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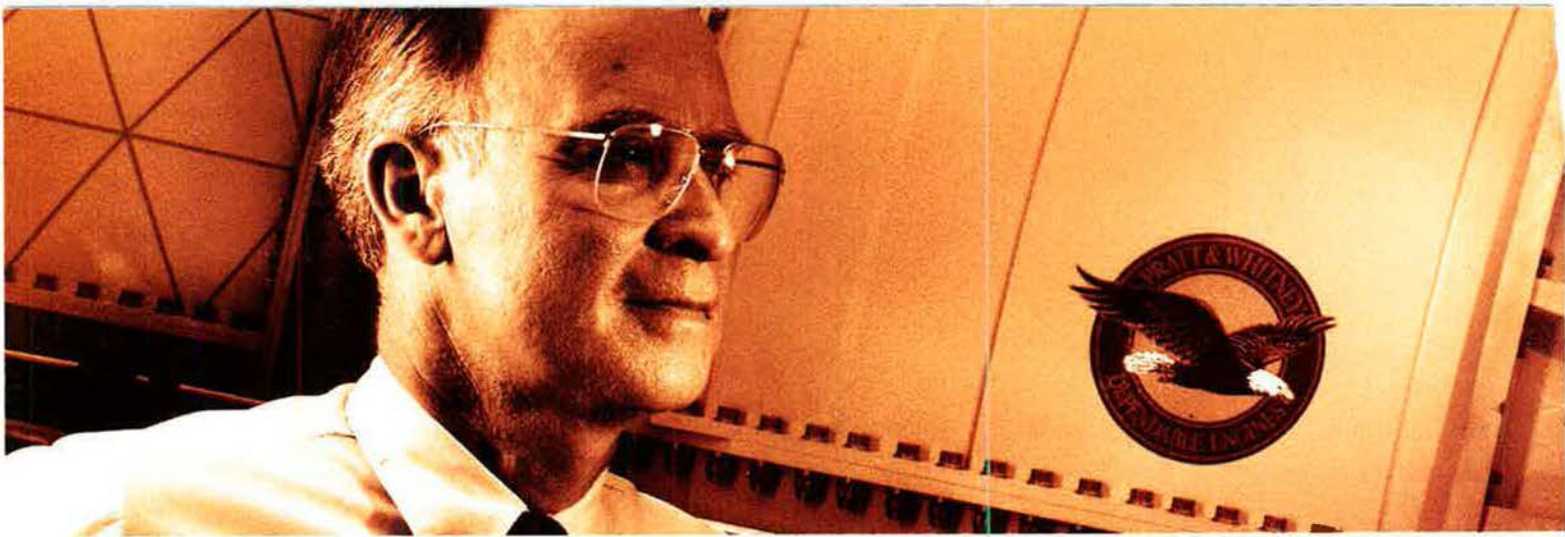
MAGAZINE

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World War II Scrapbook

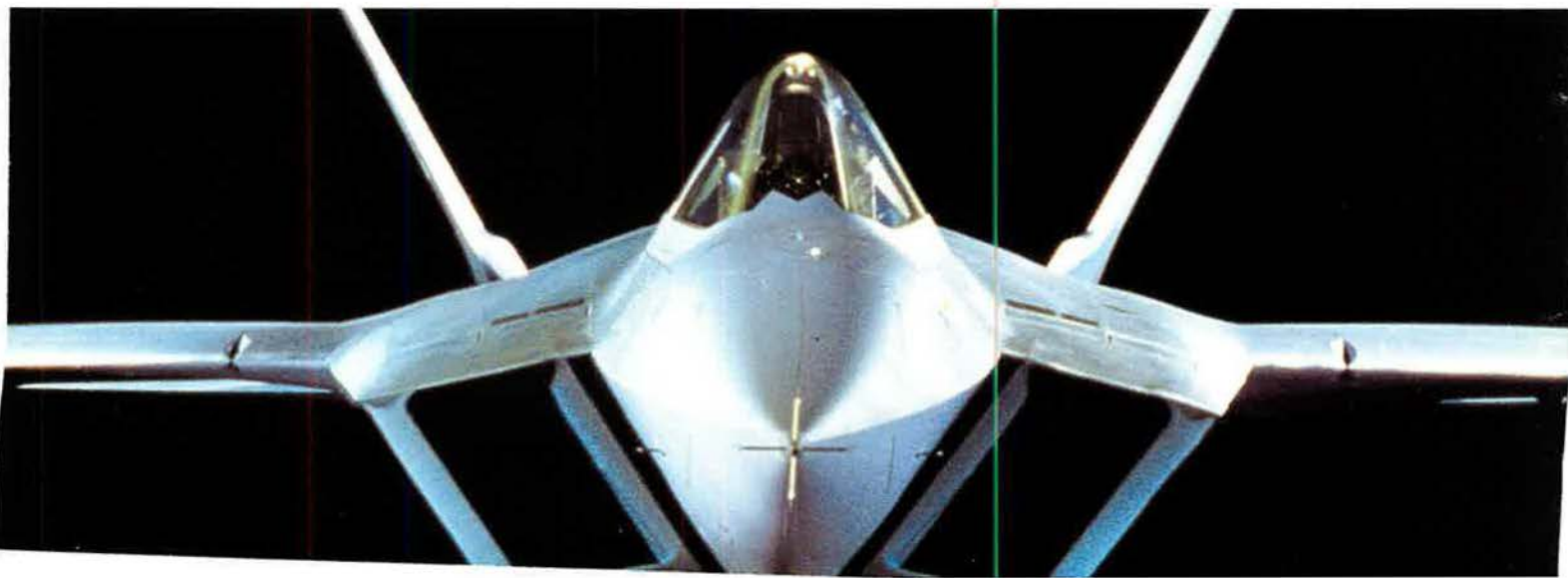




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About the cover: Lt. (later Col.) Loren B. Heath, Jr., stands in front of his B-24 at Mandar a, Italy, on March 2, 1945. He had flown his fiftieth mission the day before. See "World War II Scrapbook," p. 38. Photo by Paul Kennedy.

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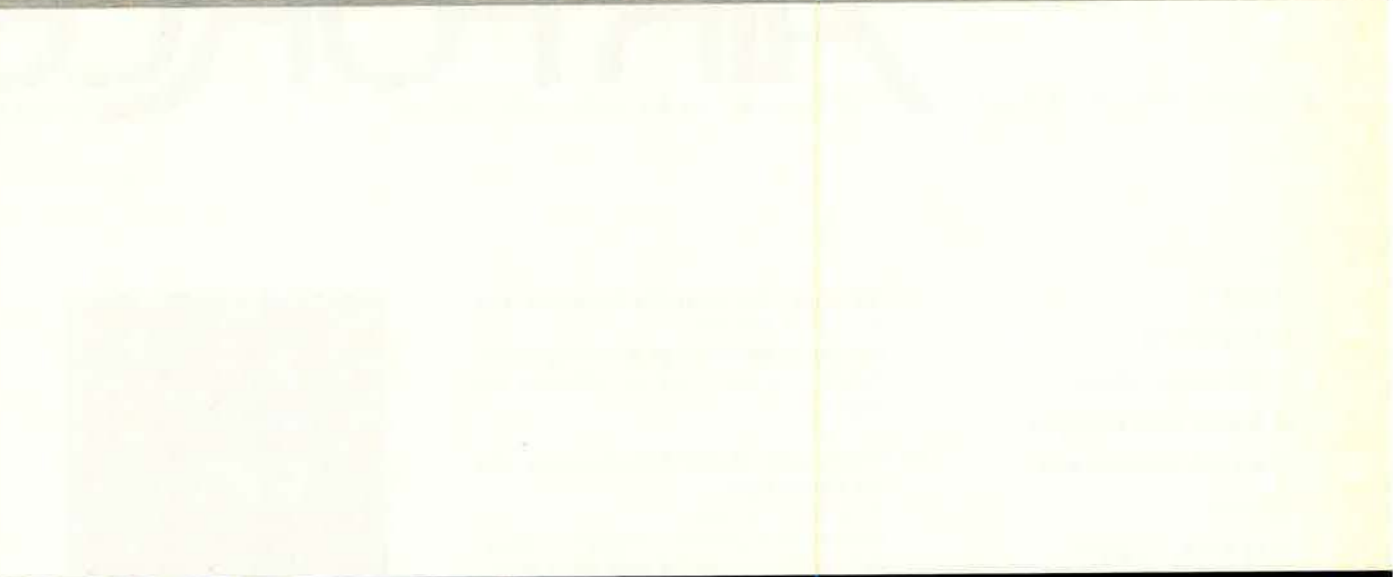
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By John T. Correll, Editor in Chief

The Army Air Forces at War

BEFORE ringing down the final curtain on the fiftieth anniversary of World War II, let us pause one more time to reflect on this mighty conflict, which is without parallel in history. The scope of it was unprecedented. The fighting spread to engulf Europe, Africa, Asia, and the Pacific islands. Eventually, it drew in the United States and every other nation of significant power anywhere in the world.

Nobody knows the exact carnage, but a credible estimate is that twenty-two million people—military and civilian—died and that another thirty-four million were maimed or wounded. We do know that US military forces sustained 1.07 million casualties and that 292,000 Americans were killed.

There were no extenuating circumstances to explain away the aggression of the Rome-Tokyo-Berlin Axis. The war was a cause that unified Americans like nothing before or since. More than sixteen million of them served in uniform. Citizens at home endured rationing, bought bonds, planted victory gardens, and saved scrap metal for defense production. The fighting forces were constantly reminded that their nation was behind them. In 1945, the United States allotted an incredible 89.5 percent of the federal budget for defense.

When the war was over, political and social change had swept the globe. Centers of power had shifted and the breakup of old colonial empires had begun. The United States, inclined toward isolationism before the war, was in a position of world leadership. A revolution had also taken place in the nature of war.

World War II effectively began and ended with airpower. In September 1939, Germany rained blitzkrieg, lightning war, on Poland. In 1940, German air attacks in the Battle of Britain came perilously close to opening the door for invasion forces to cross the English channel. On December 7, 1941, Japan struck the United States at Pearl Harbor. Four years later, long-range American B-29 bombers would bring the war to an end, strik-

ing the Japanese homeland from island bases in the Pacific, but in 1941 that end was not yet in sight.

When the war began, Germany had more than 4,000 combat aircraft. The British had about 2,000. The United States had only 800. In China, American airmen of the famous Flying Tigers used hit-and-run tactics because their P-40 Warhawks could not maneuver with the sleek Japanese fighters. And while the B-17 bomber was outstanding, we did not

The era of two-dimensional warfare was ended. The age of military airpower had begun.

have that many of them yet. Given the importance of airpower in the war, it is a good thing we were able to catch up. The Air Force Historian says that, on average, every day for the length of the war, American workers produced 191 airplanes, sixty-four tanks, 1,761 trucks, and 20,892 tons of shipping.

"During World War II," Secretary of the Air Force Sheila E. Widnall says, "the US Army Air Forces outpaced all other nations in the numbers of aircraft, engines, technology, and size. For instance, in 1941, our squadrons were still flying the P-26, an open-cockpit monoplane. Yet, by 1945, we were flying our first jet, the P-80 Shooting Star."

Walter J. Boyne, author of several excellent books on airpower in World War II, observes that the Axis nations had air superiority in the beginning but lost it through a series of critical mistakes. They were unable to match US and Allied production

of aircraft, so the numerical advantage shifted. The Axis nations could not hold on to their qualitative superiority. And perhaps most fateful of all, both Germany and Japan clung to the concept of airpower as an adjunct to ground and naval forces, whereas the US and the British wielded their airpower as a strategic weapon.

Albert Speer, Hitler's Minister of Armaments and War Production, said that Allied strategic airpower was the equivalent of a "new front" for Germany, tying up 10,000 guns, hundreds of thousands of forces, and about half the electronics industry. Had it not been for this "air front over Germany," Speer said, defensive strength against tanks could have been doubled.

The Allied landings at Normandy in 1944 were aided tremendously by an air campaign that pounded rail centers, bridges, roads, and airports and that isolated the invasion beaches from reinforcement. Ground troops fighting their way across Europe had no worries about air attack because the Luftwaffe had been put out of action.

In the Pacific, conventional bombing destroyed some sixty percent of Japan's industrial output. From the South Pacific to the coastal waters of Kyushu and Honshu, US airpower took its toll on Japanese shipping. American forces held air supremacy. The empire was reduced to using the airplanes it had left as *kamikaze* suicide craft. The B-29 gave the Army Air Forces a bomber that could deliver atomic weapons on Japan from bases in the Marianas and induce the Japanese surrender at last.

The era of two-dimensional warfare was ended. The age of military airpower had begun. The United States and its Allies had defeated Axis plans for world conquest. For the US Army Air Forces, however, there was yet one more legacy. On September 18, 1947, the US Air Force would become a separate military service. It happened largely because of what the Army Air Forces achieved in World War II. ■

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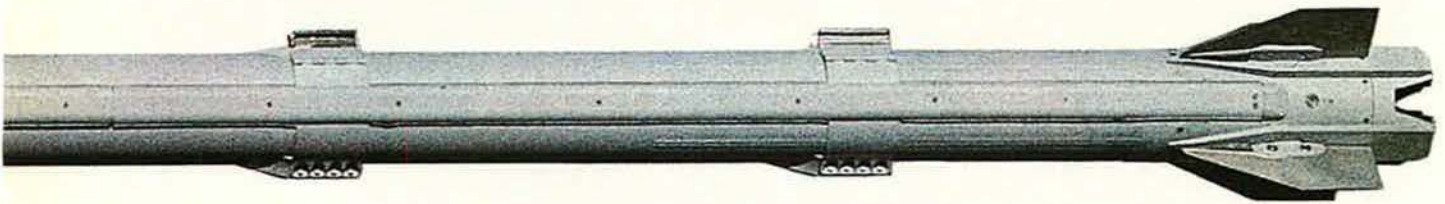
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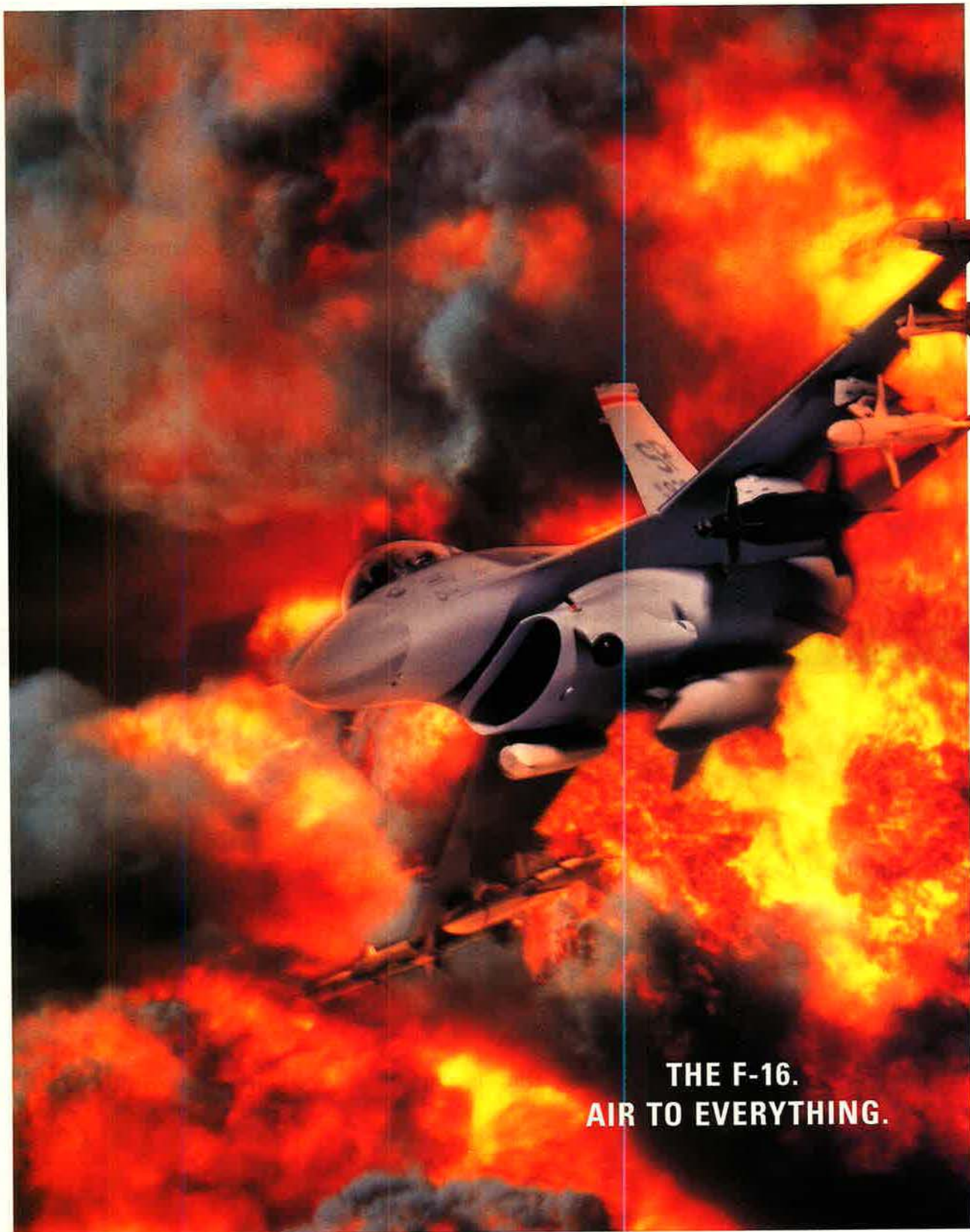


