

# AIR FORCE

PUBLISHED BY THE AIR FORCE ASSOCIATION

# MAGAZINE

## AFA's 31st Annual Convention: **'A Time to Choose Boldly'**



# The USCG Falcon MMA:



## Garrett ATF3 turbofans mean more missions for the money.

When the United States Coast Guard searched for a modern MMA (Multi-Mission Aircraft), it selected the rugged Falcon 20 airframe, equipped with two Garrett ATF3 5,300 lbs. thrust turbofan engines.

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# GARRETT ATF3 TURBOFANS

The Garrett Corporation  
One of The Signal Companies



## Ready for any mission

# AIR FORCE

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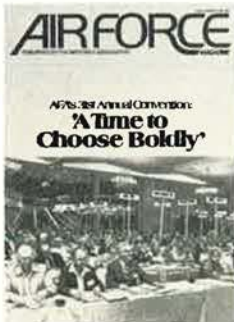
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## ABOUT THE COVER



Delegates from all over the country once again converged on the nation's capital to attend AFA's National Convention in September. Here they are conducting Association business. Convention coverage begins on p. 22. The "time to choose boldly" quote is from AFA's Statement of Policy, which begins on p. 26.

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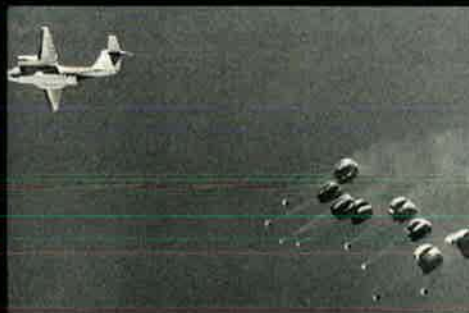
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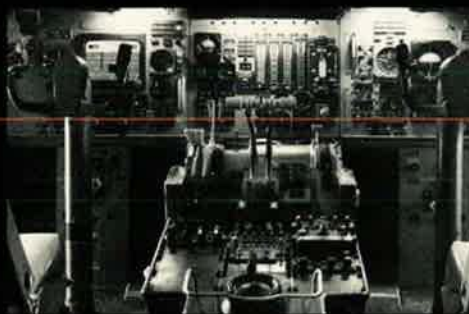


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# A 100,000 MILE REPORT ON THE YC-14

After 600 hours in the air and over 100,000 miles, the U.S. Air Force has completed its flight test program for the Boeing YC-14.

For a year they put the YC-14 through its paces. Flew her in good and bad weather. In and out of unimproved airfields. Empty and loaded.

They made over 900 short-field landings. And sometimes stopped in less than four airplane lengths. This summer, they scheduled the



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C-14 for a month-long trip. She visited airports and flew 58 scheduled flights, including 7 sorties in one day. Which is pretty remarkable for a

brand new prototype airplane. We're grateful to the USAF YC-14 test pilots. They've helped us prove what we've been saying all along.

That the YC-14 is the reliable answer for the AMST program.

**BOEING YC-14**

# Airmail

## In the Beginning

The fine article "The Birth of the USAF" by Herman S. Wolk in the September AIR FORCE Magazine fulfills a long-standing need. It summarizes, in a most effective manner, the long, continued process by which the air arm of the Defense Department progressed from an ineffective fledgling to a powerful, offensive flying force in war, and deterrent force for peace; and the personalities responsible for the metamorphosis.

I am fortunate to have served through those formative years to contribute my bit to the process. I am honored to have served under and with those now nearly legendary figures.

The article should be read and assimilated by civilian, military, and congressional personnel alike. It should be required reading in all the service academies. It is desirable that members of the USAF know how their organization came into being.

It is most appropriate for the article to appear at the time of the thirtieth anniversary of "The Birth of the USAF."

Brig. Gen. Ross Hoyt,  
USAF (Ret.)  
Washington, D. C.

## The Coed Academy

General Milton's article on "The Air Force Academy's First Coed Year" [September issue] was not only informative, but provided a very sensitive insight into Academy life. As one of the lieutenant "surrogate" upperclasswomen, I can attest to the fact General Milton really captured the mood of the Academy.

There is, however, one major change that has taken place since the article was written. The women cadets are now fully integrated into the cadet squadron living areas, and there are no longer any Air Training Officers. I can assure you that this is a very positive step in the direction of full acceptance of women as an integral part of the cadet wing. I am proud to have been associated with the cadet wing as an Air Training Officer, and I consider it a trib-

ute to the maturity and professionalism of the cadets that "surrogate" upperclasswomen are no longer necessary.

1st Lt. Bonnie L. Stephan  
Information Officer  
USAF Academy, Colo.

In reading General Milton's well-written article about the Air Force Academy, it was with a measure of sadness I noted the motivation for attending the Academy: academic excellence, flight training, pay, location, facilities, and the sense of challenge. In an earlier era, love of country and a desire to serve would also have been included.

Peter E. Boyes  
El Dorado County, Calif.

## 73d Bomb Wing's First Mission

Inasmuch as I attended the 73d Bomb Wing's Reunion at Colorado Springs and heard General Hansell's enlightening talk about our early operations, I found Mr. D. A. Ander-ton's article [on the reunion] in your September issue very interesting. However, Mr. Ander-ton has seriously misinterpreted a part of General Hansell's remarks: specifically, that part dealing with General O'Donnell's statement to General Hansell that the 73d Bomb Wing was unprepared to do the daylight precision bombing mission.

What General O'Donnell told General Hansell (and I was there) was that the 73d Wing was not capable of flying the first daylight mission as *planned*.

The facts are these: The staff flight engineer (Maj. Capers C. Gibson) and myself (wing navigator) plotted the mission that had been planned and found that, because of distances, flight altitudes, en route/target winds, and formation tactics, there was insufficient fuel for all of the aircraft to attack the target and return to base. Accordingly, we advised General O'Donnell and recommended certain changes that would make the mission possible. He in turn told General Hansell of the problem, and he agreed. The flight plan was changed, and the mission was successful.

General O'Donnell was a firm believer in daylight precision bombing. When deployed to Saipan, the 73d Bomb Wing was operationally ready and fully competent to fly daylight precision bombing missions, which we did for several months. However, the jet stream winds, the first to be encountered, presented many challenging problems. Subsequently, the entire Twentieth Air Force went to mostly night operations.

Col. Rollin C. Reineck,  
USAF (Ret.)  
Redlands, Calif.

## Calling vs. Occupation

I am writing concerning Ed Gates's article "USAF: Institution or Occupation?" which appeared in the August '77 issue.

There is a movement permeating the Air Force that is moving it from institutional toward occupational values. I feel the motivation behind this movement is different in the officer corps than in the enlisted ranks. I would like to address the problem as it pertains to a large percentage of officers.

In 1953, the majority of pilots on active duty were high school graduates who received their wings and commissions through the aviation cadet program. The high school graduate pilot was in a much higher financial and social bracket than the civilian high school graduate. The majority of these officers were content to remain on active duty as long as the Air Force would allow them. Many of these officers served as flight crew members until they retired.

Early in 1960, the Air Force went to the college degree concept. This group of officers had a completely different economic outlook. They could acquire equal financial and social status in the civilian community. The Air Force was now putting trained managers in pilot positions. Many pilots were spending one-third of their life on alert or on TDY capacity. The pilot with a college degree was no longer content in the cockpit. In fact, the Air Force published a regulation that guaranteed a pilot a staff position if he so desired after a certain tenure in the cockpit.

It is my opinion that the change from an institution to an occupation occurred in the Air Force when the requirement for a degree was instituted. This can be verified by examining the services that still com-

# The world's biggest airlift bargain.



## Those whirling Hercules props are one of the answers to soaring fuel costs.

As fuel prices rise, Hercules looks better and better to nations and airlines that need big airlifters. Or search-rescue planes. Or photo-mapping planes, forest fire fighters or ski aircraft able to handle Arctic conditions.

Whatever the mission, the propjet engines of the versatile Hercules use far less fuel than even the best fanjet engines available. Those whirling blades biting the air will save hundreds of thousands of dollars over the life of each Hercules.

Saving money for nations and airlines has become a habit for Hercules and Lockheed's airlift experts. It

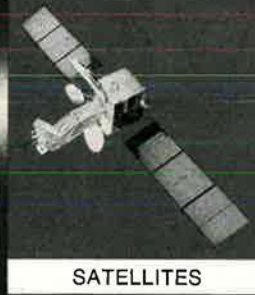
costs millions and millions of dollars less to make a new plane out of an existing one than to build one from scratch. That's what Lockheed's airlift experts have been proving for years as they find new ways to make this remarkable plane even more versatile and effective since it first flew.

Payload is up 23%. Engine power, up 20%. Range stretches out 52% farther. Cruise speed is 8% faster. And structural life has risen 100%.

Hercules the weight-lifter is also Hercules the money-saver. In many ways for many nations and airlines. It just keeps getting better and better.

**Lockheed Hercules**  
Lockheed-Georgia Company

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## **For more information contact:**

Director, International Operations  
Ford Aerospace & Communications Corporation  
728 Parklane Towers East  
Dearborn, Mich. 48126—Phone 313/332-5992  
Telex—25553



# Ford Aerospace & Communications Corporation



# Airmail

mission officers with a high school diploma. US Army officers with high school diplomas are highly motivated and usually remain on active duty until their services are no longer desired. Senior Air Force officers with high school diplomas are remaining on active duty until they are forced to retire. Many do not possess the entrance qualifications for civilian management positions. I might add, many of them make fine officers.

When the economy recovers and industry has a requirement for trained middle management, the problem may become more acute. Industry may offer the degraded officer an opportunity he can't refuse. This door will not be open to the high school graduate who will be more than content to remain on active duty.

Lt. Col. Tony DiGirolamo,  
USAF (Ret.)  
Ormond Beach, Fla.

## EF-111A

My compliments to Ed Ulsamer for the excellent article on the EF-111A in the August '77 issue. He shows throughout the article an amazing amount of detailed research into the background, reasons for, problems, and successes of the EF-111A program. The more thorny issues native to any advanced research and development program are handled most fairly.

The Air Force Association has consistently supported the evolution of this badly needed and overdue weapon system via national resolutions, and dedicated magazine and member support since its beginning in late 1971. That the system is testing exceptionally well is just credit to your help. Thanks from us all. We need that.

Col. Larry McKenna  
Redondo Beach, Calif.

## B-1 Cancellation

In September issue's "The Wayward Press," Claude Witze misinterprets the term "surprise" associated with the President's B-1 cancellation announcement. I think most people involved in the program were braced (mentally, at least) for curtailment to some degree, in spite of the fact

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that the House supported B-1 funding 247 to 178. The disturbing surprise of the President's decision was the "blockbuster" manner of its presentation and implementation.

The explosion of this blockbuster created a vacuum for the prime contractor, for which no contingency plans were available. None were permitted! Furthermore, the drastic, sudden curtailment of the B-1 effort provided no contingency relief for the military or the sup-

porting industry that was affected. Only the unpleasantness of closure cost negotiations remains.

There is a broader impact. It is evident that the blockbuster potential is built into the entire industrial base upon which our national safety stands. This picture of instability provides a most discouraging consideration for all, particularly the "little people," upon whom the nation must rely for future aerospace efforts. If we are to survive

# Airmail

in a world of growing giants, some action is certainly required to ensure a more stable industrial foundation for our national security. And that, Mr. Witze, is a point that was missed in B-1 cancellation editorials and is being overlooked in a lot of other places too!

Richard E. Henke  
San Pedro, Calif.

## P-40s in Combat

Joe Christy and I have just signed a contract for a book entitled *P-40 Hawks At War*, due out next year. Our last coauthored book, *P-38 Lightning At War*, will be out this year with Scribner's/Ian Allan. It was a success due in large part to the response of former P-38 pilots who took the time to relate their experiences.

Once again, Joe and I would like to ask former Hawk pilots, from the P-36 through the P-40 series, for help with personal experiences and with the loan of photographs. *P-40 Hawks At War* will cover the Curtiss Hawk in combat in all theaters and in all air forces with which it served (including the RAF, RAAF, RNZAF, and Armée de l'Air).

All loaned material will be handled with great care and returned as soon as possible. Responses should be directed to Joe Christy, Box 5510, Lawton, Okla. 73504.

Jeffrey L. Ethell  
Richmond, Va.

## Mayaguez Incident

I am currently researching the Air Force's role in the *Mayaguez* incident. Would like to contact anyone involved, directly or indirectly, especially aircrews who flew missions around Koh Tang Island.

Jeffrey B. Floyd  
225 Queen St., Apt. 24A  
Honolulu, Hawaii 96813

## Action Over Rimini

I am interested in the history of the Second World War in Italy, particularly the aerial actions of the Fifteenth Air Force over Rimini during 1943-44.

In order to collect documentation of the historical events, I should like to have detailed information about the air raids, such as diaries and

reminiscences of the crews that took part in the actions. Also articles published in magazines and periodicals would be helpful.

I should like also to contact veteran pilots who served with the Fifteenth during 1943-44.

Ing. Gaffarelli Alessandro  
Viale Mantegazza 51  
Rimini, Italy 47037

## Fifth AF Association?

I was in the Fifth Air Force during World War II. Would like to know if a Fifth Air Force Association was ever organized.

Kenneth W. Hughes  
208 Arthur St.  
Syracuse, N. Y. 13204

## UNIT REUNIONS

### 38th Bomb Wing (L)

The 38th Bomb Wing (L) will hold a reunion in May 1978 in Atlanta, Ga. For information contact

Doug Hagie  
3205 Laramie Dr., N. W.  
Atlanta, Ga. 30339

### 74th Observation Group

The 74th Observation Group, consisting of Hq. & Hq. Squadron, 11th, 13th, and 22d Observation Squadrons, is planning a first reunion in 1978. For information contact

Lt. Col. Charles E. Poe (Ret.)  
1116 Kevin Rd.  
Wichita, Kan. 67208

Phone: (316) 686-1150

### 75th Air Depot Wing (1952-55)

The 75th Air Depot Wing will hold a reunion at Colorado Springs, Colo., July 28-30, 1978. Contact

Vern Wriedt  
2121 Cedar St.  
Davenport, Iowa 52804

### 75th Air Service Group

The 75th Air Service Group (WW II), which served in Georgia, Oklahoma, Kansas, and Guam, will hold its first reunion on May 27-29 at the Executive International Inn, St. Louis County, Mo. For information and reservations contact

H. L. "Dick" Williams,  
Lt. Col., USAF (Ret.)  
1510 Knoll Circle Dr.  
Santa Barbara, Calif. 93103

Phone: (805) 965-4595

### 81st Tac Fighter Wing

A reunion was held in Las Vegas, July 22-23, 1977, with 105 attending. Next reunion will be in two years. Send change of address to

Col. Al Lambert  
4353 S DeForest St.  
Las Vegas, Nev. 89103

Phone: (702) 876-0433

### 90th Bomb Group (H)

The "Jolly Rogers," 90th Bomb Group (H) (1942-45), will hold its eighth annual reunion at Williamsburg, Va., July 27-30, 1978. The ninth reunion will be at Colorado Springs, September 20-23, 1979. Contact

Tom Keyworth  
38 Crestlyn Dr. E  
York, Pa. 17402

### 358th Fighter Squadron

The 358th Fighter Squadron, 355th Fighter Group, will hold a reunion at Orlando, Fla., the last week of June or the first week of July 1978. Dates will be finalized early in June.

Douglas B. Warden  
P. O. Box 123  
Plainville, Conn. 06062

### 401st Bomb Group (H)

The 401st Bomb Group, stationed at Deenethorpe, England, in World War II, held its second reunion in Denver August 1-4, 1977, with 165 members and wives attending. The next reunion will be in St. Louis in 1979. Please get in touch with

Ralph Trout  
P. O. Box 22044  
Tampa, Fla. 33622

### 414th Bomb Squadron

The 414th Bomb Squadron Association, 97th Bomb Group (H), will hold a reunion at Colorado Springs, Colo., on August 3-6, 1978. Contact

Chuck Merlo  
7335 Neckel  
Dearborn, Mich. 48126

### 453d Bomb Group

The 453d Bomb Group, Eighth Air Force, stationed at Old Buckingham Airfield, England, will hold its annual reunion at San Diego, Calif., July 13-15, 1978. Contact

Donald J. Olds  
1403 Highland  
Rolla, Mo. 65401

### 553d Bomb Squadron

Inasmuch as the 553d Bomb Squadron Association is relatively new, we have not set dues, but donations for postage, etc., are welcome. A quarterly newsletter is being published, and a first reunion is planned for August 1978 in Denver. Former members of the squadron please contact

L. D. "Denny" McFarland  
P. O. Box 5543  
Abilene, Tex. 79605

### USS TENNESSEE

A reunion of those who served aboard the USS *Tennessee* (BB-43) will be held at Denver, Colo., on June 16-17, 1978. Contact

Edward Frause  
4682 S. Pennsylvania St.  
Englewood, Colo. 80110

Phone: (303) 781-6953

# A-10 PILOT REPORTS:

“I'd like to point to the European environment with bad weather and a situation in which there are 10 enemy tanks. I'VE GOT TO GO IN AND KILL ALL 10...I'LL DO BETTER IN THE A-10.”

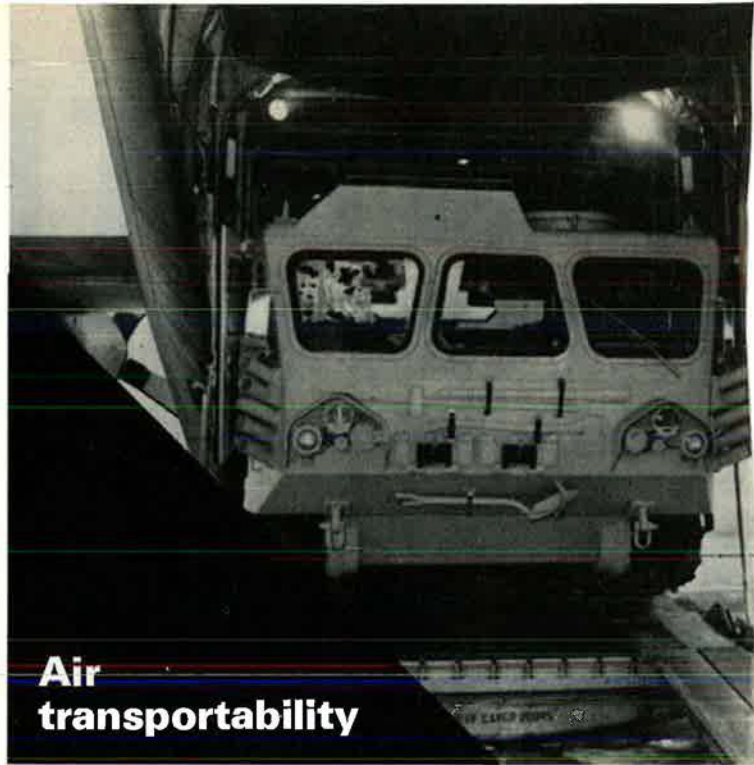


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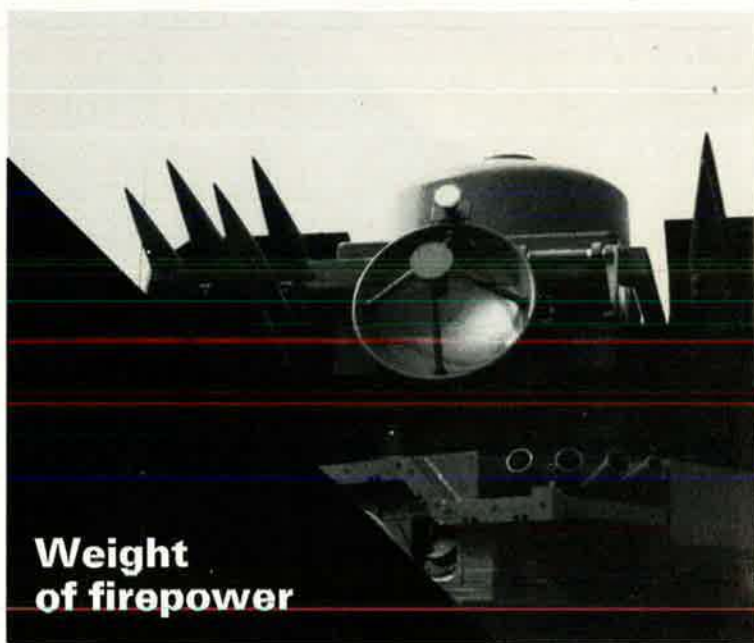
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# Aerospace World News, Views & Comments

By William P. Schlitz, ASSISTANT MANAGING EDITOR

Washington, D. C., Oct. 6

★ The successful third free flight of the Space Shuttle Orbiter took place on September 23. The smooth separation from the carrier aircraft and glide to landing was such a carbon-copy of the previous flights that, pending examination of mission data, it only confirmed NASA's decision to cut that phase of the development program from an originally planned eight flights to five.

As on the first free flight, Astronauts Fred Haise and Gordon Fullerton were at the Orbiter controls. Fitz Fulton and Tom McMurtry flew the 747 carrier on all three flights. Richard Truly and Joe Engle manned Orbiter for the second flight September 13.

The two remaining flights in the series are tentatively scheduled for October and November.

Other phases of the Shuttle development program are also moving right along:

- The first external propellant tank—the largest Shuttle component—came off the assembly line early in September. (There is speculation that these tanks, now doomed to destruction in the atmosphere, may have a future as the core of orbiting habitats.) The tanks are 154 feet (forty-seven m) long and 27½ feet (8.4 m) in diameter, compared to aircraft-like Orbiter's length of 122 feet (37.2 m).

- The space agency has identified some forty payloads for eleven

Shuttle missions in 1980, the first year of operation. (NASA has announced that the initial payload to be orbited will conduct studies in earth resources, environmental quality, and severe-storm research.)

- NASA is moving toward across-the-board automation of Shuttle launches. (It required perhaps 600 people manning consoles to launch the Apollo series of missions; the Shuttle force will be reduced to about fifty. Forty missions a year will launch from the Kennedy Space Center in Florida, some twenty from Edwards AFB, Calif.)

★ USAF has given the green light—in the form of a \$120-million-plus contract—for full-scale development of a high-speed, deadly accurate electronic system “designed primarily to detect and destroy enemy air defense systems.”

PLSS—for Precision Location/Strike System—is to be used against a variety of targets either by day or night and in all weather.

Essentially, PLSS will use highly instrumented aircraft equipped with special distance-measuring and other gear to detect, say, electronic emissions from enemy radars.

Relayed from several aircraft to a ground-based center, the information will be computer-analyzed to



Loading and clearance tests of an M-60 main battle tank aboard a Boeing YC-14 Advanced Medium STOL aircraft were recently conducted at Edwards AFB, Calif. Boeing engineers calculate that a C-14 production version could airlift a combat-ready M-60 some 500 miles (805 km).

pinpoint precisely the radar's type and location—a form of triangulation. Once a tactical air control center has decided to attack the target, PLSS can direct aircraft "to perfectly computed points for the release of guided glide or free-fall weapons." According to officials, the entire sequence—from target acquisition to strike—could take just minutes.

And PLSS would not be confined to targets radiating electronic signals; using photogrammatic techniques (a form of aerial reconnaissance photography, it could locate accurately such other targets as airfields, bridges, and enemy bunkers. In particular, though, PLSS is being designed for tactical use "against air defense systems that depend on very accurate guidance and detection radars to control anti-aircraft artillery and surface-to-air missiles" that have emerged as the major threat to air operations.

Prime contractor for PLSS is Lockheed Missiles & Space Co. Subcontractor IBM will handle weapon guidance, and E-Systems airborne detection equipment. Rockwell International's Collins Government Telecommunications Division will develop ground-based communications. Other subcontractors include Harris Corp., Sperry Univac, Control Data Corp., and Motorola.

★ With its launch on September 5, Voyager-1 joined its identical twin on the long journey to Jupiter and Saturn, the two largest planets in the solar system (they are 318 and ninety-five times earth's mass, respectively). If all goes well, Voyager-2 might then be diverted to visit Uranus (whose rings were only recently discovered).

There were some immediate problems following the August 20 launch of Voyager-2, but these were resolved satisfactorily by the space probes' handlers at NASA's Jet Propulsion Laboratory at Pasadena, Calif. Analyzing Voyager-2's malfunctions, and correcting them, scientists did some quick fixes before launch to forestall similar troubles with Voyager-1.

Each Voyager carries a total of eleven scientific instruments that will beam back to earth photographs and measurements of the huge planets' atmospheric conditions, their temperatures, and magnetic properties. Of special interest will be scrutiny of the planets' satel-

lites, one of which—Saturn's Titan—is known to have an atmosphere.

But receipt of planetary data from the Voyagers is years in the future, with Voyager-1 (on a shorter trajectory than first-launched Voyager-2) not passing Jupiter until March of 1979. The Saturn fly-past won't occur until November of 1980, and that of Uranus early in 1986.

But longer time spans than these are involved. Once their planetary investigations are complete, the Voyagers will sail out into deep space. Scientists estimate that the two craft can be monitored for about thirty years, which in itself is a mere blink of an eye in a journey that could be eternal. (However, if either Voyager is intercepted by intelligent beings during its wanderings, discs are aboard that contain such familiar earth sounds as surf, wind, and thunder, as well as greetings from people in sixty languages, among other things.)

★ Marring NASA's launch record were two successive failures of major communications system launches at the Kennedy Space Center in Florida in September.

On September 13, a Delta rocket exploded fifty-four seconds after ignition. The vehicle's payload was the European Space Agency's Orbital Test Satellite, a \$42 million proj-

ect. Debris rained down on the Atlantic and on the barren coast of Cape Canaveral.

The second disaster occurred on September 29, when an Atlas Centaur rocket that was to orbit an Intelsat IV-A satellite malfunctioned and was deliberately destroyed sixty seconds after launch. The satellite—with a \$49.4 million price tag—was to replace one of two smaller-capacity systems currently in geosynchronous orbit over the Indian Ocean.

A replacement Intelsat IV-A for the second Indian Ocean communications satellite is scheduled for launch in November.

★ US Navy has picked United Technologies Corp.'s Sikorsky Aircraft Division, Stratford, Conn., for full development of the new Light Airborne Multi-purpose System (LAMPS) Mk III antisubmarine helicopter.

General Electric Co.'s Aircraft Engine Group, Lynn, Mass., will build the LAMPS Mk III engines. (IBM is the prime contractor with "overall responsibility for performance of the entire" system.)

Production of the aircraft depends on a decision by the Defense System Acquisition Review Council expected in early 1978.

Navy wants LAMPS Mk III sys-

## MIA/POW Action Report

### Hanoi Returns Remains of Another Group of US MIAs

In late September, the Vietnamese turned over to US authorities the remains of an additional twenty-two American MIAs. This brings to sixty-one the remains of US servicemen that have been released thus far. (Identification of the latest group will be determined by the forensic laboratory in Hawaii.)

The State Department's Frank Sieverts, Deputy Coordinator for POWs and MIAs, said that the Vietnamese continue to promise further efforts to learn the fate of the 2,500 Americans still missing in Southeast Asia. (Of these, about 700 were lost in Laos and Cambodia, where cooperation with US authorities over the missing-

in-action issue is nonexistent.

Despite food shortages and other impediments, Mr. Sieverts said, the Vietnamese officials promised to continue searching for remains and information that may indicate the fate of missing American servicemen.

The transfer of remains was the second this year. In March, the Vietnamese returned twelve bodies to a Presidential commission visiting Hanoi to discuss the normalization of relations.

In the latest turnover, Mr. Sieverts said that the Vietnamese did not raise the subject of US war reparations and that the matter was conducted "in a spirit of dignity."

# Aerospace World

tems aboard frigates, destroyers, and cruisers as a means of strengthening fleet defenses against the growing Soviet submarine menace. An integral part of its capability would be RAST, for Recovery Assist, Secure, and Traverse, which allows ships to safely launch, recover, and secure the helicopters in rough seas.

The torpedo-carrying LAMPS helicopters would have a three-man crew, operate at altitudes up to 10,000 feet (3,048 m), and fly at speeds up to 170 mph (274 km/hr).

LAMPS helicopters could attack subs located by sophisticated shipborne electronic gear, or, extensively outfitted with detection equipment themselves, could locate, track, and attack submerged enemies on their own.

Current Navy plans call for purchase of more than 200 production LAMPS helicopters.

Edged out in the contract competition were Boeing Co.'s Vertol Division, near Philadelphia, Pa., and engine-builder Avco Lycoming, also of Stratford, Conn.

★ The death of a Marine Corps pilot in the crash of an AV-8A V/STOL on September 6 brought to a head the controversy over the series



Artist's rendition of a sub-hunting Sikorsky LAMPS Mk III helicopter flying from a US Navy vessel. LAMPS capability would include RAST—for Recovery Assist, Secure, and Traverse—making operations from smaller ships possible.

of crashes of the aircraft. (See August '77 issue, p. 15.)

The Harrier apparently was flown into the ground while on a low-altitude tactical ordnance delivery training mission.

Shortly thereafter, Hq. USMC ordered the suspension, pending a "comprehensive review," of that part of the AV-8A training program dealing with low-level training, including weapons delivery and tactics.

According to DoD, "The rising number of accidents attributed to pilot error has caused concern that

the Corps' training realism may have induced excessive aggressiveness during maximum performance maneuvers at low levels."

Since USMC started flying the Harrier, there have been twenty-six crashes for a total loss of twenty aircraft. Ten pilots were killed in those accidents. Of them, DoD commented: "Only a few of these occurred during the unique vertical or short takeoff and landing flight operations. Even a lesser number can be attributed to maintenance error or other aircraft problems."

A spokesman for the Royal Air

## Intelligence Briefing...A Roundup

• The Defense Intelligence Agency recently reported to the Congress that the Soviet Union is steadily improving the sophistication of its capability to produce complex weapons and other defensive systems. DIA's Director, Army Lt. Gen. Samuel V. Wilson, said that "we still do not have a full appreciation of the extent that the Soviet economy defers to the military. For instance, we know that military industries receive preferential treatment in materials, services, and in the recruitment of skilled labor." General Wilson testified that DIA, working jointly with the Central Intelligence Agency, arrived at a figure of \$118 billion (in constant 1975 dollars) for 1976 Soviet outlays for defense and weapon systems. This compares to \$84 billion for US defense spending in the same year. The Soviet investment in weapons procurement is growing each year and in 1976 hit 141 percent of the 1966 level.

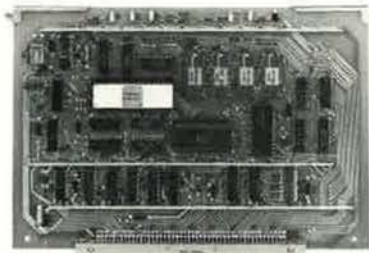
The USSR currently has about 2,600 aircraft in its fighter-interceptor force and, according to the DIA Director, that number is expected to grow. General Wilson indicated that,

based on the most current evidence, "the accuracy of [Soviet ICBMs] is better than we initially thought it was," although the hard-target kill capability of Soviet ICBMs "is still somewhat limited. The PKs, or damage expectancy numbers, that we have come up with based on their accuracy and yield assessments are still down in the more or less unacceptable level for a [Soviet] planner" but could improve with the upcoming generation of missiles.

• Defense Secretary Harold Brown disclosed on September 15 that the USSR is developing four entirely new ICBM systems, the first official US recognition that such a program is under way. He said: "What is certain is that we cannot ignore their efforts or assume that the Soviets are motivated by considerations of defense or even altruism." The Secretary said that "we must continue to maintain a defense posture that permits us to respond effectively and simultaneously to a relatively minor, as well as to a major, military contingency." To this end "we plan to raise the level of US defense spending by approximately three percent a year in real terms."



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# Aerospace World

Force in Washington said that he knew of no plan by that service to curtail the low-level training of its Harrier fleet, also the victim of a series of crashes in recent years.

★ Lt. Gen. Ira C. Eaker, USAF (Ret.), has been chosen to receive the Wright Brothers Memorial Trophy for 1977. Announcement of General Eaker's selection was made in Washington by John R. Alison, a former AFA National President and currently President of the trophy-sponsoring National Aeronautic Association.

General Eaker, a former Deputy Commander of the Army Air Forces who retired in 1947, was cited for "his significant contributions to the growth and progress of aviation in this country."

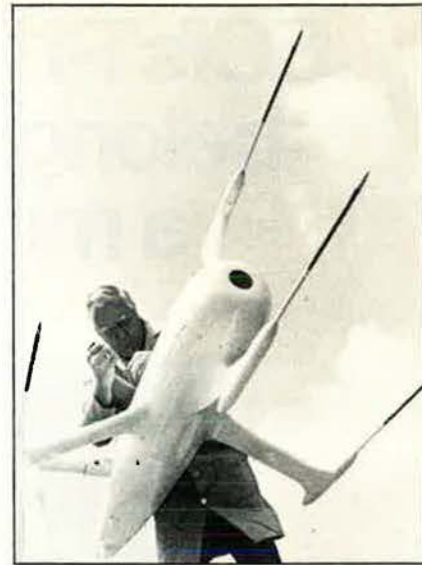
Aside from his military service (he participated in or led many pioneering flights in the 1920s and 1930s, and led the first attack by US bombers over Europe in World War II), General Eaker served as an executive with Hughes Tool Co., Vice President of Douglas Aircraft, and is currently Vice Chairman of the United States Strategic Institute. Among other civic activities, General Eaker helped develop an aircraft industry program to hire the physically handicapped.

A nationally syndicated columnist, General Eaker's reminiscence of Gen. H. H. "Hap" Arnold appeared in the September issue of this magazine.

★ In early September, Defense Secretary Harold Brown issued an interim set of rules to DoD's various military departments and defense agencies to provide guidance in controlling the export of critical US technology and related products.

US policy on international trade is a delicate balance between promoting trade with other nations and controlling the sale of goods and technology that might be detrimental to the security of the US.

In order to safeguard national security without unduly restricting exports, DoD, together with other departments and agencies, plans to "identify and maintain a con-



*Props for Star Wars scenes? Actually, above left is the world's largest anechoic (echo and vibration free) chamber at the Manned Space Center in Houston, Tex. Built by Keene Corp.'s Ray Proof Div., it simulates space-void conditions in testing antennas. Above right, a system under development by Northrop Corp. is designed for use aboard remotely piloted vehicles to sense sound waves and heat radiation for target acquisition.*

tinuously updated list of specific critical technologies and/or end products whose export should be restricted for reasons of security. This list will be issued to those government agencies responsible for administering export controls.

Further, in cooperation with the intelligence community, DoD will attempt to improve information "per-

taining to technology transfer by studying in greater depth . . . US technology transfers . . . to ascertain their impact on the military capabilities of potential adversaries and on critical US lead-times."

DoD also will monitor international projects that might entail the transfer of critical technologies.

The Defense Department intends

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to improve interagency communication and coordination on matters of export controls, Secretary Brown said.

★ The fifteenth attempt to cross the Atlantic in a hot-air balloon ended in failure off the coast of Iceland on September 13.

The balloon—the *Double Eagle*—became trapped in a circling air mass and ditched in the ocean. Its two-man crew, Maxie Anderson and Ben Abruzzo from Albuquerque, N. M., were rescued safely by helicopter from the US Navy installation at Keflavik.

The balloon—shaped like a gondola and stocked with food, emergency survival equipment, and an assortment of radios—launched from Massachusetts on September 9.

Since the first attempted Atlantic balloon crossing in 1873, five persons have lost their lives in such endeavors.

★ The Fighter Attack System Program Office (SPO) and the International Fighter SPO, both part of the Aeronautical Systems Division's Deputy for Systems, Wright-Patterson AFB, Ohio, have been merged.

The move was made to conserve resources, officials said.

The consolidated Fighter Attack SPO is being managed by Col. William J. "Pete" Knight, former program director for the International Fighter SPO.

Previously, the International Fighter SPO oversaw production and program management of the F-5E single-seat fighter and the two-seat F-5F fighter-trainer. The Fighter Attack SPO managed a variety of aircraft including the F-4 Phantom, A-7, and A-37 attack aircraft.

★ **NEWS NOTES**—Craig Myers, at eighteen the youngest US mayor when elected in Liberty Center, Ohio, in 1975, resigned in September and enlisted in the Air Force for guaranteed training as a **weapons mechanic**.

**Seven US biological experiments** were among the French, Czechoslovak, Polish, Romanian, Bulgarian, Hungarian, and East German experiments that were orbited and returned to earth aboard **Soviet Cosmos-936** this past summer.

The UK has chosen **Hughes Aircraft's TOW antitank missile** to arm its Lynx helicopter. TOW, for tube launched, optically tracked, and

wire guided, has a range of 12,300 feet (3,750 m).

