

MARCH 1974/\$1

# AIR FORCE

PUBLISHED BY THE AIR FORCE ASSOCIATION

MAGAZINE



## **FIFTIETH ANNIVERSARY OF 'THAT FIRST ROUND-THE-WORLD FLIGHT'**

ALSO IN THIS ISSUE A SPECIAL REPORT ON NEW TACTICAL WEAPONS



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hunter.**

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hunted.**

The F-102 Delta Dagger... delivered to the Air Force in the early '50s... an excellent record as an all-weather interceptor.

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PHOENIX, ARIZONA 85036





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### AIR FORCE



FIFTIETH ANNIVERSARY OF THE FIRST ROUND-THE-WORLD FLIGHT

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## AN AFA STATEMENT ON . . .

# NATIONAL STRATEGIC POLICY

*Following is the text of a statement adopted unanimously by the Board of Directors of the Air Force Association in Washington, D. C., on February 9, 1974:*

**T**HE NEED for rethinking US strategic concepts, stemming from radical changes in world power equations that have taken place in the past year, is now recognized. As a result, a basic and welcome change in the strategic plans and policies of the United States is beginning to take shape.

The risky and rigid strategic concept of assured destruction is giving way to a more flexible, more realistic deterrent doctrine incorporating counterforce—the ability to destroy an attacker's essential military targets, both soft and hard—making it possible to respond in kind to less than all-out nuclear aggression.

The Air Force Association endorses this shift in national strategy, with its greatly expanded emphasis on purely military targets rather than on military-related industrial and transportation targets and population centers. We commend Secretary of Defense Schlesinger for his sure grasp of the advantages of a strategy incorporating counterforce capabilities, and for articulating these advantages so convincingly. We welcome the initiatives taken in the Administration's FY '75 budget that support such a strategy.

It remains now for the Administration, the Congress, and the American people to bring into being, and to maintain, the military and political apparatus required to make a counterforce-oriented strategy possible, workable, and believable.

Recent advances in Soviet military technology, together with the disarray among US allies arising from the Middle East confrontation, permit no other reasonable choice to the United States.

Counterforce too often is wrongly equated with a destabilizing first-strike posture. Counterforce likewise is seen by critics as ensuring continuance of an arms race. The first of these claims is not true. The second ignores even worse alternatives.

What is true is that counterforce weapons in the hands of the Soviet Union, without tangible evidence of an offsetting US capability, would create intolerable pressures on our national leadership. The US eventually would be reduced to a high-risk dependence on bluffing, and the nation's ability to maneuver diplomatically would be paralyzed. Doubts concerning US capabilities and intentions would proliferate, not only in the Kremlin but among our allies.

The world balance of power would shift, first into a period of precarious stability, and ultimately into a situation of one-way deterrence, with the Soviet Union in the driver's seat.

Whatever risks may be associated with an arms race, the greatest risk of all would be for the United States to finish second best.

A credible counterforce capability thus becomes essen-

tial to a credible US deterrent posture. In a counterforce strategy, the segments of the US Triad become even more interdependent one upon the other, with land-based ICBMs remaining the principal counterforce weapon. Therefore, it becomes a matter of urgent priority to exploit more fully the inherent counterforce capabilities of our ICBMs. These are limited in number by the SALT agreements, and hence can only be upgraded qualitatively—in accuracy, yield, and numbers of warheads, and hardening of launch sites.

Failure to maintain at least essential equivalence, or all as well as in key counterforce capabilities, would be dangerous, provocative, and irresponsible.

Compounding these factors is the declining US investment in military-oriented scientific research over the decade, especially when set against a steadily increasing Soviet level of effort. There is real danger of major technological surprise in the years ahead. US defense research is down some twenty-five percent since 1964, while Soviet effort has increased manyfold over the same period.

The signs are ominous. US scientists and association experts know of the existence of dozens of advanced Soviet research projects whose nature and purpose are under assessment. Among these projects may well be the seeds of a technological breakthrough to rival or exceed the combination of the nuclear warhead and the ICBM.

The Air Force Association, therefore, urges the Administration and the Congress to take the following essential actions and to assure their continuance in the interest of stability in the world:

- An increase in basic military R&D sufficient to make up for lost ground in order to maintain a position of technological superiority;
- Development of technological options, beyond the present family of strategic weapons, so that Soviet numerical superiority of strategic weapon systems accorded SALT I is not reinforced by qualitative superiority well;
- Upgrading of our ICBM force to achieve full counterforce capabilities;
- Expeditious development and deployment of the B-1 strategic bomber as essential insurance against potential decisive technological surprise;
- Full funding of current force modernization programs to maintain the US ability to credibly deter conventional war;
- Expansion of the US strategic airlift capability; and
- Maintaining the manpower of the armed forces, both the Reserve components and the active-duty force, under the total-force policy, at levels in consonance with their mission of deterring nuclear as well as conventional war.



**The Air Force A-7D**  
*A classic in its own time*

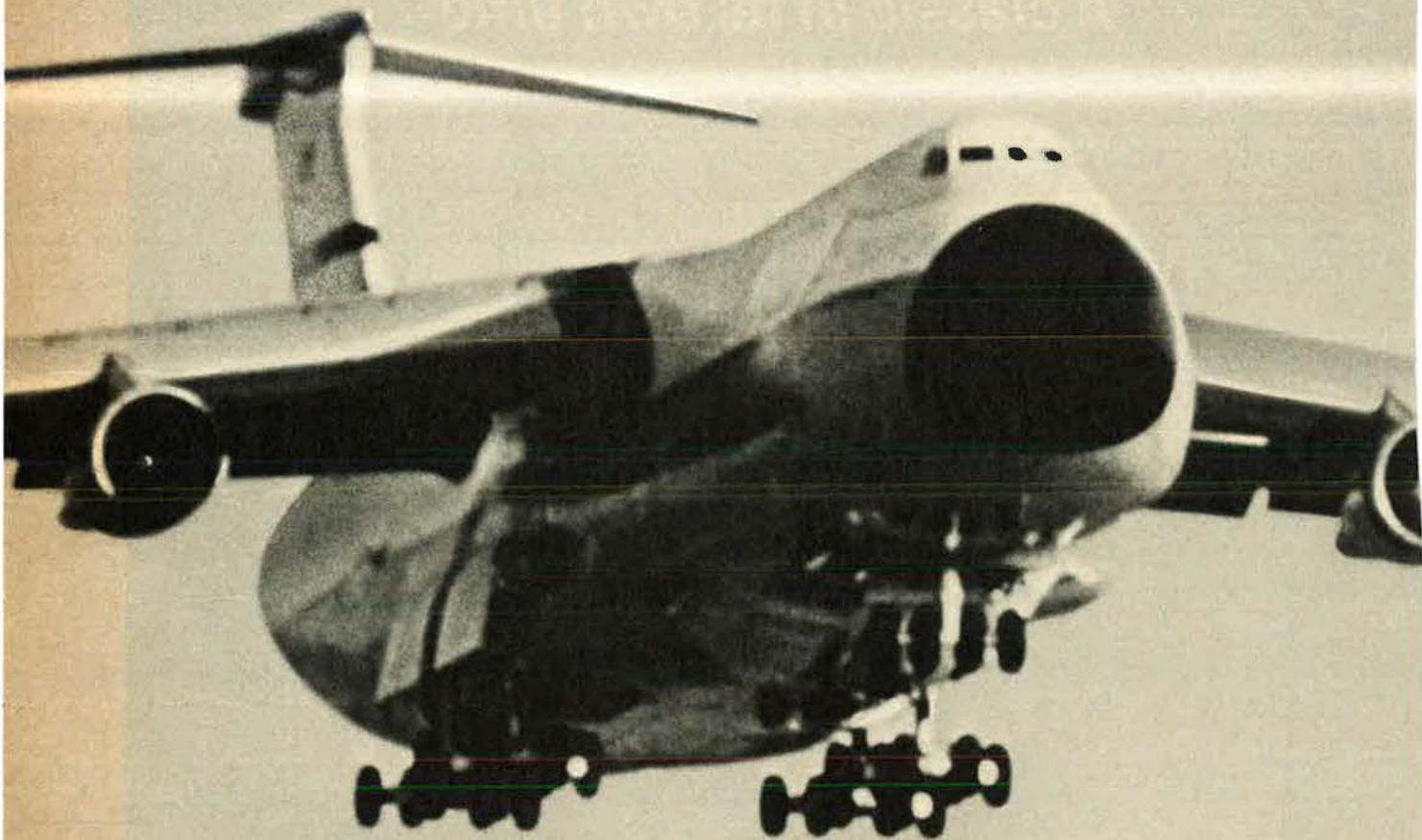


**VOUGHT SYSTEMS DIVISION**  
LTV AEROSPACE CORPORATION





# The Military Airlift Command. Equipped for



The Air Force's Military Airlift Command has proven its ability to move fast in emergencies with airlift capability never before achieved.

Take its recent role in the Middle East. On October 13, the U.S. made its decision to start a massive airlift to the Middle East. Only hours after that decision was made, Operation "Nickel Grass" had begun. Military Airlift Command crews were airborne in an unprecedented airlift.

After 33 consecutive days of airlift, MAC crews flying huge C-5A airlifters had delivered 10,800 tons of cargo in 145 missions. And they had been long missions

with an average one-way distance of 6,450 nautical miles.

The giant C-5A, built by Lockheed, was the biggest reason the Military Airlift Command was able to conduct such a successful operation on such short notice. Here's why.

It can airlift outsized and heavy cargo other planes can't. Like M-60 tanks weighing 100,000 pounds and huge Jolly Green Giant helicopters.

Load that cargo quickly through its full-width cargo doors. Unload in less than 30 minutes by having its landing gear kneel, so vehicles and weapons can drive off through front and rear openings simultaneously.



# Immediate reaction. With Lockheed C-5As.



Save precious time by refueling in flight. This enables the C-5A to fly longer legs nonstop.

Land closer to where the cargo's needed. Because the C-5A has high-flotation landing gear that enables it to land on unimproved runways.

Land on short runways. The C-5A has actually landed in under 1,200 feet, taken off in less than 1,000 feet.

Even land on only two of its four main landing gears.

Have a flat tire changed in minutes without having to back up the plane.

The C-5A even has the capability, in combat emer-

gency, of finding its destination without ground aids and land in weather that would turn back all other planes.

The C-5A, built by Lockheed. Helping the Military Airlift Command react quickly wherever American policy is involved.

The C-5A. It's the world's most advanced airlifter.

**Lockheed** And will be for many years.  
**Lockheed Aircraft Corporation**

If you want more information about the C-5A, "A Pilot's view of the C-5A" is available upon request. Written by a U.S. Air Force pilot, the article ran in Air Force Magazine. Write Lockheed-Georgia Company, Dept. 84-01, Marietta, Ga. 30063.



## Airmail

### Lightweight Fighter Prototype

*Gentlemen:* I have read with interest the article in the January '74 AIR FORCE Magazine on the YF-16 ["YF-16: On Time, On Track, On Budget," by Edgar Ulsamer]. It was one of the finest pieces of reporting both from an interest and accuracy point of view that I have ever seen. Congratulations . . . and thanks for your support of the Lightweight Fighter Program.

Col. William E. Thurman  
Deputy for Prototypes  
Hq., Aeronautical Systems  
Div. (AFSC)  
Wright-Patterson AFB, Ohio

### Continuing Effort

*Gentlemen:* "The Stalemated Search for Our MIAs," by William P. Schlitz, in the January issue of AIR FORCE Magazine, is an outstanding report.

The National League of Families of American Prisoners and Missing in Southeast Asia is grateful to the Air Force Association for focusing attention on the terrible dilemma this problem poses, not only for the families of those who are still missing in the aftermath of the Vietnam conflict, but for the government of the United States.

I should say we are grateful *once again*, because we have not forgotten, of course, that it was AIR FORCE Magazine that published the first definitive report on the plight of our POWs and MIAs, back in 1969, and that you have continued to give constant attention to the problem ever since. Mr. Schlitz has been particularly helpful by maintaining a close liaison with the League and faithfully reporting on all of our major programs.

In his current article, he has underscored the perfidy of the North Vietnamese in their refusal to return our dead and in their continuing rejection of all efforts to account for our missing men.

It is true that some of our families have concluded that prospects are "grim," as Mr. Schlitz says, and that [no] further pressures can be exerted to bring about the accounting we were promised, both by the North Vietnamese and by our own

government. But many of our families still continue to hope, and they are deeply aware that perhaps even less will be accomplished unless we can keep the MIA issue before the public. This is becoming difficult to do, and, therefore, we are all the more grateful to AFA for bringing its members up to date on the complexities of the situation. Our congratulations to AFA, to AIR FORCE Magazine, and to Bill Schlitz for excellent coverage of a difficult subject.

Iris R. Powers  
Chairman of the Board  
National League of Families of  
American Prisoners and  
Missing in Southeast Asia  
Washington, D. C.

### Specialized Education

*Gentlemen:* Many thanks for including the article on the Air Force Institute of Technology in your January issue ["What AFIT Has for You," by Capt. Don Carson]. . . .

The value of education is often difficult to quantify and, with the ever-changing priorities for our shrinking defense dollars, it is essential that we keep our Air Force people and the civilian public informed on the necessity for and availability of our AFIT educational programs. Your article in AIR FORCE Magazine is welcome and well timed. . . .

Maj. Gen. Frank J. Simokaitis  
Commandant  
Air Force Institute  
of Technology (AU)  
Wright-Patterson AFB, Ohio

*Gentlemen:* We certainly enjoyed your January article, "What AFIT Has for You." To the general public, the laboratory is probably best known for the Apollo guidance and navigation system. To many members of the AFA, we are probably best known for instrumentation and the guidance and control in operational systems.

However, many fond memories on both sides relate to our educational activities; indeed, there are more than a few students of "Doc" Draper still in the business. Some graduates of the joint Draper/MIT

Program have helped to establish technical programs at AFIT, and Professor Walter Wrigley of the Staff has happily served on the AFIT Advisory Board. We are all in close agreement with the views expressed regarding relevance of education and the laboratory internship.

On that last point, we have a correction to suggest for the article in lieu of the statement that "The opportunity to become directly involved in the lab's programs is not available at any civilian institution."

We won't take space to list the many hundreds of officers' theses done in Draper Laboratory for MIT degrees on USAF projects, but it is a proud and noteworthy contribution. Probably AFIT plus Wright-Patterson AFB Laboratories and the Draper Laboratory offer a high-technology project opportunity that is not available at most civilian institutions.

We are a mission-oriented laboratory, working with graduate students in MIT and Harvard, and, of course, AFIT, and other officers are welcome. As a matter of fact, it is a very interesting story, the way we work to bridge the academic community, the services, and the production industry. . . .

William R. Porter  
Director, Educational Activities  
Div.

Charles Stark Draper Laboratory,  
Inc.  
Cambridge, Mass.

### RAF Falcons' Jump

*Gentlemen:* My very real, long-standing, high regard for my friends in the RAF is increased even more by one of their recent accomplishments. The photo at the lower left of page 15 of the January issue of AIR FORCE Magazine is captioned as a jump by the RAF Falcons from an Argosy transport.

Since the airplane shown is a C-130, I can only assume that the team maneuvered themselves into the positions shown *after* jumping from an Argosy that does not appear in the picture. While this would be a most difficult task, I am sure it is not beyond their capabilities.



I should also note that had this picture appeared in almost any other publication, I would have assumed it was simply a caption error.

R. B. Ormsby  
Vice President, Engineering and Operations  
Lockheed-Georgia Company  
Marietta, Ga.

• It was an error in the caption furnished with the picture. We trustingly let it slip by us, for which we apologize.—THE EDITORS

### Physical Perfection Unnecessary

*Gentlemen:* Although not a member, I am occasionally able to read a copy of AIR FORCE Magazine and find it worthwhile. In one recent copy, I learned that women are to receive flight training [in the Navy] and felt that this development would enhance the relevance of what follows.

First, understand that I was refused entrance to flight training due to substandard vision. I have myopia, which corrects to better than 20/20 with glasses.

Many are doubtless familiar with the written exam given to select pilot trainees in WW II. As a psychology student at the University of Texas, I found that considerable research had been done to find why this test had done such a good job of picking the best men for flight training. The consensus of the many eminent researchers who studied the problem was twofold. First, the test was long, tedious, and generally capable of creating tremendous frustration. Second, those who did well on the test and hence were selected for flight training accepted the frustration aspect of the test in return for the chance to fly. They were so highly motivated that they would do anything to fly. Thus, men selected mainly for high motivation made good pilots.

In view of the above information, I respectfully submit that the strict physical requirements presently used to select pilot trainees may have given the Air Force some fine physical specimens, but not always the best potential pilots. If men with more motivation and perhaps less physical perfection had had a chance to fly, the present force might be even better than it is.

If the present trend in defense spending continues, we may never be able to match our potential enemies quantitatively. We must,

therefore, maintain superior quality. It will be well worth the Air Force's time and money spent for a few experimental classes in flight school if it is found that men that are now disqualified can perform as well or better than those selected under present regulations.

The history of military aviation shows that men who would be disqualified under present rules have shown superlative airmanship in past conflicts. We should start experimenting now to see which men with high motivation and some physical problem are capable of rendering service to the country as airmen, lest in a conflict in the not too distant future we be caught with our Douglas Baders down.

David Bogart  
Corpus Christi, Tex.

### F-86 in Combat

*Gentlemen:* I wish to put together a publication on combat flying the North American F-86 Sabre and would like to contact anyone serving with the 4th or 51st Fighter Interceptor Wings or the 8th and 18th Fighter Bomber Wings during the Korean conflict.

Personal recollections, photos and/or slides, news clips, unit histories of aircrews and aircraft, missions, etc., would be appreciated. All borrowed material will be meticulously handled and returned as soon as possible.

Larry Davis  
4713 Cleveland Ave., N. W.  
Canton, Ohio 44709

## UNIT REUNIONS

### 2d Air Division Association

On July 24-27, the 2d Air Division Association will hold its 27th Annual Reunion in Wilmington, N. C. Anyone who served in the following groups is eligible to attend: 44th, 93d, 389th, 392d, 445th, 446th, 448th, 453d, 458th, 466th, 467th, 489th, 491st, and 492d Bomb Groups; 4th, 56th, and 355th Fighter Groups; 361st and 479th Scouting Force/Fighter Groups; and other groups and attached units. Please contact

William G. Robertie, Pres.  
2d Air Div. Ass'n  
P. O. Drawer B  
Ipswich, Mass. 01938

Phone: (617) 356-5470

### USAF Interceptor Weapons School

The 1st Annual Reunion and 20th Anniversary celebration of the USAF Interceptor Weapons School (4757th Air Defense Squadron, ADC) is being

planned this year. If you were ever permanently assigned to IWS as a staff member, please contact, as soon as possible

Capt. Thomas A. Cardwell, III  
Reunion Committee, Chairman  
4757th AD Sqdn. (IWS/TT)  
Tyndall AFB, Fla. 32401

### 19th Bombardment Group

The 19th Bombardment Group is planning to hold its annual reunion at Wright-Patterson AFB, Ohio. For further information contact

Dean H. Anholt  
Box 3453  
Kimberling City, Mo. 65686

### P-40 Warhawk Pilots Association

The Imperial House North, Dayton, Ohio, will be the scene of the P-40 Warhawk Pilots Association reunion June 28-30. For further information contact

Lloyd Hathcock, Chairman  
34 College St.  
Dayton, Ohio 45407

Phone: (513) 257-2213 (office)  
(513) 223-8432 (home)

### P-47 Pilots Association

The P-47 Thunderbolt Pilots Association is planning a KLM Charter Flight, New York City to London, April 19-28. For details contact

Stuart Moak  
140 West 22d St.  
New York, N. Y. 10011

Phone: (212) 243-3000

### 325th Fighter Group

The 29th Annual Reunion of the 325th "Checkertail" Fighter Group (317th, 318th, and 319th Squadrons) will be held June 28-30 at the Hilton Motor Inn, Albuquerque, N. M. Contact

Dan Penrod  
69 Keswick Ave.  
Pittsburgh, Pa. 15202

### 401st Bomb Group (H)

The first Group reunion is being planned for all former members, both air and ground personnel, of the 401st Bombardment Group (H) of Deenethorpe. Time and place as yet undecided. If interested in gathering with your former WW II buddies, please contact

Ralph Trout  
401st Bombardment Group (H)  
P. O. Box 22044  
Tampa, Fla. 33622

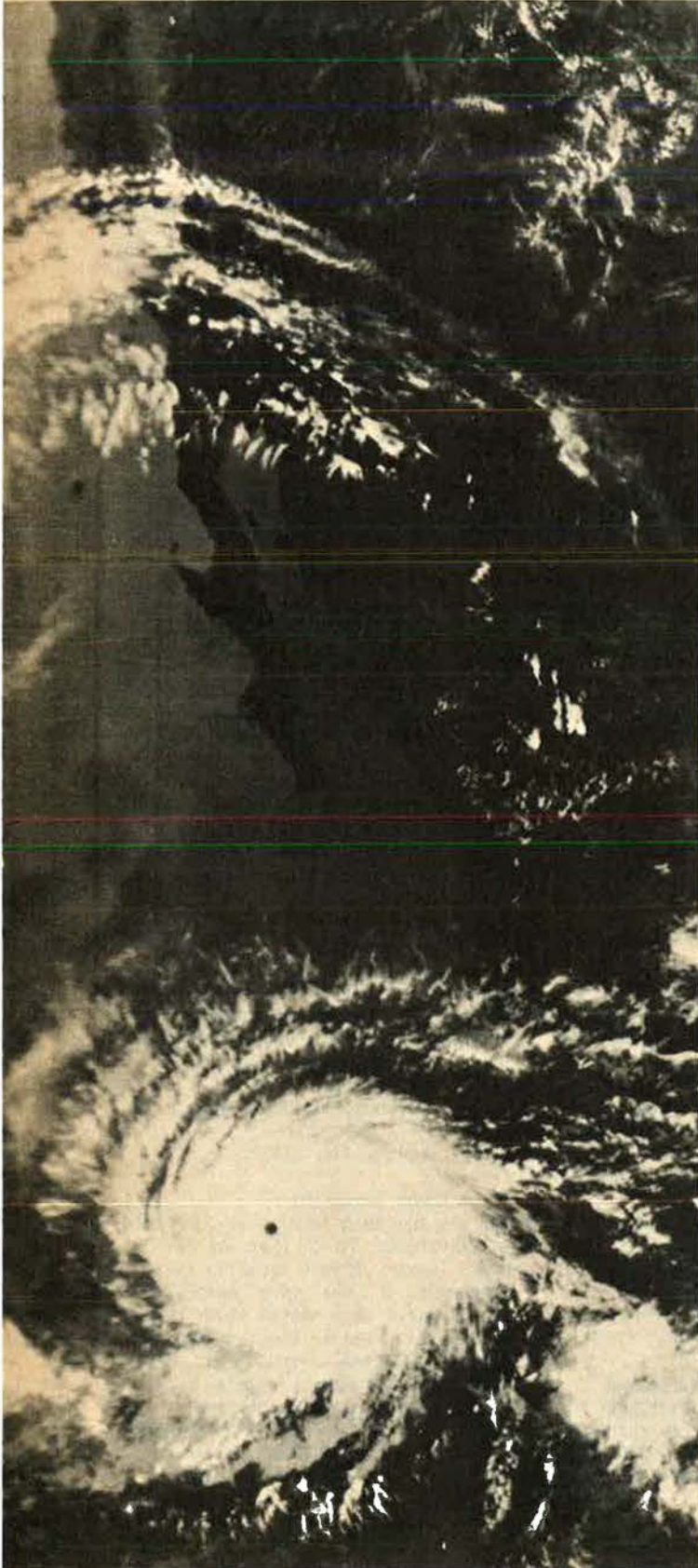
### 448th Bomb Group (H)

We are having a reunion in July 1974 in Wilmington, N. C. [See 2d Air Div. Ass'n above]. Please write to me immediately. If you have names and addresses of other former 448th men or of men attached to the Seething, England, Base, please send them along. The 448th will have a special banquet at the reunion, so try to be there.

Kenneth W. Engelbrecht  
204 South Archie Ave.  
Granville, Ill. 61326



# Announcing the world's best look at the world's weather





A spaceborne sensor system, developed for the Air Force, is producing the best, fastest weather imagery ever acquired by man.

The system includes two types of sensors, infrared and visual, both with resolutions of  $\frac{1}{3}$  and 2 nautical miles. The infrared sensors detect temperature; visual sensors detect brightness and even see at night.

In orbit 450 miles up, they view an area 1600 miles wide, distinguish clouds as small as 2,000 feet in diameter. Data, when displayed on Westinghouse-developed ground equipment, is not distorted by the earth's curvature.

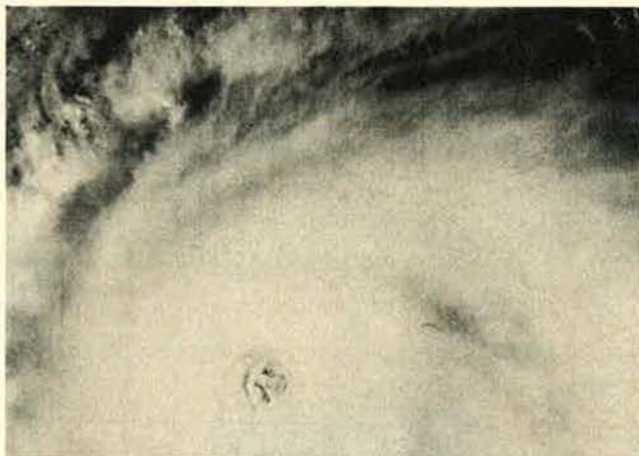
Now, unequalled pictures give better warning of hurricanes, tornadoes, heavy rains and snows—even fog. For example, the system, in support of the Skylab II return, carefully tracked a storm south of the splashdown.

For more about Westinghouse sensors, contact SIS Marketing Manager, Westinghouse Systems Development Division, Box 746, Baltimore, Maryland 21203. AA-7-73

(Left) You're looking at a tropical storm south of the Baja Peninsula—infrared picture left, visual picture right. Both, combined with other data, determine type, height, and vertical contour of clouds.

(Right) This is a visual image (2-mile resolution) taken at night of the eastern half of the U.S., with reflected moonlight, three days before full moon.

(Below) A portion of the  $\frac{1}{3}$ -nautical-mile sensor data simultaneously provides a six-fold improvement in image detail of the storm at left. Storm is "Hurricane Ava," June 6, 1973.



# Westinghouse helps make it happen



# Conversation Pieces

Technically intriguing items  
from TRW, guaranteed to add luster to your  
conversation and amaze your friends.

**Stars and Atoms** The molecules and atoms we have here on earth are made up of large volumes of space flecked with tiny dots of matter. For example, if you were sitting in the top row of a large football stadium (e.g., the Los Angeles Coliseum), the upper tier of seats would represent the orbit of a marble-sized electron. The atom's nucleus would be a BB sitting on the fifty-yard line. Everything in between the two would be empty space.

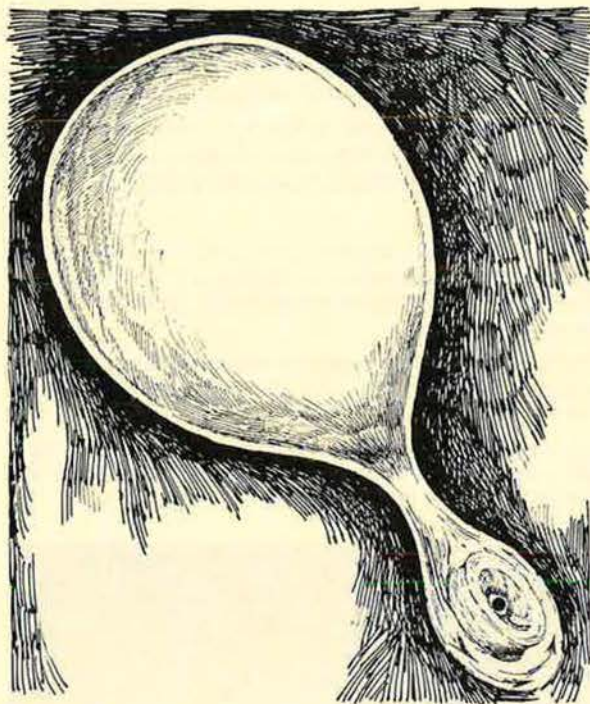
In the interior of stars, matter can be much more dense. For example, when a large star runs out of hydrogen fuel, the immense forces of gravity which have been held at bay by thermonuclear burning within the star suddenly become dominant. As Fred Hoyle puts it, the star has to pay all of its back gravitational taxes at once. The forces of this violent, almost instantaneous collapse are sometimes so great that the electron whizzing around the stadium is driven into the BB sized nucleus on the fifty-yard line. The two opposite charges cancel one another to form a neutron. Then, under the crushing force of gravity, the entire stadium fills up with marble-like neutrons.

Matter of this density exists in the heavens in the form of neutron stars or pulsars. In effect, pulsars are giant atomic nuclei in which the interatomic spaces of matter here on earth have been spectacularly reduced by gravitational collapse. We can learn about the structure of matter in such stars from the high energy radiation they emit.

Imagine now a stellar collapse so violent that the marble-like neutrons themselves are smashed together by the gravitational crush. The matter produced by such a collapse is unimaginably dense. The gravitational field of the resulting stellar object is so intense that no light (or any other kind of radiation) can escape its surface. Hence it is called a black hole. If you shined a flashlight directly on a black hole, you would see nothing for the photons of light would be sucked down its gravitational drain, never to return to your eye.

While black holes cannot be observed directly, their effects on stars unfortunate enough to be near them can be seen. Cygnus X-1 (see illustration) contains the first black hole tentatively identified. The hole is an invisible but dominant component of a binary pair of stars. It is sucking the material of its visible companion into a rotating disk. The violence of the transfer and shredding action heats up the atoms being sucked out of the visible star until they emit x-rays near the black hole, thus indirectly revealing its presence.

Today many physicists are interested in astronomy because much that we have to learn about the fundamentals of matter and energy can only be learned from the stars. That is why TRW Systems is building the High Energy Astronomy Observatory (HEAO) for NASA. The information this observatory will gather beginning in 1977 may well cause us to revise major portions of contemporary physics.



*Cygnus X-1. Kip Thorne of the California Institute of Technology performed calculations leading to this model of the black hole. Our illustration is based on a painting of his model by Lois Cohen of the Griffith Observatory.*

For further information, write on your company letterhead to:

**TRW**  
SYSTEMS GROUP

Attention: Marketing Communications, E2/9043  
One Space Park, Redondo Beach, California 90278



# power in the News

By Claude Witze

SENIOR EDITOR, AIR FORCE MAGAZINE

## Not a Dainty Dish

Washington, D. C., February 4

There is no gainsaying that the proposed Defense Department budget for Fiscal 1975, delivered to Congress today, is bigger than most of us expected. Both on Capitol Hill and in the Pentagon it was accepted by most rumormongers that it would be bigger than Fiscal 1974's request. That one started out at \$85 billion and ended up at \$87.1 billion.

Well, as you know from reading the papers, the Total Obligational Authority sought for Fiscal 1975 is \$92.6 billion. The way this figure is reached involves an anticipatory exercise unlike anything this reporter has seen in twenty consecutive years of covering the Pentagon's annual budget briefing.

The actual budget request appears to be, if we view it in traditional perspective, \$90,337 million. To this, the department has added, for reasons we are about to examine through our political glasses, another \$2,242 million that it classifies as "appropriations to be requested at a later date, but included in a defense budget."

There are seven items in this listing, all of them involving money paid to people for their services, present and past, military and civilian. Then, the list is divided into active-duty and retired pay increases. One of them, worth \$2,000 million, is to finance future pay raises, starting next fall. These already have been voted by Congress. Then there is another section, tagged at \$242 million, that will cover "proposed legislation not yet enacted." The all-volunteer force and flight pay are included here. The point to remember is that all of this money is for personnel, at work or retired.

Now, if you take a sounding on Capitol Hill, it becomes evident that the Armed Services and Appropriation committees of both House and Senate are disturbed by the fact that personnel costs already absorb fifty-five percent of the budget and are headed upwards. This was emphasized in every committee report on the Fiscal 1974 budget, as recorded in this space. F. Edward Hébert, House Armed Services chairman, told AIR FORCE Magazine that he gives a high priority to the requirement that "personnel must be tightened." The Pentagon is reacting to this in two ways. One is to tighten its use of personnel. The Army, for example, in Fiscal 1975 will climb from thirteen to thirteen and one-third divisions. In addition to picking up 3,000 more uniformed men, it will trim support forces to favor combat forces. The Air Force will be cut by 15,000 and the Navy by 10,000.

The second Pentagon reaction to decrees from the Capitol is this presentation of what amounts to an advance notice that Congress must provide \$2,242

million to pay for what it wants. After all, the segregation of these new personnel items in what amounts to a special supplementary request for Fiscal 1975 has advantages. It exemplifies the Pentagon argument that such budget increases should be recognized as what they are and not put in a blender with routine operating and procurement requests. It also gives Congress a chance to see what it is doing with more precision. The fact that this is a Congressional election year is coincidental, but important for its bearing on the outcome.

At the same time, the Pentagon disclosed it is submitting a Fiscal 1974 supplementary budget request for \$6.2 billion. Of this, \$3.4 billion also is essentially for pay raises. Much of the rest can be traced to what we used off the shelf to help Israel in its last confrontation with the Arabs. The replacement costs are higher than the original cost, particularly on big items such as the M-60 tank.

For the first time in ten years, the Fiscal 1975 budget does not include funding for combat operations anywhere in the world. But there is provision for the shifts in our approach to strategic warfare that have received so much discussion in recent weeks, including our editorial, "Counterforce Revisited," in the February issue of AIR FORCE Magazine.

To begin with, the request for strategic forces is fixed at \$7.6 billion, up \$700 million from last year. Of this, \$400 million will provide for pay increases and the inflation factor. The major single item is the Trident submarine and its missile, which will consume more than \$2 billion. The schedule calls for two boats,

## Comparison of DoD Budgets for FY '74 and FY '75 by Military Programs

(Billions of Current Dollars)

MILITARY PROGRAM	TOTAL OBLIGATIONAL AUTHORITY	
	FY '74	FY '75
Strategic Forces	\$ 6.9	\$ 7.6
General Purpose Forces	27.9	29.2
Intelligence and Communications	5.9	6.5
Airlift and Sealift	1.0	1.0
Guard and Reserve Forces	4.4	4.8
Research and Development	7.0	8.4
Central Supply and Maintenance	8.9	9.3
Training, Medical, and General		
Personnel Activity	18.2	20.1
Administration	1.8	2.2
Support of Other Nations	5.1	3.5
Total	\$87.1	\$92.6



## Airpower in the News

which appears to be a Pentagon-proposed compromise. The Navy has asked for three, Congress has favored deceleration of the program to provide only one in this year.

Biggest single item for the Air Force is the McDonnell Douglas F-15A Eagle fighter. There is \$1.1 billion in the budget, most of it to procure seventy-two airplanes, in addition to ninety-two already on order from the Fiscal 1973 and 1974 budgets. In the three years, the program has received more than \$2 billion.

Next largest on the USAF list is an order to Boeing for a dozen AWACS airplanes. With spares, they will cost \$549.8 million. There is another \$219.7 million for continued RDT&E. There is no USAF procurement of the LTV A-7D planned, but the budget calls for twenty-six Fairchild A-10 close-support attack aircraft, plus continued RDT&E. The total price is \$267.7 million. Congress may press its effort to change this decision.

There is a request for \$105.2 million for an initial order of twenty-eight Northrop F-5F fighters, the two-seat version of the F-5E. This includes \$14.1 million for RDT&E. The aircraft are "for friendly and allied nations who require an air-superiority capability."

There is provision for four more Lockheed C-130H transports (\$37 million) and continued RDT&E on the Boeing E-4A Advanced Airborne Command Post (\$90 million, including money for some construction work essential to the system).

For Minuteman III, there is funding for sixty-one missiles, plus modernization, spares, and RDT&E. The total is \$730.7 million. Minuteman II still is on the list and gets \$27.9 million. The trend in our strategic forces is illustrated by the missions assigned to these weapons:

For Minuteman II, it is "to provide land-based nuclear capability for the United States."

For Minuteman III, it is "to provide a land-based nuclear *deterrent* capability for the United States."

The difference, presumably, is that Minuteman III

### Comparison of DoD Budgets for FY '74 and FY '75 by Appropriation Title

(Billions of Current Dollars)

APPROPRIATION TITLE	TOTAL OBLIGATIONAL AUTHORITY	
	FY '74	FY '75
Military Personnel	\$24.4	\$25.9
Retired Pay	5.2	6.0
Operation and Maintenance	24.2	26.6
Procurement	18.7	19.9
RDT&E	8.3	9.4
Military Construction	1.8	2.1
Family Housing	1.1	1.3
Civil Defense	.1	.1
Military Assistance	3.3	1.3
<b>Total</b>	<b>\$87.1</b>	<b>\$92.6</b>

## Department of Defense Employment Outlook

(End of Year Strength—In Thousands)

	FY '73	FY '74	CHANGE	
			FY '75	FY '75
<b>MILITARY</b>				
Army	801	782	785	+ 3
Navy	564	551	541	-10
Marine Corps	196	196	196	-
Air Force	691	645	630	-15
<b>TOTAL Military</b>	<b>2,252</b>	<b>2,174</b>	<b>2,152</b>	<b>-22</b>
<b>CIVILIAN</b>				
Army	333	356	359	+ 3
Navy	322	326	324	- 2
Air Force	271	271	270	- 1
Defense Agencies/ OSD	72	76	75	- 1
<b>TOTAL Civil Service</b>	<b>998</b>	<b>*1,029</b>	<b>1,028</b>	<b>- 1</b>
<b>TOTAL Military and Civil Service</b>	<b>3,250</b>	<b>3,203</b>	<b>3,180</b>	<b>-23</b>
<b>DEFENSE-RELATED INDUSTRY</b>	<b>1,693</b>	<b>1,742</b>	<b>1,752</b>	<b>+10</b>
<b>TOTAL DEFENSE MANPOWER</b>	<b>4,943</b>	<b>4,945</b>	<b>4,932</b>	<b>-13</b>

\* Includes 19,000 positions in FY '74 Supplemental.

has a hard-target capability and improved accuracy. It is the nearest thing we have to tomorrow's weapon, but the Fiscal 1975 budget provides other evidence that future deterrence may rest on counterforce capability.

