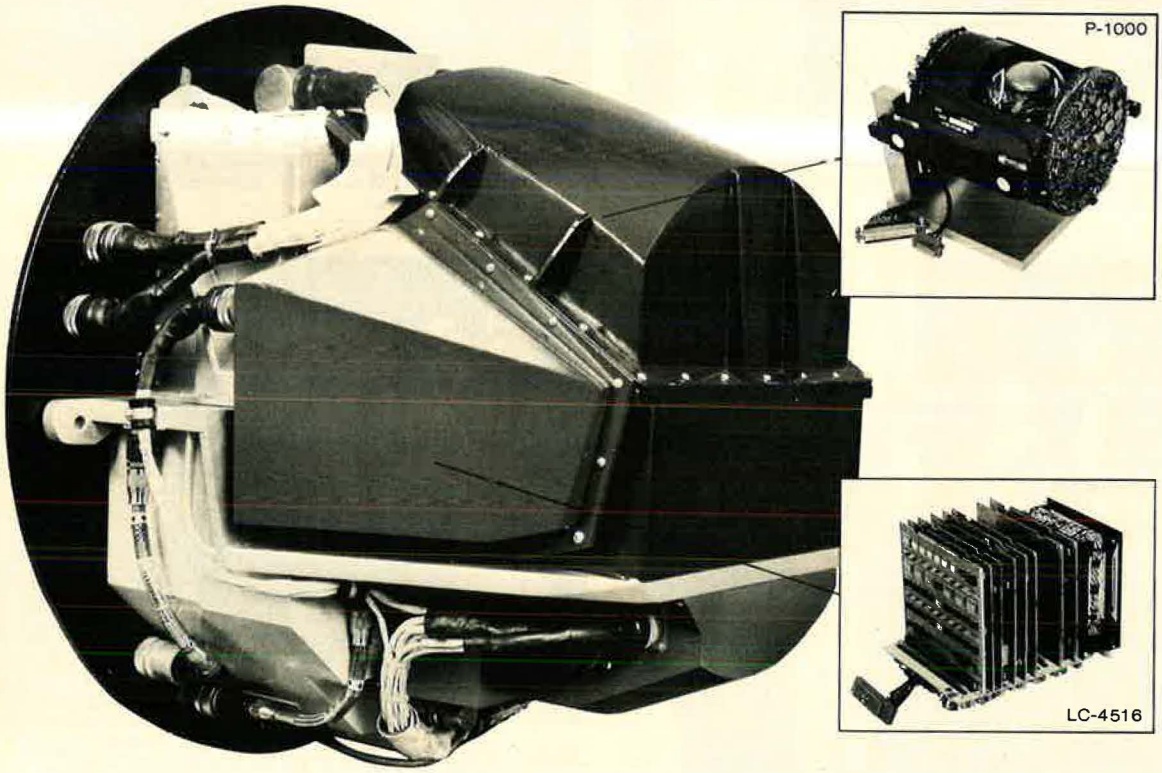

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OBJECTIVES

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.

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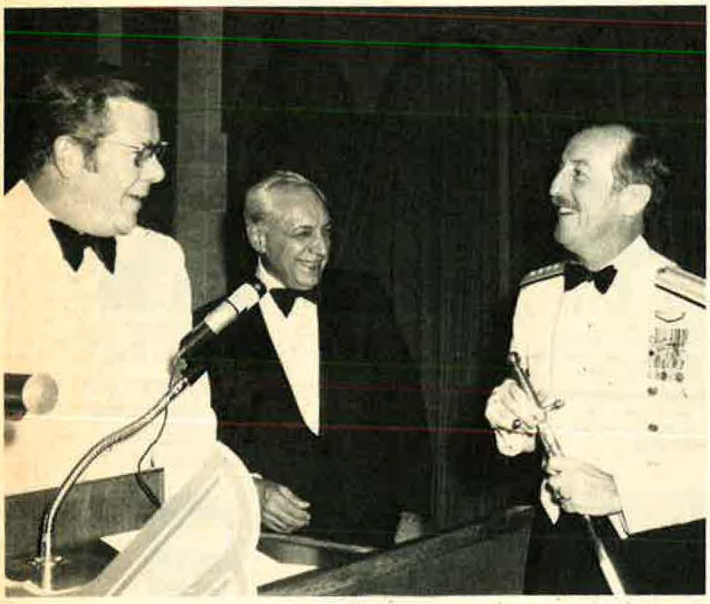
By Don Steele
AFA AFFAIRS EDITOR

THE UTAH STATE AFA AND ITS GOLD CARD CHAPTER
cited for consistent and effective programming in support of AFA's mission, most recently exemplified in their cosponsorship of a Bicentennial Dining-Out.