**NORAD** celebrated its **twentieth birthday** in September.

**TAC's first T-37 undergraduate pilot training simulator** has gone operational at Reese AFB, Tex.

Navy's **seventh nuclear powered guided missile cruiser, Texas**, was commissioned in September.

USAF has completed incineration at sea of its **entire supply** (2,300,000 gallons) of the **defoliant Herbicide Orange**.

**Dr. James C. Fletcher**, NASA Administrator from 1971 to 1977, has accepted the **vice presidency of the National Space Institute**, a nonprofit educational and scientific public membership organization founded by the late **Dr. Wernher von Braun**.

About **600 full-time personnel** will operate AFRES's 442d TAW at Richards-Gebaur AFB, Mo., following its closure as an active-duty base.

FAA plans to **upgrade civil air-**

**craft structural fatigue standards** by requiring the application of "damage-tolerance design" to all new transport aircraft. (The basic principle underlying DTD is that if a key component fails, others take over its job.)

NASA has asked the Office of Management and Budget to **cut its Civil Service complement by 500 slots** by end of FY '78. The reduction is based on a study of current and future needs, the space agency said.

**Twenty USAF and Army personnel** were killed on September 14 when an **EC-135** from Seymour Johnson AFB, N. C., crashed in New Mexico. The aircraft was bound for Nellis AFB, Nev., to participate in an exercise.

**Died: John F. "Johnny" Martin**, a lead test pilot for Douglas Aircraft during the '40s and '50s who logged some 15,000 flying hours in his career, in Willow, Calif. He was seventy. ■

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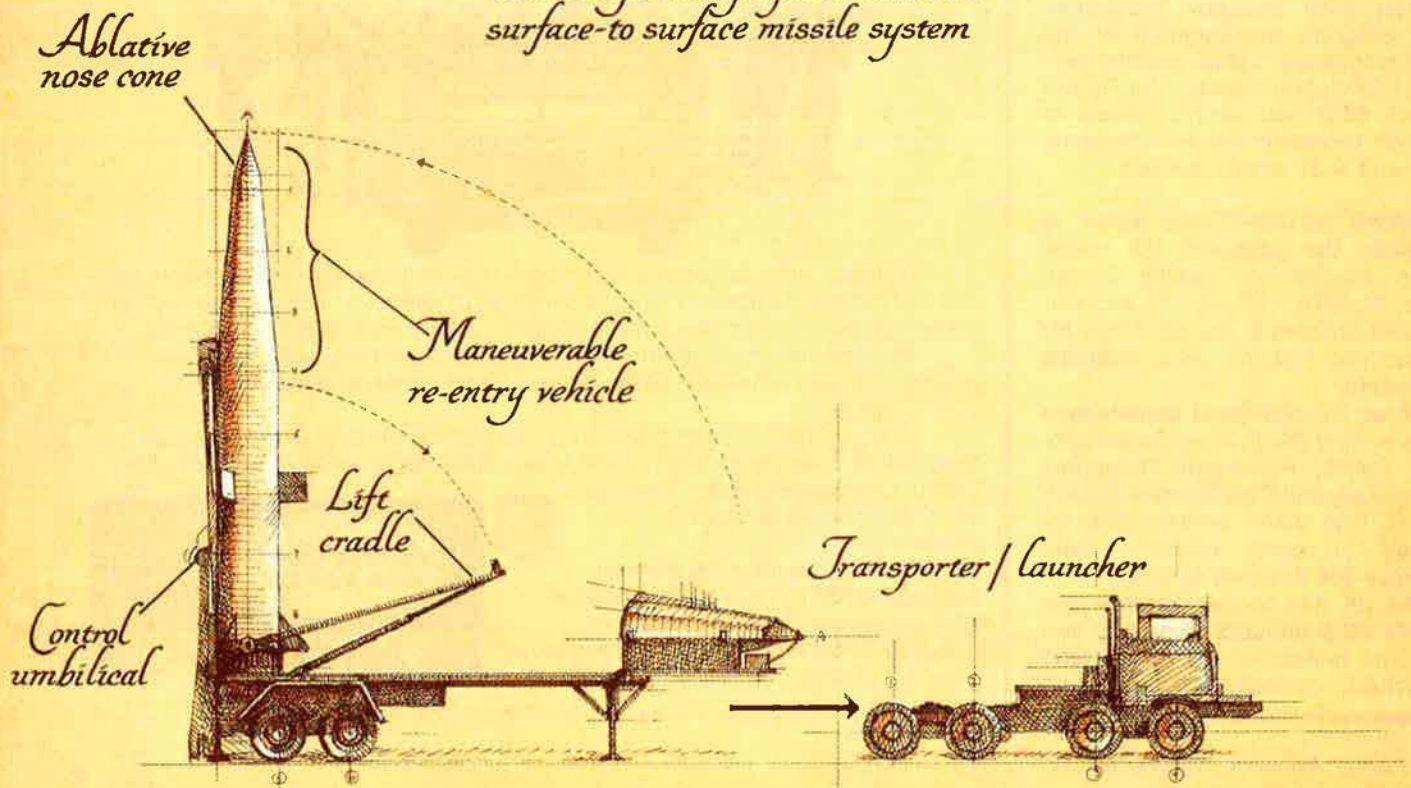
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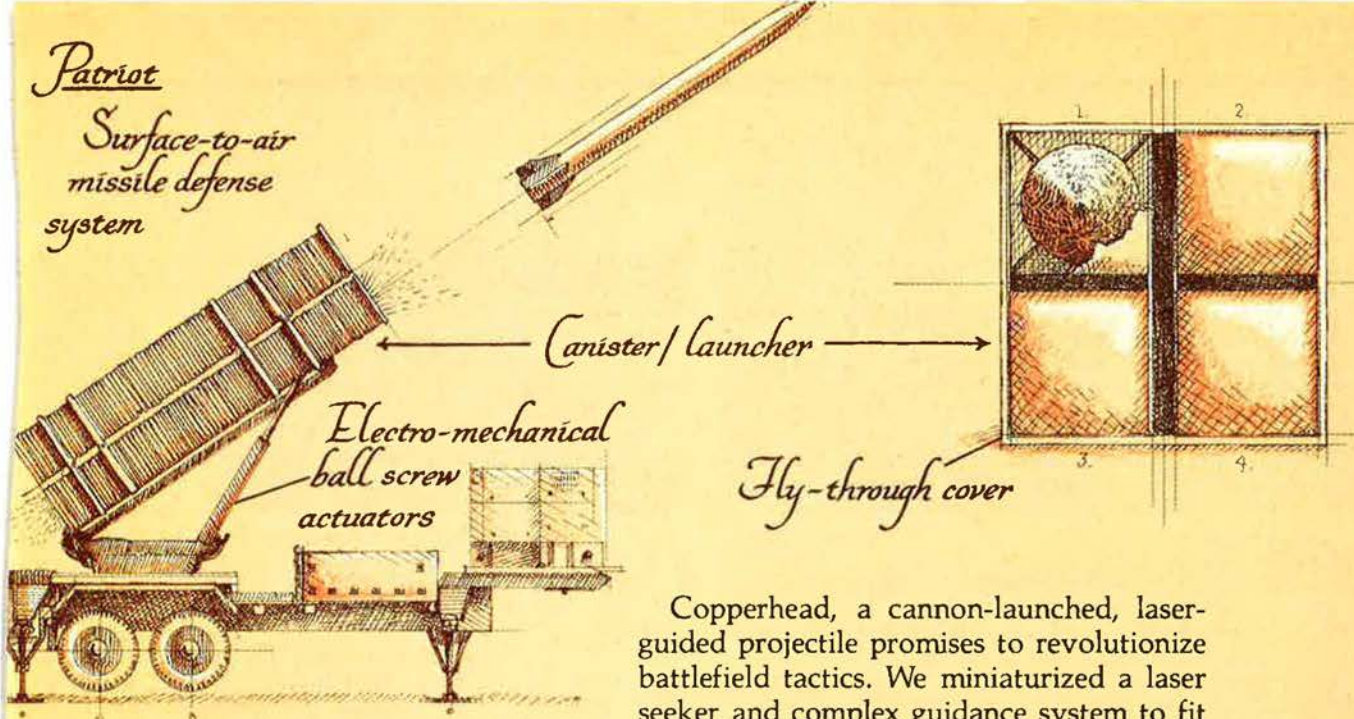
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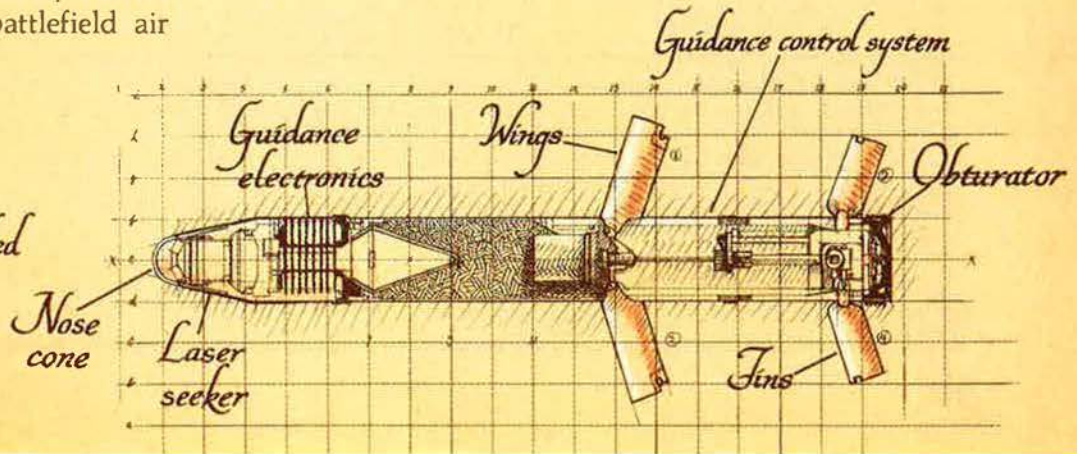
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# The Wayward Press

## Fallout From the "Neutron Bomb"

There are times when it seems reasonable to wonder whether newspapermen read newspapers.

Nine years ago, in September of 1968, the Associated Press submitted a list of questions to the Atomic Energy Commission that resulted in what AP called "an unusually frank discussion" of the nuclear weapons program. The resulting article was transmitted to member newspapers and widely printed in the US. The clipping in our file comes from the Baltimore *Sun* and includes these paragraphs:

"Q. What progress is being made on 'advanced concepts' of nuclear arms, such as the 'neutron bomb'?"

"A. The AEC is conducting research on enhanced radiation weapons (neutron bombs). Such a device would be very 'clean.' The term 'very clean' would mean a device in which only a small amount of the energy released would come from fission. The blast effect would be very small, but the radiation effect from neutrons would be predominant. The AEC also is conducting research on pure fusion weapons. The status of programs for developing such weapons is classified."

Now, in 1977, a reporter named Walter Pincus, of the *Washington Post*, examines the budget of the Energy Research and Development Administration, AEC's successor, and finds there is funding provided for the ER warhead. To his credit, Pincus hastily added that scientists have been working on the concept for many years, that the subject had been discussed at congressional hearings earlier this year, and that ERDA is the agency charged with control of nuclear warhead production. But his copy editors came up with a headline that screamed: "Neutron Killer Warhead Buried in ERDA Budget." The "Killer Warhead" phrase was one that adhered to the weapon through most of the ensuing headlines. If there is a non-killer warhead, that concept never was explained. Presumably, it would demolish buildings and leave people unscathed. It is a weapon, if the *Post's* headline writers can produce it, that would permit our bombers to take out an airplane factory, a ball-bearing plant, or oil refinery, and not hurt any of the people working in them.

Prodded by a few members of Congress, led by Sen. Mark O. Hatfield of Oregon, soon the press was portraying the ER warhead—planned for artillery shells and a surface-to-surface missile, not for bombs—as the product of a plot to hide the program from public attention and turn out a horrendous new weapon. The *Post's* editorial writers, taking their cue from the headlines instead of the facts, came up with an essay that prompted a sharp rebuttal from D. R. Cotter, Assistant to the Secretary of Defense for Atomic Energy.

In a letter to the editor, which the *Post* printed, Mr. Cotter had to point out that the funding was not "hidden" and refute the *Post's* charge that "the whole thing has the look of a black-bag job." He cited chapter and verse in the law and in reports to Congress—the facts that should have been known to the editorial writers. As for Mr. Pincus, the Pentagon official disputed his assertion that the program had moved in "great secrecy," arguing that the ER project was no more heavily classified than required by the Atomic Energy Act.

Mr. Cotter had more trouble with the *Nation*, a liberal weekly that had a spasm of editorial hysteria, brought on by the *Post's* reporting and commentaries. The *Nation* found the Pentagon "ecstatic about this new weapon" and said the history of ER "offers a rare glimpse into the military mind in its most modern convolution." The magazine said, "as might have been expected, it was done behind everyone's back, including the President's." The assistant to the secretary refuted these allegations. He called the *Nation* article "nonsense" and said the editors owe an apology to the men in uniform. They responded there would be no apology. In the face of the published facts, the *Nation* persisted that the ER

warhead project "never got called to the notice of the most responsible officials." The concerned congressional committees, of course, knew what was going on. There had been congressional debate about ER in the Kennedy years. The first test was underground, in 1963. Any adequate newspaper morgue, or clipping file, should contain references to all these events.

There was, as usual, nothing monolithic about the approach of the press to ER weaponry. The Los Angeles *Times*, in an early editorial, warned President Carter that he will be making the deployment decision "against a background of public confusion and misunderstanding as to what the controversy is all about."

The *Times* said frankly that "the basic responsibility for this confusion lies at the door of the press and the broadcast media."

It was a realization not overlooked when the issue was up for debate in the House. More than two months after the *Times* outburst, Rep. Robert Carr of Michigan departed from his customary posture on military matters and spoke in defense of the ER program. He also knew well what he had seen in the press. Declared Congressman Carr:

"I must tell my colleagues I think that they are misinformed. That is excusable, because a lot of the information about the neutron bomb that has been available has only been available through the newspapers.

"I can tell the members, as a member of the Military Application of Nuclear Energy Subcommittee, one who has studied this with a great deal of care, with a great deal of thought, and has decided with a great deal of trauma, that this is a morally preferable weapon to those that we already have and which it will replace, that the newspaper accounts of this weapon and what it will do have not been accurate. They have been misleading interpretations of what the neutron weapons are all about."

The *Post*, of course, has major impact in Washington, and its persistent alarmism—"Killer Warhead" remained the favorite buzz words for the headlines—was reflected in many other newspapers. The Boston *Globe* found it "appalling to learn that the Pentagon is pushing ahead with the neutron bomb." It saw a symbol of "the moral idiocy of military technocrats" and warned that now "doomsday becomes a distinct possibility."

A little less hysterical, the Milwaukee *Journal* chanted some of the distortions of fact in a loud editorial voice: "The Pentagon deserves rebuke for trying to quietly slip past Congress the funding for 'neutron' tactical nuclear warheads." The *Journal* went on to dispute as "nonsense" the claim of some critics that "a clean, more precisely targetable nuclear weapon is somehow less moral than a dirty, indiscriminate one." But the newspaper argued that instead of the ER weapon, we should depend on more and better conventional weapons.

In the Chicago *Sun Times*, readers learned that ER weapons "are worthy of a Dr. Strangelove and, at least for now, they do not belong in the arsenal of the United States—or of any other country." The editorial concluded that "the United States and other nations have a duty to keep neutron bombs sealed inside Pandora's box."

The radio commentators also contributed to the general misunderstanding. A prime example came from a mid-August broadcast by Edward P. Morgan, who circulates a syndicated "air column" called *The American Report*. Mr. Morgan, who says he offers only "the shape of one man's opinion," was imaginative in his attack:

"Great news. The Pentagon is back into the pesticide business, and big. Given the covert tendencies of the military brass, they may never have actually gone out of the pesticide business, but they were supposed to. No more defoliation of

Vietnam or similar destructiveness, the orders went out, remember? But now the scientific geniuses must taste the thrill of triumph like fellow scientists before them tasted when they learned how to deal with the boll weevil and save untold bales of cotton. For this pesticide destroys the greatest pest of all—people.

"The agent is the neutron bomb, which kills humans without materially damaging buildings. You might call it the ultimate weapon of capitalism: dispose of the citizenry, but protect private property. You might call it humanicide. You might also call it suicide and/or insanity. . . . What a pity this gift to the peace of mankind could not have been unveiled on the Fourth of July a year ago as a special inspiration to celebrate the Bicentennial with patriotic pride and good will."

As already indicated, there was no unanimity in the media, and not all commentators worked up the frenzy displayed by Edward P. Morgan or the *Boston Globe*.

An outstanding example is provided by the *Los Angeles Times*, which did more than point a scolding finger at other reporters and editorial writers. The newspaper's science writer, Robert Gillette, went back to the files and reported that the ER weapon concept is almost twenty years old and was the focus of another big debate in 1961. That was when the Kennedy Administration was pressed to let nuclear testing continue, and a major reason, discussed openly on the floor of the US Senate, was the requirement to learn more about neutron bombs.

The *Los Angeles Times* had several editorials, only one of which criticized the media for misleading the public. The truth, the *Times* said, is not that the ER weapon "is the brainchild of cold-blooded Pentagon planners who value the preservation of property above human life. . . . [It is] not a long-range strategic weapon that would be used against Soviet population centers in the event of an attack on the United States. . . . Its main purpose would be to destroy Russian tank armies. . . ." The editorial concluded that the debate should be confined to the real issue: "whether less-deadly nuclear weapons might make nuclear war more likely—and not on the erroneous notion that Dr. Strangelove is loose in the Pentagon." A few days later, another *Times* editorial took another step, winding up: "The debate is not over; from what we know of it so far, we are inclined to think that deployment of the neutron bomb would be a sensible step in a world where, for the foreseeable future, nuclear weapons are an unfortunate necessity."

The *Philadelphia Inquirer* lamented a new "controversy filled with emotion." This editorial writer also looked in his files and found news stories on the subject dating back at least to 1970. The *Inquirer* pleaded for rationality instead of "scare tactics" to govern our decision-making. At the conservative *Chicago Tribune*, the editors looked, and this is what they saw: "Those Americans who blanch whenever the Pentagon does anything to defend the free world are white as a sheet over the neutron bomb. Some are saying it represents a new high in inhumanity. And they are wrong." The newspaper said the ER warhead "is an example of the newer type of weapon which is highly accurate and therefore need not be highly destructive. With such weapons available to us, the Russians would be less sure about our response—or our nonresponse—to a Soviet move. They are the sort of alternatives which Mr. Carter will have to turn to if he is going to justify his refusal to go ahead with the B-1 bomber."

At the *Washington Star*, the editors were equally skeptical of hysterical interpretations. "It doesn't make any sense," they wrote, "to be more horrified at a bomb that doesn't blow up buildings than at one that does. Although destroying factories, transportation centers and arsenals is a time-honored war measure, there are buildings nobody's mad at." The *Star's* common-sense approach continued: "The whole subject of chemical and biological weapons is circumscribed with terrors and taboos that may or may not be sound guides to decisions about using them."

Out in Kansas City, the editors of the venerable *Star*, published in the cow country, looked at the "summertime flap" and could not figure out why so many people were surprised,

as well as dismayed. They said that NATO needs the ER weapon, and told why: "It answers the long-time fear that it might become necessary to destroy the people and cities of Western Europe in order to 'save' them. The only target would be Warsaw Pact forces crossing the borders of free Europe in an invasion. Moreover, this further military deterrent can be added at comparatively low cost. The neutron bomb can end up as an unused museum piece if the Soviet Union and its puppet allies will simply let their non-Communist neighbors live in peace."

In nearby Baltimore, the morning *Sun* and the *Evening Sun*, sister newspapers, were not entirely in step. Charles W. Corddry, the *Sun's* esteemed military correspondent, may be the only reporter who raised the question of how the Russians can defend their tanks against ER warheads. He found an authority who estimated it would take twenty years to devise a way of protecting Red soldiers from the radiation. Editorially, his newspaper could find no "compelling case" for deployment of the new warhead and said the idea should be resisted. The *Baltimore Evening Sun*, on the other hand, found the case for the new weapon "a fairly strong one." The newspaper applauded the Senate for approving development funds, while reserving the right of Congress to veto the program sometime in the future.

Not to be overlooked in this survey, "investigative" reporter Jack Anderson, the columnist, looked at the ER warhead and decided "it may not be quite the ogre that its critics claim." Anderson said he talked to the White House, the Pentagon, and congressional sources and is convinced the weapon is purely defensive and might help stop any Soviet invasion of Western Europe.

Were the subject of ER weaponry not so serious and so important, some of the media output would be funny, if not downright hilarious. Probably the best example of sheer absurdity was aired on *The Today Show*, over NBC television on August 3. NBC News sent a reporter named Al Johnson down to Amarillo, Tex. According to the transcript, Mr. Johnson appears to have had his camera crew film shots of two major local industries. The script, of which we have a copy, then reads like this:

"AL JOHNSON: Amarillo is a small city by Texas standards, a unique city where the vitality of its economy is dependent on bombs and beef. The Iowa beef processing plant is the second largest employer in the area. It is no secret how they do things here.

"But how they do things *here* is a secret. It is called the Pantex plant, the city's largest industrial employer. Pantex has been assembling all kinds of nuclear bombs since 1951, and it is the place where the new neutron bomb will be built as soon as the President gives the order.

"Are plant officials worried about the possibility of an accident?"

"MAN: Well, I think you have a possibility of an accident no matter where you're working, and I think our safety record will show anybody who wants to look at it that we have one of the safest operations in the country.

"JOHNSON: And what do the residents of Amarillo think about living with the neutron bomb as a neighbor?"

"MAN: It don't bother me none.

"WOMAN: I really haven't given it much thought.

"WOMAN: Why should I be afraid? You want me to tell you something? You're going to go when the Lord calls you home.

"JOHNSON: Amarillo is a Spanish word that means yellow. However, in this case, yellow does not mean that the people here are afraid. They have just as much fun as other Texans."

Then, the transcript says, the item was closed with a film clip of Texans whirling in a square dance.

This insult to television viewers was broadcast coast-to-coast. And that's the way it is.

—CLAUDE WITZE

For more about the so-called "neutron bomb," see the article by Senior Editor Edgar Ulsamer, starting on p. 66 of this issue.

Dedicated to the thirtieth anniversary of the Air Force's founding as an independent service, the Air Force Association's 1977 National Convention presented a kaleidoscope of programs and events highlighting the challenges of the next thirty years . . .

# Reminiscences and Prognoses - **AFA's 1977 National Convention**

BY EDGAR ULSAMER, SENIOR EDITOR

**R**EACHING the fundamental goal of AFA's constitution "depends on how well we reach the American people. We must do our job persuasively, without being alarmist. We must reason rather than shout. But we must get those facts across that are vital to rally public support of what's needed to meet that central goal, 'the achievement of such aerospace power as is necessary for the defense and protection of our national heritage as free men.'"

Informing the American people in the manner urged by AFA's new President, Gerald V. Hasler, was the theme and purpose of the Association's Thirty-first Annual Na-

tional Convention held September 18-22 in Washington, D. C. The event, dedicated to the thirtieth anniversary of the Air Force's "birthday" as an independent service, drew record attendance, from the Opening Ceremonies to the standing-room-only "Salute to Congress" program and the full house at the Aerospace Development Briefings and Displays.

Concern for the welfare of Air Force people ranked high on the Convention's agenda and was summarized in AFA's comprehensive policy paper on "Defense Manpower Issues."

The focus on people also was evident in the series of productive

meetings of the AFJROTC Instructors, AFA's Enlisted Council, Junior Officer Advisory Council, the Arnold Air Society's and Angel Flight's Executive Boards, and the Aerospace Education Foundation. AFA's commitment to the men and women of the Air Force was recognized, in turn, by the Convention's keynoter, CMSgt. Walter E. Scott, Enlisted Aircrew Advisor of MAC's 60th Military Airlift Wing, who said, "The Air Force Association speaks loud and clear to the needs of the United States Air Force, the total force, enlisted, officer, civilian, active, Reserve, and the National Guard. . . . One of the greatest misconceptions concerning AFA has been that it represents officers only. As a matter of fact, there are almost 22,000 active-duty enlisted members and . . . 10,000 retired, Reserve, and Guard enlisted members, totaling more than 33,000 AFA members, over twenty-one percent of the total Air Force Association membership." (Also see p. 61.)

Fittingly, the Convention's first gala event was AFA's festive dinner honoring the twelve Outstanding Airmen of 1977 whose dedication and professionalism caused Gen. William V. McBride to predict that today's Air Force is "second to only one other, tomorrow's Air Force . . . because of these men and women we honor tonight."

## Key USAF Issues

"To assure credible deterrence we see, as the first priority, retain-



USAF Chief of Staff Gen. David C. Jones, speaking at a luncheon in his honor, restated the importance of manned strategic penetrating bombers in the years ahead.





Secretary of the Air Force John C. Stetson (left) and Assistant Secretary of Defense for Communications Command Control and Intelligence G. P. Dinneen (right) listen to briefers at AFA's Aerospace Development Briefings.

ing and modernizing the strategic triad that has proved itself as a global peacekeeper so well for so long. . . . The Air Force's proposed medium-throw-weight MX ICBM system would guarantee the Soviets a net loss in surviving forces relative to the US regardless of how they might stage a massive strategic attack. We know of no more persuasive deterrent than the demonstrable ability to inflict unacceptable disadvantage on the attacker. . . . We reaffirm our belief in the need for a manned strategic penetrating system that can operate in conjunction with air breathing standoff cruise missiles." These and other thoughts of AFA's 1977-78 Statement of Policy, adopted unanimously by the delegates, found strong echoes in various Convention proceedings.

Speaking at a luncheon in his honor, Secretary of the Air Force John C. Stetson reported that "we have been making steady progress in missile technology and in new ways to base our ICBMs. We are bringing these together in the MX program. This work is particularly important in view of the impressive momentum of the Soviet ICBM program," including four new ballistic missile systems.

The cruise missile systems now under development in the US, Secretary Stetson said, "will add new dimensions to our nuclear and conventional forces. They will reinforce the message to the Soviets that

any attack on the United States will be answered with devastating consequences." Current designs of cruise missiles, he added, "are only the start of a whole new family of related and very sophisticated offensive and defensive weapons."

Secretary Stetson foresaw a "revolution" in military operational capabilities because of new USAF space systems—now on the drawing board or on the horizon—by providing "the improved warning and surveillance capabilities we need [through] satellites that could detect ships, aircraft, and missiles anywhere in the world." But as space systems become more important to national defense "we need to insure that they do not become more vulnerable. The Soviets already have run multiple tests of satellite killers. To counter that threat, we are exploring new ways to protect our satellites, including things like space surveillance systems and techniques to reduce vulnerability."

Another promising Air Force program is the Airborne Laser Laboratory that is being used to "examine the possibilities of high-energy laser weapons in many Air Force applications. This is a very important area because lasers could revolutionize *all* of our concepts of combat. A first-generation laser weapon system could be deployed in the 1980s," according to Secretary Stetson.

Stressing the importance of close USAF-aerospace industry coopera-

tion, the Secretary said "the rapid spread of technology has put the scientist and the engineer in the front line of defense along with the aircrews." Rejecting the myth of a conspiratorial liaison between the government and defense industry, he asserted, "I have seen no evidence to suggest that the defense industry exercises any unilateral control or even undue influence over the size and direction of our military effort. On the contrary, I believe the military-industrial complex is in fact an important national asset. Our achievements in developing a strong military defense structure are due in large part to the technology and productivity of American industry."

Secretary Stetson called special attention to AFA's Aerospace Development Briefings and Displays, saying, "It is encouraging to see the high degree of industry participation in this Convention. The exhibits . . . show the excellent results we can achieve when government and industry work together with a common goal."

While expressing puzzlement about the Soviet military buildup in excess of reasonable deterrence levels, Secretary Stetson warned against the belief that major conflict with the Soviets "is inevitable. But we must surely understand that there are some very serious situa-



USAF Chief of Staff Gen. David C. Jones and Secretary of Defense Harold Brown at the Convention's Chief Executives Reception.



USAF Vice Chief of Staff Gen. William V. McBride (right) and Deputy Chief of Staff for Research and Development Lt. Gen. A. D. Slay (center) at a reception in the Exhibit Hall.

tions which could lead to confrontation with the Soviets.”

Singling out the Middle East as a potential trouble spot, he said, “The Soviets are increasing their energy demands, and their own easily-accessible oil and gas fields are being depleted. By the mid-1980s, they will face some very difficult decisions regarding their sources of oil and gas, and the economic consequences of much higher-cost crude oil. . . . [The] prospect of obtaining cheap Middle East oil by military means, and denying it to others, undoubtedly has crossed their minds. . . . The free world simply cannot let the Soviets be tempted to try to control Middle East oil.” It becomes imperative, therefore, “that we and our allies” maintain a strong defense posture to keep the Soviets “in check there and elsewhere.”

### The Chief of Staff Speaks Out

“It is essential for the future of our country that we continue to pursue negotiation rather than confrontation, with strategic negotiations as a first priority. But in these negotiations, we must assure that the equal sign in the deterrent equation doesn’t become blurred,” USAF Chief of Staff Gen. David C. Jones said at the Convention luncheon in his honor. While expressing disappointment concerning the decision to forego production of the B-1, General Jones pointed out that “no single weapon system spells the difference between success or failure of strategic deterrence. The key is in the aggregate triad capability, and we are working on alternatives to the B-1—cruise missiles as well as

other initiatives to keep the triad modern and impregnable.

“We believe it is important that this country continue to have a manned penetrating aircraft. The B-52 can continue in this role for many years, and we advocate an option for an FB-111H, a much improved version of the FB-111 using B-1 engines and other B-1 technology features. We are not faced with

all or nothing issues in our programs. . . . I am confident that national wisdom will maintain a rough strategic balance and overall military balance. To that end, the Secretary of Defense [Dr. Harold Brown] has said that ‘we plan to raise the level of US defense spending by approximately three percent a year in real terms.’ ”

Concerning the topical issue of the pending Panama Canal treaties, General Jones told the Convention, “our security interests depend on access, not perpetual ownership of the Canal. Our influence in the Western Hemisphere for many years may depend on a just and responsible solution, the kind of solution embodied in the treaties being debated today. Cooperative management with a friendly Panama will serve our interests—and protect access to the Canal—far better than a vain struggle with a hostile Panama over issues of a bygone era. . . . The Joint Chiefs of Staff are unanimous in this outlook, and I can assure you that our support is not based on just



Convention keynoter CMSgt. Walter E. Scott of MAC's 60th Military Airlift Wing underscored AFA's "loud and clear" voice on behalf of the Air Force's enlisted ranks.

loyalty to the Administration. Our deliberations have been open and candid and our position is heartfelt. The security risks are far greater without the treaties than with them."

A view opposing the Panama Canal treaties was offered next day to the Convention delegates, meeting in the final business session, by Rep. Philip M. Crane (R-Ill.), an AFA member. Following a subsequent restatement of the Joint Chiefs of Staff position by General Jones, the delegates adopted a policy resolution that urges the Administration to "resolve the Panama Canal issue, without either compromising fundamental US defense interests or good relations with our Latin American neighbors." An earlier resolution opposing the Panama Canal treaties was withdrawn by its sponsors.

In looking back over thirty years of Air Force history, General Jones dramatized the continuous, fundamental impact of technological change on USAF by saying that in the year the Air Force became a separate service, the first practical digital computer was unveiled: "It contained 19,000 vacuum tubes, sprawled over 15,000 square feet, [and] weighed thirty tons. That same computing power is available today in an integrated circuit the size of a sugar cube. . . . One of the key challenges of the future—for the Air Force and the nation—is to continue to act responsibly and wisely as we soar up the technological curve. For when I see man's giant strides in technology in only a few years . . . and compare this to the lack of progress man has made in dealing with man, I am struck by the stark contrast. The ideals of human dignity, charity, brotherhood, and justice have been recognized for thousands of years. Yet we are little closer to achieving them on a global scale than when Christ preached the Sermon on the Mount."

Assessing the "very fundamental differences" between the US and the USSR, General Jones predicted that these differences will "continue regardless of cooperation and negotiations. We are an open society; they are a closed society. When we try to exercise influence, it is to maintain



NATO's Assistant Secretary General for Defense Support, formerly DoD's Deputy Director of Defense Research and Engineering for Strategic and Space Systems, John B. Walsh (right), received the 1977 von Kármán Award.

access, to work on a cooperative basis; their influence is typically used to gain control."

While acknowledging the steady, high growth in Soviet military capabilities and the Soviet lead in military hardware production rates, General Jones stressed the US advantage of "spirit." Soviet discipline, he said, in general, "is based on fear and locked in rote patterns, their initiative is the kind that wears blinders and collapses with disruption, their morale is low. The people contrasts are startling. We have a good thing going—a great nation moving down an open road, and a great Air Force helping to defend it."

#### Other Convention Highlights

The Chief Executives Reception and Buffet brought together government, Air Force, and defense industry leaders in an informal setting. Heading the list of Pentagon leaders in attendance were Secretary of Defense Harold Brown and Chairman of the Joint Chiefs of Staff Gen. George S. Brown. An innovative element of the 1977 AFA Convention was AFA's "Salute to Congress" Reception in the Caucus Room of the Cannon Office Build-

ing on Capitol Hill. More than 200 members of Congress attended to exchange views with AFA Convention delegates.

Capping the 1977 National Convention was the gala black-tie dinner dance commemorating the Air Force's founding as a separate service in 1947. The event served as the backdrop for the presentation of AFA's highest official tribute, the H. H. Arnold Award, to Sen. Howard W. Cannon for his "indispensable role in the modernization of US tactical aircraft and missiles" as Chairman of the Senate's Subcommittee on Tactical Airpower.

The event's formal program, a dramatic review of thirty years of Air Force history and achievements, featured TV star William Conrad and the US Air Force Concert Band and Ceremonial Band under the baton of Col. Arnald Gabriel. The echo of Conrad's opener, delivered in stentorian tones, will long ring in the memory of those present: "Over the thirty year history of the United States Air Force rolls the thunder of big names." The thunder of those names . . . Tokyo Raiders, Ploesti, Jolly Green Giant, Hanoi Hilton . . . was a fitting climax, to a "big" Convention, AFA's thirty-first. ■

## AFA's 1977-78

# Statement of Policy

Adopted unanimously by delegates to AFA's Annual National Convention, September 19, 1977.

The Soviet Union continues the cold war behind the smoke screen of détente. The Kremlin increases Soviet military power at a high rate, unswayed by US and NATO restraints. The USSR's military programs and force levels exceed reasonable deterrence requirements. The Soviets outnumber us in every major weapon category except heavy bombers and aircraft carriers, and they outproduce us across the board. Our qualitative leads — in people and technology — no longer offset fully the widening numbers gap. With an economy half the size of ours, they invest half again as much as we do in both conventional and nuclear weaponry. Why?

Soviet capabilities span the spectrum from modern sea, air, and ground forces that have global reach, to offensive military space weapons. Soviet ideology is intrinsically antagonistic toward our own. As Soviet President Leonid Brezhnev has stated, the inevitability of communism's victory over capitalism remains Moscow's first commandment. The bulk of all Soviet defense spending goes toward the maintenance and enhancement of forces that constitute a direct threat to the United States and our European allies.

The military balance between the United States and the Soviet Union today stands in danger of reversal: from US superiority fifteen years ago to rough equivalence now, and, unless we take resolute, timely action, to US inferiority in the 1980s. The continuing Soviet commitment to military superiority is a matter of totalitarian decree; our national will to retain essential equivalence is being diluted by apathy, neo-isolationist tendencies, and the inclination to ascribe to the Soviet leaders the same goals and aspirations that motivate us. In this first year of our nation's third century of independence, this Association believes we must take a long, hard look at ourselves, where we stand in the world, and what it will take to remain a free and viable nation.