There is a total of about \$85 million in the RDT&E budget for work on the effort to improve the guidance systems and, therefore, the accuracy of both land- and sea-launched ballistic missiles.

This is another subject due for close examination on Capitol Hill. Congressman Hébert says he is positive the so-called retargeting program advanced by Defense Secretary James R. Schlesinger will be a major topic when the Armed Services Committee starts defense posture hearings later this week. He will not speculate on the outcome, but clearly anticipates an argument.

New fuel has been added to this fire in the past week. Both the Federation of American Scientists and Dr. Fred Iklé, head of the US Arms Control and Disarmament Agency, have suggested a complete termination of our dependence on land-based ICBMs. Their argument is that weapons like Minuteman, upgraded in accuracy to provide a modern "deterrent capability," are "destabilizing." The Federation has issued a statement to this effect, backed by Dr. Iklé in an interview with the *Washington Post*. Both proponents say such a step should be taken, preferably through an agreement with Russia. Nobody, at this date, has asked the Russians what they think about it; Moscow is proceeding with its program to improve all missile capabilities.

The Fiscal 1975 request for RDT&E money deserves more attention. The budget figure is \$8.4 billion, up from \$7 billion last year. An important by-product is that the Pentagon anticipates employment in defense-



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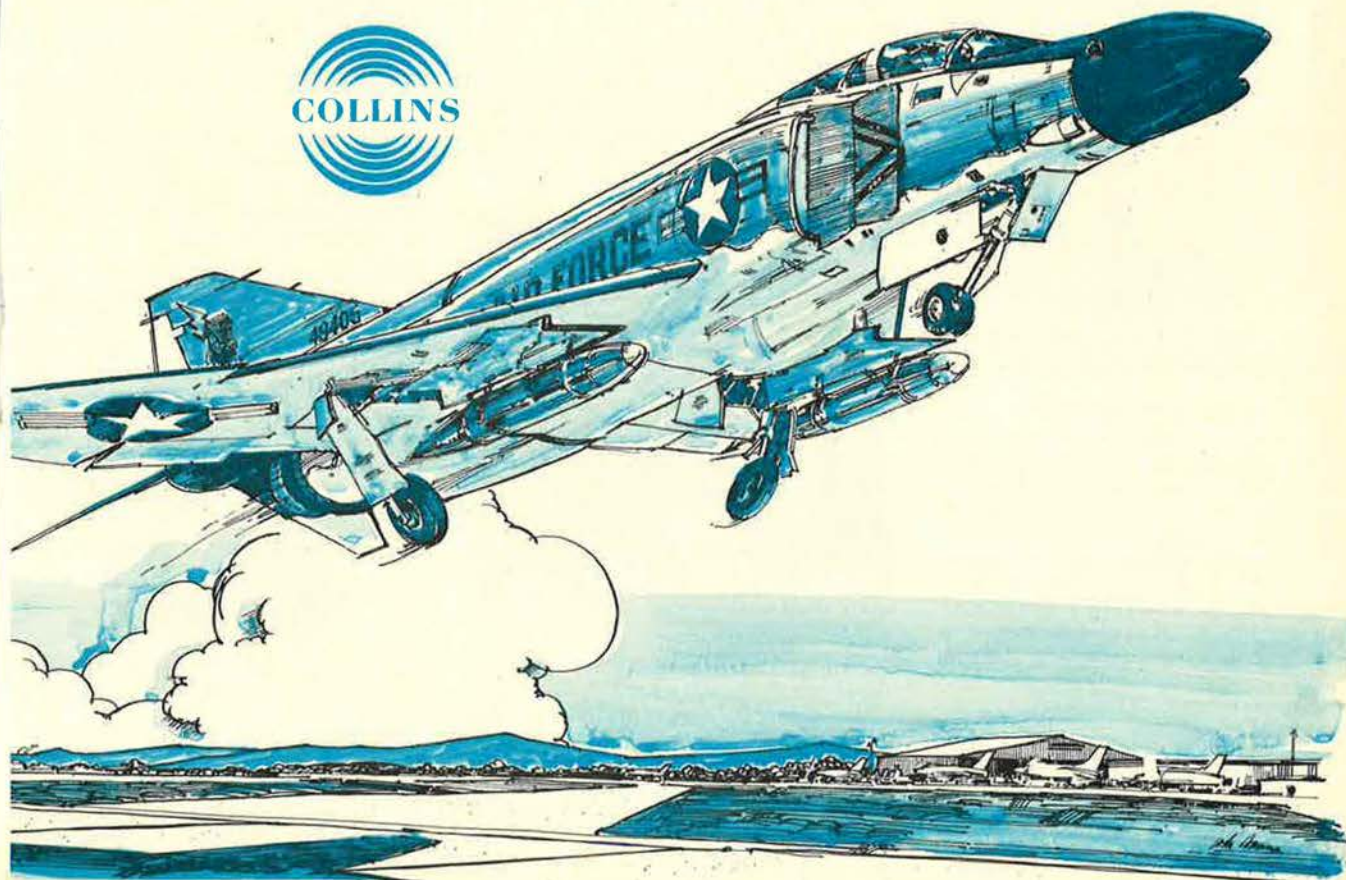
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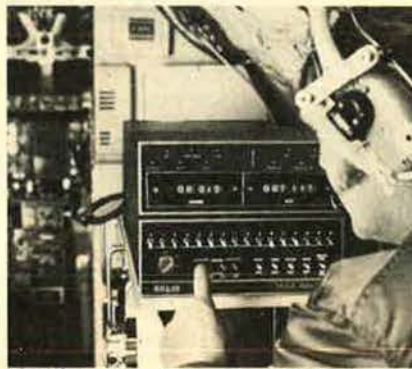
Your prime contractor will have no problem interfacing the 1602 to almost any kind of device. Rolm makes available a wide selection of general purpose I/O interfaces for the 1602. These range

from serial and parallel digital interfaces to communication interfaces to D/A and A/D converters . . . all the way to NTDS interfaces. Because we have over 30 general purpose interfaces in production, your interfacing costs and delivery time should be substantially reduced.

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Your prime doesn't have to be bothered with severe environment qualification tests. The 1602 Ruggednova has already gone through them and meets Mil-E-5400 airborne environments, Class II; Mil-E-16400 shipboard environments, Class I; Mil-S-901 for high impact shock. It has an operating temperature range of

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## Airpower in the News

related industries will increase by 10,000 persons, to 1,752,000 in the year. Here are some key items from the RDT&E category:

- There is \$160 million for the Army's program to provide site defense for the Minuteman system. It will be built by McDonnell Douglas "should such a defense be required in the future." The project has been heatedly debated in Congress, and elsewhere.

- Funding for the Army SAM-D surface-to-air weapon gets \$111.2 million, which is less than it had in previous years. Contractors are Raytheon and Martin Marietta.

- The Navy seeks \$34 million for start of a new F-15 fighter program. The plane would be for fleet defense, air superiority, and interdiction missions.

- For USAF, there is a request for \$22.7 million to continue work on the Lightweight Fighter Prototype. General Dynamics and Northrop are in the competition. The Pentagon says it seeks "development of a superior Air Combat Fighter." As a separate project, it then identifies an Air Combat Fighter, says no contractor has been selected, and requests \$36 million for RDT&E. No further details were given. Industry observers speculated that this money is earmarked for continuation of the Lightweight Fighter project if the decision is made to continue development.

- The so-called new generation of land-based ICBMs (the M-X) puts emphasis on accurate delivery from the outset. It had meager funding in the past two years, but now has been uprated to a request for \$37.3

million. Emphasis in the mission, again, is deterrence.

- Boeing and Williams Research are named as prime contractors for the USAF Air-Launched Cruise Missile. Funding has fluctuated. It was \$48.6 million in Fiscal 1973, \$11 million in Fiscal 1974, and now goes up to \$80 million for Fiscal 1975.

- Also listed is an advanced tanker. No contractor is named. Funding is set at \$20 million.

- The Rockwell International B-1 bomber continues to get top attention. The figure is \$499 million, up from \$448.5 last year.

- USAF also seeks \$36.7 million for work on a modified F-111A for electronic countermeasures missions. Grumman and General Dynamics are contractors.

- Funding of \$55.8 million is sought for continued work on the medium STOL transport. This is more than double the funds available in the past two years. Boeing and McDonnell Douglas are the contractors.

Pentagon budget officials continue to point out that real costs are declining. The Defense share of the Federal budget is at the lowest level since 1950.

"A peace dividend has been declared and paid in full," according to Terence E. McClary, Defense Comptroller. In support of this, he points out that outlays in constant dollars have decreased \$38.8 billion since the peak of the war in Vietnam in 1968.

Despite this, there already are reports that Congress has been shocked by the Fiscal 1975 figure of \$92.6 billion. At the same time, there is evidence that Soviet intransigence is making many doves less dovish. Russian conduct in the Middle East has won it no friends. Even liberals now are aware that Moscow lies about us, but argue we must not tell the truth about Moscow. Détente, such as it was, has been losing charm.

The porridge now is on the table of the House and Senate. How it is relished may depend on the political atmosphere prevailing in the next few months. It is not a gourmet dish on the 1974-1975 menu. ■

## The Wayward Press

Sigma Delta Chi, an established organization of newsmen that began as a professional fraternity of the craft, held a national convention last November, at which at least two important actions were taken. We hope they bode good for the profession.

The members voted to change the name of Sigma Delta Chi to The Society of Professional Journalists. They also adopted a code of ethics, declaring it their duty to "serve the truth." And to do it with "intelligence, objectivity, accuracy, and fairness."

The Society of Professional Journalists warns its members against the acceptance of gifts, favors, free travel, special treatment, or privileges that can compromise their integrity or that of

their employers. The code says "news communications from private sources should not be published or broadcast without substantiation of their claims to news value." Journalists are told to insist that public business be conducted in public and defend their right to protect sources of information.

Truth is set down as the goal. Objectivity is something for which they must strive. And, "There is no excuse for inaccuracies or lack of thoroughness." Newspaper headlines should be fully warranted by the stories they cover, plus this admonition: "News reports should be free of opinion or bias and represent all sides of an issue."

There is recognition of the journalist's responsibility to avoid advocacy

unless it is clearly labeled as such and to respect the "dignity, privacy, rights, and well-being" of the people journalists meet in their work.

Finally, there is a pledge that "journalists should actively censure and try to prevent violations of these standards."

Nothing is said about how the code can be enforced, but it is possible that newspaper readers can help by calling attention to violations.

For your own copy of the Code of Ethics of The Society of Professional Journalists, send a stamped, self-addressed envelope to "The Wayward Press," AIR FORCE Magazine, 1750 Pennsylvania Ave., N. W., Washington, D. C. 20006.



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In tight-money areas, one direction we can look to is off-the-shelf compatibility, to help ensure a modern, effective fighting force. Here, SPERRY UNIVAC's family of 16-bit computers is a working example.



AN/UYK-20



UNIVAC 1816



AN/UYK-15

**Off-the-shelf compatibility** comes in three forms: the AN/UYK-20, the UNIVAC 1816, and the AN/UYK-15. The small-scale computer family from SPERRY UNIVAC. With third-generation architecture, exceptionally fast cycle and response times, and proven reliability, they're available now. Not paper ideas. Not breadboards. But ready-to-go equipment that can work together in tactical applications. This is interoperability: computers compatible with one another, compatible with hardware already in government inventories. Only minor program changes are required for complete software compatibility.



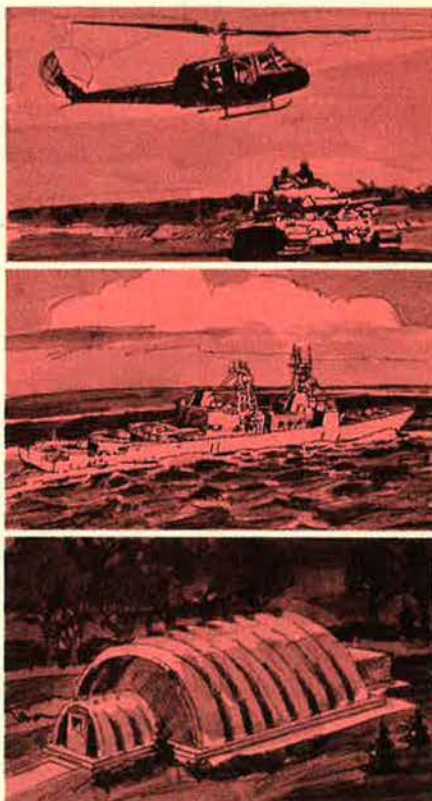
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**One basic purpose:** to provide operating and support forces with the tools to do the job. The rugged AN/UYK-15 is designed to meet MIL E 16400 as well as MIL Standard 310 B. The AN/UYK-20, similar to the AN/UYK-15, includes the addition of powerful micro-program control capabilities, for meeting other requirements more accurately. The UNIVAC 1816 is designed and constructed to meet the stringent requirements of MIL E 5400, for airborne applications. Hard-wearing, super-maintainable computers that work on-line wherever they're stationed: aircraft, shipboard, land-mobile, or dug-in. Already in inventory. Everything is put together with technology that assures easy-fix, low-to-no downtimes.



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# MIA/POW Action Report

By William P. Schlitz

ASSISTANT MANAGING EDITOR, AIR FORCE MAGAZINE

## "They Wouldn't Let Us Die"

*It was the keys. You'd hear them jingling. They always like to jingle things. They're like kids in many ways. Then, the next thing you'd hear is that the jingling would stop in front of your door. . . .*

In this chilling fashion, Dick Stratton, a Navy pilot shot down in January 1969, describes how it was to be a prisoner in North Vietnam, waiting to be taken from your cell for another beating.

The American POWs of the Southeast Asian war are home now, and the books by and about them are beginning to flow (see p. 72 of the February '74 issue for a review of Col. [Brig. Gen. selectee] Robinson Risner's account of his captivity). But these books, more than newspaper and magazine articles, television interviews, and public appearances, will serve as a permanent record and constant reminder to all Americans of what the POWs endured.

As for Dick Stratton and others like him, no need for reminders:

*We pulled an experiment recently. I maintained that I would wake up and bolt upright in my bed if someone rattled some keys. So we closed the doors in the hospital ward in Oakland and a guy came by after I was asleep and rattled some keys and I bolted upright.*

The quotes are from *They Wouldn't Let Us Die*, a book by Stephen A. Rowen (Jonathan David, Middle Village, N. Y.) about the POW experiences. The title alludes to prisoners in such wretched agony because of torture that they would have welcomed death.

Based for the most part on informal interviews with small groups of former POWs, the book chronicles in detail how the men dealt with the trials of their captivity.

For Maj. Konrad Trautman, an Air Force pilot shot down in 1967, the initial shock of bailout was quickly superseded by the more intense anxiety of capture:

*I felt I had been through a time machine, from the year 2000 back*

*to the year maybe 1000, perhaps 1000 B.C. The people were that primitive and crude, both in appearance and their dress, their conduct especially, and the tools they used to beat us with.*

(A recurring sentiment expressed by most POWs was the feeling of helpless horror at being at the mercy of a primitive and brutal foe whose motives were incomprehensible.)

What followed for many, at least in the earlier years of the war, were prolonged periods of isolation in solitary confinement. More than one POW maintained his sanity by utilizing such mental devices as building an imaginary dream house brick by brick.

Then there was the matter of the torture. A number of POWs ex-

pressed the belief that the purpose of the physical abuse was simply to break the men's will rather than the usefulness of any military or other information that might be obtained.

One Air Force pilot, Tom Kirk, shot down in October 1967, remembers his ordeal:

*The toughest thing was the battle within myself as to how long I could hold out. Because I already knew that they were going to get it sooner or later. Physical torture will achieve the desired effect in a short period of time. I don't care who you are. If I strap you up or rope you up, short of killing you, I can subject you to such pain that in a relatively short period of time your mind is going to overcome what you call your will, and you are going to give something to get out of this pain, short of dying. . . .*

In such distorted circumstances, a sense of value became very personal and individualized. According to Robert Craner, a forward air controller shot down in December 1967:

*The one thing that gave me strength up there was not what I've heard other people expressing so often since we got back: faith in God or a sense of duty to country. The thing that kept my endurance up, that kept me conscientious, was my obligation to the other guys. . . .*

The inhuman treatment of the POWs was also self-defeating in that it only served to bring the men closer together. Allen Brady, a Navy pilot shot down in mid-1966, derived considerable comfort in his guilt for succumbing to torture when he was told:

*Don't worry. We don't know anyone yet who has not broken. They have broken everyone. Just try to hang in as tough as you can and tell them as little as possible. Don't feel bad about it. Just hang in there.*

With adversity uniting them, the POWs gathered much strength from the communications net and military organizations they created within the prisons. Render Crayton, a Navy pilot shot down in 1966,

(Continued on Page 21)

—WIDE WORLD PHOTOS



A Red Cross official escorts an American civilian, Emil Kosh, across the Chinese border into Hong Kong. Kosh was captured when China seized the Paracel Islands from South Vietnam late in January. Kosh was released unharmed. He hails from Lafayette Hill, Pa.





# You can't miss when you put 'em through yourself.

I'm Bill Russell.

In basketball I tell my players when they have a sure shot, take it.

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The same holds true when it comes to saving money on Long Distance. If you dial your own out-of-state calls from your home or office, you've got a sure shot! Up to 50% savings on interstate calls within the continental U.S. except Alaska.

So don't pass off to the operator! You can't save money that way.

To save on Long Distance calls, put 'em through yourself.



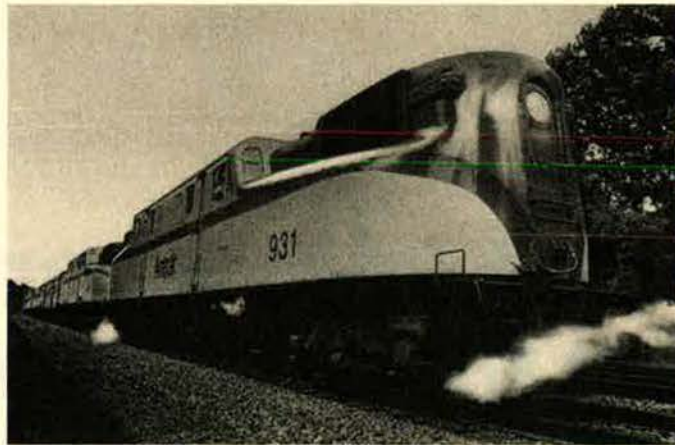


# AMTRAK THE NEW TRAVEL TACTIC

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Amtrak trains offer three strong incentives to military transportation specialists, especially for short and intermediate distances. 1) They are the most reliable transport in terms of weather vagaries. 2) They are most restful in terms of troops arriving fresh and ready. 3) They are favorably priced in terms of military economy.

Amtrak has already established a new "furlough fare" which gives active duty servicemen a 25% discount. Uniform requirements have been abolished.



The serviceman in civilian clothes need only show his ID card to get his furlough fare.

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Make sure your transportation

officer becomes familiar with Amtrak's services. Amtrak has much to offer the new armed forces serviceman. And, unlike

troop trains of the past, Amtrak is going all out to make sure he enjoys the experience

**We're making the trains worth traveling again.**





commented on the effectiveness of this discipline in his camp:

*The Vietnamese in a lot of cases thought if they took the senior men and put them in isolation, the organizational structure would fall*

*apart. They couldn't have been more wrong because they would take the top man out, and the next man would take command. We were determined to do this down to the last man. . . .*

Navy pilot Eugene "Red" McDaniel, downed in May 1967, put it more succinctly in describing how the military discipline bolstered the POWs' spirits and morale:

*If you're in a room with forty people, you're gonna go with the wave. You're gonna think alike.*

*That's the way we were. We didn't have any weak ones. If they were weak ones, they became strong ones.*

There is something in the saga of the American prisoners of the Southeast Asian war that is considerably more than the sum of its parts. That this remarkable group of men behaved as they did under such trying conditions is an addition to the national heritage.

In the end, they not only endured—they prevailed. ■

## 119 FORMER USAF MIAs NOW LISTED AS DEAD

In the course of the year since the Paris agreement was signed on January 27, 1973, and the American prisoners of war returned from Southeast Asia, the Air Force has changed the status of 119 men originally listed as missing in action to killed (at the request of family members, several status changes have not been made public):

NAME AND RANK	REPORTED MISSING	DECLARED DEAD	NAME AND RANK	REPORTED MISSING	DECLARED DEAD
Salzarulo, Raymond P., Capt.	Sept. 1966	March 12, 1973	Long, John H. S., Capt.	Oct. 1966	July 18, 1973
Trimble, Larry A., Capt.	April 1972	April 13, 1973	Rackley, Inzar W., Jr., Lt. Col.	Oct. 1966	July 18, 1973
Magnusson, James A., Jr., Maj.	April 1965	April 19, 1973	Shoneck, John R., MSgt.	Oct. 1966	July 18, 1973
Mims, George I., Jr., Capt.	Dec. 1965	April 19, 1973	Herrold, Ned R., Capt.	May 1966	July 19, 1973
Lindsey, Marvin N., Lt. Col.	June 1965	April 23, 1973	Ragland, Dayton W., Col.	May 1966	July 19, 1973
Ferguson, Walter L., SMSgt.	Dec. 1972	April 24, 1973	Aalre, Donald H., Col.	Dec. 1966	Sept. 19, 1973
Rissi, Donald L., Lt. Col.	Dec. 1972	April 24, 1973	Balamoti, Michael D., Maj.	Nov. 1969	Sept. 24, 1973
Chesnutt, Chambless A., Maj.	Sept. 1965	April 25, 1973	Huard, James L., Capt.	July 1972	Sept. 24, 1973
Chwan, Michael D., Capt.	Sept. 1965	April 25, 1973	Paxton, Donald E., Col.	Feb. 1969	Sept. 24, 1973
Dove, Jack P., Sr., Capt.	July 1967	April 25, 1973	Stubberfield, Robert A., Lt. Col.	May 1965	Sept. 24, 1973
Goodrich, Edwin R., Jr., Maj.	March 1967	April 25, 1973	Clark, Thomas E., Capt.	Feb. 1969	Sept. 28, 1973
Squire, Boyd E., Lt. Col.	July 1967	April 25, 1973	Cornwell, Leroy J., III, Capt.	Sept. 1971	Sept. 28, 1973
Trier, Robert D., Maj.	Dec. 1965	May 1, 1973	Jefferson, Perry H., Maj.	April 1969	Sept. 28, 1973
Branch, James A., Maj.	Sept. 1965	May 4, 1973	Smith, George C., Maj.	April 1965	Sept. 28, 1973
Fobair, Roscoe H., Maj.	July 1965	May 4, 1973	Walker, Michael S., Capt.	July 1969	Oct. 5, 1973
Fryer, Bonnie L., 1st Lt.	Dec. 1972	May 4, 1973	Brazlk, Richard, Capt.	July 1967	Oct. 9, 1973
Jewell, Eugene M., Capt.	Sept. 1965	May 4, 1973	Davies, John E., Maj.	May 1968	Oct. 9, 1973
Jourdenais, George H., Maj.	April 1967	May 4, 1973	Lane, Charles, Jr., Capt.	Aug. 1967	Oct. 9, 1973
Powell, William E., Capt.	Aug. 1968	May 4, 1973	Olson, Gerald E., Maj.	March 1966	Oct. 9, 1973
Stanley, Robert W., Capt.	April 1967	May 4, 1973	Pasekoff, Robert E., Lt. Col.	March 1966	Oct. 9, 1973
Harris, Jeffrey L., Capt.	May 1972	May 9, 1973	Rausch, Robert E., Maj.	April 1970	Oct. 9, 1973
Lodge, Robert A., Maj.	May 1972	May 9, 1973	*Rodriguez, Albert E., Capt.	March 1968	Oct. 9, 1973
Wilkinson, Dennis E., Capt.	May 1972	May 9, 1973	Sigafoos, Walter H., III, Capt.	April 1971	Oct. 9, 1973
Haselton, John H., 1st Lt.	May 1972	May 12, 1973	Brown, Donald A., Maj.	July 1970	Oct. 17, 1973
Hawkins, Edgar L., Maj.	Sept. 1965	May 14, 1973	Chavez, Gary A., Capt.	July 1970	Oct. 17, 1973
Killian, Melvin J., Col.	Sept. 1965	May 14, 1973	Edgar, Robert J., Capt.	Feb. 1968	Oct. 25, 1973
Fuller, William O., Maj.	Aug. 1967	May 16, 1973	Karlins, Joseph J., Jr., Maj.	March 1967	Oct. 25, 1973
Kilcullen, Thomas M., Capt.	Aug. 1967	May 16, 1973	Warren, Gray D., Capt.	Oct. 1969	Oct. 25, 1973
Bennett, William G., Lt. Col.	Sept. 1967	May 23, 1973	Morrison, Joseph C., Col.	Nov. 1968	Oct. 26, 1973
Klemm, Donald M., Col.	June 1967	May 23, 1973	Busch, Jon T., Capt.	June 1967	Nov. 2, 1973
Midnight, Francis B., Capt.	Aug. 1967	May 23, 1973	McCleary, George C., Col.	Nov. 1969	Nov. 2, 1973
Pearson, Robert H., Capt.	June 1967	May 23, 1973	Nellans, William L., Maj.	Sept. 1967	Nov. 2, 1973
Morris, Robert J., Jr., Capt.	Dec. 1972	May 25, 1973	*Clarke, George W., Jr., Maj.	Oct. 1967	Nov. 8, 1973
Thomas, James R., TSgt.	Nov. 1971	May 25, 1973	Goss, Bernard J., Col.	April 1966	Nov. 8, 1973
Ayres, Gerald F., Maj.	June 1972	June 15, 1973	Ladewig, Melvin E., Capt.	Aug. 1968	Nov. 8, 1973
Cole, Richard M., Jr., TSgt.	June 1972	June 15, 1973	Lucki, Albin E., Capt.	April 1970	Nov. 8, 1973
Danielson, Mark G., Capt.	June 1972	June 15, 1973	Russell, Donald M., Col.	Dec. 1967	Nov. 14, 1973
Gilbert, Paul F., Capt.	June 1972	June 15, 1973	Fitton, Crosley J., Jr., Maj.	Feb. 1968	Nov. 15, 1973
Harrison, Robert H., Maj.	June 1972	June 15, 1973	*Gregory, Robert R., Lt. Col.	Aug. 1969	Nov. 19, 1973
Hunt, Leon A., SSgt.	June 1972	June 15, 1973	Blair, Charles E., Col.	March 1968	Nov. 27, 1973
Klinke, Donald H., TSgt.	June 1972	June 15, 1973	Hoskins, Charles L., Capt.	Feb. 1971	Nov. 27, 1973
Lehrke, Stanley L., SSgt.	June 1972	June 15, 1973	*Storz, Ronald E., Lt. Col.	Jan. 1967	Nov. 27, 1973
Mercer, Jacob E., MSgt.	June 1972	June 15, 1973	Trent, Alan R., Capt.	May 1970	Nov. 27, 1973
Newman, Larry J., TSgt.	June 1972	June 15, 1973	Paigren, Edwin D., Col.	April 1968	Nov. 29, 1973
Nyhol, Richard E., TSgt.	June 1972	June 15, 1973	Kinkade, William L., Capt.	Sept. 1968	Dec. 3, 1973
Wilson, Robert A., Capt.	Jan. 1972	June 15, 1973	Conkline, Bernard, Lt. Col.	July 1966	Jan. 2, 1974
McCarty, James L., Capt.	June 1972	June 22, 1973	Fullam, Wayne E., Lt. Col.	Oct. 1967	Jan. 2, 1974
Sullivan, Farrell J., Lt. Col.	June 1972	June 25, 1973	Brown, Earl C., Capt.	Nov. 1968	Jan. 9, 1974
Reitman, Thomas E., Maj.	Dec. 1965	June 26, 1973	Lynn, Robert R., Capt.	Dec. 1972	Jan. 9, 1974
Bush, John R., Capt.	July 1968	July 9, 1973	St. Pierre, Dean P., Capt.	May 1968	Jan. 9, 1974
Hackett, Harley B., III, Capt.	July 1968	July 9, 1973	Winston, Charles C., III, Maj.	Aug. 1967	Jan. 9, 1974
Baldrige, John R., Jr., Capt.	Nov. 1969	July 12, 1973	Wright, Gary G., Col.	Jan. 1967	Jan. 9, 1974
Conner, Lorenza, Capt.	Oct. 1967	July 12, 1973	Brashear, William J., Lt. Col.	May 1969	Jan. 11, 1974
Renelt, Walter A., Col.	Nov. 1969	July 12, 1973	Holton, Robert E., Capt.	Jan. 1969	Jan. 11, 1974
Bailey, John E., Maj.	May 1966	July 13, 1973	Irsch, Wayne C., Capt.	Oct. 1967	Jan. 11, 1974
Tipping, Henry A., Col.	July 1968	July 16, 1973	Morgan, Charles E., Maj.	July 1966	Jan. 11, 1974
Adams, Steven H., MSgt.	Oct. 1966	July 18, 1973	Smith, Warren P., Jr., Lt. Col.	June 1966	Jan. 11, 1974
Angstadt, Ralph H., Lt. Col.	Oct. 1966	July 18, 1973	West, John T., Capt.	Oct. 1969	Jan. 11, 1974
Clark, Lawrence, SMSgt.	Oct. 1966	July 18, 1973	Dailey, Douglas V., MSgt.	Dec. 1968	Jan. 17, 1974
Hill, Robert L., CMSgt.	Oct. 1966	July 18, 1973			

\*Formerly listed as POW



## By William P. Schlitz

ASSISTANT MANAGING EDITOR, AIR FORCE MAGAZINE

WASHINGTON, D. C., FEB. 1

For the last decade, America's primary defense has been based on the threat of assured destruction of an attacker's industrial and transportation base, and, incidental to this, of urban areas. Now, that posture is being revised to allow the President a wider variety of strategic options in crisis situations (for details on the new strategy, see February '74 issue, p. 52). See p. 2.

To assure the most effective operational control of US strategic forces, all essential telecommunications and command and control responsibilities have now been consolidated within the Office of the Secretary of Defense. Thomas C. Reed has been named to the new post of Director, Telecommunications and Command and Control Systems, to oversee these vital functions. In this role, Mr. Reed will serve as principal assistant to De-



Thomas C. Reed was recently named to the new post of Director, Telecommunications and Command and Control Systems, in the Office of the Defense Secretary (see above).



Roll-out of Teledyne Ryan Compass Cope "R" prototype RPVs took place on January 4, 1974, at the company's San Diego, Calif., plant. At the lectern, company President Barry J. Shillito said the new high-altitude, long-endurance aircraft were "one of the major advancements in unmanned vehicles."

fense Secretary James R. Schlesinger and Deputy Secretary William P. Clements, Jr., in the key area of worldwide command and control.

Mr. Reed, a successful businessman and engineer, has also had a

long career of political activity, having, among other things, been a top aide in the recent past to California Gov. Ronald Reagan and to Sen. Barry Goldwater during the 1964 campaign.



The bulkiest equipment ever airlifted, a ninety-one-by-fourteen-foot underground fuel storage tank, is eased aboard a C-5 Galaxy at Rhein-Main AB, Germany, for airlift to Incirlik AB, Turkey. Using extreme caution, it required six hours to load the 86,000-pound container and more than four hours to offload. The cargo hold of the C-5 is 121 feet long by nineteen feet wide.



Mr. Reed received his bachelor of science degree in mechanical engineering from Cornell University in 1956, graduating first in his class. Commissioned in the Air Force, he served as technical project officer, Minuteman Reentry Vehicle System, with USAF's Ballistic Missile Division through 1959.

From 1959 to 1962, Mr. Reed was engaged in research in thermonuclear weapons physics. He then went on to found a company to produce specialized alloys, which later diversified into other fields.



In late January, according to the Defense Department, the Soviet Union conducted its first long-range test firings of the SS-19, an ICBM with separately targetable warheads.

The test involved two SS-19s, whose reentry vehicles impacted about 850 miles from Midway Island in the Pacific, a trip of 4,500 miles from launch facilities in the Soviet Union. DoD said that the successful firings mark the first time that the missiles have been tested at operational launch ranges. The significance of the action, according to DoD spokesmen, is that the USSR may be well along in a program to deploy MIRVed-type missiles. The SS-19 is about the same size as our Minuteman. (It has been estimated that the Soviets will be able to deploy MIRVed missiles by late 1975.)

Since Soviet monitoring vessels are being held in place, additional test launches can be expected, DoD said.



Brig. Gen. Everett R. Cook, USAF (Ret.), one of the founders of AFA and a Life Member, died in Memphis, Tenn., in January. He was seventy-nine.

General Cook was a World War I fighter ace, having served as a captain and Commander of the 91st Aero Squadron in France. Later, he served on the staff of Brig. Gen. Billy Mitchell in Washington, D. C.

A successful businessman, General Cook in 1919 established a cotton merchandising firm that later became Cook Industries, Inc. At the time of his death, he also was a board member of Eastern Air Lines and Schering-Plough Corp.

Interrupting his business career to return to duty in World War II, General Cook in 1948 was pro-

moted to brigadier general in the Air Force Reserve.

During a long and distinguished career in public service, he held many important administrative and advisory posts in the federal government.

General Cook was one of a handful of men who in the late 1940s helped create AFA. He was elected a Director at the first AFA Convention in September 1947. At the time of his death, General Cook was a member of the Falcon Foundation and the Air Force Historical Foundation. His military decorations included the Distinguished Service Cross, Silver Star, Legion of Merit, and the French Legion of Honor.

The new Everett R. Cook Convention Center in Memphis was named in his honor.



Maj. Gen. John J. Burns has been named Commander of the Air Force Test and Evaluation Center (AFTEC) at Kirtland AFB, N. M.

AFTEC has been newly created



*Maj. Gen. John J. Burns, new Commander of AFTEC, Kirtland AFB, N. M. See accompanying item for details.*

as a separate Air Force operating agency. It is responsible for managing USAF's Operational Test and Evaluation Program. AFTEC is to be fully operational by July 1.

General Burns will be respon-

sible for overseeing operational testing for the entire Air Force. AFTEC will conduct testing on such aircraft as the B-1, F-15, and A-10—three of USAF's highest priority projects. About 200 people will man the Center.

According to USAF, "The primary objective of AFTEC will be to strengthen the Air Force's capability to conduct realistic and independent operational test and evaluation. The agency will be independent of both developer and user."

General Burns will report directly to the Chief of Staff. His most recent assignment was Commander, Twelfth Air Force, TAC, Bergstrom AFB, Tex. General Burns's Air Force active service has covered more than thirty years.



The Air Force plans to rename Lockbourne AFB, Ohio, for America's World War I "Ace of Aces"—Capt. Edward V. Rickenbacker.

Captain Rickenbacker, a World War I Medal of Honor winner with twenty-six aerial victories who went on to a lifetime of achievement in aviation, died on July 23, 1973. He was eighty-four.

Lockbourne AFB, currently named for the Ohio town eleven miles southeast of Columbus, is the site of a SAC air-refueling wing.

Captain Eddie's exploits during the Great War are to be the subject of an article by Lt. Col. Raymond H. Fredette, USAF (Ret.), in a forthcoming issue of AIR FORCE Magazine. The Rickenbacker article will be the second in a series extracted from a book Colonel Fredette is writing about Air Force Medal of Honor winners, to be published by the Office of Air Force History. The first such article, about Lt. Frank Luke, appeared in the September '73 issue.



The Navy has in operation a new electronic system that should greatly improve the training of pilots learning the art of air-to-air combat.

Called Air Combat Maneuvering Range (ACMR), it is billed as "the most unique dogfight training system for pilots of high-speed jet aircraft ever conceived."

ACMR allows ground-based instructors to monitor aircraft over a huge area and up to 50,000 feet via a three-dimensional, television-like screen. Electronic equipment on



## Aerospace World

board an aircraft feeds data on a split-second basis into high-speed computers through six ground-based tracking stations, powered by solar cells.

The instructors, in radio communication with trainees, can then direct them in correct procedures during simulated combat with other aircraft. Once back on the ground, a pilot can pick up pointers by studying a replay of his moves.

According to Cubic Corp., which developed ACMR, the system "can save many dollars in ammunition, fuel, and pilots' lives. No ammunition is fired, no simulators and no targets are used, and it is much safer to train with."

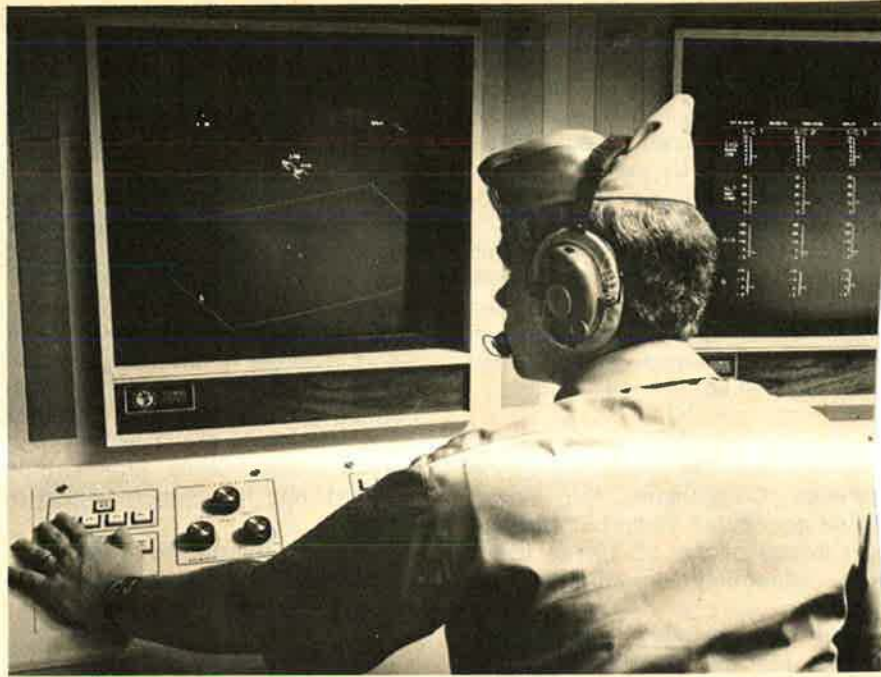
ACMRs are now operating at the Naval Air Station at Miramar, Calif., and at the Marine Corps Air Station, Yuma, Ariz. ACMR can also be utilized aboard aircraft carriers, Cubic said.