Sgt. Dennis W. Regan, one of the Air Force's twelve Outstanding Airmen for 1975, received a memorial album and a pair of bookends during a dinner in his honor sponsored by AFA's Sault Ste. Marie Chapter, Mich. Sergeant Regan, center, is shown with his commander, Col. Otto L. Kovar, Jr., left, 449th Bomb Wing Commander at Kincheloe AFB, Mich.; and Chapter President C. Ernest Kemp, right. (USAF photo)

The Utah State AFA and its chapters have been awarded a plaque by the Utah American Revolution Bicentennial Commission for developing and implementing a year-long Bicentennial program, culminating with an Independence Day Ball. The initial function, a Bicentennial Dining-Out at Hill AFB Officers' Club, was cosponsored by the State AFA and its Gold Card Chapter. Head-table guests included, from left, AFA Executive Director James H. Straubel, the guest speaker; AFA Board Chairman Joe L. Shosid; Utah State AFA President Robert Walker; and AFA President George M. Douglas. In recognition of their outstanding efforts, Mr. Douglas names the Utah State AFA and its Gold Card Chapter as AFA's "Units of the Month" for January.



Seven persons—including Maj. Gen. Gerald J. Post, AFLC's Deputy Chief of Staff for Materiel Management—were honored at the Wright Memorial Chapter's Dinner Dance, held annually at Wright-Patterson AFB, Ohio, to observe the Air Force's anniversary. Participating in the traditional cake-cutting ceremony were, from left, Jack Withers, Vice President for AFA's Great Lakes Region, the master of ceremonies; Chapter President Fred Orazio; and Gen. F. Michael Rogers, Commander, Air Force Logistics Command.

More than 500 AFA members and guests attended the "Salute to MAC" luncheon recently cosponsored by the Riverside and San Bernardino Area AFA Chapters and Chambers of Commerce. Head-table guests included, from left, Col. William E. Carson, 63d Military Airlift Wing Commander; San Bernardino Area Chapter President Jay Golding; Gen. Paul K. Carlton, Commander, Military Airlift Command, the guest speaker; David Goldware, Chairman, Military Affairs Committee, Riverside Chamber of Commerce; and AFA National Director Edward A. Stearn.

Some 150 members and guests attended the Scott Memorial Chapter's recent program in the Scott AFB NCO Open Mess observing the Air Force's 28th Anniversary and welcoming Lt. Gen. John F. Gonge, the Military Airlift Command's newly assigned Vice Commander, and Mrs. Gonge. Participating in the traditional cake-cutting ceremony are, from left, General Gonge; MSgt. Jerry McCabe, a member of the Chapter's Advisory Committee; Chapter President Hugh L. Enyart; Ray Fritz, Air Force Audit Agency; and Capt. Monroe S. Sams, Chairman of AFA's JOAC Executive Committee.

For the third consecutive year, the 9010th Air Reserve Information Squadron (ARIS), Cherry Hill, N. J., received the Outstanding ARIS Unit of the Year Award. The award was presented by Col. James E. Dalton, right, Air Reserve Personnel Center Commander, during an ARIS Commanders' Conference in Denver, Colo. Col. John P. Kruse, left, is Commander of the unit and, also, is the President of the New Jersey AFA Information Chapter. The 9010th's New Jersey members form the core of the AFA chapter.

Lt. Gen. James D. Hughes, Commander, 12th AF (TAC), Bergstrom AFB, Tex., was the guest speaker at the annual brunch sponsored by the California AFA's General Curtis E. LeMay Chapter. In the photo, General Hughes, left, visits with Chapter President Robert J. Eichenberg, center, and Bob Stevens, right, cartoonist and creator of "There I Was" (see p. 80).

