

NOVEMBER 1994/\$3

AIR FORCE

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MAGAZINE

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Airlift's Year of Decision



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AIR FORCE

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MAGAZINE

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Editorial

The 1994–95 Statement of Policy, adopted by delegates to AFA's National Convention on September 12, 1994

Airpower in the Nation's Defense

NEVER before in its history has the United States been so reliant on airpower to protect its interests and security. This is a consequence of global circumstances as well as national strategy. The threat of global conflict diminished after the Cold War, but the instability and redistribution of power that followed have made regional conflict a greater danger than before. The probability of US involvement in such conflicts is high, and our response would be entrusted primarily to expeditionary forces based in the United States.

US strategy prescribes that our forces be prepared to fight and win two major regional conflicts, nearly simultaneously. In each conflict, the initial US force is expected to halt an invasion on some distant battlefield and hold the line until decisive force can arrive. A combined-arms campaign must then defeat the enemy battle force, destroy or neutralize the enemy's ability to make war, and sustain the operation until the conflict is resolved satisfactorily. In addition, US forces must continu-

ously project US power and presence and deter aggression across the spectrum of conflict.

Long-range airpower is the pivotal element in that strategy. No other military instrument can project power so rapidly and flexibly or with comparable weight to any point on Earth. Air and space forces represent not only global access and presence but also the means to acquire and communicate the information that is critical to the outcome of a crisis.

The two-conflict strategy is sound, but the defense budget that purports to implement it is not. Force and budget reductions undermine the capability of the US armed forces to execute the strategy. Force requirements identified by military analysis have been set aside in favor of arbitrary ceilings imposed for political and budgetary reasons. It is also clear, for that matter, that the defense budget as projected is not sufficient to fund even the lower force levels that are planned.

We believe it is imperative that the nation reexamine the capability

and force structure that has been budgeted for all of the armed services. This is especially important in the case of the US Air Force, which would provide the preponderance of airpower to respond, fight, and sustain the units deployed in major regional conflicts.

■ **Restoration of force structure.** We believe that the Air Force component of the force structure must include not less than *twenty-four combat-coded fighter and attack wings*, at least *184 operational bombers* with precision guided munitions, and (assuming that problems in the procurement program are resolved) a full complement of *120 C-17 airlifters*. This is an increase from the force structure now planned, but it is well below the configuration at the time of the Persian Gulf War in 1991 and also less than the "Base Force" projection of 1992.

■ **Equipping the force.** Those who believe we can fight tomorrow's wars with today's weapons are wrong. The force must be continually modernized and properly equipped. Technological superiority is an advantage we dare not lose. New capabilities, such as active missiles, advanced radar and avionics, and radar cross section reduction, are within reach of numerous nations already. The list of countries with ballistic missiles and cruise missiles is growing. Access to spacebased capabilities will soon be common. The proliferation of weapons of mass destruction is a problem of enormous concern. We cannot meet these challenges without the best that US technology can deliver.

■ **Readiness** is so important that the US Air Force, to a degree not matched by the other services, has sacrificed both force structure and modernization in order to maintain its capability to conduct current operations. In part, readiness means preparation to respond as dictated by strategy to major regional conflict, but airpower does not simply rest between wars. The present tempo of Air Force operations overseas—more than 200,000 sorties in

Photo by Paul Kennedy



Richard E. "Gene" Smith of West Point, Miss., newly elected President of the Air Force Association, declares that airpower is the pivotal element in the nation's ability to protect its interests and security.

Somalia, Bosnia, Iraq, and Rwanda since the end of the Gulf War—has seldom been higher in peacetime. The defense budget becomes a hazard to the nation if it cannot support current operational capability except at the expense of vital force structure and modernization.

■ **Space.** US military operations have become extremely dependent on capabilities from space for communications, intelligence, navigation, weather reporting, command and control, and more. Ironically, just when space has come into its own as a factor in military operations, the program has begun to slip and drift. It is time to decide how we will modernize our space-launch capability and then get on with it. We must support improved and urgently needed capabilities for orbiting systems, particularly those that detect and track ballistic missile launches. We also believe that, for reasons of both effectiveness and economy, the nation will be best served by eliminating redundancy and designating the US Air Force as the executive agent for launch, operational control, research, development, and acquisition of military space assets.

■ **Needs of military people and veterans.** It is imperative that there be general respect and understanding for those who do serve on the part of government officials. Otherwise, damage to force morale and effectiveness will surely result, and the unique needs and concerns of military people and veterans will be overlooked or slighted.

Too often in recent years, we have seen a tendency to regard the armed forces as a social laboratory. Too many thoughtless actions and policies have indicated an inclination to make decisions primarily for political and economic reasons with secondary consideration for the effect on the lives and careers of military people.

Compensation inequities continue, and there is persistent doubt that the government will honor the promises given about military and veterans' benefits. This is the seventh straight year of active-duty force cuts and the fifth year of reductions to the Total Force. Every month this year, the armed forces will decrease on average by 7,800 active-duty troops, 2,750 Guardsmen and Reservists, and 1,165 civil service employees. The anxiety of the force is obvious to all who take the time to notice.

The changes government leaders and administrators must make are



James M. McCoy of Omaha, Neb., begins his first term as AFA's Chairman of the Board at a time when the nation must face up to real requirements in making decisions about defense and not engage in wishful thinking.

in the areas of understanding, attitude, and respect. From that, positive and equitable policies will flow naturally.

■ **The industrial base.** A central element of the plan to reduce US forces at the end of the Cold War was assurance that "reconstitution" would be possible in a national emergency. The assumption was that a smaller but viable defense industrial base would be able to meet this requirement. Present defense policy virtually ignores reconstitution. The defense industrial base continues to decline. We are watching specialized production lines slow, then stop, and finally disappear. Given the low numbers of military aircraft remaining in service, attrition in combat will have a pronounced effect. Our only means of replacing most losses will be reactivation of old equipment put into storage during the period of reductions. The requisite training in this equipment, both for maintenance and operations personnel, will result in a further delay that must be taken into account. The Air Force Association deplores the nation's inattention to industrial preparedness.

■ **A floor for budget cuts.** The defense program is seriously underfunded by the budget projection for the next five years. According to estimates we regard as credible, this gap may be more than \$100 billion. Furthermore, this alarming shortfall is measured against the force posture as now planned, not the force we actually need. Correction of this problem would not be an

undue hardship since it would mean only a fractional difference in the share of the Gross Domestic Product allocated to defense. We believe the nation should establish 4.0 percent of GDP as a minimum below which defense will not be reduced to meet external budget constraints. That is lower than the percentage for defense this year or in any other year in modern times but a significant improvement on the 3.0 percent of GDP to which defense will sink under the current plan.

It is not too late to roll back the worst of the mistakes. We can begin by restoring US military force structure to a level more consistent with our national interests and strategy and placing a limit on the rash and radical defense budget cuts that have been imposed for reasons that have nothing to do with military requirements. We can make a commitment to technological superiority that is second to none. We can give our armed forces the support they deserve and need.

If we are unwilling as a nation to do these things, we must expect that in future conflicts US forces will be deployed on optimistic assumptions and go to war undermanned, underfunded, and under-equipped. We should never forget that one of the fundamental responsibilities as prescribed by the Constitution of the United States is to provide for the common defense. We continue on the present course at substantial risk to the defense of our nation and the security of its interests. ■



Dot Hensel, Senior Engineering Specialist, Lockheed Fort Worth Company

"THE LAST TIME AMERICA LAUNCHED A NEW AIR SUPERIORITY FIGHTER WAS 7 PRESIDENTS AGO."

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F-22. So America will still rule the skies many Presidents from now.



Letters

Revisionism at Its Worst

I have just read "The Last Act" at Air and Space" [September 1994, p. 58]. I am appalled at the blatant revisionist history and applaud and support your continuing efforts to correct the situation. Every one of the Smithsonian employees mentioned should, at the very least, be fired for spending taxpayers' dollars on such anti-American tripe.

The Smithsonian "historians" need a refresher course on almost fifty years of Japanese aggression. . . .

To characterize the campaigns in the Pacific as American aggression and Japanese defense is partly true, but the Smithsonian script puts a different slant on aggression. In order to force Japan to surrender, we had to attack its home islands. A great number of American men were killed in the effort to achieve that objective during campaigns in the southwest and central Pacific. The struggle for Okinawa highlighted the Japanese will to resist.

Because Japan appeared unwilling to surrender, even under heavy conventional bombing, President Truman made the brave decision to employ the atomic bomb.

While the bombs did cause a great deal of death and destruction, they ultimately saved a great number of lives—both American and Japanese. Had an invasion taken place, American casualties probably would have been between 500,000 and one million, and the Japanese would have suffered comparable, if not greater, losses, including women and children.

There is no doubt that the Japanese were prepared to defend their home islands. My father, Gen. Orval R. Cook, was a member of the first American party that entered Japan after the Japanese government agreed to surrender. He saw, firsthand, the manpower, arms, and equipment the Japanese had stockpiled for defense. It would have been a bloody affair.

The rendering of history by the Smithsonian staff is revisionism at its worst. I will urge my congressmen to forcibly require the Smithsonian to present a balanced story of World

War II or none at all. The Smithsonian is an American institution funded by taxpayers' dollars. It has an obligation to present history from the perspective of the United States.

Keep up the good work and press forward.

Lt. Col. Peyton E. Cook,
USAF (Ret.)
Southern Pines, N. C.

I'm a Marine of World War II who is forever grateful for the mission flown by *Enola Gay* and the follow-on flight to Nagasaki, Japan. For a tank crewman in the 2d Tank Battalion, 2d Marine Division—a unit that fought through Tulagi, Guadalcanal, Tarawa, Saipan, Tinian, and Okinawa, and then landed at Nagasaki on September 23, 1945, to begin the occupation—the long "march" across the Pacific came to an end.

Our unit was in final training for the amphibious attack on Japan at the very moment *Enola Gay* lifted off from Tinian. In fact, we were only a mile away on the same island.

In September 1945, we patrolled the coast of Kyushu, Japan, recovering shore defense weaponry, examining fortifications and fields of fire. To the 2d Marine Division, which suffered 12,395 casualties from August 1942 to August 1945, it was evident that a land battle on the Japanese home islands would have been catastrophic.

So to Brig. Gen. Paul W. Tibbets, Jr., and the entire 509th Composite Group: Thousands of us who fought alongside you recognize the histori-

cal accomplishment and significance of the mission of *Enola Gay*.

Our message to the Air and Space Museum: Just display the aircraft and cut the politics.

John M. Akins
Wheatland, Calif.

As the son of a veteran of World War II Pacific theater combat and the friend of many others, I was outraged when I read Mr. Correll's article about the Smithsonian's plans for an *Enola Gay* exhibit. I have written to my congressman, Rep. Owen Pickett (D-Va.), concerning this matter, and I encourage others to write to their representatives.

One wonders if Museum Director Martin Harwit plans to include descriptions of the activities of Japan's Sasebo No. 5 Special Naval Landing Party in New Guinea, its medical experiments on prisoners of war in Manchuria, and the building of railroads in Burma at the cost of the lives of thousands of prisoners in his revised, more balanced script. I agree with General Tibbets: Display the aircraft without editorial comment.

To my knowledge, this is not the first time that Mr. Harwit has perverted the exhibits of the Smithsonian because of some personal agenda. Several years ago, the P-47 Pilots' Association tried in vain to persuade Mr. Harwit to put a P-47 Thunderbolt on permanent display. Mr. Harwit was uncooperative—even combative—and even the intervention of Sen. Barry Goldwater on behalf of the association had no effect. In lieu of the Thunderbolt, Mr. Harwit continued to display an Italian Folgore, which would seem to be a gross violation of his charter.

On the other hand, there is a strong [precedent] for such behavior by the Smithsonian staff. Don't forget that this is the organization that maintained that Langley's Aerodrome, instead of the Wright Flyer, was the first heavier-than-air aircraft. Maybe Mr. Harwit has a strong sense of bureaucratic tradition.

Lyle W. Heldenbrand
Virginia Beach, Va.

Do you have a comment about a current issue? Write to "Letters," AIR FORCE Magazine, 1501 Lee Highway, Arlington, VA 22209-1198. Letters should be concise, timely, and preferably typed. We cannot acknowledge receipt of letters. We reserve the right to condense letters as necessary. Unsigned letters are not acceptable. Photographs cannot be used or returned.—THE EDITORS

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Letters

A profound thanks to the Air Force Association and all the veterans and their organizations for laying it on the National Air and Space Museum over the display of the *Enola Gay*. . . .

I agree with Paul Tibbets that she should be displayed alone as another warplane.

We didn't start the war, and it had to be won by any possible means. . . . Hundreds of thousands of American lives were lost to win it.

Japan had lost the war about a year before the atom bombs were dropped but wouldn't give up. I believe the Japanese would have fought on with the last man, woman, and child. An invasion of the home islands would have cost countless lives on both sides.

I believe the use of the atom bombs convinced Japan to give up. The resultant nuclear age is an entirely different subject. The powers that be at NASM don't need a display to prove the horror of a nuclear war. It's self-evident.

I fervently hope that no one in the world ever again sees what I saw from the tail of the *Enola Gay* on August 6, 1945.

George R. Caron
Tail gunner, *Enola Gay*
Denver, Colo.

The C-17's Benefits

In "Kill the C-17" [July 1994 "Letters," p. 8], Col. Harry P. Wilson, USAF (Ret.), tries to reduce one of the most significant and complex force-projection issues of our time to a simplistic and flawed cost comparison. Having spent virtually all of the last eighteen years acquiring or supporting C-5, C-17, and VC-25 aircraft for the Air Force, I feel an obligation to oppose the assertion that the C-17 must be "killed."

Even though Colonel Wilson's letter overstated the C-17 "flyaway" cost by many millions of dollars, we need not quibble. The real concern is that a cost comparison that does not objectively account for the relative benefits (capabilities) of each aircraft is spurious and misleading. C-17s cost more per copy because they provide significantly more capability than any alternative aircraft.

No other aircraft in the world can provide all the things airlift customers will demand from a direct-delivery aircraft in the twenty-first century (small austere airfield operations, strategic range, air refueling, outsize cargo, airdrop, combat offload, backing capability, reduced flight crew requirements, increased sortie rates,

and improved reliability and maintainability, to name a few).

Colonel Wilson's position is weakened further by his apparent assumption that aircraft life-cycle operating and support costs are directly proportional to flyaway cost. In some cases he might be right. However, in this case, because the Air Force gave the C-17 contractor incentives to design an airlifter that minimizes life-cycle cost, the C-17 can produce higher sortie rates with significantly smaller aircrews and ground crews and better fuel efficiency than any aircraft with similar capabilities. The C-17 is not just the only strategic airlifter capable of meeting national requirements well into the next century, but it also has the lowest life-cycle cost on the market.

The best any of us can do is to stimulate informed debate about the C-17 based on its ability to meet the stated mission requirements and expect Congress to make the right decision for the American taxpayers.

Based on what I see every day as the logistics group deputy commander at Charleston AFB, S. C., and on my experience in conducting aircraft life-cycle cost analysis, the decision is clear: If America needs an airlift aircraft that alone or in combination with other aircraft must provide the same capabilities the C-17 already provides today, there is no cheaper life-cycle cost alternative than the C-17.

Lt. Col. Thomas P. Toole,
USAF
Charleston AFB, S. C.

Knocking Down Scuds

While the idea of fighter aircraft shooting down ballistic missiles with "high-speed air-to-air missiles" is intriguing, it may be pointed out we have some capability in that field [*"Son of Star Wars," September 1994, p. 52*].

The AIM-54 Phoenix was conceived, among other things, to counter antiship missile threats. If it can shoot down an incoming Silkworm missile, it surely stands a chance against a boosting, slowly accelerating Scud. Having an F-14 Tomcat stationed in the right place at the right time is, indeed, difficult, but it can be done up to 100 miles from the launching zone.

What is most needed is effective, speedy communications and detection among properly placed aircraft. AMRAAM-equipped F-15Es would probably have a similar chance of success, so long as effective range is not exceeded.

Roberto De León, Jr.
San Juan, Puerto Rico



When it comes to delivery, we pull out all the stops.

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Whatever the challenge, the C-17 pulls out all the stops.

MCDONNELL DOUGLAS

Performance Above and Beyond.



Washington Watch

By John T. Correll, Editor in Chief

The Three Doctors and the *Enola Gay*

Under fire from Congress and public opinion, curators at the Air and Space Museum are making changes to their plan for exhibiting the famous B-29.



ONE THING is for sure. If the *Enola Gay* goes on display at the National Air and Space Museum next May, it won't be the historically distorted show that was originally planned. The

Enola Gay is the B-29 that dropped the first atomic bomb on Hiroshima in 1945. After a lengthy period of restoration, the aircraft is scheduled to be part of an exhibition in 1995 on the fiftieth anniversary of its famous mission.

Unfortunately, what the curators had in mind was more political than aeronautical. In effect, the *Enola Gay* would have been used as a prop in an unbalanced, emotionally charged program about the horrors of the atomic bomb. The initial exhibit plan picked up the story of World War II in 1945 as the end approached. Early drafts depicted the Japanese as desperate defenders of their homeland and culture, while the Americans were cast as ruthless invaders, bent on revenge.

After an article, "War Stories at Air and Space," in *AIR FORCE Magazine* reported on this plan, protests from veterans grew. Museum officials accepted a few marginal criticisms but waved off the rest as "disinformation." In June, the curator issued a surprise announcement declaring the exhibit plan final. That position soon disintegrated under withering fire from the public and Congress. At the end of August, the curators produced a new script. It contained some definite improvements, but veterans' groups said it was only a first step toward correcting the problem.

Press coverage and comment has been almost continuous for months. Little of it has been favorable to the

"After having read the article in *AIR FORCE Magazine* myself, I can certainly understand your concerns. I welcome this opportunity to set the record straight. . . . It should not come as a surprise to anyone that the Air Force Association . . . was able to find clumsy or unrefined label text among the several hundred pages which compromise the total script."

Dr. Martin Harwit, letter to a veteran, May 20, 1994

"Though I carefully read the exhibition script a month ago, I evidently paid greater attention to accuracy than to balance. . . . A second reading shows that we do have a lack of balance and that much of the criticism that has been levied against us is understandable."

Dr. Martin Harwit, internal memorandum to museum staff, April 16, 1994

January Script

Public Assessment

Private Assessment

May Script

Public Assessment

Private Assessment

"A new draft of the script incorporating the comments of the official advisory team, the military historians, the internal review panel, and the Air Force Association is now complete."

Dr. Martin Harwit to Sen. Paul Sarbanes (D-Md.), July 28, 1994

"Dr. Harwit said that he had followed through over the weekend on the recommendation . . . to look closely at whether his curators had placed into the script the recommendations of the military historians. . . . Dr. Harwit emphasized that he had been 'taken aback by how little had been done.' There were 'some word changes here and there,' Harwit said, but clearly the curators had failed to follow through. As he put it, this 'had fallen through the cracks.'"

Herman S. Wolk, Center for Air Force History, August 23, 1994

Air and Space Museum or to the parent Smithsonian Institution. A *Washington Post* editorial observed the "curatorial inability to perceive that political opinions are embedded in the exhibit" and said the Smithsonian "needs to do more listening." The *Wall Street Journal* said the museum was "in the hands of academics unable to view American history as anything other than a woeful catalog of crimes and aggressions against the helpless peoples of the earth." Jeff Jacoby wrote in the *Boston Globe* that "the exhibit could be worse" had not veterans' groups, military historians, and *AIR FORCE Magazine* "forced the Smithsonian to soften the angry, politicized—even anti-American—tone its curators have chosen."

A Message Gets Through

There are signs that the message is getting through. At his installation on September 19 as the new secretary of the Smithsonian Institution, Michael Heyman acknowledged that the *Enola Gay* exhibit plan had been "deficient" and "out of balance." Senior Smithsonian officials have now taken a direct hand in the revision process.

Introducing a "Sense of the Senate" resolution September 19, Sen. Nancy Kassebaum (R-Kan.) said that the exhibition script, even with the latest changes taken into account, was "revisionist, unbalanced, and offensive." (The resolution was passed unanimously September 23.)

The Interior Department appropria-

An Open or Shut Case?

Dr. Martin Harwit, May 1994

"Please understand that we are talking about a first draft some fifteen months before the opening of an exhibition. This would normally give us a year to cull out any inaccuracies, perceived imbalance, or phrases that could be misinterpreted or misconstrued in unintended ways."

Letter to a veteran, May 20, 1994

Dr. Michael Neufeld, June 1994

"If the exhibit is to be opened in late May 1995, as planned, we must now move on to the production and construction phase. This script therefore must be considered a finished product, minor wording changes aside."

Letter to Advisory Board members and military historians, June 21, 1994

tions bill, adopted on September 21, included a provision drafted by Sen. Slade Gorton (R-Wash.) that Congress "expects" the "Smithsonian's exhibit surrounding the *Enola Gay* to properly and respectfully recognize the significant contribution to the early termination of World War II and the saving of both American and Japanese lives."

A few voices expressed a different view. It cannot be much comfort to the curators, though, that among them was Colman McCarthy, the antimilitary columnist for the *Washington Post*, who argued for the original exhibit concept on the grounds that "in 1945, two militaristic governments were having it out" and that "the United States committed unprovoked war crimes that caused the slaughter of 200,000 Japanese."

Summarizing the curators' early pitch in a September 21 report, John Martin of ABC-TV said that according to the latest research, "President Truman did not need to drop the bomb. Japan was ready to quit." Casualty estimates for an invasion of Japan were "wildly exaggerated. Instead of saving American lives, dropping the bomb may have satisfied racist hostility toward a hated enemy, ethnically different from most Americans." No critic of the museum has summed up the revisionist line more succinctly than that.

The Smithsonian also drew support from an editorial in the *New York Times*, which was under the mistaken impression that the curators were making changes voluntarily and that criticism had "short-circuited" the "process" needlessly. In fact, the curators had shrugged off appeals for change until the pressure became too much to ignore.

The Three Doctors

Museum officials seem to regard the previous planning documents for

this exhibit—three concept plans and the first two drafts of the script—as bygones and no longer relevant. Many in the veterans' community take a different view. In a report circulated in September, the Air Force Association said, "What we hear from our members is that it is no longer enough to clean up this exhibition script. It is also imperative that the Smithsonian leadership and the Board of Regents carefully review the procedures and personnel assignments that produced such a biased, unbalanced, anti-American script in the first place."

the Aeronautics Department since 1989. He has been at the Smithsonian since 1974. He is the author of nine books, including *The Bishop's Boys: A Life of Wilbur and Orville Wright* (1989) and many shorter works. He was the curator of "A More Perfect Union," a controversial exhibit at the Museum of American History that commemorated the 200th anniversary of the US Constitution with a program on Japanese-American internment. (Dr. Crouch's commitment to that issue has not flagged. He was scheduled to deliver in October a Smithsonian-sponsored lecture, "When the Constitution Failed: The Japanese-American Internment Episode," at the Japanese Cultural and Community Center of Northern California.)

■ *Dr. Michael J. Neufeld*, official curator of "The Last Act: The Atomic Bomb and the End of World War II" (although Dr. Crouch seems to share in the function). Dr. Neufeld came to the National Air and Space Museum as a post-doctoral fellow in 1988, doing research on Wernher von Braun and the German rocket program. He joined the Aeronautics Department as a curator in 1990. His background is in European economic history. Dr. Neufeld is a Canadian citizen with

"Ground Zero" Visual Images

January	May	August	
75	64	51	Total photos
49	37	27	Human-suffering photos
25	23	15	Photos featuring women, children, religious objects
26	24	18	Total artifacts
13	12	8	Artifacts related to women, children, religion

Three individuals stand at the center of the controversy:

■ *Dr. Martin O. Harwit*, director of the National Air and Space Museum since 1987. He was born in Prague, Czechoslovakia, grew up in Istanbul, and came to the United States (at age fifteen) in 1946. During his US Army service, 1955–57, he was assigned to nuclear weapons tests at Eniwetok and Bikini. He was a professor of astronomy at Cornell University. In the 1980s, he chaired NASA's Astrophysics Management Working Group.

■ *Dr. Tom D. Crouch*, chairman of

permanent resident status in the United States.

Several times this year (see boxes, pp. 8–10), Dr. Harwit and his curators have seemed to operate on different wavelengths. Changes Dr. Harwit had directed were, in fact, not made. Actions about which he had confidently given assurance had, in fact, "fallen through the cracks." In a letter to the Washington, D. C., *Times* September 4, Dr. Harwit was "disappointed" to read that newspaper's report suggesting "that serious differences divide the museum's director and staff." Nothing was going on,

What's My Line? The Purpose of the Exhibit

Dr. Martin Harwit, August 1994

"The focus of the exhibition will be the last months of the war in the Pacific and the role of the *Enola Gay* in bringing a fierce conflict to a sudden, merciful end for the millions of young American servicemen who were poised to sacrifice their lives for their country."

Air & Space Magazine,
August–September 1994

Dr. Tom Crouch, August 1994

"It is very important for Americans to understand the destruction caused by the atomic bombs. The purpose of the exhibit is to talk about what we did in Nagasaki and Hiroshima and more importantly, the proliferation of nuclear weapons and military expansion thereafter."

August 5, 1994, telecast,
Tokyo Broadcasting System

he said, except the normal "process of discussion and debate."

The Changes in August

Compared to the two previous scripts (in January and May) and three even earlier concept plans, the August 31 script revision showed a serious effort to deal with the problems of balance and context. The original script had forty-nine photos of Japanese casualties but only three photos of American casualties. The new balance is twenty-six photos of Japanese casualties to fourteen for the Americans. That doesn't make it even, but the ratio has improved.

For the first time, we see a few pictures of Japanese troops looking armed and dangerous. Except for the *kamikaze* (who were depicted heroically), the previous scripts had not shown Japanese forces in aggressive or warlike roles. The August revision also toned down the romantic image of the *kamikaze* seen earlier.

Some offensive language is gone this time around. The new script, for example, no longer says that the B-29 aircrews who flew the atomic bomb missions against Japan were "only following orders." Dr. Harwit told *AIR FORCE Magazine* in August that it never occurred to the curators that this line might suggest an insulting parallel to the classic war crimes defense at Nuremberg.

The announced centerpiece of the August script revision was a new, 4,000-square-foot exhibit section to be called "The War in the Pacific: An American Perspective." It existed only as a promise in a press release, but it began raising questions right away. If the *American* perspective had to be added as an afterthought, what perspective did the rest of the program have? Smithsonian officials, recognizing that this public relations play

surrender prolong the war?" has acquired deeper cover. It is gone as an explicit item in the "Historical Controversy" series, but the question remains, scattered in bits and pieces. At one point, the script says that "the failure of the American note of August 10 to clearly guarantee the Emperor's position provoked another dangerous deadlock in the Japanese ruling elite." The implication is that the US was to blame for Japan's reluctance to surrender, even after the atomic bomb had been dropped.

The exhibit is still organized in the same sequential sections leading visitors up to the "emotional center" at

To Honor the Veterans

Dr. Tom Crouch, July 1993

"Do you want to do an exhibition intended to make veterans feel good, or do you want an exhibition that will lead our visitors to think about the consequences of the atomic bombing of Japan? Frankly, I don't think we can do both."

Memorandum to Dr. Martin Harwit,
July 21, 1993

Dr. Tom Crouch, August 1994

"I can assure you that the exhibition, which is scheduled to open in the spring of 1995, will most certainly honor the brave Americans who fought and suffered for their nation during World War II. Moreover, it will identify Japan as the aggressor nation in the Pacific war and outline the nature of the atrocities committed by the Japanese."

Reply to a public inquiry,
August 8, 1994

had backfired, say the "American Perspective" subtitle has been abolished.

The new section, when it is developed, along with other changes, when they are made, is supposed to put the last months of the war in context, showing why a desperate defense of the Japanese home islands was necessary in 1945 and how the difficult part of the war started for Japan when its victims began hitting back.