US allies and USAF are said to be interested in the system.



For its part, USAF has just incorporated into its navigator training program a new simulator known as SEWT, for Simulator for Electronic Warfare Training.

According to USAF, the device should save more than one million gallons of aircraft fuel and about \$1.2 million annually. The ground-based facility permits the simultaneous monitoring of eight students



Navy pilots now can enjoy the advantage of being able to review their performance during simulated aerial combat through the use of the Air Combat Maneuvering Range (ACMR) developed by Cubic Corp. of San Diego. Dogfights in combat training can also be monitored by instructors in real time.

"flying" eight separate missions. SEWT eliminates the need for flight training of EWOs except for their airmanship requirement as navigators.

SEWT, built by AAI Corp., Baltimore, Md., is configured for a wide variety of electronic equipment found on many EW aircraft and can be used for instruction in five basic missions: electronic reconnaissance, bomber defense, tactical support, strike support, and electronic countermeasures missions.

Added benefits are SEWT's ability to save time—no waiting for

takeoff or landing—and wear and tear on aircraft.



The Air Force has given the go-ahead for development of a two-place version of the F-5E International Fighter built by Northrop Corp.

Designated the F-5F, the first two-seater is expected to fly next September and the second in October. Development cost of the two test aircraft is estimated at \$49.7 million.

The F-5F will have essentially the same weapons and performance capability as the F-5E and will fill the trainer role as well as enhance sales of the F-5 series aircraft to allied nations.

According to USAF, more than 800 F-5A/Bs have been delivered to foreign countries, and more than 500 F-5E/Fs may follow, it is conservatively estimated.

Production, of course, depends on a successful ground/flight test program and congressional approval. If forthcoming, delivery will begin in 1976 and run through 1979.



NASA has awarded United Air Lines a \$1.1 million contract to

USAF's Historical Advisory Committee, seated from left: Dr. F. Graff, Columbia; Dr. I. B. Holley, Jr., Duke; Dr. Louis Morton, Dartmouth; J. L. Stempler, USAF General Counsel. Standing from left: Dr. R. F. Byrnes, Indiana U.; Lt. Gen. A. P. Clark, USAFA; Lt. Gen. F. M. Rogers, AU. Not shown: John A. Lang, Jr., of East Carolina University.





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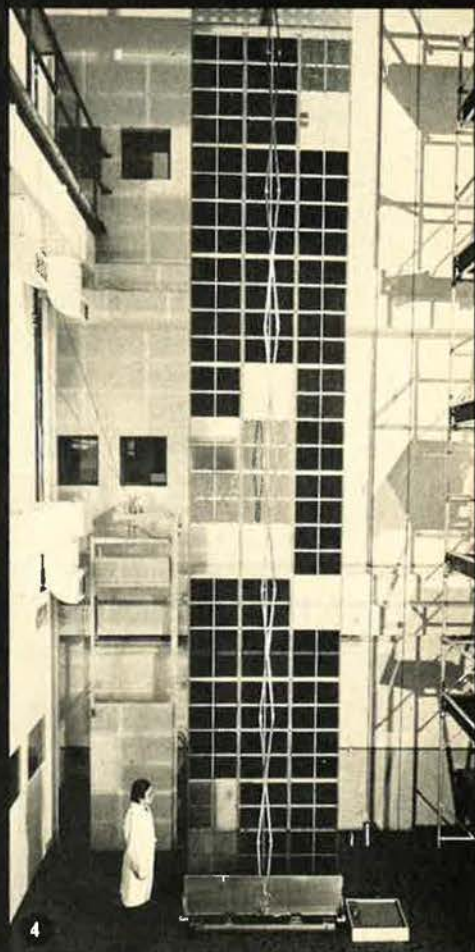
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## AIR FORCE ALMANAC ISSUE 1974

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# AIR FORCE

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MAGAZINE



# Aerospace World

measure jet-aircraft pollution in the world's air lanes.

The study should help scientists determine the effect, if any, of jet emissions on the environment, weather, and human health.

The plan is for United to develop and fly a jet-exhaust measuring system on one of its Boeing 747 jumbo jetliners over the contiguous United States and Hawaii. Sub-contractor Pan American will conduct a similar survey by a 747 in other parts of the world.

These samplings may reveal any changes in the amount of ozone that shields the earth's surface from solar ultraviolet radiation; the degree to which vapor trails contribute to cloud cover; and the proportion in the air lanes of dust particles from aircraft.



This coming spring, several units

that fly simulated attacks to test US air defenses will be reorganized. Included will be the transfer of one active squadron's mission to two Air Guard units.

The realignments will eliminate more than 900 military and civilian jobs, Hq. Aerospace Defense Command said.

The affected units are two ADC defense system evaluation squadrons (DSES) at Westover AFB, Mass., and Malmstrom AFB, Mont., respectively. Air Guard units at Burlington International Airport, Vt., and Forbes ANG Base, Kan., will pick up the "friendly-enemy" mission.

Westover's 4713th DSES will be deactivated in April and will not transfer to Dover AFB, Del., as originally planned. The Air Guard will get the 4713th's eighteen EB-57s. Malmstrom's 4677th DSES will lose six of its twenty-four EB-57s and consequently some manpower.

Also in April, ANG's 190th Bombardment Tactical Group at Forbes will take nine EB-57s in exchange for its twelve B-57Gs, to be retired. Forbes will also lose manpower, and the unit will be redesignated the 190th Defense System Evaluation Group.

In a related action, ANG's 158th FIG at Burlington will replace eighteen F-102s with nine EB-57s and be redesignated the 158th DSEG. The unit will lose some manpower.

The changes are the result of USAF's total-force concept of having Guard and active Air Force units working together, in this case evaluating US air-defense radar networks.



With the approval of the US government, China is looking into the purchase of a fleet of US-built transport helicopters. United Aircraft Corp.'s Sikorsky twin-turbine S-61N is under consideration.

US State Department officials emphasized that the deal was only in the preliminary stage and that the Red Chinese are careful shoppers who look around extensively before they commit themselves.

In recent years, China has purchased both Soviet- and British-built airliners and French heavy-duty helicopters. In 1972, it bought ten Boeing 707 jetliners and recently negotiated a \$40 million contract for the purchase of additional Pratt & Whitney engines for them.

The commercial version of the S-61N can transport twenty-five to thirty passengers. It is the model currently used by President Nixon. The US Navy has a military-configured version for minesweeping. In the US, the commercial version also is used as a shuttle between New York-area airports.

In another international matter, a United Aircraft spokesman said that his company is presently conducting talks with Romanian officials on prospects of setting up a commercial S-61N production line in Romania.



The accidental loss of many aircraft is for the birds—literally. According to Clemson University, crashed and damaged planes due to aerial collisions with birds have cost USAF \$132 million since 1963.

The first loss of human life charged to an encounter between an aircraft and bird occurred back in 1910. And as air traffic has grown during the years since so has the number of such collisions.

While statistics about commercial aircraft collisions with birds are hard to come by, Clemson said

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## STRATEGIC WEAPONS DEVELOPMENT

### ... A Symposium ...

Plan now to attend the Air Force Association symposium "Strategic Weapons Development," at Vandenberg AFB, Calif., May 1 and May 2.

Top Defense and aerospace leaders—among them SAC's Commander in Chief Gen. John C. Meyer, AFSC Commander Gen. Samuel C. Phillips, and John B. Walsh, Deputy Director, Strategic and Space Studies, DDR&E—will participate.

USAF, Army, and Navy strategic weapons development will be highlighted.

Call James A. McDonnell at AFA headquarters for further information—phone (202) 298-9123, or write today for details . . .

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## Aerospace World

that airlines experience annual damages running into the millions of dollars. Then, too, is the potential for airliner crashes.

A conference planned for Clemson in early February and sponsored by the Air Force Office of Scientific Research hopefully will provide data that might be used to stem the bird-collision menace.

Three general objectives of the conference are: to review progress in basic studies of bird migration, population dynamics, and ecology as related to collision hazards; outline plans for biological research into the problem; arrange methods of distributing research findings and recommendations to all aviation groups, civilian and military.

Progress in this area can't come too soon; USAF aircraft suffered 351 instances of bird-strike damage in 1972 alone.



In January, USAF gave Boeing Wichita a \$46 million contract for the modification of eighty B-52D aircraft.

The contract involves design and production of wing and fuselage panels, plus depot maintenance.

This work is part of an Air Force program worth a total of \$240.7 million that will ensure that the older model B-52s will have conventional and strategic capabilities allowing their use into the 1980s.



Six NATO nations have ordered the Improved Hawk air defense system built by Raytheon Co.

The Improved Hawk, which contains a new guidance package, larger warhead, and improved motor propellant, will replace the Basic Hawk system presently in the arsenals of Denmark, France, Greece, Italy, the Netherlands, and West Germany.

The Improved Hawk is unusual in that no field maintenance is required because the missiles go directly from production to operational units as certified rounds.



**NEWS NOTES—Col. Robinson Risner**, a former POW and the subject of an interview in the June '73 issue of this magazine, heads the list of **sixty-six** Air Force colonels



Col. Claire M. Garrecht, Chief Nurse Hq. TAC, nominated to one-star rank, will be the third woman in USAF to become a general officer. See p. 78 for the full B/G list.

nominated for promotion to **brigadier general** (see p. 78 for the full list). A woman on the list is **Col. Claire M. Garrecht**, a nurse at Langley AFB, Va. She will be the eighth woman to reach star rank in the military services and the third in USAF.

**Hill AFB**, Utah, will host the AFLC/Hill Invitational worldwide **ski meet** at Snow Basin, March 4-8. About 105 skiers from sixty Air Force bases around the world will compete in giant slalom, slalom, and downhill races.

**Rockwell International Corp.**, a huge US conglomerate, is switching to the **metric system**. The changeover will require **ten years**.

An era came to an end on January 1, 1974, when **Kelly AFB, Tex.**, terminated its function as an **inland Aerial Port**. In the last ten years, Kelly has transshipped some **five billion pounds** of cargo, most of it to SEA.

During 1973, **Air Force Recruiting Service**, in a no-draft year, met or exceeded its enlistment goals and signed up **85,000 people**. Some 2,200 college grads, including 293 women, became officer trainees.

**General Electric's YJ101 augmented turbojet engine** completed the milestone Prototype-Preliminary Flight Rating Test and should win USAF approval for flight testing in **Northrop's YF-17 Lightweight Fighter** early this year.

The **American Defense Preparedness Association's** Fifth Annual Environmental Symposium will be held March 13-14 at Edgewood Arsenal, Md. Theme: **The Energy Crisis**. ■



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## AT EGLIN AFB, FLA.

The revolutionary impact of guided weapons on the scope and effectiveness of tactical airpower is about to gain other dimensions. In the future, tac air will not only be able to deliver ordnance with extreme precision but do so from considerable standoff distances and under all weather conditions . . .

# ADTC ADDS NEW DIMENSIONS TO TAC AIR

BY EDGAR ULSAMER  
SENIOR EDITOR AIR FORCE MAGAZINE

**I**N PUNCTILIOUS Air Force language, the mission of the Armament Development and Test Center (ADTC) at Eglin AFB, Fla., is to "plan, program, and manage development, test, and acquisition programs for air armament to include air-launched tactical and air-defense missiles, guided weapons, non-nuclear munitions, nonnuclear mu-

nitions safety, aircraft guns and ammunition, targets, and related equipment."

To Maj. Gen. Henry B. Kucheman, Jr., the Center's Commander, this means that "we strive to be the center of excellence for air armament, that we translate present and projected threats into weapons that can defeat such threats, and that



ADTC Commander  
Maj. Gen. Henry B.  
Kucheman, Jr.



Armament Laboratory  
Commander Brig. Gen.  
Gerald K. Hendricks.

we do this at the lowest possible cost and with the smallest family of weapons.

"These weapons must be as effective, simple, reliable, and easy to maintain as we and our contractors know how to make them, and they must incorporate to a maximum extent commonality and modularity." To the almost 7,700 military and civilian managers, chemists, engineers, physicists, and other assorted professionals who man the Center, ADTC's mission is to be "the business end of the Air Force."

Its most spectacular product of the recent past was the first generation of guided weapons, which has decisively influenced the nature and scope of tactical air operations.

Today, the Center is well on its way toward a breakthrough of at least equal importance, described by Brig. Gen. Gerald K. Hendricks, Commander of the Center's Air Force Armament Laboratory, as the capability to deliver guided weapons "with extremely high reliability and precision not just under daylight VFR [visual flight rules] conditions but in weather and at night. What's more, we will be able to do this from a standoff position through a family of glide weapons and standoff missiles [SOMs—which use highly economical turbojet engines to boost range] and incorporate a variety of guidance systems and seekers, either interchangeably or in combination, to provide wide flexibility."

What ADTC is "beginning to see is really a beautiful emerging scene;



we are going to have standoff, we are going to have precision, and we are going to have some all-weather capability," he added.

The Center's goal, according to General Hendricks, is a family of glide weapons consisting of at least two different carriers capable of accommodating a variety of warheads, including the Mk. 84 2,000-pound bomb and PAVE STORM, the 2,000-pound submunition carrier, capable of accepting bomblets, Gator antitank mines, or airfield attack ammunitions.

Where standoff ranges beyond the limits of the Modular Guided Glide Bomb (MGGB) are required, it is possible to design systems with "throwaway" propulsion, meaning a turbojet-powered missile operating in the subsonic speed regime, which can deliver large payloads at extended ranges.

According to Col. E. M. Munyon, ADTC's Director of Development Plans, a recent study by ADTC of a standoff missile indicates "that we can build such a weapon at low technological risk and at a reasonable price. SOM's task would be to fly strike missions and to provide defense suppression. The missile would be launched by a manned aircraft from the forward edge of the battle area [FEBA] and be guided to its distant target by highly accurate midcourse and terminal guidance methods."

The underlying rationale for SOM, according to General Hendricks, is that "we are not dependent on rollback as our only viable operating mode, and, in addition to being able to attack the high-value fixed targets at will, with little or no attrition of manned aircraft, this weapon requires the enemy to come on the air with the emitting elements of his defensive systems which may then be targeted and struck."

He added that SOM will not be invulnerable to enemy defense, but "it will be premised on sufficient technological sophistication to require highly sophisticated defenses; that is to say, SOM will be able to penetrate defenses and suppress them or achieve a highly favorable exchange ratio." Most of the basic subsystems required by SOM have

been developed for ADTC's glide-weapon program.

So far as propulsion is concerned, General Hendricks explained that the turbojet engine of the Navy's Harpoon air- and sea-launched missile is well suited for SOM use and priced at about \$15,000. A mockup of a standoff missile design has been fitted on an F-4 aircraft. The F-4, the F-111, the A-10, and the B-52 are capable of carrying SOMs. Depending on the types of guidance systems used on SOM, the unit cost of the missile should not exceed \$100,000, Colonel Munyon believes.

### **SIMS—the SAM Killer**

One of ADTC's long-term projects for assuring that future manned strike forces will be able to penetrate hostile airspace with a minimum of loss is SAMCAP, a concept using a SAM Intercept Missile System, or SIMS. SAMCAP is still in an early concept formulation state. SIMS is predicated on the notion that SAM technology is reaching a level where outmaneuvering them, as American pilots did so successfully in Southeast Asia, will no longer be possible.

According to Colonel Munyon, the solution may be a SAM Intercept Missile that functions in an essentially automatic mode by using a high-speed computer to differentiate between various types of bogeys detected by radars aboard the launching aircraft. The SIM launching aircraft would carry the system's specialized avionics in two strap-on pods.

ADTC's studies indicate that most of the technologies needed for such a system "are quite well in hand" except for the computer software program required to assure that the system detects approaching SAMs without ambiguity. But work on software in connection with ballistic missile defense (BMD) "points the way toward definite feasibility," he added.

Another anti-SAM project is the memory-aided antiradiation missile, or MAARM. Initial ADTC research indicates that "it is possible to design a missile system which, by combining a computer memory with real-time detection, can ferret out a SAM site during the split second

that it has to go on the air, even if there is immediate radar shutdown," Colonel Munyon said. A six-month study of the MAARM concept was initiated early this year by ADTC.

### **Laser-Guided Maverick**

One of the most challenging munitions designs is dictated by the close-air-support mission, with its compelling need for flawless target identification and high precision. Late last year, ADTC completed the advanced development of a laser-guided, close-air-support missile using a modified Maverick. Flight-testing of the system, General Hendricks said, involved ten launches, of which eight were "one hundred percent successful against both static and moving armored personnel carriers. These firings involved both airborne and ground laser illumination [target designation]."

The two misses involved problems not associated with the laser seeker, he emphasized. Known as CASM, the laser-guided Maverick uses a so-called proportional laser seeker developed by the Martin Marietta Co. This system is in competition with a seeker developed by Texas Instruments, Inc., for the Navy and similar systems by other contractors. The Department of Defense is expected to choose one of the competing designs in the near future.

As presently constituted, CASM will make it possible for friendly ground troops to perform their own target designation with a ground-laser illuminator or to let an airborne FAC do the job for them. Because of the stringent requirements imposed by the close-air-support environment, the laser system is equipped with a special coding system. The reason, General Hendricks explained, is that "there may be three or four laser designators in the battle area—or the enemy may be decoying the area. The CASM system will, in effect, interrogate the illuminated spot and establish that it is indeed the proper target by looking for specific pulsing details."



The first-generation CASM is billed as a low-cost, fail-safe, accurate laser-guided weapon for day/night and reduced-visibility operation by strike aircraft in conjunction with a ground or airborne forward air controller; the long-term objective is to expand the system into an adverse-weather weapon by providing it with multimode seekers.

### Range of Guidance Systems

The Air Force's current family of guided weapons uses two basic seeker systems—laser guidance and electro-optics, or EO. These seekers are used in a modular manner, meaning they can be fitted, like modules, to a number of bombs and missiles in the inventories of the Air Force and the Navy. Laser guidance is by far the most economical, with the price of the simplest kits having come down to about \$2,200. Prices of the EO kit have been reduced almost as sharply, from an original cost of about \$40,000 per unit to approximately \$16,000.

(By way of a benchmark, the cost of basic bombs, according to Col. R. W. Roy, ADTC's Deputy for Armament Systems, can be figured at "about fifty cents a pound," putting the cost of the 2,000-pound Mk. 84 at \$1,000, that of the Mk. 82 500-pound bomb at \$250, that of the M-117 750-pounder at \$375, and the 3,000-pound M-118 at \$1,500.)

Two basic EO systems are currently in use—the "edge tracker" and the "centroid tracker," the latter in the Maverick missile. The edge tracker, the original EO system used in Southeast Asia, causes the warhead to go after one edge or the other of a given target.

For many targets, the fact that a 2,000-pound warhead impacts a few feet from their outer edge—assuming that the system errs away from the target rather than into its center—is of little consequence; the target is still within the lethal zone of the warhead.

Combined with a data link, *i.e.*, transmitting what the electronically augmented optical seeker sees to a TV screen aboard the launching air-

craft, EO systems are usable for standoff weapons. Present laser systems are dependent on a designator—on board an aircraft or on the ground—to illuminate the target. A laser-guided bomb or missile homes on the laser energy that is reflected by the target. Neither the laser nor the EO seeker has all-weather capability.

Not yet in the Air Force's inventory but fast approaching a state of operational application is the so-called Imaging IR tracker, a system premised on the fact that all objects radiate energy in the infrared spectrum. Imaging IR trackers are not daylight-dependent and can be coupled with data links.

(In addition to the advantage of standoff inherent in a video data link is operational flexibility stemming from the ability to change targets by deliberately breaking the "lock-on," the condition of automatic homing following the sighting of the target. A potential drawback of data links, on the other hand, is the fact that they are susceptible to countermeasures.)

A step beyond these three basic seeker technologies, according to General Hendricks, is the concept of the multimode guidance system. Premised on the fact that all three systems share common components, their principal difference being the different areas of the frequency spectrum in which they work, the Air Force Armament Laboratory is delving into ways to capitalize on this commonality. "We will be able in the near future to operate Maverick with three separate seekers—that is, laser, EO, and Imaging IR. On a longer-term basis, it is reasonable to predict that it will be possible to come up with one seeker that can operate in two of these modes," according to General Hendricks.

### Optical Area Correlator

Another option for a highly accurate terminal guidance system is known as Optical Area Correlation. It appears to be especially suitable for large noncontrast targets. (Targets of this type tend to defy EO systems, which rely on contrast for target identification.) The system borrows from the way a human navigator does his job; it looks for

landmarks that are matched against information in its programmer's memory and thus is oriented toward the target.

Range is limited to a few miles and therefore will require a separate midcourse guidance system, such as DME or LORAN, to deliver it to the "basket," the cone of the correlator's effectiveness, General Hendricks believes. While the technical feasibility of the system is near at hand, its costs appear to be high, probably at least twice that of a standard EO system.

"Two competing optical area correlator systems—one involving a Goodyear system developed for the Air Force Avionics Laboratory and the other a Boeing design sponsored by ADTC—are currently undergoing flight-test at the Holloman missile range in New Mexico. Tests include captive flights on a C-130 and actual weapon launches from an F-4. By the end of this year [FY '74], we should have enough information to be able to make a decision about follow-on programs," General Hendricks told AIR FORCE Magazine.

The ultimate fate of the optical area correlator system, he predicted, will depend on the progress the Air Force makes on all-weather systems. If the accuracies of all-weather systems, which are usable against a wide range of targets, continue to improve, there is little incentive to develop the optical area correlator.

### Microwave Radiometric Contrast Guidance

Tac air's toughest job is providing close air support against armor under all weather conditions and in the face of proliferating mobile SAMs, such as the Israeli Air Force encountered during the recent Middle East war. An Air Force project known as MIMS, for Multiple Independent Maneuvering Submunitions, is a viable option, according to Colonel Munyon.

Guided by a contrast seeker, MIMS appears able to home on the target signatures of tanks and concealed aircraft in adverse weather, including rain and fog. Because the seeker is limited in range, it appears



necessary to provide MIMS with some form of supplemental mid-course guidance.

The seeker is self-contained, does not need remote control, and, therefore, is relatively impervious to jamming. Initial studies indicate that guidance is relatively inexpensive.

### Air-to-Air Seekers

Radar and IR continue to be the principal guidance means for air-to-air missiles, according to General Hendricks, with a so-called two-color seeker using both IR and ultraviolet, at the other extreme of the spectrum, beginning to show some promise. One innovation is the active radar seeker called FAST. The FAST concept is predicated on a small inexpensive radar illuminator aboard the missile. At present, radar illuminators are carried aboard the launching aircraft.

A joint Navy/Air Force program, the FAST missile seeker indicates that it may be possible to build an active radar seeker for as little as \$5,000. Such a system would have a launch-and-leave capability and appears capable of coping with all weather and all aspect problems.

The advantages to the user are extensive, because, from the moment the target is locked onto, the entire operating sequence is automatic. The active seeker guides the missile toward the kill by homing on the spot its illuminator designates. Responsibility for technical development of this dual effort has been assigned to the Armament Laboratory.

General Hendricks added that "it now appears possible to develop a dual-mode system that could use a variety of midcourse guidance modules for a standoff launch and then turns over the guidance function to a terminal seeker. We are also examining the feasibility of other seekers capable of self-designating lock-on, to give us a true launch-and-leave capability in the air-to-air mission. In general, we believe that there is an intrinsic advantage to active seekers in all modes. We are exploring a number of technical potentials at this time." A joint USAF/USN program on the FAST Missile Seeker keyed to a two-year fabrication and captive demonstra-

tion effort is currently in progress at a total cost of about \$1 million.

A promising ADTC effort to enhance the effectiveness of air-to-air munitions is the so-called aimable warhead. Its objective is to increase the lethality of air-to-air missiles by using a "smart fuze," with selective initiation of the explosion which focuses the energy of the warhead toward the target instead of expending that energy in all directions. A segmented IR proximity fuze "looks out in four directions from four viewing ports and then triggers the warhead in a manner that aims the energy at the target. The result is to direct extremely high-speed warhead fragments on the targets and enhance kill probability," General Hendricks explained.

Initial research indicates that an aimable warhead would double the outer limits of warhead lethality in near misses. Such a boost in PK (probability of kill) range is of marked importance because of the relatively small warheads carried aboard air-to-air missiles.

### The CLAW Program

At this writing, the Air Force is prepared to issue RFPs (requests for proposals) on phase one of a new, low-cost dogfight missile named CLAW. CLAW's key virtues are to be "low production and life-cycle costs, simplicity, and minimal maintenance requirements to make it compatible with the Bare Base concept," according to ADTC officials. Colonel Munyon believes the new missile's unit production cost should be less than \$10,000 in the case of large quantity buys.

Since CLAW envisions very accurate terminal guidance, a small warhead will suffice. Designed to be fired rapidly, more than one missile may be fired in a single engagement. There is statistical evidence that a missile of this type can increase overall kill probability. "It is conducive to superior training—because we can afford to fire more of them—and, because of the light weight, we can carry more of them," according to Colonel Roy.

Present plans, he said, call for

the prototype development of two competing designs, with each contractor building thirty missiles. The prototype tests will employ the F-4. CLAW's prototype phase is keyed to demonstrate performance, operational utility, and low production and life-cycle costs, according to Colonel Roy. "In a new departure in terms of the Air Force's prototype philosophy, we will include life-cycle costing as a key criterion right from the start," he emphasized.

Once contracts are awarded, CLAW will undergo a twenty-six-month RDT&E (research, development, test, and evaluation) program. Viewed as a hybrid between a gun and the present generation of air-to-air missiles, CLAW, if entered into production, would have the distinction of becoming the first Air Force-developed, air-to-air missile in recent history. Those now in use were Navy-developed.

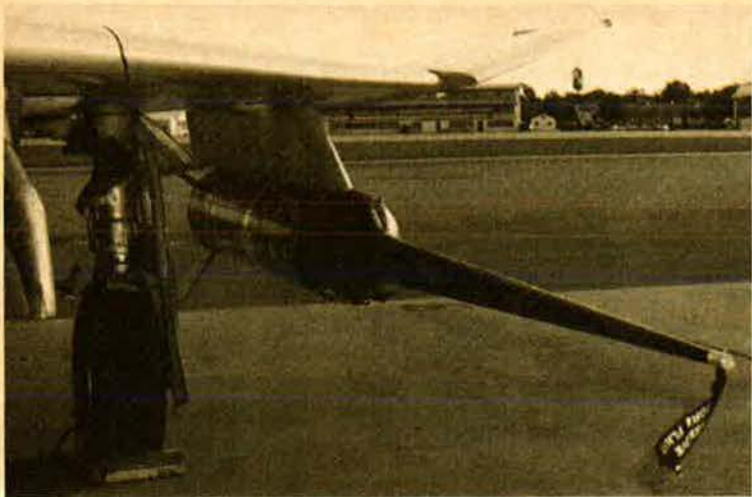
Decisions about seekers will be left to the contractors, with IR, IR/ultraviolet, or EO being the likely candidates. In keeping with present Air Force policy, it is likely that different technologies will be explored and tested by the proposed two prototypes. A unique design goal, Colonel Roy pointed out, is that "one man can load one CLAW into an aircraft in no more than one minute."

In an early planning stage is the concept of a medium-range, air-to-air missile, according to Colonel Munyon. Subject of a six-month study effort, this system is directed against high-altitude threats. In addition, the medium-range missile is to have look-down/shoot-down capability against low-altitude threats and be capable of all-weather operation.

### PQM-102 Target Drones

Closely associated with the air-to-air missiles under study by ADTC are drones to test these missiles under realistic conditions. The Center is about to make its first





Fuel Air Explosives (FAE) research involves extendable probes to detonate the fuel cloud at a precise altitude.



Rear view of 500-pound FAE weapon shows four "second-event guns," which position the detonators in the fuel cloud.

buy of twenty-two F-102 aircraft reconfigured for drone operation. According to Colonel Roy, the Air Force plans to award a contract this spring, thereby giving USAF the only full-size, maneuvering afterburning target drone available for missile testing by the Air Force and the Army. The Navy has the QF-4 target drone.

The Air Force plans to acquire up to 132 PQM-102s, at a rate of about twenty-two a year. Although called drones, these non-manned vehicles—the airframe and engines of which come out of the Air Force's inventory—fit the definition of RPVs (Remotely Piloted Vehicles). They will be remotely checked out and launched by a pilot sitting

in a van at the end of the runway and then handed over to the range radar mission controllers once they are out of the terminal area, according to Colonel Roy. (This process will then be reversed after a mission has been completed if the drone survives.)

The PQM-102 will provide a capability to evaluate sophisticated air-to-air weapons against a full-size, maneuvering afterburning target. "There simply is no substitute for actually firing at realistic targets to verify total system performance. Under these test conditions, we expect drone losses. However, the cost of the drones will be low, compared to an aircraft cost, because the F-102 is amortized and the only

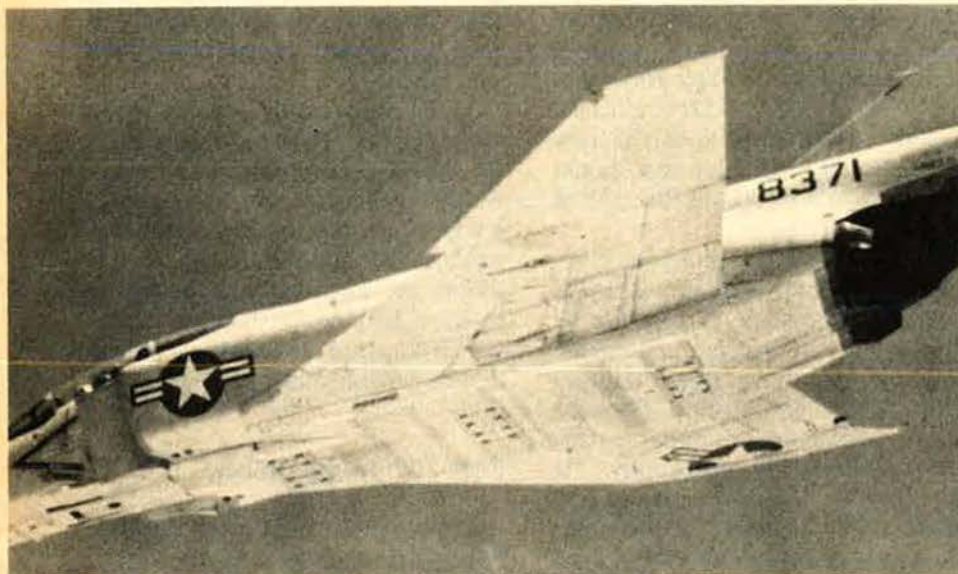
investment cost is the modification cost," Colonel Roy said.

### Hard-Structure Munitions

The greater the effectiveness of conventional munitions, the less need for tactical nuclear weapons, with the attendant risk of escalation, General Kucheman pointed out. A program designed to do just that is ADTC's Hard-Structure Munitions (HSM) effort. Although "years away" from the operational inventory, recent progress on HSM has been good, especially since the appointment of the Lawrence Livermore Laboratory as key contractor. Livermore is proficient in designing highly efficient explosives and in analyzing shockwave propagation.

While the precise nature of HSM approaches is classified, the broad needs for dealing with such super-hardened targets as earth-covered bunkers, bridges, and command-and-control centers are obvious: The munition must be prevented from ricocheting off thick concrete, and the warhead must penetrate well into the structure before its main energy is released.

Progress on HSM in the past has been thwarted by "an empirical rather than an analytical approach. We would try out something, it would work once, and we would think that we had the solution, only to discover that the munition's behavior was erratic. Our new tactics are to take one step at a time in a fully analytical manner. We hope that we can reach the engineering



Conformal carriage can boost supersonic range of the carrier aircraft significantly and is premised on aerodynamically optimized pallet designs that are carried flush on centerline.



developmental stage of this program by next year," according to General Hendricks. If successful, HSM would provide a relatively low-cost warhead, compatible with the Air Force's standard guidance kits and effective against structures that now can only be attacked by nuclear weapons.

### Fuel-Air Munitions

Fuel Air Explosives (FAE) munitions provide a capability to defeat protected targets such as bunkers and foxholes that are essentially immune to conventional, general-purpose bombs, cluster munitions, and guns. Both the Air Force and the Navy have been working for some time on Fuel Air Explosives weapons that form a fuel-air cloud and then detonate it. FAEs were used sparingly in Southeast Asia to clear mined areas and for defoliation. But, in the past, the need to retard the weapon's speed by parachute prior to detonation made FAE a cumbersome weapon. The Air Force and the Navy now are pursuing different approaches to delivering FAE in a high-speed dive mode, according to General Hendricks.

The Navy's FAE rationale, he explained, revolves on precise proximity fuzes to detonate the cloud at an accurately determined distance from the ground. The Air Force, in contrast, is evaluating both extendible probes and proximity sensors to release the fuel and deploy the detonators. The Air Force effort involves two weapon sizes—a 500-pound and a 2,000-pound bomb, as specified by the Tactical Air Command.

The 500-pound weapon, designated HSF-1, is currently in advanced development. Perceived as a low-cost, unguided weapon to be carried on conventional bomb racks, it is currently being tested at Eglin AFB, Fla. Advanced development of this weapon is scheduled for completion by the end of 1974. If the advanced development airdrops produce the desired results, full development will be initiated, according to General Hendricks.

The other FAE weapon, the HSF-II, is in the 2,000-pound class and is being considered for guided as well as unguided use. It will be

suitable for a variety of targets including radar vans, parked aircraft, and light material targets. The smaller munition will be tailored for use against bunkers, foxholes, and other targets associated with the close-air-support mission.

Full-scale dynamic testing of HSF-II is currently going on at the Atomic Energy Commission's Sandia Corp. facility in New Mexico, with emphasis on cloud-growth rates, burst-height requirements, and assessment of basic effectiveness. Full-scale testing of the 2,000-pound FAE weapon is likely to take place next year, according to General Hendricks.

### Gator: New Antitank Weapon

A specialized munitions effort handled by its own ADTC System Program Office in behalf of the Air Force, Army, and Navy is the air-deliverable Gator antitank and anti-personnel mines. The weapon is planned to achieve initial operational capability in 1979. Different dispensers for delivery by fixed-wing aircraft and helicopters are to be used. In the case of the former, the All Altitude Spin Projectile (ASP) is currently being considered as the principal Air Force delivery means. The Navy is planning to use the Mk. 7 for delivery, and a rotary wing dispenser is being developed by the Army for helicopter delivery. The mine is aerodynamically shaped to spin for dispersion and contains a focused charge that is directed against the underside of a tank. To meet the Army's and Marine Corps' tactical requirements, the mine will include self-destruct features to permit friendly forces to pass through mined areas a certain time after the mines have been laid.

Other specialized munitions under study by ADTC and the Armament Laboratory are PAVE ROCK, AFAM (Airfield Attack Munition), and the Grass Hopper antitank mine. The PAVE ROCK 2.75-inch rocket is an interim weapon for attack on aircraft in hardened shelters until new concepts, such as AFAM, come into being. AFAM is part of the Center's family of guided, modular weapons optimized

for attack on airfields. The Grass Hopper, still in a laboratory stage, uses seismic, magnetic, and other sensors to trigger its charge.

### Conformal Carriage and Bluff Bombs

Increasingly sophisticated air defenses pose a need for more efficient carriage of externally mounted bombs to permit supersonic penetration of hostile airspace as well as bombing at supersonic speed.

To facilitate the latter, ADTC is investigating basic shape changes to make air-delivered ordnance suitable for supersonic ballistic flight and has come up with the so-called bluff-bomb kits as a highly efficient means of adapting conventional bombs for supersonic delivery. Although based on a rather simple technique of carrying bombs backwards with a hubcap-like shroud to reduce drag, the results of the initial tests involving speeds as high as Mach 2 have been very promising, according to General Hendricks.

Testing has been conducted in tandem with the conformal carriage program, a jointly funded USAF/USN effort that was completed in 1973, with Boeing Co. the industrial contractor. Premised on new, aerodynamically optimized pallet designs that are carried flush and in center-line positions rather than on wing stations, conformal carriage tested on an F-4B with twelve Mk. 82 bombs "boosted supersonic range by twenty-five percent, loiter by forty percent, and improved the aircraft's roll and stability characteristics significantly," General Hendricks said.

The progress and diversity of the Center's current projects give General Kucheman confidence "in the Air Force's continued, clear-cut ability to operate in even the most sophisticated hostile air-defense environment and do our job reliably and with ever-increasing accuracy.


"For every weapon there is a counterweapon. It is our job to find the counterweapons that cost the least and perform best," General Kucheman said. The Air Force people who created the first generation of guided weapons seem well on the way toward adding still other dimensions to tactical airpower. ■







The author discusses alternatives for keeping US military capabilities and foreign-policy objectives in consonance. He concludes that this can best be done by implementing a wide range of changes in the organization and procedures of our military forces in order to bring the military environment more closely in parallel with American society. Only thus, he believes, can we attract enough young people of high potential to meet the demands of . . .



# A MILITARY FORCE FOR THE TWENTIETH CENTURY

BY COL. RICHARD F. ROSSER,  
USAF (RET.)

ILLUSTRATION BY CLIFF PRINE

*This article, in somewhat longer form, first appeared in the fall 1973 issue of Foreign Policy and is reprinted with permission of that publication. The views expressed are those of the author, and do not represent the official position of the Department of Defense or any other agency of the US government.—The Editors*

**H**ow can we keep American military capabilities in line with American foreign-policy objectives? Can we create a volunteer military force that has (1) the required numbers and quality of people; and (2) adequate budgetary support from the government? There are four basic policies that might address these goals, but only one, I believe, will lead us to a modern military force for the twentieth century.

The first policy that a government can institute to keep the balance between objectives and declining military capabilities is simply to *redefine and narrow its defense- and foreign-policy goals*. Britain and Canada have done just this in the last decade. We have taken a major if rather vague step in the same direction with the Nixon Doctrine. Yet the United States faces a problem in going further. We cannot give up our inherited position as the leader of the Western coalition and as a superpower. Even if we wanted to, we could not withdraw from a world that is increasingly interdependent politically, culturally, and economically. Such a policy, therefore, is not realistic.