Iron Gate Chapter President J. William Bailey, left, presents a silver salver to Lt. Gen. Ray B. Sitton, USAF, Director of Operations (J-3), Office of the Joint Chiefs of Staff, Washington, D. C., guest speaker at the Chapter's recent luncheon meeting in New York City's "21" Club. At right is Chapter Secretary J. Clarence Davies, Jr., Maj. Gen., USAF (Ret.).

Suffolk Chapter President Vincent F. O'Connor, second from right, presents a chapter citation to New York State Sen. Leon E. Giuffreda, right, Chairman, Senate Committee on Education, in recognition of his "dedicated effort in providing legislation in support of JROTC programs in New York State." Also present were, from left, Kenneth LaValle, Executive Director, Senate Committee on Education, and New York State AFA Secretary John F. Dolan.

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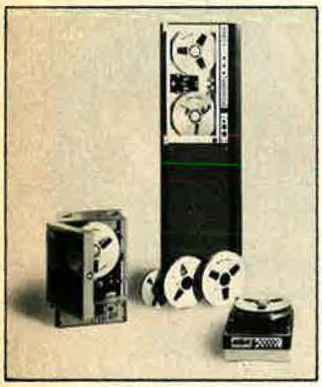

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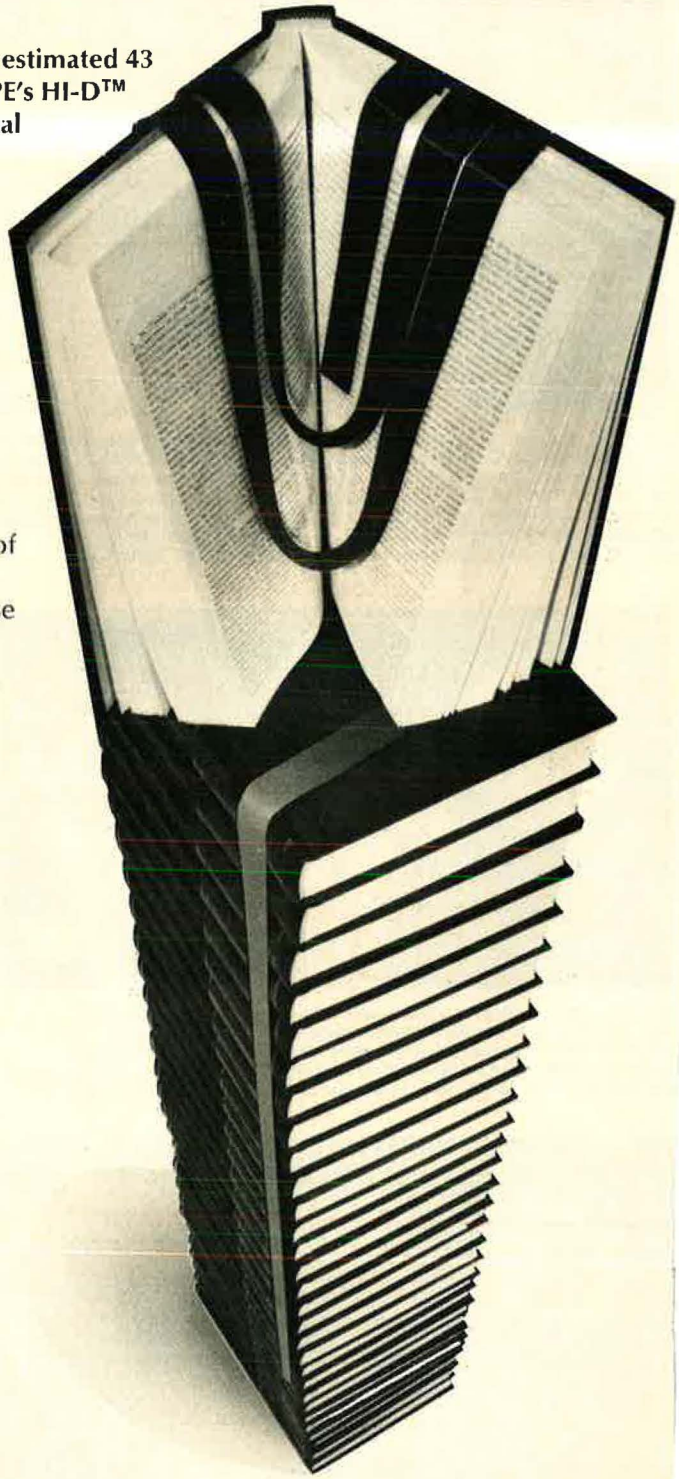