### The National Will

We remain convinced that the people of this country are willing

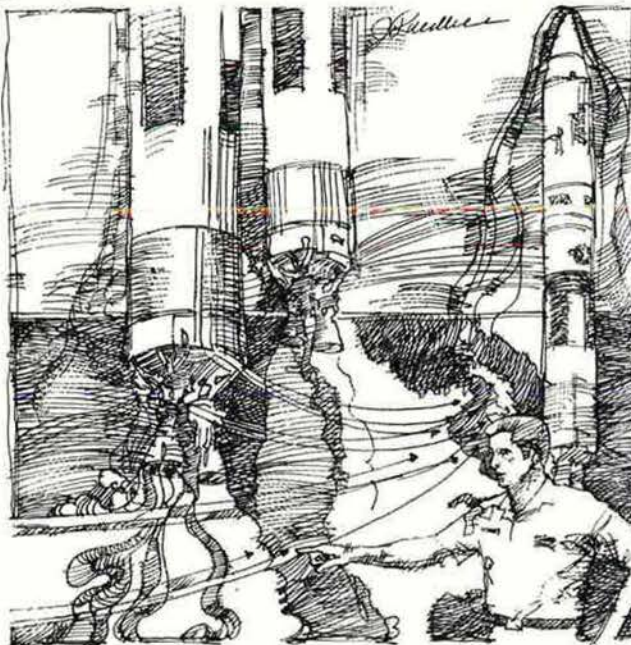
to pay the price of second-to-none, stalwart defenses for ourselves and our allies, and are unwilling to settle for second-best. To believe otherwise is to sell America short. Yet, we find evidence of support for policy options that could reduce US defense capabilities to second-best, premised on gloomy and unsubstantiated assumptions about the American people's lack of support for essential defense expenditures. We find no reason to doubt this nation's ability to choose boldly if it understands the facts about its alternatives. Recent public opinion polls substantiate this belief. But an electorate kept in the dark cannot be expected to make enlightened choices. A nation that isn't asked compellingly to rally its strength probably won't.

The principle of partnership between the people and their leaders must include the setting of national security goals and the formulation of fundamental strategies for reaching these goals. The first step is to fulfill the people's right to know, unfiltered and unalloyed, the fundamental facts and professional opinion concerning decisions on issues that bear on the survivability of our way of life. This must include frank assessment of the nature and extent of the politico-military challenges that confront us.

### The Fallacy of Minimum Deterrence

The job of the US armed forces is to deter conflict or, failing that, to bring conflict rapidly to a successful conclusion. Ideally, military power exists to preclude the need for its use. But our reliance on deterrence must not blot out the military fact of life that forces unable to inflict unacceptable punishment on an aggressor do not deter and may even invite attack.

Strategic deterrent forces are fundamental to preventing war. Their credibility affects decisively the credibility of all other military forces and of our foreign policy. An otherwise credible US conventional warfare deterrent is weakened if the potential adversary has the edge in stra-



**"We find no reason to doubt this nation's ability to choose boldly if it understands the facts about its alternatives."**

tegic capability, because it can checkmate all US responsiveness to provocation and aggression. We are concerned, therefore, about proposals to retreat to a strategic philosophy of minimum deterrence limited to the ability to destroy only a certain percentage of Soviet industry and cities and devoid of nuclear war-fighting capability. Such a posture is strategic inferiority by another name, both in fact and in international perception. It would generate the same false sense of security the Maginot Line provided France in World War II.

We see these cardinal fallacies: The adversary to be deterred has to share this defense philosophy to the extent of permitting us to hold his own population hostage and of restraining his own force structure accordingly. The Soviet Union clearly is unwilling to do either. It has explicitly and consistently rejected the concept of nuclear sufficiency and mutually assured destruction. The Kremlin's strategic war dogma is unambiguous and a matter of record. The Soviets believe that nuclear war, in a case of last resort, is both thinkable and winnable. An impressive arsenal of new intercontinental ballistic missiles, tailored for attack on US strategic forces, plus MIRVed, long-ranged, submarine-launched ballistic missiles, is now entering the Soviet inventory or under flight test to translate dogma into hardware reality.

Cutting back our strategic force structure to fit the concept of minimum deterrence, according to the proponents of this concept, will lower the defense budget. But in the process, the nation would be shortchanged. Budget savings would be minor; our deterrent posture impotent and hence not credible. Lastly, we would be abandoning the hope of confining nuclear war to counterforce (strategic war-fighting) targets. The difference could be ninety million American lives. In our view, deterrence that fails to dissuade Soviet attacks on US cities is morally unacceptable as national policy.

### **Keeping Deterrence Credible**

To assure credible deterrence we see, as the first priority, retaining and modernizing the strategic triad that has proved itself as a global peacekeeper so well for so long. We acknowledge the unique and crucially important contributions to deterrence of our fleet ballistic missile (FBM) submarines and fully support their upgrading through the Trident program. But those proponents of minimum deterrence who want to assign the FBM force most of the deterrence function are ill-advised. Sea-based deterrence, without synergistic reinforcement from ICBMs and strategic bombers, could fall prey eventually to advances in Soviet ballistic missile defense and antisubmarine warfare technologies.

The ICBM force, on the other hand, presents uniquely different problems to a potential attacker. Attacking USAF's ICBMs would force an aggressor into the open, without the cloak of slow attrition or stealth, since he would have to stage massive and rapidly detectable raids against targets deep inside sovereign US territory. Consequently, the attacker must allow for the distinct possibility that his action will cause the US to launch its ICBMs before his missiles can reach their targets.

Further, the ICBM force remains the component of the triad with the highest state of readiness and this nation's principal counterforce weapon. Neutralizing this force is clearly a high-priority goal of Soviet strategists, who spare neither effort nor resources in their long-term drive toward placing the US ICBMs at risk through a first-strike capability. While realization of this objective—if feasible at all—is

many years away, we see an urgent need to fortify the long-term survivability of our ICBM forces and, at the same time, to demonstrate US determination to block the Soviet quest for a first-strike posture. Such US action would go a long way toward making nuclear war unthinkable for the Soviets. The Air Force's proposed medium-throw-weight MX ICBM system would guarantee the Soviets a net loss in surviving forces relative to the US regardless of how they might stage a massive strategic attack. We know of no more persuasive deterrent than the demonstrable ability to inflict unacceptable disadvantages on the attacker.

### **Strategic Systems**

We reaffirm our belief in the need for a manned strategic penetrating system that can operate in conjunction with air-breathing standoff cruise missiles. Contrary to popular belief, some technologies essential to the highly promising air-launched cruise-missile concept are as yet in a formative stage. These weapons are years away from operational deployment. Even after the first generation of ALCMs reaches operational status, it will require still more years of maturing and refinement before they can attain the wide range of demanding capabilities that already are being attributed to them.

The need, therefore, for a mix of manned penetrators and standoff systems remains fundamental. We are encouraged by the Administration's plans to explore follow-on systems to the B-52 with an eye on their eventual deployment. To attain ALCM's full potential as expeditiously as possible requires that the entire cruise-missile program be placed under Air Force management and that at least two aerospace industry teams be involved in their development and production.

Soviet space activities invalidate the view of those who hold that space can be maintained as a sanctuary from warfare if this country would only forego all forms of active and passive space defense. We, therefore, urge the unstinting application of advanced technologies that increase the survivability of US military space systems and their ability to function without interruption throughout the trans-attack and post-attack phases of nuclear war. We are confident that the Space Shuttle will contribute significantly to military space capabilities, but believe that all broad national portions of this program should be funded in their own right and outside of the Air Force and Defense Department budgets.

### **SALT Positions**

The men and women of this Association welcome President Carter's statement that the United States position at SALT must be one of "enlightened self-interest" and that, if no accord is forthcoming, the US "can and will do what it must to protect its security and to ensure the adequacy of its strategic posture." However, we continue to view as non-negotiable preconditions for any SALT accord the provisions of equivalent capabilities and full verification; we continue to support all legitimate efforts to bring about equitable and balanced limitations of weapons of mass destruction and to strengthen strategic stability. We applaud the Administration's steadfast refusal to rush toward a SALT II agreement by acceding to less than equitable terms.

We believe, on the other hand, that a Comprehensive

Test Ban Treaty, prohibiting the testing of all nuclear explosive devices, entails major risks to national security. Low-yield tests are beyond our ability to detect, yet would provide important information about both nuclear hardening and nuclear weapons design for a power not party to the accord, or for a signatory willing to circumvent the terms of such an agreement.

Lowering, over time, the nuclear weapons expertise of this country and the Soviet Union to the point where other technologically advanced nations could in fact surpass us invites instability and increases the risk of nuclear war. In addition, foregoing all nuclear testing incurs risks brought on by the aging of our nuclear stockpile, handicaps future US nuclear weapons designs (as long as the Soviet lead in throw-weight continues), limits capabilities of our weapons, and leads to the disbanding of our nuclear weapons laboratories, a vital national resource.

### **New Tactical Weapons**

In this context, the Association salutes the Administration's determination to remain unswayed by widespread misrepresentation of the purpose and nature of enhanced radiation weapons—the misnamed "neutron bomb." These proposed nuclear theater weapons, whose release is controlled by the US President, can reduce sharply casualties among civilians and friendly troops. These weapons are

essential for the modernization of our forces in Europe and would increase the credibility of our NATO deterrent.

We are encouraged by indications of plans to increase the budget of our general-purpose forces by three percent per year in real terms during the next five years, and we urge support of this critically important force modernization. With tactical and strategic capabilities together forming cohesive and mutually supporting military deterrence, we believe that the funding of the former must not come at the expense of the latter.

Thirty years after becoming a separate military service, the United States Air Force is small when measured in terms of numbers of aircraft and manning. But the superb quality of USAF's people, along with their ingenuity and that of American industry, has provided a harvest of advances in force effectiveness and weapons that more than compensates for these numerical factors.

A decade and a half ago, President Kennedy told us that the nuclear age forces us to choose between being a great generation of Americans or being the last. We believe that, given the facts, the present generation of Americans will choose greatness. ■



## Only one Precision Class 1 inertial navigator has proven itself up here.

### SPN/GEANS.



Flying aboard operational SAC B-52Gs based at Barksdale AFB, SPN/GEANS recorded average unaided positional accuracy of .079 nmpth with ground alignment and .15 nmpth with in-air alignment.

Similar results were obtained in formal CIGTF tests at Holloman AFB and numerous flights on USAF's Speckled Trout aircraft.

Only SPN/GEANS has demonstrated Class 1 INS in-air alignment performance and it has done this in operational flights with operational SAC crews.

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"Would be a quantum jump for B-52 avionics, greatly enhancing reliability and mission survivability."

"Displays and navigation accuracy make SPN/GEANS the single most valuable piece of equipment on-board."

"Tremendously enhances B-52 survivability and ability to penetrate low level during EWO missions."

SPN/GEANS was developed by USAF expressly for strategic bombers. Its balanced design blends superior performance with maximum producibility, maintainability and reliability. Which means that operational,

technical and cost-of-ownership risks will be minimized for current requirements and for years to come.

System software has been run on four different computers. Flight line, intermediate and depot level support equipment is developed and proven.

SPN/GEANS has passed USAF performance validation, qualification, maintainability and radiation-hardening tests. It is **proven in-flight** and ready to go now. It is the only INS that provides a performance margin for future B-52 weapon delivery systems.

For further information, contact your local Aerospace and Defense Group representative or Bob Mueller, Director of Marketing, Guidance and Navigation, in Minneapolis, 612/378-4408. Or John Bailey, Marketing Manager, Guidance and Navigation, in St. Petersburg, Fla., 813/531-4611 ext. 3541.

# Honeywell

# At NASA, telephone conferencing helps keep expenses out of the stratosphere.

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Rather than send important managers, scientists and engineers off on trips to technical meetings at NASA field centers or contractor locations in other parts of the country, NASA has key project people meet in specially-designed conference rooms at headquarters and contractor locations—and converse over telephone circuits.

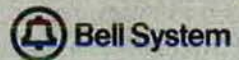
It not only saves the government and taxpayers

a lot of money, but also keeps NASA's project managers near their desks.

The solution came from the Bell System.

Bell's teleconference setup with overhead microphones, speakers and switching equipment worked so well when it was installed that NASA now uses a teleconference network with 38 different locations. Find out how much you can save with Bell System audio teleconferencing by calling your Bell Account Representative.

**The system is the solution.**





# AFA Policy Paper: Force Modernization and Readiness

Adopted unanimously by delegates to AFA's Annual National Convention, September 20, 1977.

As the Soviet Union pursues with unrelenting determination its quest for military preeminence, our misgivings parallel those of the Chairman of the House Armed Services Committee, Congressman Melvin Price. He categorized termination of production of the B-1 strategic bomber, of the Minuteman III ICBM, and of the short-range attack missile (SRAM), combined with stretch-out of the MX program and a cut in nuclear naval carrier strength, as "unilateral arms restraint" on the part of this country. Along with Chairman Price, we search in vain for signs of commensurate Soviet restraint. Instead we note the Defense Department's recent report that "the Soviets continue to modernize their strategic posture at a steady pace" by deploying new SS-17, SS-18, and SS-19 ICBMs, new Delta-class strategic submarines, and Backfire bombers.

The decision to terminate production of the B-1 and Minuteman III will have a major effect on the strategic posture of the United States. It calls for a comprehensive, careful reappraisal and restructuring of these forces. While requisite analyses and economic tradeoff studies are not yet complete, several fundamental requirements are evident already.

## MX Missile Full-scale Development

The MX advanced ICBM program must be entered into full-scale engineering development in FY '79 to prevent deficiencies in US strategic capabilities in the 1980s. The intercontinental ballistic missile—with its speed, accuracy, low operational cost, constant high readiness, and short flight time to target—remains the principal means for coping with time-urgent, hardened targets and thus for terminating nuclear conflict below the level of assured destruction. But this option remains open only as long as these weapons can cope credibly with the advancing technology and expanding capability of the Soviet strategic forces. By the time the

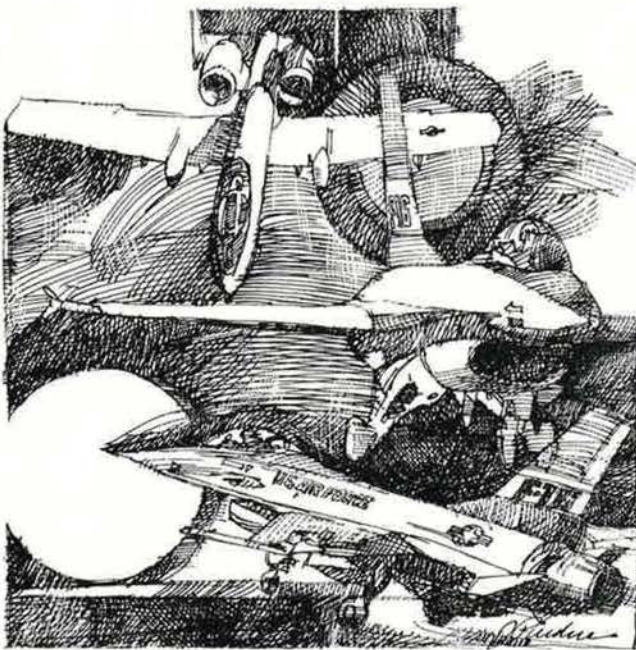
first MX could become operational—assuming its expeditious development and deployment—conversion of the Soviet ICBMs to the new generation of high-payload, improved-accuracy weapons is likely to be completed. The bulk of that Soviet force then will be comprised of SS-19s, a weapon system almost identical to MX in size and throw-weight; the numerical size of the Soviet ICBM force will continue to be half again as large as the US small throw-weight Minuteman force; and the Soviet arsenal also will include some 300 SS-18s, the largest ICBM in the world, with twice the throw-weight of MX. Total throw-weight—and thus the potential number of individual warheads—of the Soviet force then would be at least five times that of the US ICBM force. Such a pronounced imbalance would be highly destabilizing and an open invitation to Soviet adventurism or worse. Timely entry into the inventory of the highly survivable MX missile will avert such a dangerous asymmetry.

## Minuteman Upgrading

Programs to improve Minuteman, now in progress, as well as research and development to provide the option for a comprehensive upgrading, especially of the Minuteman II component, must be continued, including vigorous exploration of new reentry vehicle technologies under the Advanced Ballistic Reentry System (ABRES) program.

## Cruise Missiles

The Administration's choice of air-launched cruise missiles over the B-1 as the principal air-breathing element of the strategic triad vastly increases the importance and scope of these new weapons. Development of the cruise missiles—as yet in an early stage—and their mating to B-52 or other launching aircraft must be carried out expeditiously and with maximal efficiency. This goal, we believe, can be attained best by placing the joint cruise missile system program office under Air Force management. The Air



**"This Association recognizes the impracticality of matching the Soviet Union aircraft for aircraft and missile for missile. But as the Soviets get bigger and bigger, we must be smarter."**

Force clearly is to be the principal user of these weapons—both in the air-launched strategic and the ground-launched intratheater role—and, therefore, should be responsible for their design, development, and acquisition. Such an arrangement appears essential also to carry out evolutionary improvements of these weapons in response to feedback from the using command and to assure rapid adjustments to changes in Soviet air defenses. Logically, that organization also should serve as the manager of follow-up weapons, such as the highly promising Advanced Strategic Air-Launched Missile (ASALM). We believe that thus far austere funding and overly conservative approaches have held back development of ASALM. Termination of the B-1 production program makes mandatory acceleration of the ASALM effort in order to permit full flight testing and production at the earliest possible time.

The broader, more critical role that is being assigned air-launched cruise missiles makes it mandatory that their performance capabilities and development mode *not* be restricted to the disadvantage of the United States by future SALT accords.

### **Manned Strategic Aircraft**

We see a continuing need for a manned strategic penetrator because the range of air-launched cruise missiles, measured against the Soviet target system from standoff launch points, is marginal, and because the range of Soviet air defenses is being extended out from the Soviet perimeter through the use of airborne radar, advanced SAMs, and modern interceptors. The first requirement for the US is to upgrade the avionics and electronic countermeasure capabilities of the B-52 fleet to prolong its ability to operate both in offshore hostile airspace and to perform deep penetration missions.

We believe further that design options for a follow-on manned strategic aircraft—be that FB-111 derivatives or other concepts—must include some capability for deep penetration. Penetration by a manned strategic system, capable of making on-the-spot decisions about how and where to attack targets of opportunity, remains an essential element of effective strategic deterrence. The ability to penetrate steadily improving Soviet air defenses must not be abandoned in favor of possibly less costly but certainly less effective forms of deterrence.

### **Warning and Attack Assessment**

While the strategic forces represent the core factor of our national defense capabilities, the ability to control these forces in real time and in step with changes in the battle situation also is of pervasive importance. Essential here are programs to improve that part of the national Early Warning System known as attack assessment, encompassing rapid detection and transmission of information about impending attacks by Soviet ICBMs, SLBMs, and bombers, and involving sufficient precision and detail to permit immediate formulation of counteraction by the National Command Authorities. The Defense Support Satellite Network; Pave Paws warning radar; Over-the-Horizon Backscatter System (OTH-B), essential for the detection of sea-launched cruise missiles; and the Joint Surveillance System rank high on this list of program priorities.

We see an urgent need to improve all strategic warning systems and their associated command control and communications systems to obtain comprehensive raid characterization information leading to appropriate and controlled responses. Near real time strike assessment is essential for retargeting and the ability to selectively execute or withhold strikes to control escalation.

Reliable warning and attack assessment constitute persuasive deterrence by quashing a potential aggressor's hopes of staging a successful first strike against USAF's ICBMs; no matter how great the attacker's warhead accuracy or their number, he must reckon with the high probability that his weapons will be attacking empty silos. Equally vital are command control and communications systems that permit rapid and reliable execution of responses to enemy attack, even when exposed to the effects of nuclear weapons countermeasures and jamming.

### **Command Control and Communications**

Primary requirements here are the E-4 Advanced Airborne Command Post; the theater CINC Airborne Command Post; the World Wide Military Command and Control System and its subnets; the Air Force Satellite Communications System (AFSATCOM); its highly survivable follow-on, the Strategic Satellite System (SSS); and the General Purpose Satellite System (GPSS). Together, improved early warning, attack assessment, and survivable command control and communications capabilities multiply the effectiveness of all defense forces to a degree not attainable by other means. We see a pressing need to maintain a strong R&D program within DoD to preclude technological surprise in ABM defenses.

### **Air Defense**

The Soviet Union's modernization of its strategic bomber force through the introduction of Backfire warrants reassessment of this country's extremely limited air defense capabilities. More than seventy Backfire supersonic intercontinental bombers, the most modern operational bombers in the world, are now in the inventory of Soviet Long Range and Naval Aviation. We see a clear need to modernize and improve US air defenses, primarily the assignment of E-3A Airborne Warning and Control System (AWACS) to that mission and development and acquisition of a dedicated follow-on interceptor for the Aerospace Defense Command.

### **USAF's Collateral Mission**

Other crucial elements of US deterrence, and probably the most likely to be tested in future conflicts, are forward-based nuclear and conventional theater forces. The effectiveness of both, in case of sustained engagements, is impaired by limitations in available airlift and jeopardized by increasing Soviet threats to the US Navy's ability to keep the sea lanes open. The Air Force's collateral mission of supporting the Navy in the sea-control mission thus takes on added urgency. There must be full and rapid development of USAF's intrinsic ability to assist in maritime search and identification, electronic warfare, attack against hostile naval surface and air units, and aerial minelaying.

### **Airlift Enhancement**

Full implementation of the Air Force's multifaceted Airlift Enhancement Program, including improvements of the C-141 and C-5 aircraft, and modification of the aircraft of the Civil Reserve Air Fleet (CRAF), must not be delayed further.

We also endorse acquisition of the Advanced Tanker/Cargo Aircraft (ATCA) as well as development and eventual acquisition of the Advanced Medium Short Takeoff and Landing Aircraft (AMST) to modernize tactical airlift in the 1980s.

### **New Tactical Aircraft**

Nowhere are the erosive effects of declining USAF purchasing power more evident than in procurement of Air Force aircraft, which plummeted from a Korean War high of more than 8,000 aircraft per year, and an annual rate of more than 1,000 at the peak of the Southeast Asian War, to fewer than 220 for each of the past five years. The FY '78 buy sought by the Air Force is for 330 aircraft, reflecting a long overdue recouping of lost ground.

The Soviet tactical aircraft fleet now exceeds the equivalent US force by more than thirty percent. This condition is exacerbated by the increasing offensive capabilities and higher quality of Soviet late-model aircraft, able to perform deep strikes against NATO targets without prior forward deployment. Since 1968 the tactical aircraft of the Warsaw Pact forces (mainly Soviet) available for deployment against NATO have increased by 1,300, to an overall total of more than 5,000. The danger, then, is that we soon may lose our qualitative lead while at the same time suffering the consequences of aircraft age creep, obsolescence, and an ever-shrinking force structure.

Coming into the Air Force inventory now are aircraft and capabilities of unparalleled scope and versatility: *i.e.*, the F-15, F-16, A-10, EF-111, F-4G Wild Weasel, AWACS, GBU-15, etc. The need is to acquire these weapons in the necessary quantities and on schedule to assure maximum return on these investments. As these aircraft enter the Air Force's active inventory, other, still-capable aircraft, such as the F-4 and the A-7 as well as some production A-10s, must replace obsolescent combat planes of the Air National Guard and Air Force Reserve to improve the combat capability of the Total Force. Fleshing out the operational aircraft inventory of USAF's twenty-six active-duty and ten Reserve

Forces fighter wings to the authorized level must be completed on schedule.

Tactical combat forces must be trained and exercised under realistic, warlike conditions. Improvement and development of tactical training ranges, in accord with relevant Air Force programs, are of vital importance to the combat readiness of this nation's tactical airpower.

### **Foreign Military Sales**

In this context, the Air Force Association notes with concern the deleterious impact of blind opposition to foreign military sales on US defense capabilities. Judicious export of US weapon systems to allies under the direct control of the appropriate US government agencies is beneficial to the nation in a number of ways. Foreign sales of USAF weapon systems reduce unit costs to the Air Force and sustain the vital defense industry at a time when the profitability of defense business is marginal. Equally important, every efficient weapon system in the arsenal of our allies contributes directly to the free world's total force strength, fosters equipment standardization, broadens USAF's logistics support base, and thus adds to force readiness.

### **Future Readiness Requirements**

This Association recognizes the impracticality of matching the Soviet Union aircraft for aircraft and missile for missile. But as the Soviets get bigger and bigger, we must be smarter. US exploitation of defense technology must concentrate on high payoff areas, exemplified by systems that multiply the effectiveness of the existing force. Most important, we must be ready with concepts and technologies that can neutralize the massive Soviet investments. ■

# AFA Policy Paper: Research and Development

Adopted unanimously by delegates to AFA's Annual National Convention, September 20, 1977.

The growing and determined Soviet challenge to our technological superiority demands sustained real annual growth in military research and the active involvement of the nation's creative talent in government, industries, and the universities to maintain an adequate technology base for the long haul. Real growth of about four percent was achieved in FY '77. But one year's growth clearly can't make up for ground that was lost during the preceding decade. Our current technological lead is the product of past investments, past energy, and past innovation. Sustaining this lead in the future will require new investments, new energy, and yet more innovation.

The Soviets fully realize this; their long-term challenge has not abated. The Kremlin's quest for ultimate technological superiority is supported by the world's largest effort in basic and applied science; the world's largest military research and development work force; and a massive, long-term investment in all aspects of science and technology. We note, for example, that the Soviet level of military RDT&E investment, regardless of how it is measured, has exceeded that of the United States by more than 125 percent since 1970 and continues to grow consistently by a real three to five percent per year. Unless we can sustain a four percent minimum growth rate, the gap will widen further in favor of the USSR.

Similarly, the Soviet military R&D base continues to expand quantitatively and to improve qualitatively in terms of manpower, facilities, and output. In most of these indicators of program dynamism, the USSR leads the US in level of effort and in growth rates.

The long-range implications of this massive Soviet scientific and technological effort are clear. Unless we respond appropriately, our technological lead, already in jeopardy, will steadily dwindle until we can no longer maintain key military balances primarily by offsetting Soviet quantitative advantages with weapon systems of

superior quality. The risk of technological surprise, already real, will further increase, and our ability to detect and respond rapidly and effectively to unforeseen developments will decline precipitously. In addition, the political, economic, and psychological costs of losing our technological superiority to the Soviet Union would be incalculable. Not only would the equilibrium of relative national power shift to the detriment of our interests and of peace and global stability, but we might be unable to pay the enormous price in time, effort, and treasure of attempting to regain our lead.

This Association is firmly convinced that the Soviet technological challenge is the most ominous long-term threat facing our nation and that we must meet it successfully with a commitment to maintain growth of a strong research and development program, including a superior technological base. Several steps must be taken now to ensure that this commitment is translated into real capabilities for the future.

First, we must increase the investment in the technology base—those basic research and exploratory development activities which generate innovative concepts and demonstrate their theoretical soundness and technical promise. The technology base lays the foundation for advances that

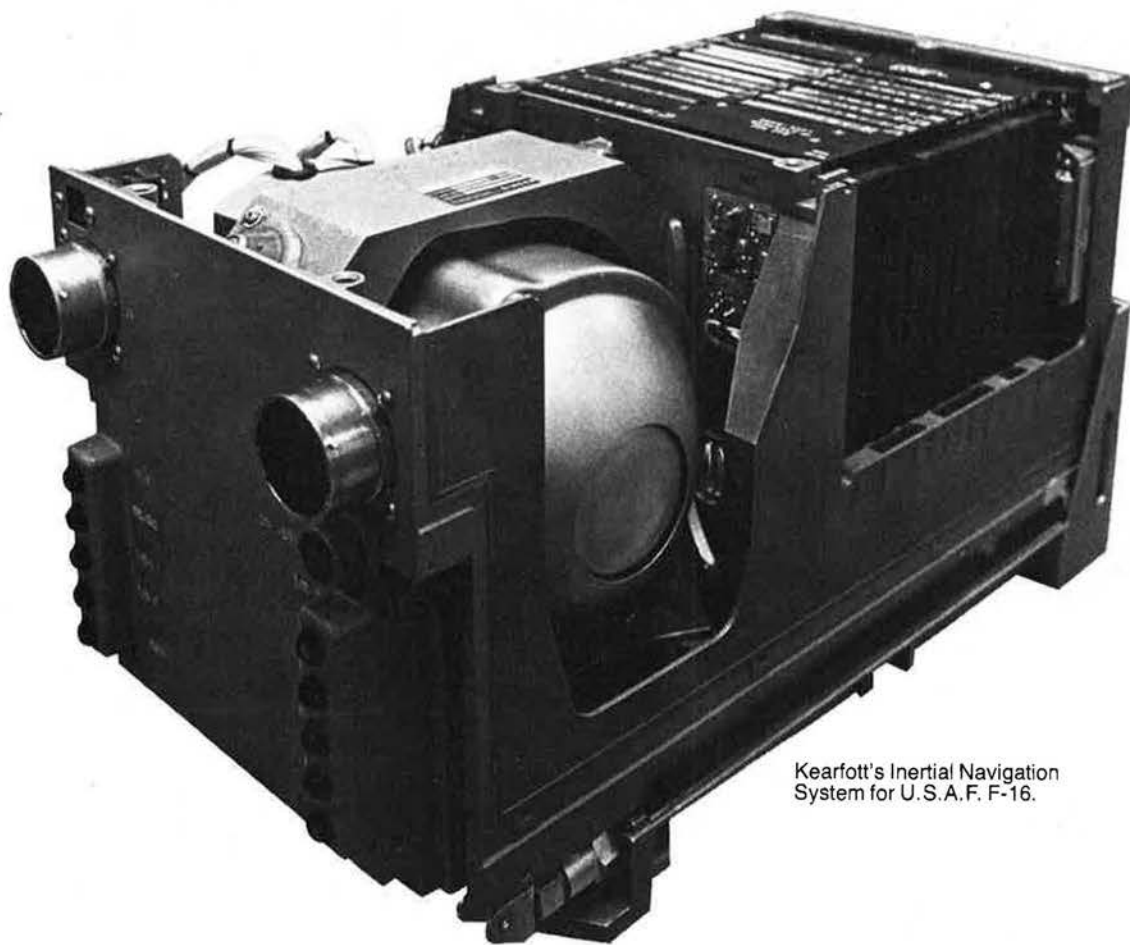
will be incorporated into the next generation of military equipments or that may be retained as options to be developed as new military requirements are identified. Failure to push forward the frontiers of science and technology energetically and with the combined dynamics of government, industry, and academia is tantamount to mortgaging the nation's future in a national security as well as economic context. Science and technology are political neutrals that willingly serve any nation or ideology that can pay the price for exploring and exploiting them.

This Association supports, therefore, the DoD's goal of real annual growth of ten percent in research through FY '80 and



**“... this nation's technological superiority is its most important advantage. . . . We can and must retain that lead.”**

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

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In order to permit operation in aided-inertial configurations, the INS accepts the following digital

inputs in MUX serial format (MIL-STD-1553):

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#### Significant features:

- MUX interface (MIL-STD-1553)
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## **Both the U.S. Air Force and U.S. Army have now chosen Twin Otters. For many good reasons.**

The United States Air Force Academy has chosen two de Havilland Twin Otters for training cadets in parachute drops in its airmanship program.

Designated UV-18B, these are the first Twin Otters to be used by the U.S.A.F., while the Twin Otter UV-18A's are serving the specific requirements of the U.S. Army.

The performance characteristic of the Twin Otter which most attracted the Academy is the airplane's single-engine capability, which is an absolute must at Colorado Springs, where they operate from small strips located at altitudes above 6,000 ft.

With the aircraft they currently operate, the Academy is able to train about 300 cadets annually, *replacement with these new Twin Otter UV-18B airplanes will accommodate approximately 750 cadets each year.*

Not only will the UV-18B substantially reduce costs, but at the same time it will be much quieter than the aircraft presently in use; an important feature since noise pollution has become a matter of great concern in the vicinity of the Academy's operating area.

It has been almost 30 years since the first de Havilland aircraft, the Beaver, was accepted by the U.S.A.F. The U.S. Army also chose the Beaver, then the Otter, the Caribou and the Twin Otter—a total of more than 1,300 de Havilland aircraft in all.

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# **de Havilland**

five percent in exploratory development through FY '78. Once achieved, these investment levels in the technology base must then be maintained over the long term. We strongly urge congressional support for this investment strategy, and we urge USAF to adhere to it in future budget allocations. However, we would vigorously oppose any reductions below the minimum level.

Second, we must exploit our lead in high-payoff technologies if Soviet quantitative superiority is to be offset at affordable cost. Examples include aeronautical vehicle technology, such as the Advanced Fighter Technology Integration Program; propulsion technology, such as variable cycle and integral rocket ramjet propulsion systems; structures and materials technology, particularly composite materials; advanced high-energy physics; and electronics developments covering a wide range of activities, including automation, avionics, and flight support systems. Previous advances in these technologies have been crucial to the maintenance of our current superiority in military and commercial aircraft and to the development of such key systems as AWACS, NAVSTAR Global Positional System, cruise missiles, and the Space Shuttle. We must continue to nurture them with adequate investment and strong management attention to ensure that similar payoffs are achieved in the future. In this regard, the Association commends the progress USAF has made in incorporating its investment strategy review into the formal R&D management process.

Third, defense research and development cannot alone assure the future superiority of our national technological base. The contributions of industrial and academic research and technology must be intensified and integrated more effectively into the defense effort to facilitate the expansion of knowledge and innovation upon which our future security depends. In this regard, the Association supports DoD's efforts to increase the level of technology base effort being performed by industry and the universities and to expand the innovative contributions of the Industrial Independent Research and Development program. In addition, we believe that the concept of closer defense-university ties is crucially important, and that a program to increase both DoD support for university research and participation by young university faculty in DoD laboratory activities must be instituted without further delay. Finally, we applaud the close cooperation that

continues among DoD and other federal agencies, particularly NASA and ERDA, in appropriate technology base efforts. This cooperation in planning, funding, and facilities development and use has been instrumental in creating a number of innovative concepts and systems, particularly in the field of aeronautics.

Fourth, we again urge strongly that more effective controls be placed promptly on the transfer of strategic technologies to potential adversaries. There is simply no national interest served by transfusing critical Soviet deficiencies in microelectronics, materials, advanced aircraft engines, computers, and certain production technologies, to name a few, with the advanced design and manufacturing technology of the US or its allies. This Association firmly opposes any transfers that may assist the Soviets in strengthening their technology base.

In summary, the Air Force Association remains convinced that this nation's technological superiority is its most important advantage in the long-term political, economic, and military competition with the USSR. We can and must retain that lead. But the scope, magnitude, and determination of the Soviet technological effort represent a significant challenge that cannot be underestimated; it has already produced adverse trends in the military technology balance which we must reverse promptly. Sustained investment growth and cost-effective management are the most immediate requirements facing us. We urge that priority attention be given to meeting this central need in the next Five-Year Defense Plan. Neither time nor momentum is on our side. ■

# AFA Policy Paper: Defense Manpower Issues

Adopted unanimously by delegates to AFA's Annual National Convention, September 20, 1977.

A calling — not an occupation.

There is no question that this traditional concept of military service has been eroded over the past few years. The causes of the erosion, and there are many, are not at issue here.

What is pertinent is that strong efforts are under way within the military to reverse the trend. We applaud and, with all our resources, support these efforts. The shift in emphasis of Air Force recruiting literature toward the concept of service rather than job training is a step in the right direction. We believe that the Air Force's "Impact 77," a study examining what the Air Force can do on its own to accelerate this trend, is encouraging. The all-volunteer force is no substitute for the obligation of all citizens to expend some of their time and talent in military service to our country. We refuse to believe that patriotism is an anachronism.

However, if we are to expect our nation's youth to accept military service as a calling, and not just as a job, then we must stand behind them once they put on the uniform. The sacrifices involved—deferring civilian career plans, serving "at the convenience of the government," and facing the ever-present possibility that they can be called upon to risk their lives for their country—demand the full understanding of our nation. This extends to support of the benefits designed to compensate for the many disadvantages of military life. Piecemeal hacking at compensation and benefits can only cause our men and women in uniform to question whether their service and sacrifice are truly valued by the nation they have sworn to protect. If we expect our military people to look upon their service as a calling, then we must protect them from heedless and random attacks by misguided and irresponsible critics. Military people do not expect applause. Neither do they deserve abuse. The coin of commitment has two sides.

The President's Blue Ribbon Commission on military compensation must view its task in

this light. We urge the Commission to get on with its work. Further delay is intolerable.

If the concept of a calling is essential to our active military forces—and it is—then it applies with equal validity to the National Guard and Reserve. Our nation's citizen-soldiers serve in a civilian environment that often lacks understanding, and, at times, is hostile. The recruiting and retention problems facing our Reserve Forces clearly reflect this point.