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LOCKHEED MARTIN 

McNamara in Retrospect

As a Vietnam veteran who, like each of us, lost a number of friends as a result of "McNamara's War," I applaud your editorial, "The Confessions of Robert S. McNamara" [June 1995, p. 2].

When one compares, as you did, the military efficiency with which Operation Desert Storm was conducted and the fiasco that was Vietnam, the conclusion that should be drawn is that, when left to its own devices, the military is perfectly capable of doing what it trains to do. The infusion of "military expertise" from novices like McNamara and the rest of the band of merry men who toyed with the lives of our military comrades in southeast Asia serves as a perfect example of how not to conduct military operations for future (and current) generations of those who would use the military for its intended purpose.

His attempt now to philosophically divert the blame from himself further highlights the cowardice of Mr. McNamara. He should, at the very least, stand up and admit that it was his ignorance and arrogance that placed us irretrievably in Vietnam—and that those two character flaws, along with a modicum of ill-defined and ill-placed stubbornness, kept us involved by employing tactics and rules of engagement that were not only unsound but had no chance of success.

There have been many memorable comments made about the southeast Asian conflict; perhaps none is more appropriate than your closing sentence: "His [McNamara's] best service now would be to go away and shut up."

Col. Larry C. Souder,
USAF (Ret.)
Crestview, Fla.

Bravo and bingo to John Correll on "The Confessions of Robert S. McNamara." The "best and brightest" were not in Washington in civvies but were on the ground, in the air, and at sea in southeast Asia—in uniform.

Having just completed my third war with 257 F-100 sorties and a squad-

ron command, I served on the Joint Staff (J-3, Pacific Division) and occupied the Korea desk in early 1970. McNamara was gone, but his "whiz kids" on the Pentagon's third floor lingered on. In their infinite wisdom, they had determined we could successfully execute Ops Plan 5027 (Defense of Korea) with just four or five USAF fighter squadrons simply by tweaking the sortie generation rate. They were serious.

While every professional military member of the US understands, agrees with, and supports civilian leadership and control of the armed forces, we must always be cautious. Beware the number-crunching, self-appointed military "expert" with a huge ego and vast quantities of arrogance.

Gen. Robert W. Bazley,
USAF (Ret.)
Chapel Hill, N. C.

My four years before retirement in 1968 were on the Air Staff in Studies and Analysis. Much of our work dealt with force-structure issues, and we were often called on to deal with the "whiz kids" in the Office of the Secretary of Defense, particularly with those in Enthoven's gang. What an arrogant bunch, devoid of any experience, especially military. [At the time, Alain C. Enthoven was assistant secretary of defense for Systems Analysis.]

Your editorial on McNamara was excellent, but I believe the Joint Chiefs of Staff during that period also owe the country a mea culpa. Instead of marching en masse up Pennsylvania Avenue to offer their resignations if

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

McNamara and President Johnson continued their micromanagement and "no-win" strategy, each of the services used the war to build up its forces to prepare for the "real" war against the USSR. Johnson surely could not have allowed his senior military advisors to resign in protest, for fear of the political fallout. Had the Joint Chiefs of Staff the guts to offer their resignations, perhaps McNamara might not have been around so long.

Col. Felix Kozaczka,
USAF (Ret.)
Lake Kiowa, Tex.

On reading "The Confessions of Robert S. McNamara," I wondered, "Why this subject?" The editorial seemed to lack a useful purpose for the readers of *Air Force Magazine*. It vilifies and unfairly discriminates. It has no discernable impact on the Air Force mission's progress.

The highlighted phrase of the article said, "He still has not learned the real lessons of the Vietnam War." Who has? What are the lessons? Why are they important to USAF?

My Air Force experience indicates Robert McNamara's management know-how was recognized by the Air Force. He fostered management techniques that opened vistas for determining operational readiness and enabled a current status review helpful to some of the vast responsibilities of command. Strategic Air Command under Gen. Curtis E. LeMay recognized and effectively applied this management to many aspects of the Air Force mission.

I look to *Air Force Magazine* to highlight the present and the future without disallowing the experience of the past. . . .

Robert McNamara, utilizing the body of knowledge that was Harvard's, applied those lessons and enabled the Air Force to achieve management effectiveness and operational readiness.

John J. Hickey
Arlington, Va.

"The Confessions of Robert S. McNamara" is a first-class job of char-



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Letters

acter assassination by the editor in chief of *Air Force Magazine*.

In view of the great catastrophe that the Vietnam War was for so many people and our nation, I believe Mr. Correll should have given a thoughtful and measured response to *In Retrospect: The Tragedy and Lessons of Vietnam*. Under the guise of dealing with the book, Mr. Correll uses the work to mount a personal attack on Mr. McNamara and his family and suggests that he "go away and shut up." Nor can Mr. Correll resist taking a cheap shot at President Clinton.

For a man of the stature of Robert S. McNamara to admit to errors of judgment that the leadership of the US made on Vietnam is almost unprecedented in American history. Because Mr. Correll does not like the message, he wants to kill the messenger. . . .

Olindo Dragone
Brimfield, Mass.

"The Confessions of Robert S. McNamara" tends to place the blame for the Vietnam debacle (58,000 Americans and two to three million Indochinese killed, as well as \$150 billion of US taxpayers' money spent) on McNamara because he did not follow the conventional military wisdom of the day. Gen. Maxwell D. Taylor was Chairman of the Joint Chiefs of Staff from 1962 to 1964, and the war was largely fought according to his philosophy as embodied in the Doctrine of Flexible Response.

However, I think you have missed the point as to why the Vietnam War was a failure. Certainly battlefield operations (like the failure of intelligence to forecast the Tet Offensive) had something to do with the outcome, but of much graver consequence was the lack of any kind of stable or capable government (or at times any government at all) in South Vietnam that caused the upending of the desired result.

It started with Emperor Bao Dai, an absentee landlord installed by the French, who spent most of his time on the French Riviera. Bao Dai resigned in 1954 and Ngo Dinh Diem became premier. In October 1963, the Kennedy elitists finally arranged for his overthrow and, as a consequence, his summary execution. Gen. Duong Minh lasted about nine months, followed by six changes in the head of government in the next year. While Air Marshal Nguyen Cao Ky was premier, US aircraft were used to airlift soldiers to the northern part of the

country to put down a rebellion that threatened his authority. At no time did any of the supposed leaders have the allegiance or support of the common people of South Vietnam.

The sad fact is for all the blood and treasure the Kennedy-Johnson-Nixon team spent on the war, they were never able to organize the Vietnamese people or build a government that could count on popular support. About the only supporters were the Catholic population and the merchant classes in Saigon. Absent a stable base on which to build, US firepower and bombs were largely wasted in holding back the forces of North Vietnam and the Viet Cong. US forces killed too many people in South Vietnam and destroyed too many villages, farms, and livelihoods to advance the cause of national patriotism.

Unfortunately, McNamara is right when he states that terrible mistakes were made, but his book is not an atonement for his deeds. He and those like him, military and civilian, owe a terrible debt to the American men and women who were sent to Vietnam.

Brig. Gen. Richard B. Posey,
USAF (Ret.)
Camp Hill, Pa.

Four-Engine Dogfights

"Four-Engine Fighter Pilot" [*Valor*, June 1995, p. 77] described an encounter between a B-24 and a Japanese Mavis, saying that this was the only known dogfight between four-engine aircraft. Not so!

USAAF and the US Navy got together early in 1942 and made a trade-off, whereby a number of B-24s would be allocated to Naval Aviation units. The Navy's plan for the PB4Y Catalina flying boat to fly long-range oceanic search missions could not hack it in actual hostilities. Japan's Zekes saw to that. The PB4Y-1 (a B-24 painted Navy blue) not only could search contested areas but did. Usually flying single airplane search and offensive reconnaissance missions of 1,000 nautical miles, this airplane really did the job. This was true not only for the primary job of search, but they also made many kills of enemy aircraft and shipping. . . .

The first PB4Y-1 squadron to deploy to Henderson Field, Guadalcanal, was VB-101 some time in late 1942. They were soon followed by another PB4Y-1 Navy squadron VB-102. I am relatively certain that they bagged one or more Mavis, but I am unable to confirm such kills. VB-104 began combat from Henderson Field in Au-



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Letters

gust 1943, and Lt. John Allen, USN, quickly downed a Mavis. . . .

During my tour with VB-104, I downed an Emily, an improved four-engine Japanese flying boat. Japanese Vice Admiral Yamagata and his staff were aboard this airplane, and thirty-three Japanese were accounted for. This occurred March 17, 1945, off the China coast, and the kill was confirmed by US Navy personnel.

Shootdowns of Mavis and Emilys by PB4Y-1s probably total a dozen or so.

Capt. Paul F. Stevens,
USN (Ret.)
Nashville, Tenn.

The dogfight between Lt. Glenn McConnell's B-24 and a Japanese Mavis on March 19, 1944, is neither the only combat between four-engine aircraft nor the first. The 480th Anti-submarine Group, flying patrol missions over the Atlantic in B-24D aircraft out of Craw Field, Port Lyautey, French Morocco, had seven such engagements with German Focke-Wulf FW-200 Condor four-engine bombers between July 18, 1943, and August 27, 1943. Five FW-200s were destroyed, and three more damaged, at a loss of two B-24s.

The most dramatic four-engine dogfight in this theater occurred on August 17, 1943, when Capt. Hugh D. Maxwell, Jr. (now a retired USAF colonel), simultaneously took on two FW-200s 300 miles west of Lisbon. He got sandwiched between the two FW-200s, downed the lead aircraft, and damaged the second to the extent that it may have crashed soon after. In the conflict, his B-24 suffered heavy punishment and had to ditch, breaking into three pieces and losing three of the ten crew members.

Details of these encounters are contained in *Stalking the U-Boat*, by Max Schoenfeld.

Col. Samuel B. McGowan,
USAF (Ret.)
Columbia, S. C.

Veterans of the 7th Bomb Group, who fought in Java, India, the Middle East, and the China-Burma-India theater, often feel their contribution in World War II is overlooked. It has happened again with "Four-Engine Fighter Pilot." Lieutenant McConnell is to be commended for using the B-24 as a fighter to shoot down a Japanese aircraft, but he was not alone, and he was not the first.

On October 14, 1943, 1st Lt. William T. Larkin of the 9th Bomb Squadron, 7th Bomb Group, used maneu-

vering skills and fixed, forward-firing guns on a four-engine B-24 Liberator to shoot down a Japanese fighter near Rangoon, Burma. Larkin's victory appears on his military records. His adversary was probably a Nakajima Ki-43, known to the Allies as Oscar. Larkin's feat is all the more remarkable because his opponent was a fighter, not a lumbering Mavis flying boat like McConnell's adversary. . . .

Robert F. Dorr
Oakton, Va.

Ed Loberg and his B-24 crew from the 26th Bomb Squadron, 11th Bomb Group, shot down a four-engine Japanese flying boat on October 23, 1943, in the Battle of the Solomons. This dogfight is described in Ira Wolfert's book, *Battle for the Solomons*. Several others from this outfit had encounters with Japanese flying boats, including me. I had to call off my engagement because of low fuel.

Col. John W. Livingston,
USAF (Ret.)
Austin, Tex.

The Academy's Four-Stars

I noticed an error or two in "Aerospace World" [July 1995, p. 19]. In the item "Academy Turns Forty," you write that two graduates of the first class of the Air Force Academy went on to become four-star generals. There were three four-star generals in that class. The one omitted was Gen. Robert C. Oaks, former commander in chief of US Air Forces in Europe and commander of Allied Air Forces Central Europe. Also, there was a total of nineteen general officers from that class if you include Maj. Gen. Robert J. Dwyer, ANG, former adjutant general of the Nevada ANG.

Jim Brown
Monument, Colo.

B-29s in Marietta

In "Flashback" [August 1995, p. 14], there are some incorrect statements in the photo caption. While B-29s were indeed built at the facility shown, they were license-built by Bell Aircraft Co. at Air Force Plant 6, not Boeing Plant 6, as stated.

After the war, Lockheed was given charge of the facility, where it refurbished B-29s destined for Korea. Prior to starting C-130 production in 1952 (joined later by C-141 StarLifters and C-5 Galaxys), Lockheed license-built 394 B-47E Stratojets here. The P-3 Orions were built at Lockheed's Burbank facility.

Frank H. McCurdy
Houston, Tex.



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By Brian Green, Congressional Editor

Senator Inouye's Prescription

The military health-care system is being taken down too far, too fast. It may fall short of commitments in both wartime and peacetime.

SEN. DANIEL K. Inouye (D-Hawaii) believes the military health-care system is in serious trouble and that the situation spells danger for the armed forces. "A compromised military health system will rapidly lead to a compromised military capability," he said in a July address to the Senate. "I greatly fear we are headed down that course."

Senator Inouye, a pro-defense Democrat, served as chairman of the Senate Appropriations Committee's Defense Subcommittee until January, when Republicans gained control of the Senate. He remains the panel's ranking minority member.