Problems Remaining

The previous script presented a series of "Historical Controversies" casting suspicion on the actions and motives of the United States. In August, the museum director promised that this speculation would be removed. The "Historical Controversies" labels are indeed gone, but much of the problem material is still present under different guises.

One obvious holdover asks, "Would the bomb have been dropped on the Germans?" The curators simply dropped the "Controversy" tag line and removed a bit of the text. The rest of it is unchanged. Another one, "Did the demand for unconditional

"Ground Zero: Hiroshima and Nagasaki." There they will be confronted by a massive audiovisual assault. The curators skip no opportunity to tug at the heart strings. A kitten in the aftermath of Nagasaki cannot simply be dead. It must "glare" with "eternally locked eyes."

The number of "Ground Zero" visual images has been reduced (see *chart, p. 9*), but the quantity remaining still seems excessive for the declared purpose of showing the effects of an atomic weapon. The overall emphasis on Japanese suffering has not changed that much in the new script. The May version had eighty-four text pages and ninety-seven photos on the theme of Japanese suffering. The August revision has eighty-two pages and eighty-four photos.

In a letter to Military Coalition organizations in September, the Air Force Association said "the curators are so attentive to the *Hibakusha* (survivors of the atomic bombs) that a museum visitor might think these Japanese survivors are the only ones for whom the suffering continued af-

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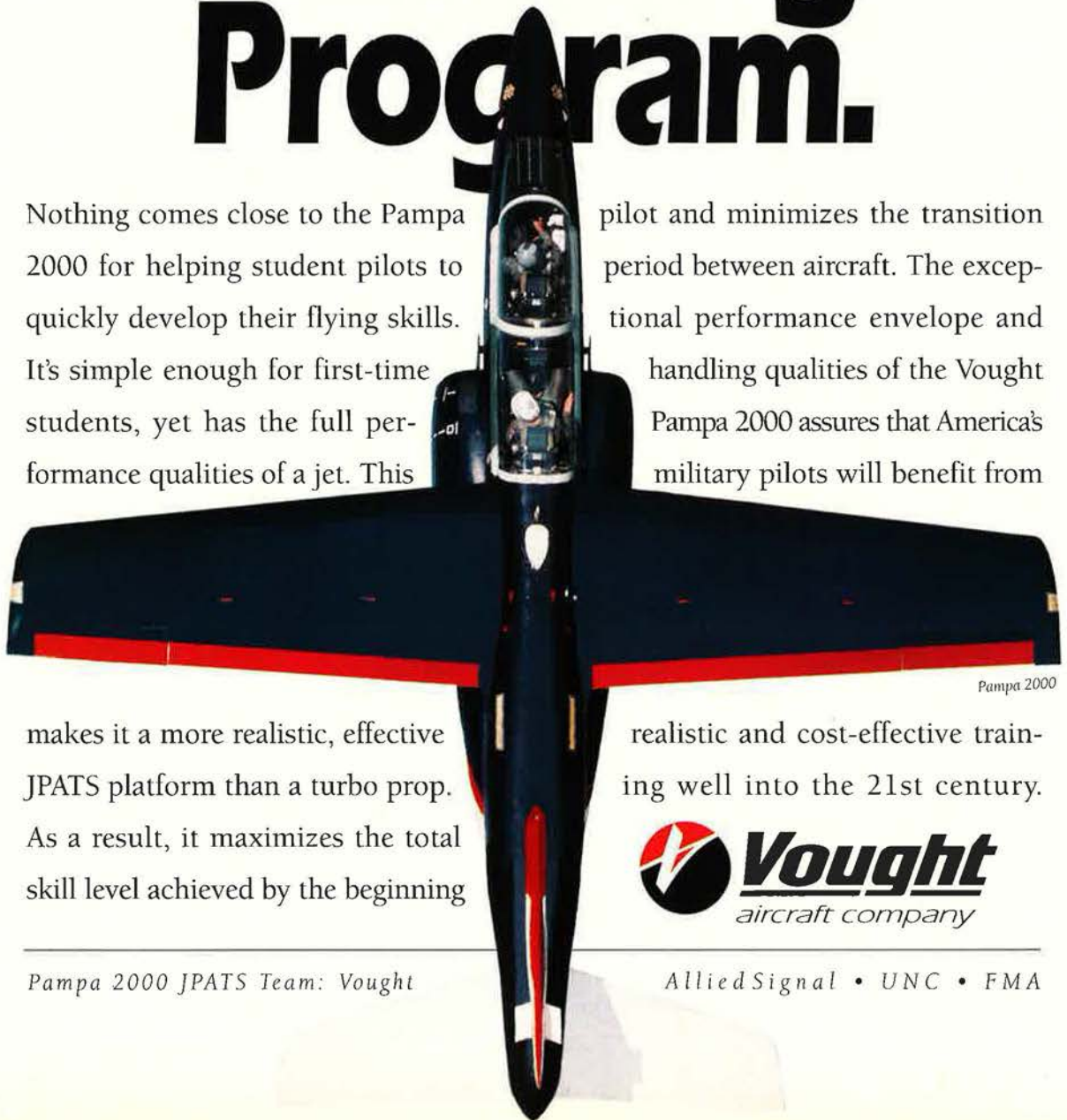
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ter the war." To correct any such misunderstanding, the Association suggested that for every *Hibakusha* featured in the program a disabled American veteran be comparably featured.

According to press reports, officials of the Peace Memorial Museum in Hiroshima may refuse to lend their artifacts for the exhibition now that it is being changed in a way that "does not reflect the feelings of the people of Hiroshima."

Dr. Harwit's "Dilemma"

Dr. Harwit met with mixed reviews when he explained his position in an op-ed column titled "The *Enola Gay*: A Nation's, and a Museum's, Dilemma" in the *Washington Post*, August 7. He wrote that "we lack a national consensus on what to say." One view "appeals to our national self-image. The other point of view, slower in coming to the fore, is more analytical, critical in its acceptance of facts and concerned with historical context. It is complex and, in the eyes of some, discomfiting."

"In other words," said syndicated columnist Charley Reese, "there is the dumb patriotic view and the smart, sophisticated anti-American view." What it boils down to, Mr. Reese declared, is that "the US government has made mistakes, but dropping atomic bombs on Hiroshima and Nagasaki was not one of them. Hiring Martin Harwit was."

Rep. Bob Stump (R-Ariz.) said that Dr. Harwit's conclusions in the *Post* column were "garbage" and that "the museum has manufactured its own dilemma by elevating a vocal but tiny minority of politically correct opinion to the level of the beliefs of an entire American generation in order to claim lack of national consensus."

In a meeting in August at which two Air Force Association representatives were present, Dr. Harwit said that the exhibition would clearly affirm that the United States used the atomic bomb in 1945 in hope of ending the war and saving lives. Indeed, much of the speculation to the contrary has been removed from the August 31 version of the script.

That is a major change, and seemingly at odds with the opinion of the exhibition's curator. "One of the most important conclusions we can draw from this research is that, although it is certainly still possible to argue for the correctness of Truman's decision to use the atomic bomb without warning, the traditional justification used in this country is no longer tenable,"

Dr. Neufeld wrote April 25 in a memo to Dr. Harwit and others at the museum. "That justification, which is endlessly repeated with almost religious fervor, asserts that Truman was faced with only two options: a) drop the bomb without warning, or b) invade Japan at the cost of a quarter of a million, half a million, a million or many millions of American and/or Japanese lives, depending on what version is being told. This account is untenable. . . ."

Down the Slippery Slope

The Air Force Association and *AIR FORCE Magazine* are comparative newcomers to this controversy. Our involvement began after we featured the *Enola Gay* in our August 1993 cover story, "In Aviation's Attic." W. Burr Bennett of Northbrook, Ill., one of the World War II veterans who had been grappling with the problem for years, wrote to alert us to strange doings at the National Air and Space Museum. Mr. Bennett and his colleagues had collected 8,000 signatures on a petition asking the museum to either display the *Enola Gay* properly or give it to another museum that would do so.

Inquiries and discussions over the next several months revealed that the museum was in fact preparing to exhibit the *Enola Gay* in a politically rigged horror show that was severely lacking in balance and historical context. Extensive contact—in letters, telephone calls, and one long meeting—made it clear to us that the curators were not to be dissuaded.

"For most Americans," said the script they published in January, "it was a war of vengeance. For most Japanese, it was a war to defend their unique culture against Western imperialism." That line has since been expunged, not because the curators have changed their minds but because of the furor that arose when *AIR FORCE Magazine* reported it in April.

Publicly, Dr. Harwit and the curators assailed *AIR FORCE Magazine's* revelation of their plans as "irresponsible" and "inaccurate." In a paper circulating privately within the museum, however, Dr. Harwit conceded that "we do have a lack of balance." With criticism mounting, he appointed a "tiger team" review panel to suggest changes.

The tiger team's findings were kept under wraps until August, when the museum finally provided a copy to *AIR FORCE Magazine* in voluntary response to a Freedom of Information

Act request. Some of the comments regarding balance were at least as pointed as what *AIR FORCE Magazine* had said. "If I didn't know better, from a lifetime of experience, I would leave the exhibit with the strong feeling that Americans are bloodthirsty, racist killers who after beer parties and softball go out and kill as many women and children as possible," one panel member wrote.

A revised exhibit script was completed May 31. *AIR FORCE Magazine* was not able to obtain a copy, however, until June 23. Our analysis (published as a special report June 28 and subsequently as a magazine article) said the revision still lacked balance and context and was "still a partisan interpretation that many Americans—and most veterans—will find objectionable."

From there, the issue caught on, playing not only on network television, in national news magazines, and in metropolitan newspapers but also in local and regional news media all over the United States. More veterans' groups joined the fray. Individual congressmen and senators had been prodding the Smithsonian for months, but the issue escalated sharply on August 10.

Rep. Peter Blute (R-Mass.), acting on behalf of a bipartisan group of twenty-four congressmen, said the proposed *Enola Gay* exhibit was "anti-American" and "biased." The same day, Rep. Tom Lewis (R-Fla.) and five colleagues said the museum should stick to telling history, not try to rewrite it, and Rep. Sam Johnson (R-Tex.) said the exhibit was "a blatant betrayal of American history."

In September, delegates to the Air Force Association National Convention said that serious "structural, contextual, and ideological issues" still had to be addressed to make the *Enola Gay* exhibition plan acceptable and that "the National Air and Space Museum must be held to the highest standards."

In early October, the Air and Space Museum announced yet another script revision—the seventh formal planning document in this troubled series—produced after bilateral negotiations between the museum and the American Legion. A review copy was promised to *AIR FORCE Magazine* by Smithsonian officials, who said they were open to further revisions.

As of October 3, W. Burr Bennett, who first alerted *AIR FORCE Magazine* to the problem, had collected 14,441 signatures on his petition, and the fight goes on. ■



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Aerospace World

By Frank Oliveri, Associate Editor

USAF Accuses Six in Iraq Shootdown

The Air Force initiated proceedings against six officers involved in the April downing of two US Army UH-60 Black Hawk helicopters over northern Iraq. Twenty-six passengers, including fifteen Americans, were killed in the incident.

The Pentagon announced September 8 that the Air Force had lodged negligent homicide and dereliction of duty charges against one F-15C fighter pilot. Moreover, the Pentagon reported, five crew members of an E-3 Airborne Warning and Control System aircraft had been charged with dereliction of duty.

On April 16 two F-15C pilots shot down the Black Hawks, which the pilots later said they mistook for Soviet-built Iraqi Mi-24 "Hinds" trespassing in a "no-fly zone" over Iraq. [See "Aerospace World," September 1994, p. 21.] Each fighter launched a single missile against a helicopter. The AWACS crew had been aware of the presence of the two Black Hawks but did not alert the fighter pilots.

The probe of the incident began under Article 32 of the Uniform Code of Military Justice. An Article 32 hearing is equivalent to a grand jury proceeding. Investigators attempt to establish the truth or falsity of charges and determine the disposition of the case.

The F-15C pilot named in the complaint was Lt. Col. Randy W. May, wingman of the two-ship fighter formation, assigned to the 53d Fighter Squadron, Spangdahlem AB, Germany.

The five AWACS crew members were identified as 1st Lt. Joseph Halcli, en-route controller; Maj. Douglas L. Martin, a member of the airborne command element; Maj. Lawrence M. Tracey, mission crew commander; Capt. Jim Wang, senior director of the E-3's mission crew; and 2d Lt. Ricky L. Wilson, tactical area of responsibility controller. Major Tracey, Captain Wang, and Lieutenants Halcli and Wilson are assigned to the 963d Airborne Control Squadron, Tinker AFB, Okla. Major Martin is assigned

to Air Combat Command air operations, Langley AFB, Va.

Conviction on a charge of negligent homicide entails dismissal, forfeiture of all pay and allowances, and confinement of one year on each count. Conviction on a charge of dereliction of duty would bring a maximum penalty of dismissal, forfeiture of two-thirds of each month's pay for three months, and confinement for up to three months for each count.

The Pentagon did not name the pilot of the second Air Force F-15C; it reported that a decision was still pending on what action, if any, should be taken against this officer. No more charges will be brought against members of the AWACS crew, the Pentagon reported.

Third B-2 Named *Spirit of Texas*

The third operational B-2 bomber will be named *Spirit of Texas*, the Air Force said in September.

The 509th Bomb Wing, Whiteman AFB, Mo., accepted the bomber in September. The name was selected to honor the Texas aerospace industries that played a role in development and manufacture of the highly advanced, stealthy B-2.

Gen. John M. Loh, commander of Air Combat Command, presided over the naming ceremony in Dallas.

US Troops Arrive in Haiti

In the wake of a last-minute, negotiated settlement that staved off an outright American invasion, the US began an unopposed buildup of armed forces in the Caribbean nation of Haiti. No one could predict how long they would stay.

The forces were sent to try to create a safe and secure environment following a decision by the ruling military junta to step down, as demanded by the Clinton Administration. US troops were greeted warmly by supporters of ousted Haitian President Jean-Bertrand Aristide, whose return to office ostensibly was the main cause of action by the United States in Haiti. Baton-wielding Haitian police and soldiers attacked crowds of Aristide supporters while US troops

stood by, prevented by rules of the operation from interfering.

An executive order for an invasion was issued at 5:45 p.m., eastern daylight time, September 18. The first aircraft took off within an hour, but the Haitian junta and US negotiators soon reached an accord. The invasion was canceled, and all military aircraft were recalled at 8:20 p.m.

The island occupation began September 19 and included the arrival of a 1,800-strong Marine contingent in the north of Haiti. Additional US Army units took up positions in the capital, Port-au-Prince. The American troop presence reached 10,000 in the first five days.

Ashy Takes Over Three Commands

Gen. Joseph W. Ashy assumed command of North American Aerospace Defense Command, US Space Command, and Air Force Space Command in mid-September.

General Ashy's organizations will carry the burden of aerospace defense of the US and Canada and the exploitation and control of space for national purposes through a network of satellites and ground stations around the world.

General Ashy replaces Gen. Charles A. Horner, who retired after thirty-six years on active duty. General Ashy served as commander of Allied Air Forces Southern Europe, and commander, 16th Air Force, US Air Forces in Europe.

Survey Shows Military Burdens

The Pentagon recently released results of a questionnaire that US active-duty troops completed in the summer of 1992. Some 60,000 soldiers, sailors, airmen, and Marines, as well as 24,000 spouses, answered 140 questions on topics ranging from child care to marital problems caused by deployments.

Highlights of the survey:

■ Forty-four percent said they were dissatisfied or very dissatisfied with their pay and allowances. Only twenty-nine percent said they were satisfied or very satisfied.



Senior Editor Canan Retires After Eleven Years

I became an instant fan of Jim Canan's when I read his first book, *The Superwarriors*, in 1975. He had me properly hooked long before the end of the first chapter ("Whispering Death: the Untold Tale of the F-111"), and after that, I made a point of reading any of his work that I could get my hands on. In the fall of 1983, a sudden round of personnel changes left AIR FORCE Magazine in urgent need of a senior editor. There was not the slightest doubt in the mind of the newly minted executive editor (me) who the best candidate was.

For the next eleven years, Canan plied his trade mainly in the pages of this magazine. That made it a good time for us. The day we hadn't wanted to think about—his retirement—arrived this year. The readers will miss the monthly treat of Canan's reporting, and all of us here will miss Canan himself.

James W. Canan has been covering the news from Washington since 1960. He filed his first story from the Pentagon during the Eisenhower Administration, and from then until now, he has not missed much of importance that went on in the defense world. That showed in the depth of his reports.

Canan was born in New Castle, Pa. After graduating from Westminster College in 1951, he spent a tour in the Army as an intelligence officer, then began his career in journalism on the Youngstown, Ohio, *Vindicator* in 1954. He spent five years at the Binghamton, N. Y., *Press*, moving from there to the Washington bureau of the Gannett Newspaper Group, where he worked from 1960 to 1966. From then until he joined us in 1983, Canan was a Washington correspondent for *Business Week* Magazine, covering defense for most of that time. In 1982, he wrote another book, *War in Space*, which was every bit as good as his first one.

He says he regards retirement as "an opportunity to do something different, not to withdraw from the working world." Personally, I hope that means he is going to write another book, something his colleagues here have been nagging him to do for years. In any case, Canan says his Air Force Association friends "haven't seen the last of me." Maybe they haven't read the last of him, either. When you're ready for a writing assignment, Canan, check in. —John T. Correll

- Sixty-two percent of service members are married—about the same as in 1985, despite the perception that a larger segment of the force is married today than in the recent past.

- Twenty-six percent are divorced, including six percent who have been divorced and have not remarried.

- Among the divorced, thirty-six percent blame service life to a "great" or "very great" extent for their failed marriages.

- Eighty-four percent of service members work more than forty hours

per week. Nineteen percent work more than sixty hours per week.

- When asked to rate their confidence in their fellow unit members, Army troops reported the lowest level and Marines the highest.

C-17 Tests Defensive System

The first C-17 transport to be equipped with an interim airlift defensive system completed flight safety testing and underwent system-effectiveness testing at the test range at Eglin AFB, Fla., in September. The

system is intended to protect the aircraft against heat-seeking missiles, the Air Force said.

The seventh production airlifter traveled to its home base at Charleston AFB, S. C., in June after completing a modification and upgrade program to equip it with the new system.

The defensive system consists of four missile warning sensors—two at the front of the aircraft and two at the rear—flare dispensers on each side of the aircraft and under the nose, and controllers to operate the system.

A C-17 also deployed in September to Andersen AFB, Guam, for a week of testing in tropical weather. The aircraft performed a full range of operationally realistic missions, including airdrop, aerial refueling, and short, austere airfield operations.

The testing was conducted to ensure that the aircraft and its subsystems performed as designed in the high-temperature, high-humidity environment of the tropics.

McConnell Recovers From Tornado

More than three years ago, McConnell AFB, Kan., sustained significant tornado damage. Work to repair damaged facilities was finished this August, according to the Air Force. Nine base facilities were destroyed, ten others were damaged, and sixteen people were injured.

The McConnell cleanup began with assistance from the community and money from other Air Force bases. Congress approved \$55 million toward rebuilding the base. The tornado recovery and reconstruction package included a medical treatment facility, 102 military family housing units, an arts and crafts/auto hobby center, a car wash, and a swimming pool.

Rutherford to Head AMC

Gen. Robert L. Rutherford, commander of Pacific Air Forces, was nominated in September to lead Air Mobility Command and the unified US Transportation Command, both based at Scott AFB, Ill.

If confirmed, General Rutherford would assume a command formerly headed by Gen. Ronald R. Fogleman, who is now Air Force Chief of Staff.

General Rutherford, a thirty-three-year veteran of the Air Force, not only commanded PACAF but also was air component commander for US Pacific Command and executive director of Pacific Air Combat Operations Staff, Hickam AFB, Hawaii.

As of early October, the service

had not announced a possible replacement to fill the PACAF post.

New Badges

As of September, Air Force members in every career field may wear occupational badges, the service said. Military clothing stores are selling seventeen new or redesigned Air Force badges.

Only the civil engineering badge will not be on hand initially. It is undergoing design changes and should be available in January 1995.

The Air Force created the system to standardize wear for all members and to standardize procedures for upgrading badges.

Instructions for wearing these optional badges are outlined in the recently released Air Force Instruction 36-2903, "Dress and Personal Appearance of Air Force Personnel." Members wear the occupational badge centered one-half inch above ribbons or above the pocket if not wearing ribbons.

AMC Alters Training

Air Mobility Command has launched a new initiative aimed at providing more realistic training, departing AMC Commander Gen. Ronald R. Fogleman said in September.

The General, now Air Force Chief of Staff, said the program, though it draws heavily on existing AMC programs, adds two important twists.

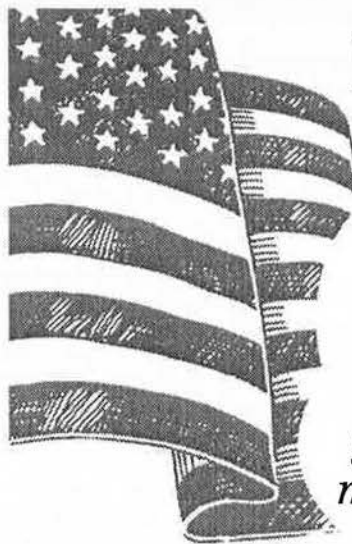
The first expands AMC's contact with and feedback from the field. "The people we task and train must be the guide for improving our training," General Fogleman said. "Feedback from individuals in our units is critical if our training programs are to remain viable, quality programs."

The second new aspect is a coherent link between training and the need for training outlined by contingency, wartime, and strategic plans.

"In other words, our training programs must accurately reflect our tasking from our command authorities and the requirements of our operations," General Fogleman said.

As part of the initiative, the General said, AMC will conduct a semi-annual Operations/Logistics Conference to examine the performance and needs of AMC's unique operations and logistics communities.

The conference will study training programs provided by AMC, with feedback from personnel as a major part of the conference. In addition, the conference will compare AMC's training programs with the demands of taskings from command authorities, interoperability with sister services, and many other issues.



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Guardsmen Rescue Fishermen

An Air National Guard aircrew rescued two fishermen twenty miles off the coast of Long Island, N. Y., in August.

The 106th Rescue Group crew, flying an MH-60G Pave Hawk helicopter, took two hours in a joint effort with the Coast Guard to locate the two men south of Patchogue. The fishermen had been adrift for thirty hours, and a storm was pushing up

the east coast. The crew, Maj. Mike Canders, Capt. Mike Noyes, and TSgt. Ray Mitchell, completed the unit's 262d and 263d rescues.

AMC Reaches Rwanda Milestone

In late August, Air Mobility Command had completed more than 1,000 missions in Operation Support Hope, achieving in forty days the goal of assisting Rwandan refugees.

Tankers and airlift aircraft worked

with civilian contract aircraft to move nearly 10,000 passengers and 20,769 tons of humanitarian and operational support cargo. AMC refueling tankers offloaded more than 2.5 million gallons of fuel in support of the operation.

Airman Dies in Slovakia

The body of an airman from the 7th Special Operations Squadron, flying out of RAF Alconbury, UK, was discovered August 27 in the River Vah, near Trenčin, Slovakia.

SrA. Michael R. Miller, Jr., a twenty-two-year-old aircraft maintenance specialist, had been unaccounted for since August 23. The 7th SOS was in Slovakia taking part in a training exercise involving joint US Army and Air Force elements and the Slovak military. The exercise was intended to promote better understanding and contact between the two nations.

Airman Miller was last seen alive at 1:45 a.m. local time on August 23. After notification of his absence, Slovak police and military forces began searching for the missing airman. The death was ruled accidental, pending a complete autopsy and investigation.

Architects Chosen for Air Force Memorial

In August, the Air Force Memorial Foundation selected the New York city architectural firm of Pei Cobb Freed and Partners to design the Air Force Memorial.

Thirty-six architectural firms were considered by the foundation's Site and Design Committee and Board of Trustees. The foundation was set up in 1992 with the goal of raising \$25 million for the memorial. President Clinton signed a bill in December 1993 authorizing the Air Force to establish a memorial in Washington, D. C.

The foundation had already received more than \$1 million in pledges and donations before it launched its official memorial fund-raising effort. The Air Force Association is a major contributor to the foundation.

Medical Personnel Deployed to Guantanamo

More than 100 Air Force medical technicians were deployed in late August to Guantanamo Bay Naval Base, Cuba, to support the US effort to process Cuban refugees fleeing the island.

Along with seventy-eight persons from Wilford Hall Medical Center, Lackland AFB, Tex., including six doctors, two dentists, and twelve nurses, Air Mobility Command-chartered aircraft transported thirty-one medical technicians from Maxwell AFB, Ala., Columbus and Keesler AFBs, Miss., Luke AFB, Ariz., and Laughlin, Randolph, and Sheppard AFBs, Tex.

The medical contingent joined fifty-four other Air Force medical personnel who deployed to Guantanamo in July. They operate an air-transportable hospital at the naval base in support of the camps being established for the Cubans.

ANG Continues to Battle Fires

Four Air National Guard C-130 aircraft fought new outbreaks of forest fires in Washington, Idaho, and Montana in September.

Using the Modular Airborne Fire-fighting System, aircraft from the 145th Airlift Group, Charlotte, N. C., and the 153d Airlift Group, Cheyenne, Wyo., flew 348 sorties out of Geiger Field, Spokane IAP, Wash., air-dropping more than 930,000 gallons of fire retardant.



The artist, Attila Hejja, best known for his dramatic aviation art for NASA, the United States Air Force and International Air Forces, has re-created the Nagasaki mission with meticulous attention to detail. His works have been recognized both nationally and internationally including the prestigious 1985 Hamilton King Award for illustration. His works are also exhibited in the Air Force Art Program at the Pentagon.

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The largest airdrop occurred in August, when airlifters flew thirty-three sorties and dropped 89,100 gallons of PhosChek retardant in the Mankato complex in Idaho's panhandle.

New Fitness Program for Trainees

The Air Force introduced a new physical conditioning program in August for basic trainees in the 320th and 331st Training Squadrons at Lackland AFB, Tex.

A worldwide survey, conducted by the Occupational Measurement Squadron at Randolph AFB, Tex., and the 1993 Biennial Review for Basic Training, identified the need for a better-conditioned trainee. Customers in the field said the program needed improvement, and doctors said trainees were actually being de-conditioned.

The new graduation standard will be a timed two-mile run and a set number of push-ups and pull-ups. Trainees will begin basic training with twenty minutes of road running, instead of two laps around a track, and will progress to about thirty minutes at the end of the thirty-day training period. After the run, trainees will undergo thirty minutes of circuit training. Trainees will complete the daily program with fifteen minutes of stretching and cool-down exercises.

Reservists Help at Crash Site

Air Force Reservists assisted federal, state, and local disaster response officials in the aftermath of the USAir Flight 427 crash near Pittsburgh, Pa., in September, which killed all 131 passengers on board.

Security police Reservists from the 911th Airlift Group, Pittsburgh IAP/ARS, Pa., arrived at the crash site about two hours after the accident. Within an hour, sixteen Reservists were on the scene, helping to secure the site. They remained through the night.

SSgt. Kenneth Sowinski said it was "a very unreal scene, like a movie. The amount of bodies [was] overwhelming."

The Reserve unit also lent chain saws to civilian authorities so they could clear a path to the site.

Reservists Try C-141 ADS

Maryland and Ohio Air Force Reservists tested the C-141 Airlift Defensive System at Eglin AFB, Fla., in August.

Aircrews from the 459th Airlift Wing, Andrews AFB, Md., and the 907th Airlift Group, Wright-Patterson AFB, Ohio, practiced using ADS and other defensive flying tactics in prep-

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aration to fly relief missions into hostile areas, said the Air Force.

ADSs are not new. Fighter and bomber aircraft are equipped with such systems, including missile warning detectors and flare dispensers to protect the aircraft against heat-seeking missiles.

Air Mobility Command began installing ADSs on cargo aircraft in 1987 to counter the proliferation of shoulder-fired missiles.

AFRES Flies Refugees to Panama

Air Force Reserve C-130 aircraft flew the first 100 Cuban refugees from Guantanamo Bay to Howard AFB, Panama, in September.