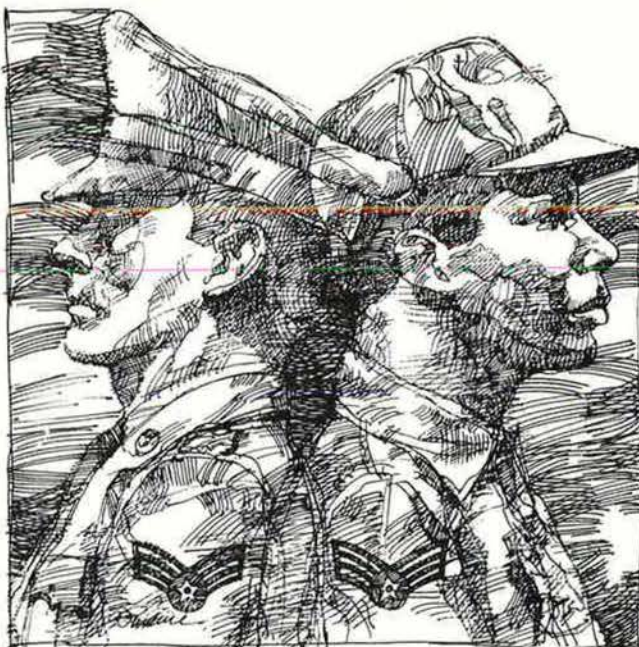
The plight of the Vietnam-era veteran is distressing. A large proportion of those who served honorably in the Southeast Asia conflict—many despite personal reservations and peer pressure—are still paying a high price for their sacrifice. The unemployment rate among Vietnam veterans is a blight on our national conscience. The nation owes all Vietnam veterans a great debt. Yet their problems are forgotten, their very existence too often ignored. A national commitment to properly recognize, train, and employ the Vietnam veterans, many of whom came from underprivileged backgrounds, is shockingly overdue.

The same factors that make military service as different as it is difficult make it incompatible with unionization. There is no place in the military system for a second chain of command that competes for the loyalties of its members. We commend the members of the American Federation of Government Employees (AFGE) for their overwhelming rejection of military unionization.

The duty of military and civilian leaders to speak up for the needs of those they lead is clear. We commend the few who have.

Only then will the American people understand the need for a full national commitment to the men and women who serve in their defense.

In turn, we urge American service people to continue to demonstrate the same dedication to cause, country, and excellence that illuminates their history.



**"Military people do not expect applause.  
Neither do they deserve abuse.  
The coin of commitment has two sides."**



To these ends, the Air Force Association hereby pledges its support to the following positions:

### PERSONNEL POLICIES

We commend the Air Force for its efforts to involve all members of the Air Force family in recruiting activity through the Air Force Recruiter Assistance Program, and we pledge the Association's active participation in and support of this program.

We support:

- Enactment of the Defense Officer Personnel Management Act (DOPMA).
- Continuation of current military leave policies for federal employees who are members of the Reserve components.
- Equitable military leave policies that do not interfere with normal vacations of all members of the Reserve components.
- Current drill pay structure for the Air National Guard and Air Force Reserve.
- The Air National Guard and Air Force Reserve civilian technician concept and current proposals to improve management procedures of the Air Force Reserve Technician Program.
- A fully government-funded Airmen Education and Commissioning Program.
  - Direct commissioning of qualified enlisted people.
  - Continued graduate education for officers, and more efficient use of these graduates.
  - Award of E-3 rank to Junior ROTC graduates entering the active Air Force, Air Force Reserve, or Air National Guard.
  - The same tax advantage for federal employees who sell their homes when assigned to overseas duty as that provided military personnel.
  - Adequate housing for all ranks or suitable reimbursement for the lack thereof.

We oppose all inequities, current or contemplated, in United States agreements with foreign governments that would adversely affect the status of military personnel, civilian employees of the Department of Defense, or their dependents who are stationed abroad.

### COMPENSATION

Pending results of the Blue Ribbon Commission on Military Compensation and other current studies on this subject, we support the present system of military and federal employee compensation, and we oppose interim piecemeal changes.

We oppose a military and federal employee "pay cap" in the belief that such action again will put military and other government people behind the cost-of-living curve.

We support:

- Travel reimbursement for dependents of junior enlisted people.
- Per diem allowances for enlisted people comparable to that for officers.
- Equalized hazardous-duty pay for all military ranks.
- Equalized environmental differential pay for all federal civilian employees.

- Repeal of the restriction that prohibits enlisted band members from the same off-duty employment opportunities available to all other members of the armed forces.
- Cost-of-living supplement for military and civilian people assigned to areas with higher than average cost of living.
- Enlistment and reenlistment bonuses for members of the active force, Air Force Reserve, and Air National Guard.
- Educational assistance for members of the Air Force Reserve and Air National Guard.
- Amendment of the DoD Joint Travel Regulation (JTR) to eliminate discrimination against mobile home owners.
- Federal employee reimbursement of moving/travel expenses, upon retirement or death, to home-of-record (or equal distance) if the move was for the convenience of the government.

### SPECIFIC BENEFITS

#### Commissaries

We continue to urge improved management to reduce military base commissary stores subsidies, but we oppose any action that would reduce the benefits of this service to active military people and their dependents, retirees, eligible widows, and disabled veterans.

#### Military Health Care

Military people, active and retired, deserve a health care system that will fully serve their needs and the needs of their dependents. Therefore, we support:

- Current and improved incentives to attract and retain military physicians and dentists.
- Upgrading Air Force physician assistants to at least equal status with their counterparts in the other military services.
- Dental care for dependents of active and retired personnel.
- A change in the Civilian Health and Medical Program of the Uniformed Services (CHAMPUS) which would provide lifetime coverage under CHAMPUS for the military retiree, without regard to Social Security, Medicare, or service-connected disability treatment by the Veterans Administration; remove current nonavailability certificate requirements; and restore original procedures of determining allowable reimbursements.

#### Survivors' Benefits and Insurance

We support amendments to the current Survivors' Benefit Plan (SBP), which would:

- Remove the provision whereby survivors eligible for Social Security benefits must have their SBP benefits offset by proportionate amounts of their deceased spouse's Social Security benefits.
- Establish a provision that would permit survivors of Reservists and Guardsmen who die before reaching the established retirement age to receive a proportionate amount of the retirement annuity the Reservist or Guardsman would have received at retirement.

We support:

- An amendment to the Veterans' Special Life Insurance program that would permit Reservists who are in a nonpay but active status to participate fully in the program.
- An amendment to the Federal Employee Group Life Insurance program that would permit federal employees to contribute after retirement, with continued coverage.

- The goals of the Air Force Enlisted Men's Widows' and Dependents' Home Foundation.

### **Retirement**

We believe that any new nondisability retirement plan must guarantee no reduction in benefits for military and federal employees serving at the time of enactment, and such a plan should not be incorporated with any Social Security retirement program.

We oppose any proposal that would limit employment opportunities for retired military people, the great majority of whom are enlisted, or that would force them to forfeit any portion of their earned retirement income.

We favor removal of current dual-compensation limitations for retired regular military officers.

We support:

- A new nondisability retirement plan on a reduced annuity basis for Reservists and Guardsmen who elect to retire before age sixty.
- Lump-sum payments immediately upon retirement for those federal employees retiring for disability.
- A lifting of the sixty creditable training point ceiling for retirement purposes for Reservists and Guardsmen.
- Recomputation of military retired pay to reflect the changing military pay structure.
- Proposals to authorize a three-year grace period for government-paid moves to home of choice upon retirement of military people.

### **RESERVE OFFICER TRAINING CORPS (ROTC)**

In our support of vigorous and stable Air Force ROTC programs (Junior and Senior), we urge an increase in the number of USAF Junior ROTC units and the funding of AFROTC scholarships, equitable with that of other services. At the same time, we urge the Department of Defense to give serious consideration to changing the title "Junior Reserve Officer Training Corps (JROTC)" to a title that would more accurately reflect the level, nature, and purpose of the program.

### **COMMUNITY COLLEGE OF THE AIR FORCE**

We continue to support the mission of the Community College of the Air Force (CCAF) and are proud of the fact that it can now grant Associate Degrees to qualified Air Force enlisted people.

### **CIVIL AIR PATROL**

We support continued federal funding of the Civil Air Patrol and we favor increasing CAP's capability to perform its search-and-rescue mission.

### **SELECTIVE SERVICE**

We are gravely concerned over the current and potential shortfalls in military recruiting, both for the active force and the Reserve components. Because national policy currently dictates that military manpower be maintained at an austere level, and because the Selective Service System has been virtually dismantled, thereby making it apparent that force expansion for military contingencies cannot be expeditiously accomplished, we urge the establishment of a fair and effective National Selective Service System.

### **MIAs/POWs (Southeast Asia)**

We urge the government to continue to pursue its attempt to resolve, as quickly as possible and to the maximum attainable degree, the status of all Americans identified as Missing in Action or Prisoners of War in Southeast Asia.

### **VETERANS**

We support:

- An expanded, more effective government program to encourage training and employment of Vietnam-era veterans.
- A continuing network of Veterans Administration Hospitals, fully funded and adequately staffed.
- An expanded system of National Cemeteries responsive to the need of the veteran population.
- Passage of legislation allowing those disabled veterans who are retired from the service on a longevity basis to receive full military retired pay, in addition to VA disability compensation.
- Proposals to eliminate time restrictions on eligibility for earned veteran's educational benefits.
- The current system of Veterans' Preference for veterans employed in—or seeking employment with—the Federal Civil Service. ■

The Outstanding Airmen Dinner—AFA's annual tribute to USAF's top twelve enlisted people. Citing the selflessness of a biblical prophet as the same trait they shared in common, USAF's Vice Chief of Staff Gen. William V. McBride, the evening's principal speaker, called them . . .

# The Twelve Isaiahs

BY CAPT. ANTHONY LYNN BATEZEL, USAF, CONTRIBUTING EDITOR

So crowded was the foyer of the Shoreham Americana's Regency Ballroom that at one point it seemed all 550 guests at the Air Force Association's Outstanding Airmen Dinner were trying to enter the giant hall at once. At the reception line at the foot of the entry staircase, congratulations and handshakes nearly overwhelmed the twelve enlisted men and women—senior airman to chief master sergeant—who had been selected from assignments around the world as USAF's top airmen.

Later, inside the main ballroom, the excitement intensified when the twelve airmen were formally presented to the audience and seated at the head table. Spotlights, bagpipes and drums from the Royal Canadian Air Force, a welcome and introduction by AFA's President George M. Douglas, and a speech by USAF's Vice Chief of Staff Gen. William V. McBride—all highlighted the guests of honor in a fashion seldom equaled in even the most regal military ceremonies.

The dinner was the AFA's twenty-second such event to honor USAF's finest enlisted members of the year—366 since the Outstanding Airmen Program started in 1956. The affair, held Monday evening, September 19, was one of the first major events of the week-long AFA Convention, this year honoring USAF's thirtieth anniversary.

Ordinary accomplishments brought none of the twelve airmen to this occasion in Washington. The word is extraordinary—in job performance; self-improvement efforts; social, cultural, and religious leadership; awards; and service as spokesmen for the USAF mission.

All attended Leadership Schools or NCO Academies, some graduating with honors. Two had been promoted since being named Outstanding Air-

men, and one—thirty-three-year-old Howard Bunton—was commissioned a second lieutenant later in the Convention week in special ceremonies in the USAF Chief of Staff's office.

One of the Outstanding Airmen developed improved equipment used in an electronic intelligence analysis system. His work has benefited the Strategic Air Command and national intelligence agencies.

For civic contributions, another airman was named Volunteer of the Year by the Hawaii Red Cross and presented the Red Cross Humanity Medal for Distinguished Service. The Pikes Peak Brotherhood Association elected one of the airmen as its Vice President, and the Colorado State AFA named another as Colorado's Outstanding Airman.

The twelve airmen resembled each other less in specific achievements than in inner attributes. While their contributions to the Air Force and local communities varied from per-

son to person, all exhibited dedication, professionalism, and patriotism, which George Douglas said "helps considerably to control my apprehension about the growing military threat our nation faces."

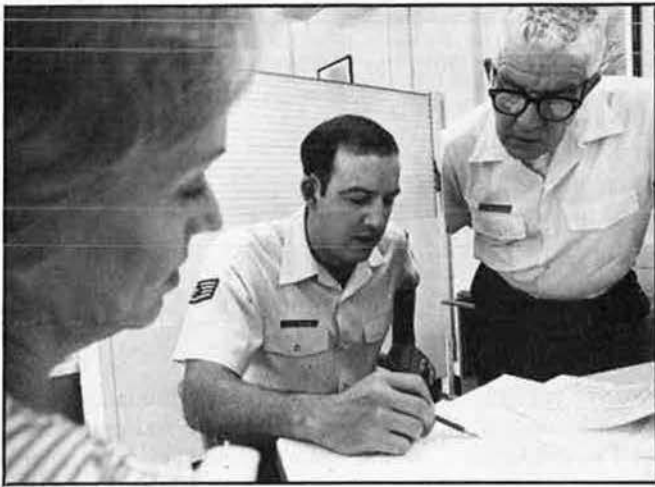
But perhaps the most important trait of all, as General McBride saw it, was selflessness—a quality exemplified by the prophet Isaiah, who subjected his personal ambitions to God's will for his life. "You know some Isaiahs," the General told the dinner audience, "but I doubt that you have ever seen twelve sitting at one table—as you see here tonight."

The twelve airmen, representing six different enlisted grades, about as many career fields, and a cross section of USAF commands and separate operating agencies, competed with persons nominated from all levels in the Air Force in a process that Chief Master Sergeant of the Air Force Robert D. Gaylor, the evening's master of ceremonies, described as "a little bit tougher than calling up for a reservation." The extensive screening, he said, makes the odds against being named an Outstanding Airman—if selection were random—about 50,000 to one. Final selections were made by a special board convened by USAF's Military Personnel Center at Randolph AFB, Tex.

The evening was only one of several activities throughout the AFA Convention week that took the twelve airmen, as AFA's guests, to major points of interest in Washington including the Smithsonian Institution's Air and Space Museum and the Kennedy Center for the Performing Arts. But little during the rest of the week matched the excitement of this special night when, before family, friends, and people from around the Air Force, they were introduced for the first time as the year's Outstanding Airmen. ■



Guests and the honored at the Outstanding Airmen Dinner.



SSgt. Ronald A. Bollinger checks message with supervisor SMSgt. Jerry Wilson and coworker Bonnie Phillips.



CMSgt. Donald Jackson is an Air Force veteran with twenty-four years of service.



The Air Force Chief of Staff, Gen. David C. Jones, congratulates MSgt. Nancy L. Taylor.



Red Cross volunteer Sgt. Sabina F. Coronado assists Edwards AFB Hospital patient Deborah Ciscel.



CMSgt. Willie H. Burnett checks out transport of sons Willie, Jr., 12, left, and Joseph Leroy, 10.



Sgt. Diana C. Baggett advises an airman during personnel counseling session.



During a climb in Turkey, SrA. Kevin D. Day, right, receives a helping hand from fellow adventurer SrA. Dave Goodwin.



Chief of Staff Gen. David C. Jones exchanges Howard Bunton's OTS insignia for second lieutenant bars.



During leisure hours, SrA. Carl E. Houk devotes his talents to an electronic project.



At console in foreground, SrA. William D. Piper interprets reconnaissance data.



While off duty, SSgt. Ralph J. Gallegos, Jr., participates in coaching youngsters in baseball and football.

## THE OUTSTANDING AIRMEN FOR 1977

**Sgt. Diana C. Baggett**  
82d Air Base Gp. (ATC)  
Williams AFB, Ariz.

**SSgt. Ronald A. Bollinger**  
2d Combat Support Gp. (SAC)  
Barksdale AFB, La.

**TSgt. (now 2d Lt.) Howard W. Bunton**  
85th Tactical Control Flight (TAC)  
Luke AFB, Ariz.

**CMSgt. Willie H. Burnett**  
2854th Air Base Gp. (AFLC)  
Tinker AFB, Okla.

**SSgt. James M. Carter II**  
5010th Security Police Sqdn. (AAC)  
Eielson AFB, Alaska

**Sgt. Sabina F. Coronado**  
6515th Field Maint. Sqdn. (AFSC)  
Edwards AFB, Calif.

**SrA. Kevin D. Day**  
TUSLOG Det. 193-1 (USAFE)  
Incirlik AB, Turkey

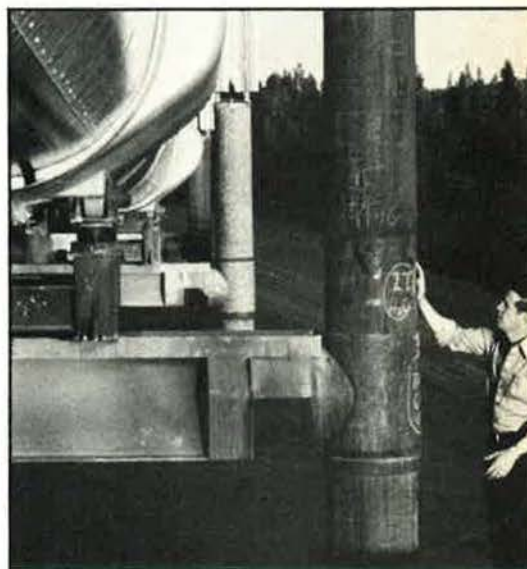
**SSgt. Ralph J. Gallegos, Jr.**  
Hq. Air Reserve Personnel Center (ARPC)  
Denver, Colo.

**SrA. Carl E. Houk**  
388th Munitions Maint. Sqdn. (TAC)  
Hill AFB, Utah

**CMSgt. Donald Jackson**  
60th Civil Engineering Sqdn. (MAC)  
Travis AFB, Calif.

**SrA. William D. Piper**  
544th Intelligence Exploit. Sqdn. (SAC)  
Offutt AFB, Neb.

**MSGt. Nancy L. Taylor**  
46th Aerospace Defense Wg. (ADCOM)  
Peterson AFB, Colo.



Examining the Trans-Alaska Pipeline is security policeman SSgt. James M. Carter II.

# AWARDS AT THE 1977 AIR FORCE

## AFA'S AEROSPACE AWARDS

**The H. H. Arnold Award** (AFA's highest annual award)—To the Hon. Howard W. Cannon, US Senate, for his enlightened leadership in the Congress on defense issues, based on hard-won air combat experience, on his currency in weapon systems technology, and on his intimate knowledge, as a pilot, of the most advanced fighter aircraft. As Chairman since the inception of the Subcommittee on Tactical Air Power, Committee on Armed Services, US Senate, he has played an indispensable role in the modernization of US tactical aircraft and missiles. In so doing he has enhanced national security and that of the entire free world.

**The David C. Schilling Award** ("The most outstanding contribution in the field of Flight")—To the 4440th Tactical Fighter Training Group, Nellis AFB, Nev., for developing and implementing RED FLAG, an unprecedented combat-simulated flight training program for aircrews of the US armed forces, thus enhancing combat readiness, total mission awareness, and joint service harmony through realistic exercises (accepted by Col. Martin Mahrt, Commander).

**The Theodore von Kármán Award** ("The most outstanding contribution in the field of Science and Engineering")—To John B. Walsh, former Deputy Director, Strategic and Space Systems, ODDR&E, the Pentagon, Washington, D. C., for effectively translating national security policy into technological and operational requirements; for aggressively exploiting science and technology to support America's strategic deterrent; and for advocacy of crucial military R&D programs before the Congress and public while serving as Deputy Director of Defense Research and Engineering for Strategic and Space Systems. (Mr. Walsh is now NATO's Assistant Secretary-General for Defense Support.)

**The Gill Robb Wilson Award** ("The most outstanding contribution in the field of Arts and Letters")—To Rowland Evans, Jr., and Robert D. Novak, for perceptive and consistent reporting, in their nationally syndicated newspaper column, on the full dimensions of the threat to national security, and our weakness in meeting the threat, thus contributing to public understanding of the critical position of the US and the free world.

**The Hoyt S. Vandenberg Award** ("The most outstanding contribution in the field of Aerospace Education")—To the USAF School of Aerospace Medicine, Brooks AFB, Tex., for its contributions to the development of hyperbaric medicine, thus advancing the use of oxygen under high pressure for the treatment of organic diseases; for providing around-the-clock international consultation services on diverse hyperbaric medical problems; and for establishing the world's first known course in hyperbaric medicine (accepted by Brig. Gen. Robert G. McIver, Commander).

**The Thomas P. Gerrity Award** ("The most outstanding contribution in the field of Systems and Logistics")—To Maj. Richard E. Ford, Armed Forces Staff College, Norfolk, Va., for developing and implementing an innovative air logistics strategy to support potential conflict in the Far East, while Chief of PACAF's Logistics Initiatives Branch.

## AFA CITATIONS OF HONOR

**Dr. Petras V. Avizonis**, Technical Director, Advanced Radiation Technology Office, AF Weapons Laboratory, Kirtland AFB, N. M., for brilliant leadership in all areas of high-energy laser R&D for USAF, thus contributing to the rapid advance of this crucial technology and to meeting significant demonstration milestones in the program.

**Capt. Roy H. Bass**, Aircraft Commander, 4th Military Airlift Squadron, McChord AFB, Wash., for a humanitarian achievement in a C-141 at night over California in serving as a communications link between ground controllers and a Japanese pilot attempting a light plane flight between Tokyo and Seattle. Despite language barriers, the plane landed safely.

**Claude J. Farinha**, Deputy Director of Material Management, Sacramento Air Logistics Center, McClellan AFB, Calif., for distinguished performance in positions of great responsibility, thereby contributing significantly to the worldwide logistics program, for which he is designated Air Force Civilian of the Year.

**Capt. Susan Fischer**, Personnel Inspector, Human Resources Branch, Air Force Inspection and Safety Center, Norton AFB, Calif., for outstanding performance in improving the quality and timeliness of officer effectiveness report appeal actions and for major contributions to airmen separation programs while assigned to the Air Force Military Personnel Center, for which she has been designated Air Force Personnel Manager of the Year.

**SMSGt. Patrick J. McConnon**, Hq. Sqdn., 56th Combat Support Group (TAC), MacDill AFB, Fla., for outstanding management of the Consolidated Open Mess Management Branch at RAF Mildenhall, for which he is designated Air Force Club Manager of the Year.

**Maj. Gen. Billy M. Minter**, DCS, Logistics, Hq. USAFE, Ramstein AB, Germany, for exceptional managerial performance through major improvements in the command's logistics, thus enhancing combat readiness.

**CMSgt. Louis Paris**, Directorate of Personnel, Fifteenth Air Force, March AFB, Calif., for achievements as personnel superintendent, particularly contributions to the five-year stabilized tour policy for northern tier bases that has cut personnel movement drastically.

**Lt. Col. James L. Pettigrew** and **CMSgt. Robert M. McCord**, Hq. SAC/LGME, Offutt AFB, Neb., and **John H. Garner**, Eighth Air Force/LGMS, Barksdale AFB, La., for applying new engineering concepts to airline methods of engine performance monitoring, thus making possible monthly savings of millions of dollars in jet maintenance costs, and increased flight safety and mission capability for SAC's tanker and B-52 aircraft.

**Maj. Gerald E. Reynolds**, US Naval War College, Newport, R. I., for achieving marked improvements in nuclear war planning capability that will enhance the deterrent credibility of the US nuclear strategy, and for contributing to decisive changes in the Single Integrated Operational Plan for the inclusion of limited nuclear options.

**Col. James G. Rider**, Director, F-16 Air Combat Fighter Joint Task Force, Edwards AFB, Calif., for exceptional performance as a test pilot, reinforced by extensive SEA air combat experience, resulting in outstanding contributions to USAF's Air Combat Fighter Program.

**Jack L. Stempler**, Assistant to the Secretary of Defense for Legislative Affairs, the Pentagon, Washington, D. C., for outstanding performance as Air Force General Counsel over a seven-year period, during which he demonstrated forward thinking, sound judgment, legal expertise, historical perspective, dedication, political sophistication, and a compassionate regard for the human equation.

**The Leadership and Management Development Center**, Maxwell AFB, Ala., for developing and conducting on-site instruction and consultation programs tailored to meet, on request, the needs of Air Force leaders and managers, thereby significantly improving Air Force leadership and management (accepted by Lt. Col. Peter A. Land).

**Detachment 1, 41st Rescue and Weather Reconnaissance Wing**, Clark AB, P. I., for an outstanding five-day mission of mercy in the wake of typhoons in the South Pacific during which air drops of food and medicine and helicopter evacuations under hazardous conditions were credited with saving more than 700 lives (accepted by Lt. Col. Charles E. Wicker, unit Commander at time of mission).

**544th Aerospace Reconnaissance Technical Wing**, Offutt AFB, Neb., for creating and operating an intelligence warning system of great national significance, for crucial support of SAC and Joint Strategic Target Staff missions, and for updating the data base of the Single Integrated Operational

# OCIATION NATIONAL CONVENTION

Plan through ingenious application of advanced technologies (accepted by Col. Edward J. Heinz, Commander).

## AFA MANAGEMENT AWARDS FOR SYSTEMS

**AFA Distinguished Award for Management**—To Brig. Gen. Jay R. Brill, Aeronautical Systems Division, Wright-Patterson AFB, Ohio, for outstanding managerial skill and leadership as Deputy for A-10 Program Office during 1976, contributing significantly to the US military posture and the fulfillment of national goals.

**AFA Meritorious Award for Program Management**—To Col. James R. Lindsay, Armament Development and Test Center, Eglin AFB, Fla., for exceptionally meritorious service as Deputy for Armament Systems, providing innovative and dynamic management of 180 programs.

**AFA Meritorious Award for Support Management**—To Col. Robert L. Zambenini, Aeronautical Systems Division, Wright-Patterson AFB, Ohio, for exceptionally meritorious service as Comptroller, ASD, contributing immeasurably to DoD's weapon system acquisition program.

## AFA MANAGEMENT AWARDS FOR LOGISTICS

**AFA Executive Management Award**—To Col. Leo Marquez, Directorate of Maintenance Engineering and Supply, Hq. USAF, Washington, D. C., for exceptional leadership as Director, Material Management Directorate, Warner Robins Air Logistics Center, providing a new dimension by pursuing excellence in management through the pursuit of excellence in his people.

**AFA Middle Management Award**—To Mary N. Cowan, San Antonio Air Logistics Center, Kelly AFB, Tex., for sustained outstanding performance as a Propulsion System Project Officer for A-10 aircraft; assuring success in the early stages of a new Air Force program.

**AFA Junior Management Award**—To Capt. Edward H. Acke, Defense Nuclear Agency, Johnston Atoll, North Pacific, for direction of a \$260 million B-52 modification and depot maintenance program completed within thirty-seven months and within 6.5 percent of negotiated cost, while he was Chief, B-52 Structural Modification Program Office, Oklahoma City Air Logistics Center.

## AIR NATIONAL GUARD AND AIR FORCE RESERVE AWARDS

**The Earl T. Ricks Memorial Award**—To 1st Lt. Ronald L. Kukuruda, 112th Tactical Fighter Group, Pennsylvania ANG, Greater Pittsburgh Airport, Pa., for professional and outstanding airmanship while flying an A-7D over Ohio in January 1977.

**The Air National Guard Outstanding Unit Award for 1977**—To the 161st Air Refueling Group, Arizona ANG, Phoenix, Ariz. (accepted for the second consecutive year by Col. Roy A. Jacobson, Commander).

**The Air Force Reserve Outstanding Unit Award for 1977**—To the 452d Air Refueling Wing, March AFB, Calif. (accepted by Brig. Gen. James L. Wade, Commander).

**The President's Award for the Air Force Reserve**—To the crew of the 512th Military Airlift Wing (Associate), Dover AFB, Del., for the outstanding Air Force Reserve flight crew of the year (accepted by Capt. Frederick Bok, Aircraft Commander).

## SPECIAL CITATION

**Nellis AFB, Nev.**—For outstanding support of the Air Force Recruiter Assistance Program (accepted by AFRAP Project Officer 1st Lt. Marion Callender).



AFA President George M. Douglas, left, presents H. H. Arnold Award to Sen. Howard W. Cannon. (See text.)



Citation of Honor recipient Capt. Roy H. Bass is acclaimed by President Douglas and Gen. David C. Jones.



CMSgt. Louis Paris is congratulated during presentation of his AFA Citation of Honor.

# Annual Salute to Congress



**F**OR the first time in the four-year history of the event, AFA conducted its Salute to Congress on Capitol Hill itself. Held on the evening of September 20 in the Caucus Room of the Cannon House Office Building, the affair gave several hundred AFA Convention delegates the chance to meet with more than 200 members of Congress, and many key committee staff people.

Most of the senators and representatives visited the popular "photo corner." On these pages are a few of the several hundred photos taken that evening. ■

*George M. Douglas, left, then AFA's National President and now Board Chairman, greets former AFA National Director Tillie Henion, center, and Rep. Shirley N. Pettis (R-Calif.).*



*Joining USAF Chief of Staff Gen. David C. Jones are, from left, AFA National Director Sam Keith; House Majority Leader Jim Wright (D-Tex.); and Gerald V. Haster, then AFA's Board Chairman and now National President.*





Sharing highlights from the Convention are New Hampshire's Democratic Sen. Thomas J. McIntyre (left) and AFA's Vice President for the New England Region, R. L. Devoucoux.



National and State AFA officials confer with two Democratic members of Alabama's congressional delegation. Assembled from left are AFA's National Director John H. Haire, Rep. Tom Beville, Sen. James B. Allen, and Alabama State AFA Vice President John E. Hall.



Two Idaho Republican congressmen greet former AFA Vice President for the Northwest Region Dale Hendry, center. Flanking Mr. Hendry are Reps. Steven D. Symms, left, and George Hansen.



A warm handshake between Southerners: Dr. Dan Callahan, left, AFA's Vice President for the Southeast Region, greets Georgia's Democratic Sen. Sam Nunn.



Triple tête-à-tête, from left, Pennsylvania's Republican Sen. John H. Heinz III, AFA's National Treasurer Jack B. Gross, and Secretary of the Air Force John C. Stetson exchange thoughts about the Convention.



Three Northwesterners pause while talking over the Convention. From left: Washington State AFA Convention Delegate Ed Hixon; the state's Democratic congressman Norman D. Dicks; and AFA's Vice President for the Northwest Region, Sherman W. Wilkins.



New York State AFA officers meet with their state's Rep. Donald J. Mitchell, ranking Republican on the House Military Compensation Subcommittee, who had earlier briefed AFA's Junior Officers and Enlisted Conferences. From left: State AFA President Kenneth C. Thayer, State Secretary Ruth Leibold, Mitchell, and State Vice President H. J. Hyde, Jr.



Southern AFA officials confer with Rep. Lindy Boggs (D-La.) about various Convention activities. Assembled from left are Mrs. Toulmin H. Brown; her husband, who is AFA's Vice President for the South Central Region; Boggs; and Louisiana State AFA President Bessie Hazel.



Haynes Baumgardner, left, President of AFA's Lubbock, Tex., Chapter, greets Rep. George H. Mahon (D-Tex.), Chairman of the House Appropriations Committee.



Rep. Philip M. Crane (R-Ill.), left, confers with then Illinois State AFA President Hugh L. Enyart, who is now AFA Vice President for the Great Lakes Region.



South Dakota's Republican Rep. Larry Pressler (left) consults with AFA's Vice President for the North Central Region, Hoadley Dean.



Reviewing Convention highlights are, from left, Tennessee's State AFA President Thomas O. Bigger, the state's Democratic Sen. James R. Sasser, Mrs. Bigger, and AFA National Director Daniel F. Callahan.



Chief Master Sergeant Alton G. Hudson, left, AFA's Enlisted Council Chairman, joins Rep. Robert L. F. Sikes (D-Fla.), center, and Florida's Eglin AFA Chapter Vice President Arthur L. Stevens, Jr.

# Sperry Update

3

A timely report of Sperry Flight Systems activities in the airline, defense, space and general aviation markets.

## Sperry shares milestone jet delivery by Boeing.

When Boeing announced the delivery of its 3000th jet transport recently, Sperry had good reason to reflect on its role in this milestone.

The 3000th jet was a 727-200 model. Sperry autopilots are standard on all 727, 737 and 747 aircraft, which account for more than two thirds of the 3000 aircraft produced.

Combining these Boeing totals with those of other production airliners gives Sperry undisputed autopilot leadership on U.S. air frames. Sperry autopilots are also standard on the DC-8 and DC-9.

## TRW selects Sperry reaction wheel for TDRSS.

TRW Defense and Space Systems Group has awarded Sperry a \$1.12 million contract for gyroscopic reaction wheel assemblies for its Tracking and Data Relay Satellite System.

Up to four Sperry reaction wheels will be used for stabilization of the four satellites currently planned for production.

The first launch is scheduled for September 1979 with two more to follow in mid-1980. TDRSS will relay data to and from the space shuttle, unmanned spacecraft and the ground control center at White Sands, N.M.

## Sperry symbol generator selected for Hughes AH-64.

A Sperry all-raster symbol generator for cockpit displays has been selected by Hughes Helicopters for the AH-64 advanced attack helicopter.

The symbol generator will process TV data from infrared and other sensors, superimpose symbology and distribute the combination to various CRT and helmet-mounted displays.



## Sperry tapped for more shuttle work.

Sperry's multifaceted role in the space shuttle program was expanded by NASA recently as the tempo and excitement of activity surrounding the orbiter free flights heightened.

Already very much involved in reentry, approach and landing study work, Sperry has been asked to continue and expand its autoland system design, verification, and support effort.

Sperry also builds the multiplexer/demultiplexer unit for the orbiter and solid rocket boosters. And, in the future a super-accurate pointing system developed by Sperry will aim telescopes and other research instruments from the open orbiter bay.

In a related program, Sperry has been involved in the modification of two Gulfstream II aircraft now used extensively for training astronauts in orbiter approach and landing techniques.

## Single pilot IFR okayed for Bell 212 with floats.

Sperry's certification of the Bell 212 for single pilot IFR operation has been extended to 212's with floats. Authority has also been granted in Canada and the United Kingdom.

Business and commercial helicopter activities are centered in Sperry Flight Systems' Avionics Division.

## General Electric picks Sperry reaction wheels.

Sperry Flight Systems received two contracts from General Electric's Space Division for gyroscopic reaction wheels to stabilize and control spacecraft.

Sperry will supply reaction wheels for the U. S. Air Force DSCS III communications satellite system and NASA's Solar Maximum Mission spacecraft.

Four reaction units, each weighing just 5.5 lbs., will be used on DSCS III. This represents a breakthrough for Sperry in the small space reaction wheel market. The current Sperry-General Electric Company contract calls for 17 reaction wheels, with delivery starting this fall.

The NASA spacecraft, being developed by the Goddard Space Flight Center, will use reaction wheels similar to those developed by Sperry for the High Energy Astronomy Observatory satellite (HEAO).

## Remember us.

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

**SPERRY**  
FLIGHT SYSTEMS

# SHOWCASE OF AER

**T**HE Aerospace Development Briefings and Displays at AFA's National Conventions have long been recognized as the most extensive and varied showcase of aerospace technology to be found in the country. At this year's program, marking the thirtieth anniversary of the United States Air Force, new records and standards were set for the number and sophistication of displays, the quality of briefings, foreign representation, and attendance.

Some 34,000 square feet of floor space were filled by sixty-five companies, including seven foreign concerns from Israel, England, and Sweden. Forty-five of the companies presented briefings on the latest in technology to some 5,000 guests. Among the visitors were senior government officials, members of Congress, flag officers of all the services, attachés and other distinguished guests from a broad spectrum of foreign

countries, and representatives of more than a score of government departments and agencies.

This year's displays covered twenty or more functional areas, ranging from aircraft and aeronautical technology through propulsion systems and ballistic and cruise missiles to such support and subsystem technologies as lasers, electronic warfare, reconnaissance, air traffic control, communications, guidance systems, simulators, infrared devices, radar, satellites, and personal equipment.

The displays and briefings offer to military and other officials a highly condensed review of the present state of aerospace technology and of what lies just over the horizon. Equally important, the guests have an unparalleled opportunity to discuss technology and its defense applications with engineers and scientists working in all phases of aerospace development. ■



USAF Chief of Staff Gen. David C. Jones checks out trainer model of General Dynamics' F-16, while the General's son occupies the front seat.



One of some forty exhibit escorts leads guests on a tour of displays.



Spectators from both military and civilian professions kept the exhibit booths filled throughout the convention.



Gen. George S. Brown, Chairman of the Joint Chiefs of Staff, chats at an exhibit booth.

# SPACE TECHNOLOGY



Secretary of the Air Force John C. Stetson (left in top photo) and Dr. Gerald P. Dinneen, Assistant Secretary of Defense for Communications Command Control and Intelligence (center), listen to explanation of General Electric's 30-mm lightweight gun while foreign officers (in photo at left) hear their USAF counterpart discuss the Boeing 747's potential as a cruise missile carrier.