He says the system's problems, which he claims have hurt medical readiness, stem mostly from a downsizing of military medical departments. The cutbacks have left the military health-service system (MHSS) unable to meet the many demands placed on it, he asserted, demands ranging from combat missions and support for operations other than war to peacetime care for active-duty service members, retirees, and dependents.

"In my opinion, the military health-service system is being taken down too far, too fast," the Senator said.

He expressed doubts about the ability of the medical system to support two nearly simultaneous major regional conflicts (MRCs), the basis of today's national military strategy.

During the Persian Gulf War, the US moved nearly all military medical personnel in the continental US—and many from Europe—to the Middle East theater. Yet, said Senator Inouye, military medical departments are now smaller than they were during that conflict. Furthermore, he believes that conflicts of the future will not be the virtually bloodless victories that some seem to expect.

DoD officials believe that, by more

efficient use of medical personnel, it can handle the requirement.

Senator Inouye argued that a strong health-care system is essential to long-term military readiness because it is central to maintaining the ability to attract a high-quality volunteer force. The services have experienced great recruiting success over the past decade, he said, "in large part because one of the benefits promised to the potential recruits was world-class quality health care, not only for themselves but also for their family members, throughout their careers and even after retirement."

Recruiting standards are still met today, he said, because promises of lifetime health care continue. The military knows that without such care, "recruitment of, and particularly the retention of, quality career service members would be nearly impossible," Senator Inouye said.

The World War II veteran contended that the importance of this benefit is growing because sixty percent of all service members now have families, up from only four percent in the draft-heavy force of World War I. Many troops face the prospect of frequent deployments, taking them away from families for long periods of time. "I cannot overemphasize the importance of the military health-care system in providing peace of mind and security for our service members and their families," he said.

Senator Inouye bluntly asserted that servicemen and retirees were promised health care and are entitled to health care.

"No one said [the military promises to provide health care] 'unless we have to downsize.' I doubt that very many recruiters explained . . . the fine distinction between 'entitled to' and 'eligible for' that separates the statutory provision for health-care services for family members of active-duty personnel from the retirees and their military dependents, or that anyone explained about space-available care," he said. "What the soldiers and sailors and Marines and airmen heard, what they were promised, was lifetime health care for them-

selves and their dependent family members." For retirees, "there was no fine print about modest enrollment fees and lower out-of-pocket costs."

Unfortunately, in Senator Inouye's view, those promises are being broken. He noted that space-available care in military facilities has already disappeared in some places. Members of military families and retirees are forced into the civilian health-care system as military treatment facilities (MTFs) downsize or close.

The pressures on military health-care, he believes, are intensifying.

Additional reductions, he argued, will further undermine medical readiness. He stressed, however, that centralized control of medical readiness under DoD civilians won't solve these problems. The services' "unique culture and specialized roles and missions . . . cannot be accommodated in an entirely 'purple-suited' DoD system. Each must preserve a large degree of autonomy."

He contended the cutbacks will also increase the nation's health-care bill. He claimed that in-house military health care for family members and retirees is less expensive than the alternatives, though many would dispute that point. Military health professionals let go from MTFs are often replaced by private providers under contract at substantially higher cost. Furthermore, the medical departments and beneficiaries of the Civilian Health and Medical Program of the Uniformed Services have had to bear the burden of skyrocketing private health-care costs.

Senator Inouye suggested that Tricare, a managed health-care pilot program replacing CHAMPUS, could improve health care for beneficiaries. However, he disapproves of the requirement that retirees share in the cost of care: "It violates the contract we made with these former service members."

He also argued that "if we could get Medicare reimbursement legislation passed, the MHSS could continue to provide low-cost care to retirees and ultimately lower the cost" to the government, he said. ■



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Washington Watch

By John T. Correll, Editor in Chief

The Activists and the *Enola Gay*

The Smithsonian has cleaned up its act, but the cause lives on with those who claim we bamboozled the press, the Congress, and the public.



EVERY morning, a long line forms at the National Air and Space Museum in Washington, D. C., to see the *Enola Gay*, the B-29 that dropped the atomic bomb on Hiroshima fifty years ago. The exhibit opened June 28, and by the end of July, 97,525 people had gone through it. More than ninety percent of the comment cards turned in by visitors expressed favorable reaction.

This program—as all the world must know by now—is not the one the curators originally had in mind. The previous exhibit, “The Last Act: The Atomic Bomb and the End of World War II,” was canceled when it became an intolerable political and financial liability for the Smithsonian Institution, of which the Air and Space Museum is a part.

It was the Air Force Association that exposed the museum’s plan to use the *Enola Gay* as a prop in a politically rigged program about the atomic bomb. [See “War Stories at Air and Space,” *Air Force Magazine*, April 1994.] Other veterans’ groups, Congress, and the news media picked up the issue and scrutiny became intense. More than 30,000 letters poured in to the Smithsonian, and patrons and subscribers quit in droves.

The Smithsonian canceled the ill-fated exhibit last January in favor of a straightforward exhibit that would display the *Enola Gay* without political trappings. The fire never really went out, though, and Dr. Martin O. Harwit, director of the museum, resigned May 2, saying that nothing less would satisfy the critics.

Veterans’ organizations have praised

the *Enola Gay* exhibition now running at the Air and Space Museum, but those who backed the original exhibit plan are now up in arms.

The Activists’ Counterattack

Revisionist scholars, peace activists, writers, and others are pressing their counterattack in books, journals, and statements to news media as well as through various public programs and platforms.

■ **Gar Alperovitz** is a founding father of revisionist theory about the atomic bomb. In 1965, he said the evidence “strongly suggests” that “the bombs were used primarily to demonstrate to the Russians the enormous power America would have in its possession during subsequent negotiations.” He is a senior research scientist at the University of Maryland and the author of *The Decision to Use the Atomic Bomb*, published in July 1995.

■ **Kai Bird** is a former journalist who now describes himself as a historian. He is co-chairman of the Historians’ Committee for Open Debate on Hiroshima and the author of *The Chairman: John J. McCloy, The Making of the American Establishment* (1992). He says the Smithsonian caved in to veterans and politicians and put on an exhibit that “dishonors the very principles of free speech and free inquiry.”

■ **Martin J. Sherwin** is a professor of history at Dartmouth and Tufts and co-chairman of the Historians’ Committee for Open Debate on Hiroshima. He is the author of *A World Destroyed: The Atomic Bomb and the Grand Alliance* (1976). In February 1994, in his capacity as an advisor to the Air and Space Museum on the *Enola Gay* exhibit, he complained that the crew had shown “no remorse” for the mission.

■ **Barton Bernstein** is a professor of history at Stanford University. The author note with one of his recently published essays identifies him as “a leading revisionist scholar.” He is less absolute than his colleagues on some issues. He now holds, for example, that use of the atomic bomb was

“probably unnecessary.” (Others in the revisionist lineup say it was absolutely unnecessary.) His major theme is that US casualty estimates for an invasion of Japan in 1945 were grossly exaggerated. In fact, it was Professor Bernstein who—on the basis of his reinterpretation of a June 18, 1945, entry in the diary of Adm. William D. Leahy, the President’s Chief of Staff—persuaded Air and Space Museum Director Harwit to mark the US casualty estimate down to 63,000. That led to congressional and public outrage and eventually to Dr. Harwit’s resignation.

■ **Robert Jay Lifton** and **Greg Mitchell** are the authors of *Hiroshima in America: Fifty Years of Denial*, which the publisher describes as “not just historical analysis” but also “a landmark psychological study.” According to them, “after ordering the use of two atomic bombs, Truman spent the rest of his life in the throes of unrealized guilt.” He also “called forth his ‘decisiveness’ to block out remorseful reflection of any kind, in that way suppressing conscious feelings of self condemnation.” Dr. Lifton is a former Air Force psychiatrist. Mr. Mitchell formerly served as executive director of the Center on Violence and Human Survival.

■ **Stanley Goldberg** is a “historian of science.” He resigned in protest from the *Enola Gay* exhibit advisory board because “the museum administration had exposed the curators to the direct pressure of organizations such as the Air Force Association and the American Legion.” He punctuates his argument with epithets like “thought control” and “McCarthyism.”

ABC Chimes In

There are some differences of position among the revisionists, but the central ideas of the movement are that (1) Japan was on the verge of surrender; (2) the war would have been over soon without the atomic bomb; (3) the US prolonged the war by insisting on unconditional surrender; (4) the US dropped the bomb mainly to impress the Russians;

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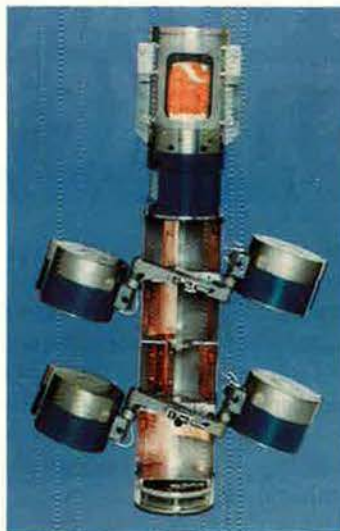
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(5) the decision was driven by domestic political considerations; and (6) even if we had to invade Japan, the casualties would not have been that severe.

The revisionists—who had generally fared poorly in news media comment on the *Enola Gay* controversy—gained some prime-time support July 27 with a Peter Jennings special, “Hiroshima: Why the Bomb Was Dropped,” on ABC television. It was a set piece of the revisionist line.

As the *Washington Post* review said, Mr. Jennings was led along by “a largely stacked deck of revisionist historians” to the assessment of President Harry Truman “as an intellectual and moral dwarf, propelled by ambitious militarists and politicians to a nuclear slaughter of the innocents.”

Mr. Jennings said it was “unfortunate” that veterans’ groups had “bullied” the curators of the original *Enola Gay* exhibit. He declined to use the material furnished to him and his producers by the Air Force Association. According to Gar Alperovitz’s publisher, Knopf, his new book, *The Decision to Use the Atomic Bomb*, was the basis for the Jennings special.

Targeting AFA

With the decision past on how the Air and Space Museum will exhibit the *Enola Gay*, the activists, scholars, and others turned their attention to the record of how the controversy arose and unfolded. Attention soon centered on the Air Force Association, which was the first organization to tackle the museum’s original exhibit plan and which produced the widely cited content analyses of the exhibition scripts. The Air Force Association was also the source of a collection of documents that virtually all participants in the controversy, including the revisionists, draw upon.

In *American Journalism Review*, Tony Capaccio and Uday Mohan say that it was “an aggressive public relations campaign by the Air Force Association” that “doomed the museum’s plans for a full-fledged exhibit on the atomic bomb.”

In “Blown Away” in *Washingtonian* Magazine, Tom Allen and Norman Polmar say that the editor of *Air Force Magazine* was “Martin Harwit’s chief nemesis in the *Enola Gay* battle.” Dr. Harwit told them that “The Air Force Association must have had an incredibly well-oiled public relations machine.”

In *Museum News*, Professor Mike

Wallace of John Jay College of Criminal Justice says the Air and Space Museum “never quite realized who and what it was up against” in the Air Force Association, which Professor Wallace depicts as incredibly powerful and oppressive.

Professor Martin J. Sherwin told reporters that the attack on the exhibit

The problem was not the coupling of history with commemoration. The problem was that the history had been given a countercultural spin.

was “orchestrated” by *Air Force Magazine* and that “The Air Force Association’s agenda, in my view, was not simply to tweak an exhibit into getting the story straight. It was a blatant and ultimately successful attempt at getting Martin Harwit fired and regain [*sic*] control of Air and Space for Air Force—friendly, non-critical mis-exhibits.”

The Allegedly Bamboozled

The notion that AFA somehow managed to bamboozle the press, the Congress, and the American public is hardly credible. It is even less credible that, as suggested by some, we gulled the liberally inclined *Washington Post*. As museum officials knew—and as bamboozle theorists ought to know—the *Post* got some documents and analysis from AFA, but its reporters acquired more materials on their own and spent months digging into the issue.

What rankled the revisionists is that the *Post* said in a January 1995 editorial that early drafts of the *Enola Gay* script were “incredibly propagandistic and intellectually shabby” and had “a tendentiously antinuclear and anti-American tone.” The *Post* also said the curators had repeatedly made things worse by their “misplaced condescension and refusal to see the criticisms of bias as anything but the carping of the insufficiently sophisticated.”

In February, another *Post* editorial added: “It is important to be clear about what happened at the Smithsonian. It is not, as some have it, that benighted advocates of a special-interest or right-wing point of view brought political power to bear to crush and distort the historical truth. Quite the contrary. Narrow-minded representatives of a special-interest and revisionist point of view attempted to use their inside track to appropriate and hollow out a historical event that large numbers of Americans alive at that time and engaged in the war had witnessed and understood in a very different—and authentic—way.”

In similar fashion, one congressman’s statement contains an answer to whether he bought a pig in a poke. In September 1994, Rep. Tom Lewis (R-Fla.) said he learned of the controversy when a constituent wrote to complain. “I obtained a copy of the exhibit’s script to judge it for myself,” Representative Lewis said. “I did not think it could be as slanted as the letter described. I was wrong.”

In *Hiroshima in America*, Lifton and Mitchell say that “reporters rarely took the trouble to examine one of the widely available scripts to determine if the veterans’ complaints were valid. Instead, they accepted at face value the Air Force Association’s interpretation—including such false assertions that the script did not mention Japanese brutality.”

That account contains several curiosities. The source from which the script was “widely available” was the Air Force Association, which distributed hundreds of copies, many of them to reporters, whose follow-up questions indicated that they had, indeed, read the scripts they received.

The “false assertion” line does not square with the facts. As *Air Force Magazine*’s first report said, the exhibit script “acknowledges Japan’s ‘naked aggression and extreme brutality’ that began in the 1930s.” Those references, however, were slight. Even after museum officials acknowledged among themselves that the exhibit was imbalanced and “that much of the criticism that has been levied against us is understandable,” the exhibition plan said little about the events leading up to the mission of the *Enola Gay*. A revised script allocated less than one page of text—out of 295 total text pages—and only eight visual images (out of hundreds) to any mention of Japanese military activity prior to 1945.



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"History vs. Nostalgia"

At the press conference before the official opening of the *Enola Gay* exhibit, Smithsonian Secretary Dr. I. Michael Heyman said, "I have concluded that we made a basic error in attempting to couple a historical treatment of the use of atomic bombs with the fiftieth anniversary commemoration of the end of the war." He had said the same thing months earlier when he canceled the "Last Act" exhibit.

AFA has repeatedly said this "history vs. nostalgia" theory is wrong. As AFA National President R. E. Smith said at a Senate hearing in May, "The problem was not the coupling of history with commemoration. It was that the history had been given a countercultural spin. The problem was not that the exhibition was analytical. The problem was that the analysis was distorted."

Revisionists take the imputed history vs. nostalgia split even further and say that the traditional or "commemorative" version—that use of the atomic bomb was a military action, taken to end the war and save lives—is wrong. Gar Alperovitz, for example, argues that a "new consensus" has developed among historians and that it supports the Air and Space Museum's initial approach, which Dr. Alperovitz describes as "balanced."