A second policy alternative is to *increase the size and capabilities of the American armed forces* in the face of a newly perceived threat to national security. In a democratic and advanced society with a free press, such a threat must have some basis in fact. A potential enemy must have done something, or have threatened to do something, that appears to have increased the uncertainty about the survival of the nation. Yet, this second policy alternative remains essentially a reactive move. Therefore, it is not a viable and positive method of keeping objectives and capabilities in balance.

A third policy alternative is more within the power of the military to effect. Specifically, the military can attempt to *maintain its operational effectiveness by isolating itself from society* in order to guard the purity of its traditions and to develop a sense of uniqueness and elitism.

Isolation is an attractive defense mechanism for any organization under attack by other organizations or by society. "Close Ranks" is a natural cry. And if the military became sufficiently small in numbers and sufficiently out of sight on isolated bases, much of the previous hostility to the military and fear of militarism might disappear. Yet this would not be certain. Fear is often based on the unknown. The



public might view a relatively small but isolated military, which still would have nuclear weapons and a monopoly of force, as an alien band of mercenaries. Attempts to maintain uniqueness through isolation, therefore, might very well increase public fear of the military. Such attitudes probably would result in even further reductions in appropriations for the armed forces.

Certain men, of course, always would volunteer for some military functions because of their uniqueness. Indeed, the Marines continue to stress this point in their recruiting. Other men and probably some women would join the military to escape from a society with whose values they disagree. (Rather than repeat men and women in relation to the military in the rest of this essay, all references to "men" should be taken to apply equally to women.) The latter motivation for enlistment, incidentally, would increase further the gap between society and the military and could give the armed forces the reputation of being a haven for society's failures, outcasts, and misfits.

The central question, however, is whether enough people with the necessary intelligence and skill would join a military organization that emphasizes isolation and separateness in an advanced Western nation. Ambitious and self-respecting young men probably would be turned off by the "alien" culture of the military and reluctant to become part of an organization that was neither respected nor valued by society.

If the potential threats to national security in the coming decades permitted leisurely mobilization based on a small corps of highly trained professionals, we still might be able to accept a "purified" force of fewer men and less money for equipment. But such is not the case. Deterrence, based on both nuclear and conventional forces, depends on forces in being.

The fourth method of keeping military capabilities in harmony with foreign-policy objectives is also largely within the power of the military to effect. My main effort in the remainder of the essay will be to analyze this fourth policy alternative in detail. I refer to the policy of *making the military more—and not less—like twentieth-century American society*.

### Not of the Twentieth Century

The central fact about the American armed forces today is that they are not of the twentieth century. Aspects of their structure and life-style date from the second century B.C., from the seventeenth, nineteenth, and other centuries.

The armed forces are increasingly out of tune with the world in which we live. Society has changed radically; they have not. Indeed, we see signs everywhere within the American military of attempts to pursue the third alternative noted above—isolation from society to avoid change. Many members of the military fail to recognize that the *status quo* in American society is change. By standing still, the military will become further alienated from the changing society of which it is a part.

Here I should state my assumptions for advocating this fourth method:

1. It is essential in a democratic society for the military—if it is to be an effective force—to be supported by that society.

2. A democratic society supports its military only if the society values, trusts, and respects that military.

3. Value, trust, and respect are best achieved—perhaps only achieved—if the military does not appear to be an essentially alien organization within the society. Some degree of alienation, of course, will always occur. The military has the special role of defending the society from external enemies and monopolizes major weapon systems, which makes it unlike any other organization. The danger comes from unnecessarily increasing the degree of alienation of the military from society.

4. Society—not the military—judges whether the degree of alienation of the military from society is excessive. The military can complain about society being decadent, permissive, and immoral—in essence, it can argue that society has diverged from previous norms of conduct. But society at large inevitably judges whether its military deserves its trust. The judgment is evident in the military budget and in whether or not sufficient qualified young men join and remain in the armed forces.

In discussing the changes needed to make the American military more like twentieth-century American society—in effect, an organization less alien and, therefore, more effective as an armed force—I would like to provide the following guidelines and caveats:

1. My suggestions should be considered favorably unless they would clearly harm operational effectiveness.

2. Some of the assumptions about the necessary nature of a military organization may still be true, even though based on traditions that are thousands of years old. (I am not against tradition just because it is tradition. I am only against tradition when it does not enhance operational effectiveness.)

3. The problem of judging operational effectiveness is difficult because judging effectiveness is inevitably partly subjective and thus subject to differing evaluations.

4. A final caution! No set of changes the military might make, regardless of how extensive, would necessarily solve the problem of



money and recruitment. If the external threat to the nation is not obvious, appropriations still will be difficult to secure, and young men still will question the purpose of a career in the armed forces.

### New Organization: "Meritocracy"

The military perpetuates what is essentially a two-class system. How often have we heard the caution against fraternization between officers and enlisted men: "Familiarity breeds contempt"? The separation continues to be emphasized in a variety of informal arrangements that have developed in military society.

Why does the military still have two classes? (Let's separate this question for a moment from the issue of rank itself.) There are four reasons generally given for maintaining the officer-enlisted system.

First, the separation has withstood the test of time, which, in itself, indicates the system is superior to alternate plans. Moreover, it must be a valid concept because it is universal. However, unexamined tradition, as I suggested earlier, is not an adequate justification for constructing an armed force for the twentieth century.

Second, the separation is necessary to maintain standards of authority and discipline, especially on the battlefield. This *may* have been true in the days of close-order drill with muskets. But today we have the curious fact that the majority of men in the Air Force getting shot at are officers, who are sent into battle by other officers. Even in the ground combat arms, *enlisted* "noncommissioned officers" long have ordered and led men into battle. And they have not been dependent on a separate class standing for their authority. But even more significant, I suggest, is the fact that the majority of the men in all the armed forces long have been behind the lines, and effective leadership of these men has not depended on the maintenance of a separate and remote officer class.

Third, the separation represents "functional differences" between officers and enlistees because of differences in class, education, skill, and experience. This assumption once was generally true, but, about the only significant difference left today is the general requirement for officers to have a college education. This differentiation may become meaningless as increasing numbers of young people attend college.

The services cannot afford to draw enlisted men only from the some fifty percent who do *not* attend institutions of higher education. They need an increasing number of intelligent, well-educated specialists in the lower ranks. In-

deed, a number of traditional "enlisted" jobs—intelligence analysts, translators, personnel assignment managers—need college-trained persons more than some jobs held by officers.

The argument can be made that deserving enlisted men with college degrees—or with the ability to finish college—should be given commissions. But such programs, although well meaning, only serve to emphasize the two-class system. The implication is that college-educated men should not want to remain in the "lower" class. Yet many of these same men would prefer to if it were not for the social stigma attached to being enlisted men.

Fourth, the separation is necessary because special rewards and privileges must be offered to get competent people to join the military—specifically, to get officers. Yes, there are some men in the military who like being officers—and never let their subordinates forget it. Men who must rely on a separate class status for authority, however, are poor leaders. And they are positively counterproductive in the attempt to keep well-educated, intelligent, and competent enlisted men in the service. More fundamentally, there are other, more effective motivations to persuade good men to aspire to the leadership ranks in the military.

Now to return to the question of rank. The maintenance of hierarchy is still essential in military organizations—indeed, in any effective bureaucracy. I am not against rank, but against the artificial differentiation between "enlisted" and "officer" classes.

I propose an alternative scheme for organizing our hierarchy—a "meritocracy." I would like to see almost everyone begin at the lowest rank and progress upward according to his ability and ambition—a system used in most modern police and fire departments. Rank itself would depend on responsibility, skill, and function. The rate of promotion would be radically accelerated for promising individuals. I would permit lateral entry for those with age and experience. (Lateral entry might not be permitted in all specialties. There would be little carry-over, for example, from most civilian jobs to combat units.) If we use the analogy of federal Civil Service grades, the military would hire people not only at GS-7 (or 2d lieutenant), but also at GS-3, -5, -9, -11, -15, etc. There would be no obvious break between two general categories of rank as now exists.

Society is increasingly complex. Therefore, people must increasingly specialize to serve society. Largely because of the press of technology, the armed forces also have required increasing numbers of specialists. Indeed, there are almost no unskilled jobs left in the military. By 1974, only ten percent of the enlisted men in the US armed forces will be in ground combat jobs; significantly, eleven percent will be in electronics; seventeen percent in other techni-

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cal jobs; eighteen percent in administration; twenty-four percent will be mechanics; seven percent will be craftsmen, etc., according to data from the Gates Commission Report. Yet, in theory, all officers still have "officering" as their profession. They essentially are "generalists," capable of becoming generals.

The basic difference between the skills young men have acquired and the duties we ask them to perform in the military leads to an unnecessary waste of manpower. A young man studies in college (and to a varying degree even at the military academies) to be a physicist, an economist, a psychologist, and so forth. At two-year community colleges, terminal education programs tend to be even more specialized. Why shouldn't they work in their particular fields in the military?

A young man no longer would have to make the often traumatic choice between becoming an "officer" or remaining an "electrical engineer" (and usually resigning from the service). He could be clearly designated, for example, an "Armed Forces Electrical Engineer, Junior Grade."

His intellectual links could be as strong or stronger with his civilian counterparts. Indeed, it might be more prestigious for him to be recognized first and foremost as an electrical engineer. There would be nothing wrong with this. This prestige accruing to the individual would indirectly enhance the prestige of the military, and the military in general would have stronger links with a broad range of civilian professional groups. The individual, in turn, would not feel as isolated from his civilian counterparts.

### The Need for Diversification

Emphasis on specialization in both hiring and job assignment would be greatly enhanced by the development of separate, largely self-contained, and largely independent branches or corps.

For several decades, we have pursued the chimera of "unification" of the armed forces. My alternative would treat diversification—as a positive value to be pursued.

I suggest three main advantages for diversification through separate branches. First, a specialist would be hired by a particular branch, remain part of it, be promoted within it, and eventually have the opportunity to command it. He would no longer leave the military out of frustration at the gradual loss of hard-won professional qualifications by assignment out of his specialty, or out of embitterment because service "generalists" monopolized the high-ranking jobs in his career field.

Second, functional organizations would enhance morale by encouraging the full development of professionalism in smaller, more easily identifiable groups. A much stronger sense of belonging should result. One of the major

stumbling blocks in recruiting intelligent and sensitive young men and women has been the cold, impersonal nature of our enormous military bureaucracies. And youth today are especially rebellious against large organizations.

The development of relatively small, special branches with personalized recruiting—really not so different from the operation of the British regimental system—should make military service much more attractive for American youth.

Third, separate branches would finally permit us to shed the "combat standard" as the touchstone of military professionalism. The code of behavior of the combat soldier—strict obedience, unquestioning loyalty to higher authority, saluting, parades, short haircuts, etc.—continues to be impressed upon what is now a highly complex organization using the most advanced technology known to man—and demanding the most highly trained specialists that society can provide. The necessity of at least superficial adherence to the combat standard undoubtedly drives many fine young men who are not in the combat branches out of the armed forces. And it must be emphasized here that the majority of men in a modern armed force are not in the combat branches.

I would argue that the "combat ethic" is perfectly appropriate—indeed mandatory—for the combat specialist. For the noncombat specialist, it is inappropriate—indeed irrelevant and discouraging.

Continuing insistence on the "combat ethic" of the combat specialist as the only real norm implicitly degrades the other military specialties. What the military finally must acknowledge is that there are many specialties or professions within the *general* profession of soldiering and that *all* are of vital importance.

Naturally the combat arms branches are still the *raison d'être* of the armed forces. They should emphasize the combat ethic. But all other branches should be permitted to develop distinctive uniforms, traditions, codes of conduct, and professional standards. The result could be an increased sense of identity with the group and improved morale, leading to better recruitment and increasing retention.

### But Who Leads?

The logical question is how does the military coordinate these branches? I propose the creation of a group of generalists—carefully chosen men and women drawn from all the forces, selected primarily at the lieutenant colonel level based on rigorous written and oral examinations and on outstanding records in their specialty. An expanded National War College, as-



suming a rigorous curriculum, could be an excellent testing vehicle for generalist aspirants.

Some assignments for "generalist" officers would be at headquarters staffs of the various branches. In this case, they would be working for generals who had chosen to stay in their particular specialty and compete for the top jobs in that branch—which would be reserved for them. The general officer positions in the central coordinating agencies, however, normally would be held by members of the "generalist" corps. Many members of the corps only would achieve the rank of colonel. But the recognition of the "generalist" specialty as requiring unique talents might draw the kind of people who can cope with the extremely difficult political, strategic, and managerial problems of the Department of Defense.

Informal systems, of course, now exist to select future generalists through early promotion procedures and special *ad hoc* assignment policies for "fast-burners." But the present systems are far from perfect. For example, an Air Force officer who does not become a pilot drastically reduces his chances of becoming a general officer—presently the ultimate aim of the service generalist. (Out of 425 generals in the Air Force, only some thirty are nonrated line officers.) Second, existing special-assignment policies are not really based on a systematic selection process and tend to favor young officers with "good connections." Finally, the selection systems are heavily dependent on the operation of the "Peter Principle"—every employee tends to rise to his level of incompetence because promotion is largely based on how well the man does his given job—not on how well he will do a higher-level job.

An integral part of the proposal for a military organization composed of separate corps or branches is the clear recognition that the armed forces will have to pay more for some skills than others. But isn't it time the services accept reality? Every other organization in society must react to the economic law of supply and demand, if it is to recruit effectively. The Gates Commission demonstrated that the services have been able to avoid this only because of the draft.

The military continues to adhere to the theory that every captain's job is equally difficult, demands roughly equal skill, and therefore should involve equal pay. There have, of course, been continual departures from this principle with combat pay, flying pay, etc. However, these supplements often have not been enough, and the armed forces have sought other ways to recruit and hold particular skills. Thus, doctors have been promoted at a rapid rate, simply to be able to pay them enough to stay in the service. Some nuclear submarine officers already get unprecedented bonuses for staying on after their initial obligation.

If the services established separate branches and corps, separate salary scales should follow that could be adjusted according to supply and demand. Obviously, there would be considerable differences in pay or other rewards. But I would argue that the present system is much more inequitable. Capable, hard-working people in genuinely responsible jobs now are expected to serve for the same wage paid to people of the same rank holding sinecures.

American society today is highly mobile. Professional men and skilled workers move easily and often from area to area, and from job to job. The military is valiantly trying to stem this tide. Service leaders talk about "Duty, Honor, Country" to our young men—and by "duty" is generally meant a lifetime of continuous, full-time service. There is nothing wrong with attempting to inculcate such a value. But the armed forces should not believe that they will be successful in keeping enough good men through this appeal.

### Part-Time Professionals

Yet, the military tends to oppose experimentation. It wants complete commitment—or nothing. And a man generally gets one chance to make this commitment. If he tries the military, resigns, and then attempts to return, he finds it very difficult to regain his commission or enlisted rank.

But what is intrinsically wrong with a man who decides to return to the military after a period in the civilian community? He usually is far more committed to the organization with his second tour. And would there be anything wrong with a man who entered the military three times, assuming there were a position open? This is "lateral entry"—but with very significant differences. Persons in such cases already have been through the military socialization process; they have a military specialty; there is much more information about their capabilities. In most respects, they are similar to persons who have been temporarily assigned for several years out of their career field.

Lateral entry would go far to break down the isolation of the military from the civilian community. Innovative and ambitious people could move back and forth, benefiting both communities. Hopefully, the military would not consider them turncoats.

The military also frowns on "part-time" soldiers. There is something not quite professional about the "Guard" because its members have other jobs. Yet, our society is moving toward a four-day week, and some argue that the three-day week is optimum because it permits two full-time work crews. It may be perfectly



normal for men in the next several decades to have two three-day-a-week jobs. Which then is the "part-time" employment?

Why could not certain stabilized military functions be manned in the future by men with three-day jobs in the civilian community? Missile sites certainly would lend themselves to this manning concept. Moreover, there is no reason such missile units could not become even more competent than our present full-time crews, which probably experience a complete turnover in personnel every few years.

The objection could be raised that these jobs would have been, in effect, "civilianized." But this objection would be based on a particular and rather subtle bias that has been developed in the American military, especially in the last several decades. The individual in the military who wants to remain in a particular job in a particular locale is said to be "homesteading," implying a lack of ambition and of professionalism. Emphasis is placed on adaptability—which in turn requires successfully moving one's family dozens of times during a thirty-year career. It would be difficult to overestimate the number of men who have resigned from the military because of the constant need to uproot their families in this manner. Yet, these same men may have enjoyed their work.

Couldn't the military begin to stabilize as many assignments as possible and retain men in such jobs as long as they performed well? Certainly they could be required to move in case of an emergency. Indeed, all members of the military—"full-time" and "part-time"—could be subject to this requirement.

We then could crase the differentiation between "regular" and "reserve" forces except for those on truly "inactive" reserve duty. The Commander in Chief would have far more flexibility in managing the total force than he does now. For example, the "reserves," except for isolated units, were never called to active duty during the longest war in our history.

### The Military as Minority

A pronounced characteristic of contemporary life is the increasing integration of society. Racial integration, of course, is one aspect of this trend, but it is not the one with which I am primarily concerned. I am referring to the development in the United States of a common culture. Some ethnic differences, of course, now are being accentuated—Black, American Indian, Chicano. The aim appears to be to gain political power to eliminate the traditional inequalities, and, therefore, the differences. It needs to be emphasized that in many ways ethnic differences, religious differences, class differences, and urban and rural differences are lessening.

In a few decades, the military could be the only clearly distinct "minority culture" in our

society. This seems probable if we move to a volunteer force and at the same time continue present trends. The military's physical isolation, for example, is growing. The services are building more base housing, bigger and better post exchanges and commissaries, leading to self-contained military ghettos—albeit very nice ghettos—within American society. If further reductions in the size of the armed forces take place, most military families may be able to live on military reservations. The American military then would have duplicated within the United States what they have been accused of doing overseas since 1945—separating themselves from the people (in this case American allies) they were supposed to defend, leading to misunderstanding, distrust, and even hatred.

And why the physical isolation? There are several reasons. Perhaps the main impetus historically has been to make life for the military more convenient—and, indeed, possible. No well-tended suburbs surrounded isolated forts in the Indian territories. The commissary was a must. Even today, there is a shortage of adequate civilian housing around many Army posts and air bases in the southern and western United States. However, what began as a necessity has become almost imperceptibly—and inadvertently—a way of life for all the military.

Another reason for the continuing physical isolation of the military—even where it is not necessary—is the complicated system of benefits that has developed. Military families feel an indirect pressure to use base housing, the commissary, and the exchange because this is part of their "pay" and is described as such. Such subsidized activities, on the other hand, lead to jealousy and charges of favoritism by the surrounding citizenry.

Compounding this whole problem is the continual shifting of individual military families from one station to another. It is much easier and quicker to seek the security of the post or base than to establish one's family in the civilian community only to be uprooted in a few years.

Physical isolation leads to cultural isolation. The military attend base churches, base movies, and base concerts, eat at their own clubs, and, in some cases, send their children to essentially military primary and secondary schools.

Physical and cultural isolation of the military foster a belief by local communities that the military really are a uniquely separate group within society—a group disinterested in the problems facing society at large.

I am fundamentally concerned, however, with the younger generation of officers and enlisted men, and whether they will want to



become a permanent part of what society may consider a suspect minority culture—the American military. Some may, but many won't. The heavy demands of peer-group pressure are now more obvious than ever. More fundamentally, many of the brightest, most imaginative members of the new generation now in the military are concerned with society's problems. If the military is to retain such people—and to recruit others of similar quality—it must permit these young people to be integrated with society.

### Society's Paternalism

The last difference between military life and the rest of American society is the former's paternalism.

In society at large, our youth, rightly or wrongly, have more freedom earlier. They can vote at eighteen, go to movies that even adults could not see twenty years ago, have their own credit cards, etc. Even our private, religious affiliated colleges have largely abdicated their *in loco parentis* role.

Officers, however, still are admonished to look out for the welfare of our men. How often have I heard, for example, the term "Air Force family," or that "the Air Force looks out after its own." I am not arguing against common decency. I am arguing against the continual tendency to treat members of the military as adolescents when off duty. Senior officers—and senior noncommissioned officers—frequently act as if their subordinates cannot be trusted and, therefore, need constant supervision.

Traditionally, the new enlistee has been subject to the greatest restrictions on his freedom. But many of these petty and annoying aspects of military life stay with officers and enlisted men all of their career. The list of "paternal" limitations on what the military can do with their leisure time and with their private lives, in short, is considerable—especially if they live on a military post.

But are such restrictions necessary to ensure operational effectiveness? I would argue that many of them are counterproductive. How many more young men and women would join

the military—and remain in the military—if they were treated as responsible adults? I suggest it is not the work or reasonable regulations on the job at which the new generation rebels, but the continual attempt to prescribe a total life-style.

Perhaps some combat branches still could emphasize strict discipline in all aspects of an individual's life. We know that some people subconsciously seek this kind of a highly structured environment. I have no quarrel with the particular branch or corps that desires to proceed in the old way—if it can recruit sufficient persons to maintain its strength. But I suggest that many branches of the military will have to deemphasize paternalism if they expect to remain effective organizations.

### What Chance Change?

I fully realize how difficult these changes would be for the military. For many officers and enlisted men, the resulting organization would no longer be "military." I would be personally uncomfortable with some aspects of my proposed "military force for the twentieth century." However, organizational survival may well be the issue for the American military in the next decade. The coming generation of military leaders, therefore, should examine objectively the issues with respect to the relationship of the military to society and discard dogma which cannot withstand the test of operational effectiveness. The military has been spared this task for twenty years because of the cold war and a resulting manpower draft. But the luxury of a guaranteed supply of men and a sympathetic public has about run its course.

Naturally, the military can proceed in the old way. But I do not believe it can develop an effective military force with that approach. The evidence suggests that the military must become more—not less—like the rest of American society. ■

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### FRINGE PENALTY

After chatting with a new guard at the local swimming pool, and learning that he had just got a Master's degree at American University, I allowed that his predecessors hadn't kept the place very clean.

"Whaddaya expect for the money they pay here?" he replied.

I thought this over for a moment. "You mean you can now get a Master's without learning the merit of good work, whatever the pay level?"

"That's a hot one!" he chuckled. Then with no knowledge of my identity, he continued: "Just tell me any s.o.b. who does good work nowadays for lousy pay except the military!"

—Contributed by Air Vice Marshal Robert Cameron, RCAF (Ret.)

(AIR FORCE Magazine will pay \$10 for each anecdote accepted for publication.)



# T-38 AGGRESSOR SQUADRON

The Tactical Air Command has a new and exciting program to train its fighter pilots in the latest tactics of aerial combat. The Command has created a unique squadron of T-38 "MiGs," flown by pilots who specialize in the tactics of other air forces. Their mission is to give TAC pilots an opportunity to fly in a controlled environment against the kind of opposition they might face in real combat. Here's what it's like in one of those dogfights . . .

## TEACHING TACTICS IN TAC'S 'MIGS'

BY CAPT. DON CARSON, USAF  
CONTRIBUTING EDITOR, AIR FORCE MAGAZINE

**'F**ox two," called the F-4E pilot as he simulated a missile launch on the "MiG." Almost simultaneously, the "MiG" broke into a tight five-G turn to force the F-4's missiles into an overshoot. Holding the turn for several seconds, it zoomed straight up and over on its back while the F-4s climbed below. Pulling his nose down through the horizon, the "MiG" came back on the F-4s from their stern and quickly slid into a comfortable six-o'clock position for a gun pass.

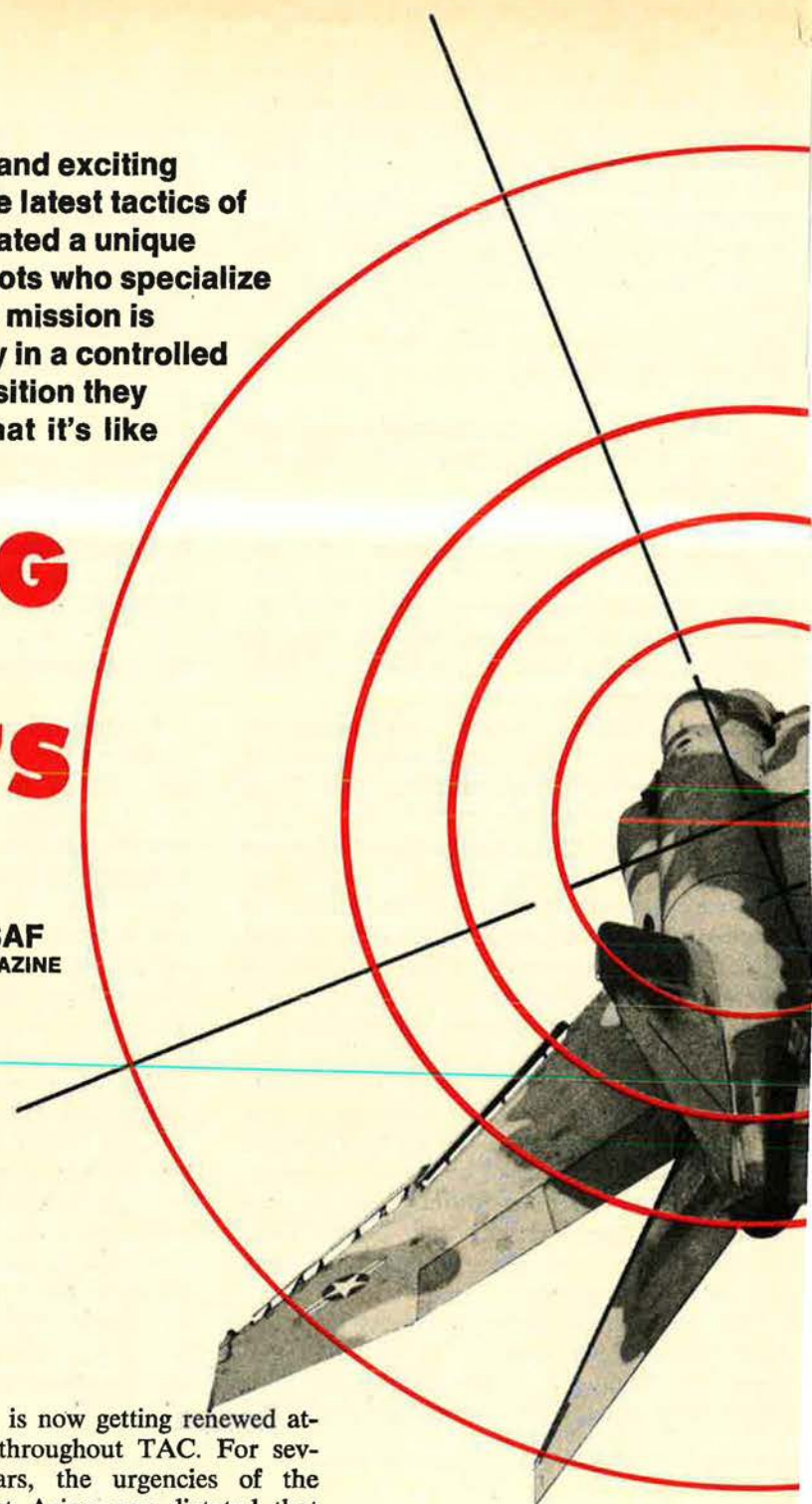
This air battle didn't take place over some foreign land, but off the coast of North Carolina. The aircraft involved belonged to the Tactical Air Command, and the "MiG" was, in reality, a T-38 from TAC's "aggressor squadron." It was all part of the Tactical Air Command's new Dissimilar Air Combat Training program.

Air combat training, for the past decade secondary to air-to-ground

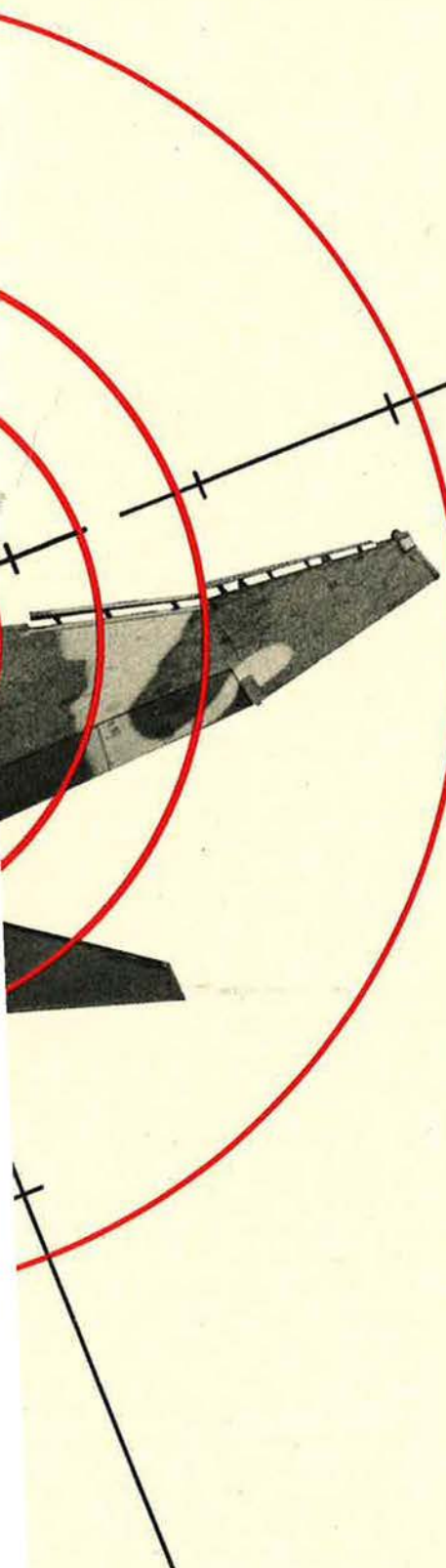
training, is now getting renewed attention throughout TAC. For several years, the urgencies of the Southeast Asian war dictated that TAC training be focused primarily on air-to-ground techniques. Recent assessments of USAF operations in SEA and projections of future combat involvement resulted in a revived emphasis on schooling TAC fighter pilots beyond the basic air-to-air training they have received in recent years.

To provide realistic training, TAC established the 64th Fighter Weapons Squadron (FWS), a unit

of the 57th Fighter Weapons Wing at Nellis AFB, Nev. The 64th has the job of providing aggressor aircraft for dissimilar air-combat train-







training to all TAC fighter units, including students in combat crew training courses, and furnishes "enemy" aircraft during large-scale exercises.

The squadron became operational in June 1973. It has twenty instructor pilots, twenty T-38 aircraft, one GCI site manned by six control officers, and maintenance and support elements.

### Advantages of ACT

There are many ways to conduct air combat training (ACT). Most tactical squadrons have had limited air-to-air training in the past, but quality and consistency depended heavily on the ability and experience of individual squadron training officers. Often these programs were little more than an introduction to basic fighter maneuvering.

The introduction of a highly specialized squadron of pilots who are experts in enemy tactics enabled the Fighter Weapons School to develop an entirely new ACT program. This training, which is uniquely realistic, is based on the advantages of flying against a different type of aircraft, using the tactics of other air forces.

The T-38, which uses the tactics of the Soviet MiG, was selected for several reasons. Like the MiG, the T-38 is small and extremely hard to see. Like the MiG, but unlike the F-4, the T-38's engines are smokeless. The T-38's wing-loading, acceleration, and turning ability are very close to those of the MiG-21. This gives fighter pilots an opportunity to experience the realism of fighting against a MiG in a controlled environment where they can experiment and learn first-hand exactly what an opponent can and cannot do.

While the T-38 is a very good MiG simulator, it does have limitations and shortcomings. Its acceleration and performance are very similar to the MiG-21 up to Mach 1.1, where the T-38 hits a brick wall. MiG-21s have a speed far in excess of Mach 1.1. The T-38 was not designed for sustained G-forces and is showing signs of wear from the stresses of ACT. The costs of modi-

fying the T-38 for a continued ACT program could be fairly expensive.

### ACT Training Phases

A unit that has been scheduled to participate in TAC's dissimilar ACT program will go through three separate phases of training at its home base. Phase one is primarily academic training, conducted by instructors from the Fighter Weapons School at Nellis AFB, and a flight review of basic fighter maneuvers to bring the squadron up to speed in the basics of ACT. Emphasis is on energy maneuverability, intercept techniques, weapons employment parameters, and capabilities of Soviet fighters.

Phase two consists of the Aerial Attack Instructors Course conducted by the 414th Fighter Weapons Squadron, another unit of the Nellis Fighter Weapons Wing. Its purpose is to upgrade pilots within the unit to ACT instructor status. The squadron pilots who are selected to be ACT instructors are given additional academic training and participate in dissimilar ACT flights with pilots of the 64th FWS.

The third and final phase of training comes after the newly trained ACT instructor pilots have conducted an extensive local training program within their squadron. This phase is run by the local squadron ACT instructors in cooperation with the Fighter Weapons School. Normally, six T-38s, two GCI controllers, and an adviser from the 414th FWS deploy to a base for one or two weeks of concentrated ACT flying. The number of missions flown is determined by the requesting fighter wing.

T-38 aggressor aircraft are given full GCI control during these missions and employ MiG tactics. The host unit fighters are given generalized GCI information, but not the precise vector data given the aggressors. This simulates the environment in which US fighters operated in Southeast Asia and might operate elsewhere.

GCI controllers assigned to the 64th FWS work hand in hand with the aggressor-force pilots, attend all briefings, and fly T-38s when they are at Nellis. Their skill in this type of operation adds much realism to the missions.

ing programs at the Fighter Weapons School and at the home bases of tactical fighter units. It also provides academic as well as aerial



Phase-three missions range from a very basic "one (T-38) against one" (F-4), to complex strike-force integration tactics involving fighter-bombers, escort aircraft, and detailed planning. In all, ten different types of mission can be flown at the request of the host wing. These cover all combinations of offensive and defensive fighter employment.

During the "road show," a wing may initially schedule many "two-against-two" missions to familiarize its pilots with MiG tactics and fighting against dissimilar aircraft. Toward the end of the visit, they will have advanced to more demanding missions employing four aircraft against two.

Safety is the key factor in the program. It does little good to rush a student into complex strike-force integration tactics before he has mastered the fundamentals of two against two. It would be easy to place a newer pilot in a situation where he could exceed his ability, if safety were not given great emphasis.

I visited Seymour Johnson AFB, N. C., and spent a week briefing, talking, and flying with pilots of the 64th FWS. The visit coincided with phase two training for the 334th TFS and the 4th TFW. Two F-4 instructor pilots from the 414th Fighter Weapons Squadron—Capts. Joe Hurd and Jere Wallace—accompanied pilots of the 64th FWS to Seymour. Capts. D. L. Smith, Marty Cavado, and Roy Stuckey were flying the T-38 during this deployment. They are young, aggressive, and extremely competent in their job—USAF experts in enemy tactics.

### A Typical Mission

On my first mission, I flew with Capt. D. L. Smith in a two (F-4) against one (T-38) mission. This was to be the first dissimilar ACT mission for the F-4 crews. The briefing started in the 334th TFS operations section at 0700. Captain Hurd covered what we were going to accomplish during the mission, and the briefing lasted almost two hours. The mission would last only fifty minutes—an indication of the detailed planning that goes into each flight.

These missions are not free-for-all dogfights, but carefully executed offensive and defensive maneuvers designed to give students maximum exposure to MiG operations. Missions are very fast, and there is little time to talk things over in the air. With afterburners cooking throughout most of the engagements, fuel becomes a limiting factor. Good planning is necessary to ensure that students receive as much experience as possible from each engagement.

Captain Hurd completed his briefing, and we all walked down to the life-support shop to get suited up. Heavily laden with the accouterments of flight, we walked out to the flight line. The uncomfortable parachute, with its buckles and straps hitting my legs as I walked, felt indescribably good after months of flying a desk.

Captain Smith and I did a quick walk-around inspection of the glistening white T-38. It had been almost eight years since I last flew a T-38, and I had forgotten how uncomplicated it is. It looked like a toy parked near the much larger F-4s. But its appearance is deceiving; more than one F-4 pilot has underestimated its capabilities during this program.

Once the F-4s had cranked their engines, we climbed in and started up. The T-38 doesn't require the weapon systems checks that take extra minutes in the F-4. We called for a check-in on the radio, and aircraft two and three checked in smartly. D. L. in the T-38 was briefed to lead the two F-4s out as a flight. We taxied to the end of the runway for the "last-chance inspection" and waited while the weapons crew checked over the inert missiles on the Phantoms.

D. L. called tower that we were "No. 1 for takeoff," and we were cleared. We lined up in right echelon and looked at No. 3 for the head nod, indicating that he was ready. No. 3 nodded.

D. L. ran up the engines, and we checked the gauges. All instruments looked good. We hacked the clock, released the brakes, and selected afterburner. The F-4s had been

briefed for a formation takeoff fifteen seconds behind us. Coming out of 'burner, we started a left turn and climbed at 300 knots.

The F-4s delayed their join-up to boresight their missiles on us at 6,000 feet separation distance and check their gunsights at 1,000 feet. In a couple of minutes, they slid into close formation off our right wing. D. L. told them to move it out and make several passes on us from different angles to become familiar with the small size of the T-38. We had a ten-minute drive to the ACT training area, and they might as well get some training on the way.

I watched as the F-4s closed in from various angles and compared what they saw to the ranges on their radarscopes. A small target can really throw a pilot's estimate of distance off. It is easy to get in much closer than you think.

We entered the ACT area and called the F-4s to drop back to missile-launch range. Pushing the speed up to 400 knots, we waited for them to call a launch. They were in excellent kill position when we heard the call, "Fox Two," indicating the missile launch on us.

D. L. broke into a steady five-G turn to the left to force the imaginary missile into an overshoot. He held this for several seconds; the T-38 was easily able to sustain this turn without losing airspeed.

He then rolled out some of the bank and started to climb while maintaining five Gs. Finally, he rolled out all of the bank, and we continued straight up and over on our back. Below, we could see the two F-4s climbing. Once inverted, we used what D. L. refers to as "God's G," better known as gravity, to help us get around the corner and back at the F-4s.

We came back down on them and started a very hard turn with full 'burner going. The turning ability of the T-38 is very impressive, and not having flown against it before the F-4 crew was probably surprised to find that the attacked had suddenly become the attacker.