# Aerospace Industry Roll of Honor

## Companies Represented at the 1977 Aerospace Development Briefings and Displays

**AIL, Div. of Cutler-Hammer**  
AN/ALQ-154 Tail Warning Radar System

**Bell & Howell, Datatype Div.**  
High Density Digital Magnetic Tape Recording

**Bell System**  
PBX, Data and Teleconferencing Systems

**Bendix Corp., Aerospace-Electronics Group**  
Advanced Aerospace-Electronics Products

**Boeing Aerospace Co.**  
Air-Launched Cruise Missile

**Delco Electronics Div. of GMC**  
Proven Products for New Air Force Avionics

**Fairchild Industries, Inc.**  
A-10 Close Air Support Aircraft

**Ford Aerospace and Communications Corp., Aeronutronic Div.**  
Pave Tack High Performance Day/Night Target Acquisition, Laser Designator System, AIM-9J1 Sidewinder Air-to-Air Missile

**Garrett Corp.**  
General Aviation Turbine Engines for Military Use

**General Dynamics Corp.**  
Tomahawk Cruise Missile, F-16 Multirole Fighter

**General Electric Co., Aircraft Equipment Div.**  
Forward Looking Radars, Lightweight 30-MM Gun Pod

**Grumman Aerospace Corp.**  
EF-111A Tactical Jamming System

**Hoffman Electronics Corp.**  
Modern Service Approved TACAN Beacon System

**Honeywell, Inc.**  
Tactical and Strategic Weapon Technology for Total Mission Support

**IBM, Federal Systems Div.**  
Advanced Aerospace Technology and Systems for the Future

**International Technical Products Corp.**  
System Solutions for Air Traffic Control Problems

**Israel Aircraft Industries**  
Kfir C2 Combat Fighter

**ITT Gilfillan**  
Affordable Air Defense Radars—Present and Future Technology

**Lear Siegler, Inc., Astronics Div./Instrument Div.**  
Advanced Flight Control, Aircraft Reference and Navigation, Guidance Systems, RPV Avionics, and North-Seeking Gyro Systems

**Litton Industries, Guidance & Control Systems Div.**  
Primary Guidance Element—Cruise Missiles

**Lockheed-Georgia Co.**  
Military Airlift Requires Military Airlifters

**Marconi-Elliott Avionics Systems Ltd.**  
Avionics—Today and Tomorrow

**Martin Marietta Aerospace**  
Advanced Strategic System, Missile-X (MX) ICBM Program

**McDonnell Douglas Corp. Douglas Aircraft Co.**  
Transport and C-15 Tactical and Strategic Airlift

**McDonnell Aircraft Co.**  
F-15 Eagle

**McDonnell Douglas Astronics**  
Lasers for Secure, High Data Rate Space Communications

**Northrop Corp. Aircraft Group**  
Needle, Ball, and Airspeed, Training Then and Now

**Electronics Div.**  
US Air Force MX Guidance IMU (AIRS)

**Raytheon Co.**  
Capabilities of the Fault Tolerant Space-Borne Computer

**Rockwell International Autonetics Group Missile Systems Div.**  
Hellfire Weapon System

**Strategic Systems Div.**  
Minuteman III NS20 Guidance Set, Bubble Memory Hardware, Ring Laser Gyro Developments

**Collins Telecommunications Groups**  
Satellite Communications and Navigation

**Los Angeles Aircraft Div.**  
Highly Maneuverable Aircraft Technology (HiMAT)

**Space Div.**  
DoD NAVSTAR GPS Satellite Program and the Space Shuttle Program

**Rolls-Royce**  
Military Engine Progress Report

**The Singer Co. Kearfott Div.**  
JTIDS Tactical Fighter Terminal

**Link Div.**  
Simulator Technology

**TRW Defense & Space Systems Group**  
Tracking and Data Relay Satellite (TDRS)

**United Technologies Chemical Systems Div.**  
Advanced Development for the MX Program

**Norden Div.**  
Militarized PDP-11M Minicomputer

**Pratt & Whitney Aircraft Group Government Products Div.**  
Latest Developments in Military Aircraft Engines

**Sikorsky Aircraft**  
Advanced Technology for Potential USAF Helicopter Applications

**Westinghouse Defense**  
Advanced Electronic Systems for SAC and TAC

**Williams Research Corp.**  
Small Turbofan for Cruise Missiles

### The following companies displayed products but did not hold briefings:

**AGA Corp.**  
Forward-Looking Infrared Thermovision Systems

**Arvin/Echo Science Corp.**  
Video and Instrumentation Magnetic Tape and Disc Recorders

**Beech Aircraft Corp.**  
C-12A Aircraft and HAST Missile Target

**Boeing Computer Services, Inc.**  
Executive Information Services (EIS)

**CAI, a Div. of Bourns, Inc.**  
Electronic Wide-Angle Camera System (EWACS)

**E-Systems, Inc.**  
Digital Communications Systems, Radar Warning Systems, Ground-based Navigation Aids, Tactical Airborne Radios, Militarized Teletypewriters, mini-RPVs, AABNCP Systems Integration Capabilities, UHF Communications Systems

**Emerson Electric Co., Electronics and Space Div.**  
Aircraft Equipped with 70,000 Airborne Weapons and Radar Systems

**General Electric Co., Aircraft Engine Group**  
Advanced Technology Aircraft Engines

**Jane's/Franklin Watts, Inc.**  
The Internationally Renowned Series of "Jane's" Reference Books

**Lockheed Aircraft Corp. Lockheed Aircraft Service Co.**  
JetPlan, Computerized Service to Provide Current Flight and Weather Data in Seconds

**Lockheed Missiles & Space Co., Inc.**  
LMSC's Activities in Space

**Northrop Corp., Electro-Mechanical Div.**  
LATAR Pod, Optical Glass, AMRAAM, Acoustic/IR Seeker System

**Olympus Corp. of America—Industrial Fiberoptics**  
Steel-clad Industrial Fiberscopes

**Redifon Flight Simulation, Ltd.**  
Latest Developments in Flight Simulation

**Rockwell International, Rocketdyne Div.**  
MX Program, Laser Programs

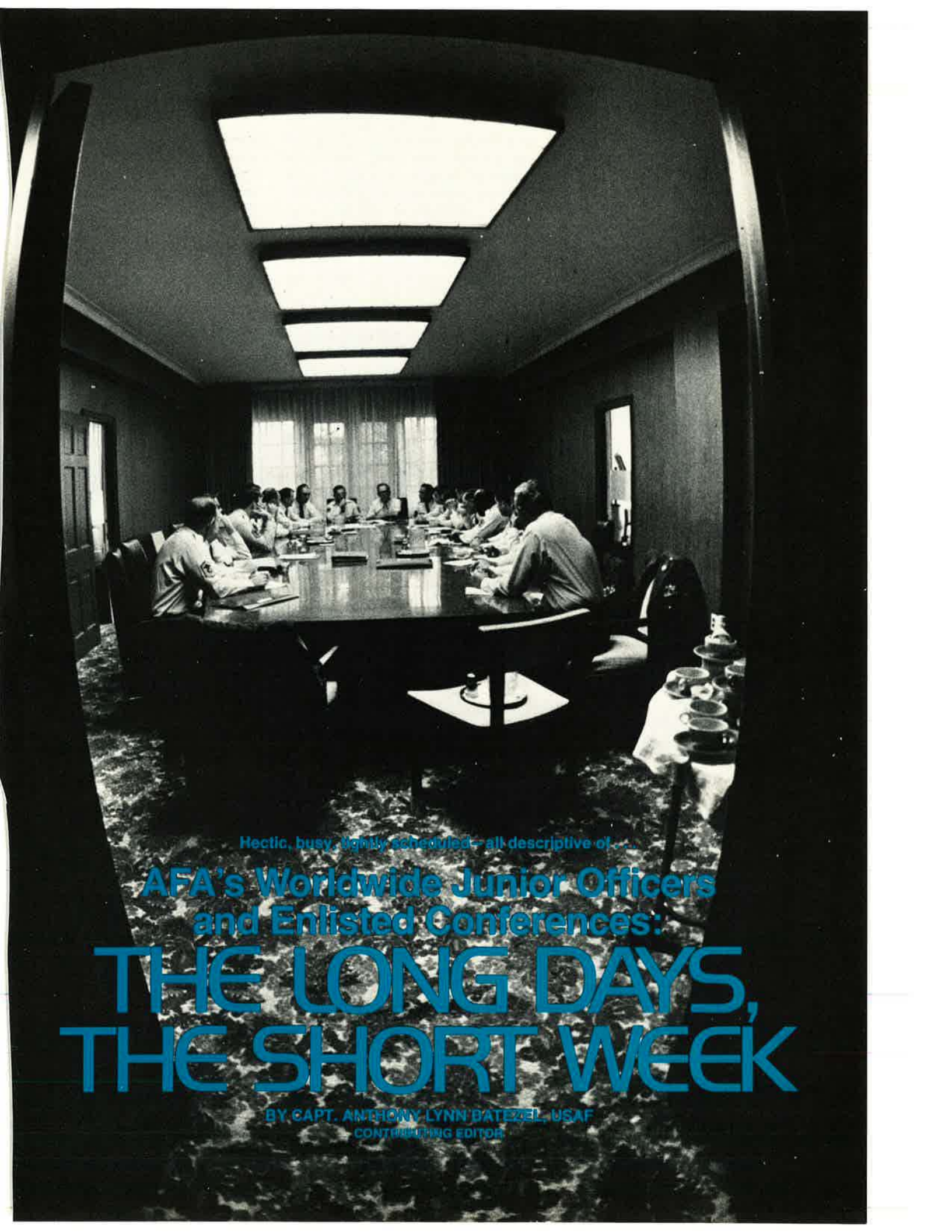
**Sanders Associates, Inc.**  
Electronic Countermeasures Systems, Infrared Countermeasures Systems

**Sierra Research Corp.**  
Advanced Electronic Systems

**Sundstrand Corp.**  
Equipment Used on Current Aircraft

**TRACOR, Inc.**  
ALE-40 Countermeasures Dispenser System, TT-712/U Cockpit Teleprinter, AN/UGC-129 Tactical Record Traffic Teletypewriter (TRTT), AN/UCG-120A Radio Teletypewriter Set

**United Technologies, Pratt & Whitney Aircraft, Commercial Products Div.**  
Quiet Power from the JT8D-209 Engine



Hectic, busy, tightly scheduled - all descriptive of ...

**AFA's Worldwide Junior Officers  
and Enlisted Conferences:**

# **THE LONG DAYS, THE SHORT WEEK**

BY CAPT. ANTHONY LYNN BATEZEL, USAF  
CONTRIBUTING EDITOR

**W**HILE the AFA business sessions and other activities were proceeding in the convention halls of Washington's Sheraton-Park Hotel, two important but less publicized meetings were taking place in the forty-six-year-old Wardman Tower, the hotel's stately annex and residence from time to time of US Vice Presidents, diplomats, and prominent socialites. More than forty blue-suiters appointed from USAF locations around the world as delegates to AFA's Worldwide

sory Council and Enlisted Council, which spearheaded the two conferences, spent much of the previous twelve months doing research and preparing preliminary drafts for the full bodies to consider during the AFA Convention week. Thus, both meetings started with full work agendas and ended with some substantial accomplishments.

Under the firm leadership of JOAC's chairman, Capt. Alan L. "Stretch" Strzemieczny from Offutt AFB, Neb., the junior officers put

In the enlisted conference headed by the Enlisted Council Chairman, CMSgt. Alton G. Hudson from Tyndall AFB, Fla., delegates discussed and debated drafts of a proposed pamphlet designed to clarify the image and role of today's USAF enlisted people—a group that in the last decade has experienced major shifts in training and responsibility. In its present version, the pamphlet is aimed primarily at civilian readers who are the least aware of these changes. Specifically, the pamphlet



*AFA President-elect Gerald V. Hasler addresses conference of representatives of Air Force enlisted personnel from around the world.*

Junior Officers and Enlisted Conferences—eighth annual for the officers, fourth for the enlisted participants—were hammering out final drafts of two pamphlets they predict will benefit both their own groups and Air Force people in general.

Skeptics have doubted whether conferences lasting only a few days can produce more than a vapor of benefit for AFA or USAF. One observer recalled John Kenneth Galbraith's comparison of certain youth activists to the statues occupying Washington's parks and squares: The pose is heroic but alas, the movement is nil. Neither the junior officer nor enlisted conference, however, was frivolous—or inactive. Leaders from AFA's Junior Officers Advi-

finishing touches to a draft pamphlet on personal affairs—including financial management—aimed at both young single officers and those married with families. The pamphlet covers topics from investment programs to life insurance, PCS expenses to buying homes. Together with a handbook on junior officer career development, written at last year's conference (and subsequently published by AFA), this year's project is a path-breaking effort by USAF junior officers to circulate practical no-nonsense advice on tough issues most young officers face but lack experience to deal with. AFA will consider publishing the pamphlet for distribution throughout the Air Force.

explains how budget and manpower reductions of recent years have forced USAF planners to match technological advances with management sophistication and how, as a result, NCOs at all levels have changed from being solely technicians to being resource managers as well. At the same time, new perspectives in human relations have required NCOs to add to their management abilities relationship skills—nowhere more essential than in supervising today's first-term airmen whose quality and motivation have improved dramatically in the past half-dozen years.

The increased responsibility of NCOs, furthermore, has led to the need for self-assessment and for





Conference delegates at one seminar heard from Antonia Chayes, Assistant Secretary of the Air Force for Manpower, Reserve Affairs and Installations, who talked about USAF's current manpower problems.



At the Worldwide Junior Officers Conference, the diverse backgrounds of the participants resulted in a draft personal affairs pamphlet of equally varied perspective.

clarifying their role as perceived by other Air Force members—retired as well as active duty, Reserve, or Guard. The draft pamphlet addresses this need. As with the junior officers' project, AFA will consider publishing the enlisted pamphlet to assure widest circulation.

An important effect of the projects, ancillary to their contribution to the financial wisdom of junior

officers or to an improved understanding of today's NCO—significant as these contributions will be—is the continued confidence that USAF members as a whole will have in the value of the conferences. Both officers and enlisted persons can look to the conferences for identifying subjects of concern and developing well-prepared and useful projects in these areas—AFA's purposes for the conferences and

the Councils, since their inception.

Between conference work sessions, delegates went through an exhausting schedule of special briefings and exhibits on current USAF subjects. These included reports on the Community College of the Air Force, the state of Air Force medical services, and the status of military compensation reviews in Congress. On one afternoon of the Convention, a "Professional Update Seminar" with several top USAF leaders was conducted by a captain from McGuire AFB, N. J., Kathleen Hoster-Giles, who has the distinction of being born on the same date the USAF was established as a separate service—September 18, 1947. Participants in the seminar were Ms. Antonia Chayes, Assistant Secretary of the Air Force for Manpower, Reserve Affairs and Installations, addressing the current USAF manpower situation; Maj. Gen. Charles C. Blanton, Air Force Director of Legislative Liaison, describing USAF relations with Congress; and Brig. Gen. Harry J. Dalton, Jr., USAF's Director of Information, summarizing today's USAF information program.

For the junior officers and enlisted persons participating in this year's conferences, the period of September 18 to 22 was brief but saturated with imagination and energy. They felt both satisfaction and relief when, as the gavel fell for the last time, the long days, the short week, finally ended. ■

### A CONVENTION FIRST

This year's AFA Convention included for the first time a conference of the Senior Enlisted Advisors from more than two dozen USAF major commands and separate operating agencies. It was the advisors' first meeting together since their position was formally chartered in an Air Force regulation published in August. Previously, they had operated *ad hoc* at command and wing levels under various titles including Sergeant Major and Command Chief Master Sergeant.

"The position came into its own at this meeting," CMSgt. James M. McCoy, Strategic Air Command's Senior Enlisted Advisor and conference chairman, told AIR FORCE Magazine. Though there had been other advisor gatherings before the new regulation, the AFA meeting was the first opportunity for the group to probe at length their objectives as top enlisted advisors, he said.

The conference agenda included sessions with such USAF policy-makers as Gen. David C. Jones, Chief of Staff; and Lt. Gen. Bennie L. Davis, Deputy Chief of Staff for Personnel. By the end of the five-day conference, the advisors had prepared nine recommendations for senior NCO professional development for submission ultimately to the Air Staff.

The new directive formally recognizing the advisory positions, Air Force Regulation 39-20, requires that virtually all be filled with E-9s or E-9 selectees having broad knowledge of airmen career fields, extensive experience supervising enlisted personnel, and effective communication skills. The regulation limits the advisors essentially to wings or larger units and defines their role as apprising commanders of all enlisted matters including living and working conditions, training curriculums, and recreational services.

By remembering the tragic experiences of their forefathers, these American Indian AFJROTC cadets reveal in their prize-winning videotape the importance of reading . . .

# The Writing on the High Rocks

BY ROBIN WHITTLE, ASSISTANT DIRECTOR OF COMMUNICATIONS



Here, with Aerospace Education Foundation Board Chairman Sen. Barry Goldwater, are four of the eleven contest winners. From left, Cadets Fraulein Johns, Barbara Newby, Darryl Long, and Kenneth Leslie.

**W**HAT is written on the high rocks? If you ask Air Force Junior ROTC cadets at Intermountain Inter-Tribal High School in Brigham City, Utah—winners of this year's national AFJROTC contest—they will explain it in terms of their backgrounds. They are American Indians whose forebears etched warnings of danger on the massive rocks of the West, and who see the fate of their ancestors as a harsh reminder of the penalty for lack of preparedness.

The contest was sponsored for the fifth consecutive year by AFA's affiliate, the Aerospace Education Foundation. The 1977 theme, "The Imperatives of National Readiness," challenged students in AFJROTC programs across the country to tell the public what is involved in preparing a nation to defend its citizens and its vital interests. The format was left to the imagination of the cadets. Intermountain cadets produced a color videotape that recalls tribal battles and legendary white leaders and Indian chiefs from Custer to Captain Jack, who sometimes learned too late to read the writing on the high rocks.

In capturing the first prize, a \$4,000 scholarship, the Intermountain AFJROTC unit won out over seventy-four other entries ranging from scrapbooks to essays, sound-slide presentations, and videotapes. In addition to the national winner, there were four runners-up and twenty honorable mentions (*see box*). The grand prize winners may award the \$4,000 scholarship to one cadet or divide it among a maximum of four participants.

Guests at AFA's National Convention, the four cadets visited the National Air and Space Museum, among other places.



**Members of Intermountain Inter-Tribal  
High School AFJROTC UT-61  
Brigham City, Utah**

Lt. Col. J. G. Poulson, Aerospace Education Instructor  
Lt. Col. Martin G. Reeder, Assistant Aerospace Education  
Instructor

**Cadets:**

Sheila Benson, Navajo, Brigham City, Utah  
Martin Bitsui, Navajo, Many Farms, Ariz.  
Ricky Charlie, Zuni Navajo, Salt Lake City, Utah  
Gabriel Francisco, Papago, Sells, Ariz.  
Fraulein Johns, Pima, Sacaton Flats, Ariz.  
Debra LaFontaine, Chippewa, Chicago, Ill.  
Kenneth Leslie, Hopi-Taos-Apache, Many Farms, Ariz.  
Darryl Long, Quechan, Winterhaven, Calif.  
Barbara Newby, Papago, Tucson, Ariz.  
Judith Snapp, Paiute, Nev.  
Michael Teller, Navajo, Navajo, N. M.

Four of the eleven cadets involved in the Intermountain presentation—Fraulein Johns, a Pima from Sacaton Flats, Ariz.; Barbara Newby, a Papago from Tucson, Ariz.; Darryl Long, a Quechan from Winterhaven, Calif.; and Kenneth Leslie, a Hopi-Taos-Apache from Many Farms, Ariz.—were guests at the Air Force Association's National Convention.

They were accompanied by their Aerospace Education Instructor, retired Lt. Col. J. G. Poulson; Assistant Instructor, retired Lt. Col. Martin G. Reeder and Mrs. Reeder; Superintendent of Schools David Burch; and Intermountain High Principal James H. Powell. The group visited the National Air and Space Museum on Sunday, September 18, and the cadets were honored at an awards luncheon at the Sheraton-Park Hotel the following day.

The luncheon audience of more than 600 included representatives from the offices of Utah Sens. Orrin G. Hatch and Jake Garn and Utah Rep. K. Gunn McKay; the Commandant of Air Force ROTC, Brig. Gen. David Easson; the President of the Community College of the Air Force, Col. Lyle D. Kaapke; Director of Air Force Legislative Liaison, Maj. Gen. Charles Blanton; representatives of the Bureau of Indian Affairs; and three of the contest judges.

During the luncheon, Aerospace Education Foundation President Dr. William Ramsey described the contest and read a congratulatory message to the school from Utah Gov. Scott M. Matheson. Dr. Ramsey noted that this is the second consecutive year that a Utah unit has won the contest. Last year, Clearfield High School, Clearfield, Utah, garnered the honors for its color videotape on "The Role of Aerospace in American History."

Colonel Poulson told luncheon guests that more than 100 Indian tribes from Alaska to Florida are represented at the school. Intermountain, he explained, is a boarding school that prepares Indian students for either college or a vocational-technical career.

Each of the four cadets commented briefly on the unit's experiences involved in preparing the winning videotape. Cadet Barbara Newby urged that "we all stand together as brothers and sisters to make this great

nation even greater." In the videotape viewing, which drew a standing ovation from the audience, she said: "I do not pretend to have the wisdom of my elders, but I can see things differently because I have a foot in each world. I have heard the stories told over and over again by my forefathers of their once great nation and their pride. . . . This is why I am so concerned about the subject of our discussion. I wish to have the freedom to shape my own life as I am sure you do. This I know, that if we as a nation do not maintain our posture of national readiness, I along with you will lose this freedom as my people did so many years ago."

In his words of congratulation to the cadets, Sen. Barry Goldwater, Foundation Board Chairman, observed that the videotape has a real message because Indian tribes learned the hard way about readiness. "They were not prepared, but America must be," he said. The Senator noted that Indian schools "used to teach the white man's culture as being superior to that of the American Indian. But no longer." He added that extensive testing of Indian children who had no prior technical training has proved them superior to white children in highly technical areas.

During the two days following the award luncheon, the cadets and their instructors attended several AFA convention events, toured the city, and met with their congressmen. ■

**AEROSPACE EDUCATION FOUNDATION  
1976-77 AFJROTC CONTEST WINNERS**

**"The Imperatives of National Readiness"**

**First Place:** Intermountain Inter-Tribal High School,  
Brigham City, Utah

**Award:** A \$4,000 scholarship and a distinctive  
plaque for permanent display by the winning  
unit

**Runners-up (in order):**

Berkeley High School, Moncks Corner, S. C.  
Bellevue Senior High School, Bellevue, Neb.  
Clearfield High School, Clearfield, Utah  
Oak Ridge High School, Orlando, Fla.

**Award:** Plaque for permanent display by the unit

**Honorable Mention:**

S. R. Butler High School, Huntsville, Ala.  
Anderson Union High School, Anderson, Calif.  
El Cajon Valley High School, El Cajon, Calif.  
Fort Walton Beach Senior High School, Fort Walton  
Beach, Fla.  
Citrus High School, Inverness, Fla.  
Ottawa Township High School, Ottawa, Ill.  
Lowell Senior High School, Lowell, Ind.  
Derby Senior High School, Derby, Kan.  
Harrison County High School, Cynthiana, Ky.  
Apollo High School, Owensboro, Ky.  
St. Paul's High School, Covington, La.  
West Mecklenburg Senior High School, Charlotte, N. C.  
Southern High School, Graham, N. C.  
Minot Senior High School, Minot, N. D.  
Walter E. Stebbins Senior High School, Dayton, Ohio  
Fairborn Baker High School, Fairborn, Ohio  
Great Valley Senior High School, Malvern, Pa.  
Abilene ISD High School, Abilene, Tex.  
Dickinson High School, Dickinson, Tex.  
Hampton High School, Hampton, Va.

**Award:** Certificate of Merit

AFA convention delegates celebrated the USAF's thirtieth anniversary, honored outstanding leaders of AFA and the Air Force, elected a new slate of officers, and adopted a strong Statement of Policy and three collateral Policy Papers to set the direction and thrust of AFA for the year ahead . . .

# The Delegates' Point of View

BY DON STEELE, AFA AFFAIRS EDITOR



During the delegates' visit to the National Air and Space Museum, AFA's National Officers pose in front of Charles Lindbergh's Spirit of St. Louis. They are, from left, Secretary Jack C. Price, President George M. Douglas, Board Chairman Gerald V. Hasler, and Treasurer Jack B. Gross.

**A**FA's 1977 National Convention, dedicated to the thirtieth anniversary of the United States Air Force, opened with the presentation of the colors by the USAF Honor Guard, supported by the USAF Ceremonial Band and Singing Sergeants, all from Bolling AFB, D. C.

The Rev. Msgr. Rosario L. U. Montcalm, AFA's National Chaplain from Holyoke, Mass., then delivered the invocation and conducted a memorial tribute to the Air Force and AFA leaders and supporters, and aviation pioneers ". . . who have gone before us, but especially those who took the last flight out of this world since our last convention."

A moment of silence followed the reading of the memorial list (see box), after which the Singing Ser-

geants closed the memorial portion of the program with the Air Force Hymn.

CMSgt. Walter E. Scott, a twenty-nine-year veteran now serving as the Enlisted Air Crew Advisor to the Deputy Commander for Operations, 60th Military Airlift Wing, Travis AFB, Calif., gave the keynote address. (See excerpts from Chief Scott's inspiring address on p. 61 of this issue.)

During the Opening Ceremonies, AFA President George M. Douglas presented an AFA Life Membership to Capt. Kathleen Hoster-Giles and designated her AFA's "Anniversary Guest of Honor." Captain Hoster-Giles, now stationed at McGuire AFB, N. J., was born on the day the Air Force was established as a separate service—September

18, 1947. She is the daughter of a retired Air Force colonel, and is married to an Air Force Reserve pilot.

President Douglas also recognized AFA's 1,000th Life Member, Maj. David R. Shaw of Redlands, Calif., and, with the assistance of Board Chairman Gerald V. Hasler, presented fifty-eight AFA awards to Air Force and AFA individuals and units. (Complete listings of AFA award recipients are on pp. 62 and 63.)

## Delegate Action

Official delegates from thirty-seven states adopted the annual Statement of Policy (see p. 26) and three collateral Policy Papers—one entitled "Force Modernization and Readiness," another "Research and Development," and the third "Defense Manpower Issues" (see pp. 31, 34, and 38)—that set the direction and thrust of AFA for the year ahead.

In other actions, the delegates amended AFA's National Constitution and By-Laws. The amendments provide: the authority to discipline any National Officer or Director, or State or Chapter Officer for incompetence, misconduct in his relation to the Association or to his State or Chapter, disloyalty to the United States, or upon conviction, in a court of competent jurisdiction, of a felony; a maximum of four additional National Directors under forty years of age who shall be voting members of the Association, and who shall be nominated by the President and elected by the Board of Directors; and an increase in Association dues, effective January 1,

1978, to \$13 annually, \$30 for three years, \$6.50 annually for Cadet Members, and payment of the \$200 Life Membership dues in eight equal payments of \$25 each within two years from the date of application.

### Election of Officers

The delegates elected AFA's top four national officers for 1977-78 by acclamation. They are: Gerald



*Capt. Kathleen Hoster-Giles responds to President Douglas's presentation of a plaque naming her an AFA Life Member and designating her AFA's "Anniversary Guest of Honor."*



*President Douglas, left, presents AFA National Director Edward A. Stearn, right, the "AFA Man of the Year" award in recognition of "his outstanding leadership at local, state, and national levels, and for giving of his time, energies, and talent to enhance public understanding of the Air Force and its mission."*

member of the Finance Committee; as Treasurer of the Aerospace Education Foundation; as a member of the Board of Trustees of the Aerospace Education Foundation; and as a State and Chapter President.

Mr. Douglas, of Denver, Colo., is Assistant Vice President/Marketing of Mountain Bell. During World War II, he served with the Army in the Pacific Theater. Currently he is an AFRES major general, with an assignment as the Mobilization Augmentee to the Deputy Chief of Staff/

Personnel, at USAF Headquarters. A Life Member of AFA, he has served as National President; as an elected National Director; as Chairman of the Executive, Nominating, Awards, and Convention Site Committees; as a member of the Finance and Resolutions Committees; as an ex-officio member of all committees and councils; as a State and Chapter President; and as a member of the Board of Trustees of the Aerospace Education Foundation.

Mr. Price, of Clearfield, Utah, a

V. Hasler, President; George M. Douglas, Chairman of the Board; Jack C. Price, Secretary; and Jack B. Gross, Treasurer.

Mr. Hasler, of Endicott, N. Y., is the President and Chief Executive Officer of an architectural design and remodeling corporation. During World War II, he was a B-25 instructor pilot. Immediately following the war, he was with the United Nations Relief and Rehabilitation Administration as its Director for the French Zone of Occupation and, at the same time, Director of Supply and Transport for Austria with headquarters in Austria. An AFA member since 1963, Mr. Hasler has served as Chairman of the Board; as an elected National Director; as a member of the Executive, Resolutions, and Awards Committees; as Chairman of the Constitution Committee; as Convention Parliamentarian; as an ex-officio (nonvoting)

### NAMED IN MEMORIAL TRIBUTE

*Here are the names of the USAF and AFA leaders and supporters and aviation pioneers who died during the last year:*

H. Julian **Allen**, retired Maj. Gen. Francis L. **Ankenbrandt**, Dr. Harry **Bard**, retired Maj. Gen. Albert **Boyd**, retired Brig. Gen. Asa W. **Candler**, John **Carn**, Donald L. **Chadwick**, Clarence D. **Chamberlin**, retired Gen. Benjamin **Chidlaw**, Eleanor C. **Cobey**, Richard W. **Darrow**, retired Maj. Gen. Clarence **Davies**, Jr., retired Maj. Gen. James H. **Davies**, Daniel **deBrier**, retired Brig. Gen. Earl H. **Deford**, Roger **Ellis**, retired Brig. Gen. William J. **Flood**, retired Maj. Gen. Lee W. **Fulton**, Mrs. Mabel **Gilstrap**, Rev. Dexter L. **Hanley**, Maj. Gen. Louis P. **Hodnette**, Jr., Holly **Horton**, Elmer G. **Johnson**, Charles S. **Jones**, Maj. Gen. Junius W. **Jones**, Greg **Kane**, retired Brig. Gen. John C. **Kennedy**, retired Gen. George C. **Kenney**, John **Kruper**, retired Col. Charles **Kerwood**, James P. **Lappin**, retired Maj. Gen. Westside **Larson**, retired Col. Austin C. **Lemon**, retired Col. Maurice R. **Lemon**, Nils A. **Lennartson**, Maj. William F. **Long**, William **Lowenstein**, retired Brig. Gen. Stephen B. **Mack**, William **Magruder**, Nolan W. **Manfull**, retired Brig. Gen. Cornelius J. **Mara**, Robert **McCulloch**, Mrs. Virginia P. **McKnew**, Field Marshal Viscount **Montgomery**, Leo **Oklo**, retired Lt. Gen. John W. **O'Neil**, William D. **Pawley**, retired Col. Craig **Powell**, Gen. Ludomil **Rayski**, Mrs. Adelaide **Rickenbacker**, retired Vice Adm. Charles E. **Rosendahl**, Helen MacCloskey **Rough**, retired Brig. Gen. Richard C. **Sanders**, Theodore R. **Smith**, Dr. Frank E. **Sorenson**, retired Maj. Gen. Robert K. **Taylor**, retired Lt. Col. Homer A. **Tripp**, Dr. Wernher **von Braun**, John S. **Warner**, retired Brig. Gen. Richard D. **Wentworth**, Hugh C. **Whitfield**, Charles F. **Willard**, and Gladys E. **Wise**.

former Air Force NCO, now is an Air Force civilian executive at the Ogden Air Logistics Center, Hill AFB. A Life Member of AFA, he has served as an elected National Director; as Vice President for AFA's Rocky Mountain Region; as Chairman of the Resolutions Committee and the Organizational Advisory Council; as a member of the Finance Committee; and as a State and Chapter President.

Mr. Gross, of Hershey, Pa., was elected to an unprecedented seventeenth term. A colonel retired from the Air Force Reserve, he is a prominent civic leader and businessman. A Life Member of AFA, he has served as Chairman of the Board; as Chairman of the Finance Committee; as a member of the Executive, Resolutions, Awards, and Convention Site Committees; as a State and Chapter President; and as a member of the Aerospace Education Foundation's Board of Trustees.

Four new Vice Presidents were elected to head AFA activities in as many AFA Regions, joining eight others who were reelected. The new Vice Presidents are: George H. Chabbott, Delaware (Central East Region); Hugh L. Enyart, Illinois (Great Lakes Region); E. F. "Sandy" Faust, Texas (Southwest



ABOVE: At the Delegates' Reception, the Silver and Gold Chapter of Denver, Colo., served a famous Colorado beer. Shown are, from left, Norman Aubuchon, John Zipp, Shirley Cleland, and Dave Thomas, all official delegates from Colorado. LEFT: AFA's 1977 Unit of the Year award went to the Thomas B. McGuire, Jr., Chapter, N. J., "for its overall excellence in support of the Air Force mission, particularly in the areas of AFA membership activity, programming, military relations, communications, and civic affairs." During the Opening Ceremonies, President Douglas, left, presented the award to the unit's President, William J. Demas, right.



During the Outstanding Airmen Dinner, the current and four former Chief Master Sergeants of the Air Force were presented Life Memberships in the Air Force Association. Shown are, from left, President Douglas, retired CMSAF Thomas Barnes, retired CMSAF Dick Kissling, CMSAF Robert Gaylor, retired CMSAF Don Harlow, and retired CMSAF Paul Airey.



The Iron Gate Chapter of New York City was cited for contributing significantly to the Air Force mission through its National Air Force Salutes, an annual fund-raising function that has provided generous support to Air Force-oriented charities and to the Aerospace Education Foundation for fourteen years. Accepting the award from President Douglas, left, is Richard A. Knobloch, Chapter Vice President and Chairman of its 14th Salute.

Region); and Margaret A. "Peg" Reed, Washington (Northwest Region). (See also "This Is AFA," p. 64.)

Five new Directors were elected to the Board: Richard C. Emrich, McLean, Va.; Alexander E. Harris, Little Rock, Ark.; Vic R. Kregel, Dallas, Tex.; Sherman W. Wilkins, Bellevue, Wash.; and Jack Withers, Dayton, Ohio. The five newly

elected Directors join thirteen incumbent Directors who were re-elected for another year, as well as all the Past National Presidents and Board Chairmen, other permanent Directors, National Officers, the National Chaplain, the National Commander of the Arnold Air Society, and the Chairmen of AFA's Junior Officer Advisory and Enlisted Council Executive Committees. (The full

Board membership appears on p. 64.)

## Events and Acknowledgments

In addition to the Opening Ceremonies and the four business sessions, the convention program included an exclusive "after-hours" visit to the National Air and Space Museum; the Delegate's Reception with entertainment by Kissie Darnell and The Passions, a musical

## 'Our Country, Our Air Force, and Our Association'

*Following are excerpts from the keynote address at the Opening Ceremonies of AFA's 31st National Convention in Washington, D. C., by CMSgt. Walter E. Scott, Enlisted Air Crew Advisor to the Deputy Commander for Operations, 60th Military Airlift Wing, Travis AFB, Calif.*

I'm going to talk about our country, our Air Force, and our Association—three very important things in my life, and I hope in yours also. I'm an American. You just don't know how proud I am to say that, and I don't care who knows it. . . . I want that pride of country for my children and some day for their children. But I'm worried. . . . I am concerned when it's honorable to refuse to serve your country in uniform, and when I see our military defense posture a prime target for fiscal conservation. The only America I know is a free America, and the only free America I know is a strong America. . . . I'm sure the only way to insure peace is to be strong enough to prevent any nation from believing that war against the United States could be won.

I am a Chief Master Sergeant in the most professional United States Air Force in our history—a force that now stands at less than 579,000 after a level of more than 900,000 in 1968. We are smaller now and more efficient. And one of the significant changes in recent years is the increased role of the NCO. . . . The NCO corps now has a professional military education program to train, develop, and promote managerial and leadership abilities. We have a three-tier grade structure that encourages increased responsibility and authority on all levels earlier in the career. . . .

In a recent address to Air Force sergeants, Gen. Robert Dixon, Commander of the Tactical Air Command, compared NCOs and commissioned officers, and he said, "We share the same bond of professionalism. You believe in the same things I believe in—our country, our Air Force, our people, and our way of life." . . .

Noncommissioned officers have always . . . shouldered the responsibility of providing for the welfare of enlisted personnel in the United States Air Force—responsibilities that some . . . say would be better served by a union. In my opinion, we do not now need, nor will we ever need, a union in the military. . . .

The Air Force Association speaks loud and clear to the needs of the United States Air Force—the total force—enlisted, officer, civilian, active, Reserve, and the National Guard—all counterparts that make up

the Air Force family. One of the greatest misconceptions concerning the Air Force Association has been that it represents officers only. As a matter of fact, there are almost 22,000 active-duty enlisted members—an additional 10,000 retiree, Reserve, and Guard members—totaling more than 33,000 AFA members, which represents over twenty-one percent of the total Air Force Association membership. Even more significant is the fact that during the recent Air Force-wide on-base membership drive, for the first time in our history, new enlisted participation was greater than new officers. . . .