The existence of any such "new consensus," however, is disputed by other scholars, notably Professor Robert P. Newman of the University of Iowa, author of *Truman and the Hiroshima Cult*. Professor Newman says, "The intellectual idea to which Hiroshima cultists are devoted is that since Japan was about to surrender when the bombs were dropped, the slaughter of innocents at Hiroshima and Nagasaki was not motivated by military reasons. It was instead motivated primarily by the desire to intimidate the Russians (so-called atomic diplomacy), by racism (we did not drop the bomb on Germany), by the desire of Robert Oppenheimer and company to experiment with a new toy, by the fear of Secretary of War Henry Stimson and others that Congress would investigate if their \$2 billion expenditure was found not useful, or by the sheer unthinking momentum of a bureaucratic juggernaut (Manhattan project)." Professor Newman's book summarizes mainstream scholarly evidence and shoots down the articles of revisionist faith, one by one, with well-documented rebuttal.

Also in disagreement with the revisionists is Robert James Maddox, professor of American history at Penn-

sylvania State University. He wrote "Why We Had to Drop the Atomic Bomb" in the May-June 1995 issue of *American Heritage*. He was one of the few nonrevisionists interviewed for the Peter Jennings special, but he says ABC misrepresented his views and ignored information he supplied. He called the show "the worst piece of garbage I've seen."

The Peace Activists Enter

Peace groups first entered the exhibition fray in the fall of 1994 when the original plan was rapidly coming unstuck. At his installation on September 19, I. Michael Heyman, new secretary of the Smithsonian, acknowledged that the *Enola Gay* exhibit plan had been "deficient" and "out of balance." The Senate unanimously passed a resolution September 23 calling on the National Air and Space Museum to modify its "revisionist and offensive" exhibition plan.

According to Philip Nobile in *Judgment at the Smithsonian*, a book sympathetic to the curators, Dr. Tom D.

"You have no idea of the forces opposing this exhibit, not in your wildest dreams," said Dr. Tom Crouch, chairman of the museum's Aeronautics Department.

Crouch, chairman of the museum's Aeronautics Department and a principal in the *Enola Gay* controversy, sought support from Father John Dear, a "peace Jesuit" who had hammered an F-15 fighter in a disarmament demonstration at a base in North Carolina. "You have no idea of the forces opposing this exhibit, not in your wildest dreams—jobs are at stake, the Smithsonian is at stake," Dr. Crouch said.

Father Dear says that "Crouch urged me to organize the media and get to Harwit, who he felt was being manipulated." Father Dear and "some colleagues from the peace community" met with Dr. Harwit September 20. He quotes Dr. Harwit as saying,

"Where have you been? You're too late." In October, representatives of seventeen peace organizations—with Father Dear acting as spokesman—called on the Smithsonian to renew the focus of the exhibition on the suffering caused by the bombs.

On November 16, 1994, a group of forty-eight "historians and scholars" delivered a letter of protest to Smithsonian Secretary Heyman demanding that the imbalances and biases be restored. The scholars charged that by giving in to change demanded by "special interest groups," the Smithsonian had subjected the exhibition to "historical cleansing."

Among those signing was Noam Chomsky, a professor of linguistics at MIT. In subsequent discourse, Professor Chomsky dismissed the Japanese attacks on Pearl Harbor and the Philippines in December 1941 as no more than "bombing military bases in two US colonies that had been stolen from their inhabitants." These and other offenses by Japan "rank so low in the scale of those that we have regularly committed, before and since, that no honest person could take them very seriously as a justification for invasion [of Japan in 1945]."

According to press accounts, a group of "peace and antinuclear activists" had a "cordial but ultimately disappointing two-hour meeting" with Air and Space Museum officials December 15. After January, when the Smithsonian canceled the "Last Act," the activists moved to a different strategy.

The Open Debate

By March 1995, the group of forty-eight "historians and scholars" who delivered their protest letter to the Smithsonian in November had reconstituted itself as the "Historians' Committee for Open Debate on Hiroshima" with Martin Sherwin and Kai Bird as co-chairmen.

The members called upon "our colleagues at colleges and universities across the country to participate in a 'National Teach-In on Hiroshima,' both to protest the Smithsonian's surrender to political censorship and to educate Americans on the full range of scholarly debate regarding the atomic bombings on Japan fifty years ago." Among the most ambitious programs was staged at American University in Washington, D. C., which displayed, in cooperation with the Hiroshima Peace Memorial Museum, some of the artifacts originally planned for the *Enola Gay* exhibition at the National Air and Space Museum.

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The American University program, "Constructing a Peaceful World: Beyond Hiroshima and Nagasaki," concentrated on events after the bomb was dropped and looked ahead to the nuclear arms race. The exhibit, which ran for most of July, was held in conjunction with a course that included a two-week study tour of Japan. The Japanese contributed more than half of the \$15,000 tour scholarship fund. The exhibit had twenty-seven artifacts from the Hiroshima Museum. Among them was a school-child's lunch box with charred remains of rice, barley, soybeans, and strips of radish. Between July 8 and July 20, just over 1,000 persons had been through the exhibit.

The academic director of the program was Dr. Peter Kuznick, an associate professor of history and one of the forty-eight signatories to the "historians and scholars" petition last year. Professor Kuznick told the *Washington Post* that the program dealt only with the aftermath of the bomb because "space precluded" the inclusion of material about Japanese aggression and atrocities and the reasons why the United States used the bomb. In fact, when AFA Communications Director Steve Aubin and I saw the program on July 21, there was an abundance of unused space in the exhibit area.

Myths About What We Said

Judging from their published comments, few of the scholars throwing brickbats at AFA and *Air Force Magazine* bothered to read what we actually said. A number of myths are therefore taking root as assumptions pass from one scholar to the next in the course of their research.

■ *The sudden ambush.* It is said, for example, that we jumped prematurely on a raw, first draft of the *Enola Gay* exhibition plan and that the curators would have fixed it themselves if we had let them alone. The fact is that the script we exposed was the fourth formal planning document, not the first. It flowed directly from three concept papers that went before and picked up the worst features of those earlier plans. AFA representatives had tried for months to reason with museum officials, but they showed no inclination to change. As the documentary record shows, they continued to resist change after publication of the AFA reports.

■ *"Historical cleansing."* It seems important for some revisionists to believe that AFA and military veterans insist on an expurgated version of history. None of them has yet

explained how it is that my first report on the atomic bomb controversy, "The Decision That Launched the *Enola Gay*," in *Air Force Magazine* for April 1994, discussed at length the very issues we are accused of "cleansing away"—ambiguity about the casualty estimates and the be-

Mr. Nobile's press release says that his "fictional cross-examination" of Harry Truman "leaves little doubt about the defendant's guilt."

lief by Army Air Forces Gens. H. H. Arnold and Curtis E. LeMay that the war could be won by conventional bombing (albeit with horrendous casualties). Many of the "historical cleansing" theorists acknowledge having in their possession a longer, fully annotated version of that report which documents even earlier *Air Force Magazine* coverage of this information.

■ *"Taken out of context."* This is the same complaint that Dr. Harwit made in a letter to the *Washington Times* in March 1994. He said that AFA's assessment of balance in the exhibit was inaccurate because "the exhibition describes the 'naked brutality' of Japanese forces in concrete terms, calling attention to the rape of Nanking, the treatment of POWs, the use of Chinese and Koreans as slave laborers, and the conduct of biological and chemical experiments on human victims."

It was that letter that led AFA on April 4, 1994, to deliver a copy of the 559-page script to the newspaper with an invitation to "judge for yourself." All of the vaunted context cited by Dr. Harwit was contained on just three of the 302 text pages in the initial script, compared to seventy-nine text pages on Japanese casualties and suffering.

The Air Force Association thereafter provided copies of the script to other reporters and interested organizations—and would have copied

and circulated subsequent *Enola Gay* script revisions had not the Air and Space Museum copyrighted these products to keep us from doing so. For AFA and *Air Force Magazine*, the critical issues were balance and context, and the heart of our "conspiracy" was to make the full record open to all who wanted to examine it.

War Crimes

Among the most strident in his denunciation of AFA and in his defense of the curators of the original exhibit is Philip Nobile, who bills his book, *Judgment at the Smithsonian*, as containing "the uncensored script of the Smithsonian's 50th anniversary exhibit of the *Enola Gay*."

The press release promoting this book depicts Mr. Nobile as having blown the lid off a cover-up after he "obtained a rare copy of the 300-page document." A close reading of the "acknowledgements" section of the book reveals that Mr. Nobile obtained his "rare copy" from the Air Force Association, which made hundreds of copies available to reporters, members of Congress, and veterans' organizations.

Furthermore, the document that Mr. Nobile received from AFA was not 300 pages but 559. Mr. Nobile reprints the intended wall label text but leaves out the visual elements. Mr. Nobile was aware, certainly, that much of AFA's criticism focused on the imbalance in the visual content. As my colleague Mr. Aubin points out, ignoring the graphic parts of an exhibition that is primarily visual is like watching television without looking at the picture. Mr. Nobile's publisher says that he addresses the moral issues as "a trained theologian with a pontifical degree." He hits a low point in the book with a "mock war crimes trial of Harry Truman." According to the press release, "Nobile's fictional cross-examination of Truman leaves little doubt about the defendant's guilt."

It seems unlikely that many of the revisionist historians and scholars would endorse this approach, but Barton Bernstein contributed a 129-page "afterword" to the Nobile book, which conveys an impression of sorts simply by being there. Colman McCarthy, a columnist for the *Washington Post*, included Nobile's *Judgment at the Smithsonian* on a short list of "books of reliable scholarship and balanced analysis" to counteract the spin he attributed to "the easily peeved military lobby."

Fifty years after the atomic bombs fell on Hiroshima and Nagasaki, the fires of controversy burn on. ■



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INSTRUMENTS**



Aerospace World

By Suzann Chapman, Associate Editor

US Recognizes Vietnam

President Clinton opened full diplomatic relations with Communist Vietnam on July 11, sparking protests from many who claim that the former wartime adversary has failed to honestly account for the fates of missing US servicemen and -women.

Many officials in Washington called the action inevitable, noting that US allies during the Vietnam War already have opened official ties with Hanoi.

The President said that normalization was appropriate, given the degree of cooperation Vietnam has shown since the White House lifted a long-running trade embargo in February 1994.

In the months since, Hanoi has returned eighty-five sets of remains, twenty-nine of which have been identified as Americans, as well as numerous documents that have helped resolve the fates of Americans who were known to be captured, then lost—so-called discrepancy cases. There are some 2,200 Americans still officially listed as unaccounted-for.

Rep. Sam Johnson (R-Tex.), a prisoner of war for seven years, argued that the US should have opened full relations only when Vietnam had turned over records on all POWs and MIAs and allowed unrestricted investigation of these cases. He said that by taking this action now, "We're giving away the store, and [the Vietnamese] are effectively off the hook."

Rep. Pete Peterson (D-Fla.), who spent six and one-half years as a POW, said the missing persons problem extends beyond Vietnam to other wars. He noted reports that cite 78,000 missing from World War II and 8,100 from the Korean War. Mr. Peterson believes full accounting is impossible but that by normalizing relations, the US can achieve the "fullest possible accounting."

Recruiting Worries Emerge

Through the first eight months of Fiscal 1995, the Air Force failed to meet its recruiting goal, personnel officials said. It was the first such failure in sixteen years.

Service plans called for signing up

20,800 recruits in the period from October 1, 1994, through May 31, 1995. USAF officials reported that the Air Force fell short by 474 recruits, meaning it met only 97.7 percent of its goal.

Maj. Joe Adams, chief of Air Force Recruiting Service's analysis branch, said USAF still expects to meet its 1995 goal of 31,000 active-duty enlisted recruits. He said, "The summer months are traditionally our most productive." Major Adams reported that the shortfall was caused not by a lack of interest but rather by a shortage of recruiters and a toughening of DoD entry guidelines.

The Air Force has increased its recruiter positions by eighty to rectify the imbalance caused by cuts in the recruiter force as part of the overall downsizing.

The competition is intense for top-quality recruits. Major Adams said that, for every Air Force recruiter, one sees "twelve Army, Navy, or Marine recruiters out there." Adding to the dilemma are rising minimum entry requirements for many jobs over the past few years. The Defense Department also toughened the screening process for applicants who have asthma or who have undergone any kind of counseling, he said.

Major Adams noted the Air Force is not having problems filling administrative and high-tech jobs, such as those found in medical and computer science fields. "We're only having problems filling our mechanical jobs, mainly because most of today's recruits aren't inclined to do those kinds of jobs."

B-1B Sets World Records

A B-1B bomber from Dyess AFB, Tex., that flew around the world non-stop for Coronet Bat June 2-3 has officially claimed two speed records, according to the National Aeronautic Association. The first record is for best overall speed around the world, eastbound (with refueling in flight), and the second for speed around the world, eastbound (with refueling in flight) in weight subclass (between 150,000 and 200,000 kilograms).

The record time was thirty-six hours, thirteen minutes, and thirty-six seconds over a distance of 36,797.65 kilometers.

Crew members flying the 9th Bomb Squadron bomber, nicknamed "Helion," were Lt. Col. Douglas Raaberg, mission commander; Capt. Rick Carver, aircraft commander; Capt. Gerald Goodfellow, offensive systems officer; and Capt. Kevin Clotfelter, weapon systems officer. [See "Aerospace World," August 1995, p. 24.]

Remembering the "Forgotten War"

In recognition of Americans who fought in the so-called "forgotten war," thousands gathered July 27 on the National Mall in Washington, D. C., to help dedicate the Korean War Veterans Memorial. The opening marked the culmination of a years-long effort to create a lasting tribute to the veterans of the nation's first "limited war," which ended forty-two years ago.

Serving in that conflict were nearly 1.5 million Americans, including 54,246 who died, 103,284 who were wounded, 7,140 who were POWs, and more than 8,100 who are still listed as missing.

The memorial sits on 2.2 acres directly across the Mall's reflecting pool from the Vietnam Memorial. The site is dominated by nineteen larger-than-life, lead-gray, stainless steel statues of troops in ponchos advancing across a field as if on patrol.

A 164-foot-long, eight-inch-thick, polished dark granite wall features more than 2,500 images of support troops from every service. An extension of the wall, representing the Korean peninsula, juts into a granite reflecting pool and bears the inscription, "Freedom Is Not Free."

Civilian and Military Personnel Merge

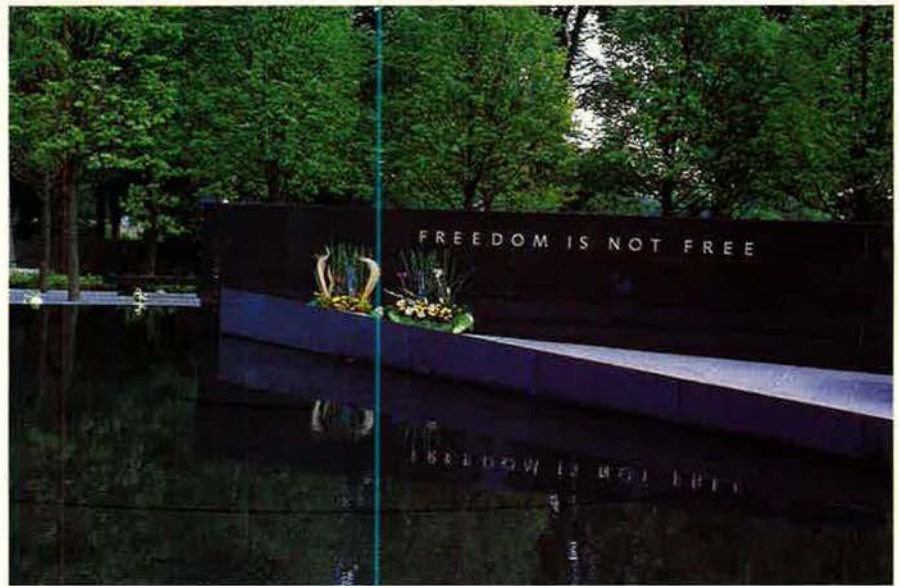
Starting next month, USAF will consolidate its military and civilian personnel organizations into one entity called the Air Force Personnel Center (AFPC), to be located at Randolph AFB, Tex.