An aircrew from the 934th Airlift Group, Minneapolis-St. Paul IAP, Minn., and a crew from the 908th AG, Maxwell AFB, Ala., airlifted the refugees, following an announcement from the Panamanian government that it would temporarily shelter

10,000 Cubans for as long as six months. A joint-service task force set up four camps to house the refugees. Each camp accommodates about 2,500.

The Minneapolis aircrew was on rotation duty in support of Operation Coronet Oak when it transported the refugees to Panama. The Maxwell

crew was in Central America supporting another humanitarian effort.

USAF Helps Prepare Vintage Aircraft

A C-5 crew from Westover ARB, Mass., transported a World War I Vickers Vimy biplane replica to the UK, where it was scheduled to make an

11,000-mile voyage to Australia, recreating a historic 1919 flight by aviation pioneers Keith and Ross Smith.

Air Force troops at RAF Mildenhall, UK, helped American Peter McMillan and Australian Lang Kidby unload the C-5 that carried the Vimy from its home base in California.

The C-5 was the only aircraft large enough to transport the Vimy. The Vimy's wings and front fuselage were separated from the rear of the aircraft and secured on metal pallets before being loaded onto the C-5 at Travis AFB, Calif. From Mildenhall, the Vimy went to the Farnborough International '94 air show before taking off for Australia.

Senior Staff Changes

RETIREMENTS: B/G Billy J. Bingham, M/G Vernon Chong, B/G Albert D. Jensen, Gen. Merrill A. McPeak.

PROMOTIONS: To be **General:** John G. Lorber.

To be **Lieutenant General:** Ronald W. Iverson, Everett H. Pratt, Jr.

To be **ANG Major General:** Robert W. Barrow, Robert G. Chrisjohn, Jr., Steffen P. Christensen III, Harris R. Henderson, Roberta V. Mills, Thomas W. Powers, Herbert J. Spier, Jr., William A. Treu, David E. B. Ward.

To be **ANG Brigadier General:** Robert L. Biehunko, Keith D. Bjerke, Joseph L. Canady III, Samuel G. Degeneres, William F. Doctor, Robert S. Dutko, Sr., Verna D. Fairchild, Daniel J. Gibson, James H. Greshik, Gary L. Hindoiien, Timothy J. Lowenberg, William B. Lynch, Stanley P. May, Kenneth W. McGill, James R. McKinney, John R. Metz, Scott A. Mikkelsen, Allan W. Ness, Kenneth S. Peterson, George F. Scoggins, Jr., Miles B. Scribner, Austin P. Snyder, Richard E. Spooner, Carol M. Thomas, James E. Thomey, Richard W. Tuttle, Salvatore Villano, Jr., James E. Whinnery.

CHANGES: B/G Kurt B. Anderson, from Cmdr., 48th FW, USAFE, RAF Lakenheath, UK, to Cmdr., USAF Recruiting Services; and Dir., Recruiting Services and Commissioning Prgrms., Hq. AETC, Randolph AFB, Tex., replacing B/G (M/G selectee) John M. McBroom . . . **Col. (B/G selectee) David E. Baker**, from Dir., Ops., P&P, ANG, Hq. National Guard Bureau, Washington, D. C., to Vice Dir., Operational Plans and Interoperability, Jt. Staff; and Dep. Dir., Jt. Staff, Mil. Education, Washington, D. C., replacing B/G (M/G selectee) Hal M. Hornburg.

L/G Howell M. Estes III, from Dep. CINC, United Nations Command, Korea; Dep. Cmdr., US Forces, Korea; Cmdr., ROK/US Air Comp. Cmd., CFC; and Cmdr., 7th AF, PACAF, Osan AB, South Korea, to Dir., Ops., Jt. Staff, Washington, D. C. . . . **Gen. Ronald R. Fogleman**, from CINC, USTRANSCOM; and Cmdr., Hq. AMC, Scott AFB, Ill., to C/S, USAF, Washington D. C., replacing retiring Gen. Merrill A. McPeak . . . **B/G (M/G selectee) Hal M. Hornburg**, from Vice Dir., Operational Plans and Interoperability, Jt. Staff; and Dep. Dir., Jt. Staff, Mil. Education, Washington, D. C., to Vice Cmdr., 16th AF, USAFE, Aviano AB, Italy.

M/G (L/G selectee) Ronald W. Iverson, from Dir., Ops., Hq. PACAF, Hickam AFB, Hawaii, to Dep. CINC, United Nations Command, Korea; Cmdr., ROK/US Air Comp. Cmd., CFC; and Cmdr., 7th AF, PACAF, Osan AB, South Korea, replacing L/G Howell M. Estes III . . . **B/G Orest L. Kohut**, from Dir., Financial Mgmt. and Comptroller, Hq. AFMC, Wright-Patterson AFB, Ohio, to Dep. Dir., 8th Quadrennial Review of Mil. Compensation, Dep. Ass't Sec'y of Defense, OSD, Arlington, Va. . . . **L/G (Gen. selectee) John G. Lorber**, from Vice CINC, Hq. USAFE; and Dir., EACOS, Ramstein AB, Germany, to Cmdr., PACAF; Air Comp. Cmdr., PACOM; and Executive Dir., PACOM Combat Ops. Staff, Hickam AFB, Hawaii, replacing Gen. Robert L. Rutherford.

B/G (M/G selectee) John M. McBroom, from Cmdr., USAF Recruiting Services; and Dir., Recruiting Services and Commissioning Prgrms., Hq. AETC, Randolph AFB, Tex., to Dir., Plans, Hq. PACAF, Hickam AFB, Hawaii, replacing M/G Joseph J. Redden . . . **M/G Robert A. McIntosh**, from Cmdr., 22d AF, AFRES, Dobbins ARB, Ga., to Chief, AFRES, Hq. USAF, Washington, D. C., replacing M/G John J. Clossner . . . **M/G Philip W. Nuber**, from Chief, Jt. US Mil. Mission for Aid to Turkey, USEUCOM, Ankara, Turkey, to Dir., Inter-American Region, Office of the Ass't Sec'y of Defense, International Security Assistance, OSD, Washington, D. C.

M/G (L/G selectee) Everett H. Pratt, Jr., from Cmdr., 19th AF, Hq. AETC, Randolph AFB, Tex., to Vice CINC., Hq. USAFE; and Dir., EACOS, Ramstein AB, Germany, replacing L/G (Gen. selectee) John G. Lorber . . . **M/G Joseph J. Redden**, from Dir., Plans, Hq. PACAF, Hickam AFB, Hawaii, to Cmdr., Jt. Warfighting Ctr., Fort Monroe, Va. . . . **Gen. Robert L. Rutherford**, from Cmdr., PACAF; Cmdr., PACOM; and PACOM Combat Ops. Staff, Hickam AFB, Hawaii, to CINC, USTRANSCOM; and Cmdr., Hq. AMC, Scott AFB, Ill., replacing Gen. Ronald R. Fogleman. ■

Courses Further Interservice Operations

Air Combat Command and Air University, Maxwell AFB, Ala., have developed three new "purple" courses to help the services better understand each other and to ease debate over the proper use of air assets during war.

The courses will train potential Air Force, Navy, Army, and Marine joint forces air component commanders and staff members on centralized control of air operations and each service's roles and needs during war. The courses were developed to implement the joint doctrine on the Joint Force Air Component Commander (JFACC), according to Gen. John M. Loh, ACC commander.

Air Force air campaign planners, operations staff members, Contingency Theater Automated Planning System (CTAPS) administrators, and selected general officers will attend courses at Air University and Hurlburt Field, Fla., with counterparts from the other services.

The use of a common communications system has paved the way for the new JFACC courses. Before the CTAPS was implemented, the day's air tasking order was hand-delivered and often flown between services and units with incompatible systems.

The first level of JFACC staff training is a two-tiered CTAPS course. The first tier is training in the UNIX computer system at the basic communications school at Keesler AFB, Miss. The second tier, taught at Hurlburt Field, includes two-week entry-level CTAPS training for Air Force enlisted personnel through the rank of E-5 and their sister service equivalents assigned to system administration duties within an air operations center or Army, Navy, or Marine equivalent. A third week is added

to the second tier for more extensive training for Air Force system architects in grades E-6 through O-4 and their sister service equivalents.

The next level of JFACC training is the seventeen-day Joint Air Operations Staff Course, also at Hurlburt. This course is the result of a reorganized Air Ground Operations School curriculum. It integrates the previous battle staff course and joint combat airspace control course with new CTAPS training.

Courses began at Hurlburt in October.

McPeak Inducted Into Order of the Sword

Gen. Merrill A. McPeak, Air Force Chief of Staff, was inducted last August into the Air Force Order of the Sword, the highest honor enlisted members can bestow on an individual.

The Order of the Sword Committee praised General McPeak for his "strategic vision and exceptional leadership." He was commended for reorganizing and streamlining the service and its acquisition system and for opening the door to housing equity for all enlisted grades.

Another Air Force officer, Maj. Gen. Kenneth A. Minihan, commander of the Air Intelligence Agency, was inducted into the order in October. General Minihan was nominated for the order because of his "abiding concern for enlisted people" during a "dramatic restructur[ing] of Air Force intelligence."

Air Force Saves \$100 Million

To make up for a \$1 billion shortfall in the budgets proposed for Fiscal 1996-2001, Air Force Chief of Staff Gen. Merrill A. McPeak directed the major air commands to reduce flying-hour costs on fourteen types of aircraft. The reduction is expected to save \$100 million in the Air Force's operations and support budget.

The service said the commands reported back in July with 177 ideas—twenty-six of which were implemented earlier this year—to help avert the Fiscal 1996 budget shortfall.

General McPeak acknowledged that it would be difficult to find the \$1 billion in the O&S budget. The major commands will continue to find savings and expand their search to other weapon systems.

The Air Force spends about twenty-nine percent of its operations and support budget on fourteen major flying weapons: the A/OA-10, B-1B, B-52H, C-5A/B, C-130E/H, C-141B, F-4G, F-15A/B/C/D, F-15E, F-16A/B/C/D, EF-111A/F-111E, F-117A, KC-10, and KC-135R.

Some Combat Positions Still Closed to Women

The Air Force has opened more than 99.7 percent of its total force positions to women [see "DoD Opens More Jobs to Women," October 1994 "Aerospace World," p. 13], but a new Department of Defense definition of direct ground combat keeps some jobs closed to them.

The language states that women cannot be assigned to units whose primary mission is to engage in direct combat on the ground, units that require collocation with direct combat units, and certain special operations units.

The following positions are closed to women: MH-53J and MH-60J helicopter pilot, combat control officer, liaison officer, combat controller, pararescue, tactical air command and control, and MH-53J and MH-60 flight engineer and aerial gunner. The ground radio communications and radio communications fields are also restricted.

P&W Wins Contract

Singapore notified Pratt & Whitney in August that the company had been selected to build twenty-five F100-PW-229 engines for Singapore's new F-16C/D fighter fleet.

The \$200 million contract makes Singapore the fourth nation in succession to choose fighter aircraft powered by P&W F100 engines, the firm said.

Initial engine deliveries are scheduled to begin in 1997 and be completed during 1998. Singapore evaluated General Electric's F110-GE-129 powerplant along with the P&W engine for two years. To date, P&W's F100 engines power 100 percent of the world's F-15 fleet and seventy percent of the F-16s.

P&W also recently won contracts from Saudi Arabia, Israel, and Taiwan.

Longest-Serving Chief to Retire

The current longest-serving active-duty chief master sergeant, CMSgt. Linda Giglio, retired in late August after thirty-three years of service.

Chief Giglio is the Air Force Military Personnel Center's promotion programming support section chief. She has served at ten duty locations during her career.

Her retirement is significant also because she was the last chief master sergeant allowed to serve on active duty for thirty-three years. As a result of the drawdown, chief master sergeants are now limited to thirty years of active-duty service. Before



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the change, chiefs could petition the Air Force to serve for thirty-three years through the high-year-of-tenure program.

F-16 HARM System Reaches IOC

The Air Force achieved initial operational capability with the AN/ASQ-213 High-Speed Antiradiation Missile targeting system on the F-16, the service said in September.

IOC was reached by F-16s from the 20th Fighter Wing, Shaw AFB, S. C. The system is an electronic pod that searches and tracks threat radar emitters and is used to cue the AGM-88 HARM before launch.

The system was developed by Texas Instruments and is enclosed in a small pod that attaches to the right inlet hardpoint of the F-16, the same station used by the Low-Altitude Navigation and Targeting Infrared for Night and other targeting pods.

The system has three operational modes: search, single-target track, and multiple-target track. The targeting system gives the F-16 the autonomous capability to launch HARMs in the range-known mode and thus achieve longer-range shots and higher probability of kill.

The system was a high-priority, fast-reaction program that ran for three years. The new system will al-

low the F-16 to operate without the assistance of the F-4G Wild Weasel.

News Notes

■ Air Force Chief of Staff Gen. Merrill A. McPeak has approved the "Blueprint for the Objective Air Force," a three-volume, classified document that integrates force structure, manpower, and weapon systems into one easy-to-understand reference.

■ Maj. Gen. Robert W. Parker, commander of 20th Air Force, visited the Russian Strategic Rocket Forces in August as a member of the US Strategic Command delegation under the auspices of DoD's expanded military-to-military contact program. US military leaders met with senior military leaders and visited an operational missile base, ICBM test site, and airfield test site.

■ Arnold Engineering Development Center, Arnold AFB, Tenn., declared its new large rocket test facility, J-6, operational and ready to support space and missile system development programs, following the successful test of a solid-fuel rocket motor on August 21.

■ McDonnell Douglas Training Systems delivered the first AV-8B Radar Night Attack Weapons System Trainer to the Marine Corps in July. The system is a versatile, fixed-base simula-

tor for visual air-to-ground combat training. It is designed for use in training pilots in transition from the AV-8B Harrier II to the AV-8B Harrier II Plus radar-configured aircraft.

■ Orbital Sciences Corp. said in August that it successfully carried out two suborbital launches of its Sergeant vehicle from NASA's Wallops Flight Facility, Va. The first mission was conducted for the US Navy's Cooperative Engagement Capability program. For the first time, a down-range AEGIS Spy-1B ship-based radar automatically acquired and tracked a theater ballistic missile based on a high-precision data transmission from another AEGIS Spy-1 ship. The second mission was conducted in support of a Ballistic Missile Defense Organization program.

Purchases

The Air Force awarded Loral Defense Systems a \$6.3 million cost plus fixed-fee contract for design, development, fabrication, and field testing of an infrared countermeasures test-bed system. Expected completion: June 1998.

The Air Force awarded Honeywell Inc. a \$21.4 million face-value increase to a firm fixed-price contract for 301 Embedded Global Positioning System/inertial navigation system production units and associated warranties for installation in Army Apache helicopters and special operation forces platforms. Expected completion: August 1996.

Obituary

Col. Hubert A. "Hub" Zemke, a World War II flying ace who commanded the 56th Fighter Group, died on August 30 in Oroville, Calif. He was eighty years old.

Colonel Zemke, a Montana native, retired from the Air Force in 1966, after a twenty-nine-year career. An ace with seventeen aerial and eight ground victories to his credit, Colonel Zemke was the tactician behind the 56th—the "Wolfpack"—a group he led into battle so often that World War II historians called him "the fightingest" fighter commander in Europe. The 56th FG racked up more than 665 victories over German aircraft and pioneered the AAF fighter escort with P-47s. Colonel Zemke later commanded the 479th Fighter Group.

Colonel Zemke was forced to bail out of his plane in 1944, and for five months he was a POW at Stalag Luft 1, along with AAF ace Lt. Col. Francis S. "Gabby" Gabreski. ■

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A year from now, DoD will either give the C-17 program the go-ahead or limit C-17 production. Commercial alternatives are waiting in the wings.

Staff photo by Guy Aceto

Airlift's Year of Decision

By David J. Lynch

THE C-17 specifically and US airlift generally face a harsh year of testing that will end with a bang in November 1995.

In that month, the Department of Defense will wrap up a series of reviews and announce to what extent—or even whether—the Air Force will be allowed to proceed with production of more C-17s. The Pentagon could let USAF buy as many as eighty to go with the forty it will have bought by then. The other option, considered only too possible by everyone involved, would be to kill the C-17 program outright and pursue alternatives.

These alternatives, say officials, include purchases of commercial wide-body jets, new construction of out-of-production airlifters, and renovation of existing transports. One of these moves might be pursued together with a limited C-17 buy.

The stakes are high. The outcome of testing and assessment during the next twelve months will determine the size and shape of US airlift capabilities for years to come, as well as the final disposition of billions of defense dollars—not to mention the future of C-17 sales.



Photo © Randy G. Jolly / Arms Communications

The C-141 (shown above over Altus AFB, Okla.) entered service with Military Airlift Command in 1965 and was a workhorse in Operation Desert Storm, but it shows signs of age. The C-17 (opposite, one from the 437th Airlift Wing, Charleston AFB, S. C.) may represent the future of US airlift.

At the heart of the matter lies an agreement, signed on January 6, 1994, between the airplane's manufacturer, McDonnell Douglas Corp., and DoD, reaching an unusual settlement of outstanding issues on the C-17 program. The deal was struck to end a poisonous relationship developing between the contractor and the Air Force. The company filed claims totaling \$472 million and prepared, but did not submit, documentation of some \$1.25 billion for losses

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A C-17 whips up air currents as it demonstrates its thrust-reverse and short-field takeoff abilities. By Air Force calculations, the Globemaster III can use many more runways around the world than the C-5 can.

stemming from government delays and disruptions.

The settlement—brokered by John M. Deutch, then the under secretary of defense and now the deputy secretary of defense—permitted two years of limited purchases but essentially deferred until November 1995 a final decision on whether to complete the last two-thirds of the planned buy of 120 C-17s or take other steps to meet requirements. The decision was to be based on a thorough review of the entire C-17 program.

A key provision was the plan for a July 1995 C-17 test, which McDonnell Douglas officials see as the make-or-break moment for the airplane. The reliability, maintainability, and availability evaluation will run for thirty days and will examine twelve aircraft. For the first three weeks, C-17 operations will be at peacetime rates. For the final week, operations will be ramped up to wartime intensity.

“It really is an operational test,” said Don Kozlowski, McDonnell Douglas’s C-17 program manager. “It’s the most exhaustive reliability and maintainability test I’ve ever seen.”

The outcome is far from certain. Critics already have raised questions about how well the new aircraft is measuring up on reliability. Early in the flight test program, mean-time-between-failure scores were roughly fifty percent of expected value, though



Staff photos by Guy Acosta

that has improved and maintainability marks actually have proven better than expected.

Meanwhile, political sniping continues. In April the General Accounting Office, a congressional watchdog whose criticism of the program escalated throughout 1993 and 1994, weighed in with an attack on the settlement. It stated, in part, that the settlement “is not in the best interest of the government.” The agency asserted that DoD failed to analyze fully McDonnell’s contract claims before it decided to pay \$237 million to resolve those claims.

Progress on the Factory Floor

Few would dispute that the C-17 has been showing significant progress where it counts most—on the factory floor.

Since the time of the agreement, McDonnell Douglas officials say, the company has made unmistakable improvements to its oft-criticized C-17 assembly efforts. They claim that recent C-17 copies have been in better shape at a key manufacturing juncture called the “major join.” In 1993, aircraft were anywhere from sixty-nine to ninety percent complete at this stage of assembly. In 1994, the figure was ninety-seven percent for the twelfth and thirteenth production copies.

Likewise, McDonnell’s Long Beach, Calif., work force reduced overall assembly time by thirty-two percent from model “P-6” to “P-20.”

By late summer 1994, company officials were boasting of better quality and rapidly improving delivery schedules. “We have worked diligently to uncover potential weaknesses in the program and fix them all,” said Mr. Kozlowski, who is also a McDonnell Douglas senior vice president. “Have we done it? No. We’ve made a lot of progress, though.”

Air Force officials agree. “There’s been a continuous improvement from nine months ago,” said Eric Abell, the technical director of the C-17 System Program Office. “From a

technical standpoint, there are no longer potential problems that I can see [apart from those that stem from] normal development.”

Mr. Kozlowski's arrival represented a major change in the execution of the C-17 program. Late in 1993, he moved from St. Louis to Long Beach to replace David Swain, a McDonnell executive vice president and program manager who was blamed by some for the sour relationship with the Air Force.

Mr. Kozlowski recalls that he immediately set out to boost the morale of those working on the C-17 program and to raise the quality of the finished product. “The basic talent existed [in the C-17 work force], but they had essentially lost their self-confidence and sense of discipline,” he said.

In a change demanded by the government, Mr. Kozlowski was given instructions to report directly to John McDonnell, chairman and chief executive officer of the corporation. The program manager says he speaks with Mr. McDonnell by telephone several times a week, and the CEO travels to Long Beach for monthly updates on the C-17 program.

The entire senior leadership of the corporation—including Chief Financial Officer Herbert Lanese and Executive Vice Presidents Ken Francis and John Capellupo—have been handed some responsibility for overseeing the C-17 project.

No one believes that the C-17 has put criticism behind it. GAO auditors, for example, have challenged two other aspects of the program, raising doubts about the aircraft's actual payload and its ability to use thousands more airfields worldwide than current transports can.

The congressional audit agency said the Air Force had exaggerated its claims when it said that the C-17 could operate from 9,900 airfields compared with 3,500 for the current C-5 transport. Taking into consideration runway strength and wartime operational requirements, the new aircraft actually can use only ninety-six additional airfields outside the US, Canada, and Mexico, said GAO, adding, “The C-17 has little or no runway advantage in many countries.”

The Air Force disputed that analysis, noting that GAO had assumed that the C-5 could operate in wartime from runways with a width of



Staff photo by Guy Aceto

Reopening the C-5 line looks less and less likely, but there's no denying the C-5's huge capacity and heavy-lift abilities. It has been a major airlift asset in combat and humanitarian missions.

only ninety feet. Actually, although the C-17 can take off from and land on such narrow landing strips, the C-5 “has never landed on a ninety-foot-wide runway,” the Air Force said. The C-5's wartime requirement is a 6,000-foot by 131-foot runway. The C-17's is 3,000 feet by ninety feet. By USAF's calculations, the C-17 can use eighty percent more runways than the C-5 can.

USAF and McDonnell Douglas also vigorously disputed GAO's charge that the C-17 cannot meet a threshold requirement of carrying 110,000 pounds for 3,200 miles. The aircraft already has demonstrated that capability in tests, and program officials say they are confident the standard will be formally certified.

Congressional Complaints

As the program made its way through the Fiscal 1995 congressional defense budget process, however, some of the criticisms seemed to have had an effect. The Senate Armed Services Committee, in its report on the defense authorization measure, assailed the aircraft for “cost overruns, schedule slippages, and performance problems.” The program was even less popular in the House, where support for early procurement of an off-the-shelf transport jet—the so-called nondevelopmental airlift aircraft (NDAA)—was particularly strong. Said the committee, “The cost of the C-17,

coupled with tight budget constraints for the rest of the decade, means it may be unlikely that production rates could increase to levels where the program could meet total airlift requirements on a timely basis.”

Though not happy about it, Congress did not have much choice but to continue with the C-17 and wound up providing \$2.3 billion for six new aircraft. It also voted \$103.7 million for NDAA studies.

McDonnell is focusing on straightening out its management and production shortcomings, but the Pentagon has yet to provide any clear criteria for evaluating the contractor's efforts. GAO criticized DoD's failure to provide more specific tasking for McDonnell than completion of the flight test program and delivery of aircraft “at cost” and on schedule. Mr. Kozlowski acknowledged that “nothing's been set yet in concrete in terms of what constitutes acceptable performance.”

According to Mr. Abell, the new airlifter is meeting or exceeding two of three reliability parameters contained in the acquisition program baseline. One indicator—mean time between corrective maintenance—is twenty-five to fifty percent below par. “We are recommending changes in design as well as changes in maintaining built-in test indicators and improving technical data, so that parts should work better and longer, not give erroneous indications of fail-



McDonnell Douglas has focused on rectifying C-17 management and production problems. Above, a horizontal stabilizer is attached to a C-17's vertical stabilizer at the company's Long Beach, Calif., plant.

ure, and—when there is a failure—maintenance should be easier,” said Mr. Abell.

Unacceptably high numbers of false alarms from the aircraft's built-in test equipment have been a problem. The sensors designed to detect failures in on-board systems have been reading as problems system performance that is only slightly out of tolerance.

“We're trying to eliminate nuisance faults,” said Mr. Abell.

Program officials do not anticipate major problems in resolving the flaw, but it is a time-consuming task, as is fixing a similar shortcoming in the C-17's stall warning annunciation system. That sensor, which should warn pilots when the aircraft is in danger of stalling, also has been emitting too many false alarms. As a result, test flight pilots routinely ignore the warnings.

McDonnell Douglas says that as of August 9, 1994, flight testing was more than eighty-nine percent complete with no major problems uncovered.

High Cost per Plane

The aircraft's cost remains a key concern. As the number of aircraft on order has been reduced, the per plane cost has shot up.

McDonnell has launched a multi-part effort aimed at stripping unnecessary expense from the program. “We've already made some pretty

good strides,” said Mr. Kozlowski, “but the large dollar amounts are yet to come.”

Under the omnibus settlement, the contractor is committed to spending \$100 million on product improvement. By August \$35 million had been allocated for improvements, including a change in major tooling for the wing. Program officials bird-dogged even minor items, such as making certain that proper drill blankets were available for drill jobs anywhere on the aircraft.

McDonnell Douglas sought to pin some of the blame for cost growth on the aircraft's protracted development history. A prime example is the gear pod on the C-17's underbelly. Originally designed to house only the landing gear, the area now contains the auxiliary power unit, brackets, and internal plumbing in addition to the gear. “Anything else that didn't fit went in there,” said Mr. Kozlowski. “Events forced a lot of migration into the gear pod.”

McDonnell engineers believe they can substantially reduce costs by producing a new design. Asked whether it isn't a bit late for that, the program manager demurred, noting that if the company actually produces 120 airplanes, the C-17 could be deemed still in its early stage. The company has delivered only fifteen production models.

Under the terms of the settlement, McDonnell Douglas is required to

upgrade its notoriously outdated production systems with the computer-aided design/computer-aided manufacturing (CAD/CAM) systems that are standard elsewhere in the industry. The company also must install a management information system (MIS) and implement an advanced quality system.

Critics have claimed that the first forty C-17s would not benefit from those changes, but the company disagrees, saying it already is benefiting from doing “all new work” on a CAD/CAM network of 150 to 200 terminals. While the change should eliminate mistakes resulting from outdated engineering drawings, the Air Force does not foresee a major effect.

Some 2,000 terminals have access to the new MIS network, which has given program officials much fresher data. In the past, McDonnell Douglas's internal program accounting (the cost schedule control system) often lagged sixty days behind factory-floor performance. Now, the program data supplied are only seven days old and are given to Air Force officials at the Pentagon, the C-17 System Program Office at Wright-Patterson AFB, Ohio, and the first operational unit at Charleston AFB, S. C.

Computer Problems

The past five years have seen a litany of development woes for the C-17: more than \$1 billion in cost overruns, persistent fuel leaks on the first several aircraft, the wing's failure of a major strength test, and a host of other misfortunes. Many of those problems are history, but development snags with the plane's major computer and software systems lie ahead.

Often overlooked in the C-17 debate is the extent of the aircraft's reliance on computerized systems. The C-17 contains fifty-seven subsystems requiring 970,000 lines of software code. The final software release was in September 1994; upgrades will continue through March 1995.

Today's main concern is the performance of the mission computer, often described as the heart of C-17 avionics. It has long been a development headache. GAO pointed out that the number of lines of code has increased forty-nine percent since May 1992, yet the mission computer remains too slow and does not meet throughput capacity requirements.

McDonnell Douglas and the Air Force have agreed that the mission computer is not adequate. Program officials were considering three alternatives and were working toward a late fall 1994 decision. Two options were using a derivative of the F-16 modular mission computer or something modeled against the F-22 computer and architecture. The most comprehensive change envisioned a complete overhaul of the computer's hardware and software using thirty-two-bit technology rather than the existing sixteen-bit system.