If your chapter doesn't have a large enlisted membership, you are losing out, and so are they. There should be an enlisted advisor on the executive committee and an enlisted affairs committee. You should have programs directed toward enlisted problems. Do you meet only at the Officers' Club? Or off base? [Do you] include meetings at the NCO Club to stimulate enlisted membership? Do you rotate your chapter activities to encourage enlisted participation? . . .

Many AFA goals and programs appeal to the enlisted force. One close to my heart is the Aerospace Education Foundation. What could be a better demonstration of action and concern than an organization that converts the outstanding Air Force training programs into occupational education programs for secondary schools, community colleges, and vocational training schools at a nonprofit/cost-only basis? . . . I believe in the Aerospace Education Foundation and devote many hours to its programs.

Another program of interest to us all is AFRAP, the Air Force Recruiter Assistance Program. . . . What better way for those whose active Air Force careers are many years removed to again become involved with the active-duty force, for although there are not Air Force facilities near every Air Force Association chapter, there are Air Force recruiters everywhere in the United States, and they have asked for our assistance through this program. . . .

Let's put more activity into our individual membership and the collective programs of the chapter, or work on state and national programs. There is a lot to do at every level in the Air Force Association. Let's insure that everybody knows about the Air Force Association and hears our message. Let's each make a positive contribution to make our association bigger, stronger, and more capable to meet the challenges ahead. . . . The Air Force needs us, and our country needs us, now more than ever. ■



*During the luncheon in his honor, Air Force Secretary John C. Stetson presented the Department of the Air Force Exceptional Service Award to AFA President George M. Douglas, photo at far left; and to AFA Executive Director James H. Straubel, photo at left. Each received this prestigious award for his aggressive leadership of the Air Force Association and for guiding its varied activities in support of maintaining the military preparedness and strength of our nation.*

## Air Force Association's 1977 Activity Awards

### INDIVIDUAL RECIPIENTS

#### AFA Man of the Year

Edward A. Stearn, California

#### Presidential Citations

E. F. "Sandy" Faust, Texas  
C. Jay Golding, California  
Martin H. Harris, Florida  
Deane Sterrett, Pennsylvania

#### Special Citations

CMSgt. Alton G. Hudson, USAF, Florida  
Richard A. Knobloch, New York  
Nathan H. Mazer, Utah  
Margaret E. McEnerney, Connecticut  
Capt. Alan L. Strzemieczny, USAF, Nebraska  
Joe H. Wilson, Illinois

#### Exceptional Service Awards

Kenneth H. Bashore, Texas  
Daniel F. Callahan, Tennessee  
Shirley J. Cleland, Colorado  
R. L. Devoucoux, New Hampshire  
Gerald C. Frewer, Florida  
Arthur L. Littman, California  
David C. Noerr, California

#### Medals of Merit

Terry P. Alexander, North Carolina  
George H. Chabbott, Delaware  
Thomas E. Connett, New York  
M. Lee Cordell, Illinois  
Mary L. Coyne, Pennsylvania  
Hoadley Dean, South Dakota  
William J. Demas, New Jersey

Leland P. Derrick, California

Robert J. Eichenberg, California

Dwight M. Ewing, California

Ludwig Fahrenwald, Sr. (posthumously)

Alexander C. Field, Jr., Illinois

Donald F. Flaherty, California

Robert Gates, Florida

T. A. "Tim" Glasgow, Texas

Col. Alan J. Grill, USAF, Texas

Col. Robert Hermann, USAF, Maryland

Ralph J. Hill, California

Capt. Wayne Hodges, USAF, Texas

James D. Holloway, Connecticut

Leonard W. Isabelle, Michigan

Francis, L. Jones, Texas

William D. Kyle, Utah

George C. Lambkin, Texas

William W. McKenna, New Hampshire

Billy A. McLeod, Mississippi

Daniel E. McPherson, California

Gregory A. Moreira, New Jersey

Bryan L. Murphy, Texas

Thomas R. Nelson, Montana

Henry C. Newcomer, New York

Jerry D. Page, Texas

Robert J. Puglisi, Ohio

William W. Roth, Texas

Leonard Schiff, New Jersey

Brig. Gen. Darrol G. Schroeder, ANG, North Dakota

Edward S. Siergiej, Texas

W. James Sivelle, California

Capt. Dana M. Spears, USAF, California

James H. Taylor, Utah

Jack K. Westbrook, Tennessee

Sherman W. Wilkins, Washington

### UNIT RECIPIENTS

#### AFA Unit of the Year

Thomas B. McGuire, Jr., Chapter, New Jersey

#### Outstanding State Organization

New Jersey State Organization

#### Outstanding Chapters

Wright Memorial Chapter, Ohio (more than 500 members)  
Steel Valley Chapter, Pennsylvania (101-500 members)  
Rocky Mountain Chapter, Utah (20-100 members)

#### Exceptional Service Awards

Delaware Galaxy Chapter, Delaware (Community Relations)

Colorado State Organization (Aerospace Education)

Nation's Capital Chapter, D. C. (Unit Programming)

Chicagoland Chapter, Illinois (Outstanding Single Program)

Eglin Chapter, Florida (Outstanding Single Program)

Texas State Organization (Outstanding Single Program)

Robert F. Travis Chapter, California (Communications)

#### Special Citations

Iron Gate Chapter, New York

Air Force Mothers' Chapter, Pennsylvania





During the first business session, AFA President Douglas presented Lt. Gen. David R. Adamson, Canadian Forces, Deputy Commander in Chief, NORAD, an Honorary Membership in recognition of his staunch support of AFA and his active participation in AFA activities at local, state, and national levels. Shown following the presentation are, from left, Mr. Douglas, General Adamson, and Board Chairman Hasler.

group that appeared through the courtesy of the USO; the annual banquet honoring the Air Force's twelve Outstanding Airmen (see p. 41); the Salute to Congress, which, this year, was held in the Cannon House Office Building on Capitol Hill (see p. 46); the annual Anniversary Reception in the Exhibit Halls; luncheons honoring the Secretary and Chief of Staff of the Air Force; the annual Chief Executives Buffet; and the highlight of the Convention, the annual US Air Force Anniversary Reception and Dinner Dance, during which AFA's H. H. Arnold Award was presented to Sen. Howard W. Cannon of Nevada, and featuring the USAF Concert Band, the USAF Ceremonial Band, and motion picture and television star William Conrad in a salute to the Air Force on its thirtieth anniversary.

Martin H. Harris, Chairman of the Constitution Committee and former AFA National Secretary, served as Parliamentarian. The Credentials Committee included Chairman Hoadley Dean, R. L. "Dev" Devoucoux, and William C. Rapp—Vice Presidents for AFA's North Central, New England, and North-east Regions, respectively.

Inspectors of Elections were Kenneth Banks, who was Chairman,

Akron, Ohio; Lloyd Nelson, Park Ridge, N. J.; and James H. Taylor, Farmington, Utah.

With deep gratitude, AFA acknowledges the contributions made to the program by Cecil Brendle, Evie Dunn, Billy Hughes, Helen Jeffrey, Danny Marrs, Betty Nelson, Irene Robertson, Fred Sims, and David Van Poznak, volunteers on their own time.

Our appreciation also goes to the AFA leaders and delegates who attended the Convention and whose diligent efforts contributed much to making this a most productive, interesting, and enjoyable convention. We are equally grateful to the many AFA leaders in the field whose personal contributions of time, effort, and finances have contributed much to AFA's growth and prestige over the past thirty-one years.

AFA's 1978 Convention will be held in Washington, D. C., September 17-21. ■

## 1977 Membership Achievement Awards

### STATE WINNERS

- \* Connecticut
- \* Mississippi
- New Jersey
- \* North Carolina

### CHAPTER WINNERS

- Air Capital, Kan.
- \*\* Alamo, Tex.
- \* Andrews Area, Md.
- Atlantic City Area, N. J.
- Big Sky, Mont.
- \* Blue Barons, Colo.
- \* Col. David D. Terry, Jr., Ark.
- Col. Stuart E. Kane, Jr., Pa.
- First Connecticut, Conn.
- \* Fran Parker, N. M.
- \*\*\* Gen. Thomas P. Gerrity, Okla.
- Hawaii, Hawaii
- Homestead, Fla.
- \* Illini, Ill.
- James H. Straubel, Mich.
- Middle Tennessee, Tenn.
- Minot, N. D.
- Mississippi Gulf Coast, Miss.
- \*\* New Jersey AFA Information, N. J.
- Northeast Texas, Tex.
- PE-TO-SE-GA, Mich.
- \* Robert F. Travis, Calif.
- \* Scott Berkeley, N. C.
- \*\*\*\* Silver and Gold, Colo.
- Southwest Florida, Fla.
- \*\*\* Spudland, Me.
- \*\*\*\* Steel Valley, Pa.
- Thomas B. McGuire, Jr., N. J.
- \* Union Morris, N. J.
- Wasatch, Utah

### PRESIDENTS

- Margaret E. McEnerney
- Billy A. McLeod
- Leonard Schiff
- Dozier E. Murray, Jr.

### PRESIDENTS

- Cletus J. Pottebaum
- William W. Roth
- Thomas W. Anthony
- Phil Karsten
- Jack R. Thibaudeau
- Noel A. Bullock
- Willie Oates
- Raymond O. Eck
- James D. Holloway
- Bruce C. Koegler
- Felix R. Kay
- James K. Dowling
- Edward T. Walker
- Kurt Schmidt
- Leonard W. Isabelle
- Daniel F. Callahan
- Robert Moe
- Dominic T. Leperi
- John P. Kruse
- Carl E. Eckman
- Clinton E. Wallace
- Arthur L. Littman
- William M. Bowden
- Stephen L. Brantley
- George R. Bandy
- Alban E. Cyr
- Patrick J. Logan
- William J. Demas
- Amos L. Chalif
- Monte R. Selander

- \* Award winner for 2 consecutive years
- \*\* Award winner for 3 consecutive years
- \*\*\* Award winner for 4 consecutive years
- \*\*\*\* Award winner for 5 consecutive years

# 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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Endicott, N.Y.



**BOARD CHAIRMAN**  
George M. Douglas  
Denver, Colo.



**SECRETARY**  
Jack C. Price  
Clearfield, Utah



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Arnold Air Society  
St. Paul, Minn.

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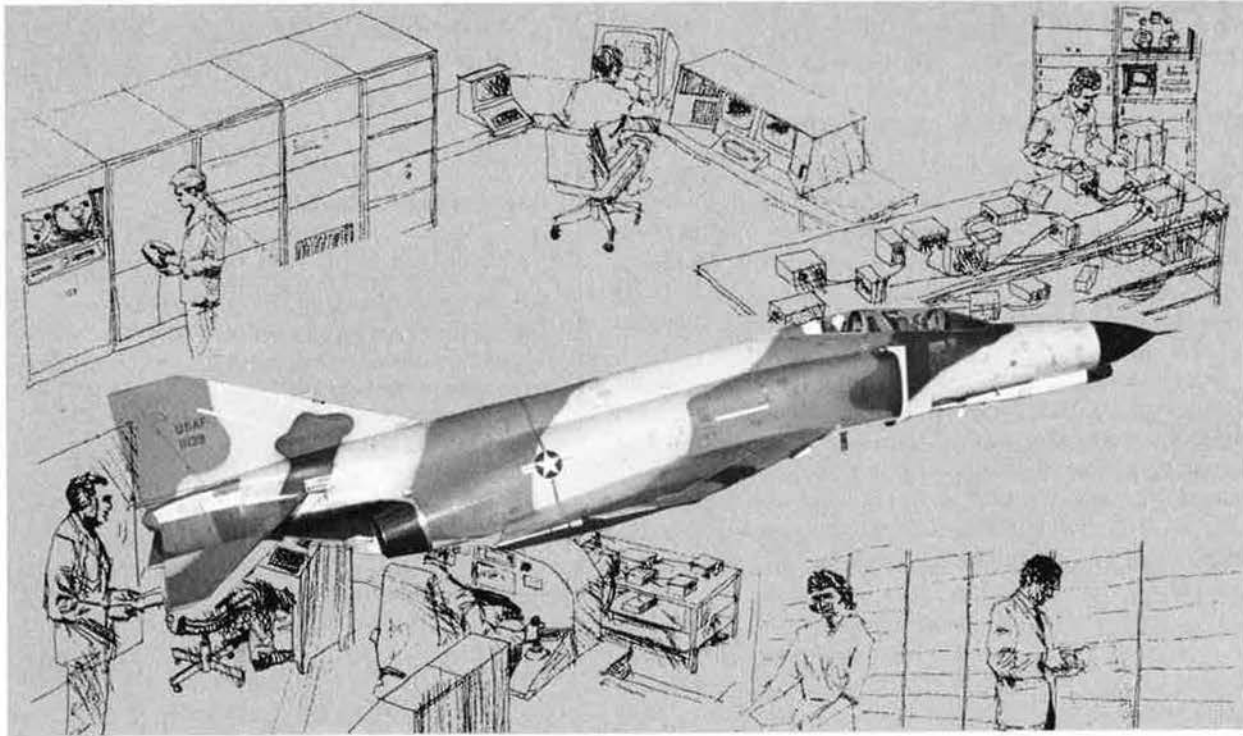


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## IMPROVING THE BREED OF AIRBORNE COMPUTERS



Air combat today demands superhuman nerves, brains, and physical responses, just to handle the routine problems. That's why that versatile warhorse, the F-4, is being equipped with digital computers. One helps the aircrew hit airborne targets... by processing blizzards of data on range, relative motion, and many other factors... so that human judgment can be concentrated on decision-making. The other computer helps perform equally demanding calculations for ground targets and provides navigational updates, too.

None of this is cut and dried. It all has to be thought

out in advance and programmed. That's why the Air Force Logistics Command is building a special Avionics Integrated Support Facility (AISF) to test existing software, improve it as needed, and make all the fantastically complex instruments, weapons, and navigation equipment play together in every imaginable combat scenario.

AFLC is taking advantage of TRW's in-depth experience in digital systems and advanced software technology to help design the facility, set it up, and develop specific software for it. This experience is solidly based on our work with space and missile

systems, the only man-made things more complicated and faster than jet aircraft.

The problems will be even more challenging in the newer generations of aircraft. It's a whole new kind of technology. A body of expertise is just beginning to emerge. That's why the TRW people are so highly motivated. They're helping AFLC to solve real problems in the logistics environment.

For more information about this capability, contact Richard A. Maher, TRW Defense & Space Systems Group, One Space Park, Redondo Beach, CA 90278. Phone: (213)

536-3238.

# Digital Avionics Technology

FROM A COMPANY CALLED

# TRW

The enormity of their horror invites emotional reaction to nuclear weapons, to the detriment of rational public discussion of the axiom that credible deterrence requires credible weapons. Such is the case with the US Army's proposed enhanced radiation, or "neutron," weapons.

# The 'Neutron Bomb' Media Event

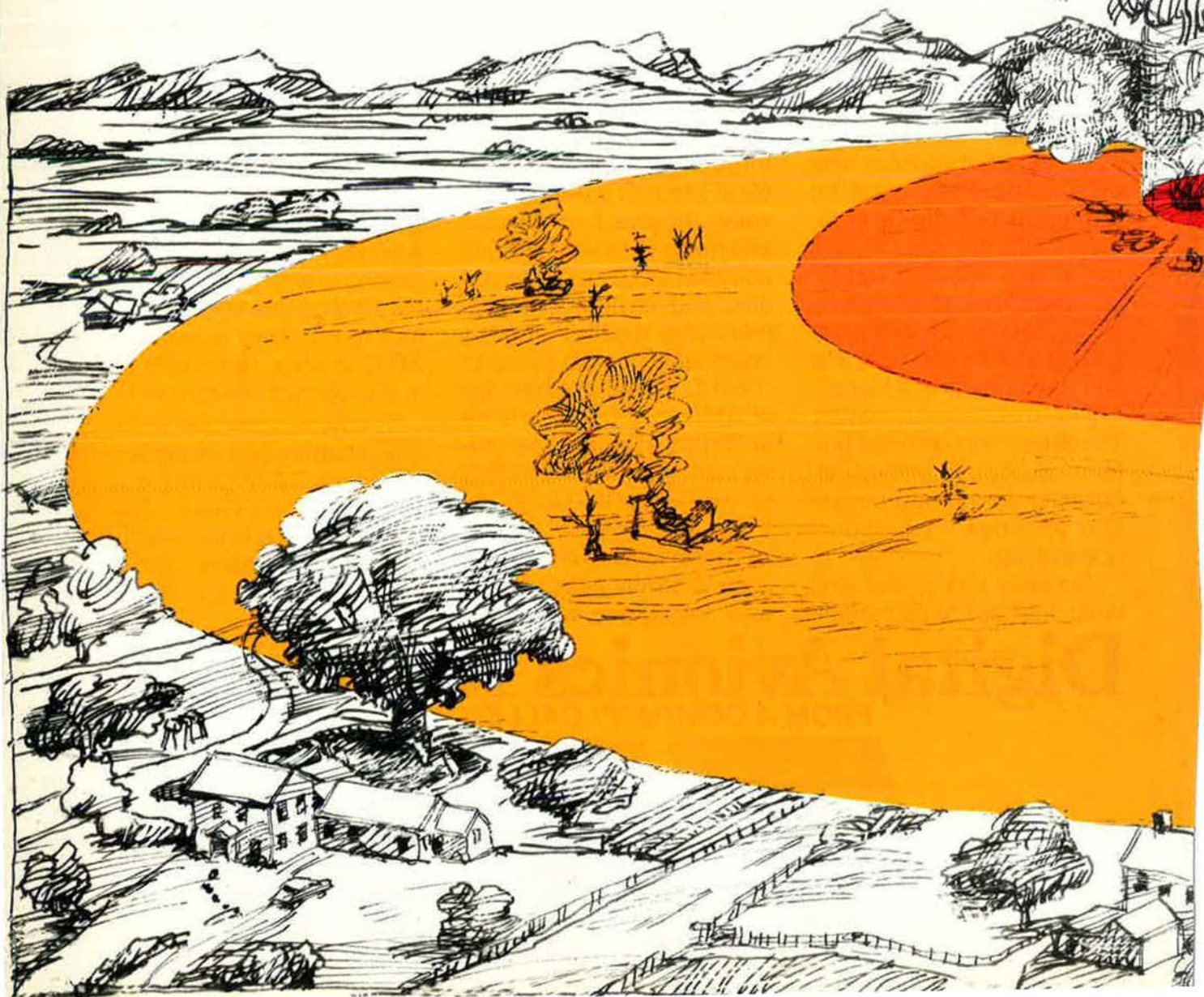
BY EDGAR ULSAMER, SENIOR EDITOR

**A** PENTAGON cynic has come up with a slogan that is gracing bulletin boards in increasing number: "Bows and arrows kill people but leave buildings intact." The reference is to one of the media events of the year, the "discovery" of enhanced radiation (ER) tactical nuclear weapons, imprecisely dubbed "neutron bombs."

The journalistic bombshell detonated by the *Washington Post* on June 6 opened the sluice gates for a flood of media moralizing against the alleged callousness and depravity of the Pentagon. In its lead, the *Post* story asserted the new weapon is "specifically designed to kill people through the release of neutrons rather than to destroy military installations through heat and blast."

## How Enhanced Radiation Works

Typical ER weapon effects are shown in center zone (thermal shock-wave and overpressure), and surrounding range of lethal radiation. Outer ring indicates the area that would be affected by overpressure and thermal shock from a standard nuclear weapon with a radiation product roughly equal to that of the ER weapon.



The headline read: NEUTRON KILLER WARHEAD BURIED IN ERDA BUDGET. Not to be outdone, the New York Times, under the headline A NEW WEAPON TO THINK (AND WORRY) ABOUT, carried this lead: "The nuclear weaponeers have unfolded a new brainchild, the neutron bomb, which will kill people while preserving buildings, tanks, and artillery."

The bitter irony of the anti-ER weapon campaign is that it may defeat the very goals presumably sought by those who wage it—namely, weapons that can reduce casualties and that will make regional wars less likely by increasing the credibility of US/NATO deterrent capabilities.

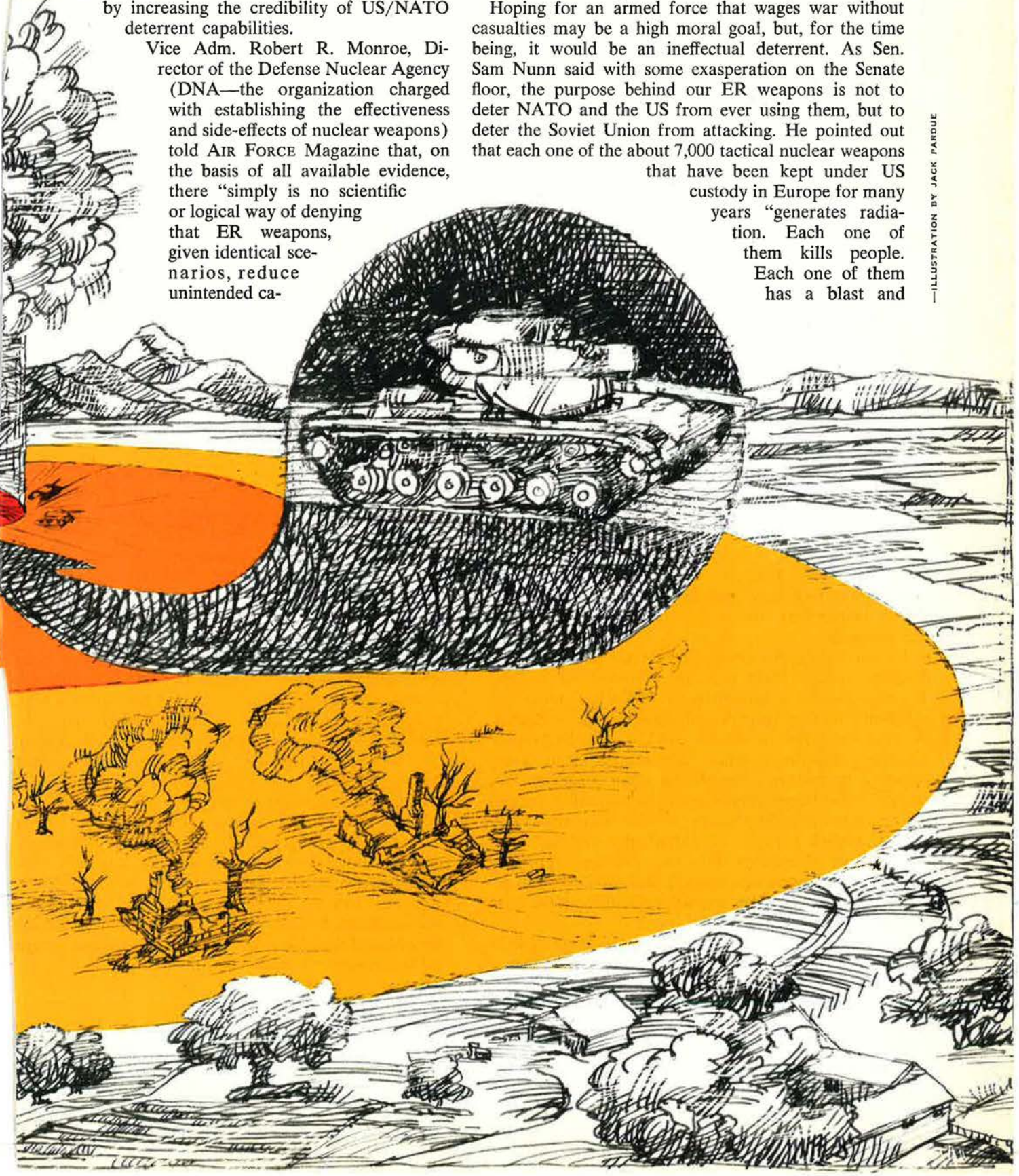
Vice Adm. Robert R. Monroe, Director of the Defense Nuclear Agency (DNA—the organization charged with establishing the effectiveness and side-effects of nuclear weapons) told AIR FORCE Magazine that, on the basis of all available evidence, there "simply is no scientific or logical way of denying that ER weapons, given identical scenarios, reduce unintended ca-

sualties by a significant factor compared to standard fission weapons. There are no humanitarian reasons that favor standard fission weapons over ER designs."

The relative "humanity" of relatively "clean" nuclear warheads that are optimized to incapacitate or kill enemy troops only within a precisely defined selectable range without producing significant fallout, other lingering contamination, and collateral damage and casualties among civilians and friendly troops does not alter the fact that they are weapons. Their sole purpose is to threaten to kill—or if necessary to kill—enemy troops.

Hoping for an armed force that wages war without casualties may be a high moral goal, but, for the time being, it would be an ineffectual deterrent. As Sen. Sam Nunn said with some exasperation on the Senate floor, the purpose behind our ER weapons is not to deter NATO and the US from ever using them, but to deter the Soviet Union from attacking. He pointed out that each one of the about 7,000 tactical nuclear weapons that have been kept under US custody in Europe for many years "generates radiation. Each one of them kills people. Each one of them has a blast and

—ILLUSTRATION BY JACK PARQUE



thermal effect probably about ten times that of the neutron warhead [assuming identical radiation levels at the target]. The American people are confused about this argument, and they have every right to be confused because we in this Chamber and in the news media in the last few days suddenly 'discovered' radiation, and we have 'discovered' lethal nuclear weapons. So I submit: Let us focus . . . on the difference between this proposed weapon and what we already have, not on the self-evident proposition that nuclear weapons kill people and are dangerous to mankind."

#### **ER Weapons—Neither New Nor a Panacea**

Senator Nunn warned that, because of the overblown media treatment, "instead of people around the world realizing that this is simply an enhancement of our tactical nuclear deterrent, they will think we have come up with some kind of dream weapon that really and truly excuses NATO from doing the things it ought to do to improve its own conventional defenses."

President Carter told the press on June 12 that the enhanced radiation warhead has been discussed and under development for fifteen to twenty years and that "it is not a new concept and not a new weapon."

Reports on enhanced radiation weapons have appeared in *AIR FORCE Magazine* for some time, the most recent one (preceding this year's "media discovery") in the September '76 issue when we stated in part that it is possible to tailor nuclear weapons by "shifting a larger percentage of the total energy output to one product and correspondingly decreasing another, such as increasing certain forms of radiation while reducing blast. It is possible, for instance, to create enhanced radiation antipersonnel weapons that can cope with the Warsaw Pact's vast tank forces through radiation rather than blast, thus reducing collateral damage." Both the US and the USSR developed ER weapons during the past decade for ballistic missile defense systems, such as the Sprint missile, to increase the lethality of nuclear-armed interceptors operating in the upper reaches of the atmosphere.

Contrary to some recent press reports, all nuclear weapons produce blast, heat, and radiation. All nuclear weapons require a concentration of fissile (capable of sustaining nuclear reactions) materials, such as or alloy (uranium enriched in the isotope U-235 to 93.15 percent) or plutonium, to achieve critical mass, meaning the capacity to sustain an explosive chain reaction. The weight and volume of fissile material, also called special nuclear material or SNM, required for critical mass vary, with plutonium having a significant edge over uranium, in the order of between three to five to one. (For this reason, ER weapons that must fit into artillery shells or the warheads of tactical, mobile surface-to-surface missiles use plutonium.)

In order to achieve critical mass in a weapon, it is necessary to implode or "squeeze" the SNM with the help of chemical explosives. This initiates the fission process, the breaking up of heavy elements into elements of smaller atomic weight, with the attendant release of prodigious amounts of energy which, in its primal form, is a superconducting ionized hot gas, or plasma. About eighty percent of the plasma's energy is converted into

X-rays that, within a few tens of meters from the weapon's casing, collide with air molecules and thus generate destructive thermal and pressure waves. But when set off in space there is nothing to block X-rays; they propagate over hundreds or even thousands of miles and "attack" sensitive spacecraft or ballistic missile components within their reach.

Fusion weapons, originally known as hydrogen or "H" bombs, use the reverse principle of the "A" bomb; they merge, or fuse, nuclei of light hydrogen atoms, specifically such "heavy" hydrogen isotopes as deuterium and tritium. The nucleus of the new atom thus formed is lighter than the combined atomic weight of the two nuclei that merged, with the result that energy in the form of subatomic particles is released. In a practical sense, fusion cannot be initiated by chemical means. They simply can't furnish the extremely high temperature and pressure needed. Hence the requirement for a fission "trigger," an "A" bomb that sets off the "H" bomb. Almost all strategic warheads in the US and Soviet inventories can be assumed to be fusion weapons with at least two components—a fission trigger and the fusion element. Almost all modern nuclear weapons seek to make the trigger as small as possible because fissile materials are heavy, expensive, and in short supply. Generally, fusion fuel does not have these negative traits.

For years nuclear physicists have considered weapons that are variations or hybrids of the two basic types, including a pure neutron or "clean" bomb that uses no fission trigger at all. Its predominant product would be high-energy neutrons that don't cause significant fallout. Fusion would be initiated incrementally, beginning with a pellet that is imploded which, in turn, "lights" fusion in the next, slightly larger element, and so on. Whether or not such a fission-free design has ever been successfully tested is not known. It is known that the Soviet Union, France, the United States, and others are exploring the potential of laser-induced fusion reaction for civilian power generation. That same technique, if compact enough, could lead to a pure neutron bomb.

At the other end of the nuclear spectrum have been long-standing efforts to enhance or "boost" the energy product of fission weapons by varying their nuclear fuel, in the main the ratio of tritium to other materials. Pioneering work in this area was done by Klaus Fuchs, a German-born British scientist working on US nuclear weapons programs, who was later convicted of espionage on behalf of the Soviet Union.

The family of ER weapons caught up in current publicity uses fusion reactions to produce high-energy neutrons. When fusion is triggered by relatively low-yield fission reactions, the lethal range of the neutrons is greater than the range of thermal and blast effects. Oversimplified, ER weapons are somewhere between the A-bomb and the H-bomb. Details of the weapon design and the number of stages used can't be revealed.

#### **Tactical ER Weapons**

Tactical ER weapons research and development in this country goes back to a Project RAND study in 1958 that examined the potential of low-yield, high-radiation weapons for tactical antipersonnel missions.

The study was inspired by basic research in radiation enhancement carried out by the Atomic Energy Commission (since then absorbed by other government organizations, mainly the US Energy Research and Development Administration which this summer became the Department of Energy). The study elicited considerable interest from the Pentagon and other government agencies following a series of briefings in the fall of that year. The central conclusion of the RAND analysis was that high-radiation weapons would be just

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**President Carter told the press . . . that the enhanced radiation warhead has been discussed and under development for fifteen to twenty years and that "it is not a new concept or a new weapon."**

---

as effective against enemy ground forces as much larger tactical fission weapons, thus reducing collateral effects on noncombatants significantly. This objective has not changed over the years and would not seem to support polemicists' claims reverberating between Bonn, Moscow, and the US that the development of ER weapons by this country symbolized "perversion of thought," reflected the intrinsic decadence of capitalism that wants to protect real estate and tanks while killing people, and proved that mankind was "going crazy."

Further studies of high-radiation weapons for tactical warfare by the military services and the Atomic Energy Commission culminated in 1960 in a formal recommendation that "steps should be taken immediately to ensure early and timely development of nuclear weapon systems which maximize prompt radiation." The White House, the State Department, and the National Security Council were given full briefings about the nature and purpose of the proposed new weapon. While a far cry from a pure fusion and thus pure neutron weapon, the project was referred to informally as the "neutron bomb." That name has stuck.

Work that proved the feasibility of tactical ER weapons was carried out in the early 1960s with specific application first considered for surface-to-surface missiles. Subsequent emphasis on massive assured destruction as the principal US nuclear arms policy contributed to decreased concern with ER weapons. Meanwhile, the technology behind these weapons achieved operational status with the Sprint ballistic missile interceptor, a key element of the now dismantled Safeguard ABM system.

Secretary of Defense James R. Schlesinger's emphasis on flexible deterrence rekindled active interest in ER weapons late in 1973, according to Donald R. Cotter, Assistant to the Secretary of Defense for Atomic Energy, and led to discussions of ER weapons with NATO leaders in 1974. In the following year, Dr. Schlesinger's public, unclassified report to Congress on the "Theater

Nuclear Force Posture" described the importance of tactical nuclear weapons with low yield and reduced collateral damage: They would make NATO use of nuclear weapons more credible to the Warsaw Pact and, should deterrence fail, "weapons with low collateral damage would reduce civilian casualties and perhaps reduce the risks of uncontrolled escalation." Reduction in collateral damage, this 1975 DoD report stated, is achieved by weapon-system improvements involving "reduced yields, special warhead effects such as enhanced radiation [and] improved delivery system accuracy." More detailed classified information about the ER weapons program was provided to the proper congressional committees as DoD's broad modernization of theater nuclear weapons progressed.

In April last year, the Defense Department requested ERDA's Assistant Administrator for National Security, Lt. Gen. Alfred D. Starbird, USA (Ret.), to start work on the W70-3, a new tactical nuclear warhead for the US Army's inertially guided, liquid-fueled Lance missile system that has a maximum range of 130 km and a circular error probable (CEP) of 400-450 meters. This request had been preceded, in October 1975, by the Army's formal inquiry concerning the feasibility of an ER warhead for some Lance missiles. It was answered affirmatively by ERDA, the only authorized US manufacturer of nuclear warheads and shells.

In July 1976, ERDA informed the Joint Committee on Atomic Energy of the US Congress that it was meeting the Army's request for ER weapons development, test, and production. That request was amended subsequently to include certain types of artillery shells. The unclassified version of ERDA's FY '77 Annual Report to Congress contained no explicit reference to ER weapons development because the program that year was still in an R&D state, without need for "line-item" funding. Since ER weapons were to be produced during FY '78, ERDA's testimony and unclassified reports this year contained specific references to the program.

Testifying before the Public Works Subcommittee of the Committee on Appropriations, US House of Representatives, General Starbird stated: "The W70-3 is an enhanced radiation warhead for the Lance missile which provides target destruction while greatly reducing the collateral damage to the surrounding area and friendly populace. The Lance missile is replacing the Honest John rocket and Sergeant missile [W31 and W53 warhead]. The W79 is [deletion for security reasons] an 8-inch artillery-fired atomic projectile (AFAP), which replaces the old W33 projectile. This weapon provides enhanced safety and security, increased range, and quicker reaction time, as well as the reduced collateral damage."

Public references to US nuclear warhead design details, by law, are circumspect and terse. ERDA's unambiguous public testimony on ER weapons in the spring of this year does not support media accusations that the agency attempted to "bury" this program. Nor was there any basis of fact for claims that the incoming Carter Administration had not been informed of the existence of the ER weapons programs even though pertinent statements in the so-called transition papers (prepared under the aegis of the outgoing administration

to familiarize the new leadership with ongoing programs) may have been given scant attention.

Also, ERDA's fact sheet, explaining the reason why the new Lance enhanced radiation warhead is needed, hardly practices concealment when it states that W70-3 "has been designed with the objective of greatly reducing the yield of the warhead when used against certain specific targets. The blast energy, thermal energy, and fallout from this warhead have been reduced to less than one-tenth that from the standard Lance nuclear warhead. However, the prompt radiation (neutron) output of this warhead is not significantly different, resulting in an explosive with a proportionately greater fraction of radiation output, thus leading to the term 'enhanced radiation' warhead. The area exposed to this prompt radiation can be more closely controlled than other nuclear weapons effects. By confining these effects to small areas, the military effectiveness is maintained, while minimizing the unwanted hazard to nearby populations, to US and allied forces, and greatly reducing the destruction around the immediate area."

### **NATO Fully Informed**

The canard of the secret new "horror" weapon roiled West German politics more than this country's; Germany is a likely site for use of ER weapons in case of a NATO/Warsaw Pact war. The impression had been created that this program was an arbitrary US action when in fact NATO was being fully informed. The political and military implications of the new technology were made known to and discussed with NATO's highest political and military authorities, beginning with the fifteenth meeting of the NATO Nuclear Planning Group (NPG) in June 1974. Additional detailed information was provided to the NPG Ministers at their eighteenth meeting in Hamburg, Germany, in a classified US report to NATO nations titled "Improving the Effectiveness of NATO's Theater Nuclear Forces," and in technical briefings to the NATO NPG Permanent Representatives in the fall of last year.

At the subsequent nineteenth and twentieth NPG meetings in Brussels and Ottawa respectively, the NATO Ministers reaffirmed the need for steadily improving effectiveness of NATO's theater nuclear forces, including Lance and eight-inch as well as 155-mm artillery. A recent arms control impact analysis by the US Arms Control and Disarmament Agency (ACDA) notes that "there is no evidence that NATO governments would be particularly concerned about Lance deployment with this [ER] warhead. Nevertheless, public discussion of the sort now taking place here could affect NATO attitudes."