The current commander of the soon-to-be-replaced Air Force Military Personnel Center, Maj. Gen.

William B. Davitte, will head the new center. The director of Civilian Personnel Policy and Plans for the Air Force at the Pentagon, Roger M. Blanchard, planned to arrive at Randolph September 1 to fill the number two spot as the center's executive director.

Lt. Gen. Eugene E. Habiger, USAF deputy chief of staff for Personnel, said the service has been moving toward this merger since 1993 when his predecessor, Gen. Billy J. Boles, consolidated the civilian and military personnel functions at the Air Staff. The Air Force expects to generate "important cost-efficiency initiatives" by streamlining similar functions within the two systems, he added.

At the same time, the Air Force will consolidate some of the civilian personnel support activities now handled



Photos © Maricle J. Pacilli 1995

Thousands gathered in Washington, D. C., to dedicate a long-awaited memorial to the "forgotten war." The Korean War Veterans Memorial, located near the reflecting pool on the Mall, consists of a 164-foot-long granite wall and an extension (top, right) and statues of troops on patrol (above).

at each base into a civilian personnel management center within the new AFPC. This move follows a 1993 DoD directive that all services consolidate or regionalize their civilian personnel functions to reduce manpower.

Currently the Air Force has one personnel specialist providing support for every sixty employees, but officials predict that with centralized support they can improve that to one to eighty-eight by 1999. Mr. Blanchard said that initially USAF will move some 400 civilian personnel positions from bases to the AFPC, but that number could be smaller or larger as the

process evolves over the next few years.

Near-Perfect Reliability For C-17

In one of its most important demonstrations to date, the C-17 Globemaster III turned in an aircraft departure reliability rate of more than ninety-eight percent.

A reliability, maintainability, and availability evaluation (RM&AE) that started July 7, took twelve C-17s through thirty days of rigorous peacetime and wartime operations. The Air Force designed the RM&AE to evaluate the aircraft's systems as guaran-

teed in the contract with the C-17 manufacturer, McDonnell Douglas Aerospace.

By the end of the evaluation, the aircraft had flown more than 2,100 hours and transited seven airfields in the US and England.

Just prior to the RM&AE, on June 27, C-17s successfully dropped fifty-five tons of heavy cargo and 204 paratroopers to demonstrate the aircraft's ability to meet the Army's brigade airdrop requirement. The demonstration, called a "slice," was to have four C-17s drop a twenty-ton M551 Sheridan armed reconnaissance vehicle, a five-ton 155-mm howitzer, and nine five-ton High-Mobility Multipurpose Wheeled Vehicles. A drogue parachute malfunction prevented the second aircraft from dropping the howitzer and two Humvees. According to Air Mobility Command officials, the "slice" was highly successful and "operationally representative."

C-21 Crash Cause Determined

The Air Force accident investigation report released July 19 on the C-21A that crashed near Alexander City, Ala., April 17 and killed all eight people aboard, including Clark G. Fiester, assistant secretary of the Air Force for Acquisition, and Maj. Gen. Glenn A. Profitt II, director of Plans and Operations for Air Education and Training Command, blamed the crash on mechanical problems, an inadequate flight manual, and human error.

According to the report, a faulty electrical relay caused the C-21's right standby fuel pump to continue pumping fuel after the crew started the



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C-21. That malfunction forced fuel into the left wing but prevented fuel from being transferred into the right wing. USAF had not included procedures for this type of fuel imbalance in its training syllabus or flight manuals, although civilian C-21 flight instructions and checklists do have the information. The report further noted that when the crew tried to land the C-21, they made "control inputs that caused the aircraft to enter a flight regime from which they could not recover."

Air Force officials said that, since the accident, the service has added procedures to training courses and flight manuals that address the fuel imbalance problem.

OA-10 Bomb Kills Army Captain

An Air Force OA-10 attack aircraft participating in a joint training exercise July 18 accidentally dropped a 500-pound bomb, killing one soldier and injuring four others and five Marines at Fort Sill, Okla.

USAF Chief of Staff Gen. Ronald R. Fogleman asked the Army to lead the investigation into the accident, which claimed the life of Army Capt. Christopher Williams. Captain Williams, whose hometown was Houston, Tex., was commander of Battery A, 2d Battalion, 17th Field Artillery, at Fort Sill.

The Fort Sill Hospital treated and released four injured Marine Corps Reserve members and hospitalized four soldiers and another Marine Reservist.

Business Is Booming

Since 1991, the Air Force has averaged three to four times the level of overseas deployments as it did during the Cold War, Secretary of the Air Force Sheila E. Widnall told the National Security Forum in June at Maxwell AFB, Ala.

She went on to say that the Air Force has almost 10,000 men and women deployed overseas to support operations in Bosnia-Herzegovina, Iraq, the Caribbean, and South America. In the past three years, Air Force aircraft and people have operated in almost every country in the world, flying up to 200 missions per day in combat zones. Some Air Force units have been involved in sustained combat or combat support operations for almost five years.

Secretary Widnall said that Air Force aircrews, medical personnel, and other technicians, along with other US military personnel, are often the first helping hands many disaster-struck people see. In the last eight-

teen months, the Air Force has responded to dozens of tragedies in the US and abroad.

F-22 Assembly Is Lengthy Process

Workers at Lockheed Martin Tactical Aircraft Systems in Fort Worth, Tex., lowered a titanium bulkhead into an assembly fixture June 27, marking the initial step toward assembly of the first F-22.

Plans call for assembly of the midfuselage by July 1996 and shipping of the sections to Lockheed Martin Aeronautical Systems in Marietta, Ga., for mating with other portions of the first flight-test aircraft. Final mating will begin in December 1996, with delivery of the first F-22 flight-test aircraft in 1997. Lockheed Martin will also deliver three additional test versions in 1997.

The midfuselage itself—at 5,700 pounds and twenty feet long by fifteen feet wide—will incorporate more than 200 composite parts, ranging in size from five inches to nineteen feet. It will contain components from the F-22's armament, auxiliary power, avionics, environmental control, fuel, electrical, hydraulic, and vehicle management systems.

Each midfuselage section will cycle through eleven assembly process task centers, during which workers will join approximately 5,000 structural and support parts using more than 100,000 fasteners.

IPT Speeds F-22 Engine Rework

An integrated product team made up of people from the Air Force, Pratt & Whitney, and major critical suppliers successfully designed and tested a replacement turbine for the P&W F119 engine in record time, according to F-22 System Program Office (SPO) officials at Aeronautical Systems Center, Wright-Patterson AFB, Ohio.

The new turbine design "eliminates high vibratory stress levels while improving turbine efficiency." During initial trial runs, the original turbine design did not meet program goals, producing higher vibration stress and lower performance than expected.

Capt. Nathan Ply, F119 turbine manager for the F-22 SPO, said that the IPT was critical in bringing "a manufacturable and supportable design from a clean sheet of paper to engine demonstration in less than eighteen months," adding that traditional processes would have taken years.

The team tested the turbine at USAF's Arnold Engineering Development Center, Arnold AS, Tenn., reach-

ing worst-case temperatures and pressures that the turbine will experience within the engine's operating envelope. Contractors have already modified engines for the F-22 test aircraft with the new turbine design.

Revised OAS Increases Volunteers

Since its implementation in January, personnel officials said that under the revised Officer Assignment System more officers have volunteered for assignments compared to last fall. They measured some 5,000 volunteer declarations for March and April 1995 against just under 3,000 in November and December 1994.

Success stories include Kunsan AB, South Korea, which traditionally challenges personnel assignment officials to find officers for F-16 weapon system requirements. They noted that seven officers have volunteered to fill positions there since January. Another challenge has been to fill Security Police positions that call for majors at the northern-tier missile bases, such as Minot AFB, N. D. Both bases had jobs posted on the electronic bulletin board since May 1994; however, under OAS, five officers volunteered.

OAS replaces the Officer Volunteer Assignment System, which existed from 1991 to 1994. [See "The New Way of Officer Assignments," p. 90.]

Two ALCs May Privatize

When President Clinton accepted the Defense Base Closure and Realignment Commission recommendations July 13, he set the stage for the Air Force to privatize the functions of Sacramento Air Logistics Center at McClellan AFB, Calif., and San Antonio ALC at Kelly AFB, Tex.

The commission's recommendations included closing or realigning thirteen Air Force installations, including closure of McClellan and realignment of Kelly. The original DoD recommendations included keeping all five Air Force depots open, with a transfer of work loads among them to induce cost savings and efficiencies.

Under the commission's proposal, the Air Force will now attempt to privatize-in-place over the next five years the functions performed by Sacramento and San Antonio. In so doing, the Defense Department expects to preserve fifty percent of the current DoD jobs at McClellan and about two-thirds at Kelly. The Air Force is working out details for both locations but anticipates no problems

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in finding a private contractor willing to undertake the work done at the two facilities, essentially hiring current workers and using former Air Force facilities, according to new Deputy Secretary of Defense John White.

Under the base-closing process, Congress must accept or reject base closure and realignment actions in their entirety.

No Bomber Industrial Base?

A distinct, unique US bomber industry does not exist.

That, at least, was the conclusion of the Defense Department's long-awaited study of the nation's heavy bomber manufacturing base, which DoD presented to Congress July 11. The conclusion was preordained, for the most part, by the result of the Heavy Bomber Force Study.

That earlier force requirement study stated that DoD should not procure additional B-2 bombers. It said that, though more B-2s would be useful in wartime, the Pentagon nevertheless should pursue other, more cost-effective means of meeting national defense requirements under the two major regional conflicts scenario. It suggested putting more money into standoff weapons and upgrades to the current bomber force.

The industrial base study said that, although the B-2 bomber is a unique aircraft and incorporates unique features, the aircraft industry as a whole now includes the capabilities to produce these features, namely stealth and composite structures. It also said that the broader military and commercial aircraft industries possess the capabilities to design and build bombers.

Paul G. Kaminski, under secretary of defense for Acquisition and Technology, announced the conclusions and said that the report indicates that the aircraft industry has learned and benefited from the B-2 program, thus enabling the whole industry to contribute to military stealth aircraft development and production. The report also states that "a modest annual investment in stealth and large composite structures manufacturing technologies could reduce the costs of a future bomber."

How Much More For B-1B MCR?

The General Accounting Office claimed that the Air Force has low-balled the cost of B-1B readiness upgrades.

Following its highly successful six-month operational readiness assessment (ORA) of the bomber last year—

mandated by Congress—the Air Force estimated it would need an additional \$11 million to ensure a seventy-five percent mission capable rate for the entire B-1B fleet.

During the ORA, a test B-1B force from the 28th Bomb Wing, Ellsworth AFB, S. D., operating with full supplies and support crews, achieved about an eighty-five percent mission capable rate.

However, the July 18 GAO report said that the Air Force, in arriving at its estimate, used a "best-case estimate" based on various modeling techniques rather than the actual ORA data. The congressional watchdog agency said that the Air Force estimate "assumes total success of the planned reliability, maintainability, and management improvements."

The Air Force was still reviewing the report at press time.

ICBMs Keep Going and Going

Like its long-lived Cold War compatriot, the B-52 bomber, the Minuteman III ICBM is aging but continues to stand out as a highly capable weapon system. In fact, the elderly missile on July 8 passed a major milestone, having achieved 100 million hours of operational duty.

Minuteman IIIs have been in the USAF inventory for twenty-five years and will continue in service, under current plans, for another twenty-five, through 2020. If the US implements the Strategic Arms Reduction Talks II Treaty, as planned, and eliminates fifty newer Peacekeeper ICBMs, the existing 500 Minuteman IIIs will be all that remains of the American ICBM force.

Maj. Gen. Robert W. Parker, who as 20th Air Force commander has responsibility for the entire ICBM fleet, said that more than ninety-nine percent of the missiles are on alert at all times, the best rate in twenty years.

Three bases—Francis E. Warren AFB, Wyo., Grand Forks AFB, N. D., and Minot AFB, N. D.—each have 150 of the missiles. Another eighty are at Malmstrom AFB, Mont. With final approval of the 1995 base closure and realignment actions, Air Force Space Command officials will move to close Grand Forks, keep 150 missiles at Minot and F. E. Warren, and increase the number at Malmstrom to 200, leaving the force at its planned size.

C-17 Proves Durability

McDonnell Douglas, the C-17's prime contractor, reports that the transport surpassed the equivalent

of two lifetimes, or 60,000 hours, of simulated flight July 11, seven weeks ahead of schedule. The successful simulated flight durability test satisfies Air Force airframe requirements. The 60,000 hours included more than 17,000 flights and 24,000 landings—representing sixty years of actual aircraft flying time.

A company official said, "The testing was the most realistic ever for a large airplane yet resulted in a remarkably low number of design changes in the C-17." The test covered virtually all the conditions the new airlifter may encounter, including flights in the high-stress regime of high-speed, low-level cruise. More than 260 hydraulic actuators applied simulated loads to the airframe, while being monitored by more than 1,000 strain gauges.

Nonfraternization Still the Rule

A recent ruling by a military court holds that Air Force officers who fraternize with enlisted members, even those outside their command or supervisory channels, may face a court-martial.

The reaffirmation of the old policy came June 12 when the Court of Appeals for the Armed Forces upheld a lower court's ruling that 2d Lt. Ronnie D. Boyett was guilty of conduct unbecoming an officer and a gentleman for fraternizing with an enlisted woman. Previously, the Air Force Court of Military Review had also upheld the conviction.

The latest ruling also limits a 1983 court decision that suggested the Air Force could not prosecute an officer for "engaging in mutual voluntary, private, nondeviate sexual intercourse with an enlisted member neither under his command nor supervision" because the nonfraternization custom had "eroded" over the years. According to Loren Perlstein, associate chief of the Air Force Military Justice Division, Bolling AFB, D. C., the court of appeals has said that the Air Force does have a custom based on military history dating back thousands of years.

In Lieutenant Boyett's case, Mr. Perlstein said, the officer acknowledged that he had been told before getting his commission that officers were not to date enlisted personnel and that his squadron commander had counseled him about improper relationships with enlisted people on two separate occasions. The lieutenant's sentence includes dismissal from the service and partial forfeiture of pay and allowances.

"Blackbird" Back in Inventory

June 28 marked the return for one of two SR-71 high-flying, reconnaissance aircraft the Air Force is having refurbished at the Lockheed Martin Skunk Works facility at Palmdale, Calif.

Company officials expected reconditioning work on the second "Blackbird" under a \$30 million contract, to be completed last month. Congress allocated the funds to the Defense Airborne Reconnaissance Office in late 1994 for the refurbishment.

Three two-member Air Force crews that once flew SR-71s have been retrained on the aircraft. They will fly out of Edwards AFB, Calif.