Critics also have focused on alleged weaknesses in plans for long-term support of the C-17's software suite. Originally, the Air Force planned to provide in-house support at its San Antonio Air Logistics Center at Kelly AFB, Tex. Now the service wants McDonnell Douglas to handle the job at an avionics integration support facility at the Long Beach plant. GAO estimates that life-cycle software support costs will reach \$1 billion, but the contractor has produced no estimate on this.

Off-the-Shelf Alternatives

Even as McDonnell struggles with its new airlifter, the Air Force is mapping a fallback plan calling for purchases of an off-the-shelf, commercial alternative to the C-17.

The Fiscal 1995 defense authorization provided \$103.7 million to study commercial and military air-



Photo by Paul Kennedy

A USAF fallback plan calls for off-the-shelf commercial transports as alternatives to the C-17. One example, a Boeing 747 modified for freight, showed up as a model at the AFA National Convention's technology exposition.

craft that could be purchased instead of, or as a complement to, the C-17.

The program office for the NDAA, staffed by twenty-three military and civilian workers, is based at Wright-Patterson AFB. One 1993 study concluded that the Air Force would need at least sixty-four commercial wide-body jets to supplement a C-17 fleet of only forty airlifters.

GAO also suggested that the Pentagon was merely making an empty threat when it claimed it would buy off-the-shelf transport aircraft if the

C-17 program did not measure up by November 1995. By that time, the government will have spent more than \$21 billion on the C-17—more than fifty percent of the planned total program cost.

The idea of buying a transport jet other than the C-17 is not new. For several years, Lockheed Corp. has touted reopening its C-5B assembly line or rewinging the aging fleet of C-141 aircraft. Boeing Co. has suggested its venerable 747 commercial freighter. Despite myriad studies of this issue, the NDAA program is the first official acknowledgement that the C-17's problems may be serious enough to foreclose additional purchases. For now, the Air Force is keeping the \$103.7 million budget in reserve pending the November 1995 decision on buying more C-17s.

NDAA program officials are focusing on risk-reduction efforts already under way at the Federal Aviation Administration and on cargo-hauling studies by Air Mobility Command, according to Dan Kugel, the NDAA program's director.

The FAA is evaluating the service life of used aircraft that have been suggested as NDAA candidates. The planes include the DC-10, L-1011, and Airbus models. AMC has analyzed the ability of the 747, DC-10, and MD-11 to transport cargo in conjunction with a 60,000-pound loader. Mr. Kugel said those studies demonstrated that the commercial aircraft

Photo by Ross Harrison Koty



There are many commercial-derivative aircraft in the USAF inventory, including the versatile KC-10 tanker. The Extender's missions include aerial refueling and transporting cargo (above, in Operation Restore Hope).



The Air Force is working on two new airlift studies, but with the C-17 program beginning to work well for the first time in its history, McDonnell Douglas may capture additional orders.

could process a typical load in three to six hours, which he called "satisfactory." The C-17 boasts a roll-on, roll-off capability.

Eleven companies have expressed interest in pursuing NDAA procurement. Not surprisingly, they include Lockheed and Boeing. Also on the list are McDonnell Douglas, offering its MD-11 tri-jet or a commercial derivative of the C-17 (MD-17), and Wolf International Airlines, Inc., Angel Fire, N. M., which proposes two Russian aircraft, the An-124 and Il-76. Before the Russian aircraft can be formally considered, NDAA program officials must decide whether the competition should be limited to FAA- or military-certified aircraft, Mr. Kugel said.

"We don't want to throw it out just because it's non-US," he said, "but we need to be sure we're buying the right airplane for the right purpose."

Program officials expect to issue a request for proposal in March 1995, with responses due in April.

Officials plan to start with the issue of specific program requirements. They are concentrating on two notional aircraft: the C-XX, a commercial freighter with floors and doors modified to accommodate heavy Army vehicles, and the C-XY, a new military derivative of an existing commercial airframe with outsize cargo capability.

Exactly how "commercial" any NDAA procurement will be is yet to



Staff photos by Guy Acero

be decided. Following Pentagon guidance, Mr. Kugel said, program officials want to strip away as much excess acquisition regulation as possible. Although there are many commercial aircraft in the inventory, they were purchased under standard military contracts. He said the NDAA program office hopes to do better, buying commercial planes by using commercial processes.

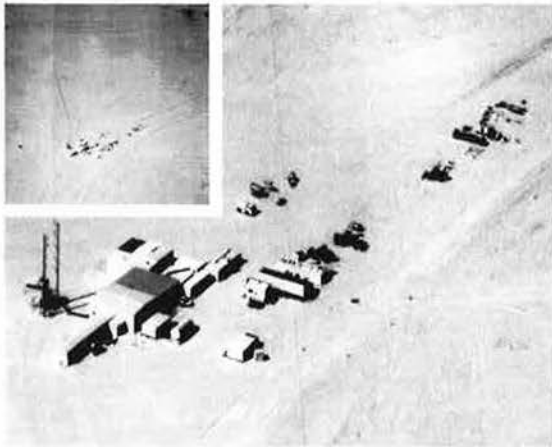
complement a forty-aircraft C-17 fleet. By then, however, C-17 officials expect to be well along toward their goal of capturing additional orders.

Said Mr. Abell, "We used to take one step forward and three steps back. Now it's three steps forward and one step back. I'd like to get to where it's three steps forward and no steps back." ■

David J. Lynch covers defense and aerospace for the Orange County Register in California. He is a former editor of Defense Week Magazine. His most recent article for AIR FORCE Magazine was "Bombers in the Guard" in the October 1994 issue.

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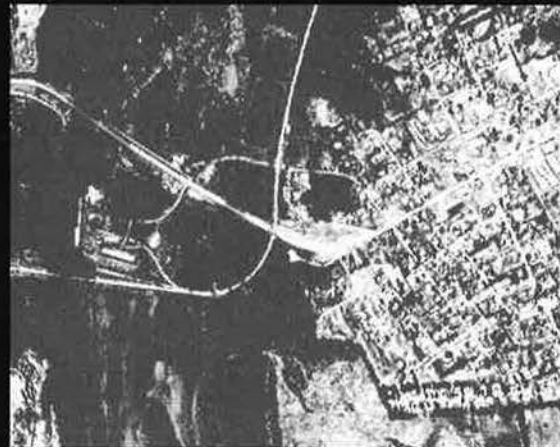


Above from top: Flight test imagery, CA-260 sensor.

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Defense ended up where it started, but liberal budget-cutting efforts were flattened in both House and Senate.

Behind the Scenes in Congress

By Pat Towell

WITH hindsight, one sees clearly that President Clinton had this year's congressional defense debate won before it started.

The President's January 25 State of the Union address staked out a stand against congressional cuts in the budget that he said would fund a combat-ready force able to fight two major regional wars more or less at the same time. He held that line, brushing aside efforts of liberals to divert some of the \$264 billion Fiscal 1995 defense request to domestic programs.

Simultaneously, President Clinton fended off pressure from the center and right. Despite warnings from Republicans and defense-minded Democrats—who argued that the Administration's defense budgets were too small to pay for the program—no truly serious effort emerged in either the Senate or House to increase defense funding above White House-approved levels.

The upshot was that defense ended up where it started. At the heart of this outcome lay the kind of bedrock realities that stock market analysts call "fundamentals." In short, the Clinton proposal prevailed not be-

cause of any special presidential magic but because the proposal meshed well with the complex balance of competing national anxieties evident on Capitol Hill.

On one hand, the global turmoil that has supplanted the relative stability of the bipolar Cold War has made many members fearful that Congress has been cutting the defense establishment too far and too fast. Their concern about the scope and pace of the drawdown was inflamed by the additional pain from job cuts in the defense industry and the effects of base closures on communities.

On the other hand, Congress was hard-pressed by public fervor for deficit reduction, fierce opposition to higher taxes, and entrenched support for existing domestic programs.

This mixture proved strong enough to deter any of Capitol Hill's pro-defense heavyweights from leading a charge for greater defense spending. With limited room for maneuvering, defense-minded lawmakers bided their time, laying the groundwork for future debates by highlighting the mismatch of President Clinton's goals and budgets.



Congress did push in specific directions on some critical issues. For instance, it mandated full cost-of-living adjustments for military salaries, disapproving the COLA-minus-one-percent raises proposed by the White House. Lawmakers seem to have spiked White House plans to use Department of Defense funds to pay for UN peacekeeping assessments, and they challenged the Pentagon on the critical issue of bombers.

A New Political Arithmetic

More than any particular defense budget item, however, it was the political calculus on Capitol Hill that was the most arresting feature of the defense debate. Long, contentious arguments over Washington's real or suspected plans for deploying US forces to Bosnia-Herzegovina and Haiti overshadowed the cardinal fact about congressional action on Fiscal 1995 defense authorization and appropriation bills: The Senate and House flattened liberals' efforts to cut the budget at almost every turn, usually by decisive margins.

For weeks after President Clinton's State of the Union speech, some lib-

eral activists insisted they had discerned a wink and a nudge in his ringing declaration that "we must not cut defense further"—not further than he planned to cut it, that is. According to the liberal view, President Clinton was in fact inviting someone to erase his line in the sand and cut more.

The first test of the President's seriousness came in the early House debate on the budget resolution, which—practically speaking—would set a dollar ceiling on the federal budget and become the point of departure for all further debates over the defense budget.

Massachusetts Democrat Barney Frank, one of the most politically astute House liberals, offered a plan to slice \$2.4 billion from Clinton's request. The House rejected his plan by a three-to-one margin. Even non-southern Democrats voted no.

Representative Frank's backers had expected to lose, but they did not expect to have their heads handed to them in this fashion. White House lobbyists and House Democratic leaders put the word out that the President had not been kidding on the no-cut vow, and it made a difference.

The new political arithmetic was evident in Senate and House debates on the defense authorization bill. In the House, the major program facing the most serious challenge was the Air Force's C-17 airlifter. Rep. Ronald V. Dellums (D-Calif.), who heads the House Armed Services Committee, attempted to cut C-17 funding and had several factors working in his favor. The project had suffered cost growth, schedule slips, and performance problems. Representative Dellums's initiative seemed modest, seeking to slow C-17 production and accelerate the purchase of commercial wide-body cargo jets. Deputy Defense Secretary John M. Deutch weighed in with a belated but forceful presentation of the case against Representative Dellums—stressing the tactical value of the C-17's operational features. The House killed the initiative by an overwhelming 330-100 vote.

During the Senate's work on the bill, the story was much the same. Various liberal members made serious runs at the Air Force's new Milstar communications satellite, the Navy's nuclear-armed D5 submarine-launched ballistic missile, and CVN-

76, the Navy's newest *Nimitz*-class, nuclear-powered aircraft carrier. All such challenges were brushed aside, as was a move to disapprove the contract claims settlement negotiated between the Pentagon and C-17 prime contractor McDonnell Douglas Corp.

The Armed Services Committees

The prevailing mood this year in Congress as a whole resonated in the workings of the Senate and House Armed Services Committees.

For more than twenty years, even during periods when he held relatively senior positions, Representative Dellums had voted against every defense funding bill to come before the House. However, this year marked the second in a row in which he voted for the defense blueprint approved by his committee.

The most remarkable thing about his two years as chairman of the House Armed Services Committee is that he has maintained his unique *modus operandi* of blending two roles that are exceedingly difficult to pursue simultaneously. He is known to be a fair and accomplished legislative broker, effectively managing the work product of a committee that is strongly pro-defense (though not necessarily pro-Pentagon). However, he continues to be one of Capitol Hill's most radical critics of military force and the military establishment, which he deems extravagantly oversized.

The balance that Representative Dellums has struck routinely wins praise from all members politically to his right—virtually the entire House. He draws complaints from some on the left who are frustrated by his punctilious regard for and practice of small “d” democracy. Representative Dellums contends that his reliance on patient argument rather than arm-twisting is principled and practical—the latter insofar as it merely recognizes the committee's center-right complexion.

Confident that events will steer the country toward his vision of a less militarized state in a less violent world, Representative Dellums has used his visibility to try to broaden the mainstream of public discussion on defense issues by ensuring that his perspective is thoughtfully presented.

He also has pressed selected initiatives with success. A major example is the inclusion in the Fiscal 1995 DoD authorization bill of several provisions to combat sexual harassment and discrimination in the services. Another is the provision barring the deployment of D5 missiles on the eight oldest Trident subs, now equipped with C4 missiles. The ban could be waived, but the provision ensures such a move a high level of political visibility.

Dellums the astute legislator may have helped Dellums the leftist military critic to partially neutralize this year's Senate initiative to lay the groundwork for the purchase of additional B-2 bombers, beyond the twenty bombers currently allowed by law. In resisting the initiative led by Senate Armed Services Committee Chairman Sam Nunn (D-Ga.), Representative Dellums was strongly backed by House members who nevertheless agreed with Senator Nunn on the merits of the issue.

Right of Center

The House committee's general right-of-center makeup provides additional leverage to those hawkish Democrats who chair most of its subcommittees. These include Reps. Ike Skelton (D-Mo.), who chairs the Military Forces and Personnel Subcommittee, and Norman Sisisky (D-Va.), chairman of the Oversight and Investigations Subcommittee.

An avid student of military history, Representative Skelton will have a leading role if future budget drills raise the prospect of additional cuts in military force structure. He contends that the planned ten-active-division Army is too small as it is and certainly should not be further cut. He urged the Army to resume the use of “round-out” National Guard brigades for twelve “active” divisions—evidently without success.

Two particularly active Democrats are leaving the House to run for Senate seats: conservative Dave McCurdy of Oklahoma and liberal Thomas Andrews of Maine. The 1992 election brought some promising members into the junior ranks of the committee's Democratic caucus. One is Jane Harman of Los Angeles, whose perspective on defense industrial base issues and economic conversion reflects the presence of many high-tech and

aerospace firms in her district. Another is Paul McHale from eastern Pennsylvania, a Marine Corps Reservist whose pro-Corps efforts illustrate anew the saying that there is no such thing as an ex-Marine.

Untrammelled by ties to a Democratic administration, House Armed Services Republicans have hammered relentlessly on the theme that President Clinton's budget is too tight and the troops are asked to do too much with too little. To underscore the warning, they staged a symbolic vote during the committee's markup of the defense authorization bill and encouraged other GOP members to vote against passage of the bill early in June.

However, Rep. John R. Kasich (R-Ohio) and others complain that their efforts to dramatize their critique of “Clintonism” are handicapped by the fact that no member of the senior uniformed leadership has done what Army Chief of Staff Gen. Edward C. Meyer did during the Carter Administration. He publicly declared that his Army could not do the job with the money he was given and that his service had become “hollow.”

The House Armed Services Committee's ranking Republican, Rep. Floyd D. Spence of South Carolina, has fit comfortably into his role and is backed up by an assortment of combative members whose appetite for attack may compensate for the affability that sometimes takes the edge off Mr. Spence's critiques. Rep. Curt Weldon (R-Pa.) is one of these GOP leaders. Another is Representative Kasich, who may have only limited time to invest in the detail work of drafting an authorization bill because of his many other involvements. His brains, articulateness, and drive have made him a hot Republican property on several fronts of the Washington wars, including those that play out in the House Budget Committee, where he is senior Republican.

The Republicans have also turned up some promising rookies: Tillie Fowler, whose Florida district encompasses the Jacksonville-Mayport naval complex, is one. Another is James Talent of Missouri, who has emerged as a point man of a “Hollow Forces Update Task Force” trying to highlight indications that the forces are fraying.

When Senator Nunn Talks . . .

As has long been the case, the Senate Armed Services Committee dominates that chamber's treatment of defense issues, and as has been true for more than a decade, Senator Nunn's remains by far the most influential voice in the Senate when a defense question is on the agenda. In recent years, he has invested a growing portion of his personal political capital in a search for bipartisan policies beyond the defense realm, such as budget reforms crafted in collaboration with New Mexico Republican Pete V. Domenici. The current level of partisan polarization has stifled those efforts.

Senator Nunn's influence on defense issues, now that he chairs the committee, rests ultimately on the same footing that has underpinned his effectiveness since the mid-1970s. He has a sure feel for selecting critical issues on which to focus and the willingness—and ability—to master a chosen subject. He also has the self-discipline not to fritter away his hard-earned credibility on defense by issuing impulsive, off-the-cuff commentary on matters he has not carefully pondered. In other words, when Senator Nunn talks, people listen because they take it for granted that he has done his homework.

Senator Nunn has retained a basic tactic: When he hosts a legislative necktie party, the guest of honor supplies his own rope. In 1994, when he challenged the Clinton team's plans for maintaining a long-range bomber force, Senator Nunn could not be sidetracked into arguments over his data. He had constructed his case around the Defense Department's figures. Observers of Congress and of Senator Nunn recalled that he did exactly the same thing to the Ford Administration twenty years earlier, when he used Pentagon data to seriously call into question Washington's plans for reinforcing the NATO Central Front.

To be sure, it is easier to launch thoughtful initiatives when you are a committee chairman with a talented staff at your disposal. Senator Nunn has lost some longtime aides to the

Clinton Administration, including John Hamre (now the Pentagon Comptroller) and Bob Bell (now a member of the National Security Council staff). Still, he retains a strong staff anchored by veterans like Arnold Punaro, the director, and David Lyles. The senator seems to have no trouble recruiting proven talent to fill vacancies as they occur.

He also seemed to have no trouble filling vacancies on the Democratic side of the committee after the 1992 election. It is a mark of his clout among Senate Democrats that in order to fill three empty seats on a committee that was clearly to the right of the Senate Democratic caucus to begin with, Senator Nunn was able to round up three members who arguably were the most conservative Democrats not already on the panel: Bob Graham of Florida, Charles Robb of Virginia, and Joseph Lieberman of Connecticut.

Senator Nunn's effort this year to reopen the question of buying additional B-2s illustrates typical features of his work. For one thing, it would be difficult to overstate the importance of the bomber issue; a sufficiently large force of long-range bombers equipped with advanced munitions is the linchpin of the Clinton Administration's plans for blunting a second major regional aggressor if one is already raging elsewhere. For another, the Administration's own data reveal that projected future budgets would require the Air Force to draw down the bomber force to a level far below that needed in a two-war scenario.

Without question, Senator Nunn's political influence will continue to be great, but external factors could cause it to wax or wane somewhat.

One key factor is whether Thomas Daschle of South Dakota or Jim Sasser of Tennessee wins the race to succeed retiring George Mitchell of Maine as Senate Democratic leader. In terms of voting records, Senator Nunn stands about as far to the right of Sasser as he does of Mitchell. In Senator Nunn's public debates with Senator Sasser, however, there is an asperity that is not evident in the seemingly cordial

relationship between Senators Nunn and Mitchell.

A win by Senator Sasser might install Sen. James Exon (D-Neb.), an Armed Services Committee member, as Budget Committee Chairman. Senator Exon's voting record on defense issues is very close to Senator Nunn's, but his independent streak and concern for deficit reduction could make life more complicated for the Armed Services panel. This year, for instance, he and Sen. Charles Grassley (R-Iowa) cosponsored the amendment to the budget resolution that whacked an additional \$31 billion off federal spending caps through Fiscal 1999. Senator Nunn and others warned that the Pentagon would bear a disproportionate share of the cuts, but Senator Exon rejected the claims.

Other Committee Factors

As on the House panel, the Republicans of the Senate Armed Services Committee have been cohesive in criticizing President Clinton's budget as underfunded to begin with and further eroded by the allocation of funds to such nontraditional expenditures as environmental remediation and large-scale military deployments for humanitarian purposes.

Sen. Strom Thurmond (R-S. C.), who assumed the duties of senior Republican member at the start of 1993, proved as vigorous an advocate at ninety-one as he had been when he was first elected to the Senate in 1954. Senate Republicans have bench strength: Arizona Sen. John McCain, a leading opponent of US military involvement in Somalia, Bosnia, and Haiti; Sen. Dan Coates of Indiana, who has focused on readiness issues; and New Hampshire Sen. Bob Smith, who has taken up the mantle of promoting a vigorous ballistic missile defense program, a role formerly played by Wyoming Republican Malcolm Wallop, who left the Armed Services Committee at the end of 1992.

The solid GOP phalanx of skepticism toward the Administration's defense program even includes two senior committee Republicans—Sen. John W. Warner of Virginia and Sen. William S. Cohen of Maine—who were aligned with Senator Nunn against the Reagan Administration on some of the most contentious nuclear arms-control issues of the 1980s. ■

Pat Towell, a senior writer for Congressional Quarterly, has covered defense issues on Capitol Hill for nearly twenty years. His most recent article for AIR FORCE Magazine, "The Dellums Agenda," appeared in the July 1993 issue.

At Air Force Materiel Command's Wright Laboratory, the Avionics Directorate aims for big payoffs from new developments.

New Ground in Avionics

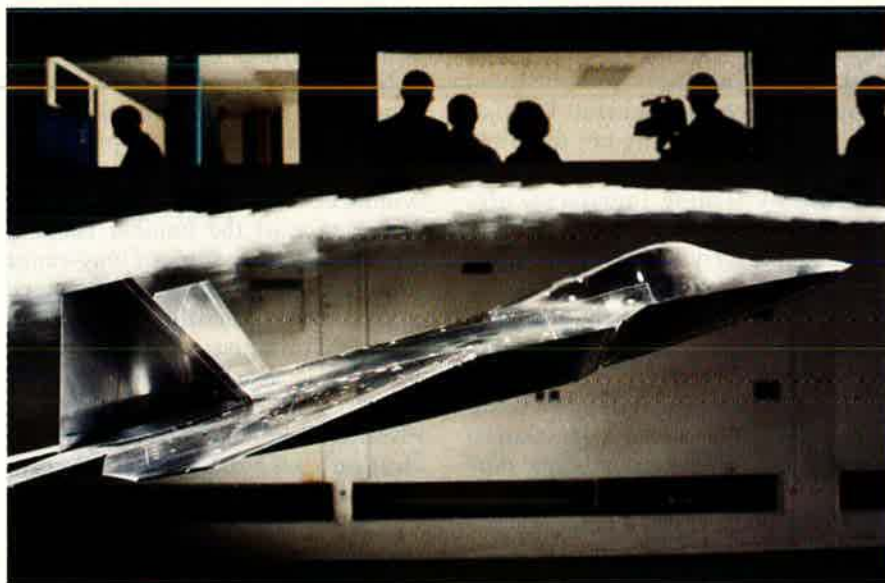
By Frank Oliveri, Associate Editor

IN DEVELOPING systems that will go into the F-22 fighter, the Air Force broke new ground in avionics. It moved forward with an integrated core processing system, a sophisticated concept of employing relatively inexpensive common modules for digital processing of all data.

The basis of the F-22 avionics system was a generic architecture—Pave Pillar—developed in the early 1980s by Wright Laboratory's Avionics Directorate at Wright-Patterson AFB, Ohio. Its later incarnation, now being developed by contractors for the F-22, will replace heavy, bulky "black boxes" with an orderly system of cards, each the size of a compact disc case, stacked in a rack. The system will be smaller, lighter, more reliable—and cheaper.

The system is still unique to the F-22, but the Air Force believes it might be worthwhile to use the same avionics blueprint in aircraft throughout its fighter fleet, reports Jesse Ryles, the Avionics Directorate's chief scientist.

"If you could get an up-to-date, central nervous system-style processing structure on board some of the old platforms, you could buy [modules]



Avionics R&D on the F-22 (shown above as a fully instrumented model in wind tunnel testing) benefits other fighter aircraft too. Opposite: a future cockpit, showing the helmet-mounted head-up display. A similar system developed for the F-22 will also be installed in F-15s and F-16s and Navy F/A-18s and F-14s.

with the total need of the fleet in mind," said Dr. Ryles. "We believe there is a lot of money to be saved. We also believe it to be possible that you could have nearly the most modern technology around on those old platforms, and it would be easier to insert that technology with that more modern central nervous system."

The move could produce significant payoffs. Among them:

- Lower cost for F-22 avionics, if larger-scale production yields econ-

Directory of Wing Commanders

(As of October 1, 1994)

Edited by Heather C. Martin, Editorial Associate

THE WING is the building block of the US Air Force and the focal point for ongoing changes in force structure. The Air Force is committed to preserving its historic wings. These include the original thirteen wings, plus such others as the 23d of Flying Tigers fame.

Air Force historians developed a rank order system for the remaining wings, using such historical elements as years of active service, aerial victories, and decorations.

In recognition of the wings' special importance, AIR FORCE Magazine, with the assistance of the Department of Defense and commands in the field, compiled this directory.

Air Combat Command

8th Air Force

2d Bomb Wing
Barksdale AFB, La.
Brig. Gen. David L. Young

5th Bomb Wing
Minot AFB, N. D.
Col. Ralph Pasini

7th Wing
Dyess AFB, Tex.
Brig. Gen. Charles R. Henderson

27th Fighter Wing
Cannon AFB, N. M.
Brig. Gen. William M. Guth

28th Bomb Wing
Ellsworth AFB, S. D.
Brig. Gen. Joseph C. Wilson, Jr.

65th Air Base Wing
Lajes Field, Azores
Col. Brian A. Arnold

314th Airlift Wing
Little Rock AFB, Ark.
Brig. Gen. Donald A. Streater

410th Bomb Wing
K. I. Sawyer AFB, Mich.
Col. Regner C. Rider

509th Bomb Wing
Whiteman AFB, Mo.
Brig. Gen. Ronald C. Marcotte

9th Air Force

1st Fighter Wing
Langley AFB, Va.
Brig. Gen. Gregory S. Martin

4th Wing
Seymour Johnson AFB, N. C.
Brig. Gen. Jeffrey R. Grime

6th Air Base Wing
MacDill AFB, Fla.
Col. Charles T. Ohlinger III

20th Fighter Wing
Shaw AFB, S. C.
Brig. Gen. James D. Latham

23d Wing
Pope AFB, N. C.
Brig. Gen. James E. Sandstrom

33d Fighter Wing
Eglin AFB, Fla.
Col. William R. Looney III

347th Wing
Moody AFB, Ga.
Brig. Gen. Timothy A. Kinnan

416th Bomb Wing
Griffiss AFB, N. Y.
Col. Michael S. Kudlacz

12th Air Force

9th Reconnaissance Wing
Beale AFB, Calif.
Col. (Brig. Gen. selectee) John W. Rutledge

24th Wing
Howard AFB, Panama
Brig. Gen. Richard E. Brown III

49th Fighter Wing
Holloman AFB, N. M.
Brig. Gen. John F. Miller, Jr.

55th Wing
Offutt AFB, Neb.
Brig. Gen. Thomas J. Keck

93d Bomb Wing
Castle AFB, Calif.
Col. Raymond Bishop

355th Wing

Davis-Monthan AFB, Ariz.
Brig. Gen. Roger R. Radcliff

366th Wing

Mountain Home AFB, Idaho
Brig. Gen. Lansford E. Trapp, Jr.

388th Fighter Wing

Hill AFB, Utah
Col. Daniel M. Dick

552d Air Control Wing

Tinker AFB, Okla.
Brig. Gen. Silas R. Johnson, Jr.

USAF Weapons and Tactics Center**57th Wing**

Nellis AFB, Nev.
Brig. Gen. John L. Welde

99th Wing

Ellsworth AFB, S. D.
Col. Neal D. Coyle

Air Education and Training Command**59th Medical Wing**

Lackland AFB, Tex.
Brig. Gen. Paul K. Carlton, Jr.

2d Air Force**17th Training Wing**

Goodfellow AFB, Tex.
Col. Ronald D. Tabor

37th Training Wing

Lackland AFB, Tex.
Brig. Gen. (Maj. Gen. selectee)
Henry M. Hobgood

81st Training Wing

Keesler AFB, Miss.
Brig. Gen. Karen S. Rankin

82d Training Wing

Sheppard AFB, Tex.
Brig. Gen. William L. Worthington, Jr.

19th Air Force**12th Flying Training Wing**

Randolph AFB, Tex.
Brig. Gen. Thomas O. Fleming, Jr.