D. L. called "disengage" as soon as we had reached a six-o'clock position on one of the F-4s. These engagements seldom last more than a couple of minutes. There is little to be learned from the slow-speed



maneuvering that most engagements will degenerate into if carried beyond the first few turns.

During the second engagement, we were briefed to get in trail with the F-4s and close for a missile pass on them. They would have to determine when we were in range and defend against our attack. Again, this is more difficult against a small target, which is usually almost within range before you pick it up visually.

We dropped back two miles and accelerated in order to close on the F-4s ahead. There was never any problem keeping sight of them. All you had to do was follow the two dark smoke trails pointing to their position. D. L. slid behind the two F-4s, which were about 2,000 feet apart and flying line abreast. They called "Tally Ho" as we closed to about one mile and accelerated in afterburner, gaining energy for their defensive maneuver.

D. L. picked the F-4 on the left and slid into his stern. The F-4 broke hard left, hoping we would follow and be sandwiched by his wingman. D. L. wisely stuck on his tail for a moment to drive him out of the fight, then reversed after the second F-4 off to our right. The F-4s realized what we had done and called the switch as the first F-4 pitched back into the fight.

We quickly climbed up and over, again using God's G to help us slide behind the F-4, which was not able to turn with us. At this point, the lead F-4 called "extend," and they unloaded their aircraft with full afterburner and negative Gs and accelerated away from us. D. L. knew we were limited to Mach 1.1 and could not catch them. He called "disengage," and we began the re-join to head home.

The F-4s had done well on this mission. They had foiled our attack and seen that there is no way they can turn with a MiG. If they can't get off a quick shot, they are taught it is best to extend and get some distance between themselves and the MiG.

There are times when F-4 pilots are instructed to continue the attack even though they know they can't turn with the T-38. If an F-4 is

pressing into a MiG's stern for a gun attack, he will close to gun range of 1,000 feet or less and accept the fact that he will overshoot if he does not get the kill.

If he misses, he will extend and separate from the MiG, if possible. This is dangerous, but, as Joe Hurd said in the briefing: "If you want a piece of a MiG, you have to make your mind up you are going to get him and hang it out a little." It all boils down to what fighter pilots have been taught for years: "No guts, no glory." Shooting down other fighters is a tough, risky job, and there is no easy way to do it.

### Debriefing and Evaluation

Back in the 334th Operations, we gathered around the chalkboard again as Captain Hurd, who had flown in the back seat of the lead F-4, reconstructed the flight with the help of the tape recorder D. L. had carried on the mission.

After each ACT mission, every step of the engagement is thoroughly gone over. Students are shown where they could have done something differently that might have worked out better. There is never any discussion about who shot whom. This is not important in the program. The emphasis is on learning.

What do crews who fly against the aggressors think of the program? Lt. Col. Dennis Sharon, Commander of the 334th TFS, and one of the F-4 pilots in the engagement I described, had this to say:

"I think this is the best ACT program I have ever seen. We have needed this for years. My pilots and WSOs are learning more this week than they have in years of flying against each other. I have nothing but praise for this program. It is great."

Many pilots feel there is a need for carrying the program a step further. The current program offers a great degree of realism, but lacks the coordination and complexity of a large air battle. The pilots believe that we should continue the program in its present three phases and later, once everyone is properly trained, add a fourth stage of air combat training in which there are more than four F-4s against two T-38s.

Air battles with sixteen or more aircraft would add the realism of cluttered radio frequencies, multiple threats, mutual support, and the need for strict flight discipline.

This idea may become a reality when TAC gets the Continental Operations Range (COR) near Nellis AFB, Nev. The range is scheduled to become operational in June 1974 and will have the control, airspace, and weapons ranges necessary to conduct operations of this scale. Long-range plans call for TAC squadrons to deploy to Nellis for concentrated air combat training, in addition to the 64th deploying to individual units.

In the meantime, the aggressor-squadron concept is the most practical way of giving fighter pilots and WSOs the realistic training needed to effectively use their aircraft in combat. It is a leap forward in air combat training for TAC pilots.

This new direction in training points out the need for specialization in fighter operations and training. During the Korean War, USAF had specialized fighter wings that were trained entirely for air-superiority operations. Their success has not been equaled since.

Next year, USAF will begin receiving the F-15, the first air-superiority fighter since the F-86 of Korean War fame. It is a significant improvement over any current fighter. As a result of TAC's aggressor force and its ACT program, the Air Force will have pilots who are trained to use this aircraft effectively against any existing threat. ■

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*The author, Capt. Don Carson, is assigned to AIR FORCE Magazine for a year's training under the Education With Industry (EWI) program. A fighter pilot with 131 SEA missions to his credit, he's the author of the F-106 pilot report in our October '73 issue and last month's special report on flying the F-15.*

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An Air Force historian examines the national security policy of the Eisenhower Administration, known in the early 1950s as the "New Look." He concludes that this milestone in the evolution of US defense policy was a remarkably successful national security program when one views . . .

# THE NEW LOOK IN RETROSPECT

BY HERMAN S. WOLK

*. . . the only war a nation can really win is the one that never starts. When reason, good will, and the accommodation of competing national interests give assurance of keeping the peace, the maintenance of deterrent forces will be unnecessary. Until that day comes, the striking power of atomic weapons in the hands of this country is a prerequisite of national and world security.*

—Gen. Hoyt S. Vandenberg, August 1949

*. . . let us give priority to striking power which, by common consent, has the greatest deterrent influence.*

—John Foster Dulles, June 1952

*The amassing of Soviet power alerted free nations to a new danger of aggression. . . . It instilled in the free nations—and let none doubt this—the unshakable conviction that, as long as there persists a threat to freedom, they must, at any cost, remain armed, strong, and ready for the risk of war.*

—President Dwight D. Eisenhower, April 1953



*President Eisenhower was a principal architect of the New Look, though, at the time, much of the credit for it went to Secretary of State Dulles.*

THE SUMMER of 1973 marked twenty years since the United States adopted a defense policy that elevated the strategic nuclear deterrent to a position of uncontested primacy in the American defense establishment. The policy, which came to be known as the "New Look," was to have a wide-ranging impact on foreign and defense affairs and military force structures. It is not without influence even today.

National security policy does not evolve out of thin air. Establishment of the New Look in 1953 as the foundation of the Eisenhower Administration's national security program was attributable primarily to technological advance and historical circumstance. Development of nuclear weapons and their means of delivery, together with the experience of the Korean

War, a desire for conservative economic policy, and the military-political threat of the Soviet Union combined to make the New Look policy especially compelling. It was not a completely new concept, but rather an amalgam of new and old, based on what officials, at that point in history, judged to be the successes and failures of previous national policies.

## Postwar Tensions

World War II had changed many things—not least of all, American attitudes about war and peace. Postwar leaders and many citizens were convinced the road to World War II might have been avoided had the United States earlier shucked its disinterest in world affairs. Pearl Harbor drove the last nail into the coffin of the prewar brand of isolationism. The mistakes of the past must not be repeated. America would play an assertive world role. There would not be another Pearl Harbor.

Thus, though flushed with a blend of determination and idealism, the United States, its military establishment dismantled, was unprepared for what followed. Crises with the Soviet Union—clashes over Iran, Greece, Turkey, evolution of Soviet satellites in Europe—marked the onset of the cold war. In June 1948 came the Berlin blockade. The ensuing airlift upset



Russia's calculations and expectations; from the Soviet view, the blockade had become counterproductive by May of the following year. Instead of forcing an American and Western pullback, the Berlin confrontation had produced the opposite—resolute American determination, which in April 1949 created the North Atlantic Treaty Organization.

With the Berlin blockade over, tensions eased, and there seemed a chance for respite, if not détente. But meantime, the Chinese Communists were routing Chiang Kai-shek's forces, and, in August 1949, the Soviets detonated an atomic device. It was, as SAC Commander Lt. Gen. Curtis E. LeMay observed, a whole new ball game. In early 1950, LeMay said the United States faced a crisis equal to the Second World War. By that time, the Communists had won in China, and Mao Tse-tung and Stalin had begun talks that culminated in February 1950 in the Sino-Soviet Pact—a harbinger of the Korean War.

The Truman Administration reacted to the Soviet atomic test with a broad reappraisal of national security policy that resulted in promulgation of NSC-68, the first National Security Council paper to comprehensively analyze national strategy and make appropriate recommendations. Approved by the President in April 1950, this paper—deliberately without specifying cost—called for a substantial long-range military buildup. It belatedly but forcefully reaffirmed what the onset of the cold war had already set in motion—a determination by the United States to stand firm and to help its European allies in the face of Soviet provocations. It also forecast that the Russians would have a substantial atomic delivery capability by 1954.

However, in June 1950, before recommendations of NSC-68 could be implemented, the Korean War broke out. This event not only transformed the Administration's plans overnight, but was to have a profound effect on American history and public attitudes regarding commitment of US forces to war overseas. One of its immediate results was a military buildup and, subsequently, a \$50 billion defense budget. What NSC-68 had only recommended was brought dramatically to fruition by the North Korean invasion of the Republic of South Korea. After the Red Chinese intervened in October 1950, a stalemate subsequently ensued, and the war became vastly unpopular with the American people.

### End of the "Balanced Force"

Meanwhile, the war had broken the Truman Administration's "balanced force" concept and

its almost equal three-way split of the defense budget. In October 1951, the Joint Chiefs of Staff authorized a 143-wing Air Force (Congress would authorize the money in the summer of 1952), while holding the Army and Navy approximately to their then-existing levels. The Korean War had come in the wake of a bitter dispute between the Navy and Air Force over the atomic mission, culminating in 1949 in the B-36 hearings—the "Admirals' Revolt"—when the Air Force had successfully presented its case for the bomber and the strategic atomic mission.

As the war dragged on and 1952 dawned, air leaders sensed an opportunity. They realized that no matter who won the election in November, a reappraisal of military policy would be high on the agenda. In the summer of 1952, Secretary of the Air Force Thomas K. Finletter, Air Force Under Secretary Roswell Gilpatric, Acting Chief of Staff Gen. Nathan F. Twining (Gen. Hoyt S. Vandenberg was ill with cancer), and Acting Vice Chief Lt. Gen. Laurence S. Kuter (Deputy Chief of Staff, Personnel) laid the foundation for what subsequently became the Air Force's contribution to the New Look of the Eisenhower Administration.

They were convinced that the period ahead would be marked by a weapons revolution. (The United States would explode a hydrogen device on November 7, 1952.) They had finally been authorized to create by mid-1955 an Air Force they thought adequate for the nation's needs. Moreover, the public now seemed to accept the idea of a ready force sustained over a long period, provided the cost was acceptable.

The traditional American aversion to a standing military establishment was fading before Korea. The war sealed this historic transformation. What would be the objective of such military forces? As Secretary Finletter emphasized, the nuclear deterrent was being built with the hope it would never be used. "If it has to be used," he said, "it will have proven to be a failure." The goal was peace.

### The Eisenhower Environment

In November 1952, Dwight D. Eisenhower was elected President. His ideas on military policy were shaped by his long experience as a soldier, his understanding of American history, the events of the cold war, the Korean War, and the influence of the men he would now bring into his Administration.

Eisenhower played a larger role in formulating the New Look than has generally been recognized. He was its major architect. He held strong feelings about the human and material



*JCS Chairman Adm. Arthur W. Radford thought that US forces were overextended and that defense policy should be based on air and naval power.*



*Air Force Secretary Thomas K. Finletter was instrumental in developing Air Force concepts that led to the New Look under the Eisenhower Administration.*





*Eisenhower's Secretary of State, John Foster Dulles, judged a policy of containment to be too defensive. His name is associated with massive retaliation.*

waste of war, grounded in his own deep humanity and life as a soldier. And he realized the American people would not soon tolerate another prolonged war, especially an indecisive stalemate.

Korea, therefore, had made a deep impression. Eisenhower determined to end it, believing the United States should not again become involved in a land war on the Asian mainland. This view undoubtedly reflected the deep desire of the American people. Thus, he would shape his Administration's military policy around the strategic nuclear deterrent.

Eisenhower also wanted a balanced budget and reduced taxes. The defense budget would have to be cut. He had been influenced by John Foster Dulles, Secretary of State-designate, who thought containment overly defensive. Adm. Arthur W. Radford—chosen by Secretary of Defense-designate Charles E. Wilson to be JCS Chairman—was also persuasive, arguing that US forces were overextended and that a policy of strategic retaliation emphasizing air and naval power best fitted the times.

Finally, George M. Humphrey, to become Secretary of the Treasury, articulated conservative economics and also thought the Strategic Air Command should be afforded top priority as the major instrument of deterrence. Humphrey had been taken by General LeMay's idea of SAC as an elite force, always ready to react. The President-elect believed that the nation's strength should not be allowed to erode by getting sucked into wars overseas, by deploying substantial forces overseas, and by reckless spending. His advisers' views seemed nicely to complement his own.

The way the Korean War ended in late July 1953—preceded by a threat in May, conveyed by Secretary Dulles to the Chinese through Indian diplomats in New Delhi, to carry the war, including perhaps atomic bombing, to the Chinese mainland—was a harbinger of what later became known as the "massive retaliation" strategy of the Eisenhower Administration. Subsequently, Korea would be understood as the first triumph of this strategy, initially enunciated by Dulles in February 1952, before the American hydrogen bomb test and the election campaign. Like Eisenhower, Dulles was sensitive to the nation's mood and to the importance of congressional support.

Contrary to popular conception, Dulles was not a rigid cold warrior who willingly went to "the brink." (He especially disliked the word "brinkmanship.") Until mid-1946, Dulles had believed the Soviet Union would coexist peacefully with the West. He judged the Russians to

be shrewd and realistic, devoted to their national interest. The events of 1946–48 then convinced him that dangerous confrontations would precede cooperation. The United States would require deterrent forces. To Dulles, deterrence was political and psychological as well as military. Like most postwar American political and military leaders, he thought prewar isolationism a mistake and that World War II might have been avoided or its course changed had not the United States generally remained aloof from world affairs. War was not inevitable. However, the Korean War reinforced his view that the greatest danger was Soviet miscalculation. The Russians were willing to take risks.

### The New Look—A Comprehensive Policy

The New Look was a great deal more than military policy. The President wanted a *national security policy* to mesh his economic program with military and foreign policies. He had determined to develop a long-range program that would avoid reassessments based on each change in international political relationships or the military balance. The Truman Administration had come to this same conclusion just before Korea.

Early in his Administration, Eisenhower struck a keynote—"maximum safety at minimum cost." Subsequently, Charles E. Wilson turned this into "A Bigger Bang for a Buck." The problem, the President observed, "is to achieve adequate military strength within the limits of endurable strain upon our economy. To amass military power without regard to our economic capacity would be to defend ourselves against one kind of disaster by inviting another." But the free world, he noted, could not remain impassive, "leaving forever to the aggressor the choice of time and place and means to cause greatest hurt to us at least cost to himself."

Meanwhile, in the spring of 1953, the Air Force had published a doctrinal manual emphasizing that airpower was synonymous with the strategic deterrent. Wars of attrition had proven tremendously costly. Now the "exploitation of the air medium coupled with the development of new weapons systems" enabled the nation to emphasize "the global aspects of national security." Air forces in-being were the "paramount consideration for the security of the United States" and were likely to be dominant in war. They should be kept ready to launch a powerful retaliatory attack. This doctrine meshed almost perfectly with the Eisenhower Administration's evolving policy.

In May 1953, President Eisenhower appointed a group to examine national security



*Air Force Chief of Staff Gen. Nathan F. Twining believed that our general war forces should have top priority. Under him, the Air Force 137-wing program took shape.*



and make appropriate recommendations. Called the Solarium Conference (after the White House sun room where the group first convened), it identified three possible strategies: containment; retaliation should the Soviets move across a specific line; and a policy of liberation to overthrow European satellite governments. Separate task forces then considered each alternative, and, in July, reports were sent to Eisenhower.

With the end of the war in Korea following by four months Stalin's death in March 1953, it seemed the Administration might be able to plan strategy in a quiescent period. However, on August 12, 1953, the Soviets conducted a hydrogen test, almost precisely four years after their atomic test and less than ten months after the American thermonuclear test of November 7, 1952.

Thus, in the late summer of 1953, the National Security Council deliberated on the Solarium reports and the Soviet hydrogen detonation. By October, the Administration had decided to emphasize massive retaliatory power as the major deterrent to aggression against the United States and Western Europe. American conventional forces would be reduced, and the Europeans would be encouraged to maintain a maximum feasible defense. Thus, though the New Look's Air Force objective would ultimately be set at 137 wings by June 1957—slightly lower than the Truman Administration's 143 wings, which had been planned for 1955—with the corresponding reduction in ground forces, the greater overall emphasis would be on airpower.

### In Harmony With the Times

Always underlying the New Look was the concept that the United States could not be strong everywhere at the same time. Nothing was more important than the nation's general-war capacity, an idea that Air Force Chief of Staff Gen. Nathan F. Twining—who had replaced Vandenberg on June 30, 1953—articulated to the Joint Chiefs and the Administration. Twining had almost immediately assumed an important role and, in the fall of 1953, was instrumental in the adoption of the 137-wing program, which replaced a 120-wing objective (which had been briefly adopted to replace 143 wings). Eisenhower himself recalled that he was, above all, determined not to waste manpower in "costly small wars." The United States would not play into the hands of potential enemies. America, he said, would not be blackmailed "into placing limitations upon the types of weapons we would employ."

The general cast of the New Look was shaped largely by Korea, conservative economics, and by the advance of technology. Strategic airpower was the key, and Dulles approvingly cited Winston Churchill's term—the "supreme deterrent." To the Secretary of State, strategy should be based on America's "special assets"—air and naval power. "The free world," he emphasized, "must make imaginative use of the deterrent capabilities of these new weapons."

Subsequently, the Eisenhower Administration (and especially Dulles with his "Massive Retaliation" speech of January 1954) would be criticized for relying too heavily on nuclear retaliation. Much confusion and debate would follow the Dulles address, and it was shortly thereafter that he was forced publicly to explain. Nonetheless, the New Look reflected America's nuclear superiority. *It was thus in harmony with the singularly American view that technology, especially airpower, was this nation's best weapon.* In retrospect, the threat of nuclear retaliation probably prevented other Communist military thrusts.

A myth long sustained has been that President Eisenhower gave Dulles carte blanche to formulate and implement national security policy. Eisenhower thought Dulles unusually competent in foreign affairs, but the Secretary of State, better than anyone, realized he did not have sole responsibility for formulating American policy. The President discussed policy with him, and the Secretary always knew exactly what Eisenhower wanted.

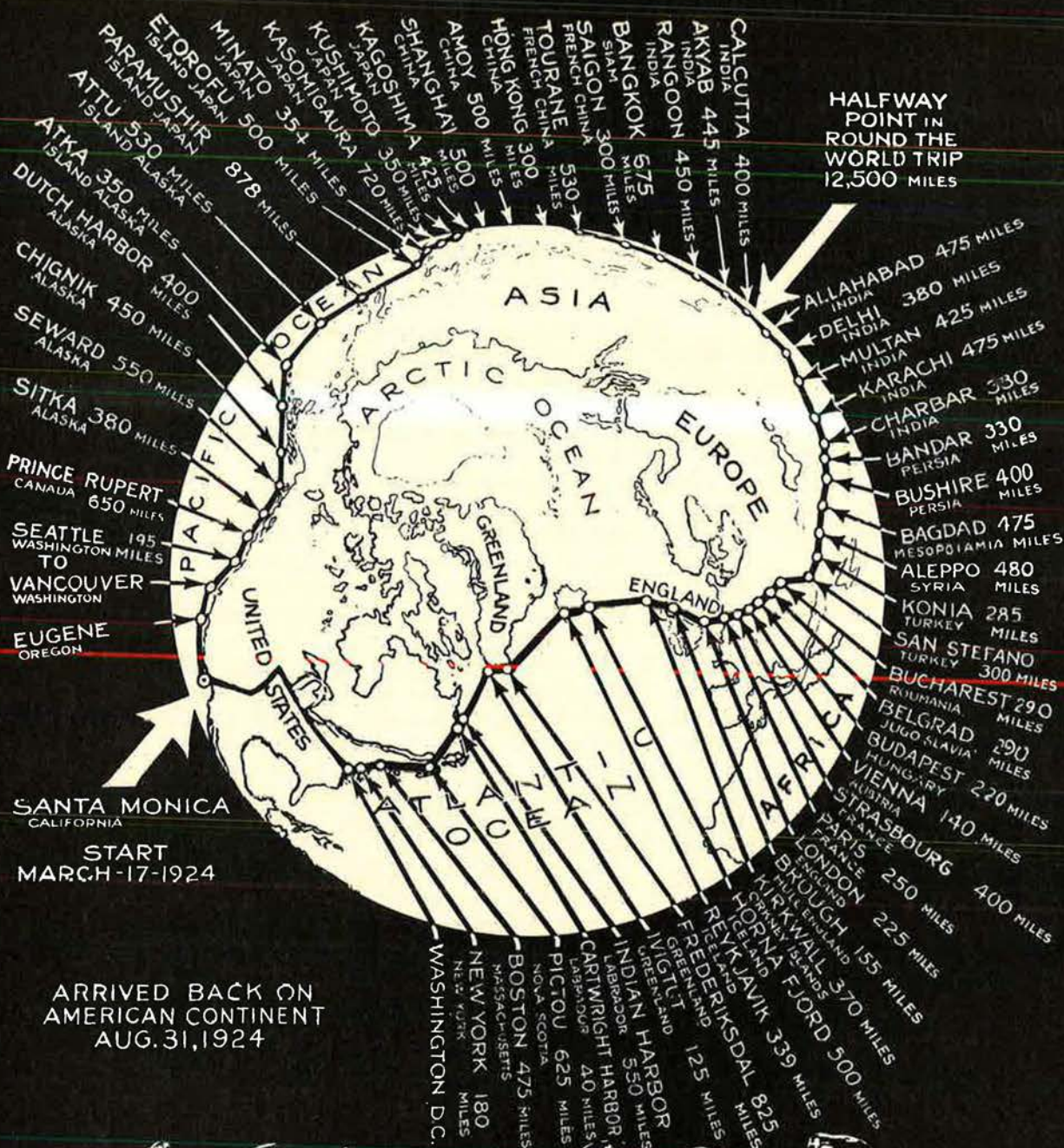
With the perspective that hindsight confers, the New Look seems to have been a policy in harmony with the times. It was not wholly original, having borrowed from the previous Administration. Eisenhower's view of the Soviet threat was similar to Truman's. The general idea of "maximum safety at minimum cost" had been expressed many times before by Secretary of Defense James V. Forrestal and President Truman, among others.

Nonetheless, in 1953 it was the Eisenhower Administration that grasped the opportunity presented by scientific advance and historical circumstance to proclaim a New Look in defense policy. Technology, not manpower, was this country's strong suit—a view that had been forcefully articulated in November 1944 by Gen. "Hap" Arnold when he had directed establishment of the von Kármán Committee to study scientific and technical options that were, or would become, available to the Air Force.

Increasingly, the New Look will be understood as a remarkably successful national security program. It provided coherence and a sense of national direction. We can appreciate now how strikingly attuned it was to the American psyche and tradition. ■

*The author, Herman S. Wolk, has been a member of the Office of Air Force History since 1966, specializing in the military-political aspects of warfare. Prior to joining that office, he was a historian at SAC Headquarters. Mr. Wolk has been a frequent contributor of both articles and book reviews to AIR FORCE Magazine and has written extensively for other publications.*





Route of the round-the-world flight with several crew members in the foreground. Second from left is believed to be Maj. Gen. Mason M. Patrick, Chief of the Air Service.



*Fifty years ago this month and only twenty years after the Wright brothers' first flight, four US Army Air Service planes left San Diego, Calif., on one of the most remarkable feats in the history of aviation—the first "circumnavigation" of the globe. Two of the Douglas World Cruisers made it; miraculously, the crews of the other two survived mishaps in the Aleutians and over the North Atlantic. Here is the story of that incredible adventure, followed by some reminiscences of the flight by retired Maj. Gen. Leigh Wade, the only surviving pilot of . . .*

# THAT FIRST ROUND-THE-WORLD FLIGHT

BY JOE CHRISTY

**H**ow would you like to fly an open-cockpit biplane around the world?

Just to make it interesting, let's say that you must depend on an engine that is normally operated about 100 hours between major overhaul or failure, whichever comes first. You'll be allowed only three flight instruments—altimeter, turn-and-bank indicator, and air-speed indicator. You will have no radio or electronics of any kind. You will, of course, be forced to fly under instrument conditions for many hours, because a plane with an 11,000-foot ceiling isn't going to climb over much weather. Nor will a ninety-mph cruising speed shrink an ocean very fast.

Ridiculous? Well, maybe. But that's how it was done the first time. It happened in 1924, when US Air Service planes completed the 26,345-mile journey in 371 hours and eleven minutes of total flying time. Yes, verily, there were giants in those days.

The first world flight was one of Brig. Gen. Billy Mitchell's dramatic

projects, designed to gain public recognition—and congressional appropriations—for his hungry air-men. During the preceding fiscal year, the Air Service had received less than \$3 million (a tiny fraction of the Army's budget), almost all of which was needed to meet normal maintenance and other fixed costs. Except for a handful of prototypes, new aircraft to replace the World War I Jennys and DH-4s were beyond reach of the impoverished Air Service.

Therefore, General Mitchell, aided and abetted by his boss, Maj. Gen. Mason M. Patrick, Chief of Air Service, along with practically every man wearing Air Service insignia, had promoted a series of bold aerial ventures that, they hoped, would sell military aviation to the people, the Congress, and the Army.

Many of these exploits seemed to border on the foolhardy. For example, they planned and executed a round-trip mass flight in their wood-and-wire crates over the uncharted wilderness between New York

and Nome, Alaska, and the first nonstop transcontinental flight (before the day of radio or even lighted airways). They also participated—often successfully—in the hairiest air races of that era.

## Cries of Doom

But no Air Service project appeared more foolhardy than the proposed round-the-world flight announced late in 1923—less than twenty years after the Wright brothers had first coaxed their flimsy machine a total distance of 1,472 feet in four attempts. The men of the Air Service, however, were unmoved by the cries of doom that greeted the announcement. To them it was simply an unusual challenge to gather credit and respect for the Air Service.

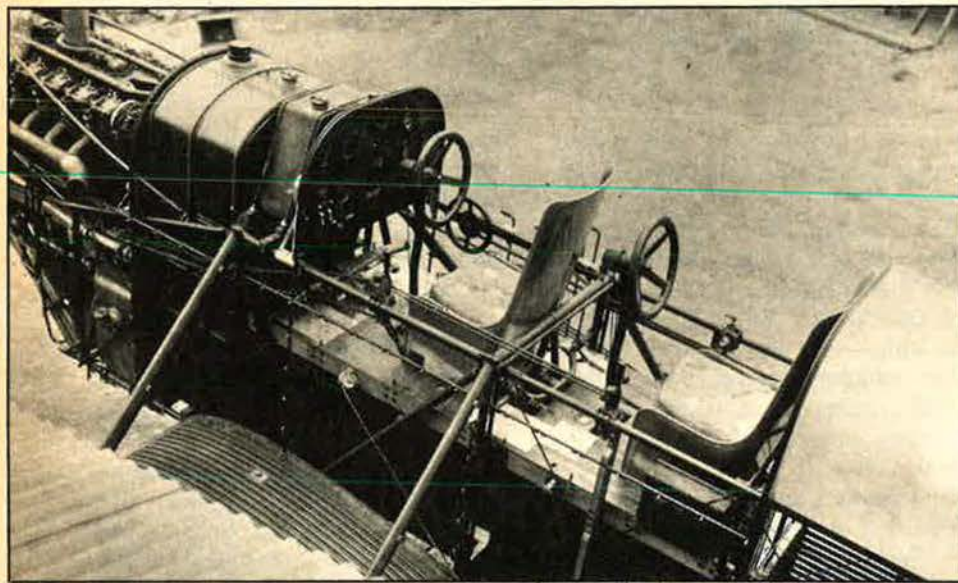
Such an atmosphere produced an extraordinary team effort. Officers and men who held no hope of glory or direct participation in the flight worked to exhaustion preparing charts, gathering worldwide weather data; planting fuel, oil, and spares





From left, Lts. Jack Harding and Erik Nelson of the New Orleans; Lt. Leigh Wade, pilot of the Boston; Maj. Fred Martin, whose Seattle crashed in Alaska; Lts. Les Arnold and Lowell Smith of the Chicago; and alternate pilot Lieutenant Schultze. Lt. Henry Ogden and Sgt. Alva Harvey, crewmen of the Boston and Seattle, were absent.

The cockpit of the Douglas World Cruiser, showing the sparse instrumentation characteristic of that period.



in remote parts of the globe (packed in boxes made of spruce, which could be used for airframe repair), and taking care of countless other details. But only eight men, from among hundreds of volunteers, were to be selected to fly the four planes that would attempt the journey.

From a list provided by General Mitchell, General Patrick chose four pilots: Maj. Fred L. Martin,

and Lts. Lowell Smith, Leigh Wade, and Erik Nelson. Each of the four pilots was allowed to choose the man who would ride with him, and the second four were, inevitably, all top mechanics. A couple of the latter were also rated pilots. All except Martin were bachelors.

Shortly before Christmas 1923, the flyers were ordered to Langley Field, Va., where the first of their "World Cruisers" awaited, fitted with floats. There, they practiced float-flying and absorbed cram courses in weather, emergency medicine, and a host of other subjects during the following six weeks.

### The Planes: "Barely Sufficient"

Then, in February 1924, the world flyers went to Donald Douglas' modest aircraft works at Santa Monica, Calif., to take delivery of the four Cruisers they would use for

the flight. The fifth plane, at Langley, would serve as a backup machine. All five were identical; hefty biplanes, powered with World War I Liberty engines.

The Liberty engine was a water-cooled V-12 rated at 400 hp. Hastily designed, it was mass produced from 1917 into 1919, and, although it was probably as good as any comparable aircraft engine available then, its automobile-type igni-

tion system and abundant plumbing added nothing to its reliability factor. But since the Air Service had thousands of war-surplus Libertys stored in warehouses and could offer engine builders little incentive to develop anything better, this powerplant was destined to glories greater than it deserved.

The World Cruiser's airframe was a different matter. Like a solidly built frontier woman—straightforward and strong, if not pretty—she was clearly designed for her pioneering role; a no-nonsense craft, without frills. Wingspan was fifty feet; fuel capacity, 644 gallons; equipped with floats, empty weight was 5,180 pounds, and maximum takeoff weight was 8,200 pounds. In short, the Liberty-powered Cruisers were the best airplanes for the task that General Patrick could provide for his flyers at the time. Even so, they were barely sufficient.

Douglas had promised that the four prime aircraft would be ready by mid-March. These were chris-



tened the *Seattle*, *Chicago*, *New Orleans*, and *Boston*. They were crewed respectively by Major Martin and Sgt. Alva Harvey; Lts. Lowell Smith and Leslie Arnold; Lts. Erik Nelson and Jack Harding; and Lts. Leigh Wade and Henry Ogden. The Air Service hoped that at least one of these crews would make it all the way around the world.

The official starting point originally chosen was Clover Field, at



Santa Monica. But one of the planes was not quite ready on the announced date—St. Patrick's Day, March 17—and three forced landings while flying northward over California, plus a three-week delay in Seattle to change propellers, replace wheels with floats, and assemble survival gear, prompted General Patrick to change the official starting place to Sand Point Field, near Seattle.

Equipment stowed in each aircraft included a rifle, fishing tackle, two pistols, four vacuum bottles of concentrated food, a first-aid kit, some spare engine parts, tools, and a sixty-pound ship's anchor with 150 feet of rope. No parachutes or life jackets were carried because of space and weight limitations.

At the outset, each flyer took



The *Seattle* (foreground) and *Boston* preparing to leave Clover Field, Santa Monica, Calif., on the morning of March 17, 1924.

along a change of clothes, but these were soon discarded in favor of "borrowing" fresh apparel as the need and opportunity arose. This solved the laundry and luggage problem, but was to result in some unusual and ill-fitting costumes as

the crews penetrated to the world's far places.

Finally, on April 6, 1924, following two more aborted starts, the four planes took off from Seattle shortly after sunup and pointed their noses northward along the Inside Passage, a protected steamer route running from Puget Sound, Wash., a thousand miles along Canada's western coast. The flyers expected to cover 650 miles to Prince Rupert, British Columbia, that day.

### Evasive Action

The flight was less than 100 miles outbound from Seattle when it encountered heavy fog, but the crews pressed on, flying just a few feet above the surface of the water. However, near the upper end of Johnstone Strait, along the northeast coast of Vancouver Island, the flyers suddenly met an excursion steamer head-on, and two of the planes narrowly missed crashing into the ship. Twice more, during the next three hours, violent evasive action was required to avoid ships' masts materializing out of the fog.

Over Queen Charlotte Sound, off the mountainous coast of British Columbia, the flight ran into heavy rain and hail, although the ceiling did rise to about 100 feet. From there into Seal Cove, at Prince Rupert, the crews battled a snowstorm and increasing headwinds. They arrived at their first day's destination during the height of the storm. All made good landings, except Major Martin in the *Seattle*, who lost sight of the water at a critical instant and pancaked to the surface, damaging a float strut and snapping several bracing wires. The 650-mile first step had required eight hours and ten minutes of flying time.

It took three days to repair the *Seattle*. During this time, Lieutenant Wade, while checking the engine of the *Boston*, allowed its nose cowl to slip into sixty feet of water. The nose of an airplane is an item one does not ordinarily expect to lose. There was no spare. So, a local tinsmith fashioned a replacement from a large sheet of copper, and the *Boston* continued with a

nose that, day by day, grew steadily greener.

### The Fog Claims a Victim

The flight got away from Prince Rupert on April 10, making it as far as Sitka, Alaska, that day. Preparations were made for an early start again the following morning. However, gale-force winds not only prevented takeoff but nearly claimed two planes when the *New Orleans* broke her moorings and drifted rapidly toward the *Chicago*. The flyers plunged into the icy bay in a frantic attempt to avert disaster, a clearly hopeless act under the conditions, but a Forestry Service powerboat, alerted by the commotion, chugged to the rescue. The boat managed to get a line on the *New Orleans* and then held her fast in a desperate nine-hour tug with the williwaw. Although the flight had covered but 932 miles, the crews had already experienced enough adventures to last most men a lifetime.

They were well aware that it had been mere prelude. During the next few days, the Cruisers threaded their way through snowstorms and fog to Seward, and then to Chignik Bay on the Alaskan Peninsula.

"Everything was one color—white," Wade said later, describing it in *The First World Flight*, by Lowell Thomas (Houghton Mifflin; 1925). He went on to say:

The only help was a strip along the beach where waves kept washing and melting the snow. We dropped down and clung to this line. Had there been a cliff or promontory jutting out, the chances are all of us would have crashed into it. We couldn't see far enough ahead to have avoided it. Our floats were almost on the water most of the time. I flew standing up in the cockpit, braced against the back of the seat with my feet on the rudder bar so that I could see over the nose of the plane. . . . Snow driving against my face trickled down behind my goggles and blurred the lens. Jack Ogden and I wondered, of course, where the rest of the gang was until all of a sudden the plane would start to jerk and





Major Martin and Sergeant Harvey end their ten-day hike to civilization after the Seattle's crash in Alaska.

pitch—sometimes almost throwing us into the beach—and we knew then we were in the wash of someone's propeller.

Under such conditions, a crash was almost inevitable. It came on the leg between Chignik Bay and Dutch Harbor, Alaska. Major Martin, blinded by snow, literally flew into the slope of a mountain. Miraculously, neither he nor his companion, Sergeant Harvey, was seriously injured. They spent one night in the *Seattle's* wreckage, then managed to parlay a combination of courage, determination, and luck into a ten-day-long saga of survival, walking out to civilization unaided. But for them the world flight was over.

Meanwhile, the three remaining planes had gone as far as Attu Island, at the far tip of the Aleutian chain, where storms grounded them.

### First Across the Pacific

On May 15, the weather cleared and the three-plane flight—now led by Lieutenant Smith—hopped off for Paramushiro Island in the Kurils, then under Japanese control, a distance of about 870 miles. Bad weather, however, forced the flight to make an unscheduled ocean landing in Russian water off the Komandorskiye (Commander) Islands in the southwest Bering Sea, where

the planes were refueled from a US Bureau of Fisheries boat, the *Eider*. Then, flying above a thick overcast, with only compass and occasional mountain peaks to guide them, Smith led the flight into Paramushiro at the northern end of the Kuril Islands to complete the first aerial crossing of the Pacific Ocean.

At this point, the US Navy, an enthusiastic supporter of the project from the beginning—despite scarcely healed wounds inflicted by General Mitchell three years before in the airplanes vs. battleship controversy—detailed two destroyers to aid the flyers as they progressed southward over Japan's 4,000 home islands. The weather, for a change, was excellent.

In Tokyo, the planes were given a general going over and new Liberty engines were installed, with each plane's crew doing the work. Throughout the flight, except for two stops in the US, all repair, maintenance, and servicing was performed by the flyers themselves. This included several complete engine changes per plane, since they were loath to gamble on the Liberty for more than fifty hours' operation.

### Trouble For Chicago

Leaving Japan, the three-plane flight flew straight to Shanghai, mostly through clouds and rain, then down the South China coast to Haiphong in French Indochina, now North Vietnam. It was on the following day, June 11, that the *Chicago* ran into trouble.

The planes were over the Tonkin Gulf in the South China Sea when Smith noticed his engine temperature shooting up. He banked steeply and headed for the coast. Landing in a lagoon, he and Arnold filled the radiator with sea water and tried again. Twenty minutes later, however, the temperature gauge repeated its warning, and hot water began streaming back into Smith's face.