Former Foe Recons US

In late June, a Soviet-built Tu-154, equipped with camera and infrared sensors and flown by a former East German Air Force pilot, flew a surveillance training mission over the US as part of the Open Skies Treaty. The Tu-154 covered territory from Virginia to Oklahoma and Ohio to Florida.

On-Site Inspection Agency officials said the Open Skies Treaty, signed by twenty-five nations of NATO and the former Warsaw Pact in 1992, intends to provide better understanding of each nation's military posture and that none is preparing an offensive. However, OSIA, which will monitor implementation, said the treaty is not in effect because some countries have not ratified it yet.

The June flight was part of a joint US-German training exercise. Under the treaty, observation aircraft from the other signatory nations may overfly the US forty-two times a year.

JAST Model Hovers

The Lockheed Martin near-full size model of its concept for the Joint Advanced Strike Technology aircraft began hover tests July 10. Company officials said that they need large-scale tests to represent jet thrust and buoyancy forces simultaneously.

The hover and ground effects testing of the short takeoff and vertical landing model will include measurements of jet thrust, airframe suck down, hot-gas injection, and ground pressures and temperatures. Wind tunnel tests will follow this month. David J. Wheaton, Lockheed Martin's JAST program manager, said that successful model tests "will significantly reduce the risk of proceeding with a flight demonstrator aircraft."

DoD expects the JAST aircraft to be a lightweight, multirole fighter for use by the Air Force, Navy, Marines, and key allies. The program is in the concept definition phase. Other com-

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panies competing for the flight demonstrator phase are Boeing and the team of McDonnell Douglas, Northrop Grumman, and British Aerospace. Current plans envision demonstrator aircraft flights before 1999.

Lockheed Tops RDT&E Contractors

Lockheed Corp. headed the Fiscal 1994 list of top 500 Defense Department prime contractors for research,

development, test, and evaluation work, according to a DoD report released in late June. Lockheed's RDT&E contracts for Fiscal 1994 totaled approximately \$2.6 billion.

Martin Marietta, now merged with Lockheed, placed second with \$1.8 billion. Other contractors that made up the top ten were McDonnell Douglas, Northrop Grumman, Textron, Raytheon, General Electric, TRW, Johns Hopkins University, and MITRE.

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The top 500 RDT&E contractors, based on companies or institutions with contracts above \$25,000, received awards totaling \$21.1 billion, compared to \$21.3 billion for Fiscal 1993. A total of 2,760 contractors had awards of more than \$25,000, compared to 2,951 in FY 1993. The DoD report attributed the decreases to FY 1994 methodology "to aggregate contractors to the parent company."

Aircraft RDT&E claimed the largest portion of money at 26.6 percent, and missiles and space followed closely at 26.2 percent.

General's Trips Spark Travel Changes

A DoD Inspector General report issued June 27 prompted Defense Secretary William J. Perry to call for "appropriate follow-up actions" for improvements the IG recommended for travel by military aircraft.

The report focused on two military flights made by Gen. Joseph W. Ashy, commander in chief of North American Aerospace Defense Command and US Space Command and commander of Air Force Space Command, Peterson AFB, Colo. According to the IG, the Air Force did not violate

policy when it sent an empty C-141B last year to transport General Ashy to his new command; however, the decision "reflects a culture that apparently lacks adequate cost-consciousness in providing service to senior officials," the report stated. The trip cost \$116,232 via military aircraft vs. about \$650 via commercial airline.

The IG stated the second trip, C-21 flights from Peterson to Washington, D. C., and back for the General and his wife to attend his promotion ceremony, "were a waste of funds for which General Ashy is responsible." The General has paid the Air Force \$5,020 for the C-21 flights.

Yanks Best Brits

It took twenty years, but a US Air Force Security Police combat rifle team defeated counterparts in the Royal Air Force in June during the annual combat readiness competition Atlantic Challenge, the British version of Peacekeeper Challenge.

The team's coach, MSgt. Jack Moody from Fairchild AFB, Wash., commented on the stiff competition presented by the British military: "Two members of the regiment's team are Queen's Medalists, signifying the top

Senior Staff Changes

RETIREMENTS: L/G James R. Clapper, Jr., M/G James G. Andrus, M/G James F. Hinkel, M/G James E. McCarthy.

PROMOTIONS: To be **General:** Richard E. Hawley.

To be **Lieutenant General:** Kenneth A. Minihan, George K. Muellner.

To be **Brigadier General:** William J. Dendinger.

CHANGES: B/G Theodore C. Almquist, to Cmdr., 89th Medical Group, 89th AW, AMC, Andrews AFB, Md. . . . Col. (B/G selectee) Roger A. Brady, from Cmdr., 64th FTW, AETC, Reese AFB, Tex., to Vice Cmdr., Ogden ALC, AFMC, Hill AFB, Utah . . . Col. (B/G selectee) William J. Dendinger, from Command Chaplain, Hq. ACC, Langley AFB, Va., to Deputy Chief of Chaplains, Hq. USAF, Washington D. C. . . . M/G Carl E. Franklin, from Cmdr., USAF Air Warfare Ctr., ACC, Eglin AFB, Fla., to Cmdr., Joint Task Force, Riyadh, Saudi Arabia.

B/G Charles R. Henderson, from Cmdr., 7th Wing, ACC, Dyess AFB, Tex., to Special Ass't to Cmdr., 8th AF, ACC, with temporary duty as Cmdr., Combined Task Force, Provide Comfort, Incirlik AB, Turkey . . . M/G (L/G selectee) Kenneth A. Minihan, from Ass't C/S, Intel., Hq. USAF, Washington, D. C., to Dir., DIA, Hq. USAF, Washington, D. C., replacing retiring L/G James R. Clapper, Jr. . . . M/G (L/G selectee) George K. Muellner, from Prgm. Dir., JAST, Ass't Sec. of the Navy for Research, Development, and Acquisition, Arlington, Va., to Principal Dep., Ass't. Sec'y of the Air Force for Acquisition, Hq. Washington, D. C., replacing Gen. Richard E. Hawley.

Col. (B/G selectee) Larry W. Northington, from Chief, AF Col. Matters Office, Hq. USAF, Washington, D. C., to Cmdr., 7th Wing, ACC, Dyess AFB, Tex., replacing B/G Charles R. Henderson . . . B/G Gary M. Rubus, from US Defense Attaché, DIA, Moscow, Russia, to Cmdr., USAF Air Warfare Ctr., ACC, Eglin AFB, Fla., replacing M/G Carl E. Franklin . . . Col. (B/G selectee) Joseph H. Wehrle, Jr., from Dir., Technical Training, Hq. AETC, Randolph AFB, Tex., to Dep. Dir., Prgms. & Eval., Hq. USAF, Washington, D. C., replacing Col. (B/G selectee) Tome H. Walters, Jr.

SENIOR EXECUTIVE SERVICE (SES) RETIREMENT: John R. Graham.

SES CHANGES: Thomas F. Bachman, to Ass't Auditor Gen., Ops. Directorate, AFAA, Hq. USAF, Washington, D. C., replacing Karla W. Corcoran . . . Roger M. Blanchard, to Exec. Dir., AFPC, Randolph AFB, Tex. . . . Karla W. Corcoran, to Ass't Auditor Gen., Field Activities Directorate, AFAA, Hq. USAF, Washington, D. C., replacing Robert L. Baugh.

shooter in the British Army, Navy, Air Force, and Marines."

USAF team members were: MSgt. Vincent A. Dougan, Offutt AFB, Neb., TSgt. Garth L. Freund, Eglin AFB, Fla., SSgt. Bart Thiesen, Ramstein AB, Germany, SSgt. Douglas A. Hammer, Aviano AB, Italy, SSgt. Wayne A. Norton, Charleston AFB, S. C., and SrA. Seadhna L. Flores, Hill AFB, Utah. The team captain was Capt. Alan Metzler, Peterson AFB, Colo., and the gunsmith was SSgt. Bill Weston, Lackland AFB, Tex.

Awards Spotlight Safety

Air Mobility Command and Air Force Space Command share the Secretary of the Air Force's Safety Awards for best programs in Fiscal 1994.

AMC won for the most effective overall mishap prevention program in a command that conducts two percent or more of the USAF total flying hours. AMC also won the Maj. Gen. Benjamin D. Foulois Memorial Award for most effective aircraft mishap prevention program. [See "AMC Wins Safety Award," July 1995 "Aerospace World," p. 27.]

AFSPC won the top safety award for commands that conduct less than two percent of USAF flying hours or have no flying mission. The command's safety program showed a ten percent drop in military injury rates and a twenty-six percent drop in civilian injury rates, even though its personnel force grew by fifty-five percent. The year also marked the first full year of flying operations, since it acquired the ICBM mission, which includes helicopter support.

AFRES won the Col. Will L. Tubbs Memorial Award for ground safety for a command with 50,000 total military and civilian members. Air Force Special Operations Command won the Tubbs Award for commands with fewer than 50,000 people.

News Notes

■ A USAF HH-1H helicopter from the 54th Rescue Flight at Minot AFB, N. D., crashed in a remote area about ten miles southeast of Pine Bluffs, Wyo., July 1. 1st Lt. Shawn Adkins, aircraft commander, 1st Lt. Jonathan Kim, and civilian maintenance workers Frank Thompson and Rick Reisenauer received only minor injuries and walked to a nearby farm for help.

■ An Air Force Academy Schweizer 126E single-seat sailplane, piloted by an Academy cadet, crashed July 21 in a heavily wooded area on Academy grounds. When found, the cadet was injured but conscious and alert. Academy officials said the last sailplane accident occurred in 1989, and they



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fly more than 25,000 sorties annually in the soaring training program.

■ According to the AFMPC quarterly demographics report released in June, 404,400 individuals are on active duty, including 79,800 officers and 324,600 enlisted members. Some 15.9 percent of that force are women, compared to 5.4 percent in 1975. Married personnel number sixty-eight percent of the force, and most are married to other Air Force members.

■ USAF will promote 6,229 staff sergeants to technical sergeant for an 11.62 percent selection rate, based on 53,624 eligible E-5s in the Fiscal 1995 cycle.

■ The Selective Early Retirement Boards for nurses identified eighteen lieutenant colonels from a list of sixty-three under consideration and eleven out of thirty-eight colonels for early retirement by January 1, 1996.

■ Applications under USAF's FY

1996 voluntary early retirement program totaled 1,339 as of August 2. The total includes 866 enlisted members and 473 officers. The goals are 1,200 enlisted and 1,000 officers.

■ Out of 126 applicants, USAF chose thirty-five enlisted personnel who applied to pursue a four-year undergraduate degree, then attend Officer Training School, under the Fiscal 1995 Airman Education and Commissioning Program.

■ USAF selected fifty-one pilots from the 111 who applied under the voluntary pilot recall and extended active-duty programs. Applicants included

ANG, AFRES, and former active-duty pilots, who will all receive a minimum two-year active-duty commitment. USAF instituted the programs earlier this summer to help fill a shortage of fighter pilot instructors in Air Education and Training Command, but the recalled pilots may also fill air liaison officer and fighter staff positions.

■ To help develop its future leaders, the Air Force started an intern program for line captains. Fifty captains began arriving at the Pentagon in mid-July to start nineteen- to twenty-month assignments at the Air Staff or joint level, followed by a formal edu-

cation program with an option to complete a master's degree.

■ Air Combat Command named the seventh B-2 Stealth bomber, the "Spirit of Nebraska."

■ Dyess AFB, Tex., recently celebrated the tenth anniversary of the arrival of the first B-1B on June 29, 1985, at the base. Lt. Gen. Stephen B. Croker, 8th Air Force commander and manager of the USAF bomber force, praised the bomber but said, "It is the thousands of men and women who have given years of service to design, build, fly, and maintain this aircraft that we wish to thank and salute."

■ The 2d Bomb Wing, Barksdale AFB, La., won the 1994 Omaha Trophy for best aircraft unit in US Strategic Command.

■ The 39th Security Police Squadron, Incirlik AB, Turkey, captured the Air Force Best Large Security Police Unit of the Year Award.

■ Air Force honors for the 1995 Logistics Plans and Program Award top unit went to the 381st Intelligence Squadron, Elemendorf AFB, Alaska.

■ Superior management by the Peace Shield software development team won the 1995 John J. Welch, Jr., Award for Acquisition Excellence for the unit from Electronic Systems Center, Hanscom AFB, Mass. Peace Shield is a command-and-control system developed for the Royal Saudi Air Force by ESC, with Hughes Aircraft Co. as prime contractor.

■ A team of 45th Space Wing personnel and contractors successfully launched the second Titan IV for 1995 from Cape Canaveral AS, Fla., July 10. The nation's largest expendable launch vehicle carried a classified payload into orbit.

■ Troops from NATO and former Warsaw Pact nations took part in the first peacekeeping exercise on US soil, dubbed Cooperative Nugget '95, in August at the Joint Readiness Training Center, Fort Polk, La., the Defense Department announced.

■ A 93d Bomb Squadron (AFRES), Barksdale AFB, La., crew flew the first global power mission by a Reserve B-52 crew July 18. They joined a 5th Bomb Wing crew from Minot AFB, N. D., over the Atlantic for the twelve-hour flight, including a simulated bomb run over northern England.

■ The Civil Air Patrol held its first National Cadet Flight Encampment this summer with 170 cadets from forty-three states. Cadets received ground flight training and actual flight time in what the CAP said will be an annual event. ■

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World War II Scrapbook

Compiled by John Correll, Editor in Chief, and Erica Milkovich, Administrative Assistant



Photo by Paul Kennedy





Capt. (later Brig. Gen.) John O. Gray—who would spend forty years on the AFA staff and twice serve as its executive director—maneuvers his bicycle at a base in England in 1942.



At Goose Bay, Labrador, in 1943, 1st Lt. Amos Chalif of Air Transport Command displays his "short snorter," a popular item that consisted of bills from various countries, joined together and autographed by your crewmates and others you met in your travels, especially on transoceanic flights. If you were caught without your short snorter, Amos Chalif explains, you had to buy a short snorter for your colleagues. He still has his short snorter.



This photo was taken in May 1945 in Belgium, a week after Paul Airey had been liberated from a German prison camp. During his captivity, he survived a ninety-day forced march from the Baltic Sea to Stalag 11B near Bremen. He went on to become the first Chief Master Sergeant of the Air Force.



In November 1943, Maj. Richard H. Becker, 24th Mess Group commander, and his staff at Boca Raton AAB, Fla., fed as many as 20,000 men a day. AFA National Director Becker says they were assisted in the effort by a daily roster of nearly 3,000 KPs and that the government allowed an expense of sixty-one cents per man per day for three meals.



In England in 1945, brothers Warren R. and Norton F. Schewel read a letter from home in Arizona. Both were B-17 pilots and crewed together in the 452d Bomb Group. When this photo was taken, a third brother, Hendrik Schewel, was in bombardier training.



Among these crewmen of the B-24 The Ancient and Honorable is a future AFA president and chairman of the board, Thos. F. Stack. Pictured, beginning with the top row, are Sgt. Sig Baker (engineer), Sgt. Henry Rinna (radioman), Sgt. Herb Eldridge (ball gunner), Sgt. Andy Wozar (waist gunner), Sgt. Bill Hodgeman (nose gunner), and Sgt. Sid Butler (tailgunner). In front are Lt. Jimmy Morris (bombardier), Lieutenant Stack (navigator), Lt. John Wolff (pilot), and Lt. Dick Federsen (copilot). In 1944, with the aircraft shot to pieces by enemy fire, Lieutenant Wolff rode it down to a crash landing on a mountainside, losing his own life trying to save crewmen trapped in back.