14th Flying Training Wing

Columbus AFB, Miss.
Col. Garry R. Trexler

47th Flying Training Wing

Laughlin AFB, Tex.
Col. Timothy A. Peppe

56th Fighter Wing

Luke AFB, Ariz.
Brig. Gen. Stephen B. Plummer

58th Special Operations Wing

Kirtland AFB, N. M.
Col. Richard T. Jeffreys

64th Flying Training Wing

Reese AFB, Tex.
Col. Roger A. Brady

71st Flying Training Wing

Vance AFB, Okla.
Col. James N. Soligan

80th Flying Training Wing

Sheppard AFB, Tex.
Col. James G. Ferguson

97th Air Mobility Wing

Altus AFB, Okla.
Col. (Brig. Gen. selectee) George N.
Williams

325th Fighter Wing

Tyndall AFB, Fla.
Brig. Gen. Clinton V. Horn

Air University**502d Air Base Wing**

Maxwell AFB, Ala.
Brig. Gen. Thomas C. Waskow

Air Force Materiel Command**Aeronautical Systems Center****88th Air Base Wing**

Wright-Patterson AFB, Ohio
Col. William B. Orellana

Air Force Development Test Center**46th Test Wing**

Eglin AFB, Fla.
Col. Harold T. Strittmatter

96th Air Base Wing

Eglin AFB, Fla.
Col. Douglas L. Hardin

Air Force Flight Test Center**95th Air Base Wing**

Edwards AFB, Calif.
Col. Charles B. DeBellevue

412th Test Wing

Edwards AFB, Calif.
Col. Teddie M. McFarland

450th Test Wing

Edwards AFB, Calif.
Lt. Col. Michael E. Green

Electronic Systems Center**66th Air Base Wing**

Hanscom AFB, Mass.
Col. John A. Weimer

Ogden Air Logistics Center**75th Air Base Wing**

Hill AFB, Utah
Col. Keith A. Bennett

Oklahoma City Air Logistics Center**72d Air Base Wing**

Tinker AFB, Okla.
Col. Randy W. Mills

Sacramento Air Logistics Center**77th Air Base Wing**

McClellan AFB, Calif.
Col. Christopher F. Russo

San Antonio Air Logistics Center**76th Air Base Wing**

Kelly AFB, Tex.
Col. James P. Concannon

Space and Missile Systems Center**377th Air Base Wing**

Kirtland AFB, N. M.
Brig. Gen. Charles H. Perez

Warner Robins Air Logistics Center**78th Air Base Wing**

Robins AFB, Ga.
Col. Jack D. Ward

Air Force Space Command**14th Air Force****21st Space Wing**

Peterson AFB, Colo.
Brig. Gen. Donald G. Cook

30th Space Wing

Vandenberg AFB, Calif.
Brig. Gen. Lance W. Lord

45th Space Wing

Patrick AFB, Fla.
Brig. Gen. (Maj. Gen. selectee) Robert S.
Dickman

50th Space Wing

Falcon AFB, Colo.
Col. Gregory L. Gilles

20th Air Force

90th Missile Wing

F. E. Warren AFB, Wyo.
Brig. Gen. Thomas H. Neary

341st Missile Wing

Malmstrom AFB, Mont.
Brig. Gen. Robert E. Larned

351st Missile Wing

Whiteman AFB, Mo.
Col. Gay D. Blackmore

Air Force Special Operations Command

16th Special Operations Wing

Hurlburt Field, Fla.
Brig. Gen. Maxwell C. Bailey

Air Mobility Command

15th Air Force

22d Air Refueling Wing

McConnell AFB, Kan.
Brig. Gen. Charles H. Coolidge, Jr.

60th Air Mobility Wing

Travis AFB, Calif.
Brig. Gen. Howard J. Ingersoll

62d Airlift Wing

McChord AFB, Wash.
Brig. Gen. Richard C. Marr

92d Air Refueling Wing

Fairchild AFB, Wash.
Brig. Gen. Gary A. Voellger

375th Airlift Wing

Scott AFB, Ill.
Brig. Gen. John D. Hopper, Jr.

722d Air Refueling Wing

March AFB, Calif.
Col. Stephen R. Lorenz

21st Air Force

19th Air Refueling Wing

Robins AFB, Ga.
Col. Paul W. Essex

89th Airlift Wing

Andrews AFB, Md.
Brig. Gen. Monroe S. Sams, Jr.

305th Air Mobility Wing

McGuire AFB, N. J.
Brig. Gen. George A. Gray III

319th Air Refueling Wing

Grand Forks AFB, N. D.
Brig. Gen. James E. Andrews

380th Air Refueling Wing

Plattsburgh AFB, N. Y.
Col. Robert E. Dawson

436th Airlift Wing

Dover AFB, Del.
Brig. Gen. Robert J. Boots

437th Airlift Wing

Charleston AFB, S. C.
Brig. Gen. Walter S. Hogle, Jr.

Pacific Air Forces

15th Air Base Wing

Hickam AFB, Hawaii
Brig. Gen. Dwight M. Kealoha

5th Air Force

18th Wing

Kadena AB, Japan
Brig. Gen. William T. Hobbins

374th Airlift Wing

Yokota AB, Japan
Brig. Gen. Kenneth W. Hess

432d Fighter Wing

Misawa AB, Japan
Brig. Gen. George W. Norwood

7th Air Force

8th Fighter Wing

Kunsan AB, South Korea
Col. Hugh C. Cameron

51st Fighter Wing

Osan AB, South Korea
Brig. Gen. Robert H. Foglesong

11th Air Force

3d Wing

Elmendorf AFB, Alaska
Brig. Gen. Thomas R. Case

354th Fighter Wing

Eielson AFB, Alaska
Brig. Gen. Ronald E. Keys

13th Air Force

633d Air Base Wing

Andersen AFB, Guam
Col. Dennis R. Larsen

US Air Forces in Europe

3d Air Force

10th Air Base Wing

RAF Alconbury, UK
Col. William J. Corbett

48th Fighter Wing

RAF Lakenheath, UK
Col. David F. MacGhee

100th Air Refueling Wing

RAF Mildenhall, UK
Col. David E. Pope

16th Air Force

31st Fighter Wing

Aviano AB, Italy
Col. Richard L. Brenner

39th Wing

Incirlik AB, Turkey
Col. John L. Barry

17th Air Force

52d Fighter Wing

Spangdahlem AB, Germany
Brig. Gen. John R. Dallager

86th Wing

Ramstein AB, Germany
Brig. Gen. Jeffrey S. Pilkington

435th Airlift Wing

Rhein-Main AB, Germany
Col. Edward F. McPhillips

601st Air Base Wing

Sembach AB, Germany
Col. Bruce H. Senft

Air Force Reserve

4th Air Force

301st Fighter Wing

Carswell ARB, Tex.
Col. Bobby L. Efferson

349th Air Mobility Wing (Associate)

Travis AFB, Calif.
Brig. Gen. Keith T. Reiling

433d Airlift Wing

Kelly AFB, Tex.
Brig. Gen. Michael J. Quarnaccio

446th Airlift Wing (Associate)

McChord AFB, Wash.
Col. Jon S. Gingerich

452d Air Mobility Wing

March AFB, Calif.
Brig. Gen. Michael J. Peters

507th Air Refueling Wing

Tinker AFB, Okla.
Col. Robert E. Lytle

932d Airlift Wing

Scott AFB, Ill.
Col. Edward A. Stickler

940th Air Refueling Wing

McClellan AFB, Calif.
Col. David A. Pasero

10th Air Force

94th Airlift Wing

Dobbins ARB, Ga.
Brig. Gen. Terry G. Whitnell

302d Airlift Wing

Peterson AFB, Colo.
Col. Walter T. Hatcher III

403d Airlift Wing

Keesler AFB, Miss.
Col. Ernest R. Webster

419th Fighter Wing

Hill AFB, Utah
Col. David E. Tanzi

440th Airlift Wing

General Mitchell IAP/ARS, Wis.
Brig. Gen. Michael R. Lee

442d Fighter Wing

Whiteman AFB, Mo.
Col. Craig S. Ferguson

482d Fighter Wing

Homestead ARB, Fla.
Brig. Gen. James L. Turner

908th Airlift Wing

Maxwell AFB, Ala.
Col. Chris M. Joniec

913th Airlift Wing

Willow Grove ARS, Pa.
Col. Richard Moss

914th Airlift Wing

Niagara Falls IAP/ARS, N. Y.
Col. Gerald A. Black

917th Wing

Barksdale AFB, La.
Brig. Gen. William H. Lawson

919th Special Operations Wing

Duke Field, Fla.
Col. Jack W. Blair, Jr.

926th Fighter Wing

Alvin Callender Field, La.
Col. Jack C. Ihle

928th Airlift Wing

O'Hare IAP/ARS, Chicago, Ill.
Col. Peter K. Sullivan

934th Airlift Wing

Minneapolis-St. Paul IAP/ARS, Minn.
Col. Michael F. Gjede

939th Rescue Wing

Portland IAP, Ore.
Col. Paul R. Davis

944th Fighter Wing

Luke AFB, Ariz.
Col. Richard L. Hall

22d Air Force

315th Airlift Wing (Associate)

Charleston AFB, S. C.
Col. James D. Bankers

434th Wing

Grissom ARB, Ind.
Col. Donald E. Schell

439th Airlift Wing

Westover ARB, Mass.
Col. James P. Czekanski

445th Airlift Wing

Wright-Patterson AFB, Ohio
Col. Robert E. Duignan

459th Airlift Wing

Andrews AFB, Md.
Col. Clayton T. Gadd

512th Airlift Wing (Associate)

Dover AFB, Del.
Col. Peter T. Bentley

514th Air Mobility Wing (Associate)

McGuire AFB, N. J.
Brig. Gen. John F. Harvey

916th Air Refueling Wing

Seymour Johnson AFB, N. C.
Col. John O. Miller

927th Air Refueling Wing

Selfridge ANGB, Mich.
Col. Thomas R. Brown

Air National Guard

101st Air Refueling Wing

Bangor IAP, Me.
Brig. Gen. Wilfred Hessert

102d Fighter Wing

Otis ANGB, Mass.
Col. (Brig. Gen. selectee) Kenneth S. Peterson

108th Air Refueling Wing

McGuire AFB, N. J.
Brig. Gen. Richard C. Cosgrave

113th Fighter Wing

Andrews AFB, Md.
Brig. Gen. Paul A. Pochmara

116th Fighter Wing

Dobbins ARB, Ga.
Brig. Gen. Stephen G. Kearney

117th Air Reconnaissance Wing

Birmingham IAP, Ala.
Brig. Gen. Rendell F. Clark, Jr.

118th Airlift Wing

Nashville MAP, Tenn.
Brig. Gen. Guy S. Tallent

121st Air Refueling Wing

Rickenbacker ANGB, Ohio
Brig. Gen. John H. Smith

122d Fighter Wing

Fort Wayne IAP, Ind.
Brig. Gen. Ronald E. Farrell

123d Airlift Wing

Standiford Field, Ky.
Brig. Gen. Stewart R. Byrne

126th Air Refueling Wing

O'Hare IAP/ARS, Ill.
Brig. Gen. Harold E. Keistler

127th Fighter Wing

Selfridge ANGB, Mich.
Col. (Brig. Gen. selectee) Allan W. Ness

128th Fighter Wing

Truax Field, Wis.
Brig. Gen. Fred R. Sloan

131st Fighter Wing

Lambert-St. Louis IAP, Mo.
Col. George D. Graves

132d Fighter Wing

Des Moines IAP, Iowa
Brig. Gen. Donald W. Armington

133d Airlift Wing

Minneapolis-St. Paul IAP/ARS, Minn.
Vacant

136th Airlift Wing

NAS Dallas, Tex.
Brig. Gen. William M. Guy

137th Airlift Wing

Will Rogers World Airport, Okla.
Col. (Brig. Gen. selectee) James R. McKinney

140th Fighter Wing

Buckley ANGB, Colo.
Brig. Gen. Mason C. Whitney

141st Air Refueling Wing

Fairchild AFB, Wash.
Brig. Gen. Donald L. Powell

144th Fighter Wing

Fresno Air Terminal, Calif.
Col. Douglas R. Moore

146th Airlift Wing

Channel Islands ANGB, Calif.
Col. John E. Iffland

171st Air Refueling Wing

Pittsburgh IAP/ARS, Pa.
Col. (Brig. Gen. selectee) William B. Lynch

174th Fighter Wing

Hancock Field, N. Y.
Col. David Hamlin, Jr.

Air Intelligence Agency

67th Intelligence Wing

Kelly AFB, Tex.
Col. Robert D. Anderson

Headquarters US Air Force

11th Support Wing

Bolling AFB, D. C.
Col. Steven A. Roser



Twin-Engine Reliability for JPATS

The Williams F129 turbofan makes feasible the only twin-engine JPATS entry.

Cessna's highly successful modern technology CitationJet business aircraft was made feasible because Cessna turned to Williams for the FJ44 turbofan. Cessna is now demonstrating the remarkable JPATS CitationJet derivative, using the military version of the same engine, the F129.

- The only other turbofan engines that are certificated for JPATS use older technology and are too large, too heavy, and have too high a fuel rate for a small twin-engine trainer.
- The Swedish Air Force has already ordered 240 militarized FJ44s to re-engine their current fleet of jet trainers. Pilot training throughout the world is demanding the low fuel and maintenance cost of a modern small turbofan.
- The low noise level of the FJ44 is welcomed by CitationJet owners and was an important factor in the Swedish Air Force decision. The quiet Williams engines permit operations from Swedish airports that now ban trainer flights.
- Ensuring decades of reliable operation, the Williams F129 is a derated version of the FJ44 turbofan business aircraft engine. Like the Cessna JPATS and Cessna CitationJet business aircraft, the F129 and FJ44 fulfill the military/civil "dual use" advantage.



Williams International



The Word Is "Joint"

By John Tirpak

STEADILY dropping budgets and increased pressure to eliminate duplication of effort have given the armed services a new religion. It's called "jointness," and the Aerospace Technology Exposition at this year's Air Force Association National Convention in Washington, D. C., was one of the biggest tent meetings yet.

"Basically, if you don't have 'joint' in front of your name, you probably don't have a program," said one industry exhibitor.

All the services are under intense pressure to convince Pentagon officials that their remaining development or production programs will meet both a *multirole* mission and a *multiservice* mission. Funds are too scarce to squander on anything that is not absolutely necessary.

Nothing is sacred. Just before AFA members convened, the press had published a leaked Pentagon memo in which senior Pentagon leaders questioned the need for some of the latest big acquisition projects. Alternatives were to be scrutinized, and defense officials would be looking to see if there were any chance that cheaper projects might suffice.

The Joint Primary Aircraft Training System (JPATS) was on the list. Competitors for the \$7 billion program, faced with the triple prospect of cancellation, major restructuring, or imminent choice of a winner, pulled out all the stops in their presentations in what is likely to be the last AFA Convention before the contest ends, one way or another.

All five rivals—Beechcraft, Cessna, Lockheed, Northrop Grumman,



Photo by Paul Kennedy

Competitors for the \$7 billion JPATS program were prominent at the Aerospace Technology Exposition. Cessna displayed the front fuselage of its CitationJet trainer, although only pilots were allowed to check out the cockpit.

and Rockwell—displayed models and offered detailed briefings on their seven candidates. (Northrop Grumman—having taken over the three proposals previously offered separately by Northrop, Grumman, and Vought—has chosen to keep its three varied entries in the competition until a winner is picked.)

Cessna went so far as to bring the entire forward fuselage of its new CitationJet trainer, but it was off-limits to anyone not wearing Air Force or Navy pilot's wings. There was "proprietary information in the cockpit," a Cessna representative explained, "but we want to give the pilots a chance to see what we've got and give us their opinion."

The Air Force views JPATS as a critical program. As Chief of Staff Gen. Merrill A. McPeak pointed out to reporters, when the T-37 is ready

for retirement in the next decade it will have served as the Air Force's primary trainer "for half the history of manned flight." He was referring to the 100th anniversary of the Wright brothers' first powered flight in 1903 and the T-37's debut in 1953.

Missile Drama

For pure drama, the AGM-137 Triservice Standoff Attack Missile stole the show. The appearance and most of the details of the stealthy TSSAM have been top secret since its inception in 1986 but were declassified just days before the exposition. Northrop Grumman ran continuous videos of successful flight tests that showed the TSSAM scoring bull's-eye hits on simulated enemy bunkers. Its devastating effect on reinforced concrete was demonstrated in clips of sled tests.

Northrop Grumman was unable to show a model of the missile, and some details remain classified. However, a company representative said it "felt good" to be able to discuss the weapon openly at the AFA Convention.

Like JPATS, TSSAM appeared on the Pentagon's program "hit list," but both Air Force Secretary Sheila E. Widnall and General McPeak vigorously defended the missile's revolutionary capabilities to the press. Besides being stealthy, the TSSAM can nimbly maneuver around obstacles and find its own way to a target Northrop Grumman conservatively characterized as "in excess of 100 miles" away.

TSSAM had its share of rivals at the show. McDonnell Douglas countered TSSAM with its Standoff Land-Attack Missile-Enhanced Response (SLAM-ER), being developed for the Navy, from which it is deriving a longer-range version for the United Kingdom called Grand SLAM.

The SLAM-ER, derived from the SLAM used in the Persian Gulf War and a variant of the Harpoon antiship missile, was touted by McDonnell as building on—and having commonality with—existing hardware and technology and offering a TSSAM-like capability at lower cost. The Navy, a partner in TSSAM, has not endorsed SLAM-ER for the TSSAM mission.

Rockwell also offered a TSSAM alternative in the form of an air-breathing, repackaged variant of its successful AGM-130 rocket-powered glide bomb, a mockup of which took up nearly the length of Rockwell's booth. The AGM-130E, as it is called, would have a range of more than 100 miles, be all-weather-capable, and come in two sizes: one for fighters and a larger version for bombers.

The Air Force is now a full participant in the Joint Standoff Weapon (JSOW) program. Displayed in cutaway detail by prime contractor Texas Instruments, the JSOW will be fitted to virtually all tactical aircraft and also will equip some bombers. The JSOW is intended to be a low-cost glide weapon that in future variants will get more sophisticated guidance and longer range.

The JSOW will have a second cousin in the Joint Direct Attack Munition, another hotly contested program. The JDAM is planned to



Team Lockheed put former fighter pilot and incoming Air Force Chief of Staff Gen. Ronald R. Fogleman back in the pilot's seat of this F-16 cockpit. Since the Gulf War, the F-16 has been USAF's chief dogfighter.

be a low-cost tailcone guidance system, fitted to existing Mk. 84 2,000-pound bombs, very similar to the Global Positioning System/inertial navigation system guidance package on the JSOW.

The JDAM is touted for its through-the-weather precision bombing capability, comparable to that of laser-guided bombs today. The JDAM and a wind-correcting variant are expected to be built in the thousands as the primary common precision weapon for US air forces. McDonnell Douglas and Martin Marietta displayed cutaway JDAM tailcones.

Northrop Grumman also showed off its E-8 Joint Surveillance Target Attack Radar System (Joint STARS) in model form. Many Convention guests from NATO countries examined it with interest. This was the first show attended by the new, consolidated Northrop Grumman, and some visitors were initially surprised to see B-2 bomber models alongside one of Joint STARS.

Yet another Northrop Grumman product shown in life size was the Brilliant Antiarmor Technology (BAT) submunition, a stealthy tank-buster that homes in on its targets while shaking off the effects of heat and sound. BAT was built to be carried by the Army version of TSSAM but may eventually be adopted by the Air Force, which will have to destroy more enemy tanks in a single pass in the future.

Focus on Aircraft

McDonnell Douglas's booth featured a large freestanding C-17 model, as well as cutaway models showing various payloads and a videotape of its transport successes, including paratroop drops, low-altitude parachute extraction system drops, and cargo and vehicle paradrops. While the C-17 is managed by the Air Force and technically not a "joint" program, one of its primary missions is to carry equipment needed at the front lines by the Army.

Mindful that the Pentagon is looking hard at possible commercial cargo derivatives as C-17 alternatives, McDonnell Douglas made the Globemaster III the focus of its booth.

Boeing built its display around a huge model of a 747-400 in Air Mobility Command markings, as one such nondevelopmental airlift aircraft in competition to supplement the C-17. Boeing also promoted its 767 Airborne Warning and Control System aircraft.

Following the demise of the A-12, A-X, and A/F-X programs, the Pentagon launched the Joint Advanced Strike Technology (JAST) program, and airframers at the exposition exhibited their futuristic concepts for the airplane. Boeing and McDonnell Douglas displayed JAST concept artwork; Lockheed displayed a large model showing the family resemblance its JAST would bear to the company's F-22.

Lockheed's booth featured displays centered on the F-22, F-16, and new C-130J transport. The C-130J, poised to win a major order for utility transports in the UK, received unexpected praise from General McPeak at the show, when he told reporters he hoped the Air Force would have the "honor" of buying the first two C-130Js.

The J model features a "glass cockpit," new propellers, and all-around updated systems. Lockheed describes it as "virtually a new airplane." General McPeak said USAF would require "in the hundreds" of C-130Js to modernize its intratheater airlift capability. The airplane reduces the manpower needed for flight and maintenance. Lockheed displayed a large C-130J model with spinning props and a mockup of its glass cockpit.

Though not well known as a builder of ordnance, Lockheed designed the BLU-109 I-2000 penetrating warhead used with devastating effect in the Gulf War. On display at its booth were a spinoff 1,000-pound warhead that can also cut through concrete and an independently targetable 250-pound warhead able to disperse its munitions and destroy softer targets.

An F-16 cockpit on display was surrounded by reminders that the airplane has been USAF's chief dog-fighter ever since the Gulf War, scoring the only successful kills so far with the AMRAAM in Bosnia-Herzegovina and Iraq.

Also described in booth displays



Photo by Paul Kennedy

Top Air Force leaders, such as Maj. Gen. Donald W. Shepperd, Director, Air National Guard, take time to visit the Exposition, giving industry representatives an opportunity to exchange ideas with them informally.

was Lockheed's concept for a Navy version of the F-117 Stealth fighter that will have evolved into a more maneuverable and potent strike platform with which the Air Force, given the funding, could supplement its limited fleet of F-117As.

Just across from Lockheed's F-22 display was the United Technologies Pratt & Whitney presentation, dominated by the F119 engine that will power the F-22. The F119 permits the F-22 to cruise at supersonic speeds without a fuel-gulping after-

burner. Pratt also displayed various JPATS-compatible engines and its F100-229 Increased Performance Engine (IPE) that powers F-15s and F-16s around the world.

In early 1995, Pratt will test a pitch-yaw vectoring nozzle on the F100-229 to improve further the agility and power of the F-15 and F-16.

Flying Backward

General Electric's display likewise centered on its F-15/F-16 powerplant, the F110-129 IPE, and its Axisymmetric Vectoring Exhaust Nozzle. The AVEN can "steer" the thrust of the airplane in all axes, adding another pitch or yaw component for greater agility in combination with other flight controls. The AVEN has been extensively tested and flown on an F-16 in tactical evaluations at Edwards AFB, Calif., under the multi-axis thrust-vectoring (MATV) program. The stunningly maneuverable MATV aircraft—shown in flight in videos at GE's booth—is even able to fly "backward" while under full control. The AVEN has been fully developed and tested, and GE believes it could be fitted to existing aircraft now, without the need for modifying the host airframe.

With unmanned aerial vehicles (UAVs) taking on increased importance for all the services, many exhibitors showed full-size or scale models of their vehicles. Loral went a



Photo by Paul Kennedy

Air Force Secretary Sheila E. Widnall and Aerospace Education Foundation President Thomas J. McKee meet with United Technologies Pratt & Whitney representatives near the company's display of F-22, F-15, and F-16 engines.



A virtual reality wraparound helmet took this airman from the Exposition into a synthetic world. The Air Force envisions VR technology reducing pilot workload and improving everything from training to combat.

step further by presenting its advanced tactical airborne reconnaissance system and Loral Optical System reconnaissance payloads for use in UAVs of various kinds. Loral concentrated much of its display on the MH-53J Pave Hawk mission-rehearsal system.

McDonnell Douglas showed a full-scale model of a Boost-Phase Intercept (BPI) missile, based on the High-Speed Antiradiation Missile. The BPI would be fired at enemy ballistic missiles shortly after launch and would destroy them by kinetic impact after intercept. It would be carried by McDonnell's F-15, which would be assigned to patrol areas where ballistic missile launchers were operating.

Impressive with its one-twentieth scale models of Atlas and Titan launch vehicles, Martin Marietta's display emphasized the company's work in munitions, spacecraft, and sensors. It showed videos of the AGM-142 Have Nap TV-guided standoff missile developed by Rafael of Israel, the Low-Altitude Navigation and Targeting Infrared for Night pod used by F-15Es and F-16Cs, and the Advanced Infrared Search and Track (AIRST) system that one day will equip the F-22 and possibly other aircraft.

The AIRST is expected to complement radar when hostile air forces learn to exploit stealth technology.

Virtual Reality

Another hot new technology, "virtual reality," made a big splash this

year at the exposition and was one of the most noted features of the show. The Air Force sees great potential for application of VR systems, using them to reduce pilot workload, strengthen aircraft systems, and improve the ways the Air Force trains, plans, rehearses operations, makes decisions, and fights.

The heart of any virtual reality system is a computer-generated "synthetic environment." Some are more realistic than others, but the more elaborate ones substitute wraparound sights and sounds for natural surroundings. Typically, one enters this synthetic, virtual world by putting on a special helmet that generates sights and sounds or a "remote presence" glove or other clothing.

Cambridge Research Associates demonstrated "PowerScene," a computer-based, VR system for generating photo-realistic, dynamic perspective scenes. Its applications include mission planning, mission rehearsal, training, intelligence, and synthetic environments for requirements definition and system specification. The exhibit showed PowerScene images on a large-screen monitor as well as on a helmet-mounted display for VR immersion.

John Tirpak is the senior military editor of Aerospace Daily, a Washington, D. C., defense and commercial aviation periodical. His most recent article for AIR FORCE Magazine, "Fighters for the Twenty-First Century," appeared in the July 1994 issue.

Autometric's display featured "Wings Mission Rehearsal," a real-time mission-rehearsal system that gives pilots a look at their target before the mission, and "OMNI," an interactive 3-D simulation, modeling, and visualization software system for displaying aerospace information.

Air Force Materiel Command's Armstrong Laboratory also exhibited a virtual reality display and described its development of subsystems for complete helmet-mounted systems used in simulators. It also described new Binocular Catadioptric HMD and Tophat HMD helmets developed for simulator use along with the Portable Image Display System for presenting imagery and symbology in the helmet.

The Air Force Institute of Technology came forward with a flashy VR setup. Visitors wearing the wrap-around visors reached into virtual space and grasped virtual objects. Participants wearing 3-D glasses could pass through virtual rooms and open virtual file cabinets. AFIT has a 3-D Medical Imaging and Computer Graphics Lab. AFIT projects include the Virtual Cockpit, Synthetic BattleBridge, Red Flag Remote Debriefing Tool, and Satellite Modeler systems.

Elsewhere, USAF provided a high-tech demonstration of emerging modeling and simulation technologies based on Operation Desert Storm. It showed how to apply VR modeling and simulation technologies to a wide range of areas, including detection and destruction of ballistic missiles.

Martin and Lockheed showed off their Theater Missile Defense technology, as did several other contractors. If any one program has emerged as a paradigm of future defense—and one conspicuously absent from the "hit list"—it is the ability to stop incoming missiles.

"Nothing is more 'joint' " than providing basic defense against ballistic missile attack, a Martin representative said. "Without it, you haven't got a prayer." For having at least one rock-solid program, the contractors are saying a collective "Amen." ■



Focus on the Future

By Tamar A. Mehuron, Associate Editor

MAJOR addresses by Dr. Sheila E. Widnall, Secretary of the Air Force, and Gen. Merrill A. McPeak, Air Force Chief of Staff, attracted capacity crowds at the Air Force Association's forty-eighth National Convention.