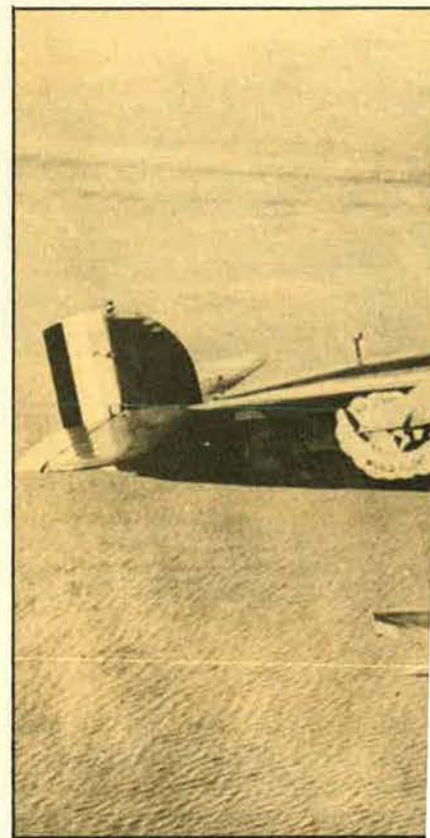
The open sea was too rough to allow much chance of a safe landing. By the time Smith had located a sheltered lagoon, three miles inland, the engine was pounding itself to pieces with a broken connecting rod.

The *Boston* and *New Orleans* allowed their stricken sister ship a landing. A hasty conference was called, while huge crocodiles splashed in the water nearby, and it was decided that, with the Navy's help, a spare engine could be brought from Saigon, one of the places where spare parts had been cached prior to the flight.

Leaving Smith and Arnold with the downed plane, the other four in the *Boston* and *New Orleans* flew on to Da Nang, in what is now South Vietnam, where Wade contacted the Navy and Nelson hired a car to start back to the isolated lagoon with food and water.

### Sampans and Paddlers

Nelson returned to the crippled *Chicago*, via dugout canoe, at 3:00 a.m. At daybreak, a deal was made with a local native chief who assembled three war sampans and thirty paddlers to tow the "air monster" twenty-five miles upriver to Hué. The chief accompanied the





party in his royal sampan, his junior wives paddling while his number-one wife shared his sunshade, fed him comforting nips of toddy, and rolled his cigarettes. Smith, Arnold, and Nelson rode in considerably less splendor on the floats of the *Chicago*.

Meanwhile, a Navy destroyer was steaming at full speed from Saigon to Tourane with a new engine. From Tourane, the 840-pound *Liberty* was trucked over the mountains by night to Hué. For Ogden, who accompanied the Vietnamese driver, that was one of the most hair-raising experiences of the entire flight. But seventy-two hours after the *Chicago* had been forced down, it was ready to fly again.

The Cruisers continued to Saigon, then turned northwestward for Bangkok, Thailand, and Rangoon, Burma. The heat was oppressive, but skies clear. In Rangoon, another delay occurred when an Irrawaddy riverboat smashed into the lower-left wing of the *New Orleans* during the night. It was June 25 before

the Cruisers took off for Akyab, Burma, and Calcutta, India, along the Bay of Bengal. Most of that leg was flown in a drenching rain.

In Calcutta, where Smith stepped into a hole, fell, and broke a rib, the plane's floats were replaced with wheels after a lengthy hassle with local authorities involving use of the Maidan—a famous park in the heart of the city—for this purpose. Working into the night, with an interested if uncomprehending audience—including ash-covered fakirs and indolent sacred cows—the crews completed the transformation and found time to put in a brief appearance at a banquet given in their honor by the local American Legion Post. The flyers apparently missed the banquet's mellowest hours, because, early the next morning on the way to their planes, they met their hosts returning unsteadily from the festivities.

#### Karachi on a Prayer

That was on Tuesday, July 1, and they left Calcutta without further delay. They made good time across India, despite sandstorms, 120-degree heat, and a newspaperman "stowaway" in the *Boston's* rear cockpit with Ogden until, just seventy-five miles short of Karachi, in what is now Pakistan, the *New Orleans's* engine began to break up. Pieces of hot metal belched from its exhaust stacks and others exploded through the cowling. One jagged bit ricocheted off a center-section strut and whined close by Nelson's head. Clouds of vaporized oil quickly bathed the plane and its occupants. But somehow the engine continued to run, though at reduced power.

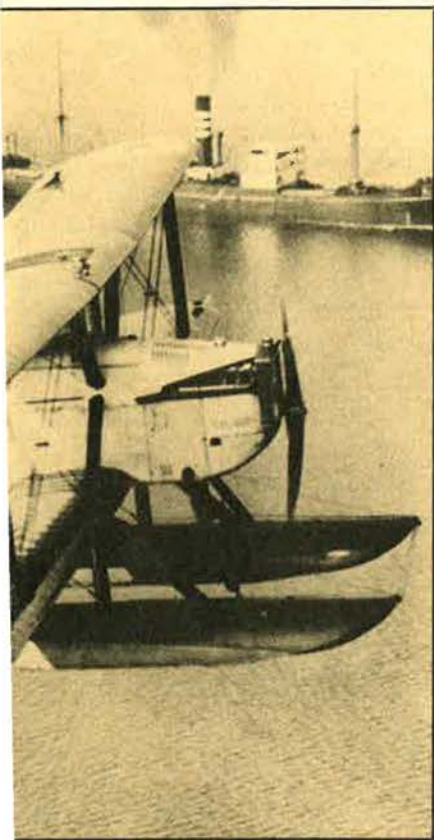
There was no place to land. The desert floor below was etched with huge crevices that would instantly swallow the Cruiser's landing gear. There was nothing to do but back off the throttle, pray that the damaged engine would hold together, and try to make Karachi. With engine turning at 1,100 rpm, smoking and shaking, the *New Orleans*, treading the edge of a stall, continued. Incredibly, seemingly by will alone, Nelson flew his Cruiser safely into Karachi.

Once more, all three planes re-

ceived new engines and, on July 7, left Karachi bound across Iran for Baghdad in Iraq. From there, they fought sandstorms over the Syrian Desert, picked their way through the Taurus Mountains, and landed at Constantinople (now Istanbul, Turkey) on July 11. Five days later, the three planes reached London, after stopping at Bucharest, Budapest, Vienna, Strasbourg, and Paris. Their flight across Europe had been uneventful except for rain and murky skies between Vienna and Strasbourg.

#### International Heroes

The six airmen were international heroes, and the acclaim heaped upon them grew with each passing mile. But this compounded their difficulties because, at every stop, elaborate welcoming ceremonies, banquets, and endless speechmaking slowed them down and robbed them of badly needed rest. At a formal dinner in London, Wade, seated between Lord Somebody and Lady



On over-water legs, floats replaced the Cruisers' wheels. Here, *Chicago* nears Japan.



The flyers were international heroes by the time they reached Paris, where Lowell Smith talked with Air Ministry officials.



Someone-or-other, with a fork in one hand and a knife in the other, fell fast asleep and snored gently.

The next day, the planes were ferried to the Blackburn Company's field at Brough Head, in the Orkney Islands off the coast of Scotland, for new engines and reinstallation of floats in preparation for the Atlantic crossing. Lacking by far the range to attempt a nonstop crossing, the Cruisers would land at Iceland and Greenland for fuel—though no airplane had ever before flown to either place.

But in contrast to the beginning, when few except Air Service people believed the flight had a chance for success, the flyers, after dramatically circumnavigating two-thirds of the globe, found the prophets of doom silent, and all Washington officialdom rallying to their support. The Navy, which had been willing to help from the start, ordered its Atlantic Fleet to string out along the Cruisers' course at 100-mile intervals, and American ships rushed fuel and oil to Iceland and Greenland.

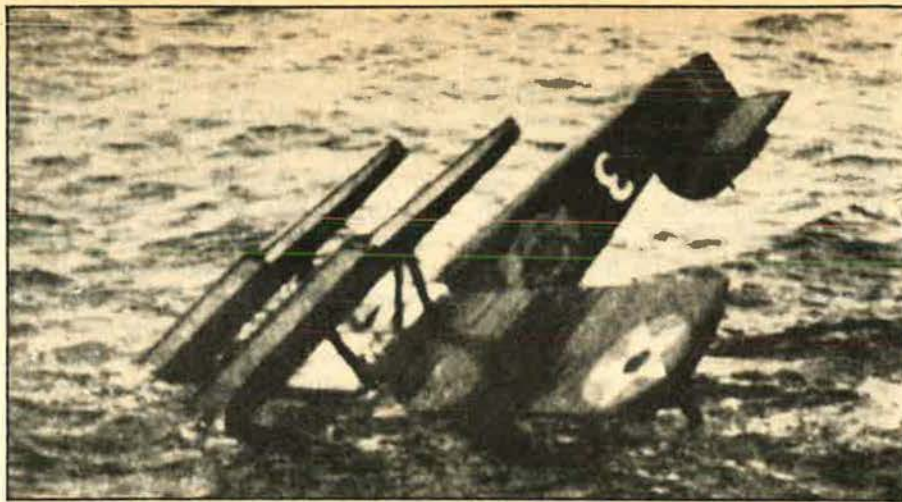
The takeoff was delayed two weeks by these preparations and by heavy fog. Then, on August 2, the weather cleared, and the three planes took to the air from the Orkneys.

### Ten Feet to Spare

The Cruisers had been airborne less than ten minutes when they ran into dense fog extending right down to the ocean's surface (weather forecasting in 1924 was less than an exact science). Attempting to climb through the soup (Nelson later described visibility as "about six inches"), the *New Orleans* was caught in the propwash of one of its sister ships and thrown out of control.

Studying his trio of flight instruments, Nelson decided (correctly) that they were in a high-speed spiral. He closed the throttle, braced himself against his seat back, and centered his primitive turn-needle with the rudder bar.

Gingerly, he came back on the wheel and had just returned to level flight when the *New Orleans* shot through a thin spot in the fog to give him a fleeting glimpse of the



The *Boston*, forced down over the North Atlantic, sinks after the Navy had rescued Wade and Ogden.

water ten or fifteen feet below. Then, he and Harding felt their way upward again, broke out on top, and, seeing no sign of the other two planes, resumed a compass course for Iceland.

In the meantime, the crews of the *Boston* and *Chicago*, alarmed when the *New Orleans* failed to emerge on top with them, turned back to the Orkneys to alert Navy rescuers. They spent anxious hours at the little wireless shack until, shortly after 6:00 o'clock that evening, a message came through from Iceland saying that the *New Orleans* had arrived there safely.

The *Boston* and *Chicago* started again at 9:30 the following morning. The weather was good and, at an altitude of 500 feet, offered a ten-mph tailwind as a bonus. But at 11:00 o'clock, far out over the North Atlantic, the *Boston* suddenly fell away from her position off the *Chicago's* right wing.

### Dead-Stick Landing

Smith followed her in a diving turn and saw oil streaking the *Boston's* fuselage as her propeller stopped stiffly and Wade dead-sticked her onto the choppy ocean. Smith and Arnold circled to land alongside, but were frantically waved off by their companions below who feared the *Chicago* would not be as fortunate coming down onto the rough sea.

Smith pulled up, banked steeply away, then bent his throttle forward, racing for the nearest Navy vessel.

It was the *Billingsby*, an hour's flying time away, near the Faroe Islands. Smith found the ship without difficulty, and, as the *Chicago* zoomed over it at funnel-height, Arnold dropped a message giving the *Boston's* position, time of landing, and estimated wind and sea conditions. Seconds later, smoke poured from the ship's stacks as she leaped to maximum speed and set course for the helpless *Boston*.

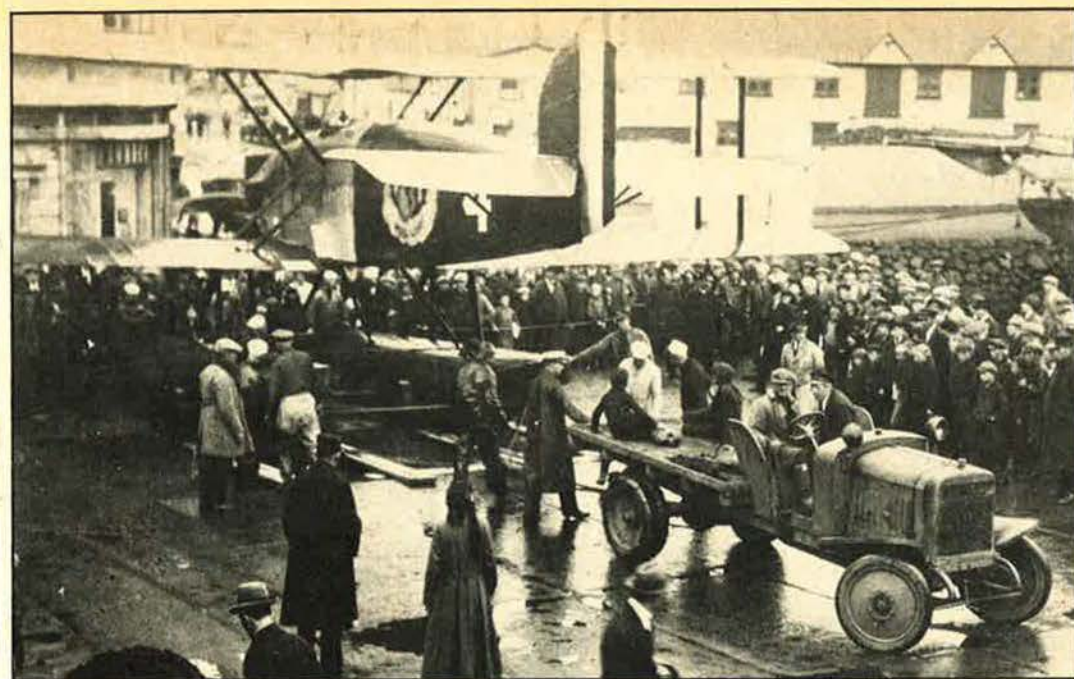
Wade and Ogden were picked up at 4:00 that afternoon, but their Cruiser sank while under tow to the nearest island.

Smith and Arnold in the *Chicago* continued to Iceland where they joined Nelson and Harding of the *New Orleans*. The two remaining planes were forced to wait there almost two weeks while ships battled ice and storms trying to land fuel for them on the east coast of Greenland. (That these fuel caches had not previously been set up was mute testimony that no one really expected the flyers to get that far.)

Finally, unwilling to accept further delay, Smith decided to fly directly to Frederiksdal, on the southwestern tip of Greenland, 850 miles away, skipping the fuel stop planned for Greenland's east coast. It was a near-fatal decision.

Although the two planes had perfect weather for the first 500 miles, the final 350 miles were a nightmare. Fog, extending from the surface to above the Cruisers' 11,000-foot ceiling, forced them to the deck—where visibility averaged about 150 feet. At ninety mph, this





The New Orleans arrived at Reykjavik, Iceland, after narrowly escaping disaster in flight from the Orkney Islands.

left almost no reaction time in which to dodge a succession of icebergs.

The two-plane formation brushed wings with disaster time after time as great white walls exploded at them through the mist. Each time, they banked violently in opposite directions while a mountain of ice flashed between them.

Sometimes, there simply wasn't enough warning. Just jerk the wheel back and hope. Then they would feel their way back down through the fog, straining for a glimpse of the water, praying that another iceberg did not lie in their path.

Somewhere in that milky hell they became separated, but both planes found the harbor at Frederiksdal after eleven hours in the air. The four flyers were exhausted, wet, and cold. Still, they managed an impromptu victory dance. Just 560 miles across Davis Strait lay North America.

### Tumultuous Homecoming

That "easy" hop across Davis Strait offered its share of trouble, however. Two hundred miles from the coast of Labrador, both of the *Chicago's* fuel pumps failed. Les Arnold stripped to the waist and for more than two hours kept the plane in the air by muscle power, working the *Chicago's* emergency wobble pump by hand. He was near collapse when they landed.

From Labrador, the 1,300-mile

flight southward to Boston held only routine dangers for the *Chicago* and *New Orleans*—near collision with a steamship in fog over Belle Isle Strait entering the Gulf of St. Lawrence; a forced landing at Casco Bay in Maine. At last, joined by Wade and Ogden flying the backup Cruiser, which was christened *Boston II*, the world flyers touched down in Boston Harbor to a tumultuous homecoming.

After replacing their floats with wheels once again, the flyers took off for their return to the official starting point at Seattle. This final portion of the flight was stretched

to 4,500 miles to include stops in seventeen principal cities, including Washington, D. C. The stops were ordered by General Mitchell, who, after all, had not lost sight of the reason the flight had been attempted in the first place. It was accomplished without further airborne crises—although Smith did lead the Cruisers through the Alleghenies in weather so foul that the five-plane official escort refused to follow.

The first world flight officially ended on September 28, 1924, when the big Douglas biplanes touched down at Sand Point Field near Seattle. In flying time, it had required the equivalent of fifteen days, three hours, and seven minutes, at an average speed of seventy-two and a half mph. But, of course, the true measure of the deed could never be reckoned in such figures. Courage and resourcefulness and dedication to mission have little to do with average airspeeds. ■



A proud nation welcomed its heroes back. This editorial cartoon appeared in the *New York American* on September 6, 1924. It was titled "Return of the Eagles' Brood."

The author, Joe Christy, has been a pilot since 1937 and was a racing driver, teacher, and airport operator before turning to aerospace writing in 1963. In addition to many articles, he has written several books, including *Summon the Stars*, which won an Aviation/Space Writers award in 1970. He now lives in Lawton, Okla.



*The only surviving pilot of the 1924 round-the-world flight tells how it all started, emphasizes that the Army Air Service was supported wholeheartedly by the Navy and other government agencies, and points to some long-term results of . . .*

# THE WORLD FLIGHT: AN ALL-AMERICAN VENTURE

BY MAJ. GEN. LEIGH WADE, USAF (RET.)

**C**AN YOU believe that fifty years ago in the Administration of President Calvin Coolidge, the Army and Navy were the only services having aircraft? Both the Marines and Coast Guard were branches of the Navy, and the Coast Guard had no planes whatsoever. After World War I, a host of deficiencies showed up in aviation. Many young men who had served as World War I aviators were well aware of this and became greatly concerned over the future development and

utilization of aircraft potential. "Circumnavigation" became not only a new word but also a prime topic of "barracks flying" conversation.

Maj. Gen. Mason M. Patrick, then Chief of the Army Air Service, became imbued with the challenging idea of a round-the-world flight and picked up the ball for Army in the nick of time to win out over Navy, which was already working for permission to essay such an intriguing and glamorous project. General



*At the christening of his plane, Lieutenant Wade receives a flag for the Boston.*



*During a 1964 ceremony at Bolling AFB, D. C., Lowell Thomas, author of a book on the world flight, interviews Henry Ogden and retired Maj. Gen. Leigh Wade, center, with Chicago as a backdrop.*



Patrick had a fervent air-minded ally in his able assistant, Brig. Gen. William (Billy) Mitchell, especially when the value of high-altitude bombing was demonstrated over Cape Hatteras.

With the world flight authorized, a well-planned outline was undertaken by a select group under the direction of Capt. St. Clair Streett. The first consideration was the selection of the aeroplane, and it was decided to convert the Navy's torpedo plane into the Douglas World Cruiser biplane capable of changing from pontoons to wheels or vice versa, for landing, whenever necessary. The World War I Liberty engine was the logical choice for the powerplant, having undergone extensive postwar changes and improvements.

The first modified torpedo plane was flight-tested at the Douglas factory in Santa Monica, Calif., and again at McCook Field, Dayton, Ohio, base of the experimental division of the Army Air Service. Final steps were selecting the routes and the pilots. The plan called for four aeroplanes to commence the flight. Pilots and alternates were picked and ordered to fly to Langley Field, Va., in early December 1923, to become familiar with pontoon flying. Navy's good sportsmanship was shown when Commander Ramsey was made available to assist at Langley Field. He also supplied smokebombs for checking the drift over water.

Naming the planes was happily solved by giving recognition to four cardinal points in the USA, namely: Chicago (north), New Orleans (south), Boston (east), and Seattle (west). At Langley Field, each of the pilots—Flight Commander Maj. Frederick L. Martin, Lts. Leigh Wade, Lowell Smith, Jr., and Erik H. Nelson—was permitted to choose his second crew member, mainly on the basis of mechanical maintenance ability. Single men were selected for the flight, with the exception of Major Martin, because of the inherent dangers involved and the wish to avoid leaving any widows behind in the event of tragedy.

The prospective world flyers traveled to California by railroad as no air transportation was available in those days. They reached Los Angeles in early February 1924. Major Martin was first to flight-test his plane, the *Seattle*. Next, the group flew to San Diego, where the Army then had the present Naval air facility, for the purpose of "swinging their compasses," *i.e.*, setting the compass on flying level and running the motor to note the effect on the compass.

Second plane on the line, by the way, was the *Chicago* for Lieutenant Smith, third the *Boston* for Lieutenant Wade, and lastly the *New Orleans* for Lieutenant Nelson.

The hop-off was from Clover Field, Santa Monica, on March 17, 1924, by chance St. Patrick's Day, and continued to Sacramento, Eugene, Ore., and, finally, Seattle, where the planes were thoroughly checked and their wheels replaced by pontoons. Boeing Aircraft assisted us materially. On April 5, the flight took off from Lake Washington for Prince Rupert, British Columbia. Minor engine difficulties were encountered here and there, and we were hit by a severe storm at Sitka, Alaska. As a flight motto, we agreed on "All for one and one for all," which seemed an admirable choice.

International attention focused on our flight became

evident to us on our arrival at Tokyo, Japan, some ten days after the enactment of the Exclusion Act. We learned that the lavish hospitality planned by the Japanese included twenty-eight days of receptions and fetes, a period necessarily cut to three days. Dignitaries compromised by jointly hosting luncheons, breakfasts, teas, and dinners.

Assistance from the US Navy, Coast Guard, and the Bureau of Fisheries throughout the Alaska phase of the flight was substantial. The Navy's role in all over-water flights demonstrated the all-American nature of the world flight from start to finish. Cooperation of the State Department and Department of Agriculture's Weather Bureau also was very helpful.

The all-American appeal of the world flight and pride in the accomplishment of an aviation "first" for Uncle Sam impressed us especially on our arrival back in the States. Press coverage at the start of the flight seemed normal, but public interest steadily mounted as it progressed. Souvenir hunters were overzealous. At Tucson, Ariz., Lieutenant Nelson sent his boots out to be shined, and they were returned without laces. Emblems and buttons were snatched off our hats. I recall an elderly woman screaming, "I touched him," as she grabbed Lieutenant Arnold.

At Mitchell Field, our flight to Washington, D. C., was delayed, and we were late for our scheduled 10:00 a.m. arrival at Bolling Field, where President Coolidge and his entire Cabinet awaited us. The story goes that Secretary of State Charles Evans Hughes asked to be excused to keep his diplomatic appointments, to which President Coolidge responded, "They'll wait."

The immediate interest generated by the flight in terms of the potential for commercial aviation was exemplified by a group of businessmen who met in Chicago to question Lieutenant Arnold and me. This group ultimately formed the National Airline, which took over carrying the mail transcontinentally. One has but to compare today's commercial and military aircraft to what existed in 1924 to realize the stupendous growth of aviation in all its facets during a half-century, especially in the United States, with the rest of the world looking to the US for further development and achievements.

I find, in reviewing my fifty-seven years in aviation, that the progress and accomplishments throughout the world are amazing.

The future security of the United States rests in the strength of its airpower. ■

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*In December 1917, Maj. Gen. Leigh Wade earned his wings and a commission in the Aeronautical Division, US Signal Corps. He remained on active duty until 1926, when he joined Consolidated Aircraft as a sales executive and chief test pilot. Recalled to active duty in 1941, he served in command and staff assignments, as Air Attaché in Greece and Brazil, and as Chief of the Air Section of the Joint Brazil-US Military Commission. General Wade retired in 1955. He was awarded the Distinguished Service Medal and many foreign decorations for his part in the round-the-world flight. General and Mrs. Wade now live in Washington, D. C.*



## **INTERVIEW WITH DR. JAMES C. FLETCHER**

**This nation's remaining manned space program, the National Space Transportation System, better known as the Space Shuttle, is meeting the schedule and cost milestones set by NASA and will undertake its first orbital flight in the 1978-79 time period. The agency's Administrator predicts, in an exclusive interview, that the Air Force will fly all DoD Shuttle missions while NASA will be responsible for the others . . .**

# **THE US SPACE PROGRAM MOVES TOWARD NEW FRONTIERS**

**BY EDGAR ULSAMER**

**SENIOR EDITOR, AIR FORCE MAGAZINE**

**A** "LOGICAL step" in future US-Soviet technological cooperation would be the use of the US Space Shuttle as a means of transportation to and from the reusable large space station the Soviets "seemingly are determined to go ahead with," the Administrator of the National Aeronautics and Space Administration, Dr. James C. Fletcher, told AIR FORCE Magazine.

Pointing out that the US reciprocates Soviet eagerness to continue the cooperation in space beyond next year's Apollo-Soyuz Test Project (ASTP), Dr. Fletcher suggested that "while it might be somewhat early to talk about rendezvousing with a space station the Soviets haven't flown yet, it is clear that they are interested in making permanent arrangements about cooperation with the United States in space. We want this kind of cooperation, too. The Space Shuttle represents the logical means for such extended collaboration, with the Soviet Union as well as other nations."

On the basis of information available to US space experts, the Soviets "definitely plan to develop Salyut II," a larger version of the existing Salyut space station that the Soviets already have flown, and eventually might use





*NASA Administrator Dr. James C. Fletcher predicts the Soviets might participate in flights of the US Space Shuttle.*

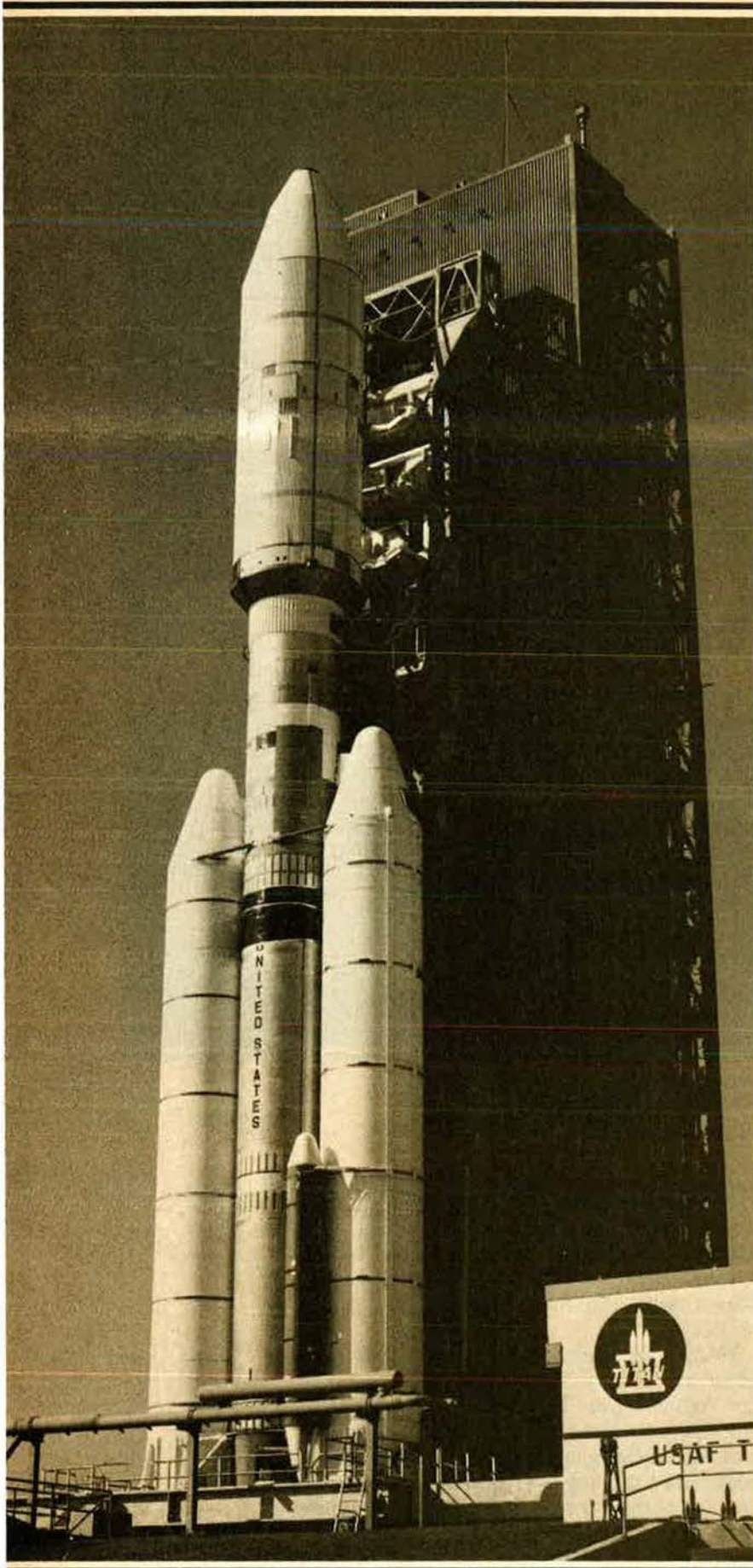
such a facility as "a stepping-stone for manned moon landings," Dr. Fletcher said. He added that "the Soviets, neither explicitly nor implicitly, have told US space officials that this is their plan, but all the signs point that way. At this time, we don't believe, however, that they have decided on a firm timetable. Presumably, this will be influenced by the obvious first step, the deployment of a large, reusable space station."

(NASA's assumptions about Soviet space plans are in accord with oblique but revealing comments made to this reporter by Soviet space officials last summer at Star City near Moscow, which hinted at the development of an eighteen-man space station and the desirability of manned moon landings toward the end of this century.)

Dr. Fletcher ruled out the possibility of the United States returning to the moon with manned missions in the foreseeable future, "simply because the mood of the country doesn't make this the proper time for such a project."

NASA, Dr. Fletcher disclosed, is now confident about Soviet safety measures regarding the Apollo-Soyuz Test Project. "Our people are now convinced that the Russians are in pretty good shape as a result of corrective steps taken since the Soyuz-11 accident [which cost the lives of three cosmonauts putatively because of a faulty hatch-closing mechanism]. Apparently they felt the need to demonstrate the fact that they had solved that problem, and quite possibly that was the reason for the two Soyuz flights [in 1973]."





*Titan IIIE/Centaur, NASA's newest launch vehicle, is the key to US exploration of the planet Mars in 1975, involving a Viking spacecraft.*

ASTP, an outgrowth of the May 24, 1972, US-USSR agreement concerning Cooperation in the Exploration and Use of Outer Space, is scheduled for July 15, 1975. The tentative flight plan calls for the Soviet Union to launch Soyuz and its two cosmonauts into a 167-mile orbit above the earth. About seven and a half hours later, a Saturn IB rocket will launch the US Apollo spacecraft, consisting of a Command Module housing the three-man crew, combined with the Service Module, which provides electric power and propulsion, into a 124-mile orbit.

Both the Soviet and the US spacecraft will have comparable inclinations of their orbits relative to the equator. After separating Apollo from Saturn, the astronauts will turn Apollo around and dock its forward end with a special docking module, which will also serve as an airlock and transfer corridor between Apollo and Soyuz. Next, the astronauts will maneuver Apollo into docking range with Soyuz and then link up the two spacecraft.

Apollo and Soyuz will remain docked for about two days while the cosmonauts and astronauts visit each others' spacecraft and perform routine work. The spacecraft will then separate and return to earth. The principal purpose of the \$250 million ASTP effort is to demonstrate an international space-rescue capability. Ancillary benefits are promotion of US-USSR space cooperation and to bridge the hiatus in US manned space activities that otherwise would have extended from the end of Skylab III, early this year, until the first flight of the Space Shuttle in 1979.

#### **NASA's Space Shuttle: On Schedule and at Cost**

NASA's central effort in this decade, the National Space Transportation System, better known as the Space Shuttle, is, according to Dr. Fletcher, "pretty much on target so far as timetable and costs are concerned. We expect the first horizontal flight of the Orbiter [the system's reusable upper stage that flies back to earth in airplane fashion and is roughly the size of a Boeing 737 or McDonnell Douglas DC-9 jetliner] in 1977 and the first manned orbital flight of the system in the 1978-79 time period. All signs suggest that we will be able to hold the cost of the program to approximately \$5.15 billion, expressed in 1971 dollars."

The Space Shuttle will be launched vertically with the help of two solid rocket motor boosters that are dropped off, as is a large fuel tank, before the Orbiter flies into orbit. The fully flyable Orbiter will be able to remain in space up to thirty days and is operated by two



pilots and two flight engineers. The vehicle's maximum payload is 65,000 pounds. Its orbit is adjustable by use of the Orbital Maneuvering System, from a minimum altitude of about 100 miles to a maximum of 200 miles, depending on payload and launch conditions.

Dr. Fletcher conceded, however, that the recent protest by Lockheed Corp. contesting the propriety of NASA's awarding a \$106 million contract for the development of the solid rocket booster to its competitor, Thiokol, could result in a delay of the Space Shuttle program. "While we expect a resolution of this dispute within a month or so, failure to settle it within a reasonable period could result in a slowdown of the entire program," the NASA chief said.

According to recent studies by NASA and its industrial contractors, it is likely that the Shuttle will be able to exceed the minimum reusability figure somewhat: "In other words, we expect to fly each Orbiter in excess of the one hundred times we originally specified and the booster in excess of the twenty times we originally envisioned," Dr. Fletcher said.

A total of at least 700 flights is forecast by NASA over a twelve-year period, starting with the Shuttle's entry into operational service in 1978.

Because there is mounting evidence that the Shuttle's potential users—NASA, the Department of Defense, other agencies of the government, as well as foreign and commercial interests—plan on a higher use rate than originally forecast, it may become necessary to increase the number of Space Shuttles from the presently programmed five systems, Dr. Fletcher disclosed. He explained that NASA now plans on three systems for the program's R&D phase and two additional operational ones.

"We might have to increase this number, however, as people become more interested in the Shuttle and come up with new, unforeseen requirements. We have tried to find ways to cut the turnaround time from the presently projected fourteen days in order to increase the utilization rate, but it appears that this won't be possible because two weeks is already quite tight. As a result, we must be prepared—although, of course, no decision of this type has been made as yet—to order additional orbiters later on during the life of the program," Dr. Fletcher told AIR FORCE Magazine.

### USAF to Operate Its Own Shuttle?

While some NASA officials had originally considered the possibility of turning the entire Shuttle operation over to the Air Force once the system had safely passed the final tests of the R&D phase, Dr. Fletcher said that "at the moment it appears more likely that the Air Force will fly [the DoD] missions and NASA will fly all the others. A remote alternative is that the Air Force might be assigned

all missions to be flown from the Western Test Range [at Vandenberg AFB, Calif., involving polar orbits], and we would fly all missions from the Eastern Test Range [at Cape Kennedy, involving east-west orbits]." No formal decision on which agency, NASA or the Air Force, will operate what Shuttle flights has been made as yet, according to Dr. Fletcher.

The Department of the Air Force, acting as DoD's executive agency, and NASA recently reached an important accord concerning the so-called Space Tug (*see the January '74 issue interview with Secretary McLucas, p. 38*). "We have reached an interim agreement with the Department of Defense, which stipulates that the Air Force will produce the initial upper stage of the Shuttle," Dr. Fletcher said. Such a system, at times referred to as the Shuttle's third stage, is necessary to reach geosynchronous or high-energy orbits. Many military, communications, and other special payloads require a fixed position relative to specific geographic areas of the earth. That can be attained only through geosynchronous orbits at 22,300-mile altitudes.

"It is not yet clear what the makeup of this upper stage will be other than that it will involve an existing system such as Centaur, Agena, or the Transtage. Cost studies are going on right now, and we expect that within less than twelve months a final selection can be made pinpointing which of these systems is best suited for the role of the interim Space Tug," according to the NASA chief.

These trade-off studies by DoD and NASA are based on "soft performance requirements, because we are more interested in attaining the lowest possible development costs and reducing the cost per flight. The interim tug might not have to last beyond 1983, and we are therefore willing to treat the payload requirements quite flexibly and with a great deal of 'give.' While we have set a target figure of 8,000 pounds as the tug's payload for the decade of the 1980s, this value is negotiable so far as the initial tug is concerned," according to Dr. Fletcher.

### The Full-up Space Tug

Sometime in 1977, according to present timetables, the Air Force and NASA will decide on the precise nature and performance requirements of a fully reusable, or "full-up," Space Tug. The interim vehicle, by contrast, will be a one-way system, meaning it will only be able to deliver payloads into high-altitude orbits, but will be unable to retrieve payloads from geosynchronous orbit. "We don't know





*Dr. Fletcher, shown here during a recent space launch with his deputy, Dr. George M. Low, believes that USAF will operate its own Space Shuttle.*

who is going to fund that development. It would seem likely that the Air Force, having agreed to take on the initial upper stage, will not be a candidate for the follow-on venture. This is, however, not certain and will have to be negotiated," according to Dr. Fletcher.

The full-up tug will differ from the initial vehicle in that it will be able to deliver payloads to synchronous orbit as well as retrieve them. The ultimate Space Tug will return to the Space Shuttle after each mission and return to earth aboard the latter for refurbishing. The vehicle, Dr. Fletcher said, will be more limited in reusability than the Shuttle itself, with the envisioned life cycle of the tug consisting of about fifteen to twenty flights. Although the Air Force and NASA would like a total payload capability of 8,000 pounds for the permanent tug—which is harder to attain in a two-way vehicle than in a one-way system—"We are not talking about a hard figure," Dr. Fletcher explained. About fifty percent of all military payloads planned for the 1980s involve geosynchronous orbits. By contrast, the percentage of NASA's payloads that are expected to require use of the tug is substantially less, ranging between twenty-five and thirty-five percent, Dr. Fletcher said.

#### **Skylab, a Spectacular Success**

At this time, when the third and final flight of Skylab is better than halfway through its mission, NASA views "the Skylab program as a spectacular success, performing well beyond our wildest expectations," Dr. Fletcher told AIR FORCE Magazine. Overcoming a number of initial difficulties that threatened the basic habitability of the large space station, the Skylab crews "not only were able to perform the necessary repairs, but more than made up for the time lost initially," Dr. Fletcher said.

While full assessment and validation of the information produced by Skylab will require months and perhaps years, it is already clear, according to Dr. Fletcher, that the information obtained from the Apollo Telescope Mount, the man-operated solar observatory, "is of pervasive scientific importance." Among the discoveries made by Skylab is the fact that there are areas of the sun that emit no radiation, especially no high-energy radiation. Man's understanding of the nature and anomalies of the sun's magnetic field has also been boosted considerably by Skylab's solar research, which is unencumbered by the blurring and filtering effects of the earth's atmosphere.