There are two Air Force Association members in this shot, taken in Colorado Springs, Colo., in 1945—Richard S. Reid, Sr. (for whom the AFA chapter in Green Valley, Ariz., is named), and his oldest child, who grew up to be Col. Richard S. Reid, Jr.



In those days, W. Burr Bennett says, he could not only lift this aerial camera but "I could also stick it out the gun window of a B-17 to take oblique photographs." In the 1990s, Burr Bennett collected 25,761 signatures petitioning the Smithsonian Institution for proper display of the Enola Gay, the B-29 that dropped the atomic bomb on Hiroshima.



In 1945, T. Ross Milton, later a four-star general and longtime columnist for Air Force Magazine, shares a moment with his springer spaniel, Mickey, at Grafton Underwood in England.



In June 1944, enlisted pilots flew courier duty for the fake "army headquarters" built in England to deceive the enemy about the invasion force. In front are pilots MSgt. Maurice Menge, SSgt. Sam Brose, SSgt. John H. Miller—later, a charter member of AFA—TSgt. Archie Schewer, and SSgt. Chester A. Taylor. Standing are mechanics Sgt. Edwin J. Tenhagen and SSgt. Willie Smith.



2d Lt. Allen G. Harris posed for this picture February 21, 1944, upon graduation from advanced pilot training at Tuskegee AAF, Ala. At present, he is national vice president of AFA's northeast region.



Lt. William W. Spruance, flying his own Culver Cadet (along with Maj. Gen. George S. Patton, flying his own Stinson Reliant), pioneered forward air control at Fort Benning, Ga., in 1941. He went on to fly 362 transport missions in the China-Burma-India theater and became a brigadier general, a founding member of the Delaware Air National Guard, chairman of the board of Embry-Riddle Aeronautical University, and a longtime national director of the Air Force Association.



Jack B. Gross (back row, center) and his colleagues encountered this camel in North Africa. After the war, Jack Gross became a charter member of AFA, served as chairman of the board, and was national treasurer for many years.



A youthful James M. Keck, complete here with leather helmet and goggles, finished primary flying school at Avon Park, Fla. He flew two combat tours with Eighth Air Force in World War II, retired as a lieutenant general, and later was president and chairman of the board of AFA's affiliate, the Aerospace Education Foundation.



Cpl. Andy Bischoff stands by a headquarters squadron tent on Saipan in the Marianas, sometime in 1945.



On a weekend in the spring of 1941, Capt. Bruce K. Holloway flew this P-35 from Wright Field in Dayton, Ohio, to McGhee-Tyson airport in his home town, Knoxville, Tenn., where this photo was taken. He flew with the famed "Flying Tigers" and emerged from the war as an ace with thirteen victories. General Holloway capped his career as commander in chief of Strategic Air Command.



The subjects of this photo are permanently identified by Ed Rector, who wrote his name and Charlie Bond's and Tex Hill's in some time ago. It was taken in July 1943 at the British embassy in Washington, D. C., where the three officers had received the British Distinguished Flying Crosses in recognition of their service with the American Volunteer Group in China.



On leave in Phoenix in July 1945 are (at left) Lt. O. R. Crawford (a charter member and future president and chairman of the board of the Air Force Association), Lt. Wayne Knutilla, and Lt. James E. Darrough. Today, in air shows across the nation, Ollie Crawford flies—as he did in the Army Air Forces fifty years ago—a Curtiss P-40 Warhawk.



Capt. Jock Henebry—later a major general and AFA president and chairman of the board—stands in front of a B-25 at Dobodura, New Guinea, in May 1943. Gen. George Kenney, commander of Far East Air Forces, called him “the outstanding low-level bombardment commander of the Pacific war.”



Three weeks into the Battle of Iwo Jima, Marine 1st Lt. Karl Berg takes a bath out of his helmet. Today, he is a retired Lutheran minister and active with the Tacoma, Wash., Chapter of the Air Force Association.



In this 1943 photo, Lt. George M. Douglas was temporarily back in the United States to transition to amphibian forces before returning to duty in the Pacific. The car is a 1939 Plymouth convertible. He retired as a major general and served as president and chairman of the board of AFA.



At Snetterton Heath, England, in June 1944, Maj. (later Brig. Gen.) Joseph W. Turner, commander of the 413th Bomb Squadron, 96th Bomb Group, greets Capt. Paul E. Atkins and his B-17 crew as they return from their twenty-fifth mission.



Long before he became the national chaplain of the Air Force Association or an Air Force major general, SSgt. Richard Carr was a radio operator/gunner on B-24s and flew combat missions in the Pacific.



This award was presented in a closed ceremony by Gen. Curtis E. LeMay to Capt. George A. Grossman, staff aerial mine warfare officer of the XXI Bomber Command, because it involved classified operations in which B-29 aircraft laid mines in harbors and shipping channels of the Japanese home islands.



At a bomb shelter on Morotai in the South Pacific in 1945, SSgt. J. Wally Black (right) meets up again with a friend, Cpl. Linus Franko.



TSgt. James E. Adair strikes a pose beside his jeep in Leesburg, Fla. He was a crew chief with a mobile unit supporting B-17s, B-24s, and other aircraft at several bases in central Florida.



Lt. Loren B. Heath, Jr. (left), joins other B-24 crew members for a meal in the squadron mess at Mandaria, Italy, in September 1944. He has traded his beer for a soft drink.



Lt. Dolores Mulvihill—Dolores Zebrowski now—says she still thinks often of the patients she and her colleagues took care of at Drew Field in Tampa, Fla.



At ceremonies in England May 9, 1944, Capt. Robert S. Johnson—the fourth-ranking Army Air Forces ace of World War II with twenty-seven victories—stands with his hands in his pockets, but so does Gen. Carl A. Spaatz. After the war, Bob Johnson served as president of the Air Force Association, as did Gen. James H. Doolittle (with his arms crossed in this photo).



Joe Falcone stands by an armored car at Clark Field in the Philippines in 1945. He is a charter member and a national director of the Air Force Association.



MSgt. Clarence M. Juett (atop the boulder), in B-29 maintenance training at Seattle, Wash., in 1944, enjoys a day outdoors with his wife, Mary Juett, and a friend, SSgt. Hubert Pipkins, who was also in the B-29 course.



Capt. Nathan H. Mazer, shown here in England in August 1944, was an armament officer and a frequent crew member on bomber missions over Europe. Before receiving his commission, he flew as an enlisted gunner on B-25s. He was a charter member of AFA, later its national secretary, and is presently a national director.

In 1943, Frances Kalmnovitz Mazer signed up, too, serving in the Women's Army Corps while her husband, Nate Mazer, was on duty overseas with the Army Air Forces.



Maj. Donald J. Strait—wearing a magnificent pair of boots—stands in front of his P-51 fighter, Jersey Jerk, at Martlesham Heath aerodrome in England in 1945. An ace with 13.5 victories, he eventually retired as a major general.



C-47 pilot 1st Lt. Victor Kobold (left) and two members of his crew pose in front of their aircraft at Kutkai, Burma, near the juncture of the Stilwell and Old Burma Roads, in January 1945. His memories of flying in Burma include the inclined runway at Shingbuiyang where he landed uphill and took off downhill.



Capt. Sherman W. Wilkins cuts a fine figure in front of his B-29 crew tent in Kwanhan, China, in August 1944. He is a national director of AFA and served as national secretary.



Childhood friends from Illinois, Cal Johnson of the US Marines and Army Air Forces SSgt. Richard M. Skinner (right) meet on Guam in May 1945. After the war, Dick Skinner was, for many years, managing editor of Air Force Magazine.



Beaming out from a banyan tree on Guadalcanal in 1943 is Lt. John G. Brosky, who was an artillery officer at the time. He later joined the US Air Force, retired as a brigadier general, became a judge of the Superior Court of Pennsylvania, and served as national president and chairman of the board of the Air Force Association.



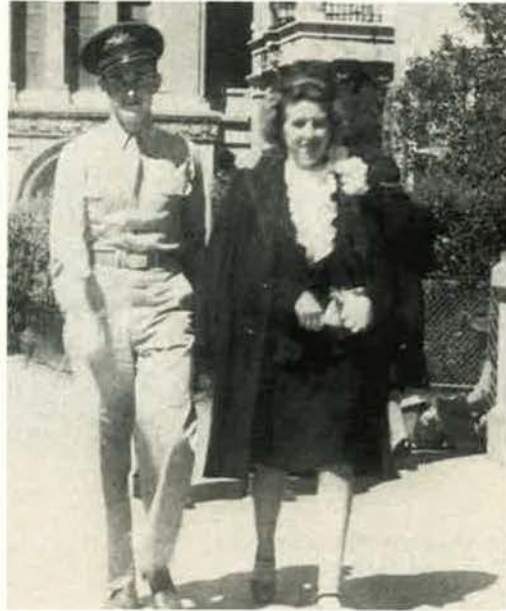
Later on, Edward S. Papelian would fly B-26 bombers in combat, but when this picture was taken in 1941, his aircraft was a Stearman PT-19 at the Rankin Flying Academy in Tulare, Calif.



In the summer of 1944, 1st Lt. Hal Strack was navigator for the B-24 Headin' Home at Grottaglie, Italy. He retired as a brigadier general and served AFA as California state president and national director.



AFA charter member George Weinbrenner wears the uniform of a French officer while fighting with resistance forces during the invasion of Europe in June 1944. He evaded capture for several months after being shot down on a bombing raid deep inside Germany in February 1944.



A street photographer in San Antonio, Tex., snapped this shot of Bryan L. Murphy, Jr., and his wife, Gwendolyn, in January 1944 during a break from Flight Officer Murphy's preflight training. Today, he is an AFA national director.



In early 1944, Victor R. Kregel poses with his PBY5A, Frank Duck, on Biak Island off the northern coast of New Guinea. He was later president and chairman of the board of the Air Force Association.



Walter N. Zywan (right) and his colleagues watch a P-40 shoot "touch and go" landings at Mitchel Field on Long Island in 1941. Today, he is treasurer of New York State AFA.



More was to be heard from members of this B-29 crew at MacDill AFB, Fla., in early 1945. The aircraft commander, first in the bottom row, is Lt. Russell E. Dougherty, future commander in chief of Strategic Air Command and AFA executive director in the 1980s. The bombardier lieutenant behind him (with rolled-up sleeves) went on to fame in the world of music and television as Tennessee Ernie Ford. The AFA chapter in Sunnyvale, Calif., is named for him. Cpl. Fred Quinn, beside Lieutenant Ford in the back row, finished his Air Force career as a chief master sergeant. Gunner George Damewood (front row, second from right) left the Air Force to become a dentist, but fifty years later, he's still active in AFA.



A dapper-looking John L. Frisbee poses at Montgomery, Ala., in 1942 or 1943. Later along, he became editor of Air Force Magazine and author of the long-running "Valor" series.



Aviation Cadet Paul Corbisiero takes a moment from primary flying school in 1943 at Thunderbird Field in Phoenix, Ariz., to pose with this Stearman biplane trainer. Fifty years later, on his seventieth birthday, Paul Corbisiero's son and nephew treated him to a flight in a rented Stearman.



In 1945, 1st Lt. R. L. Devoucoux, a B-17 aircraft commander, stands in front of a map in East Anglia displaying the twenty-four missions he led against targets in Germany. Today, Dev Devoucoux is an AFA national director and long-serving member of the Finance Committee.



Sandy Faust touches 'em all. In August 1944, he was a quartermaster third class aboard the battleship USS Pennsylvania and on liberty in Australia when this shot was taken. He retired from the US Army as a colonel and is currently an AFA national director and secretary of AFA's Aerospace Education Foundation.



1st Lt. Albert R. "Pancho" Santos is pictured in his P-51 on the day of his final mission, August 7, 1944, at Steeple Morden, England.



In front of Daisy May, a Bristol Beaufighter Mk. VI at Cagliari, Sardinia, in late 1943, are the radar observer, Flight Officer Joseph Owen; the pilot, 1st Lt. Jack Gamble (later a major general and stalwart member of the Tacoma, Wash., Chapter of AFA); and the crew chief, TSgt. Arthur Boursse.



Flying Cadet James M. Trail checks out a PT-13 Stearman-Boeing at Glendale, Calif., in July 1940. He was a charter member of the Air Force Association, served as chairman of the board in 1959, and is presently a national director.



Harry W. Love was a cadet at Washington State College when this photo was taken in 1943. In 1944, on his twenty-first birthday, he was shot down while flying as a bombardier in a B-17 in Europe and spent the rest of the war in German POW camps.



Sgt. Gerson L. Kelman sits on a bomb trailer at Thorpe Abbots, England, in 1944, just before loading the B-17 in the background.



Weddings in uniform were quite common in World War II. On July 21, 1944, Capt. William V. McBride married Kathryn A. Solsberg in their hometown, Wampum, Pa. Their stay in the Air Force covered thirty-seven years (and thirty-two moves) before General McBride retired in 1978 as Vice Chief of Staff. He is a national director of the Air Force Association.



In November 1944, 1st Lt. James E. Carl returns to a base in France from a fighter mission in a P-51D Mustang.



1st Lt. Bud West, a B-25 squadron leader, stands by his tent on Corsica in the fall of 1944. He served as national secretary of AFA and is a national director emeritus.



The fine-looking second lieutenant on the far left in the back row is Earl D. Clark, Jr., copilot of this B-24 crew as it nears the end of combat crew training in 1944. Before his orders to an operational theater came through, though, Lieutenant Clark was retrained into the newer B-32 bomber and flew that aircraft and B-29s overseas. In later years, he was national secretary of AFA and chairman of the building committee for the Air Force Association Building.



Col. Geraldine P. May, the first director of Women in the Air Force, inspects new trainees at Lackland AFB, Tex. Colonel May celebrated her 100th birthday in April 1995 in Menlo Park, Calif.



At Villacidro, Sardinia, in November 1943, Thomas Bigger poses in a foxhole that he helped dig. In recent years, Tom Bigger has held a range of AFA positions, from chapter president up.



Maj. John R. Alison, a Fourteenth Air Force "Flying Tigers" ace, poses in front of a Curtiss P-40 somewhere in China. At later points in his remarkable career, Johnny Alison was an assistant secretary of Commerce, president of the Air Force Association, a major general in the Reserve, and a vice president of Northrop Corp.



Lt. Henry A. Potter was the navigator in the B-25 flown by Lt. Col. Jimmy Doolittle on the classic Tokyo raid in April 1942. He is still active in AFA and is a popular speaker on the Association circuit.



In November 1944, Lt. Harry Swanson was a B-25 pilot stationed on Corsica. In this photo, he stands by the nose wheel of a B-25 just back from a mission over Italy. ■

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The number of defense firms is down by seventy-five percent, and reconstitution has vanished from the defense strategy.

The Demise of the Industrial Base

By Suzann Chapman, Associate Editor

RESTRUCTURING, consolidation, and mergers have led the way as aerospace companies struggled to survive during the past ten years of defense downsizing. The mergers numbered nearly 100. The roster of defense suppliers, large and small, has declined by some seventy-five percent, from nearly 120,000 to 30,000 firms, according to defense industry executives.