### **Nuclear Weapons' Effects**

The radiation effects of all nuclear weapons on people, undeniably, are gruesome. A US Army field manual published last year minces no words: "The immediate incapacitation radiation level is 8,000 to 18,000 rads [a unit of radiation, with one rad about the amount encountered in a standard dental X-ray exposure], but an active soldier suddenly exposed to 3,000 rads could become incapacitated within three to five minutes. He may recover to some degree in about forty-five minutes,

but due to vomiting, diarrhea, and other radiation sickness symptoms, he would be only partially effective until he dies within a week. A soldier exposed to 650 rads initially shows no symptoms, but loses some of his effectiveness in about two hours and can be expected to die in a few weeks under battlefield conditions. Exposure in the 100 rad region usually has little effect. Accordingly, in conventional-nuclear combat it would be prudent to subject front-line enemy to 3,000-8,000 rads or more, enemy to the rear to 650-3,000 rads, and avoid subjecting friendly forces and civilians to an unacceptable dose level (100 rads or more)."

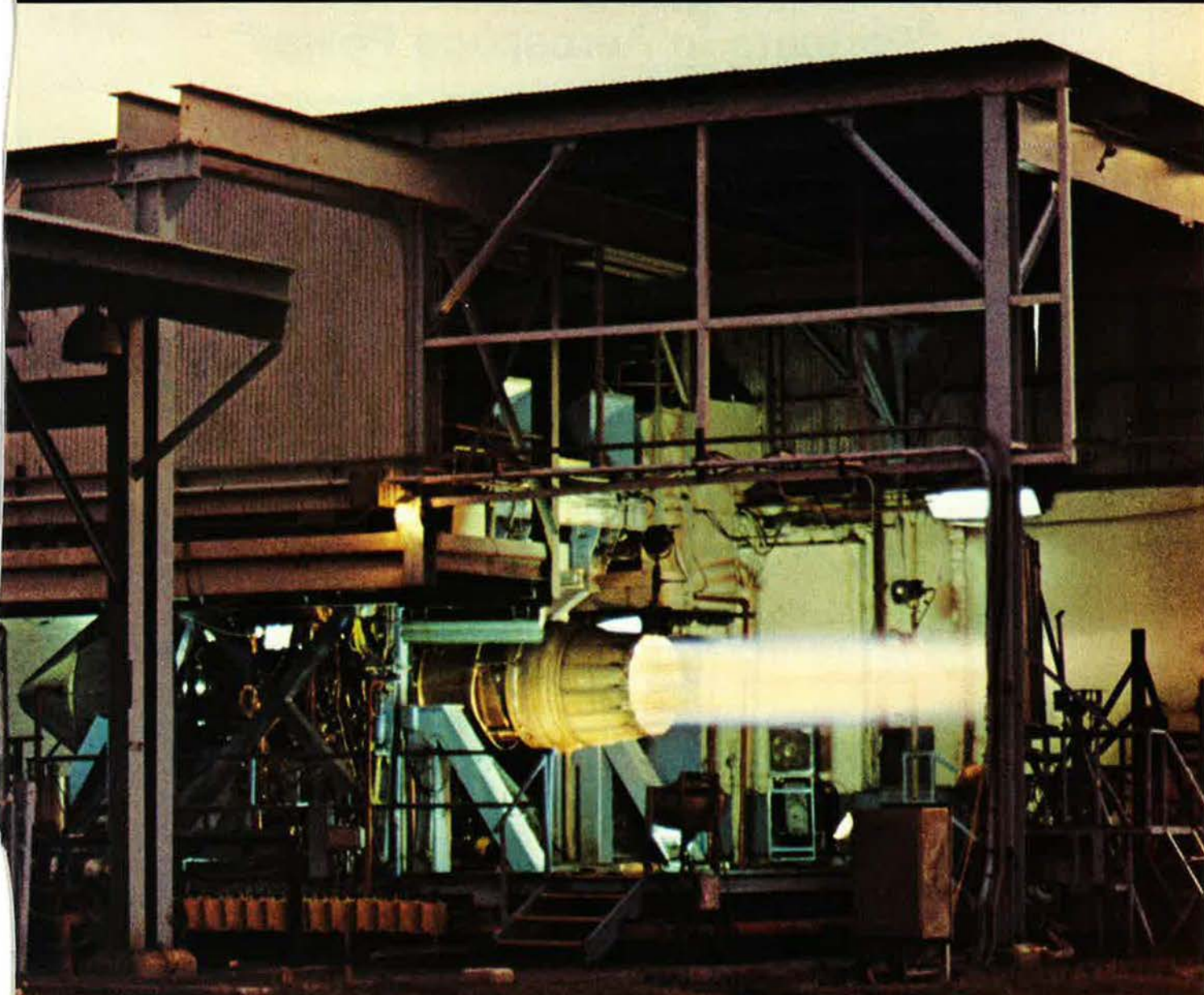
The two principal forms of lethal radiation induced by nuclear detonations are neutrons and gamma rays, the latter resulting either from the weapon's fission or from the interaction of high-energy neutrons with other matter. When neutrons strike living tissue, their predominant effect is the expulsion of light atoms from some molecules, thus causing widespread ionization. That means the neutral atoms through which any of these primary or secondary radiation particles pass become unbalanced electrically, thus giving them a net electric charge that causes cell decay. Gamma rays—similar to light, X-rays, and heat insofar as they transport energy even though they have no mass—interact with tissue mainly by causing electrons to be ejected from atoms, thereby inducing intense ionization. A single gamma ray photon (a bullet of energy) can ionize hundreds of neutral atoms in the tissue in multiple collisions before all its energy is absorbed. The physiological effect of radiation is disruption and destruction of the chemical bonds of the cell structure. Shielding against gamma rays, which can traverse several inches of concrete, is difficult.

While the initial radiation product of ER weapons is almost all neutrons, the ratio between neutrons and gamma rays changes over distance in favor of the latter. In case of a standard ten-kiloton fission weapon under dry air conditions, there would be about 2.8 times as many neutrons as gammas 400 meters from ground zero; but at 1,200 meters, the ratio would be 0.9, and at 1,600 meters, 0.3. In the case of a one-kiloton ER weapon, the neutron/gamma ratio would be 2.9 at 400 meters; 2.2 at 1,200 meters; and 1.5 at 1,600 meters. Because the energy levels of the neutrons produced by ER weapons are far greater than of those generated by standard fission weapons, their range is greater. This accounts for the fact that the lethal radiation levels of a theoretical one-kiloton ER weapon is roughly equal to that of a ten-kiloton standard fission weapon. In the case of both weapons, the radius of lethal radiation effects extends out to about 1,300 meters, while the blast and thermal effects of the ten-kiloton weapon extend much further. But in the case of ER weapons, especially, yield and radius of effectiveness can be adjusted to suit specific battlefield requirements.

The advantages, in tactical terms, of using ER rather than standard nuclear fission weapons go well beyond the ability to confine lethal effects to a smaller area. First, the reduction of blast and thermal effects eliminates much of the physical damage—firestorms, cratered roads, fallen trees—to areas that friendly troops may have to traverse. Blast and thermal effects, on the other



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hand, are least effective against tanks and other armored vehicles—the kind of targets that nuclear weapons are most likely to be used against in Europe. Modern tanks are designed to operate in a nuclear environment and are relatively impervious to blast and heat. But as the ACDA report states, “with this weapon armored vehicles, which are relatively unaffected by blast effects except at close range, can be temporarily neutralized by radiation casualties of crew personnel. Requisite effects can still be achieved at much greater ranges, with less collateral damage, than could be expected from blast-predominant weapons.” (While relatively few neutrons will penetrate a tank, their collision with armor plating produces gamma radiation that does enter the interior.)

Lingering surface radiation and fallout are two other side effects of nuclear detonations that can be controlled better, or almost eliminated, by using ER weapons. Fallout, in the main, is induced if a nuclear fireball touches the ground, causes a crater, and spews contaminated debris into the atmosphere. Neither the defense nor the offense is likely to seek fallout deliberately and, therefore, can be presumed to airburst weapons high enough above the ground to prevent major fallout. (This should be true especially for the Warsaw Pact forces, since the prevailing west-east winds would carry fallout from nuclear detonations into their own territory and cause radiation casualties.)

DNA's research established “categorically” that there is no militarily significant fallout from an airburst ER weapon. Some US analysts believe, therefore, that the Soviets, in spite of vociferously inveighing against the new “inhuman” US weapon, will develop ER warheads and artillery shells, if they don't have them already, to reduce fallout which may affect their populace. (The notion that the US has a lead over the USSR in this or other nuclear weapons technologies—expressed frequently by US news media—has no basis in fact, according to most defense experts. The Soviets clearly are as familiar with ER technology in connection with ballistic missile defense as is this country.)

All nuclear weapons, ER included, induce radioactivity (nuclear contamination) in the soil under the burst. The degree and duration of that radioactivity are determined by the nature of the weapon, the altitude of the burst, and the chemical makeup of the soil. A ten-kiloton standard fission weapon rapidly produces about the same amount of lethal radiation against targets as a hypothetical one-kiloton ER weapon. The higher-yield standard fission weapon would also cause somewhat greater induced radioactivity. To avoid exceeding what the Army calls emergency-risk-allowable radiation dose rates, friendly troops could not enter a nuclear battlefield for one or two hours after the detonation of a one-kiloton ER weapon. Troops moving at a speed of ten km/hr. would be exposed to from 0.8 to 6.4 rads, with tank crews receiving about half these dosages.

An important advantage of ER weapons, compared to standard fission weapons, is their extremely frugal use of SNM. One reason is that critical mass can be achieved with far less plutonium than with the uranium-235 used in the present generation of tactical nuclear weapons. Also, ER weapons use refined implosion techniques,

thus initiating explosive chain reaction with less nuclear fuel than standard weapons.

SNM is an important national resource, in short supply. Mr. Cotter estimates that a tenfold saving in SNM could be achieved through the use of ER rather than standard weapons. No significant quantities of SNM have been produced by the United States during the past ten years, for reasons of cost as well as in deference to civilian nuclear powerplant needs. (The need for some standard fission weapons for theater use will continue, of course, since they are far better suited for use against hardened targets than are ER weapons.)

A further, although coincidental, advantage of the proposed ER weapons is that in case of enemy ground attack they can be disabled far more readily than the existing stockpile, and that their security code is so tamperproof that “even the best safecracker in the world couldn't break it.” (This is also true of other modern tactical nuclear weapons.)

### Lower Threshold vs. Higher Credibility

In a letter to Sen. John C. Stennis of July 11, President Carter pointed out that “the decision to use nuclear weapons of any kind, including ER weapons, would remain in my hands, not in the hands of local theater commanders. A decision to cross the nuclear threshold would be the most agonizing decision by any President. I can assure you that these weapons would not make that decision any easier. But by enhancing deterrence, they could make it less likely that I would have to face such a decision.”

The ACDA ER weapon impact analysis made a similar point: “It can be argued that the improved warhead may make initial use of nuclear weapons in battle seem more credible which might enhance deterrence. However, by the same token, it can be argued that it increases the likelihood that nuclear weapons would actually be used in combat. In any event, the escalating potential is the same for this weapon as for any other nuclear weapon.”

Soviet perceptions, ACDA concedes, “are difficult to analyze, [but] there is no evidence that the development of this system would have any effect on Soviet doctrine for the initiation of nuclear war or that the Soviets would be less likely to escalate a nuclear exchange if ER weapons were used by the US rather than standard fission weapons.” Perhaps the most telling point of the ACDA analysis is this: “Unless the Soviet forces are supplied with a comparable warhead, their response would create the kind of devastation that this warhead is designed to prevent.”

At this writing, the fate of ER weapons primarily is in the hands of the President and, secondarily, depends on whether or not there will be a Comprehensive (nuclear) Test Ban (CTB) Treaty. While testing the W70-3 ER weapon is basically complete, that is not true for ER artillery shells. CTB, ACDA notes, “would pose limitations on the further development of this class of weapons since over the long term further testing would be required.”

Whatever the outcome, the case for or against ER weapons should not be determined by tendentious media reporting but rather on the contribution of these weapons to deterring war or to reducing casualties. ■

# The Bulletin Board

By James A. McDonnell, Jr., MILITARY RELATIONS EDITOR

## Focus on Pay Commission

The Air Force has established important links with the President's Commission on Military Compensation, which at this point is fielding tough questions from military personnel and conducting public pay hearings.

The group's accelerated activity is pointed toward completion of its work by March 15, 1978. Commission Director Charles J. Zwick told AIR FORCE Magazine he expects to meet that deadline, in spite of a small staff of about twenty professionals. Three of the military members of the Commission's staff are Air Force officers: Lt. Col. Otis Bryan, Maj. Michael O'Connell, and Maj. Terry Polk. They will remain with the group until it dissolves.

In addition, USAF's top expert in the career incentives field, Col. Paul Arcari, maintains close liaison with the Commission. Assistant Secretary (Manpower, Reserve Affairs and Installations) Antonia Chayes has also been feeding the pay group ideas the service hopes will receive Commission blessing. And Lt. Gen. Benjamin O. Davis, USAF (Ret.), is one of two military officers on the Commission.

Noncommissioned officers were angry that no enlisted people served on the Commission or its staff. Ms. Chayes has deplored this fact. Now a senior enlisted advisor from each service is being appointed. CMSgt. James Binnicker from Bergstrom AFB, Tex., will represent USAF.

The Commission began a series of base visits and public hearings in late September. Personnel at Langley AFB and other sites in the Norfolk, Va., area participated, giving their views on what should be done about pays and benefits. In late October, the Commission was to repeat the process at Lackland

and Randolph AFBs in Texas. Personnel at March AFB will meet with the Commission November 16 when it visits bases in Southern California. Late this year and early next the group will conduct a series of public hearings in Washington, D. C.

Asked what are the main issues the Commission must address, Director Zwick said (1) pay and allowances vs. a salary system, (2) fringe benefits, (3) a correct and fair amount of compensation, and (4) retirement.

Air Force officials said they are seeking an equitable overall pay package, no tampering with twenty-year retirement, and "save pay" assurance for current active-duty members.

Many airmen are demanding that the Commission support travel-transportation benefits for low-ranking families. Members of AFA's Enlisted Council, at the Association's Convention in September, raised this matter repeatedly.

Once the Commission issues its report, it will be up to the Defense Department, with Administration approval, to recommend corrective legislation. Such proposals will go to the Military Compensation Subcommittee of the House Armed Services Committee. The ranking minority member of the Subcommittee, Rep. Don Mitchell (R-N. Y.), who addressed AFA's Enlisted and Junior Officer Advisory Councils along with the AFA-sponsored first Worldwide Senior Enlisted Advisor Conference at AFA's September Convention, said the panel is sympathetic to the military community. He predicted that the retirement system won't be altered.

## Chayes Supports Benefits

USAF's new top personnel official strongly opposes "tampering with

and chipping away of traditional benefits," including the recent \$10 charge laid on space-available travelers by Congress. That charge, Ms. Antonia Chayes told AIR FORCE Magazine, was "penny wise and pound foolish." Other authorities said the cost of administering the Space-A fee would exceed the savings to the government.

The candid Ms. Chayes, whose official title is Assistant Secretary for Manpower, Reserve Affairs and Installations, came out strong for full travel-transportation allowances for junior enlisted families and vesting provisions—lump sum payments—for enlisteds who leave active duty before retirement.

Establishing herself as firmly in the service member's corner, she scored as "short sighted" the Defense Department's plan to establish a fair market rental system on quarters. She also said she strongly opposed overtures within the Administration that would kite the cost of renting base trailer spaces.

Secretary Chayes echoed her enthusiastic support for retention of benefits and removal of inequities at the AFA Convention in late September. She told the Association's Enlisted and Junior Officer Advisory Councils, for example, that enlisted crew members are getting a raw deal on per diem and that she's sympathetic to single members' pleas for equal quarters allowances. She promised to fight any attempt to force a fair market value housing system on Air Force people.

As part of her campaign to open more career fields to women, Secretary Chayes recently opened the door to missile launch crew duty for both officer and enlisted female members. The long-standing bar to such assignments had triggered much controversy, and the service was under mounting pressure to remove it. Under the change, the service plans to train fifteen female officers and twenty-five enlisted women for Titan II base assignments next year at Davis-Monthan AFB, Ariz.; Little Rock AFB, Ark.; or McConnell AFB, Kan.

## Tuition Aid Restored to AECF Participants

Uncle Sam once again is paying the tuition of members enrolled in or selected for the Airman Education and Commissioning Program (AECF). The funds were cut from

the FY '77 military budget, but were restored recently in the FY '78 budget. AFA had campaigned vigorously for their return. During the unfunded period, participants paid their own way or used their in-service GI Bill benefits. Some 200

airmen will enter AECF in FY '78 and later work their way toward commissions via Officer Training School. For airmen already holding degrees, there is also good news: OTS production is expanding from 700 to more than 1,500 this fiscal

year. The next OTS selection boards will meet November 28, January 23, and March 20.

### PAs Win Commissions

Air Force probably will offer com-

## AFA Believes . . .

### Veterans' Preference—Going, Going, Gone?

Speaking to a small group, including an AFA representative, just a few months ago, President Carter began his remarks by saying that "this President is committed to veterans." He went on to point out that his father had been a veteran, he himself was a veteran, and his son had served during Vietnam. The thought was clearly conveyed that veterans and their problems were uppermost in the minds of the President and his people.

So it came as somewhat of a shock to hear Alan K. Campbell, Chairman of the US Civil Service Commission, advocate in a major speech in August the dilution, modification, or elimination of various elements of the Veterans' Preference Act. Chairman Campbell said:

. . . In the past few months . . . I have examined a great deal of data and have read a number of reports, including [one] by the Comptroller General entitled "Veterans' Preference and Appointment." . . . There is, I think, no need to deny that these are emotionally charged issues about which, in some cases, we have relatively little information. Nevertheless, the time comes when one must make judgments on the basis of what is known, or what can be learned, from the data available. And at some point [we] will have to address veterans' preference and recommend policy relative to it. . . . And I happen to think that there are aspects of the Veterans' Preference Act . . . which should be carefully analyzed. . . . Changes in veterans' preference, it seems to me, should be designed to serve better those veterans who most need employment assistance and to respond to the equally pressing employment needs of other Americans. . . .

The "other Americans" to whom Chairman Campbell referred were identified by him subsequently as "women, minorities, and others well-qualified for employment in the federal service." In other words, he was saying that veterans' preference, as presently constituted, inhibits the hiring into the Civil Service of qualified women and minority members who he feels should be accommodated by Civil Service Affirmative Action programs.

Two points should be made quickly. First, the above quotes are extracted from an extremely lengthy presentation and cannot begin to show the concern with which the Commissioner spoke about the complexities of this problem. Secondly, he acknowledged that while "our society demands a redress of the unfair treatment of women and minorities by institutional procedures that have excluded them from opportunity . . . any such redress should not alter the reasonable and legitimate obligations we have to those who have served their country under arms."

Nonetheless, the thrust of the Chairman's remarks cannot fail to put the existing veterans' preference programs on the defensive. And that, we submit, is totally incon-

sistent with the oft-professed aim of doing more for veterans. Further, the kinds of change mentioned would definitely eliminate *any* preference for retired military people seeking federal employment, despite the fact that they also are veterans.

Strangely enough, this program is being questioned perhaps because it *does* work. The Chairman pointed out that veterans now comprise fifty percent of the federal work force. As a matter of fact, veterans' preference in federal employment predates the Civil Service merit system and has operated successfully within the Civil Service since the latter's establishment in 1883. If minorities and women—many of whom are veterans, too, we might point out—are judged by the nation to need preference in Civil Service hiring, then, by all means, that consideration should be given. But let's devise new programs to accommodate these goals, not scrap older, *successful* programs.

We understand that the House Subcommittee on Civil Service will hold hearings on these proposals prior to the end of the year. Rep. John P. Hammerschmidt of Arkansas, ranking Minority Member of the House Veterans' Affairs Committee, has put the matter in this perspective:

For the nation's veterans, 1977 has not been a good year . . . amnesty has been offered to draft dodgers; upgraded discharges have been offered to deserters. . . . Now, another long-standing consideration mandated by Congress, that of the preference given veterans for Civil Service jobs, is being questioned by Administration officials. . . . The veterans' preference system in no way alters the qualifications for or duties of a particular job. To be considered, the veteran must meet the same professional requirements as nonveteran applicants. . . . It was felt that the men and women whose lives were interrupted by military service requirement had earned some extra consideration in government hiring practices—not only in light of honorable service to their country under difficult if not dangerous circumstances, but also to help even out the competitive edge gained in the meantime by their civilian counterparts. To my way of thinking, this attitude remains sound today. I intend to oppose efforts to abolish or dilute the veterans' hiring preference for Civil Service jobs.

To that we say Amen.

AFA's 1977 Defense Manpower Policy Paper affirms that we support the current system of Veterans' Preference for veterans employed in or seeking employment with the federal Civil Service. After all, veterans' job preference was laid on many years ago for a very good reason—to help those who went away to war. It's a good system and it works. Let's keep it that way.

—James A. McDonnell, Jr.

# The Bulletin Board

missions, before the year ends, to its Physician Assistants, AIR FORCE Magazine has learned. The move, which the Air Force Association has strongly endorsed, has been pending for more than a year. Full details had not been hammered out at press time, but it was learned that, like other commissioning avenues, this one will require a college degree to gain officer status. Most of the 319 PAs are college grads, but not all the eligibles are likely to accept. Only second lieutenancies are expected to be offered, and E-9s earn more. The PA force is scheduled to expand to about 450 in the next few years. Air Force Dental Assistants are not included in the new commissioning program.

## Unionization Plan Delayed

Opponents of unionization of the military services won two skirmishes recently: the American Federation of Government Employees backed off from its threat to organize when its membership rejected the idea four to one, and the Senate voted 72 to 3 to bar union organization and membership in the armed forces.

But victory hasn't been achieved, for the AFGE left the door open to future unionization efforts. And there was no apparent enthusiasm in the House to approve the Senate-passed anti-union bill. The House Armed Services Committee did not schedule the measure, S 294, for hearings during the final weeks of this year's congressional session.

At press time, the Defense Department was preparing to publish its regulation barring service unions and union activities. Defense's original position, that a regulation is a better approach than an anti-union bill, remains unchanged, a Pentagon spokesman told AIR FORCE Magazine.

In announcing the membership rejection of an organization campaign, AFGE President Kenneth T. Blaylock took a cheap shot at military associations that have been fighting unionization efforts. Blaylock said associations "who have for years purported to represent the

interests of military personnel must evaluate the shortcomings of their soft policies and adopt more responsive positions." In actuality, military associations like AFA have campaigned vigorously for the retention of all traditional military benefits, the removal of remaining inequities, and for justified new incentives.

## Doctor Pays, Other Bills Move

Congress has extended for a year all the special pays collected by military doctors and dentists. These include the variable incentive pay

veterans benefits for persons whose discharges are upgraded by service discharge review boards. The measure establishes specific standards individuals must meet, and case-by-case reviews by the VA are required. Sen. Strom Thurmond (R-S. C.), among other legislators, said the compromise was "fair." Lawmakers said they were pleased to learn the President would let the bill become law.

The House, meanwhile, overwhelmingly approved a 6.6 percent boost in GI Bill payments. Senate action was pending at press time. The House also okayed the long-



*These are the first ten women to enter USAF Undergraduate Pilot Training: Standing, from left, 1st Lts. Victoria K. Crawford, Christine E. Schott, Carol Ann Scherer, Sandra M. Scott, Mary M. Livingston, and 2d Lt. Kathleen A. Rambo. Kneeling are Capt. Susan D. Rogers, Kathy La Sauce, Connie J. Engel, and Mary E. Donahue. All ten of the women have graduated from UPT, a second group will complete training early next year, and ten more women officers will begin pilot training in February 1978.*

ranging up to \$13,500 a year for medical officers. Authorities regard these pays as absolutely essential to keeping medic strength reasonably close to requirements.

The lawmakers also approved 6.6 percent pay increases in veterans' disability compensation and dependency-indemnity compensation (DIC). Widows of servicemen and veterans who die of their service-connected disabilities receive DIC. The measure became effective October 1, the same day the 7.05 percent military pay hike took hold.

In separate action, Congress approved a compromise bill governing

pending bill removing numerous deficiencies in the Survivor Benefits Program, but Senate action is still required. In related developments:

- The House Armed Services military compensation subcommittee held hearings on proposals to extend survivor benefits to survivors of Reserve personnel who die before age sixty, their retirement age.

- The same compensation subcommittee, headed by Rep. Bill Nichols (D-Ala.), scheduled early October hearings on military retirement. But any new legislation will await the outcome of the studies of the President's pay commission.

- At House Veterans Committee hearings on giving veterans benefits to the remaining Women's Airforce Service Pilots of World War II, Sen. Barry Goldwater (R-Ariz.) urged approval. The VA, however, testified against the bill on the basis that WASPs weren't subject to military discipline, could get out at any time, and their service wasn't different from that of Red Cross workers. AFA strongly supports the measure.

- With the President's signature in late September, HR 7933, the FY '78 military appropriations bill containing about \$110 billion of spending authority, became Public Law 95-111.

New bills of interest recently introduced include: S 1921 (Senator Dole, R-Kan., and others) to exempt from federal income tax the medical scholarships the Defense Department uses to procure most service doctors and dentists; S 1972 (Senator Percy, R-Ill.) to charge for parking at federal buildings, like the Pentagon; HR 9031 (Representative Aspin, D-Wis.) to give retired pay to a small group of long-service Reservists now denied such payments because they did not serve on active duty during World War II; and HR 9255 (Representative Risenhoover, D-Okla.) to make the Chief of the National Guard Bureau a three-star officer.

### DoD Again Endorses DOPMA, Mum on Dual Comp

The Defense Department once again has boomed the long-stalled Defense Officer Personnel Management Act (DOPMA). But it has declined to take a position on dual compensation, specifically the question of retirees working for Uncle Sam and collecting two paychecks.

Dr. John P. White, the Assistant Defense Secretary for Manpower, Reserve Affairs and Logistics, plowed, for a House Appropriations subcommittee, the same ground that many other Pentagon officials have plowed for other congressional units in recent years. White strongly endorsed the measure's up-or-out provisions.

He acknowledged that DOPMA isn't likely to become law before next April—the Senate remains the big stumbling block. If not approved by next September, when present grade ceilings expire, another temporary extension will be necessary, he pointed out.

Dr. White told the House Post Office and Civil Service Committee that because the Presidential pay commission is examining all facets of retirement pay, "it would be premature" for Defense to take a position on the controversial double-dipping issue until "we have the benefit of the Commission's recommendations. . . ." The Committee has been probing double-dipping in depth in recent months.

### CCAF Booming

Registrations in the Community College of the Air Force and graduations from it are booming. By 1980, its President predicts, the unique institution may graduate some 5,000 airmen a year. Much of the expected growth will come from Air Reservists and Air Guardsmen, he says, noting that the service is currently making a big pitch for enrollment of component members.

Col. Lyle Kaapke, who heads the Lackland AFB, Tex., school, told AIR FORCE Magazine that, as of September 3, more than 1,500 airmen had graduated and total registrations had soared to 60,236. All indicators point to large additional increases in both categories. By the end of this year he expects CCAF registrations to hit about 75,000 and graduations to rise steadily to the 5,000 annual figure.

Counting the ANG and AFRES about 600,000 airmen are eligible for CCAF participation. The early September registration total included 57,688 active-duty troops, 976 AFRES members, and 1,572 Air Guardsmen.

Colonel Kaapke said officials recently pushed CCAF participation hard at Selfridge ANGB, Mich., which hosts both an AFRES and an ANG unit. The selling job has since spread to Reserve Forces units country-wide. Participation is being presented to Reservists as an incentive opportunity; it takes the place, to some degree at least, of the appropriated fund tuition aid many Pentagon officials have sought—to improve Reserve Forces recruiting and retention.

The 1977-78 CCAF catalog has just been distributed.

### AVF Given Good Marks

The all-volunteer force is working and most of the attacks on it are not true, according to a massive

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# The Bulletin Board

study by the Rand Corp. The AVF, Rand says, "has proved more economically and socially equitable than the draft."

The report, however, warns that the AVF "can be made to fail" if the services don't improve the management of military and civilian employees. Outdated manpower policies are costing up to \$10 billion annually, it said.

The 400-page report was prepared by Rand analyst Dr. Richard V. L. Cooper for the Defense Advanced Research Projects Agency. Cooper has monitored the AVF's development since its inception in January 1973.

He denies critics' charges that

the AVF itself has sent military manpower costs soaring. The big factors boosting Defense personnel outlays in recent years, the report insists, are the much higher expenses for civilian defense employees and the military retirement system. The report raps the military's broad use—and high cost—of the twenty-year retirement policy, charging that the services lose too many outstanding people "just as they are entering their most productive years."

On related points, the Rand study:

- Labels as a "myth" the claims that AVF's workability depends on high unemployment. A ten percent increase in joblessness results in only a two or three percent increase in enlistments, it claims.

- Urges the services to revise the ratio of careerists to first-term enlistees from the present overall average of about 40-60 to 50-50, or even 55-45. A 50-50 mix, it claims, would permit a cut in new

enlistments of 140,000 a year and, despite higher pay and retirement costs for the extra careerists, result in a net annual military manpower saving of \$1.6 billion. Air Force, which disagrees with the Rand approach, actually reduced its careerist-first-term ratio from 50-50 in 1970 to 47.5-52.5 last year. Its present goal, to be attained in the early 1980s, is a ratio of forty-three percent careerists to fifty-seven percent first-termers.

- Proposes an increase of women in uniform, fewer civilians on the Defense payroll, but a boost in contract civilians and substitution of more machines for military manpower.

Rand has joined the growing ranks of opponents of the "up-or-out" system, the report calling for a "two-track" promotion arrangement. It would allow technical specialists with no taste for supervisory duties to elect to continue a "technical" career route. The problem with up-

## Senior Staff Changes

**PROMOTIONS:** To Lieutenant General: John R. Kelly, Jr. To Major General: Phillip C. Gast; Edward J. Nash; Robert Scurlock; LeRoy W. Svendsen, Jr. To Brigadier General: Jerome R. Barnes, Jr.; Tommy I. Bell; Alonzo L. Ferguson; Robert W. Kennedy; William E. Masterson; Robert F. McCarthy; Alfred M. Miller, Jr.; Kenneth L. Peek, Jr.; James C. Pfautz.

**RETIREMENTS:** M/G Rupert H. Burris; L/G John F. Gonge; B/G Charles D. Youree, Jr.

**CHANGES:** B/G Robert W. Clement, from V/C, Hq. Twelfth Air Force, TAC, Bergstrom AFB, Tex., to Asst. DCS/Ops. & Intel., Hq. USAF, Ramstein AB, Germany, replacing B/G Clyde H. Garner . . . M/G George A. Edwards, Jr., from DCS/Plans, Hq. TAC, Langley AFB, Va., to V/C, Hq. Twelfth Air Force, TAC, Bergstrom AFB, Tex., replacing B/G Robert W. Clement . . . B/G Clyde H. Garner, from Asst. DCS/Ops. & Intel., Hq. USAF, Ramstein AB, Germany, to Cmdr., 57th Air Div., SAC, Minot AFB, N. D., replacing B/G James E. Light, Jr. . . . B/G James E. Light, Jr., from Cmdr., 57th Air Div., SAC, Minot AFB, N. D., to Asst. DCS/Log., Hq. SAC, Offutt AFB, Neb. . . . M/G William R. Nelson, from Dir., Maint. Engrg. & Supply, DCS/S&L, Hq. USAF, Washington, D. C., to Dir., Log. Plans & Pgms., DCS/S&L, Hq. USAF, Washington, D. C., replacing M/G Gerald J. Post.

B/G Raymond C. Nutt, from C/S, Hq. TAC, Langley AFB, Va., to Dir., Maint. Engrg. & Supply, DCS/S&L, Hq. USAF, Washington, D. C., replacing M/G William R. Nelson . . . M/G Gerald J. Post, from Dir., Log. Plans & Pgms., DCS/S&L, Hq. USAF, Washington, D. C., to Asst. DCS/S&L, Hq. USAF, Washington,

D. C. . . . B/G (M/G selectee) Walter D. Reed, from Asst. JAG, Hq. USAF, Washington, D. C., to JAG, Hq. USAF, Washington, D. C. . . . B/G John P. Russell, from Asst. DCS/Ops., Hq. PACAF, Hickam AFB, Hawaii, to IG, Hq. TAC, Langley AFB, Va., replacing B/G Larry D. Welch . . . L/G Thomas M. Ryan, from DCS/S&L, Hq. USAF, Washington, D. C., to Vice CINC, Hq. MAC, Scott AFB, Ill., replacing retiring L/G John F. Gonge . . . M/G Robert E. Sadler, from Dep. Dir., Plans & Pgms., DCA, Arlington, Va., to Cmdr., Hq. AFCS, Richards-Gebaur AFB, Mo., replacing retiring M/G Rupert H. Burris . . . B/G James Taylor, Jr., from Dir., Civil Law, Office of JAG, Hq. USAF, Washington, D. C., to Asst. JAG, Hq. USAF, Washington, D. C., replacing B/G (M/G selectee) Walter D. Reed . . . M/G Stanley M. Umstead, Jr., from Cmdt., AWC, AU, Maxwell AFB, Ala., to Dep. Asst. Sec. of Def. (Mil. Pers. Policy), OSD (MRA&L), Washington, D. C. . . . B/G Larry D. Welch, from IG, Hq. TAC, Langley AFB, Va., to DCS/Plans, Hq. TAC, Langley AFB, Va., replacing M/G George A. Edwards . . . M/G James A. Young, from Dep. Dir., Def. Mapping Agency, Naval Observatory, Washington, D. C., to C/S, Combined Mil. Planning Staff, Hq. CENTO, Ankara, Turkey.

**SENIOR ENLISTED ADVISOR CHANGES:** CMSgt. Jackie R. Farley, from 452d Air Refueling Wing, March AFB, Calif., to Senior Enlisted Advisor, Hq. AFRES, Robins AFB, Ga., replacing CMSgt. Lynn B. Colwell, assigned to Kunsan AB, Korea . . . CMSgt. Lynn Alexander, from Martinsburg, West Virginia ANG, to Senior Enlisted Advisor, Hq. ANG, Washington, D. C., replacing CMSgt. Theodore Jackson. ■



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# The Bulletin Board

or-out, the report holds, is that it assumes that "everyone wants to be a boss," whereas the Rand research indicates that about half the military careerists feel otherwise. Air Force, of course, has long supported the up-or-out system and firmly opposed such tampering with promotion programs.

## Federal Execs, Fellows Sought

The White House is looking for high-caliber GS-13s, -14s, and -15s

throughout government to spend a year working with large corporations. At the same time, under the President's Commission on Personnel Interchange, equivalent middle-management executives from industry work a year with federal agencies.

The Interchange project is separate from the White House Fellowship Program, which Air Force urges its officers with lofty academic credentials to pursue. Selection means a one-year tour with cabinet or top-level Presidential officials. Those interested should contact the President's Commission on White House Fellows, 1900 E St., N. W., Room 1308, Washington, D. C. 20415. Applications must be in by December 1.

The Interchange program aims to promote understanding between business and government, as par-

ticipants learn first-hand the operations of his or her "opposite sector." Currently sixty-five government and industry people are participating, but next year's group is expected to increase to about 100, a Commission spokesman said. He noted that President Carter is firmly behind the project.

Selectees from the government spend their year with such firms as IBM and General Electric. Industry participants are assigned to the Labor Department, HEW, Defense, and other major agencies.

Interested federal executives should contact their personnel directors or the President's Commission on Personnel Interchange, 1900 E St., N. W., Washington, D. C. 20415, phone (202) 632-6834. Nominations for the 1978/79 Interchange year are due at the Commission office by February 1, 1978. ■

*Ed Gates . . . Speaking of People*

## The Civilian Third of the Total Force

"We've started talking about the 'Total Force' in recent years, and in some cases up to this point, it's been all talk. Too often the civilian employee doesn't feel that he or she belongs—and, at times, feels resented and neglected by the military. The Total Force must be interrelated."

So said George W. Mullins, an executive in the Hq. USAF Office of Civilian Personnel. The occasion was a recent workshop conducted by the Secretary of the Air Force Office of Information (SAFOI). It was designed to find ways of better communicating with USAF's 250,000 civilian workers.

The meeting—of USAF information people, civilian personnel leaders, and representatives from industry—was held at Wright-Patterson AFB, Ohio, one of the service's most prominent sites of civilian employment. It was a response to criticism that USAF has been lax in considering civilians full-fledged members and in keeping them informed.