Held September 12–14 at the Sheraton Washington Hotel in Washington, D. C., the Convention featured nearly eighty defense industry and Department of Defense exhibits at the Aerospace Technology Exposition [see p. 66].

Secretary Widnall spoke at the Convention's opening ceremony, held Monday, September 12. Her address focused on the Air Force's continuing top priority—troop readiness and welfare—and on the Air Force's agenda in space.

In his speech, "Reinventing the Air Force," General McPeak, who was slated to retire in October, reviewed the accomplishments of Air Force reorganization and downsizing during his four-year tenure. Gen. Thomas S. Moorman, Jr., USAF's newly appointed Vice Chief of Staff, spoke at the Outstanding Airmen of the Year Dinner.

Secretary of Defense William J. Perry had been scheduled to address the Convention on its second day, but he was forced by the events in Haiti to cancel his appearance. The Defense Department distributed his prepared remarks to members of the press.

The three-day Aerospace Technology Exposition attracted large crowds from various Washington communities: attachés from thirty



Photo by Paul Kennedy

Soon-to-be Air Force Chief of Staff Gen. Ronald R. Fogleman (center) discusses the latest in aerospace technology with top industry representatives at AFA's 1994 Convention.

embassies, representatives from the House and Senate Armed Services Committees, and members of the House Intelligence Committee.

Attendees included such visitors as Dr. Edward A. Feigenbaum, the Air Force's chief scientist; Lt. Gen. Marcus A. Anderson, The Inspector General, Office of the Secretary of the Air Force; Maj. Gen. Donald W. Shepperd, director, Air National Guard; Brig. Gen. George T. Stringer, director of Budget Operations, Office of the Deputy Assistant Secretary of the Air Force (Budget); and John W. Lyver IV, manager of Nuclear Safety Assurance, NASA.

Other distinguished attendees were Gen. John Michael Loh, commander of Air Combat Command; Gen. Ronald R. Fogleman, commander of Air Mobility Command; Gen. Ronald W. Yates, commander of Air Force Ma-

teriel Command; and John McLucas, former Secretary of the Air Force.

Election of Officers

R. E. "Gene" Smith of West Point, Miss., was elected President of the Air Force Association for a first term. James M. McCoy of Omaha, Neb., was elected Chairman of the Board for a first term. Mary Anne Thompson of Oakton, Va., was elected National Secretary, and William N. Webb of Midwest City, Okla., was reelected National Treasurer.

Nearly 8,000 people took part in one or more of the Convention-related activities. The 351 registered delegates, representing forty-eight states and the District of Columbia, were joined by senior military and government officials for the Aerospace Technology Exposition, featured speeches, and social events. On hand to cover

the Convention were 178 news media representatives.

Meeting concurrently with the Convention were trustees of the Aerospace Education Foundation and USAF commands' Senior Enlisted Advisors, as well as AFA's Air National Guard Council, Civilian Personnel Council, Enlisted Council, Junior Officer Advisory Council, Reserve Council, Veterans/Retirees Council, and the Air Force Memorial Foundation.

There was also a joint meeting of the National Executive Boards of the Arnold Air Society and the Angel Flight/Silver Wings Society, and the Air Force Historical Foundation held its annual membership meeting during the Convention.

Resolutions and Changes

On September 12, delegates unanimously adopted a resolution regarding the National Air and Space Museum's planned exhibit of the *Enola Gay*, the B-29 aircraft that dropped an atomic bomb on Hiroshima, Japan, in 1945 and helped end the war in the Pacific. The resolution calls the museum's revised exhibit script only the beginning of what should be "a continuing process of revision."

The planned 1995 exhibit, "The Last Act: The Atomic Bomb and the End of World War II," has been widely criticized by AFA, veterans' organizations, members of Congress, and the general public as lacking balance and context. The script for the exhibition went through several revisions, and the museum completed a revised script on August 31.

AFA's resolution states that, while "improvements have been made" in this latest version, "there are serious lingering structural, contextual, and ideological issues that must still be addressed in cooperation with members of Congress, veterans' groups, and military historians."

Delegates unanimously passed a resolution dedicating the AFA national headquarters building in Arlington, Va., in memory of Gen. James H. Doolittle, who died September 28, 1993. Delegates also voted a change in AFA membership dues. Annual dues will increase from \$25 to \$30, effective January 1, 1996. Three-year membership dues will increase from \$60 to \$75, and life membership dues will increase from \$400 to \$450, effective January 1, 1995.

Congressional Activity

Thirty-four state delegations sponsored twenty-one congressional breakfasts on Tuesday and Wednesday of Convention week. Forty-one members of Congress participated. Among them were Sens. Kay Bailey Hutchison (R-Tex.), John McCain (R-Ariz.), Sam Nunn (D-Ga.), and Charles Robb (D-Va.), of the Senate Armed Services Committee. Sens. Bob Kerrey (D-Neb.), Connie Mack (R-Fla.), and Don Nickles (R-Okla.) from the Senate Appropriations Committee also attended. Attending from the House Armed Services Committee were Reps. Herbert H. Bateman (R-Va.), Pete Geren (D-Tex.), James Hansen (R-Utah), H. Martin Lancaster (D-N. Y.), G. V. "Sonny" Montgomery (D-Miss.), Owen Pickett (D-Va.), and Ike Skelton (D-Mo.). Attending from the House Appropriations Defense Subcommittee was Rep. Bob Livingston (R-La.). Reps. Jim Kolbe (R-Ariz.) and David Price (D-N. C.), from the House Appropriations Committee, also participated.

The New Mexico state delegation met with Sens. Jeff Bingaman, (D-N. M.) and Pete V. Domenici (R-N. M.) and Reps. Bill Richardson (D-N. M.) and Joe Skeen (R-N. M.).

Secretary Widnall visited the Oklahoma and Massachusetts delegations' breakfasts. General McPeak attended three breakfasts hosted by the New York, Florida, and Missouri/Kansas/Iowa delegations.

Congressman Skelton won the W. Stuart Symington Award, AFA's highest honor for contributions to national security by a civilian. He received the honor at the Anniversary Dinner on September 13.

Other Elections

Eight new National Vice Presidents were elected, and four National Vice Presidents were reelected. Newly elected are Donald D. Adams (Midwest Region), Henry W. Boardman (South Central Region), George H. Chabbott (Central East Region), Allen G. Harris (Northeast Region), William A. Lafferty (Far West Region), Victor C. Seavers (North Central Region), Dr. Phillip J. Sleeman (New England Region), and Leon B. Webber (Southwest Region).

R. Donald Anderson of Poquoson, Va., Robert J. Cantu of Universal City, Tex., Michael J. Dugan of New York, N. Y., Capt. Gilbert E. Petrina,

Jr., of Utica, N. Y., Nuel Sanders of Fruit Heights, Utah, and Walter G. Vartan of Chicago, Ill., were elected to the Board of Directors for three-year terms.

Three new Under-Forty Directors joining the AFA Board are Capt. Edward J. Adelman of San Diego State University, Calif., Capt. Inge Gedo of the Air Force Academy, Colo., and Capt. Charles Nelson of the South Dakota ANG.

For a complete list of National Vice Presidents and Directors, including those reelected, see "This Is AFA," p. 86.

Aerospace Education Foundation

A video on "Our Best Community Service Project" won the Foundation's annual contest for presentations by Air Force Junior ROTC cadets. The winning entry, "CPR Saturday," was from Unit CA-863 at Del Campo High School in Fair Oaks, Calif. For next year's contest, cadets will again submit videos on community service.

Carol Denicole, nominated by the Central Florida Chapter, won the Christa McAuliffe Memorial Award as the year's outstanding aerospace science, mathematics, and computer science teacher. AFA's Alamo Chapter, San Antonio, Tex., received the Sam E. Keith, Jr., Aerospace Education Award of Excellence. The award is named in honor of the late AFA leader and former National President and Board Chairman from Texas.

Acknowledgments

Parliamentarian for AFA's National Convention was Martin H. Harris. David L. Blankenship was Sergeant at Arms. Inspectors of Elections were Charles G. Durazo (Chairman), Gerald S. Chapman, and Kevin Chambers. Harold F. Henneke chaired the Credentials Committee, serving with William D. Croom, Jr., and John B. Steele.

The Association is particularly grateful to a corps of volunteers who assisted national headquarters staff during the Convention: Stacy Arigo, Cecil Brendle, Evie Dunn, Noel Garcia, Charles and Mary Lucas, Jenifer Petrina, Julie Petrina, Glenda R. Shepela, Gregg Snyder, Dana Steinhauser, Janet Voltz, and C. G. Wander.

The 1995 AFA Convention will be held at the Sheraton Washington Hotel in Washington, D. C., September 18-20. ■



Now, the Good News

By John Tirpak

At the 1994 Air Force Association National Convention in Washington, D. C., Air Force Secretary Sheila E. Widnall told attendees something they have waited a long time to hear. "Good news," she said in her September 12 keynote address. "The drawdown and reorganization are nearly complete. We've finally turned the corner."

The Air Force's massive streamlining, in which a third of its active-duty personnel and half of its budget went away, is virtually accomplished, she said, and "with these pressures easing, we can now focus much more clearly on the future—on our people and their quality of life, on modernization, and on readiness."

The shift has been far from easy. The previous four years saw what Air Force Chief of Staff Gen. Merrill A. McPeak described in his Convention speech as "reinvention, . . . a break with the past, a transformation." Far from creating a new, static organization, it set the stage for "continuous change, institutionalized change," he said.

"Its target is the objective Air Force, not the Air Force that exists, or even the one that will ever exist, but the Air Force as we would like it to be, the Air Force that is a perfect match for its mission and its circumstances, the Air Force America ought to have," General McPeak said.

The two Air Force leaders addressed the Air Force Association in a week when the four military services were making their arguments to a newly formed Roles and Missions Commission, assigned to take



Photo by Paul Kennedy

Belt-tightening and reorganization are "nearly complete," Air Force Secretary Sheila E. Widnall told this year's Convention visitors. Problems still exist, she admitted, but the most dramatic changes have been made.

a hard look at the overlap and duplication of functions among the armed forces. While everyone who has examined roles and missions in the last ten years found some benefits in this overlap—redundancy of capabilities, for example, or complicating the threat an enemy must deal with—money is scarce, and economies must be found.

It was the Chief of Staff's last AFA Convention speech as leader of the uniformed Air Force. He took the opportunity to explain why the service went through the upheavals of the last four years and the implications of this change for the on-rushing roles and missions debate. Secretary Widnall focused on the future and the upcoming reorganiza-

tional throes the Air Force must now share with its sister services.

Out of Sync

Over its first forty years, the Air Force became "out of sync with our real-world experience," General McPeak asserted. Formed in and shaped by the early years of the Cold War, the Air Force had from the start been focused on strategic bombing, "but we didn't do any strategic bombing—at least not any of the type envisioned by our founding fathers," the General said, "because we have not had to fight an all-out war with an industrialized state."

During that time, it also became obvious that despite the Air Force's strategic bombing orthodoxy, "air-

power was not sufficient in itself to determine the outcome" of most wars.

The result of this "cultural disconnect" was that "some of our people got disoriented." There was "alienation, . . . a kind of aimlessness within our ranks" during the late 1980s, General McPeak added. "Our existing structures had ceased to deal adequately with the problems we faced."

While "it is only a small stretch to claim that Strategic Air Command won the Cold War, . . . the Cold War's end brought along a new set of problems which SAC was not well suited to handle." When the Cold War ended, the Air Force had no "business as usual" to return to, he observed.

The Air Force needed a new culture. Its fundamental tenets were described in the "Global Reach, Global Power" document, which underlined that "we are now able, at last, to employ airpower as first envisioned by the early advocates. We have in hand, finally, the technology that produces the combined effects of maneuver and mass," General McPeak declared. These technologies are embodied in stealth and precision guided munitions: Stealth permits freedom of maneuver, and PGMs "produce mass effects at the desired point."

With new capabilities came a new mission statement: to defend the US through control and exploitation of air and space. "We never had a simple, clear statement of our purposes before," General McPeak acknowledged. "Now we do." Together, the document and mission statement "provided a new theory on which we now base our legitimacy as a separate service."

In modern war, the battle to control air and space "precedes and largely determines the outcome of the contest for territory and population." That is not contested by the other services; the real issue is how air and space forces are organized and directed.

"To Defend the US"

General McPeak noted that the Air Force, as the youngest military service, has always had to carve its niche from areas previously covered by the others, and if control of air and space "is indeed 'our' mission, then this fact has important implica-

tions for the roles and missions debate."

The mission is simply to control air and space as part of defending the nation, the General added. "We are not in the Air Force to preserve the Air Force—or, by the way, to provide meaningful career opportunities or protection against the rising cost of living," General McPeak stated. "We're here . . . to defend the United States—its people, its values, its institutions."

The work began in 1991, which he proclaimed the "Year of Organization." The Air Force structure "had gotten too complicated, too elaborate" and was suffering from "complexity creep."

It was understood that all types of aircraft had to work together in combat, but they were "owned" by a host of organizations that put them together in *ad hoc* arrangements.

"Today, by contrast, the overseas theater air commanders in Europe and the Pacific own virtually all the various kinds of air assets they will be required to integrate in combat," General McPeak said. Air Combat Command "is organized that way too . . . because the continental US is just another theater, the one where most of us serve in peacetime."

The Air Force began integrating at the base level by creating composite wings, doing away with "dotted lines, . . . tenants, detachments, nobody really in charge." First-echelon maintenance went back to the operating squadrons. Groups and group commanders made a comeback.

"We tore down the stovepipes so that all the functional specialties—weather, rescue, communications, contracting, and so forth—now report to the local boss." Air divisions were eliminated, numbered air forces were dropped as a management layer, and major commands were reduced from thirteen to eight, "a huge reduction in overhead." Air Force headquarters was streamlined as well.

"Results have far surpassed expectations," General McPeak reported.

The Air Force attempted to hang on to as many of its "prestigious formations" as possible but with an eye toward eliminating "specialized" titles like bomber wing and fighter wing.

"What we call things . . . sets in concrete how we think about them. . . .

We want to use them in the most flexible way. Elaborate titles promote overspecialization" and limit the possibilities, said General McPeak.

The Revolution

The next steps were the "Year of Training" in 1992 and the "Year of Equipping" in 1993.

The Air Force is "well along" on reinventing training, the Chief of Staff said, and while "it's still a little early to forecast results on the 'equipping' part, . . . it looks like we've made a good start" on mapping out requirements through 2020. Everything has changed, General McPeak said, "even the uniform—perhaps especially the uniform."

"There was a method here," he explained. "An interlocking and mutually supporting set of initiatives, a new theory of air- and spacepower, a quality movement, the reform of our organize, train, and equip functions—altogether a revolution aimed at providing us a new culture, a new and different Air Force."

He charged that criticism of the changes has come "by and large from people who are well-intentioned but who just don't get it yet and maybe won't get it ever. Whatever they may think or say, this is no longer the Cold War Air Force."

The service has been reinvented "on top of all the bad news," he said, referring to unit disbandings, base closures, early retirement boards, reductions in force, and so on.

An outsider might have thought all the change at once would be "too much," the General said, but "we knew better." He explained that the Air Force "is not, in the end, a technical enterprise. It's about people. . . . We get ahead of change, shape change, make change work for us. We reinvented the Air Force, and we've showed the rest of the country how it's done."

The Focal Point for Space

The Air Force's aggressive push to reorganize rubbed more than a few people the wrong way. Last summer, the three other service chiefs appealed to the Chairman of the Joint Chiefs of Staff, Army Gen. John M. Shalikashvili, not to let Air Force proposals to assume control over space functions go forward without more discussion. However, Air Force leadership felt the time was right to

push on and no more time should be wasted on circuitous talking.

"It makes sense that we should be the focal point" of space operations and management, Secretary Widnall said in her keynote address. "The Air Force currently has eighty-three percent of the funding and ninety-three percent of the personnel" who manage space activities on a day-to-day basis.

She insisted that the Air Force is not trying to grow "at the expense of the other services." However, she added, "we do believe it's necessary and right to get the most from DoD's shrinking budget by reducing overlap."

The service that "knows the most about space" should be permitted "to manage the acquisition of space systems, with plenty of input from the others," she asserted.

She revealed a plan to create a Joint Space Management Board, which would be led by the Pentagon's acquisition chief and the CIA's deputy director. The aim would be to move toward eliminating compartmentalization and barriers between the world of "white" (open) space assets and "black" (secret) ones.

"The synergy we'll realize from the combination of black and white space programs should benefit us all," she said. "I think our proposal can save the taxpayer a lot of money and at the same time improve support to the warfighter."

Secretary Widnall said her vision is to make the use of space assets "transparent" to everyone in the military who needs them, meaning they would be available to front-line units without the units having to go through a long chain of command from space to Washington to Colorado and eventually to the battlefield.

"We need global situation awareness," she said. "We must make space support reliable and routine for the warfighter. We must take the mystery out of using space systems for the soldiers, sailors, and airmen out there on the front lines."

She noted that in the Somali relief operation "the first piece of equipment the on-scene commander . . . brought off his plane was a vehicle equipped with satellite communication terminals so he could remain in contact with headquarters in the US. It was a sign of the times."

"Information Dominance"

It is essential, the Secretary said, to get and maintain "information dominance" in any future war. It will enable US forces "to operate inside the enemy's decision loop. Our space forces are central to the revolution in military operations: gathering, processing, and disseminating information on a global basis."

Toward that end, she insisted that the US military adopt "more commercial business practices and use more commercial space components. This will streamline our system and reduce our time lines." Civil, commercial, and military space assets are inherently "dual-use," as proven by the cooperation of DoD with the National Aeronautics and Space Administration and the National Oceanic and Atmospheric Administration in weather forecasting. Similarly, the Global Positioning System is "a success story."

Secretary Widnall predicted that in the future, commercial satellites will outnumber those of the military and could be "drafted" in wartime as part of a plan patterned after the Civil Reserve Air Fleet.

These goals will not be achieved without routine, affordable access to space. "We have to normalize space launch," the Secretary said. "International competition will be intense if the current concepts for personal communications are realized." The Air Force is "ready to go with our space-launch modernization plan," she said, and "we're ready to act instead of react."

"We've identified a core technology program to lay the groundwork for a cheaper, more reliable booster. We've also identified what it takes to sustain and modernize our space-launch infrastructure. When DoD and Congress give us the go-ahead, we'll be off and running." When combined, airpower and spacepower "provide an elegant option to handle our worldwide commitments," she added.

Though she did not discuss other aspects of the roles and missions debate, Secretary Widnall hinted that the Air Force seeks greater control over setting aviation requirements and functions.

"We have not done a good job of reducing the overlap, principally in aviation forces," she said. "Much of this stems from a lack of trust [among] the services. We must overcome this rivalry and take a team approach to the roles and missions concerns. Each service should provide a rational basis for acquiring or continuing various responsibilities."

The person who will referee the debate on roles and missions—Defense Secretary William J. Perry—had planned to address the AFA Convention. In remarks prepared for the event, he focused on improving quality of life for service members, particularly in making sure "we keep a reasonable personnel tempo so that service members can see their families more than occasionally."

Because he was called away at the last minute to deal with a contingency in Haiti, Mr. Perry was unable to deliver his remarks in person, but a copy of his speech was distributed at the Convention. In it, he pledged to do all he could to preserve the commissary benefit, improve the shortage of housing for junior enlisted and junior officers, protect the military health-care benefits members now enjoy, and "stay within the standards we set for the length of deployments."

In order to do so, he said, "we need to take steps to make sure we don't stretch our forces too thin. So we are looking very, very hard at the requests that come in for the use of military forces and weighing them critically."

Secretary Perry said that he had recently chosen to forgo a number of modernization programs in order to protect programs that keep military people happy and healthy.

"The trade-off between people and systems has gotten sharper," he said. "Something's got to give. . . . Our people in uniform have already given a great deal to our nation. We owe them a fair deal in return."

He added that at the end of his tenure he most wants to be judged by "the quality of our forces. I inherited quality forces with high morale, and I want to pass them along to my successor." ■

John Tirpak's report on the 1994 Aerospace Technology Exposition appears on p. 66.



Photo by Paul Kennedy

H. H. Arnold Award winner Gen. John Michael Loh, ACC commander (right), talks with his senior enlisted advisor, CMSgt. Tommy A. Roberts, and Mrs. Roberts at AFA's National Convention. General Loh received the award for significant contributions to national security and for improving USAF combat readiness.

Special Citations and Crew Awards

Award	Recipient(s)	Achievement	Accepted by
Gen. Curtis E. LeMay Award	Crew S-01 (B-1B), 28th Bomb Squadron, 384th Bomb Group, McConnell AFB, Kan.	Best bomber aircrew	Capt. E. West Anderson, instructor, offensive systems officer
Gen. Thomas S. Power Award	Crew S-150, 44th Missile Wing, Ellsworth AFB, S. D.	Best missile crew	Capt. Michael Stern, deputy commander
Lt. Gen. William H. Tunner Award	An aircrew of the 911th Air Refueling Squadron, 4th Wing, Seymour Johnson AFB, N. C.	Best air mobility aircrew	Capt. Shannon D. Weatherman, pilot
Lt. Gen. Claire Lee Chennault Award	Maj. Timothy N. Merrell, 390th Fighter Squadron, 366th Wing, Mountain Home AFB, Idaho	Best aerial warfare tactician	
Gen. Jerome F. O'Malley Award	An RC-135 Rivet Joint crew of the 922d Reconnaissance Squadron, RAF Mildenhall, UK	Best reconnaissance crew	Capt. Douglas Purdy, aircraft commander; MSgt. Michael Tompkins, airborne mission supervisor
Space Operations Award	Delta II Launch crew of the 45th Space Wing, Patrick AFB, Fla.	Best space operations crew	Lt. Col. David Froiseth, launch director
Brig. Gen. Ross G. Hoyt Award	A KC-135 aircrew of the 380th Air Refueling Wing, Plattsburgh AFB, N. Y.	Best air refueling aircrew	Capt. Michael C. Araujo, mission commander
Verne Orr Award	347th Fighter Wing, Moody AFB, Ga.	Most effective use of human resources within USAF	Brig. Gen. Timothy Kinnan, wing commander

National Aerospace Awards

Award	Recipient(s)	Achievement	Accepted by
H. H. Arnold Award (AFA's highest honor in National Security to a member of the armed forces)	Gen. John M. Loh, Langley AFB, Va.	Significant contributions to national security as the first commander of Air Combat Command; vision and inspirational leadership during a period of major organizational change, resulting in improved combat readiness and excellence in requirements definition and development	
W. Stuart Symington Award (AFA's highest honor in National Security to a civilian)	Rep. Ike Skelton (D-Mo.)	Significant contribution to US national security through superb leadership on defense issues in the House of Representatives; tireless advocacy for men and women in uniform, strong efforts on behalf of the bomber force, and superb analysis of the major issues of national security policy	
John R. Alison Award (AFA's highest honor for industrial leadership)	Kent Kresa, chairman and CEO, Northrop Grumman Corp.	Leadership in the defense community and dedication to quality in defense manufacturing that have played an important role in helping to build a strong US industrial base	
David C. Schilling Award (outstanding contribution in Flight)	United States Air Forces in Europe	Sustained superior support, coordination, and employment of USAF assets in a full range of combat and humanitarian missions	CMSgt. Robert W. Bailey
Theodore von Kármán Award (outstanding contribution in Science and Engineering)	B-2 System Program Office, Wright- Patterson AFB, Ohio	Superb performance in managing the revolutionary B-2 Stealth bomber program, surpassing sustainability goals and dramatically improving production efficiency and schedules	Col. Dick Reynolds, program director
Gill Robb Wilson Award (outstanding contribution in Arts and Letters)	Discovery Channel	Consistently providing world-class documentary programming on science and technology, history, human adventure, and exploration, thus increasing public understanding of airpower and its role in making the US the leading aerospace nation	John S. Hendricks, founder, chairman, and CEO
Hoyt S. Vandenberg Award (outstanding contribution in Aerospace Education)	Community College of the Air Force, Maxwell AFB, Ala.	Outstanding efforts to broaden educational opportunities for enlisted forces; unparalleled success in serving the job-related educational needs of Air Force people; enhancing combat readiness and contributing dramatically to enlisted recruiting and retention	Col. Paul A. Reid, president
Thomas P. Gerrity Award (outstanding contribution in Logistics)	Col. William C. Buckley, Barksdale AFB, La.	Unparalleled leadership, superior professionalism, and dedication to duty as commander, 2d Logistics Group, 2d Bomb Wing, Barksdale AFB, La.; directing massive logistics efforts in supporting twelve major exercises and deployments, including the largest land deployment in 2d Bomb Wing history	
Department of Veterans Affairs Employee of the Year	Helen T. Bosshart, VA Medical Center, Augusta, Ga.	Consummate professional performance as coordinator of the Spinal Cord Injury Home Care Program, VA Medical Center, Augusta, Ga.; comprehensive, creative, and innovative approaches to identifying and resolving social needs associated with spinal cord injuries	

Citations of Honor

Recipient(s)	Achievement	Accepted by
SMSgt. Patrick M. Coleman and SrA. Marty Wortwick, Wright-Patterson AFB, Ohio	Astute recognition of the need for, and compilation of, a comprehensive reference source for first-time supervisors of enlisted people. The reference is gaining wide acceptance throughout the Air Force.	
1st Lt. Paul T. Fitzgerald, Luke AFB, Ariz.	Bringing a superb understanding of the flying mission to engineering duties, spearheading a facility construction program to bed down five new fighter squadrons from concept to construction, compressing the schedule and saving thousands of dollars	
Alfred O. Michalec, Hq. Air Intelligence Agency, Kelly AFB, Tex.	Exceptionally creative design of computer and communications networks to provide deployed warfighters near-real-time, all-source intelligence support	
Blake Morrison, editor, <i>USAF Weapons Review</i> Magazine, Nellis AFB, Nev.	Distinguished service in editing and managing <i>USAF Weapons Review</i> Magazine. His timely, authoritative analysis of combat tactics and streamlining publishing processes have greatly enhanced air combat capability.	
Lt. Col. Harlan Ray, Rhein-Main AB, Germany	Distinguished service as 37th Airlift Squadron commander, in charge of the combined joint international airlift effort supporting Operation Provide Promise; leadership in more than fifty humanitarian airdrop and air-land missions into Sarajevo, Bosnia-Herzegovina	
Air Mobility School (now Air Mobility Warfare Center), Fort Dix, N. J.	Outstanding contributions in aerospace education and training; instructing thousands of US and allied personnel in the effective use of the global air mobility system	Brig. Gen. William J. Begert, commander
Civil Service Aircraft Maintenance Unit, Laughlin AFB, Tex.	Outstanding maintenance accomplishments, leading to the unit's becoming the first all-civilian Best Maintenance Unit in the Air Force; innovative aircraft scheduling techniques and superb fleet time management, giving Laughlin AFB, Tex., the best fleet time in Air Education and Training Command	Robert Wood, supervisor
C-141 Management Directorate, Robins AFB, Ga.	Superb coordination and management of extraordinary repair services for C-141 units worldwide, dramatically cutting time for repairs and returning the C-141 fleet to mission-ready status in record time	Col. Charles L. Johnson II, director
Military Satellite Communications Joint Program Office, Los Angeles AFB, Calif.	Record-setting performance in launching and operating three communications satellites, including Milstar, with new technology, in only eight months; superb technical skills, exceptional leadership, and "can-do" spirit	Brig. Gen. Leonard F. Kwiatkowski, program director
1st Space Operations Squadron, Falcon AFB, Colo.	Unparalleled success in space launch and operations, including solving technical difficulties in orbit, for three top-priority Department of Defense satellite systems that provided vital support to US forces worldwide	Lt. Col. Bob Hooten, deputy group commander
7th Special Operations Squadron, RAF Alconbury, UK	Brilliant conception, testing, and development of the triwall aerial distribution system, a free-fall method providing the international airlift force with a safe, efficient, and widely applicable means of delivering humanitarian aid	Lt. Col. David Scott, commander

Management, Environmental Achievement, and C⁴ Excellence Awards

Award	Recipient
AFMC Management AFMC Executive Management Award AFMC Middle Management Award AFMC Junior Management Award	Col. Joseph M. Renaud, Newark AFB, Ohio Lt. Col. Kermit O. Rufsvold, Edwards AFB, Calif. Capt. Brian D. Amos, Hill AFB, Utah
Environmental Achievement Gen. Edwin W. Rawlings Award for Environmental Excellence (Manager) Gen. Edwin W. Rawlings Award for Environmental Excellence (Technician)	Maj. David Ortiz, Sr., Lajes Field, Azores TSgt. Blake C. Bryan, Scott AFB, Ill.
C⁴ Excellence Gen. Billy Mitchell Award	MSgt. Toby C. Logan, Langley AFB, Va.