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The March issue of AIR FORCE Magazine will once again feature The Soviet Aerospace Almanac —a comprehensive examination of Soviet strategic, tactical and naval aerospace forces, including organization, deployment, missions, doctrine and concepts . . . key military leaders . . . Soviet R & D . . . military space applications . . . analysis of total military-related expenditures . . . statistical data on Soviet aerospace forces and budgets . . . A "Jane's" prepared Gallery of Soviet Aerospace Weapon Systems . . . plus other exclusive features . . . a must for military planners . . . a year-round reference issue . . . a great advertising opportunity. Closing for reservations is January 23, copy by February 4.

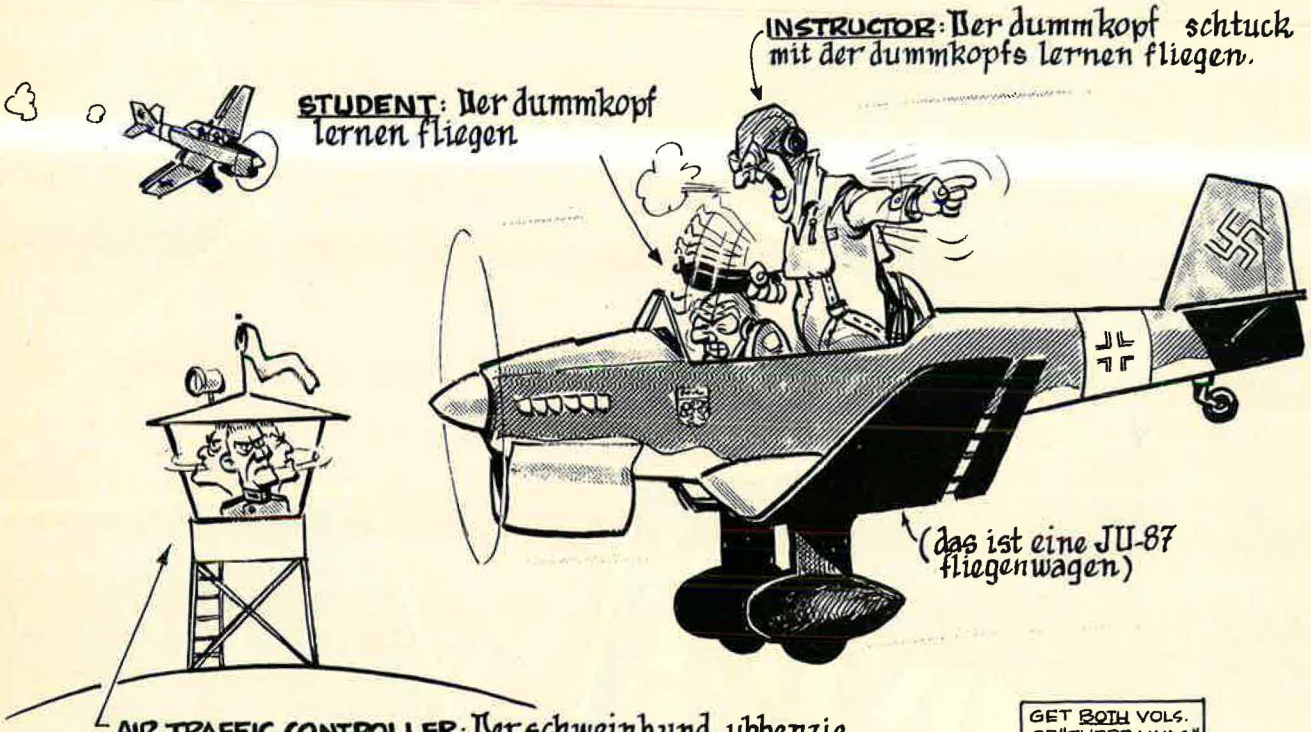
AIR FORCE MAGAZINE

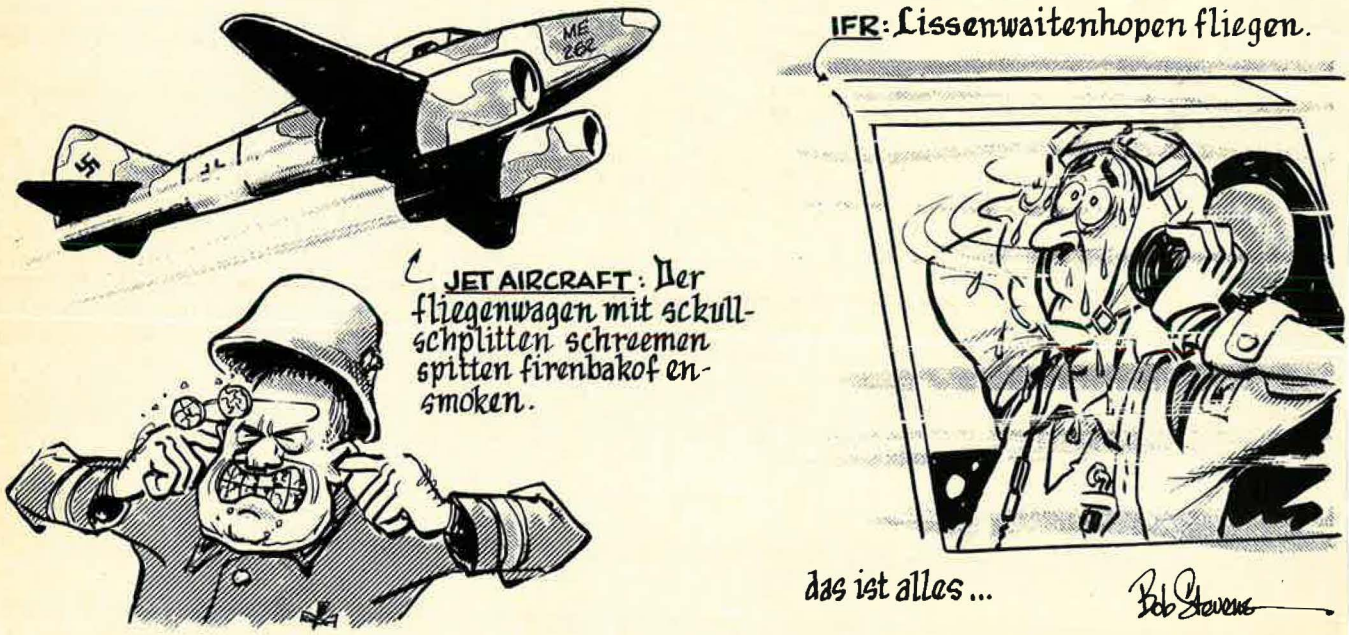
Bob Stevens'

"There I was..."

PART I COVERED "FLIEGENWAGENS" OF WW I and PRE-WW II. NOW, STUDENTS, WE WILL DESCRIBE THE INTRICACIES OF OPERATING WW II AIRCRAFT. PLEASE TAKE NOTES-WE MAY ASK QUESTIONS LATER.

GEFRACTURED GERMAN GLOSSARY FÜR GEFLIEGERS
PART II





A communications center for America's highest command.

Our high command can direct all forces from an airborne command post in the event of national emergency.

This command and control communications center is inside the USAF's giant E-4A Advanced Airborne Command Post.

E-Systems installs and integrates the sophisticated electronics systems on the Boeing E-4A. In September, a third E-4A was delivered to the U.S. Air Force in support of National Command Authorities, representing the highest echelon of the U.S. government and armed forces.

For 15 years, E-Systems has been the nation's number one supplier of electronics for strategic and tactical airborne command posts. It's a role we're proud to claim.

E-Systems, Inc., P.O. Box 6030, Dallas, Texas 75222.

E-SYSTEMS

We solve problems...systematically.

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.