Mr. Mullins told the workshop that "a large segment of the civilian force does not feel it is part of the Air Force family." This assertion squares with a recent USAF internal survey which shows that many civilians believe service people "look on them as second-class citizens and that military members receive all the benefits and privileges or that they get all the breaks."

At the same time, the survey reveals, this does not mean civilians are unhappy with their Air Force employment. They prefer it to working in the private sector, but they feel improvements can be made.

One thing that particularly galls Air Force civilians, the workshop brought out, is USAF's inability to provide them with quick, accurate information about reductions in force.

From the blue-suiters' perspective, there appears to be a somewhat negative reaction toward civilian employees. This was underscored by a recent probe at Griffiss AFB, N. Y., and Dover AFB, Del. It found enlisted personnel believing that civilians are paid more, work fewer hours, and are uninformed about important supervisory responsibilities such as writing airman performance reports (APRs). On the other hand, the study showed that many civilian workers want to be a part of the organization and learn about the military system, such as APRs and OERs.

Another probe, conducted last March at Davis-Mont AFB, Ariz., and Kirtland AFB, N. M., found that young airmen do not understand the civilian element "and are somewhat taken back when they are put under a civilian supervisor. And NCOs are foggy on the authority and responsibility of civilian supervisors, the study showed.

Both groups, it would appear, would do well to bone up on what the other does. All kinds of dividends might surface.

Many blue-suiters probably don't know that the Air Force employs about 257,000 civilians, or thirty-one percent of total active-duty force. Logistics Command has 82,000 them, the largest numbers—about 16,400 each—at Kelly AFB, Tex., and Tinker AFB, Okla. But dozens of bases have more than 1,000 civilians. Thirty-six percent of all the people at Keesler AFB, Miss., are in this category; similar percentages are found at such installations as Edwards, Maxwell, Guantánamo, Chanhassen, Scott, Andrews, and Hickam. Very few bases employ fewer than 500 civilians.

So, they are a prominent part of the Air Force. Air Force Lt. Gen. George Rhodes, the AFLC Vice Commander, told the Wright-Pat workshop, the service must find ways "to ensure that our civilians feel they belong and participate in the Total Force mission." He called on communicators at all levels to spread the word about employee positions, activities, motions, and other matters of interest—via base newspapers, newsletters, commanders calls, films, bulletin boards, local radio and TV.

AFLC's Information Director, Col. Russell Turner, put it at a good point: Too many military people ignore information that does not interest them. As a result, Colonel Turner declared, many USAF military and civilian members "share false or incomplete information about each other, and the group, about such things as worker benefits, pay scale, promotion cycles, leave policies, and bumping rights. Misconceptions formed from false or incomplete data perpetuate or widen communication gaps between such groups."

While the workshop endorsed several promising ideas for improving communications, it made no progress on the timely issue of notifying civilian workers of base realignments and RIFs. In fact, it brushed aside the issue after being



Senior Airman Louise Young, a five-foot-tall medical specialist technician with the 439th Tactical Hospital, measures Airman Basic Suzanne Henderson, a six-foot-two-inch member of the 439th Combat Support Group Law Enforcement section. Both are Air Force Reservists assigned to the 439th Tactical Airlift Wing, Westover AFB, Mass.

There is little hope of getting "the word out . . . through Air Force management channels." The problem is that congressmen are always notified first, and this is usually followed by rumors and newspaper and radio-TV headlines. By the time the civilian employees get the ungarbled word officially, they may be nearly basket cases.

What about improving military-civilian employee understanding through the Air Force News Service (whose releases appear in base papers), *Airman Magazine* (now primarily enlisted-oriented), "Air Force Now" (the official film series that focuses on many aspects of Air Force life), and Commander's Call?

Participants supported greater use of these tools to improve relations between the two groups, and the Air Force generally endorsed the idea.

Earlier, SAFOI went to the commands for their views on how to improve communications. Some responded that the best way to get information to civilian employees is through newsletters. There was varying support for appointment of civilian employees as part-time information officers and for inclusion of civilian personnel in the Hometown News Service program. "Work through employee unions" to keep civilian workers informed, another command said.

The most detailed discussions have dealt with including civilians in the regular Commander's Calls or creating Calls for civilians only. Headquarters earlier sought command views on this. The responses held that some type of Call is desirable for most civilian workers. Some units have gone ahead with mandatory Calls for civilians, and bases generally now have the authority to adopt the mandatory rule.

Authorities also cite greater personnel management cross-communication between the two groups. This has surfaced from the creation of the Office of Civilian Personnel Operations (OCPO) within the Air Force Military Personnel Center (AFMPC), Randolph AFB, Tex. An OCPO/AFMPC working group recently came up with some thirty initiatives designed to step up the flow of information. These include increased use of combined military/civilian conferences, sending more civilians on military courses and vice versa, and an exchange of civilian and military members on a "detail basis" at OCPO/AFMPC, major commands, and bases.

These and other actions should create better understanding between the two groups. Individuals, meantime, can contribute by talking less about the difference between the two elements and more about the similarities.

There are many and, as Mr. Mullins points out, civilians are proud to be a part of the Air Force team. ■

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Battlefield automation appears to be the most promising means for offsetting the numerical superiority of the Warsaw Pact forces.

# A NEW LOOK IN

BY EDGAR ULSAME

**T**HE primary job of the Massachusetts Institute of Technology's Lincoln Laboratory is "to carry out a program of research and development pertinent to national defense with particular emphasis on advanced electronics." The Laboratory, located at Hanscom AFB in Lexington, Mass., and with a staff of about 2,000, is one of six Federal Contract Research Centers (FCRCs) of the Defense Department. It is the only FCRC in the laboratory category, the others being either in the fields of studies and analyses or system engineering/technical direction.

Lincoln came into being in 1951 with a mandate to advance science and technology applicable to air defense. Among the Lab's early credits, in conjunction with USAF and industry, are SAGE (Semiautomatic Ground Environment), the Distant Early Warning Line, and the Ballistic Missile Early Warning System. Since then its orientation and scope have changed and expanded in accord with shifting defense requirements and to include some work (less than ten percent) in such related nondefense areas as air traffic control and energy research.

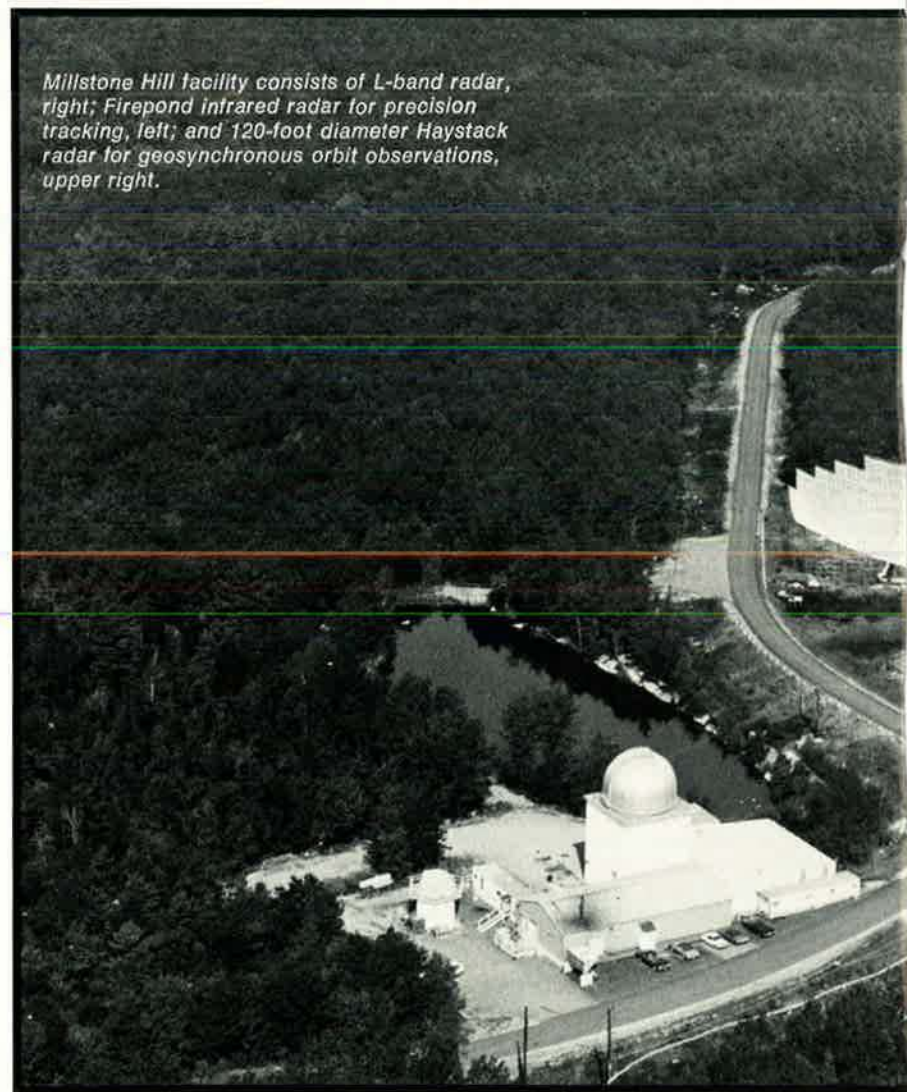
The Lab's new Director, Walter E. Morrow, Jr. (who succeeded Dr. Gerald P. Dinneen, now Assistant Secretary of Defense for Communications Command Control and Intelligence), is emphasizing tactical technology although not at the expense of strategic programs that continue strong and include technology in such crucial areas as survivability, surveillance, and identification of military satellites; ballistic missile offense and defense; and military satellite communications.

## Beyond LES-8/9

The physical survivability of military satellites, and their ability to

function in the face of hostile action, become crucial as defense steadily increases reliance on these systems. Lincoln Experimental Satellites LES-8 and LES-9 [see p. 47 of July '77 issue] were developed by the Lab as prototypes of new generations of strategic communications satellites that meet both criteria. Placed into near-geosynchronous orbit on March 14, 1976, LES-8 and -9 are cross-linked, using the K-band

frequencies in a fashion that can also provide communications to and among airborne and ground-based terminals situated in an area covering more than three-fourths of the earth's surface. The two satellites pioneer techniques to assure highly stable, long-lifetime, completely self-contained attitude-control systems, as well as new approaches to spacecraft hardening and jam resistance. Possibly paramount among the



Millstone Hill facility consists of L-band radar, right; Firepond infrared radar for precision tracking, left; and 120-foot diameter Haystack radar for geosynchronous orbit observations, upper right.

entists at MIT's Lincoln Laboratory believe that recent technological advances permit a revolution in tactical air warfare.

# TACTICAL WARFARE

SENIOR EDITOR

"firsts" scored by the two experimental satellites is their ability to communicate reliably and directly with one another and with airborne terminals beyond the range of single satellite relay and thus dispense with reliance on intermediate ground terminals. Heretofore, the ground terminal was far and away the most vulnerable "node" of strategic communications. LES-8 and -9, in Mr. Morrow's view, already have dem-

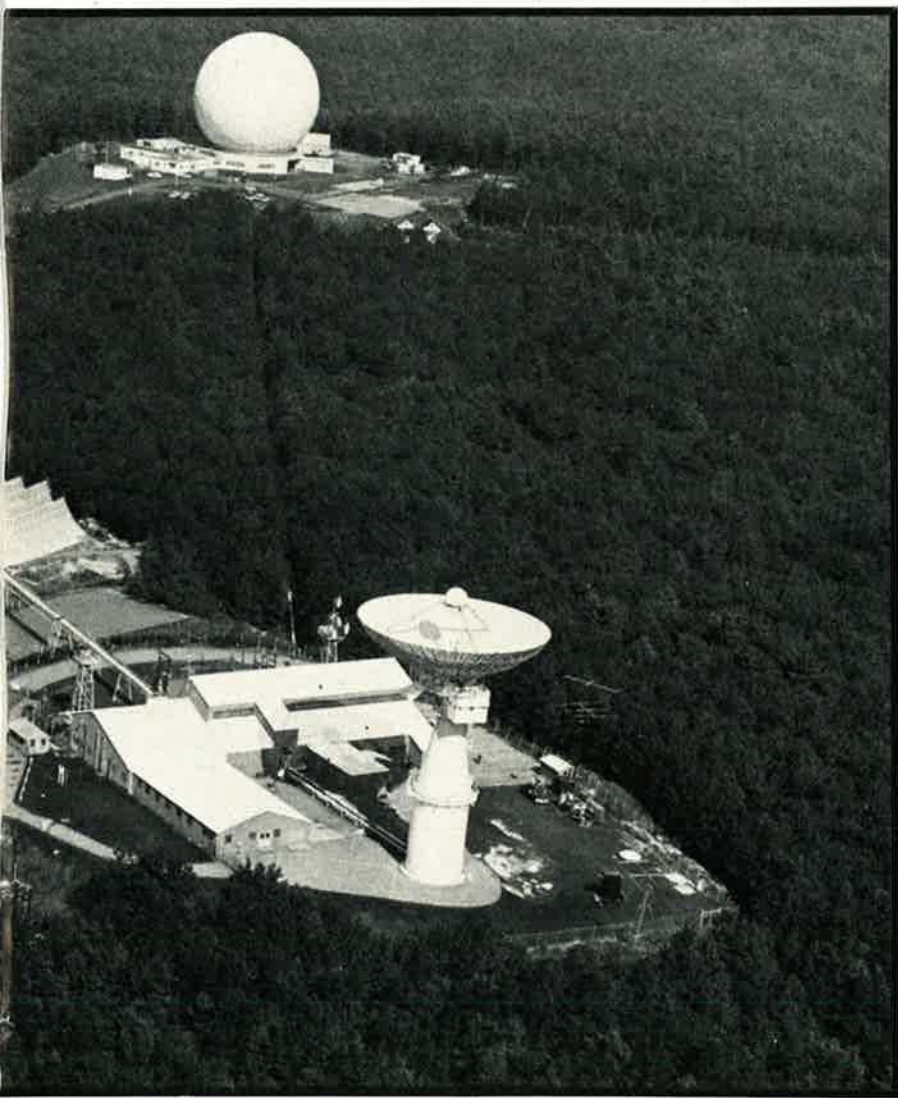
onstrated experimentally that data links between satellites and airborne command posts can be maintained during the transattack and postattack phases of nuclear war. In turn, this makes possible reliable execution of the SIOP (Single Integrated Operational Plan), at least so far as the Minuteman ICBMs are concerned. (Ground terminals of the ICBM force are linked to E-4 Advanced Airborne Command Posts of

the National Command Authorities.)

The lesson of LES-8 and -9, in Mr. Morrow's view, is encouraging: "We now know how to provide the strategic operating forces with communications satellites that appear capable of surviving any plausible form of attack, both in an electronic and physical sense." While many details of how physical survivability is achievable can't be discussed for reasons of security, high orbits and proliferation are among the obvious means.

Either through proliferation or extremely high altitudes—or a combination of both—it appears possible to raise "the ante to the point where attacking such SIOP communications satellites becomes thoroughly unattractive," Mr. Morrow told AIR FORCE Magazine. Lincoln Lab's analyses and research suggest further that satellite survivability can be extended to include hardness against X-ray emission from the detonation of high-yield nuclear weapons in the upper atmosphere or space. Verification of immunity may require actual exposure of system components to underground nuclear test shots in the same manner as was done with critical ICBM components. The so-called Comprehensive Test Ban Treaty (CTBT) currently being discussed formally by the US, the Soviet Union, and England would affect the ability of spacecraft designers to verify the degree of nuclear hardness achieved by new system designs.

From their own extensive work in high-power laser systems and analyses of other information, Lincoln Lab scientists concluded that appreciable threats to spacecraft from laser weapons are not likely to materialize over the short term. Laser attacks on spacecraft from the ground don't appear feasible tech-



nologically for the time being, in Mr. Morrow's view: "It would be much easier to operate such weapons in space. Of course, that leads to the question of how long it would take to perfect a space laser weapon. We are inclined to believe that if somebody wanted to invest the money, it should be possible within twenty years to come up with a rapid-fire, space-laser weapon with considerable range. We don't see any evidence that anybody knows how to build such a system right now, however."

The Lincoln Lab's relatively sanguine assessment of the ability to safeguard high-altitude communications satellites in terms of physical attack, nuclear effects, and hostile jamming does not extend to other spacecraft.

An important new concern of MIT's Lincoln Lab is GPSCS, the General Purpose Satellite Communications System that is to serve the tactical communications needs of the three services. GPSCS is a follow-on to the Navy's Fleet Satellite Communications System. The technological challenge in GPSCS is to come up with a system that permits large numbers of relatively low-cost terminals on combat aircraft, ships, and at ground locations to operate with UHF/SHF satellites in a jam-resistant manner, according to Mr. Morrow.

### Seeing Is Believing

Because of the Lab's traditional, leading role in radar and other detection systems, satellite surveillance and identification technologies rank high among its responsibilities. Key achievements here include a range of systems that, combined, can find and track spacecraft as well as "find out what they are doing." A new means of detection is the Ground Electro-Optical Deep Space Surveillance System (GEODSS). With the Experimental Test Site (ETS) located at Stallion Site, White Sands, N. M., Missile Range, Lincoln Lab has been able to demonstrate a proof of concept. The ETS employs telescopes, including two thirty-one-inch optical telescopes and sensitive electro-optical cameras to monitor space objects out to geosynchronous range (22,300 nm) and beyond. Eventually, there will be five GEODSS sites

spaced along the equator to provide worldwide space surveillance capability.

High-altitude spacecraft can be tracked and examined by the Lab's Millstone Hill L-band and Haystack X-band radars located in Westford, Mass. Further information as to what a satellite is doing may be obtained by Firepond, the Lab's large radar at Westford and by other radars and optical systems on Roi and Namur, adjacent islands of the Kwajalein Atoll in the Central Pacific.

### Antiballistic Missile Defense vs. Penetration

In terms of budget, the Lab's single largest mission area is ballistic missile offense and defense. The defensive mission, or ABM, is being carried out under the purview of the US Army, while the Lab's work on offensive systems and techniques is funded via the Advanced Ballistic Reentry Systems (ABRES) program, managed by the Air Force Systems Command as the Defense Department's executive agency. The internal battle the Lab is waging between offensive and defensive technologies, Mr. Morrow points out with candor, is, at least for the time being, one-sided: "It is very clear that in the ballistic missile field, the offense enjoys decisive advantages over the defense and, in our opinion, will hold that lead for some time to come. It would take some startling inventions to change this picture."

The Lab's ABM activities essentially are directed at keeping scientifically and technologically abreast "of the major options available to the other side in order to prevent technological surprise. SALT, after all, is a relatively fragile thing that could blow away and leave us years and years behind in missile defense if we fail to keep up to date in technology."

The other side of the coin, ballistic missile penetration aids technology, reflects an "encouraging situation," according to Mr. Morrow. Principal attention is being focused on penetration aids—mostly decoys, aerosols, and maskers that saturate the adversary's defense system. Of special interest are techniques that defeat the so-called atmospheric sorting, meaning either the burn-up of

inflated decoys or the slowing down of chaff and other penetration aids upon entering the atmosphere. Advanced Doppler radar systems are capable of filtering out penetrators that behave markedly differently from legitimate reentry vehicles and thereby deprive such decoys of any utility against defenses with a close-in kill capability or against loitering interceptors.

Probably the most effective and reliable means for defeating ballistic missile defenses is to "overload" them by assigning a number of warheads against essential targets that is larger than the defense can cope with. (One advantage often ascribed to the heat shields of reentry vehicles—their alleged imperviousness to high-energy laser systems—may well be a delusion. Research by the Lab suggests that heat shields are "good for one trip through the atmosphere but not necessarily good for resisting what a high-powered laser would do to them.")

Pentagon concern about ballistic missile defense is growing as the so-called ABM (SALT) Treaty comes up for its first five-year review and as Soviet ABM research and development exceeds the US effort significantly. The result, the Defense Department reported to Congress this year, is "that our technological lead is eroding. Our particular concern is the fact that the Soviets are placing heavy emphasis on new ballistic missile defense systems." An essential but little understood element of the US/USSR ABM Treaty is that limitations on the so-called ATBMs, or tactical ballistic missile defense systems, are not addressed in the Treaty. The distinction between ABMs and ATBMs is vague at best so far as ICBMs and theater weapons are concerned and almost impossible between SLBMs and theater weapons. ICBM warheads reenter the atmosphere at between 20,000 to 24,000 feet per second, compared to about 14,000 to 18,000 feet per second in the case of medium- and intermediate-range ballistic missiles. But that is also the approximate velocity of US SLBM reentry vehicles. As a result, Defense Department witnesses have testified before Congress that a Soviet tactical ballistic missile defense system would have "substantial capability" for

SLBM defense even though its deployment "would not violate the ABM Treaty."

### Automating the Tactical Battlefield

John J. Martin, Assistant Secretary of the Air Force for Research and Development, views microprocessors (which contain all the logic circuits required for a small computer within a single semiconductor chip) as the "greatest single technological movement taking place broadly across Air Force systems." He singles out as an area of specific major impact "digital radar processors for high-resolution radars." Evolutionary growth of both technologies is being combined with advanced terminal guidance by Lincoln Lab's concept for "automating" the tactical battlefield of tomorrow.

One of the technological cornerstones of automated tactical warfare is the multiple antenna surveillance radar (MASR), that enables high-speed aircraft or RPVs of the Compass Cope type to "see" such relatively slow-moving ground targets as tanks at night and under all weather conditions and in the presence of ground clutter. MASR is being made possible by the "computer on a chip" and through grafting advanced airborne moving target indicator (AMTI) techniques to a side-looking acquisition radar.

Microcomputers also open the door to front-end data filtering, another prerequisite for automated warfare. The term denotes the elimination, by a collocated digital processor, of all routine, irrelevant sensor information, typified by the thousands of unwanted echoes that are being recorded by airborne radars every second. Only essential information—such as location, speed, and direction of targets—would be piped into a common grid. Automated, near-real-time command and control, especially command (remotely controlled weapons) guidance, without front-end filtering would be unthinkable for technical and cost reasons.

The next step toward building the automated battlefield involves developing secure digital data links that resist jamming. The Lab's planners believe they know how to do the job with electronically steered narrow data beams that serve both the sur-

veillance and command guidance functions. It is also possible to program phased-array radar antennas in a way that blocks out, or "nulls," reception of jamming signals coming from specific directions.

By combining surveillance and command guidance on the same platforms and by "fusing" only tightly "edited" information into a common data pool, Lincoln Lab scientists believe it will be possible to provide command guidance and the associated position updates for literally hundreds of guided weapons at the same time. Command guidance also can be furnished to fighter aircraft penetrating at treetop level, whose pilots must be told when to "pop up" in order to get specific mobile targets in their sights.

Although the "error box" of command guided weapons can be made reasonably tight—perhaps ten meters by 100 meters when several radar systems are linked—this won't be good enough in most instances. Hence the need for on-board terminal guidance that takes over once the weapon is in the target zone. The front-runners here are devices operating in the infrared and millimeter range of the spectrum or that home on radiation. All would be passive, which complicates defense against them and leaves them largely invulnerable to jamming. Obviously with the glut of guided weapons, and perhaps even guided submunitions, needed to cope with the hordes of Warsaw Pact armor, terminal guidance won't make economic sense unless it is cheap. Mr. Morrow believes that advancing technology will permit both economical and small terminal guidance packages. According to the Lab's Surveillance and Control Division Head, Herbert G. Weiss, it is possible to mass-produce millimeter guidance packages "that are quite smart, no larger than a portable tape recorder, and relatively cheap." The intrinsic advantage of homing devices operating in the millimeter band is their ability to pick out armor and other metal objects from the normal ground environment.

Capping the automated battlefield concept is a common, distributed (decentralized) digital data base to link the large number of diverse sensors into a total, integrated system. Highly promising here, Mr.

Weiss said, is the Joint Tactical Information Distribution System, under development by AFSC's Electronic Systems Division for the three US military services and NATO (see p. 43, July '77 issue).

The end product envisioned by the Lincoln Lab scientists could be an array of automated, smart sensors, on the ground and in the air, some mobile and others fixed, that support and reinforce each other to provide greater efficiency, security, and survivability for tactical air and ground forces. By tying together scores of digitally controlled radar signal processors, representing different frequencies, different pulses, and other diverse characteristics, "we believe tactical war can be revolutionized. There will be no more hiding on the battlefield. Anything that moves, whether in the dead of night, in fog, on the ground, or in the air can be nailed and attacked with high precision," according to Mr. Weiss.

Sensor acuity, discrimination ability, and the capacity to shrug off spoofing as well as jamming are rapidly approaching levels where various aircraft types can be identified by their radar returns and where chaff, like ground clutter, is filtered out automatically. Because of the multiplicity of radars and other sensors that cooperatively track all objects of interest, the total system accuracy and survivability, even in a nuclear environment, are high. The Lincoln Lab scientists base their relatively high confidence in the feasibility of their concept on the fact that no forcing of technology is required to make it come true.

What *is* necessary is the synthesis and refinement of several proven technologies. As Mr. Weiss points out, "Every hour of day or night, whatever the weather, the FAA knows the location of every aircraft within twenty feet in certain high-traffic areas just by using conventional data processing and filtering coupled to consistency checks. There is no reason why we couldn't do the same thing also for ground targets in wartime conditions."

Demonstration of some key elements of tomorrow's automated battlefield is planned for next year by Lincoln Lab. Its full realization, no doubt, will take a great deal of time, money, and initiative. ■

**NEW HIGHER  
AVIATION DEATH  
BENEFITS**

**Dependable Protection from You**

# Air Force Association

## Important Benefits!

**COVERAGE YOU CAN KEEP.** Provided you apply for coverage under age 60 (see "ELIGIBILITY") your insurance may be retained at the same low group rates to age 75.

**FULL TIME, WORLD WIDE PROTECTION.** The policy contains no war clause, hazardous duty restriction, combat zone waiting period or geographical limitation.

**DISABILITY WAIVER OF PREMIUM.** If you become totally disabled at any time prior to age 60 for at least a 9-month period, your coverage will be continued in force without further payment of premiums as long as you remain disabled.

**FULL CHOICE OF SETTLEMENT OPTIONS.** All standard forms of settlement options, as well as special options agreed to by the insured and United of Omaha, are available to insured members.

**CONVENIENT PAYMENT PLANS.** Premium payments may be made by monthly government allotment (payable to Air Force Association), or direct to AFA in quarterly, annual or semi-annual installments.

**DIVIDEND POLICY.** AFA's primary policy is to provide maximum coverage at the lowest possible cost. Consistent with this policy, AFA has provided year end dividends (20% for 1976) to insured members in twelve of the past fifteen years, and has increased the basic amount of coverage on four separate occasions.

## Additional Information

**Effective Date of Your Coverage.** All certificates are dated and take effect on the last day of the month in which your application for coverage is approved, and coverage runs concurrently with AFA membership. AFA Military Group Life Insurance is written in conformity with the insurance regulations of the State of Minnesota. The insurance will be provided under the group insurance policy issued by United of Omaha to the First National Bank of Minnesota as trustees of the Air Force Association Group Insurance Trust.

**EXCEPTIONS:** There are a few logical exceptions to this coverage. They are: **Group Life Insurance:** Benefits for suicide or death from injuries intentionally self-inflicted while sane or insane will not be effective until your coverage has been in force for 12 months.

**The Accidental Death Benefit and Aviation Death Benefit** shall not be effective if death results: (1) From injuries intentionally self-inflicted while sane or insane, or (2) From injuries sustained while committing a felony, or (3) Either directly or indirectly from bodily or mental infirmity, poisoning or asphyxiation from carbon monoxide, or (4) During any period a member's coverage is being continued under the waiver of premium provision, or (5) From an aviation accident, either military or civilian, in which the insured was acting as pilot or crew member of the aircraft involved, except as provided under AVIATION DEATH BENEFIT.

## Eligibility

All active duty personnel of the Armed Forces of the United States and members of the Ready Reserve\* and National Guard\* (under age 60), Armed Forces Academy cadets\*, and college or university ROTC cadets\* are eligible to apply for this coverage provided they are now, or become, members of the Air Force Association.

\*Because of restrictions on the issuance of group insurance coverage, applications for coverage under the group program cannot be accepted from cadets or Reserve or Guard personnel residing in Florida, New York, Ohio or Texas. Members in these states may request special application forms from AFA for individual policies which provide coverage quite similar to the group program.

### Please Retain This Medical Bureau Prenotification For Your Records

Information regarding your insurability will be treated as confidential. United Benefit Life Insurance Company may, however, make a brief report thereon to the Medical Information Bureau, a nonprofit membership organization of life insurance companies, which operates an information exchange on behalf of its members. If you apply to another bureau member company for life or health insurance coverage, or a claim for benefits is submitted to such a company, the Bureau, upon request, will supply such company with the information in its file.

Upon receipt of a request from you, the Bureau will arrange disclosure of any information it may have in your file. (Medical information will be disclosed only to your attending physician.) If you question the accuracy of information in the Bureau's file, you may contact the Bureau and seek a correction in accordance with the procedures set forth in the federal Fair Credit Reporting Act. The address of the Bureau's information office is P.O. Box 105, Essex Station, Boston, Mass. 02112. Phone (617) 426-3660.

United Benefit Life Insurance Company may also release information in its file to other life insurance companies to whom you may apply for life or health insurance, or to whom a claim for benefits may be submitted.

## CURRENT BENEFIT TABLES

### AFA STANDARD PLAN

PREMIUM: \$10 per month

Insured's Attained Age	Basic Benefit*	Extra Accidental Death Benefit*	Total Benefit
20-24	\$75,000	\$12,500	\$87,500
25-29	70,000	12,500	82,500
30-34	65,000	12,500	77,500
35-39	50,000	12,500	62,500
40-44	35,000	12,500	47,500
45-49	20,000	12,500	32,500
50-54	12,500	12,500	25,000
55-59	10,000	12,500	22,500
60-64	7,500	12,500	20,000
65-69	4,000	12,500	16,500
70-74	2,500	12,500	15,000

**Aviation Death Benefit:\***

Non-war related	\$25,000
War related	\$15,000

### AFA HIGH OPTION PLAN

PREMIUM: \$15 per month

Insured's Attained Age	Basic Benefit*	Extra Accidental Death Benefit*	Total Benefit
20-24	\$112,500	\$12,500	\$125,000
25-29	105,000	12,500	112,500
30-34	97,500	12,500	110,000
35-39	75,000	12,500	87,500
40-44	52,500	12,500	65,000
45-49	30,000	12,500	42,500
50-54	18,750	12,500	31,250
55-59	15,000	12,500	27,500
60-64	11,250	12,500	23,750
65-69	6,000	12,500	18,500
70-74	3,750	12,500	16,250

**Aviation Death Benefit:\***

Non-war related	\$37,500
War related	\$22,500

\*The Extra Accidental Death Benefit is payable in the event an accidental death occurs within 13 weeks of the accident, except as noted under **Aviation Death Benefit** (below).

\***AVIATION DEATH BENEFIT:** The coverage provided under the Aviation Death Benefit is paid for death which is caused by an aviation accident in which the insured is serving as pilot or crew member of the aircraft involved. Under this condition, the Aviation Death Benefit is paid in lieu of all other benefits of this coverage. Furthermore the non-war related benefit will be paid in all cases where the death does not result from war or an act of war, whether declared or undeclared.

## OPTIONAL FAMILY COVERAGE

(may be added to either Standard or High Option Plan)

PREMIUM: \$2.50 per month

Insured's Attained Age	Life Insurance Coverage for Spouse	Life Insurance Coverage for each Child*
20-39	\$10,000	\$2,000
40-44	7,500	2,000
45-49	5,000	2,000
50-54	4,000	2,000
55-59	3,000	2,000
60-64	2,500	2,000
65-69	1,500	2,000
70-74	750	2,000

\*Between the ages of six months and 21 years, each child is provided \$2,000 coverage. Children under 6 months are provided with \$250 coverage once they are 15 days old and discharged from hospital.





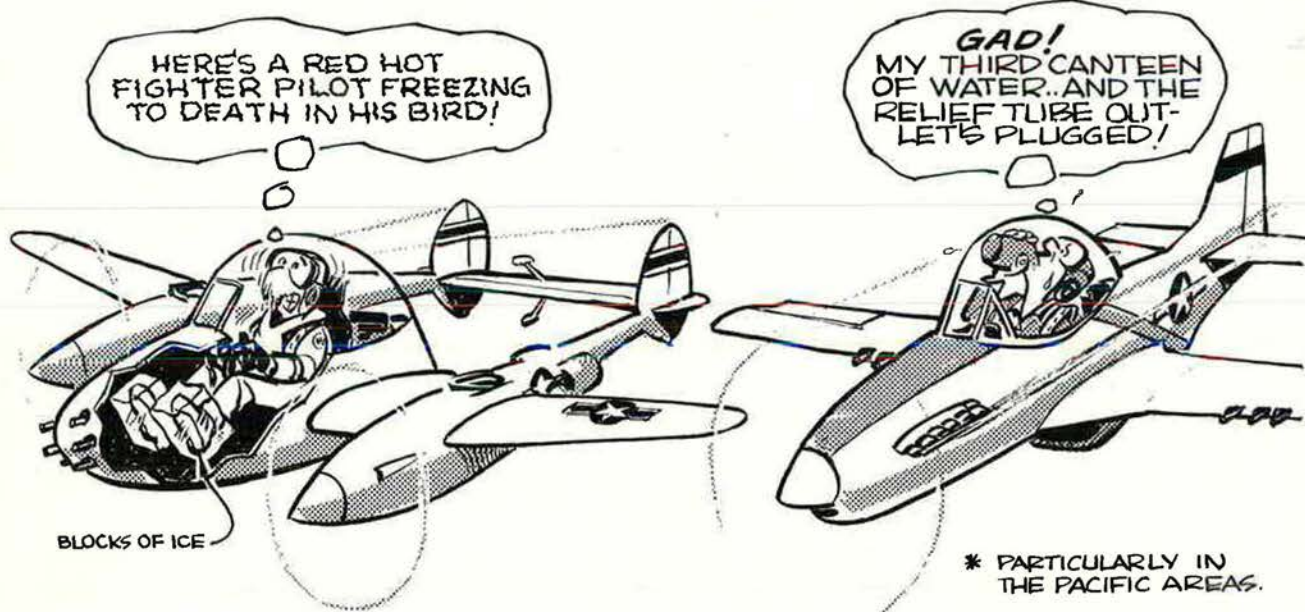
Bob Stevens'

# "There I was..."

IN THE P-38, ILL-FITTING NOSE COWLING (AROUND THE GUN PORTS) PRODUCED A SUB-ZERO CONDITION AT THE RUDDER PEDALS...

THIS ISSUE IS STRICTLY POT-POURRI, WITH AN EMPHASIS ON FEET. YES, FEET. IN WAR, BE IT ON THE GROUND OR IN THE AIR, THE SAYING "TAKE CARE OF YOUR FEET and THEY'LL TAKE CARE OF YOU" APPLIES.

...WHILE IN THE P-51, STRADDLING THAT MONSTROUS V710 ALLISON BROUGHT THE COCKPIT TEMP UP TO THAT OF BOILING WATER \*



PORTRAIT OF A NOVICE PASSENGER WHO MISTOOK THE EARPLUG WAX HANDED OUT FOR A PIECE OF CHEWING GUM

THERE ARE FEW MEN STILL FLYING WHO RODE IN THE BEHEMOTH B-36D. THOSE WHO DID MAY REMEMBER THIS CLASSIC EXCHANGE BETWEEN AN IP & A PILOT ABOARD ONE OF THE 10 ENGINED AERIAL TITANS:





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Vought's economical A-7 light tactical aircraft provides that readiness. One look proves that. So does its solid combat record. And 2 million successful flight hours.

And in the peaceful environment it helps to sustain, the cost-effective A-7 can play many significant roles. In aerial reconnaissance operations. And air-sea rescue missions.

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horse for the U.S. military. And what makes it a natural choice for our allies abroad.

True, the A-7 is an unquestionable example of an ability to retaliate. More importantly, however, it's an indisputable expression of a determination to keep the peace.

That's why we call it the "Everything Aircraft" for self-defense.



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The key to the YC-15's outstanding STOL performance is the externally-blown flap (EBF). Ten years of McDonnell Douglas research and development on the EBF has reduced this once high-risk technology to refined technology. Compared to other, more complex, propulsive lift concepts, the YC-15 4-engine EBF system has:

- fewer flaps and hinge linkage parts
- greatly simplified aerodynamics while retaining equal or better cruise and STOL performance
- superior manual control margins with one engine out
- less complicated and fewer redundant flight control augmentation systems

YC-15 flight test results are proof that the McDonnell Douglas AMST, built with low cost refined technology, is the perfect answer to modern airlift needs.



**The YC-15**  
MCDONNELL DOUGLAS 