"We have learned a great deal about the interaction between plasma [the ionized gaseous state of matter induced by extreme heating] and the sun's magnetic field, as well as the concomitant effects on the sun's high-energy emissions, which, in turn, influence the



circulation in the oceans, melting of high latitude ice, and phenomena affecting agriculture.

### **NASA's Plans for Unmanned Space Exploration**

The scientifically productive flight by an unmanned spacecraft, Pioneer-10, past the planet Jupiter on December 3, 1973, Dr. Fletcher said, has stirred up considerable interest in planetary exploration.

"Jupiter, it turns out, is quite a bit different from what scientists thought it to be. In fact, it is almost like a second sun, and if it were just a little bigger it would be one. This is one of the reasons why we plan to concentrate, in the 1980s, on the exploration of the outer planets as one of the key areas of space science.

"In addition, in the years ahead, our unmanned spacecraft will attempt to answer important questions about Venus, but here the Soviets are clearly considerably ahead of us," Dr. Fletcher said. He predicted that in the area of the so-called applications satellites, the emphasis will be on ocean research—especially plankton movement—anomalies in ocean currents and their effect on the weather, and the study of global ocean conditions, for the benefit of the national economy.

### **NASA's Aeronautical Programs**

One of NASA's most prominent efforts in the aeronautical field, Dr. Fletcher told AIR FORCE Magazine, is the quest for new fuels, which might reduce US dependence on foreign supplies. "We are looking at such potential aircraft fuels as hydrogen as well as derivatives from coal and coal shale, both of which are in abundant supply in this country. It is, of course, too early to make definite forecasts about the feasibility of these approaches," he explained.

While NASA has probed the potential of nuclear-powered aircraft for commercial aviation, "we don't think the time is ripe yet for this approach. We would pursue nuclear propulsion work if the Air Force requested us to do so. We have not received such a request as yet," Dr. Fletcher said.

Aeronautical research conducted by NASA in concert with the Air Force involves STOL and V/STOL aircraft as well as the supercritical wing program. The latter uses a sophisticated airfoil shape to improve aerodynamics. NASA flight-tested the supercritical wing on an F-8 aircraft and showed that the test aircraft can fly about fifteen percent further on the same amount of fuel than the conventional F-8. Dr. Fletcher believes that the supercritical wing "may very well be used by operational military and commercial aircraft within the next three years. The technology has been

earth's ionosphere," according to Dr. Fletcher. It is too early to make any predictions about whether or not this added knowledge about the sun's high-energy phenomena will contribute any clues regarding the replication on earth of the sun's sustained nuclear-fusion process, he added. There is, however, considerable evidence that Skylab's solar research will contribute to a better understanding of the effect's of solar phenomena on the earth's weather.

### **Long-Duration Manned Space Missions Appear Feasible**

Another set of findings of the Skylab program that may have significant potential fallout, from the standpoint of national defense, involves man's seeming ability to withstand the peculiarities and rigors of space for prolonged periods. One of the key objectives set for Skylab by NASA was to establish, in a precise scientific and medical sense, whether man can be "certified for prolonged working assignments in space," without such cumbersome aids as artificial gravity.

"Because man was able to stay in space for fifty-nine days [possibly even longer in the case of the current Skylab III mission], I don't want to say that we now know for certain that he can endure for a year or more without impairment or after-effects. Nevertheless, the potential for long-duration missions is certainly greatly enhanced. As we look at the physiological processes that occurred during the first two Skylab missions, it appears that the effects of space leveled out about halfway through the mission and that man reaches sort of a plateau somewhere between thirty-five and forty-five days in space, beyond which no further deterioration occurs. By this, I mean the red blood cell count, heart function, muscle deterioration, loss of body fluids, and hormone activities [all of which are degraded as man is first exposed to weightlessness]," Dr. Fletcher disclosed.

"The second crew surprised us especially, because they experienced no real difficulties upon returning to earth except that their endurance in running was reduced because of weakened calf muscles. While we haven't analyzed all the data, it appears that future long-duration manned space missions will not require artificial gravity [induced by steady rotation of the spacecraft, which would introduce a host of problems] and that man can stay in space a long time without suffering irreversible physical impairment." Other valuable information provided by Skylab and its crews, according to Dr. Fletcher, covers water



proved out and is ready for application. It permits significant drops in direct operating costs by boosting cruise speeds 100 to 150 miles per hour, with an upper limit of about Mach 0.98."

Another NASA project conducted jointly with the Air Force involves both powered and unpowered lifting-body research. "While neither agency has any specific application in mind for these vehicles, they show great potential for an advanced Space Shuttle or an aerospace plane, a craft that can operate both in the atmosphere and in space," according to Dr. Fletcher. Funding constraints hold NASA's work in the area of hypersonic flight and power sources associated with that speed regime to "paper studies. These efforts are taking a back seat to our Advanced Supersonic Technology program, which concentrates on improvements in SST economics and associated environmental issues. We are concentrating on improved variable-geometry engines and sophisticated aerodynamic shapes for the benefit of both commercial aviation and the Air Force," Dr. Fletcher said.

#### **A National Approach to Aeronautical Test Facilities**

Both DoD and NASA Aeronautical Test Facilities are being debilitated by aging and obsolescence, especially so far as instrumentation is concerned. "The Department of Defense and its component agencies, as well as NASA, have agreed that we need a coordinated approach to the problem. We are working on a program of this type right now. Our facilities are getting outmoded rapidly. Some are wearing out, and others lack modern instrumenta-

tion. These facilities were quite good right after World War II when they were built, but, of course, they can't last forever. We are now in the process of working out who is going to build what new facilities.

"No doubt, the Air Force is going to do some of the work, we are doing other parts of the job, and the remainder may well be done jointly. We operate from the premise that each partner will concentrate on the areas for which he is best qualified," Dr. Fletcher told AIR FORCE Magazine (see also January '74 issue, p. 38).

#### **The New NASA Budget**

In order to sustain the level of effort planned by NASA for the coming year, the agency will require a budget of between \$3.2 and \$3.3 billion, according to Dr. Fletcher. This would be slightly higher than last year's request of approximately \$3.1 billion, which was "unusually low because it involved no new program starts." The NASA chief expressed the hope that the new budget would live up to the declared White House policy of maintaining steady budget levels as a requirement for orderly and cost-effective program management.

Dr. Fletcher predicted that if the agency's funding requests are met, "we will be able to maintain an employment level of about 100,000, so far as our contractors are concerned; that is, there won't be any more massive layoffs beyond those that are already programmed because of the termination of Skylab and as a result of already announced cutbacks in support contracts at our centers. We will be going down to a level of about 25,000 NASA employees, or more than 2,000 fewer than in Fiscal Year 1973." ■

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#### **FARE, PLEASE**

We were returning from a flight-safety seminar in Nashville and had landed in Charlottesville for fuel and a bite to eat. On the last leg of our flight to Westchester County Airport in New York, our new CAP Liaison Officer—a captain recently returned from Vietnam—climbed into the left seat to get some night time. The regular pilot, an IP, rode shotgun.

The checkpoints passed below—Washington, Baltimore, Philadelphia—and then in the distance appeared the million twinkling lights of New York.

Continuing north over the Hudson River, we flew past Yonkers. The captain came back on the throttles, called the tower, and was cleared for a straight-in approach and landing on Runway 34. But from long familiarity with the area, I knew he wasn't on an approach to the airport. With masterful self-control, I remained silent, waiting for the IP's comment. It wasn't long in coming.

"Captain," he announced earnestly, "if you intend to continue this approach, you'd better get out some money. In about two minutes we're going to be going through the toll booth at Tappan Zee Bridge."

—Contributed by Col. Fred E. Bamberger, Jr., USAFR (Ret.)

(AIR FORCE Magazine will pay \$10 for each anecdote accepted for publication.)



Ah, the joys—and terrors—of pilot training!  
In one hairy situation, with a safe landing  
very much in doubt, the trainee was  
overheard to exclaim soulfully:

# 'I'D RATHER STAY UP HERE'

BY CURTIS L. MESSEX

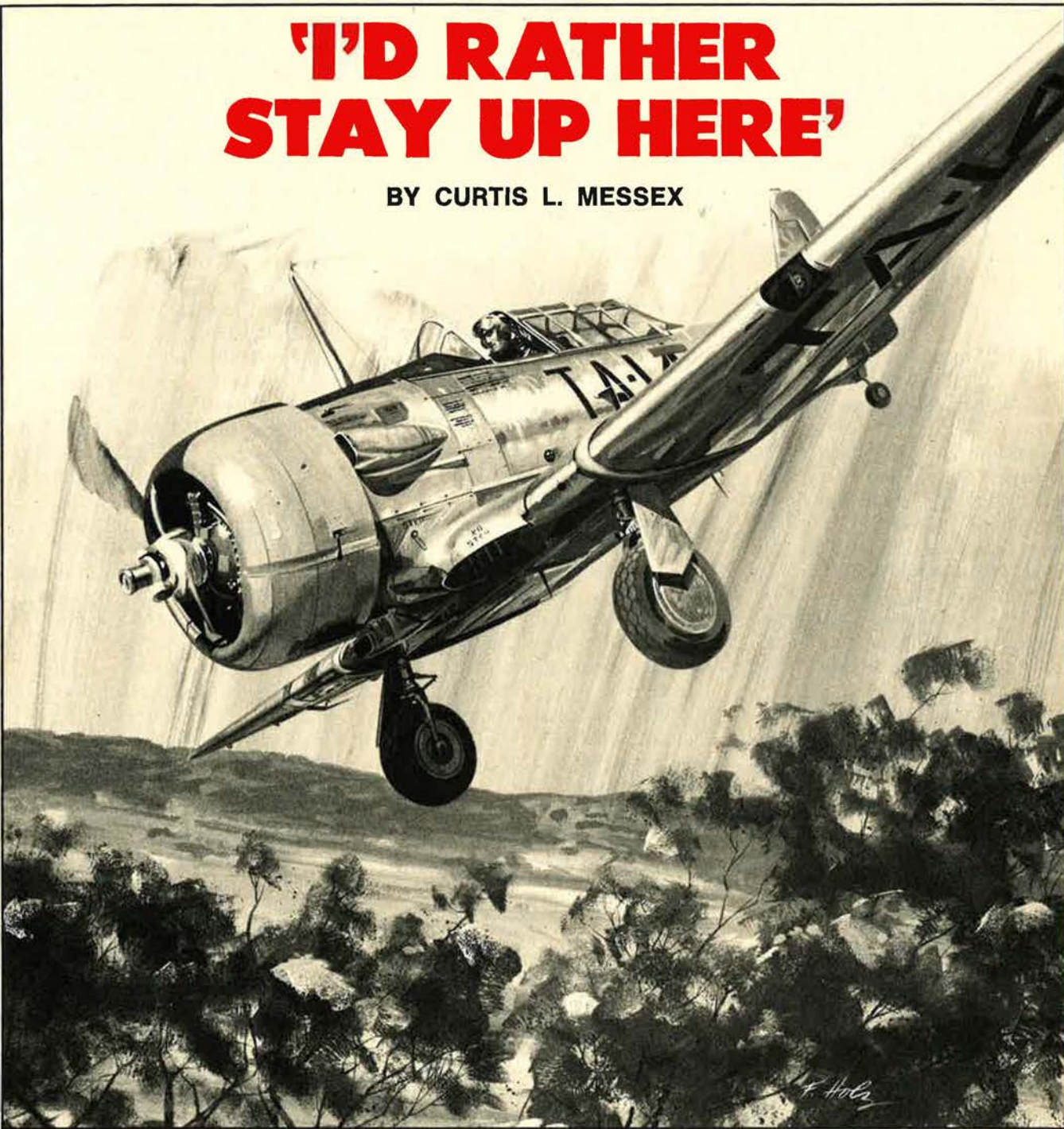


ILLUSTRATION BY FRED HOLZ

**N**OBODY actually came right out and said the results were important, but the cadets all understood. You either hit the spot on touchdown or the powers above would be taking a long, hard look at the progress reports.

The rules were simple. A 360-degree overhead approach, squared off a little for a proper base, and then final. Throttle to be pulled off at the pitch. One brief burst of power ("to clear the engine") allowed on base leg. Power off all



the rest of the way to a three-point touchdown at the line. Main gear past the line, tail wheel short of it for full points. Five landings for score. The time had come to demonstrate judgment, flying ability, and mastery of the cantankerous North American T-6 trainer—the famous “Texan.”

“Red Flight, get your plane assignments at the desk. You are cleared to taxi after 0730. Patty Control will be ready for landings at 0745 on Auxiliary Field No. 2.”

Mike turns back to his instructor as the Flight Commander concludes his briefing. Worry lines crease his forehead. The three-point landing part is OK, but consistently hitting a spot is something else if you can't use power.

The young captain on the other side of the table notes the troubled face and considers yesterday's practice. Mike is a source of some frustration. The young man can fly when he's relaxed, but worry and tension tie him in knots. Judging by the look on his face now, a score of seven out of a possible twenty-five would be outstanding.

“OK, Mister, it's the same thing we did yesterday, and you did fine. Just remember, if you mess up the pattern, you can use as much or as little throttle as you need to clear that engine and get things squared away. If you miss the mark a little, don't sweat it. A good three-pointer will keep your score up. Above all, if an approach looks bad, take it around. You don't get any points for crashing on the spot. Any questions?”

“No, Sir.”

“You have just enough time to get over to the auxiliary field when they open up. Get your landings in early, while the wind is calm. See you when you get back.”

Mike still radiates worry as he salutes, shoulders his parachute, and heads for the dispatch desk. The motherly woman at the counter recognizes him. “You'll have number 190 on Charley row. Call sign Red 21.” Her smile is wasted as Mike accepts the information and goes on, oblivious. She shakes her head as the door swings closed. “These boys! All they can think of is flying.”

Ten miles to the south a base fire truck snorts to a halt near the middle of a 500-acre pasture. A circling T-6 promptly swoops in to a grass-cushioned landing and parks nearby. As the propeller rocks to a stop, a lieutenant climbs from the back seat and walks out to add more white lime to the mark in the grass ahead of the airplane. The captain from the front seat produces extension cords for the microphone and headset, plugs them in, and climbs out to arrange seat cushions in front of the landing gear. Battery and radio are left on. Auxiliary No. 2 is open for business.

Five minutes later, the first cadet tentatively calls in for landing instructions. The day's work begins. At thirty-second intervals, aluminum-painted T-6s whisper past the nose of the parked airplane, engines chortling raggedly as wheels stretch to brush worn grass near the white marker. The officers work together to record scores, watch traffic, and handle the radio.

Mike's first landing is a good three-pointer, but well short of the line. His next, from a tighter pattern, is long even though he spikes it in wheels first. Sweat darkens his flying suit and beads on his forehead as he enters initial for his third try. Gas, undercarriage, mixture, prop. All set for landing.

A mile ahead, another T-6 flashes sunlight as it turns on its “pitch,” a thousand feet above the touchdown point. Mike cranes from side to side to see around the fat radial engine and line up over the runway, to see when to start his turn, to check airspeed, altitude, point.

Closer, closer, turn now! Pull the power off. Hold altitude while the airspeed bleeds off. Carburetor heat on. Trim. Check the point, airspeed, altitude, shallow the bank.

Time to turn base—no, not yet—do it now. Clear the engine. Flaps down. Hands are sweaty. Too far out again. Gotta get on the point this time.

Tense to the breaking point, he unconsciously eases the stick back more and more, trying to hold the airplane up by sheer will. The dying whisper of the slipstream makes no impression. Turn final. The nose comes around too quickly at the low airspeed, and he holds it back with top rudder, still focusing all attention on the point. The first warning burble slips by unnoticed. A moment later, the T-6 takes charge, snapping briskly over the top to the right, out of the uncoordinated left turn.

A brief, startling glimpse of harsh blue sky, then a million gray-green Texas acres whip past the nose as the trainer shudders into the start of a spin barely 700 feet above the mesquite. Mike sits frozen with confusion for a moment before jamming in full left rudder and popping the stick forward. The rotation stops halfway around, then—as Mike is a split-second slow releasing rudder pressure—reverses violently.

Mike catches up again, stops the rotation after another half turn, neutralizes the rudder in time. The mesquite is impossibly close. He slams in full throttle and hauls the stick all the way back as the world dissolves in a lashing blur of green. With engine bellowing, the Texan smashes into the deep brush in a nearly level attitude. Mike ducks below the cowling instinctively at the first sound of splintering wood . . . this is it . . . a jolting impact. . .

The lieutenant's cry, “He's going in!” seems to hang in the air until it is obliterated by the harsh bark of the fire truck exhaust. Ponderously the big machine wheels around and heads toward the disappearing trainer.

The captain's voice is almost steady as he keys his microphone. “All aircraft in the pattern, break traffic and hold clear of the field. Emergency in progress.”

A moment later, the fire truck slides to a stop as the T-6 reappears, nose high in a cloud of dust and broken branches, just above the tops of the fifteen-foot brush. For a long, heart-stopping moment, the full throttle roar of its engine sweeps across the field as the airplane settles back, dragging



its landing gear through clutching branches for a hundred yards, propeller throwing leaves and broken limbs high in the air, before increasing airspeed brings the lift needed to rise higher.

The captain reacts first with a soft-voiced, "I'll be damned! He bounced!" and keys his microphone again, "Red 21, do you read Patty Control?"

There is a long pause. The microphone is coming up again when a shaky voice answers simply, "Yes, Sir."

"Is your airplane flying all right?"

"Yes, Sir, I think so."

"OK. Don't pull the gear up. Check the engine gauges. Are they all right?"

There is another pause. "Yes, Sir. Everything seems OK." The T-6 is starting a ragged circle around the field.

"All right, Red 21. Leave your gear down and return to the main field. I'll tell them you're coming."

Within minutes, the stairs to the control tower at Goodfellow AFB rumble under the feet of hurrying officers. They cluster in a loose group looking to the south as they discover that Red 21 hasn't called in yet. Traffic is heavy. The pattern swarms with Texans and the radio is busy with calls to "Pinky," the controller of student traffic.

Impatient concern grows as Red 21 fails to check in. Twenty minutes after the crash-phones sounded, ten minutes after the airplane should have arrived, the first call goes out. Not until the third repetition does a quavery voice reply, "Pinky tower, this is Red 21, go ahead."

"Red 21, Pinky tower. What is your position?"

"Ahh . . . Pinky . . . this is Red 21. I'm over the field at 6,000 feet."

The men in the tower exchange baffled looks, and the base Safety Officer reaches for the microphone. "Red 21, this is Pinky tower. Is your aircraft operating all right?"

"Yes, Sir."

"Ah . . . Roger. You are cleared to enter traffic and land."

There is a pause. "Uh . . . Pinky . . . this is Red 21. I . . .

uh . . . I think I'd rather stay up here for a while."

The Safety Officer is raising the microphone again with a muttered, "What the hell?" when Mike's Flight Commander reaches for it. His voice is even and holds no rebuke as he presses the key.

"Red 21. This is your Flight Commander. As long as your airplane is flying OK, you stay up there until you're ready to come down. I'm going to send an instructor up to check you over. You just keep a wide, smooth circle going at 6,000 feet while he does it. Understand?"

"Yes, Sir." Mike sighs with relief. His hands are quivering, knees shaking. Somehow he keeps seeing those tearing branches, feeling that smashing impact again. The idea of landing is terrifying, the thought of getting down by parachute only slightly more attractive.

A little later another voice calls him twice before he reacts to the call sign.

"Red 21, this is Blue 07. I'm coming up on your left. Have you had any formation time?"

"No, Sir."

"OK. Just keep that nice, steady turn going and watch out for other airplanes. I'm going to slide in under you for a look-see. I'll be pretty close, but don't pay any attention to me." The voice is cool and confident, like his own instructor's.

"Yes, Sir." Mike takes a single glance at the approaching airplane as it slides underneath, barely ten feet below. The canopy is open over both cockpits. A big-eyed, underclass cadet is in the front with his hands in his lap. The instructor in the rear, a lieutenant with a blue baseball cap and dark glasses, is flying. Mike scans the sky ahead and concentrates on holding his airplane steady, correcting carefully for the pressure changes caused by the proximity of the other airplane.

"Red 21, Blue 07. Is your stick beating back and forth a little?"

"Yes, Sir, just a little." The throb has been bothering Mike for some time, but he has been afraid to mention it for fear of being ordered to land immediately.

"Don't worry about it. It's a

piece of torn fabric flapping on the right elevator. Nothing serious. Your flaps are a little beat up. Better make your landing without using them. Step on your brakes while I watch."

Mike does as the cool voice instructs, wondering a little at the calm assumption that he's going to land.

"Brake lines are all right. You've got a big piece of mesquite jammed in your right gear, but it won't bother you. Must have been some ride. See you on the ground."

Sunlight glints as the other airplane swings up on the left. A hand flashes in a brief wave, then it rolls over and dives away. Mike banks instinctively to follow, then rolls level again as mesquite claws at him. There is an ache in his throat as the other airplane falls away toward the traffic pattern far below.

In the tower, listeners absorb the meaning of the terse conversation in silence. Mike's Flight Commander moves first. With a glance at his watch he turns for the door. "He's got about two hours' fuel left. I've got work to do."

The Safety Officer stares after him a moment. "Hey, wait! You think it's safe to let him keep flying?"

"Safer than making him land while he's all shook up. Leave him alone."

"But . . ."

"Don't sweat it. I know my cadets. Right now, he'd like to bail out, but if you leave him alone, he'll make a good landing in time to meet his 1145 chow formation. I'll put him up dual tomorrow, and he'll pass his check with a good grade the next day."

And he did. ■

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*The author, Curtis L. Messex, is a retired Air Force officer with 1,200 hours of combat time and a total of nearly 10,000 hours in the cockpit. A frequent contributor to AIR FORCE Magazine, he now makes his home in Cheney, Wash., where he is self-employed as a freelance writer.*

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## Airman's Bookshelf

### A Questionable Cure

*Defeated: Inside America's Military Machine*, by Stuart H. Loory. Random House, New York, N. Y., 1973. 405 pages with notes and index. \$10.00.

As a junior, but no longer quite so young, professional officer, I found myself ambivalent toward Mr. Loory's work. The vast majority of the book (328 out of 386 pages) is devoted to what is by now a familiar litany of "military sins": lack of progress in race relations, hair length and harassment, double standards in military justice, corruption within the ranks at all levels, lack of adequate and meaningful training, overseas sex, drugs, "careerism," and bureaucratism.

Mr. Loory's source material for this incantation is principally from interviews with officers and enlisted persons throughout the services, as well as written material taken from official reports, studies, and articles in the popular press and journals. His style is essentially journalistic, and his own biases and opinions are clearly evident. On many points he is persuasive, and it is sometimes difficult to disagree with his arguments.

I found myself in sympathy with many of the critical attitudes put forth, particularly in areas such as resistance to change, constant harassment on minor points, rigidity in tactical thought, training to pass inspections rather than to fulfill operational commitments, and, most importantly, square-filling with the resultant misperception of the true status of operational capability.

The negative aspects of my ambivalence are caused by Mr. Loory's conclusions and his recommendations for change. This section of the book comprises the last *eighteen* pages. Mr. Loory recommends, among other things, creation of a Joint General Staff, a Chief of Operations, pruning headquarters billets, separation of the "command specialty" from other specialties, Universal Service, a return to "professionalism," overhaul

of the "career-pattern-promotion-rating-retirement system," and the return of US forces to American soil.

None of Mr. Loory's ideas is particularly original. Nor does he make any attempt to argue persuasively that his solutions will cure the problem areas he has discussed. In my judgment, these solutions would treat symptoms rather than the alleged diseases.

Mr. Loory seems to feel that, by and large, the military will have to cure its own body. It is difficult to see how many of his proffered cures could be initiated from within the military or constitute anything more than change simply for the sake of change. In truth, the military, as an institution, is desperately trying to solve many of these problems; and if we do not, Congress will attempt to do so.

For the military reader under the rank of lieutenant colonel, I do not feel this book is worth \$10, simply because such a reader is already quite familiar with the problems presented. If a military reader over the rank of lieutenant colonel doesn't already know of these problems, he is not likely to believe Mr. Loory. As for civilian readers, those who thrive on sensationalism and exposé in things military may find it titillating. Beyond this group, I cannot say.

—Reviewed by Capt. Donald J. Alberts, Department of Political Science, USAF Academy.

### Power and Policy

*Arms and Strategy: The World Power Structure Today*, by Laurence Martin. David McKay, New York, N. Y., 1973. 320 pages. \$15.95.

*American Military Commitments Abroad*, by Roland A. Paul. Rutgers University Press, New Brunswick, N. J., 1973. 237 pages. \$10.00.

Laurence Martin, Professor of War Studies at King's College, Uni-

versity of London, has produced a handsome and expensive volume "intended as an introduction and guide to the contemporary military scene." The subtitle is, therefore, a more accurate description of the book than its main title, the author noting in his preface that it is not a study of strategic theory and makes no claim to break new theoretical ground.

Given the author's intent, it is fair to describe the book as unusually comprehensive. Overall, it has four main parts: (1) the balance of nuclear power—describing the basic weapons and strategies of the US and Russia, followed by the same for the lesser nuclear powers (Great Britain, France, China), and the prospects, primarily in the area of technical capabilities, of the potential nuclear candidates—Japan, India, Israel, Switzerland, Sweden, Canada, West Germany, etc.; (2) the weapons of armed conflict below the level of a major nuclear confrontation—on land, sea, and in the air—ranging upward from the weapons and tactics of guerrilla warfare to the limited employment of so-called tactical nuclear weapons; (3) strategic considerations particularly applicable to what a British author sees as today's critical arenas—NATO vs. the Warsaw Pact, the Middle East, Asia generally, and southern Africa; and (4) a concluding, largely analytical section treating disarmament and arms control, the arms trade, and "some economic aspects of defense."

The book suffers, as any of its kind must, from having gone to press prior to last October's activities in the Middle East. While the author was unusually perceptive about "the coming American dependence on oil from the Middle East," he may well have erred in describing the tank as "the centerpiece of modern land warfare." Martin does, indeed, spend a number of pages on the tactical possibilities for such new weapons as the Russian RPG-7 rocket grenade (and the possibilities for fighter pilots of the track-mounted SA-4



and shoulder-fired SA-7), but none of his dire predictions for tank and airplane drivers even begins to approach in magnitude the level of losses apparently incurred by the Israelis.

In short, for those presently performing duties in Plans and Ops at major air command level and higher, the book offers little that they should not be aware of and struggling with on a daily basis. For the majority of officers in the field, however, as well as for those readers who need a comprehensive updating on weapons technologies and strategies, it has much to offer. Those heading off the line to one of the staff or war colleges this summer might find it especially helpful as a data base for getting up to speed.

Roland Paul's book has to do with policies rather than capabilities—specifically, with US foreign and defense policy as it pertains to those nations and alliances to which we have "commitments." Paul's treatment is based on a 1969-70 study by the so-called Symington Subcommittee, a Senate Foreign Relations Subcommittee on US Security Agreements Abroad. The author, who served as chief counsel to the subcommittee, has distilled thousands of pages of testimony into this short and occasionally thought-provoking book.

His opening chapter asks, "What is a [military] commitment?" Paul answers by analyzing seven different levels of military commitment now recognized by national-security planners, ranging from the eight outright security treaties now binding the US to the defense of forty-three other countries, all the way to the gray area of those commitments that have arisen over the course of time "as a result of the accumulation of many small contributions to the defense, survival, or well-being of another country." For those of us whose sense of patriotism leads us on occasion to be rather cavalier with our use of the term commitment, Paul's analysis may well prove salutary in reminding us that if all commitments are apples, they're not all Delicious (or Mackintosh, for that matter).

Subsequent chapters treat the historical origins and present implications of our commitments to Nationalist China, Japan, Laos, the Philippines, South Korea, Thailand, NATO, Greece and Turkey, Spain and Portugal, Ethiopia and Moroc-

co. In a real sense, these chapters—the guts of the book—are the most valuable, providing well-documented and brief accounts of the extent of our military commitment to each country or area. Vietnam, although the spur behind the study, is not treated, nor is there real treatment of the Organization of American States or, rather more interestingly, of Israel—for good or ill surely falling within Paul's seventh level of commitment.

The author offers some concluding observations that amount to a plea for selective commitment or "manifest, but non-threatening" presence in some areas and "a low profile, but without total withdrawal" in others. Ho hum. Mr. Paul, it would seem, tried his best to keep a foot in both camps; the result makes one think of a potential Daniel Ellsberg who is still at the stage where he hasn't yet made up his mind which way to stumble.

—Reviewed by Maj. David MacIsaac, Department of History, USAF Academy.

### The Best Yet—Again

*Jane's All The World's Aircraft 1973-74*, edited by John W. R. Taylor. McGraw-Hill, New York, N. Y. (US distributor). 810 pages, large format. \$65.00.

This annual volume, now in its sixty-fourth year, is universally recognized as the definitive work on aircraft and allied or associated equipment. It is the standard against which all other books on aviation technical data must be compared—a standard that no other even remotely approaches. No public or institutional library, or the library of any person seriously interested in aviation, can be considered complete without *Jane's All The World's Aircraft*.

The new *Jane's* reports in voluminous detail on more than 750 aircraft produced in thirty-five nations, as well as RPVs and target drones, sailplanes, airships, and aero engines. With much previously unpublished material on the Soviet aerospace scene and on the products of other countries, the current edition has more than a million words of new typesetting and many photographs not seen before. To keep the volume manageable in size, the missile section has been limited to air-launched weapons

and spaceflight and research rockets. All other missile coverage has been transferred to a companion volume, *Jane's Weapon Systems*.

Beyond its encyclopedic coverage of hardware, the new edition (like its predecessors) includes two bonuses for the reader. The first is Editor John W. R. Taylor's annual essay on the state of the world's aerospace industry. When the new edition was released in England last December, the press dwelt heavily on Mr. Taylor's comment concerning the B-1 that ". . . here is an aeroplane formidable enough to eliminate a small nation with a single sortie. . . ." Many reporters overlooked the last part of the sentence, ". . . or, better, to compel the maintenance of peace."

Be that as it may, our readers will be more interested in John Taylor's insights into the operations, capabilities, and restrictions on the Soviet aerospace industry; his evaluation of the future of supersonic travel; his analysis of the prospects of US and European aerospace industry; and his comments on new military hardware.

The second bonus lies in the many pages of advertising from aerospace industries and suppliers the world over (including the USSR). In themselves, they provide a liberal education on the state of the art.

When one considers the monumental research effort that goes into each year's *Jane's*, it hardly seems possible that each year, in our review, we could say with conviction, "This year's *Jane's* is the best yet." But, again, it is.

—Reviewed by John L. Frisbee, Executive Editor of this magazine.

### New Books in Brief

*The Apollo Spacecraft: A Chronology, Volume II*, by Mary Louise Morse and Jean Kernahan Bays. The first volume dealt with the birth of NASA's Apollo program and traced its early development. This second volume covers developments during the period from November 8, 1962, to September 30, 1964. This two-year period saw essential completion of assembling the Apollo government-industry team, verification by test of many essential design features, streamlining the flight program through adoption of an all-up concept, and the ac-



## Airman's Bookshelf

quisition of first data about the lunar surface from the Ranger Program. US Government Printing Office, Washington, D. C. 20402. 277 pages with index and appendices. \$3.20 paperback.

*D-Day: The Normandy Invasion in Retrospect.* We have been informed by the Director of the Dwight D. Eisenhower Library that this 1971 publication, a collection of papers given on the twenty-fifth anniversary of the Normandy invasion, is still in print and may be ordered from the University Press of Kansas, Wichita, Kan. 254 pages with bibliography and index. \$7.50 cloth-bound; \$2.95 paperback.

*Lasers*, by O. S. Heavens. The author, Professor of Physics at the University of York, England, traces the development of lasers during their short history and gives examples of the impact they are making on several fields of activity. The potentialities of the device are shown to be truly extraordinary. This introductory work is intended for the reader with only a limited familiarity with science. Charles Scribner's Sons, New York, N. Y., 1973. 159 pages with index. \$9.95.

*The Lockheed Constellation*, by M. J. Hardy. A history of the Lockheed Constellation and all subsequent developments and variants of the original design. The evolution of each new version is described, together with brief accounts of the airlines, charter companies, and supplemental carriers that operated them. There are separate chapters on the Super Constellation, the numerous 1049 and early warning versions, the Super G, and the Starliner. Arco, New York, N. Y., 1973. 128 pages with index. \$10.00.

*MIRV and the Arms Race: An Interpretation of Defense Strategy*, by Ronald L. Tammen. A study of how MIRVs were conceived and how, in the author's judgment, their development was justified. Portions of the book are based on a series of interviews with defense experts in and out of government. Mr. Tammen, Sen. William Proxmire's leg-

islative assistant for military affairs and a former military specialist for the CIA, concludes that MIRV was developed in response to internal domestic pressures rather than enemy threats. Praeger, New York, N. Y., 1973. 162 pages with index and bibliography. \$13.50.

*National Security Affairs: A Guide to Information Sources*, edited by Arthur D. Larson. A bibliography of post-World War II English language books and articles concerned with national security affairs, with particular emphasis on the period from 1958 to the present. While this bibliography will be of use to specialists and nonspecialists alike, it is intended primarily to serve the needs of the latter—the officials, practitioners, teachers, students, and educated laymen who through work, education, or general interest are involved in national security affairs. Number twenty-seven in the Management Information Guide Series. Gale Research Co., Book Tower, Detroit, Mich. 48226, 1973. 411 pages with a "key word" index. \$14.50.

*The Offensive: A Soviet View*, by A. A. Sidorenko. In the view of the author, a Soviet military writer, it is offensive actions that assure complete defeat of the enemy and seizure of important objectives and regions. He discusses the characteristic features of the offensive in nuclear war—the most important being decisiveness—and of contemporary tactics. This book is the first in a series of Soviet military writings to be translated and published under the auspices of the US Air Force. US Government Printing Office, Washington, D. C., 1973. 228 pages with bibliography. \$1.70 paperback.

*Old Wars Remain Unfinished*, by Sar A. Levitan and Karen Cleary. Few Americans are aware of the extensive scope of veterans' programs or of the striking differences in standards between the veterans' welfare system and that for non-veterans. This is the first comprehensive study of America's veterans' benefit system. The VA has a laudable record in accomplishing its mission, and the authors conclude that, at a time when poverty programs are being abandoned or restructured, the nation might well look to the veterans' welfare system for alternative approaches. The Johns Hopkins Press, Baltimore,

Md., 1973. 190 pages with index. \$10.00.

*Who Makes War*, by Jacob K. Javits. In the autumn of 1973, by its overriding of the veto, Congress made a deliberate and historic effort to limit the President's war-making powers. The author, himself a prime mover in the legislative process, provides an instructive review of events that led to what one of the nation's foremost constitutional scholars has termed "establishing the imperial Presidency." William Morrow, New York, N. Y., 1973. 300 pages with bibliography and index. \$8.95.

*Will Japan Rearm? A Study in Attitudes*, by John K. Emmerson and Leonard A. Humphreys. The authors study the relationship between Japanese public opinion and the question of Japan's complete rearmament with both conventional and nuclear weapons. In developing their conclusions, the authors draw on the results of numerous public-opinion polls and other barometers of official and popular sentiment on defense questions. American Enterprise Institute for Public Policy Research, 1150 17th St., N. W., Washington, D. C. 20036, 1973. 165 pages. \$3.00 paperback.

*William Wyler*, by Axel Madsen. The biography of filmmaker and director William Wyler. As a major in the USAF, he helped put across on film the "why" and "how" of World War II. His accomplishments range from the prewar film "Mrs. Miniver," which introduced the American people to their future Allies, to on-the-spot coverage of the Eighth Air Force in "Memphis Belle," to postwar realities in "The Best Years of Our Lives." Thomas Y. Crowell, New York, N. Y., 1973. 456 pages with bibliography and index. \$9.95.

Two recent releases in Arco's "An Aircraft Album" series are *Hawker*, by Derek N. James; and *North American*, by Gordon Swanborough. Arco, New York, N. Y., 1973. Each volume 128 pages. \$4.95

Two recent releases in Ballantine's Illustrated History of the Violent Century Series are: *Grenades & Mortars*, by Ian Hogg; *Wellington Bomber*, by Edward Bishop. Ballantine Books, New York, N. Y., 1974. Each volume \$1.50  
—By Catherine L. Brat



# The Bulletin Board

By Capt. Don Carson, USAF

CONTRIBUTING EDITOR, AIR FORCE MAGAZINE

## Defense Analysis Study

The Brookings Institution has published a controversial staff paper by a Brookings Senior Fellow, Col. Martin Binkin, USAF (Ret.), questioning the need to spend more than \$4 billion a year on Reserve and National Guard units. In this study, entitled *U.S. Reserve Forces: The Problem of the Weekend Warrior*, the author contends that the US force of some 900,000 Reservists could be reduced by one-third and still meet essential military commitments.

In addition, Binkin estimates that his proposed reforms would make possible a reduction in the active forces of approximately 60,000 by assigning some active-duty tasks to the Reserve Forces. These changes, he believes, would reduce defense spending by \$1.4 billion a year at current prices.

Binkin examines each segment of the present Reserve system and the factors that have shaped its growth. He asserts that many Reservists are assigned to tasks that are no longer relevant or that could be performed by skilled personnel available in the Standby Reserves and civilian labor force once mobilization is begun.

His proposals hit hardest at the Army Reserves, but he also suggests that USAF could eliminate its lower-priority support forces. He says the Air National Guard and Air Force Reserve headquarters, training, and recruiting facilities should be merged, and he advocates the limited integration of Reserve crews into the strategic bomber and tanker forces, making possible further modest reductions in active manpower.

Colonel Binkin also addresses the problem of securing sufficient numbers of Reservists during the absence of a draft, without the payment of the special bonuses requested in last year's budget. He observes that changing the Reserve forces will not be easy; more than

a hundred members of Congress are Reservists, and the present system has much support. He asserts that increased defense costs should provide the needed incentive for the Congress and Administration to begin making some tough decisions on the Reserve Forces' structure.

There are currently several other studies, including one recently directed jointly by Congress and the Department of Defense, to evaluate the availability, responsiveness, readiness, force mix, and troop structure of the Guard and Reserves.