Professional, Civilian, and Educational Awards

Award

Stuart R. Reichart Award for Lawyers
 Paul W. Myers Award for Physicians
 Christa McAuliffe Memorial Award for Teachers
 Sam E. Keith, Jr., Aerospace Education
 Award of Excellence
 Personnel Manager of the Year
 Crew Chief of the Year
 Civilian Wage Employee of the Year
 Civilian Program Specialist of the Year
 Civilian Program Manager of the Year
 Civilian Senior Manager of the Year
 Joan Orr Air Force Spouse of the Year
 AFROTC Cadet of the Year
 CAP Aerospace Education Cadet of the Year
 Diane O'Malley Angel of the Year
 Juanita Redmond Award for Nursing

Recipient

Col. Jerald D. Stubbs, Wright-Patterson AFB, Ohio
 Lt. Col. Randall E. Fellman, 432d Medical Group, Misawa AB, Japan
 Carol Denicole, Central Florida Chapter
 Alamo Chapter, Tex.

 SSgt. Kevin L. Fairfax, Hurlburt Field, Fla.
 SSgt. Mark S. Allen, McChord AFB, Wash.
 Edgar J. Thomas, Laughlin AFB, Tex.
 Diana L. Wenant, McConnell AFB, Kan.
 Joseph E. Butler, Grand Forks AFB, N. D.
 Jan Scott Godshall, RAF Mildenhall, UK
 Margaret A. Hebert, Iraklion AS, Greece
 Gregory K. Parker, University of Hawaii, Honolulu, Hawaii
 Mark A. Malan, USAF Academy, Colo.
 Deborah L. Miller, Texas Christian University, Fort Worth, Tex.
 Capt. Melanie J. Nelson, Bitburg AB, Germany



Capt. Melanie J. Nelson (center) of Bitburg AB, Germany, received AFA's Juanita Redmond Award for Nursing. Presenting Captain Nelson with the award are outgoing AFA National President James M. McCoy (left) and Brig. Gen. Sue E. Turner.

Photo by Paul Kennedy

Air National Guard and Air Force Reserve Awards

Award	Recipient(s)	Achievement	Accepted by
Earl T. Ricks Award	Maj. Richard G. Williams, Jr., 157th Fighter Squadron, McEntire ANGB, S.C.	Outstanding airmanship in the Air National Guard	
Air National Guard Outstanding Unit	185th Fighter Group, Sioux City, Iowa	Outstanding ANG unit of the year	Capt. Jody C. Mahler, pilot
Air Force Reserve Outstanding Unit	512th Airlift Wing (Associate), Dover AFB, Del.	Outstanding Air Force Reserve Unit of the year	Col. Peter T. Bentley, commander
President's Award for the Air Force Reserve	Aircrew of the 756th Airlift Squadron, Andrews AFB, Md.	Top flight crew in the Air Force Reserve	Capt. John Gillham, aircraft commander
CMSgt. Dick Red Award	CMSgt. Howard L. Steffey, 132d Fighter Wing, Des Moines, Iowa	Outstanding aerospace maintenance by an enlisted member of ANG	

1994 Unit Activity Awards

Donald W. Steele, Sr., Memorial Award: AFA Unit of the Year
Langley Chapter, Va.

Outstanding Chapters

Central Florida, Fla.
(more than 900 members)

General David C. Jones, N. D.
(401-900 members)

On Wings of Eagles, Fla.
(151-400 members)

P-47 Memorial, Ind.
(20-150 members)

Exceptional Service Awards

Jerry Waterman Chapter, Fla.
(Aerospace Education)

General B. A. Schriever Los Angeles Chapter, Calif. (Best Single Program)

Dale O. Smith Chapter, Nev.
(Communications)

Carl Vinson Memorial Chapter, Ga.
(Community Relations)

Donald W. Steele, Sr., Memorial Chapter, Va. (Overall Programming)

Grissom Memorial Chapter, Ind.
(Veterans' Affairs)

Aerospace Education Fellowships

(Additions since September 1994 issue)

Name	Sponsor
Barry Goldwater Fellows	
Recognizes \$5,000 contribution	
James M. Keck and Gerald V. Hasler	Aerospace Education Foundation Board of Trustees
Individual Jimmy Doolittle Fellows	
Recognizes \$1,000 contribution	
William Russell	Langley Chapter (Va.)
George Batchelor	John W. DeMilly, Jr., and Miami Chapters (Fla.) and The Greater Miami Air Force Ball Committee
Doris Gilpin (<i>in memoriam</i>)	General Dan F. Callahan Chapter (Tenn.)
George Haddaway	Mrs. H.H. Timken, Jr.
Individual Ira C. Eaker Fellows	
Recognizes \$1,000 contribution	
Kathy McCoy	James McCoy

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Langley (Va.) Chapter President Robert M. Kuhns (right) accepts the Arthur C. Storz, Sr., Award from President McCoy on behalf of his chapter. Langley was recognized for recruiting the greatest number of new members as a percentage of total chapter membership.

1994 Community Partner Membership Awards

These awards are presented to chapters with significant community outreach and are based on March 31, 1994, chapter membership totals.

President's Award

This award recognizes the chapter that has recruited the greatest percentage of Community Partners (in terms of chapter membership). Chapters must have a minimum of fifteen Community Partners to qualify.

Lloyd R. Leavitt, Jr., Mich.

Gold Awards

These awards recognize chapters that have a total number of Community Partners equal to or greater than three percent of their overall chapter membership, with a minimum number of Community Partners to qualify. The minimum number is determined by the chapter size.

Ak-Sar-Ben, Neb.
Altus, Okla.
Cape Canaveral, Fla.
Eagle, Pa.
Enid, Okla.
Green Valley, Ariz.
Langley, Va.
Llano Estacado, N. M.
Lloyd R. Leavitt, Jr., Mich.
Pope, N. C.
Scott Berkeley, N. C.
Wright Memorial, Ohio

Achievement Awards

These awards recognize chapters that have a total number of Community Partners equal to or greater than one percent of their overall chapter membership, with a minimum number of Community Partners to qualify. The minimum number is determined by the chapter size.

Albuquerque, N. M.
Anchorage, Alaska
Ark-La-Tex, La.
Carl Vinson Memorial, Ga.
Central Florida, Fla.
Central Oklahoma (Gerrity), Okla.
Cheyenne Cowboy, Wyo.
Colonel H. M. "Bud" West, Fla.
Colorado Springs/Lance Sijan, Colo.
Concho, Tex.
Contraails, Kan.
Dacotah, S. D.
David D. Terry, Jr., Ark.
Delaware Galaxy, Del.
Fairbanks Midnight Sun, Alaska
Florida Highlands, Fla.
General B. A. Schriever Los Angeles, Calif.
General David C. Jones, N. D.
Golden Triangle, Miss.
Grissom Memorial, Ind.
H. H. Arnold Memorial, Tenn.
Inland Empire, Wash.
John C. Stennis, Miss.
Longs Peak, Colo.
Lubbock, Tex.
Montgomery, Ala.
Richard D. Kissing, Iowa
Robert H. Goddard, Calif.
South Georgia, Ga.
Suffolk County, N. Y.
Swamp Fox, S. C.
Thunderbird, Nev.
Tidewater, Va.
Tucson, Ariz.
Wichita Falls, Tex.

Arthur C. Storz, Sr., Membership Awards

AFA's most prestigious awards are named for Arthur C. Storz, Sr., a former permanent AFA National Director, a Life Member, and principal founder of the Ak-Sar-Ben Chapter. The Storz Membership Awards, made possible through a generous endowment to the Association by his son Art Storz, Jr., have been awarded for membership excellence based on criteria approved by AFA's Board of Directors for the year ending March 31, 1994.

Chapter Award

Presented to the AFA chapter that acquires the most new members during the twelve-month period ending March 31, 1994, as a percent of total chapter membership as of March 31, 1993.

Langley, Va.

Individual Award

Presented to the AFA member or members who have done the most to promote AFA membership during 1993-94.

Lt. Col. Mark W. Andrews

Named in Memorial Tribute

USAF and AFA leaders and supporters and aviation pioneers who died during the past year

CMSgt. Hardy B. Abbott, USAF (Ret.)
 Brig. Gen. Nicholas E. Allen, USAF (Ret.)
 John L. Archer
 Col. Roy I. Arroll, CAP
 Donald Atwood
 Brig. Gen. Robert S. Berg, USAF (Ret.)
 Maj. Gen. Kenneth P. Bergquist, USAF (Ret.)
 Millicent S. Boyd
 John R. Broughan
 Maj. Gen. Howard G. Bunker, USAF (Ret.)
 Brig. Gen. Harmon E. Burns, USAF (Ret.)
 Air Vice Marshall Robert A. Cameron, RCAF (Ret.)
 Sheri Cavin
 Maj. Gen. Kenneth R. Chapman, USAF (Ret.)
 Sally Chuvala
 Gen. Lucius D. Clay, USAF (Ret.)
 W. Graham Claytor, Jr.
 Mary Coyne
 Lt. Gen. Laurence C. Craigie, USAF (Ret.)
 Helen G. Deming
 Gen. Charles L. "Chuck" Donnelly, Jr., USAF (Ret.)
 Gen. James H. Doolittle, USAF (Ret.)
 Frank A. Douglas
 Lee A. Dubridge
 Maj. Gen. Leo F. Dusard, Jr., USAF (Ret.)
 Brig. Gen. Harvey W. Eddy, USAF (Ret.)
 William Errington
 Lt. Col. Richard B. Fillyaw
 James J. Fisher
 Lt. Col. Vermont Garrison, USAF (Ret.)

J. Miller Godberson
 Rolla F. Gray
 Charles G. Gulledge
 Peter Hackes
 CMSgt. Duane D. Hackney, USAF (Ret.)
 Col. Alfred J. Hanlon, USAF
 Carl Hansen
 Dean Hart
 Tess Haugland
 John T. Hines
 Lt. Col. Raymond D. Houseman, USAF (Ret.)
 Col. Glenn A. Jones, USAF (Ret.)
 Thomas N. Jones
 Thomas L. Juroshek
 Aaron R. Kagann
 Col. Joseph W. Kellogg, USAF (Ret.)
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 Marge Laitos
 Francis X. Lamm
 Maj. Gen. Oliver W. Lewis, USAF (Ret.)
 Carlton Loos
 Maj. Gen. Dewey K. K. Lowe, USAF (Ret.)
 Wilbur P. Lyell
 Elizabeth Markey
 Lt. Gen. Glen W. Martin, USAF (Ret.)
 Col. John T. McCoy, Jr., USAF (Ret.)
 CMSgt. Gordon A. McCulloch, USAF (Ret.)
 Lt. Col. Edward S. Michael, USAF (Ret.)
 Zack Mosley
 Joseph J. Nadel
 Hon. Richard M. Nixon
 Robert J. Norvell, Jr.
 Hon. Thomas P. O'Neill
 Col. James D. Pennefeather
 Lt. Laura Ashley Piper

Robert Polansky
 CMSgt. John "J.J." Pollock, Jr. USAF (Ret.)
 William J. Potts
 Lewis Procter
 Chester A. Richardson
 Brig. Gen. Herman Rumsey, USAF (Ret.)
 Col. Earl J. Scalet, Jr.
 Herbert W. Schwartz
 Edward H. Sharkey
 Charles L. Sharp
 Edward A. Stearn
 Gen. Johannes Steinhoff, USAF (Ret.)
 Bob Stevens
 Gloria Stewart
 Maj. Gen. Paul D. Straw, USAF (Ret.)
 Leonard D. Sullivan
 James W. Taddeo
 Roger Tierney
 Lt. Gen. Eugene F. Tighe, Jr., USAF (Ret.)
 Bernard J. Walsh
 Lt. Col. Richard B. Wareing, USAF (Ret.)
 Maj. Gen. Harold E. Watson, USAF (Ret.)
 Charles E. Webb
 Carl R. Wildner
 Margaret Wilson
 Col. James W. Wright, USAF (Ret.)

Convention attendees took a musical trip back in time as this quintet from the Singing Sergeants paid tribute to the glory days of the Army Air Forces and to the World War II veterans at the Convention.



Photo by Paul Kennedy



In appreciation of more than thirty years as AFA's director of protocol, Dorothy L. Flanagan received a special Gold Life Membership card.

1994 Individual Activity Awards

Gold Life Membership Card

Dorothy L. Flanagan

Member of the Year

William A. Lafferty

Special Awards

George R. Weinbrenner
5th Air Force
9th Air Force
11th Air Force
15th Air Force

Presidential Citations

Robert J. Cantu
David R. Cummock
H. E. "Bus" Humfeld
Bill Michael
Joseph Musil
Richard A. Ortega
George A. "Pete" Peterson
Sally R. Reid
P. K. Robinson
Arthur F. Trost

Special Citations

Air Intelligence Agency
Amarillo (Tex.) High School Newspaper
The Sandstorm
Norfleet "Cal" Callicott
James E. Cvik
Dr. Kenneth Daly
Noboru "Nobby" Masuoka
Alan K. Olsen
Earle N. Parker (*in memoriam*)
CMSAF Gary R. Pfingston, USAF
James A. Riccardi
William H. Russell
Museum of Aviation, Robins AFB, Ga.

Exceptional Service Awards

Patricia A. Accetta
D. K. "Denny" Acheson
Joe Allen
Jack G. Anderson
Richard W. Asbury
Robert M. Balch
Thomas G. Bates
Paul E. Bell
Robert Berglund
Joseph M. Capriglione
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Baldwin "Dom" Domingo
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James A. Flood, Sr.
Gene Foster
Maj. Chris Geisel, USAF
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Ron Goerges
Eugene B. Goldenberg
Herbert E. Goodman
Ralph Jack Goss
Maj. Donald R. Graves, USAF
Raymond "Bud" Hamman
Harold F. Henneke
Thomas J. Hickey
M. Elisabeth Humphries
Frank W. Huppert
Ronald L. James
Kenneth Kelly
Thomas Joseph Kemp
Roselyn Knapp
Lt. Col. Ronald Kornreich, USAF
Charles G. Kucera
Richard E. Kyle
Peter Barry Lane
Preston A. Leap
Albert Leferink, Jr.
Chester A. Lowe, Jr.
James C. Lloyd
David V. Massey

Robert Graham McCullough
Shirley Miles
Doris "Dee Dee" Millican
G. G. "Nick" Nicolai
Michael J. O'Connor
Robert E. O'Connor
David A. Olson
Harold B. "Tex" Owens
Linda D. Pagett
Edward S. Papelian
Bryan B. Paul
Dean M. Pittman
Glenn O. Plaumann
H. Thomas Reed
Richard S. Reid, Sr.
Charles R. Renfro
Robert B. Roit
Patrick Ryan
Helen Seidel
Richard E. Siner
Dr. Phillip J. Sleeman
Jeanette M. Spearman
David C. Stoltz
Charles X. Suraci, Jr.
CMSgt. Jack Szalaszny, USAF
Richard C. Taubinger
Maj. Daniel B. Thomas, USAF
CMSgt. Gary L. Thomas, USAF
James O. Tyler

Jack B. Flaig Communications Award

Kenneth K. Robertson, Jr.

Medal of Merit

David M. Anderson
Lt. Col. Mark W. Andrews, USAF
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Donald E. Barnhart
Thomas "Sam" Bass, Jr.
Seymour Berman
Dru Blair
Robert W. Blocher
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Photo by Paul Kennedy

Retiring CMSAF Gary R. Pfingston (center), whose work as chief senior enlisted advisor and advisor of AFA's Enlisted Council earned him an AFA Special Citation, shares a laugh with former CMSAF and outgoing AFA National President James M. McCoy (left) and Vice Chief of Staff Gen. Thomas S. Moorman, Jr.

1994 AFA Membership Awards

The following chapters have qualified for these awards based on their recruitment of new members during the twelve-month period ending March 31, 1994.

Silver Award: 20% new members and net growth between 5% and 10%

Langley, Va.
Wichita Falls, Tex.

Membership Achievement Award: 20% new members and net growth up to 5%

Maj. Charles J. Loring, Jr., Me.
Misawa, Japan

Special Award: 15% new members

Del Rio, Tex.
Grissom Memorial, Ind.
Lawrence D. Bell Museum, Ind.
Paul Revere, Mass.
Richard D. Kissing, Iowa



The T-Bird II from Lockheed Aeronautical Systems Company/Aermacchi s.p.a./Rolls-Royce plc/Textron Aerostructures.

Lockheed leads.

T-Bird II. Non-developmental masterpiece.

The T-Bird II is nearly identical to the 180+ MB-339s already delivered to eight countries—the few minor differences being an improved environmental control system, noise reduction, and avionics upgrades.

MB-339 trainers are still being produced. Their training qualities include high student tolerance, no maneuver restrictions, wide performance envelope, and textbook handling characteristics. These add up to one of the finest safety records and highest user satisfaction for any training aircraft. The T-Bird II shares in, and builds on, this legacy.

MB-339s have so far trained more than 1,500 student pilots and flown well over 300,000 hours. No other JPATS competitor can come close to the T-Bird II in claiming to be: an in-production aircraft with an extensive history as a trainer, "off-the-shelf" or "non-developmental."

 **Lockheed**



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Information regarding AFA activity within a particular state may be obtained from the vice president of the region in which the state is located.



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Barrington, N. H.

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Craig R. McKinley
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Arlington, Va.

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Nobody's Laughing

"Ask anybody what we're doing here and they'll say, 'I don't know.' This is a joke."

US Army Specialist Marc Pierre, member of the US armed forces peacekeeping contingent in Haiti, as quoted in the October 3, 1994, issue of USA Today.

Russian Nuclear Forces

"Already the Russians are reducing their warheads more slowly than ours. There's a question about what might happen in the future. . . .

"Let me remind you that Russia has little prospect of returning to the kind of conventional force structure that they had at the height of the Cold War, given the collapse of their economy and the change in their political system. It is a less expensive and less demanding matter for them to return to a much more aggressive nuclear posture. So, if something does go wrong in Russia, it is likely that it is in the nuclear forces area that we will face the first challenge."

John M. Deutch, deputy secretary of Defense, in a September 22, 1994, Pentagon press briefing on the results of the Nuclear Posture Review, which called for retaining a robust US nuclear force to hedge against the possibility of Russian aggression.

High Hopes

"For Russia, a military threat will never again rise from German soil. . . . Today is the last day of the past."

Russian President Boris N. Yeltsin, in August 31, 1994, remarks in Berlin marking the departure from Germany of the last 1,800-troop contingent of a 338,000-strong Soviet force that had occupied eastern Germany since World War II.

Nonproliferation, Horner-Style

"What we say is, 'You've got one nuclear weapon and I'm going to turn your country into the north Nellis bombing range.'"

Gen. Charles A. Horner, outgoing commander in chief, US Space

Command, in July 15, 1994, remarks to the Defense Writers' Group in Washington, D. C., about how to deter rogue nations, such as North Korea and Iran, from acquiring nuclear weapons.

Lack of Professionalism

"There were a shocking number of instances where individuals failed to do their jobs properly. This fact, I'm convinced, more than any other contributing cause, led to this tragedy. Had everyone involved been doing their job correctly, this tragic accident would not have happened."

Gen. John M. Shalikashvili, Chairman of the Joint Chiefs of Staff, in a July 13, 1994, Pentagon press conference, referring to AWACS and F-15C crews that were involved in the April downing of two UH-60 Black Hawk helicopters over northern Iraq.

Cost-Effectiveness

"The North Koreans have just under a thousand tactical aircraft, and they got those aircraft rather cheaply. But all of those aircraft would be either destroyed or grounded by the second day, by the third day of a combat with the US Air Force. So we pay a lot more for our equipment, but we get a lot more for it too."

William J. Perry, Secretary of Defense, in July 12, 1994, testimony before the Senate Defense Appropriations Subcommittee.

Nitze on Bombers

"If we decide to shut down the B-2 or other similar programs, we must do so with the clear understanding that we are shutting down the industrial base that supports them and diverting the technological development they create. Even simply mothballing production and restarting is extremely expensive. Les Aspin estimated that rebuilding a shipyard would cost about \$1.5 billion and take six or seven years. With the B-2's technologies it will cost more and take longer, time we would not have in a crisis or as long-term needs are perceived."

Paul H. Nitze, former strategic arms control negotiator, deputy secretary of Defense, and Navy Secretary, in a July 17, 1994, article in the Washington Post.

Command, Control, and Questions

"The President will never relinquish command of United States forces; that is inviolable. Operational control is a subset of command. Operational control can be given for a specific time frame, for a specific mission, in a particular location. . . . We may place the US forces under the operational control of foreign commanders. . . . We've always had the ability to task-organize and place some US units under foreign operational control. . . . This . . . policy preserves our option to do that. . . .

The greater the US military role, the more likely that the operations involved entail combat, then the less likely we are to place those forces under foreign operational control."

Army Lt. Gen. Wesley Clark of the National Security Council staff, in a May 5, 1994, briefing on US policy for peacekeeping operations.

People, Not Weapons

"Bill Perry and I believe that we must identify additional dollars over the five-year defense planning period to support readiness, military pay increases, and quality of life improvements for our troops. . . .

"In our view, unless we get more money from Congress, which we doubt will happen, in order to fund these needs of readiness, military pay, and quality of life for our troops, we will have to reduce some of our outyear modernization programs. In sum, this message is: Money is tight, and we are choosing people over systems."

John M. Deutch, deputy secretary of Defense, in an August 23, 1994, Pentagon press briefing to explain why he and Defense Secretary William J. Perry were again considering canceling many major weapon programs. ■



National Report

AFA Says Pay and Benefits Are Not Adequate

Citing the erosion of pay and benefits at a time when operational deployments are increasing, the Air Force Association warned that the All Volunteer Force is in a "fragile state" and that future readiness could be adversely affected if current trends continue.

In its 1995 Issue Paper on Manpower and Personnel, released during AFA's 1994 National Convention, held September 12-14, the Association noted that 100,000 superbly qualified military and civilian personnel have left the Air Force since 1992. For those who stay, they must do more with fewer resources. Air Force people are involved in operations around the world — Provide Comfort and Southern Watch in Iraq, Provide Promise and Deny Flight in Bosnia, Continued Hope in Soma-

lia, Provide Assistance in Rwanda, and the recent operation in Haiti.

"For all those in uniform who must make sacrifices every day, benefits continue to erode," the paper states. "In 1992, according to the Bureau of Labor and Statistics, about 17,000 service members were receiving food stamps. In military commissaries, food stamp redemption in 1993 increased to 27.4 million from 24.5 million the previous year."

Military pay is not keeping up with inflation, and it continues to lag behind private sector wages, the Association points out. The current gap of 12.3 percent is projected to rise to 19.8 percent by 1999.

The Association also harshly criticized attempts by some members of Congress to eliminate, de-

lay, or reduce, annual cost-of-living adjustments (COLAs) for military retirees. The paper expressed equal concern over the threat to retirees' health benefits.

The nation must continue to attract quality people, and it must provide them with modern equipment and adequate training, the paper states, adding that problems exist in all of these areas.

"It is time to recognize that, unless the force structure is properly sized to meet the requirements of the administration's two-major-regional-conflict strategy, and unless pay and benefits are adequate enough to attract the best people to our All Volunteer Force, U.S. military readiness will continue to suffer," the paper concludes. "Putting people first should be more than a slogan."

Kassebaum Introduces Enola Gay Resolution

On September 19, Sen. Nancy Kassebaum (R-KS) introduced a Sense of the Senate Resolution that called the National Air and Space Museum's most recent script revision of "The Last Act: The Atomic Bomb and the End of World War II," dated August 31, "revisionist and offensive to many World War II veterans."

The resolution was unanimously adopted three days later. It stated that the exhibit featuring the *Enola Gay*, the B-29 that dropped the first atomic bomb, "should reflect appropriate sensitivity toward the men and women who faithfully and selflessly served the United States during World War II and should avoid impugning the memory of those who gave their lives for freedom."

The ten cosponsors of the Senate bill are:

Sen. Jeff Bingaman (D-NM)
Sen. William Cohen (R-ME)
Sen. Robert Dole (R-KS)
Sen. Wendell Ford (D-KY)
Sen. Kay Bailey Hutchison (R-TX)
Sen. Dirk Kempthorne (R-ID)

Sen. Richard Lugar (R-IN)
Sen. Sam Nunn (D-GA)
Sen. Jim Sasser (D-TN)
Sen. Ted Stevens (R-AK)

Rep. Pat Roberts (R-KS) introduced the same resolution in the House of Representatives.

During AFA's National Convention, the delegates unanimously adopted a resolution that calls on the museum to address the "serious lingering structural, contextual and ideological" flaws in the most recent script. In a September 27 letter to Museum Director Martin Harwit, AFA Executive Director Monroe W. Hatch, Jr., outlined these issues in detail, noting that "time is running out to obtain a consensus in favor of this exhibit."

Unit Reunions

Retired Air Force Explosive Ordnance Disposal Personnel. December 2-3, 1994, at the Holiday Inn in Fort Walton Beach, Fla. **Contact:** CMSgt. Marshall B. Dutton, USAF (Ret.), P. O. Box 204, Valparaiso, FL 32580-0204 Phone: (904) 678-6191.

Allied Services Veterans (World War II). December 18-23, 1994, in Las Vegas, Nev. **Contact:** Premier Events, 2001 E. Flamingo Rd., Suite 204, Las Vegas, NV 89119. Phone: (702) 737-3986 or (800) 737-7574.

Bombardiers (World War II and Korea). May 3-7, 1995, at the Hilton Hotel in Little Rock, Ark. **Contact:** Henry J. Wehmer, 4 Oriole Cir., Little Rock, AR 72205-5140. Phone: (501) 666-8614.

Persian Gulf Veterans 1942-45 (World War II). April 5-9, 1995, at the Sheraton-Baltimore North in Towson, Md. **Contact:** Albert H. Leimkuhler, 2605 Chesley Ave., Baltimore, MD 21234. Phone: (410) 426-8031.

Sewart AFB, Tenn., Personnel. May 24-30, 1995, at the Marriott Hotel in Nashville, Tenn. This outfit was formerly the 314th Troop Carrier Wing/Tactical Airlift Wing. **Contacts:** Sewart AFB Reunion, P. O. Box 160384, Nashville, TN 37216. Phone: (800) 251-8434 (Col. Melvin N. Ledbetter, USAF, Ret.) or (615) 885-3689 (Bart McCarthy).

Stalag Luft I. Fiftieth-anniversary reunion of former "kriegies" (prisoners of war), June 1, 1995,



Photo by Paul Kennedy

AFA's National Convention gave AFA members the opportunity to meet leaders of the congressional defense establishment. Here, Sen. Charles Robb (D-Va.), a Marine Corps veteran, discusses defense issues at one of the twenty-one congressional breakfasts hosted by various state delegations.

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Unit Reunions

in Barth, Germany. **Contact:** Philip J. Gibbons, 549 N. E. 8th Ave., Deerfield Beach, FL 33441. Phone: (305) 421-1029.

Stalag Luft III. Fiftieth-anniversary reunion of former prisoners of war, May 11-14, 1995, in Cincinnati, Ohio. **Contact:** Robert Weinberg, 2229 Rock Creek Dr., Kerrville, TX 78028-6503. Phone: (210) 257-4643.

26th Air Division, Roslyn AFS, N. Y., 1949-58. May 12-14, 1995, in Louisville, Ky. **Contacts:** Clifford E. Loper, 2846 Longleaf Rd., Panama City, FL 32405-2045. Phone: (904) 872-9882. Virginia S. Taylor, 903 Sandwich Rd., East Falmouth, MA 02536. Phone: (508) 540-2279.

Pilot Class 45-B, Marfa Field, Tex. Fiftieth-anniversary reunion, May 26-28, 1995, at the Hope Hotel at Wright-Patterson AFB, Ohio. **Contact:**

Robert F. Burdorf, 1001 N. Shellbark Rd., Muncie, IN 47304-3177. Phone: (317) 289-4852.

Undergraduate Pilot Training Class 55-E, Webb AFB, Tex. December 2-4, 1994, in Las Vegas, Nev. **Contact:** Col. Frank C. Lenahan, USAF (Ret.), 4443 Via Majorca, Cypress, CA 90630. Phone: (714) 827-9197.

311th Pursuit Squadron, 311th Fighter Squadron (World War II), **311th Fighter-Bomber Squadron** (Korea). June 15-18, 1995, in Charleston, S. C. **Contact:** E. R. James, 13083 Fern-trails Lane, St. Louis, MO 63141. Phone: (314) 878-5953.

474th Fighter Group (World War II). Fiftieth-anniversary reunion, May 4-7, 1995, at the Menger Hotel in San Antonio, Tex. **Contact:** Col. Lloyd M. N. Wenzel, USAF (Ret.), 204 Turtle

Creek Dr., Tequesta, FL 33469. Phone: (407) 747-2380.

494th Bomb Group (H). Fiftieth-anniversary reunion, March 29-April 2, 1995, at the Hilton Resort Hotel in Myrtle Beach, S. C. **Contacts:** Lt. Col. Richard C. Keller, USAF (Ret.), 213 Mallard Dr., Camillus, NY 13031. Mickey Gajkowski, 205 Stonebridge Dr., Myrtle Beach, SC 29577.

11th and 12th Tactical Reconnaissance Squadrons, 6166th Weather Flight, Korean War, 1950-54. Planning a reunion for June 1995. **Contact:** W. R. Novak, Box 141, Rte. 1, Lost Springs, KS 66859. Phone: (913) 983-4495.

19th Logistics Support/Air Transport/Military Airlift Squadrons, Kelly AFB, Tex. Seeking contact with former members for a reunion in 1995 in Las Vegas, Nev. **Contact:** T. M. Lynn, 5307 Keystone Dr., San Antonio, TX 78229.

Class 55-C. Trying to locate members for a fortieth-anniversary reunion. **Contact:** Col. Edward A. Travis, USAF (Ret.), 5835 Cardinal Way, Greensboro, NC 27410. Phone: (910) 665-1285 (home) or (910) 273-9465 (work).

61st Maintenance Squadron/Berlin Airlift (1948-51). Seeking Berlin Airlift veterans of the 61st MS for a reunion. **Contact:** Tom Tallant, 1207 Johnson Dr., Fort Worth, TX 76126. Phone: (817) 249-2411



Rep. Herbert H. Bateman (R-Va.), a member of the House Armed Services Committee, found an attentive listener in Langley (Va.) Chapter's George Golden (right) at an AFA Convention breakfast.

Mail unit reunion notices well in advance of the event to "Unit Reunions," **AIR FORCE Magazine**, 1501 Lee Highway, Arlington, VA 22209-1198. Please designate the unit holding the reunion, time, location, and a contact for more information.

Bulletin Board

Seeking the whereabouts of **Rudolph G. Servansky**, B-47 navigator-bombardier with the 49th Bomb Squadron, 2d Bomb Wing, Hunter AFB, Ga., 1955-57. **Contact:** Ronald J. Thiele, 598 Serenade St., Grand Junction, CO 81504.

Seeking information on B-24 pilot **Lt. Howard E. Hines**, of the 700th Bomb Squadron, 445th Bomb Group, 8th Air Force, who was killed in a training accident near Honington, UK, April 22, 1945. **Contact:** Jerome H. Hines, 2949 Milton Dr., San Jose, CA 95148-2810.

Researcher seeks contact with veterans of the **1st, 14th, and 82d Fighter Groups**, who participated in missions to southern Poland in June and July 1944. **Contact:** Andre R. Mol, 1/6 Russell St., Cranbourne, Victoria 3977, Australia.

Seeking information on **Lieutenant Grey** and other members of a **B-17 crew** that crashed near Rotterdam, Holland, in 1944 or 1945. Their remains were later removed to the US or to another European cemetery. **Contact:** Capt. Robert A. Hand, Sr., USAF (Ret.), 6197 97th Court, S., Boynton Beach, FL 33437.

Seeking **Lt. J. E. Braithwaite**, a USAF pilot with the RAF's 622 Squadron in the UK in 1944. **Contact:** David Harvey, 8 Bransbury Rd., Southsea, Hampshire PO4 9JY, UK.

Seeking the whereabouts of **Maj. Joseph F. Nesmith**, who was the 46th Troop Carrier Squadron commanding officer in Korea in 1947. **Contact:** James R. Erickson, 1027 N. Oakhill Ave., Janesville, WI 53545.

Researcher seeks contact with 4th Fighter-Interceptor Wing pilots who flew F-86Fs in Korea as part of **Project Gun-Val**. **Contact:** John Henderson, 1015 Horizon Dr., Ventura, CA 93003.

Seeking contact with B-24 crew members who flew with **Bill Wright**, 9th Bomb Squadron, 7th Bomb Group, on a mission to Burma on December 1, 1943. **Contact:** Helene F. Enderlin, 6 Locksley Ave., Apt. 8L, San Francisco, CA 94122.

Seeking information on medals and awards given to Korean War aces **Maj. James Jabara**, **Capt. Manuel J. Fernandez**, and **Capt. Joseph McConnell, Jr.** **Contact:** Kent Kistler, 3506 221st Ave., S. E., Issaquah, WA 98027.

fact: Lt. Col. Larry Rider, USAF (Ret.), 3104 E. Camelback Rd., Suite 548, Phoenix, AZ 85016-4502.

Seeking contact with veterans of the **99th Fighter Squadron; 332d Fighter Group; 33d and 79th Fighter Groups**, who served from mid-1943 to mid-1944; and **15th Air Force bomber or fighter pilots** who associated with them. **Contact:** William A. Percy, 137 Nacoochee Ave., Apt. #214, Athens, GA 30601.

Seeking the whereabouts of **Lt. Richard A. Stitt**, B-25 copilot with the 17th Reconnaissance Squadron, 5th Air Force, Ie Shima and Yokota, Japan, in 1945. Last known address was Scotch Plains, N. J. **Contact:** Robert Serveiss, 11450 N. Shore Dr., #504, Reston, VA 22090-4240.

Seeking information on **Lt. Charles Gregg** (58th Fighter Group), **Capt. Carl Stewart** (79th Fighter Group), and **Maj. Dayton C. Casto** (361st Fighter Group). Also seeking information on anyone who named his aircraft after his home state. **Contact:** Robert H. Powell, 1545 Rainier Falls Dr., Atlanta, GA 30329.

Seeking information on **Col. David Arthur Burchinal, Jr.**, born in April 1915. His last known address was Fairfax, Va. **Contact:** Marji Naylor, 37 Walnut Dr., Morgan Hill, CA 95037.

Seeking **patches** for the 7th Wing, 337th and 9th Bomb Squadrons, and 39th and 40th Airlift Squadrons from Dyess AFB, Tex. **Contact:** Jimmy Fallon, 3025 S. E. Burton St., Topeka, KS 66605.

Seeking information on **2d Lt. Kenneth Beales**, killed in a September 1943 crash between a B-17 and a fighter plane at Thorpe Abbots, UK. **Contact:** D. Parker, 167 Gloucester Ave., Chelmsford, Essex CM2 9DX, UK.

Seeking contact with members of **Pilot Class 44-G**, Central Flying Training Command (SAACC Pilot Preflight), and the Pine Bluff AAF, Ark., primary; Independence AAF, Kan., basic; and Eagle Pass AAF, Tex., single-engine advanced courses. **Contact:** Col. Claude W. Shearer, USAF (Ret.), 3928 Dayton Blvd., Chattanooga, TN 37415.

If you need information on an individual, unit, or aircraft, or if you want to collect, donate, or trade USAF-related items, write to "Bulletin Board," AIR FORCE Magazine, 1501 Lee Highway, Arlington, VA 22209-1198. Letters should be brief and typewritten; we reserve the right to condense them as necessary. We cannot acknowledge receipt of letters. Unsigned letters, items or services for sale or otherwise intended to bring in money, and photographs will not be used or returned.—THE EDITORS

Seeking contact with **Joe Ahern, Freddie Cox, Ted Glassmeyer, Donald Grant, Richard Kauffman**, and members of the 98th Fighter Squadron or 337th Fighter Group, Sarasota AAF, Fla., 1944-45, who knew **Cpl. John M. Duddy** of Le Roy, N. Y. **Contact:** Capt. Brian J. Duddy, USAF, PSC 54, Box 502, APO AE 09601.

Seeking the whereabouts of **Joseph Spinelli**, from New Jersey, who was stationed at RAF Bentwaters, UK, 1968-70 with the 81st Air Police Squadron. **Contact:** M. V. Byrne, Tacon Ct., Sea Rd., Felixstowe, Suffolk IP11 8DA, UK.

Seeking contact with anyone who knew **Lt. James Lyon Billington**, 514th Fighter Squadron, 406th Fighter Group, who was killed June 24, 1944, near St. Lô, France. His last known address was Macon, Ga. **Contact:** Bill Peters, P. O. Box 1621, Sandwich, MA 02563-1621.

Seeking the words, music, and a cassette recording of the song "**Air Force Blue**." **Contact:** Gary A. McIntosh, 5043 Tuscarora Rd., Niagara Falls, NY 14304.

Seeking contact with anyone who was awarded the **Distinguished Flying Cross**, for membership in the Distinguished Flying Cross Society. **Contact:** Alexander D. Ciurczak, 34552 Camino Capistrano, Capistrano Beach, CA 92624-1232.

Seeking the whereabouts of **Sgt. Keith Tschida**, whose son Craig received a cochlear implant while at Travis AFB, Calif. Last known assignment was Thule AB, Greenland, in 1988. **Contact:** CMSgt. Ralph Penning, USAF (Ret.), 358 Daffodil Dr., Fairfield, CA 94533.

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Seeking the whereabouts of **2d Lt. Woodrow Shaboz**, flight instructor for Class 52 C, Good fellow AFB, Tex. **Contact:** Ray Prozinski, 6537 Golden Valley Rd., #101, Golden Valley, MN 55427.

Seeking contact with members of **Class 44-E or 44-F**, Eagle Pass, Tex. **Contact:** James L. Maxson, 208 N. 14th, Ponca City, OK 74601.

Seeking the whereabouts of **A1C Fred C. Pendley**, of Jacksonville, Fla., or others who served with the **483d Field Maintenance Squadron** and Hq. Squadron Section, 483d Troop Carrier Wing, Ashiya, Japan, 1956-58. **Contact:** David B. Kurtenbach, 1130 S. Ash St., Casper, WY 82601.

Seeking contact with **Jim and Ophelia Davis**, who were stationed at Hellenikon AB, Greece, in 1980. **Contact:** Wayne McDowell, 1106 Rebecca Ct., Omaha, NE 68123.

Seeking contact with former members of the **7415th ABG** or any tenant organization stationed at **Orly Field, France**, between 1955 and 1958. **Contact:** Robert G. Evans, 33 Bluejay Rd., Traverse City, MI 49686.

Seeking contact with instructors and classmates of **French aircrews and pilots** who trained in the US in 1944-45 and 1950-54. **Contact:** Robert Camby, *Association du Personnel Navigant Forme en Amerique* (American-Trained French Aircrew Association), 6 rue Gallée, Paris 75016 France.

Seeking photos from or contact with **B-25** antiship and antisubmarine crews, especially from the 21st, 25th, and 45th Bomb Groups; **B-25G** crews from the 310th Bomb Group; **42d Bomb Group** planes from June 1943 to May 1944; and other Mediterranean Group planes, particularly from the 379th Bomb Squadron. **Contact:** Philip

Marchese, 3318 Applegate Ct., Annandale, VA 22003.

Seeking contact with **Clyde Burnham** (or Burnam) and **Norman Bennett**, who were stationed at Tainan AB, Taiwan, 1958-59. **Contact:** Edmund C. Weyn, 7342 Elizabeth Lake Rd., Waterford, MI 48327-3729.

Seeking information on **Vernon Blakely** and **Raymond Sloss**, who were with the 155th Night Photo-reconnaissance Squadron in Europe. Blakely's last known address was Dearborn, Mich.; Sloss's was Pittsburgh, Pa. **Contact:** H. W. Clark, 1848 Winterwood Blvd., Las Vegas, NV 89122-1136.

Seeking information and photos of **F-86A #48-178**. It flew with the 94th Fighter Squadron, 56th Fighter-Interceptor Wing, and 93d, 116th, 196th, and 469th Fighter-Interceptor Squadrons. Also seeking photos of **F-86D #51-6171** of the 325th FIS. **Contact:** Duncan Curtis, 69 Braemor Rd., Calne, Wiltshire SN11 9DU, UK.

Seeking contact with **William M. Dorsey** and **Charles W. Lemke**, pilots with the 39th Fighter Squadron, 35th Fighter Group, in Okinawa and Japan in 1945. **Contact:** Louis L. Lemoine, 1471 Hill Dr., Los Angeles, CA 90041-1544.

For a reunion, seeking contact with **A2Cs Gary D. Cruise, Bill Heaton, Edward Sutton and William Wisner**, also **Jack Walker** and **Rick Johnson**, from the 66th Tactical Reconnaissance Wing, Laon AB, France, 1959-62. **Contact:** Dave Alper, 1613 Woodgate Dr., Sycamore, IL 60178.

Seeking a copy in good condition of **The Crusaders: A History of the 42nd Bombardment Group (M)**. **Contact:** Edward J. Brisick, 12 Stardust, Irvine, CA 92715.

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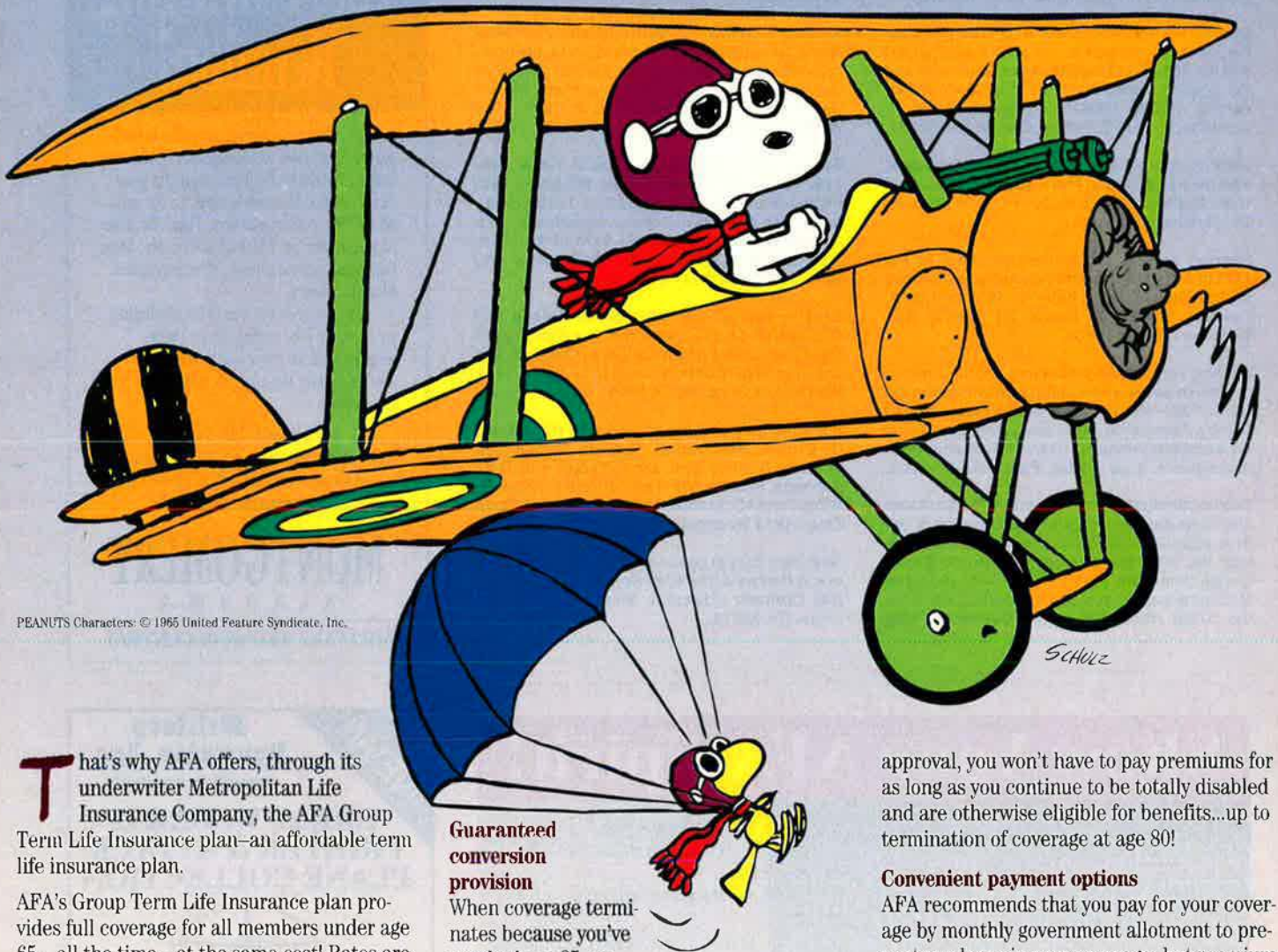
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Depending on your coverage amount, up to \$5,000 can be issued on the same day that proof of death is received at AFA.

Guaranteed conversion provision

When coverage terminates because you've reached age 85, or because you've terminated your AFA membership, you can convert to any permanent insurance plan being offered by MetLife at that time.

Disability premium waiver

You're eligible for the disability premium waiver benefit if, prior to age 60, you become totally disabled for at least nine months while your coverage is in effect. This means that, upon

approval, you won't have to pay premiums for as long as you continue to be totally disabled and are otherwise eligible for benefits...up to termination of coverage at age 80!

Convenient payment options

AFA recommends that you pay for your coverage by monthly government allotment to prevent any lapse in your coverage—but premium payments may be made directly to AFA in quarterly, semi-annual or annual installments, or through your AFA Visa or MasterCard.

Professional administration

AFA's staff of professional, knowledgeable, and experienced personnel provide you with quality service.

Enroll Today!

SCHEDULE OF BENEFITS

Attained Age	High Option Plus	High Option	Standard Plan	Spouse	Each Child
20-24	\$400,000	\$300,000	\$200,000	\$50,000	\$5,000
25-29	350,000	262,500	175,000	50,000	5,000
30-34	250,000	187,500	125,000	40,000	5,000
35-39	180,000	135,000	90,000	30,000	5,000
40-44	100,000	75,000	50,000	20,000	5,000
45-49	60,000	45,000	30,000	10,000	5,000
50-54	40,000	30,000	20,000	7,500	5,000
55-59	28,000	21,000	14,000	5,000	5,000
60-64	18,000	13,500	9,000	3,000	5,000
65-69	8,000	6,000	4,000	2,000	5,000
70-74	5,000	3,750	2,500	1,000	5,000
75-79	4,000	3,000	2,000	1,000	5,000
80-84	3,000	2,250	1,500	1,000	5,000

Effective Date of Coverage. All certificates are dated and take effect on the last day of the month in which the application for coverage is approved. AFA insurance coverage runs currently with AFA membership, and is written in conformity with the insurance regulations of the State of Minnesota.

Termination of Coverage. Other than by you reaching age 85, your coverage can only be terminated if a) you are no longer an Air Force Association member in good standing, b) you do not pay your premium, or c) the AFA master policy is discontinued.

Exceptions & Limitations. During the first 12 months of coverage, benefits will not be payable for suicide or death as a result of intentionally self-inflicted injuries (while sane or insane).

Application for AFA Group Term Life Insurance

To be completed by Member:

Your Name (Last) (First) (Middle)

Address (Number and street) (City) (State) (Zip)

Daytime phone Social Security No. Date of Birth (Mo./day/year) Age Height Weight

Primary Beneficiary (name and relationship)

Secondary Beneficiary (name and relationship)

In the past twelve months have you used any tobacco products? Yes No

This insurance coverage may only be issued to AFA members. Please check the appropriate box below:

I enclose \$25 for annual AFA membership dues (includes \$18 for subscription to Air Force Magazine). I am currently an AFA member.

Please issue coverage as follows: Member only Member and dependents

(Please select your preferred payment frequency and indicate the correct premium amount.)

PLAN OF INSURANCE	Standard		High Option		High Option Plus	
	Member Only	Member and Dependents	Member Only	Member and Dependents	Member Only	Member and Dependents
Monthly government allotment (only for military personnel). I enclose 2 months' premium to cover the necessary period for my allotment (payable to Air Force Association) to be established.	<input type="checkbox"/> \$10.00	<input type="checkbox"/> \$12.50	<input type="checkbox"/> \$15.00	<input type="checkbox"/> \$17.50	<input type="checkbox"/> \$20.00	<input type="checkbox"/> \$22.50
Quarterly. I enclose the amount checked.	<input type="checkbox"/> \$30.00	<input type="checkbox"/> \$37.50	<input type="checkbox"/> \$45.00	<input type="checkbox"/> \$52.50	<input type="checkbox"/> \$60.00	<input type="checkbox"/> \$67.50
Semi-Annually. I enclose the amount checked.	<input type="checkbox"/> \$60.00	<input type="checkbox"/> \$75.00	<input type="checkbox"/> \$90.00	<input type="checkbox"/> \$105.00	<input type="checkbox"/> \$120.00	<input type="checkbox"/> \$135.00
Annually. I enclose the amount checked.	<input type="checkbox"/> \$120.00	<input type="checkbox"/> \$150.00	<input type="checkbox"/> \$180.00	<input type="checkbox"/> \$210.00	<input type="checkbox"/> \$240.00	<input type="checkbox"/> \$270.00

I am currently insured under the Standard High Option Plan. My certificate number is _____.

Please increase my coverage to the High Option High Option Plus Plan.

Monthly: Government allotment (please submit 2 months' premium with your application; instructions for requesting an allotment will be sent with your certificate of coverage). AFA/Visa or MasterCard _____ Exp. date _____

Quarterly: _____ Semi-annually: _____ Annually: _____

Names of dependents to be insured	Relationship	Date of Birth	Height	Weight

The following questions should be answered for you and any dependents for whom you are requesting coverage:

- 1) Have you been hospitalized during the preceding 90 days? Yes No
- 2) In the past three years, have you received treatment or been told you had:
 - a) cancer, leukemia, Hodgkin's disease, or other associated malignancies? Yes No
 - b) heart disease, stroke, or other cardiovascular disease? Yes No
- 3) Within the past two years, have you had persistent cough, pneumonia, chest discomfort, muscle weakness, unexplained weight loss of ten pounds or more, swollen glands, patches in mouth, visual disturbance, recurring diarrhea, fever, or infection? Yes No
- 4) Has any application made by you for life or health insurance been declined, postponed or issued other than as applied for? Yes No
- 5) Are you receiving, entitled to receive, or would be entitled to receive upon timely application, any benefits due to sickness or injury (other than medical expense benefits) under any private policy or plan or governmental program, whether insured or non-insured? Yes No

If you answered "Yes" to any of the above questions, please give the names of the persons to whom your answer applies and provide details, dates, diagnosis, treatment and name and address of the health care provider(s) and hospital(s). Use additional paper if necessary.

Information in this application, a copy of which shall be attached to and made a part of my certificate when issued, is given to obtain the plan requested and is true and complete to the best of my knowledge and belief. I agree that no insurance will be effective until a certificate has been issued and the initial premium paid. I understand that the coverage will not become effective until approved by MetLife. I understand that if on the Effective Date I am not eligible for such insurance by reason of (i) age or (ii) membership status, insurance will not become effective on my life. "Hospitalized" means inpatient confinement for: hospital care, hospice care or care in an intermediate or long-term care facility. It also includes outpatient hospital care for chemotherapy, radiation therapy, or dialysis treatment.

Authorization to Furnish Medical Information

For underwriting and claim purposes, I hereby authorize any physician or other medical practitioner, hospital, clinic or other medically related facility, insurance company or other organization to furnish MetLife, on my behalf, with information in his or its possession, including the findings, relating to medical, psychiatric or psychological care or examination, or surgical treatment given to the undersigned. This authorization shall be valid for two years. A photocopy of this authorization shall be considered as effective and valid as the original.

Member Signature _____ Date _____
 Send application with remittance to: Insurance Division, AFA, 1501 Lee Highway, Arlington, VA 22209-1198 4570-G1-MetLife 11-94

Please Retain This Medical Information For Your Records MetLife's Consumer Privacy Notice-Information Practices

The Underwriting Process: MetLife (hereinafter "we") will evaluate the information given by you on this enrollment form and tell you if we cannot give you the coverage you asked for. We will also tell you in general terms the reason for our decision. Upon written request, more specific reasons will be given to you.

Information Collection: This enrollment form is our main source of information. To properly evaluate your request for coverage, we obtain additional medical data from third parties about any person to be insured. For instance, we may ask physicians, hospitals, or medical care providers to confirm or add to the medical data you have given us.

Information Disclosure: In most cases, the information we have about you will be sent to third parties only if you authorize us to do so. In some cases where disclosure is required by law or necessary to conduct our business, we may send the information to third parties without your consent.

Access and Correction Information: Upon written request, we will make information we have about you available to you. You have certain access and correction rights with respect to the information about you in our files.

Further Information About Our Practices: Upon written request, we will send you more information about our underwriting process and your access and correction rights. Also, upon your written request we will give you more information about the circumstances under which we will disclose the information about you to third parties without your authorization. Please write MetLife at the following address about these matters:
 Metropolitan Life Insurance Company, One Madison Avenue, New York, NY 10010-3650



Pieces of History

Photography by Paul Kennedy

The Art of War



Memorabilia courtesy US Air Force Museum, Wright-Patterson AFB Ohio

As the adage commanded: "If it moves, salute it. If it doesn't move, paint it. If you can't paint it, bury it." Squadron artists from World War II to the Persian Gulf War were especially mindful of "paint it," personalizing everything from jackets to airplanes to barracks walls. From Jiggs to Alley Oop to

Calvin and Hobbes, whether comic or bellicose (or both), the art seems an attempt to differentiate the painter and his unit from others despite the equalizing power of war.



Loral's ALQ-178 Radar Warning Receiver and Electronic Countermeasures Suite, fully integrated with both missile warning and chaff/flare dispensing systems, is now operational aboard the F-16. It's the only such system flying today.

Electronic Combat Systems

Performance is the best strategy.

Our position as a top supplier of electronic combat systems is built on the cutting edge systems we supply for the F-15, F-16, F-18, and other aircraft. It shows itself in an attitude of total commitment. To meeting or beating specs. To living up to the spirit as well as the letter of program support.

Here to stay.

At Loral, our commitment is long term. It runs from bottom to top. And it means you can count on us for the life of the contract. Every contract.

LORAL

*Electronic Combat • Training and Simulation Systems • C³I • Tactical Weapons
Space Systems • Systems Integration • Telecommunications & Information Systems*

**WE ENJOY
COMPETITION
AS MUCH AS
ANYONE, BUT
SOMETIMES**



**THERE JUST
ISN'T ANY.**

It has the range. It has the capability. It's built for the 21st century. And it has a combat-win record that no one else can touch. 95 to zip. Those are all the good reasons why the F-15 is the right choice for the SEAD program. (Suppression of Enemy Air Defenses). And with over 20 years experience with the F-4 Wild Weasel, no other company has the track record we have. So, this isn't only a smart place to put the SEAD budget, judging from the competition, it's the only place.

MCDONNELL DOUGLAS
Performance Above and Beyond.