## Race Relations

Gen. Jack J. Catton, Commander of the Air Force Logistics Command (AFLC), has approved a plan to train civilian employees of AFLC in race relations. The Command will

provide fourteen hours of classroom discussion to all civilian employees to help promote equal opportunity in the Air Force. Civilian and military personnel will attend the same classes. All services have been directed by the DoD to implement similar plans for civilian race-relations training. AFLC employs almost one-third of all civilians working for the USAF.

## Airman and JOC Project

The Air Force Association's Junior Officer and Airmen Advisory Councils have agreed to jointly undertake a year-long project to explain the Air Force as a profession. The project includes preparing a slide briefing suitable for giving to high school students, parents, and civic groups. The presentation will concentrate on the men



United Air Lines President Edward E. Carlson met recently with four USAF officers assigned to the airline under the Air Force's Education With Industry (EWI) program. The officers, from left, 1st Lt. John R. Holleran, Capt. Heinz Krohn, 1st Lt. Michael Handerhan, and Maj. Marvin L. Feir, will spend approximately one year working with the company to develop their executive talents. The four will benefit from a broad overview of United's management techniques.



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## The Bulletin Board

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and women of the USAF and their lives as members of the military.

Members of both Councils are presently gathering information from bases throughout the nation to learn what questions Air Force men and women are most frequently asked about military life.

The council members expect that the presentation will answer many of these questions and give a more accurate view of Air Force life than that generally perceived by the American public. When completed, copies of the briefing will be distributed to Junior Officer and Airmen Councils throughout the USAF to be presented at local public gatherings.

This project actively supports the desire of USAF Chief of Staff Gen. George S. Brown for men and women of the USAF to get out and tell the Air Force story to the public.

Chairman of the Air Force Association's Junior Officer Advisory Council, Capt. John H. Pronsky, explained, "This project will give JOC and airman groups a visible means of helping the Air Force project itself as a highly desirable profession for today's youth. The presentations, which will be given jointly by junior officers and airmen, will emphasize real Air Force people working, living, and learning, while serving their country."

### JOC Handbook

The Air Force Association's Junior Officer Advisory Council (JOAC) is now distributing to all JOCs its latest report, *A Guide for Effective JOCs*. The report is a handbook for reaching the goals set forth in last year's report, *Patterns for Change*.

### Cutbacks of Base Facilities

DoD is studying cutbacks of base facilities as part of a \$300 million domestic and foreign reduction involving fifty-nine installations in twelve countries. Deputy Secretary of Defense William P. Clements said, "We hope to make substantial reductions in the number of headquarters personnel—both military

Secretary of the Air Force Dr. John L. McLucas pins the nation's highest noncombat award, the Distinguished Service Medal, on Maj. Gen. Douglas T. Nelson. General Nelson, recently named Vice Commander of Aeronautical Systems Division, received the honor for his outstanding management while serving as Director of the Air Force's B-1 program.



and civilian. We plan to exploit opportunities for interservice maintenance such as for aircraft or vehicles and, consequently, decrease the numbers of overhaul and repair facilities. The day when each service could maintain its own exclusive maintenance or repair facilities is over."

### Tax-Free Bonus

Several states and the Territory of Guam are now offering tax-free bonuses of up to \$1,600 to Vietnam veterans, including those still on active duty. States offering bonuses are Connecticut, Delaware, Illinois, Indiana, Iowa, Louisiana, Massachusetts, Minnesota, North Dakota, Vermont, and Washington. If you are a resident of one of these states, you can obtain information

from local Consolidated Base Personnel Offices (CBPOs) on how to apply for the bonus.

### New OER System

A completely new Officer Evaluation System is scheduled to be implemented in April 1974. The new system, the result of a five-year development program, is designed to eliminate the inflation found in the current OER system. Since 1972, more than 5,000 officers in ten commands have participated in testing this system for effectiveness.

A new rating form called the Job Performance Evaluation (JPE) and a controlled review process are the basic features of the new system. The JPE offers a new format for the narrative and rating sections.

A major change in the new system involves the overall evaluation, now divided into three categories: Top Fifteen Percent, Middle of the Pack, and Bottom Twenty Percent. The rating official first must place an officer in one of these categories and then rate him within that specific group. To curb inflation, the Air Force will monitor individual command ratings on a monthly basis. Later, once the system is implemented, the command analysis will be done quarterly.

### Early Retirement

Airmen who were denied early retirement when the relaxed waiver policy for certain active-duty service commitments was announced in October 1973 may now reapply. The waiver policy, part of the USAF's effort to reach 1974 strength ceilings, opened the door to earlier retirement for many officers and airmen who had incurred additional active-duty service commitments





# AIRMEN COUNCIL AND JOAC EXECUTIVE COMMITTEE MEET

AFA's Airmen Council and the Junior Officer Advisory Council Executive Committee met in joint session in Washington, D. C., January 24-25. These two Councils—among AFA's most active and productive—advise AFA's President on matters of concern to the enlisted men and women and junior officers of the Air Force. The Councils were briefed on a variety of subjects, including force reduction, the airmen promotion system, and the new officer evaluation system, and received a status report on the progress of the All-Volunteer Force. Air Force Chief of Staff Gen. George S. Brown and Chief Master Sergeant of the Air Force Thomas N.

Barnes spoke at a luncheon honoring the Councils.

Among other executive-session activities, the Councils agreed to begin a national project aimed at developing a slide briefing that would tell the story of Air Force people to civilian groups. (See opposite page for related "Bulletin Board" item.)

Chairman of the Airmen Council is CMSgt. Harry F. Lund, Senior Enlisted Adviser to the Commander, Aerospace Medical Division, Brooks AFB, Tex. Chairman of the JOAC is Capt. John H. Pronsky, personnel staff officer with the Project Volunteer Office, DCS/Personnel, Hq. USAF.



Gen. George S. Brown, USAF Chief of Staff, addresses the luncheon honoring AFA's Junior Officer Advisory and Airmen Councils. Some 100 guests heard General Brown ask the Councils to continue their efforts to identify problems of particular interest to these groups. He also outlined the current status of the B-1 bomber.



At the luncheon, AFA President Joe Shosid presented the Air Force Association Seal to Chief Master Sergeant of the Air Force Thomas N. Barnes. Sergeant Barnes serves as the voluntary adviser to AFA's Airmen Council.



Lt. Gen. John W. Roberts, Deputy Chief of Staff, Personnel, addresses the two Councils during a joint-session meeting. General Roberts served as the voluntary adviser to the JOAC last year. This year's adviser is Maj. Gen. Kenneth L. Tallman, Director of Personnel Plans, Directorate of Personnel.



The current Chairman of AFA's JOAC and three Past Chairmen in Washington for the joint-council session. From left, Capt. John H. Pronsky, Current Chairman; Capt. Douglas Patterson, Immediate Past Chairman; Maj. David Hosley; and Lt. Col. Thomas Seebode.



Council members got down to shirt-sleeves to listen to the briefings on Air Force and AFA topics of concern, left, and then met in executive session to hammer out advisory positions.





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through promotion or voluntary training.

Waiver requests are considered on an individual basis and depend upon the needs of the USAF and availability of the individual. Medical and dental officers having active-duty service commitments related to continuation pay or training are not eligible for waivers. All early retirements under this program must be effective on or before June 1, 1974. Applications must be submitted three months prior to the desired effective date. Further details are available at CBPOs.

### Survivor Benefits

Military members who retired before September 21, 1972, have been granted an extension until March 20, 1974, to decide if they want to participate in the Survivor Benefit Plan (see *January '74 "Bulletin Board,"* p. 68). Members who retired after September 21, 1972, are automatically covered by SBP, unless they elect otherwise. Retirees may reduce or cancel their coverage in the Retired Serviceman's Family Protection Plan (RSFPP) at the same time they elect coverage under the SBP. Base Personal Affairs officers have full details and can provide counseling on the SBP.

### Reserve Technician Program

The Air Force Reserve Technician (ART) Program has full-time employment openings for separating officers and airmen. There are many excellent positions available at thirteen USAF bases. An Air Force Reserve Technician performs civilian support duties during a normal forty-hour work week.

In addition, he accrues all Air Force Reserve benefits, including four days' of military pay for one weekend of training each month; pay for annual fifteen-day, active-duty training tours; and service credit toward Reserve retirement pay. Base Civilian Personnel Offices have detailed information on the ART program. Personnel separating under Palace Chase are encouraged to apply for these positions.

### USAF Reserve in Mideast Crisis

October's Mideast crisis set the stage for the USAF Reserve to demonstrate its responsiveness, reliability, and professionalism. Reserve participation in the worldwide alert and airlift operations was significant. A total of 1,853 Reservists supported Military Airlift Command C-141 and C-5 squadrons during the airlift. More than 150 Reservists participated in missions flown to Israel, and twenty-four of the C-141 aircrews flying these missions were all-Reserve crews.

### AFROTC

Administrative groundwork has been completed to allow AFROTC cadets to be commissioned directly into the Air National Guard and Air Force Reserve. Commissions will be directed against projected unit vacancies in various AFSCs. Plans call for enrolling 150 officers during FY '76.

### New Brigadier Generals

**PROMOTIONS:** To be **Brigadier General:** James A. Abrahamson; James H. Ahmann; Robert W. Bazley; Thomas G. Bee; Melvin G.



*Lt. Col. (Col. selectee) James C. Harding has been named Chief of the Officer Career Development Division, Air Force Military Personnel Center, Randolph AFB, Tex. He has flown more than 1,200 combat hours in O-1 and A-1 aircraft in SEA. He'll manage careers of all officers below rank of colonel.*

Bowling; William C. Branan; Dan A. Brooksher; Bruce K. Brown; William R. Coleman; John W. Collins, III; Richard B. Collins; Gerald E. Cooke; Edwin A. Coy; James B. Currie; Sidney L. Davis; Michael E. DeArmond; Garth B. Dettinger; Van C. Doubleday; Frank M. Drew; Hans H. Driessnack; William W. Dunn; George A. Edwards, Jr.; Howard M. Estes, Jr.; Robert A. Foster; Martin C. Fulcher; Norman C. Gaddis; Claire M. Garrecht; David L. Gray; Thomas M. Groome, Jr.; Harold E. Gross.

Fred A. Haeffner; John W. Heffer; Robert T. Herres; William J. Holton; Francis A. Humphreys, Jr.; John H. Jacobsmeyer, Jr.; Paul A. Kauttu; Elwood A. Kees, Jr.; Donald R. Klang; Charles B. Knudson; Charles F. G. Kuyk, Jr.; Doyle E. Larson; Howard W. Leaf; Dewey K. K. Lowe; William G. MacLaren, Jr.; William B. Maxson; Albert L. Melton; George D. Miller; Warren C. Moore; Harry A. Morris; William L. Nicholson, III; Jerome F. O'Malley; Don H. Payne; Bobby W. Presley; John E. Ralph; Robinson Risner; Len C. Russell; George W. Rutter; Stuart H. Sherman, Jr.; Robert B. Tanguy; Howard R. Unger; William R. Usher; Kermit Q. Vandebos; Alonzo J. Walter, Jr.; Jack W. Waters; James W. Wold.

### Senior Staff Changes

**RETIREMENTS:** B/G Kelton M. Farris; M/G James F. Kirkendall; M/G John L. Locke; M/G William R. MacDonald.

**CHANGES:** B/G Edgar S. Harris, Jr., from C/S, 15th AF, SAC, March AFB, Calif., to Asst. DCS/Ops, Hq. SAC, Offutt AFB, Neb., replacing M/G Andrew B. Anderson, Jr. . . . M/G Billie J. McGarvey, from Dep. Dir., to Dir., Civil Engineering, DCS/Programs & Resources, Hq. USAF, replacing M/G Maurice R. Reilly . . . M/G Maurice R. Reilly, from Dir., Civil Engineering, DCS/Programs & Resources, Hq. USAF, to Cmdr., HEDCOM, USAF, Bolling AFB, D. C., replacing retiring M/G John L. Locke . . . B/G Thomas M. Ryan, Jr., from Cmdr., 47th Air Div., SAC, Fairchild AFB, Wash., to Asst. DCS/Logistics, Hq. SAC, Offutt AFB, Neb. . . . B/G George M. Wentsch, from Cmdr., 438th MAW, to V/C, 21st AF, MAC, McGuire AFB, N. J., replacing retiring B/G Kelton M. Farris.

—Compiled by Catherine L. Bratz



MARK YOUR  
CALENDAR . . . .

PLAN NOW TO  
ATTEND . . . .

# AFA's 1974 Annual National Convention and Aerospace Briefings and Displays

SEPTEMBER 16, 17, 18, 19  
WASHINGTON, D. C.

AFA's 1974 Annual National Convention and Aerospace Briefings and Displays will be held at the Sheraton-Park and Shoreham Hotels, September 16-19. Accommodations are limited at the Shoreham Hotel and will be used primarily by other organizations meeting in conjunction with AFA's 1974 National Convention.

All reservation requests for rooms and suites at the Sheraton-Park Hotel should be sent to: Reservations Office, Sheraton-Park Hotel, 2660 Woodley Road, N. W., Washington, D. C. 20008. Be sure to refer to AFA's Annual National Convention when requesting your reservations. Otherwise, your reservation requests will not be accepted by the Sheraton-Park.

AFA's Annual National Convention activities will include luncheons for the Secretary of the Air Force and the Air Force Chief of Staff and the Air Force Anniversary Reception and Dinner Dance. The National Convention will also include AFA's Business Sessions, Symposium, an Air Force Reserve and Air National Guard Seminar, and several other invitational events, including the President's Reception, the Annual Outstanding Airmen Dinner, and the Chief Executives' Reception and Buffet Dinner.

We urge you to make your reservations at the Sheraton-Park Hotel as soon as possible in order to obtain your reservations. Arrivals after 6:00 p.m. require guaranteed payment for the night of arrival.







**"Today,  
it has to be  
every businessman's  
business."**

*Mr. James M. Roche  
Former Chairman of the Board of General Motors*



"The vital business I refer to is Employer Support of the Guard and Reserve. They represent 30% of our trained military personnel, an integral part of the total force available, at a cost of only 5% of the budget."

Both the Officers of your Association, and the many millions of Guard and Reservists throughout the nation, urge you

to lend your personal assistance to the efforts of the National Committee for Employer Support of the Guard and Reserve. Particularly during Employer Support Week for the Guard and Reserve, April 1-6.

If you are an employer, please sign a Statement of Support Pledge Card as soon as possible.

If you are an employee, ask your firm to join the many thousands of others already ready behind this important effort.

For pledge cards and information, simply write: Employer Support, Arlington Va. 22202. Or contact your local Guard or Reserve unit.

**Employer Support Week for the Guard and Reserve, April 1-6.**



**EMPLOYER SUPPORT OF  
THE GUARD & RESERVE**





*In less than two years, the National Committee for Employer Support of the Guard and Reserve has signed up more than 180,000 employers across the nation, representing half the nation's total work force, but the job still isn't done . . .*

# Success Story, But With Still More To Be Done

**L**ESS than two years after its establishment in late June of 1972, the National Committee for Employer Support of the Guard and Reserve has a resounding success story to report. Chaired by James M. Roche, former Board Chairman of General Motors, and with the assistance of a brilliant staff headed by Air Force Col. Milton E. Mitler, the committee, with the cooperation of patriotic citizens everywhere, has obtained signed statements of support for Guardsmen and Reservists from more than 180,000 employers across the nation. It is estimated that these employers represent more than 42,000,000 employees, or well over half the nation's total work force.

The statement, signed by thousands of employers in large and small business and industry, and national, state, and local governments, assures employees who are members of the Guard and Reserve that job and career opportunities will not be limited or reduced because of such service; that leaves of absence for military training will be granted without sacrifice of vacation time; and that the ensuing agreement and resultant policies will be accepted throughout the organization.

The committee obtained the aid of the Advertising Council to promote its program. As a consequence, the mission of the Guard and Reserve and the necessity for full employer cooperation has been made known to millions of Americans.

The Air Force Association has given its complete support to the committee's efforts. AFA's National President, Joe L. Shosid, many AFA National Officers and Directors and other AFA leaders, and the Association's Assistant Executive Director serve on the committee's National Advisory Council. AFA State Organizations and local Chapters also have been active in this area, and in September 1972, in conjunction with its National Convention, AFA sponsored the first national seminar on this issue.

The committee is scheduled to disband on June 30 of this year, with much work still to be done, according to Chairman Roche. He is especially anxious to have a great number of small business executives sign statements of support and is launching a nationwide program to obtain the necessary signatures.

Last December 14, Deputy Secretary of Defense William P. Clements, Jr., announced that April 1-6



*Former General Motors Board Chairman James M. Roche heads the National Committee for Employer Support.*



*Staff head for the National Committee for Employer Support is USAF Col. Milton E. Mitler.*

would be Employer Support of the Guard and Reserve Week. During this week, members of the Guard and Reserve will be visiting employers in their respective areas to thank those who have signed statements and to enlist the support of those who have not yet been committed. The National Committee also is calling on AFA and all other military-oriented organizations to continue their assistance in this drive. AFA President Shosid has asked AFA National, Regional, State, and Chapter officials to participate to the fullest in Employer Support of the Guard and Reserve Week and to do everything possible to assure success of this final drive.

In a recent statement of appreciation for employers' support of the program, Chairman Roche said, "I am convinced the employers throughout this nation are cognizant of the importance of the Guard and Reserve to the security of the country and are willing to step forward and be counted in true American fashion. I am most gratified with the acceptance of the program thus far, and I am certain Employer Support Week will produce even greater success for the program." ■



## IN SUPPORT OF AFA'S MEMBERSHIP DRIVE

Many letters and newspaper articles commending AFA on its efforts in behalf of the Air Force and national security, and endorsing membership in the Association, cross our desks throughout the year. Seldom, however, are they reprinted in our magazine for all to read.

In support of AFA's annual membership drive, which began on March 1, we are reprinting an article that appeared on the editorial page of the January 11 edition of the Carswell AFB Sentinel.

This article, written on his own initiative by Col. David E. Blais, Vice Commander, 7th Bomb Wing (SAC), Carswell AFB, Tex., is one of the finest tributes to AFA that we have seen. We call your attention to it and invite our AFA leaders to use it in their membership-solicitation efforts.

## 'A TOP-NOTCH INVESTMENT IN YOUR FUTURE'

The beginning of a new year is traditionally the time for making resolutions and plans for the future. Tied in with this process is a certain amount of reflection on the past.

In thinking back over my first six months at Carswell, several things stand out: good people, a challenging job, and—one of the most impressive—the excellent relationship the base has with the community.

I'm certain these feelings did not come about by accident. Rather, mutual trust, understanding, and, most importantly, positive action were necessary ingredients to establish the fine rapport we have today.

Joint ventures between the base and the community, such as Operation Beacon (a program for disadvantaged boys), are part of the reason we get along so well.

Another, and very important contributing factor, is a group of concerned Fort Worth citizens—the members of the Fort Worth Chapter of the Air Force Association (AFA).

Over the years, the AFA has done much for the Air Force and Carswell Air Force Base. They had a swimming pool installed at our alert facilities to give crew members on alert a most welcome form of relaxation during much of the year. They annually sponsor a Christmas party for the airmen at Carswell. The bill for this evening of fun, food, and prizes ran into thousands. All told, the local AFA Chapter spent well over \$10,000 on Carswell projects last year.

To put it another way, "Six dollars of each new member's dues for the first year remain in Fort Worth to increase our active support of Carswell," Herman F. Stute, President of the local AFA Chapter, explained.

With this type of support, it came as no surprise when during this year's AFA National Convention held in Washington, D. C., our local AFA Chapter was cited as the best example of ideal relations between the military and civilian communities. This coveted award was the result of much effort on the part of many people. [At AFA's 1973 National Convention, the Fort Worth Chapter received AFA's Unit Exceptional Service Award in the field of Community Relations.]

Equally, if not more, important than these tangible services are the other benefits all of us—officer and airman alike—receive from AFA; for the Association is truly an effective voice for us at both the local and national level.

When Joe L. Shosid, a Fort Worth businessman who is President of the national AFA, and other top representatives speak for over 115,000 AFA members, lawmakers and others whose actions have a very, very direct bearing on your pay and other benefits pay attention—and the larger the membership, the more attention they get.

The AFA's primary objective is to assist in obtaining and maintaining adequate aerospace power for national security and world peace. In

attempting to achieve this objective the AFA provides many direct benefits for those of us on active duty. They work very hard so that those outside the Air Force can better understand why we need good pay, new facilities and modern weapons systems, such as the B-1.

Likewise, the AFA has stood by the Air Force and has spoken strongly and defended us when others were criticizing or complacent. The Air Force Association was active in the effort to free our POWs before it became popular. My personal belief is that a good part of the reason the POW/MIA situation did become popular, nationally supported effort was because of the AFA's support in this area. Just like a good friend, the AFA has been there when we needed them.

Like any other friendship, ours with the AFA, particularly with the Fort Worth Chapter, should and must be a give-and-take proposition. The ability to help us is the individual YOU. Quite simply, if the AFA does not have your active and direct support, then we should not expect their continued help in return.

One good way to give the necessary support is to join the AFA, the outfit that does speak and work for all of us, all the time—fair weather or foul. Membership in AFA is a top notch investment in your future, the future of the Air Force, and in the future security of the nation.





S. Samuel Boghosian, standing left, Chairman of the Fresno, Calif., Chapter's Ninth Annual Air Force Honors Night Banquet and Awards Ceremony, is commissioned a "Kentucky Colonel" by Milton R. Graham, a colonel retired from the California Air National Guard (CAANG). Shown at the head table is Maj. Gen. Glenn C. Ames, Commanding General, California National Guard, and in the foreground is Lt. Cmdr. Aubrey A. Nichols, USN, a former POW.



Project Navajo 1973, sponsored for the sixth consecutive year by the Utah AFA, resulted in distribution of some twenty tons of food, clothing, and toys to more than 100,000 Navajos on their 24,000-square-mile Utah-Colorado-New Mexico-Arizona reservation. Discussing the program are AFAer Pat Christensen and Utah AFA President Verl Williams. Over the past six years, more than 230 tons of food, clothing, medical supplies, and toys have been distributed to the Navajos through this program.

## IN SYMPATHY

During the past few months, AFA has lost several of its most effective leaders. We extend our deepest sympathy to the family and friends of . . .

- **Col. Willard A. Hawkins, USAF (Ret.)**, of Little Rock, Ark.; Director of the Arkansas Selective Service and a former officer of AFA's David D. Terry, Jr., Chapter of Little Rock; died on August 18, 1973.

- **Mrs. Jaye Bigda**, of Homestead, Pa.; a founder and Past President of AFA's Steel Valley Chapter of Homestead; died July 16, 1973.

- **Al Weinhandl**, of Minot, N. D.; the first President of the North Dakota AFA and his wife were killed in an auto accident in early summer, 1973.

- **Gerald Benedict**, of Columbus, Ohio; Treasurer of the Columbus Chapter for many years; died on September 12, 1973.

- **Maj. Gen. Sam T. Wallace, USAF (Ret.)**, of Tullahoma, Tenn.; an active member of AFA's H. H. Arnold Memorial Chapter, a former Adjutant General of Tennessee, and a former Chief Security Officer at Arnold Engineering Development Center; died on September 13, 1973.



On December 8, 1973, AFA's Golden Gate Chapter and the San Francisco Bay Area Chapter of the National Aeronautic Association (NAA) cosponsored their annual Kitty Hawk celebration, a dinner dance in the Presidio Officers' Club. In the photo, the speaker, Dr. Edgar D. Mitchell, right, Apollo-14 astronaut and the sixth man to walk on the moon, displays the Kitty Hawk Award he received from the program sponsors "For Pioneer and Aerospace Contributions." Others are, from left, NAA Chapter President James Ricklets; Program Chairman Walter W. Berg; and AFA Chapter President Mervyn Silberberg.



## AFA News



Head-table guests at a recent dinner meeting of the Richmond Chapter, Va., are, from left, Brig. Gen. James N. Fogle, Commander, 20th Air Division, ADC; Maj. Gen. I. G. Brown, Director, Air National Guard, and guest speaker; Chapter President Jon R. Donnelly; Maj. Gen. William J. McCaddin, Virginia Adjutant General; and Col. Ivor Massey, USAF (Ret.), a founder of the Virginia Air National Guard. The dinner meeting was in conjunction with the Chapter's efforts to obtain increased support for the VAANG.



## CROSS COUNTRY WITH AFA PRESIDENT JOE SHOSID

Since taking office in September 1973, AFA President Joe L. Shosid has visited the commanders of all of the Air Force's major commands and separate operating agencies in the lower forty-eight states. During these visits, Mr. Shosid met with representative groups of junior officers, NCOs, and airmen, and the Senior Enlisted Adviser or his counterpart, as well as with AFA leaders in most of the areas.

The objectives of his visits were to develop cohesiveness in relationships between AFA and the Air Force and to establish stronger points of command contact for AFA's annual membership drives.

The accompanying photos are representative of his visits to twenty-two of the Air Force's major commands and operating agencies.



Military Airlift Command (MAC) Headquarters, Scott AFB, Ill.—During his visit with Gen. Paul K. Carlton, Commander, MAC, AFA President Joe L. Shosid presents the General an AFA Presidential Citation in recognition of his exceptional service to the USAF and the nation while serving as MAC Commander, and in grateful appreciation of his support of AFA activities. Due to a change in General Carlton's schedule last September, the Citation was not presented at AFA's 1973 National Convention.



## CROSS COUNTRY

A former prisoner of war, now stationed at Columbus AFB, Miss., addressed the December meeting of AFA's **Golden Triangle Chapter** at the Base Officers' Club. In his address, Lt. Col. Gene Smith reflected on his five and a half years as a prisoner of war and concentrated on many of the adjustments he had to make in his life-style as a POW. He was introduced by F. M. Hutchinson, President of the Chapter.

On November 25, the AFA's **Lehigh Valley Chapter** of Allen-

town, Pa., sponsored the First Annual Lehigh Valley Knee-Hi Football Bowl. The tripleheader matched the Lehigh Valley Knee-Hi Football League's 80-, 95-, and 120-pound division champions against championship teams from Bucks-Montgomery and McKeesport. Pennsylvania AFA President Frank Nowicki and Chapter President LaMar Schwartz presented Champion and Runner-up trophies to the participating teams. This could become a popular and effective community-relations program.

On December 12, 1973, the Ira C. Eaker Squadron of the Arnold Air Society (AAS) at Loyola Marymount University, Los Angeles, Calif., celebrated the twenty-fifth anniversary of the Society on campus. Lt. Gen. Ira C. Eaker, USAF (Ret.), in whose honor the squadron is named, was the guest of honor and speaker. General Eaker is shown receiving an AAS fourragère from Squadron Commander Robert Stice. Seated are: Cadet Rodger Bendell, left, and Father Donald Paul Merrifield, right, President of the university.



Scott AFB, Ill.—Welcoming Mr. Shosid to Scott AFB is Charles W. Harriss, center, Scott Memorial Chapter President, and Illinois AFA President William Johnston, left. In conjunction with his visit to Military Command Headquarters at Scott AFB, officers of the Memorial and Greater St. Louis Chapters coshosted a dinner at which Mr. Shosid was the guest speaker.



Scott AFB, Ill.—SSgt. Fred W. Freeman, left, President of the Scott AFB Chapter of Brotherhood of American Military Airmen (BAMA) and Equal Opportunity and Treatment Representative for Headquarters, Air Weather Service, greets AFA President Shosid during his visit to Military Airlift Command Headquarters at Scott AFB. Mr. Shosid met with representative groups of junior officers and NCOs and airmen to discuss AFA goals and objectives.



Robins AFB, Ga.—Mr. Shosid talks with CMSgt. Robert I. Boyle, Senior Airman Adviser to the Air Force Reserve (AFRES) Commander, during his visit to Air Force Reserve Headquarters at Robins AFB for discussions with Maj. Gen. Homer I. Lewis, AFRES Commander.



Air Force Academy, Colo.—AFA President Shosid meets with Air Force Academy NCOs during his visit with Lt. Gen. Albert P. Clark, the Academy Superintendent. Mr. Shosid also met with a representative group of the Academy's junior officers and had lunch with a group of cadet leaders in the Cadet Dining Hall.

Richards-Gebaur AFB, Mo.—President Shosid talks with Capt. Robert J. Young, President of the Richards-Gebaur Junior Officers' Council, while visiting Brig. Gen. Donald L. Werbeck, Commander, Air Force Communications Service. In his meetings with base junior officers and NCOs and airmen, Mr. Shosid discussed the role and national objectives of the AFA for 1973-74.







Roy A. Haug, left, Vice President for AFA's Rocky Mountain Region, presents Lt. Gen. Thomas K. McGehee, then-Vice Commander, Aerospace Defense Command (ADC), an AFA Presidential Citation during recent ceremonies at ADC Headquarters in Colorado Springs, Colo. The General was cited for "... his thirty-five years of dedicated service to the United States Air Force and the nation and in appreciation of his outstanding support of the activities of the Air Force Association." General McGehee retired from active duty on January 1, 1974, and will live in Orlando, Fla.



During a farewell party cohosted by AFA's Harry S. Truman Chapter and the Kansas City Chapter of the Armed Forces Communications and Electronics Association, retired Maj. Gen. Paul R. Stoney, left, former Commander, Air Force Communications Service, receives an AFA Presidential Citation from Earl D. Clark, Jr., Vice President for AFA's Midwest Region. General Stoney, who retired on November 1, 1973, was cited for "... his thirty-two years of dedicated service to the United States Air Force and the nation and in appreciation of his outstanding support of the activities of the Air Force Association."

## COMING EVENTS

Tucson Chapter's annual Air Force Appreciation Dinner, Ramada Inn, Tucson, Ariz., March 15 . . . Northeast AFA Regional Conference, Ramada Inn, Clark, N. J., March 16 . . . Iron Gate Chapter's Eleventh National Air Force Salute, New York Hilton Hotel, New York City, March 22 . . . California AFA Convention, Sheraton-Anaheim Hotel, Anaheim, April 5-7 . . . AFA's Second Annual Missile Symposium, to be held during the Strategic Air Command's annual Missile Competition at Vandenberg AFB, Calif., May 1-2 . . . Florida AFA Convention, Fort Lauderdale, May 3-5 . . . Alabama AFA Convention, Jet Port, Huntsville, May 3-5 . . . Texas AFA Convention, Wichita Falls, May 10-12 . . . Washington AFA Convention, Holiday Inn-West, Spokane, May 10-12 . . . Illinois AFA Convention, Scott AFB, May 17-18 . . . New Hampshire AFA Convention, Manchester, May 18 . . . Utah AFA Convention, May 18 . . . AFA's Annual Dinner honoring the Outstanding Squadron at the Air Force Academy, The Broadmoor, Colorado Springs, Colo., June 1 . . . Louisiana AFA Convention, Le Pavilion Hotel, New Orleans, June 7-8 . . . Virginia AFA Convention, June 15 . . . New York AFA Convention, New York City, June 15 . . . Georgia AFA Convention, Savannah, June 15-16 . . . Pennsylvania AFA Convention, June 21-23 . . . San Bernardino and Riverside County Chapters' Annual AFA Charity Golf Tournament, March and Norton AFBs, Calif., June 21-22 . . . AFA's Twenty-eighth National Convention and Aerospace Development Briefings, Sheraton-Park Hotel, Washington, D. C., September 15-19 . . . The Air Force Ball, Beverly Wilshire Hotel, Beverly Hills, Calif., October 26.



# This Is AFA

The Air Force Association is an independent, nonprofit, airpower organization with no personal, political, or commercial axes to grind; established January 26, 1946; incorporated February 4, 1946.

## OBJECTIVES

The Association provides an organization through which free men may unite to fulfill the responsibilities imposed by the impact of aerospace technology on modern society; to support

armed strength adequate to maintain the security and peace of the United States and the free world; to educate themselves and the public at large in the development of adequate aerospace

power for the betterment of all mankind; and to help develop friendly relations among free nations, based on respect for the principle of freedom and equal rights to all mankind.



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Bob Stevens'

# "There I was..."

"BY THE RING AROUND HIS EYEBALL YOU CAN TELL A BOMBARDIER, YOU CAN TELL A BOMBER PILOT BY THE SPREAD AROUND HIS REAR, YOU CAN TELL A NAVIGATOR BY HIS SEXTANTS, MAPS and SUCH, YOU CAN TELL A FIGHTER PILOT BUT YOU CAN'T TELL HIM MUCH!!"

(OLD AAF TUNE SLUNG TO "THE BATTLE HYMN OF THE REPUB")

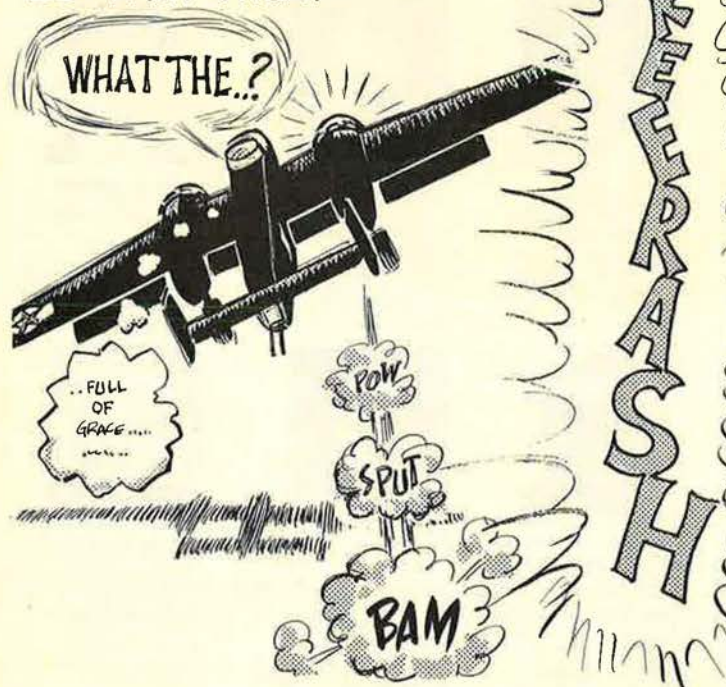
① TWO "SMOULDERING BOULDERS"- FIGHTER JOCKS FRESH FROM OVERSEAS-CHECK INTO THEIR FIRST ZI DUTY STATION.



② THE B-25 PREFLIGHT WAS A SNAP.



③ ON TAKEOFF, THINGS SUDDENLY GOT A BIT STICKY--



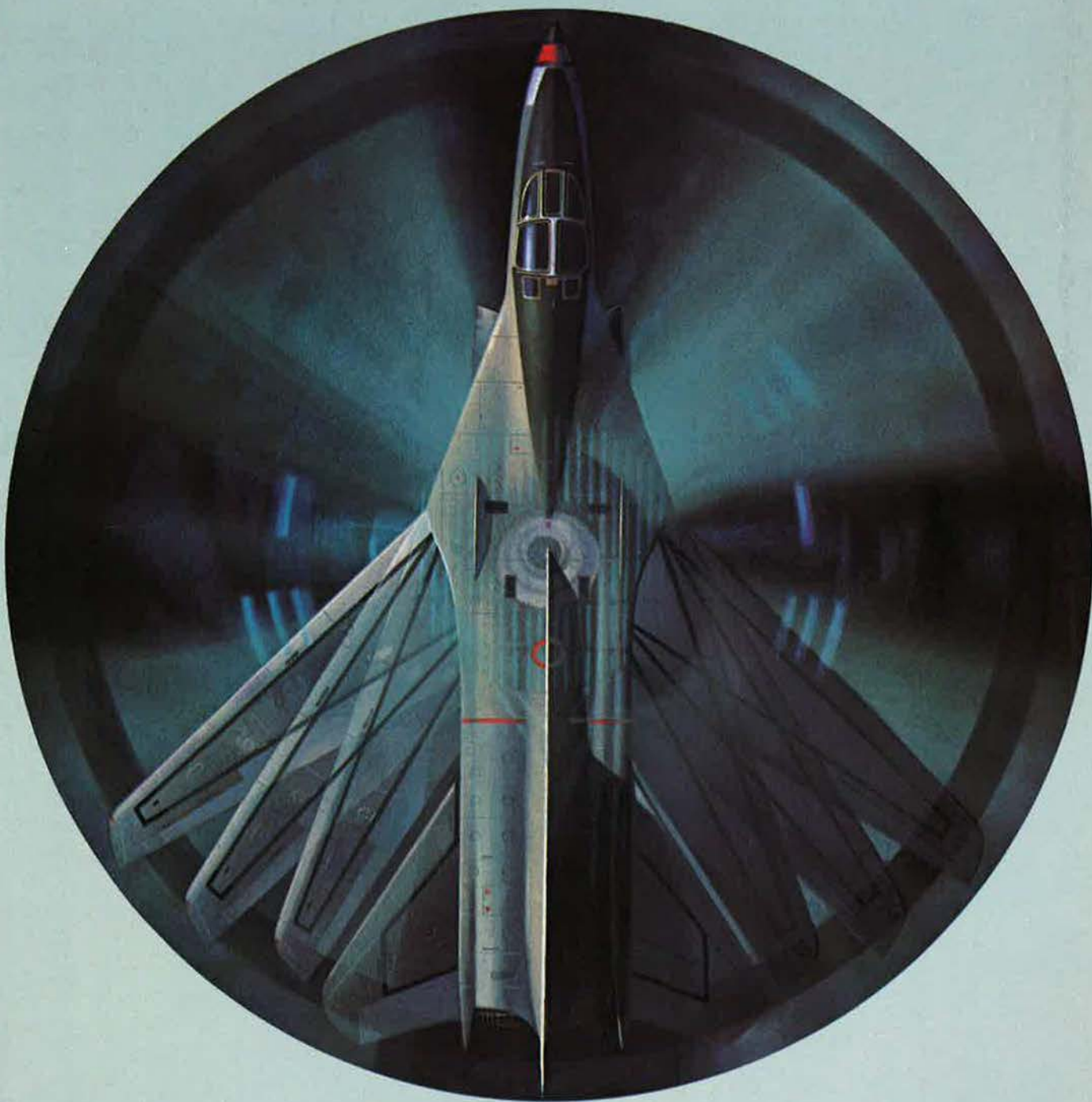
④ LATER:



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The F-15 Eagle, now well past its 1300th test flight, is a totally uncompromised air superiority fighter. In this role alone, at the planned production total of 749 aircraft, it will also be one of the two most cost-effective fighters ever in the



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