These traumatic changes included elimination of more than one million defense jobs since 1987. Moreover, the US Department of Labor estimates that the industry by 1999 may shrink by another 700,000 jobs.

According to the Aerospace Industries Association (AIA), based in Washington, D. C., the aerospace industry since 1987 has lost thirty-seven percent of its overall work force; during the same period, the industry has lost forty-seven percent of military aircraft workers.

Those numbers are staggering. However, for many officials the critical issue is not how many jobs or firms have disappeared but how much capability remains in place.

Joshua Gotbaum, assistant secretary of defense for Economic Secu-

rity, said that the enormous loss of defense jobs is a "tragedy," but he views it as "a different tragedy from losing our capability to provide the weapons or equipment for our armed forces."

Capability Will Remain

In a June meeting with Washington defense reporters, Mr. Gotbaum said that the Pentagon does not think that, "overall," major US capabilities will be lost. He said he has been impressed by the tenacity of defense firms during the past five years and by "how much they have responded in a way that maintains their capabilities, in ways that maintain their capacities."

Like most industry watchers, Mr. Gotbaum thinks that the defense sector will continue to restructure and consolidate and more companies will leave the defense business entirely.

He said that the principal issue for the Defense Department is to determine "from among the dozens of companies that come forward and say, 'Our revenues are down; we'd like more business,' which of those really would stop being a supplier to the Department of Defense if they

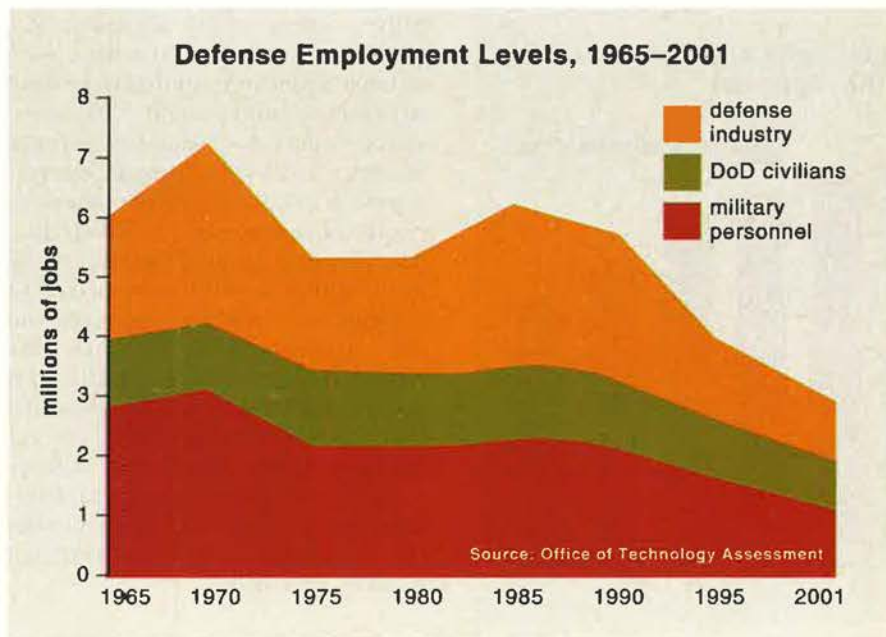
don't get business. And does the department have alternatives? Are there substitutes—commercial products? Are there suppliers elsewhere, overseas?"

Each military service has been wrestling with these questions. Mr.

Science and Technology Committee. General Marsh, who commanded Air Force Systems Command from February 1981 to August 1984 and later served as chairman of Thiokol Corp., said that for years he advocated sector-by-sector analysis be-

tagon had undertaken "a selected number of sector assessments," which could pose a problem. Besides the three above, they included helicopters, torpedoes, tracked vehicles, heavy bombers (which the Pentagon presented to Congress on July 11), and meals, ready-to-eat.

During the same testimony, Mr. Gotbaum said, "The vast majority of real industrial base issues are individual cases: a third-tier parts supplier who thinks the lower volume doesn't justify keeping a line open; a program manager who is down to a sole domestic supplier of a particular part and unsure whether to consider foreign sources; a service that is trying to decide whether to substitute a requirement that only one or two suppliers can fill with a commercial one that could be supplied by many." However, as he told the subcommittee, the Pentagon does not see the need to prepare "comprehensive assessments of every sector" but would like to continue "to undertake selected industrial assessments."



Gotbaum noted that, in the past, "considerable sums of money" have been spent to preserve capabilities by maintaining low-rate, inefficient production, buying tooling, and so forth. The methods, however, have not been consistent.

Within the past year, the Defense Department has attempted to develop a "bottom-up analytic approach" to help the services determine which industrial capabilities might be in jeopardy, Mr. Gotbaum reported. After drafting an initial two or three pages and testing the new policy with each of the services, he said, DoD realized it would have to provide considerably more detail to prevent managers from returning to business as usual. The expanded and final policy was due out this summer.

At the same time, DoD began to conduct assessments of some individual industry and technology sectors, a move requested both by Congress and industry executives.

It is interesting to note that the Defense Science Board (DSB) urged defense industry assessments of each sector in 1991, according to retired USAF Gen. Robert T. Marsh, chairman of the Air Force Association's

cause each part of the defense industrial base has quite different characteristics.

General Marsh added that some sectors may be suited to commercial conversion, but there are sectors where that concept is not at all applicable or is, at best, impractical.

He expressed concern that little or no attention has been paid to the lower tier of manufacturers—the firms that produce more than fifty percent of the military's subsystems and critical components. "Everybody watched the Lockheed and Martin merger, everybody watched the General Dynamics divestiture, and so on," General Marsh said. "That's not where I believe the core of the problem is. The core of the problem is at the lower tiers."

By early summer, the Pentagon had completed assessments for only three industry sectors: space-launch vehicles, conventional ammunition, and flat-panel displays. Mr. Gotbaum said that these three have helped DoD to refine its analytic process and that the department is now integrating assessments into the budget and acquisition process. He told Congress in March that in early 1994 the Pen-

Loss of Skilled Workers

This ongoing debate about problems within the defense industrial base focuses on not only the manufacturing processes but also on the expertise of its people. Some in the fighter industry question its ability to maintain critical engineering and design skills.

In testimony before Congress in March, Gordon R. England, then president of Lockheed Fort Worth Co., pointed out that 1995 is the first year in history that no fighter aircraft were included in the Air Force budget. "It is very difficult to maintain competency in fighter design as our business base declines," he said.

The fighter industry is losing skills necessary for production of military aircraft, he continued. "For example, in flight control technology, we need engineers and software people knowledgeable of unique fighter airplane control laws, redundancy design, aerodynamics, simulations, etc. The commercial airplane industry does not contain these skills." He added that an aeronautical engineer who started his career in the 1950s would have had eighty-four military airplane design opportunities during his career. In the 1960s, that dropped to

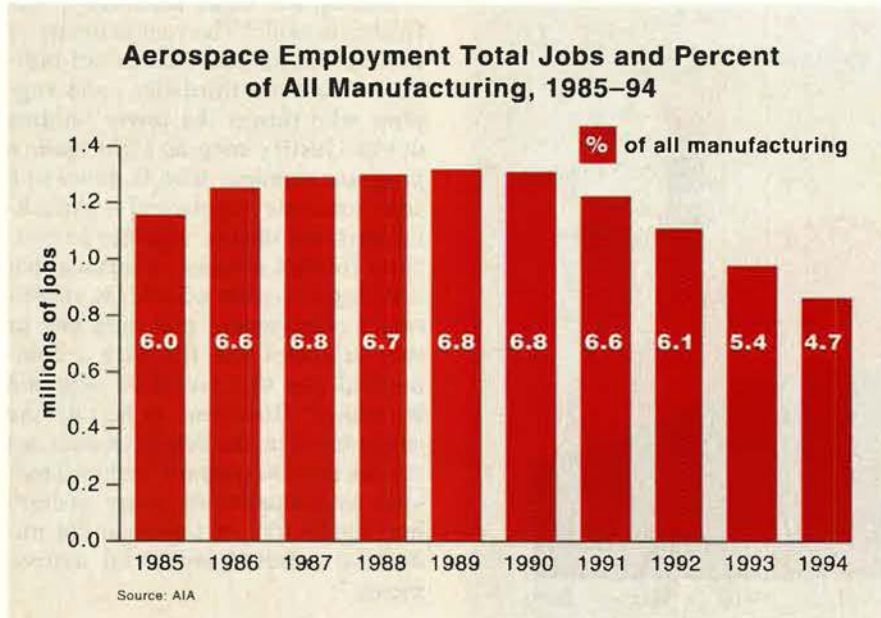
forty. In the 1970s, to eleven. Today, it is likely an aeronautical engineer will work on one, maybe two.

On the other hand, Mr. Gotbaum indicated that there may be some overlap in the aircraft business that suggests technologies and work

Conversely, he said, the submarine industrial base has no commercial or collateral program to draw on. "With regard to aircraft, we have a much broader source of industrial capability than we do with submarines. If [submarine] producers dis-

counterpart for nuclear submarine shipbuilding skills. He said that this is "one of the few cases—one of the very few cases—where we need to take extraordinary steps to ensure that these skills are not dissipated and lost."

Although he noted that the defense industry is losing one employee every thirty seconds, Mr. Augustine said that, in most cases, defense spending should not be used to preserve employment. "The aerospace segment of the US defense industry is at this moment operating with about two-thirds more capacity than it needs. . . . The industry is rapidly propelling itself to the point where it will be comprised of headquarters without factories and executives without workers," he added. In light of decreased aircraft purchases, Mr. Augustine advocated continued consolidation of the remaining seven fixed- and rotary-wing aircraft manufacturers to eliminate the potential for "a large number of companies operating half-full plants—or worse."



forces are interchangeable and, in some cases, international. In talking about the bomber industrial base, he said, "Over the last fifty years, each time the Department of Defense has procured a bomber, it has procured it from a different company. Companies that were producing fighters, produced bombers. Companies that were producing fighters now produce bombers." He added that the industrial base capability that allows bomber production rests with the aerospace industry at large—and the aerospace industry is considerably larger than DoD.

For example, he said, the Army's RAH-66 Comanche helicopter had been designed on a computer design manufacturing system created by the French aircraft company Dassault and was used by Boeing on its 777 commercial airliner and on the V-22. He also said that stealth technology is being applied broadly throughout the force. "Yes, the B-2 has important stealth technology, but so will the F-22, so will whatever comes out of the JAST [Joint Advanced Strike Technology] program, so will some UAV [unmanned aerial vehicle] designs," added Mr. Gotbaum.

Aerospace Employment By Major Occupation, 1985–94

Year	Production Workers	Scientists & Engineers	Technicians	Others
1985	405,000	163,000	66,000	264,000
1986	436,000	168,000	67,000	277,000
1987	436,000	175,000	69,000	288,000
1988	431,000	184,000	66,000	296,000
1989	439,000	198,000	68,000	287,000
1990	422,000	205,000	67,000	252,000
1991	386,000	205,000	60,000	228,000
1992	335,000	165,000	57,000	218,000
1993	287,000	153,000	52,000	185,000
1994	269,000	146,000	50,000	176,000

Source: AIA

appear, it will take a great deal of money and a great deal of time to get them back," he said, adding that they can't make cruise liners.

Writing for the US Naval Institute's *Proceedings* in May, Lockheed Martin President Norman R. Augustine agreed with the Pentagon that there is no commercial

A Key Concept Abandoned

Another issue that a few years ago stirred considerable interest is nearly invisible today. The Clinton Administration's industrial base planners have all but abandoned any planning or preparation for "reconstitution"—that is, the physical rebuilding of an armed force large enough to defend

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US interests around the world in the event that a new, global military threat emerges.

In 1992 and 1993, the Bush Administration's National Security Strategy and National Defense Strategy documents identified force reconstitution—including an industrial base capable of surge production—as a “fundamental element” in the rationale by which Washington could justify its major drawdown of the military establishment. The idea was that, if a new Soviet-style threat arose, the US should be able to reverse course, mobilize, and rebuild its power accordingly.

In the Bush years, strategy documents recognized the possibility that the US might one day be confronted by a “new global threat or some emergent alliance of hostile, nondemocratic regional powers.” The strategies stated that the industrial base must be able to surge production of essential warfighting items before and during a contingency operation and to restore stockpiles of consumed items fairly quickly. Additionally, the strategies said that the industrial base must be able to create additional new forces and capabilities to respond to the reemergence of a global threat.

However, the 1995 versions of the National Security Strategy and the National Defense Strategy no longer mention the defense industrial base, and force reconstitution has become a nonentity in defense planning. The Administration demonstrates only limited interest in the problem, and that small bit of interest tends to be concentrated in a few selected sectors, such as shipbuilding.

The 1995 editions—“A National Security Strategy of Engagement and Enlargement” and “National Military Strategy of the United States”—do not address reconstitution beyond stating that, after any major theater conflict, part of postconflict activity planning must include force redeployment and reconstitution.

When queried about reconstitution, Mr. Gotbaum replied in a written statement that the current US military strategy requires the US to be prepared to fight and win two major regional conflicts more or less simultaneously and that the Pentagon believes that these contingencies “would occur with little, if any, prior warning and be of limited du-

ration.” He went on to say, “For this reason, we no longer can or should rely on surge industrial production to turn out additional weapon systems quickly in the event of a conflict.”

He added, “In most cases, the conflict will be over before the surge production would be useful.”

However, he also said that the department continues to need and ensure retention of “the capability to replenish selected high-consumption

General Sullivan said, “We must seek a balance between today’s readiness and tomorrow’s readiness, and tomorrow’s readiness means not just new weapons, not just modern infrastructure. It also means mobilization capability and sustainment capability for the twenty-first century.”

General Sullivan talked about the difficulty of mobilizing and sustaining “a joint force . . . equipped with information-age technology in an information-age economy.” In

**Military Aircraft and Missiles
Percent of Total Sales, 1985–94**

Year	Aircraft	Missiles
1985	38.06	11.84
1986	38.32	11.27
1987	39.75	9.29
1988	36.54	8.97
1989	32.89	11.30
1990	29.83	10.55
1991	27.63	7.88
1992	24.54	8.48
1993	26.39	6.50
1994	28.33	6.45

Source: AIA

soldier-support items such as: munitions, troop support items (auto injectors, etc.), and critical spare parts.” (Auto injectors inject nerve agent antidotes automatically).

Though one does occasionally hear words like “reconstitution,” General Marsh said, “We haven’t been faced with the topic of mobilization throughout the last forty years, and we’ve sort of lost the concept.” General Marsh also said that the military is “still in the mode of living off our peak force.” He added that if the country had to mobilize for “some kind of large affair,” no one currently knows whether or to what extent the industrial base would be able to respond.

Gen. Gordon R. Sullivan, then Army Chief of Staff, said essentially the same thing to a group of industrialists gathered to hear his thoughts on mobilizing an armed force in an information age. Speaking at the 1995 Eisenhower Award Banquet in May,

his words, recapitalization of equipment and infrastructure, as important as it is, solves only the most immediate strategic requirements, not the realities of sustaining forces during periods of crises.

The General warned, “Quite frankly, for intricate, complex items like guidance systems in Patriot missiles, we do not have a quick mobilization capability in the industrial base, and depots are not the answer.” He added, “Information-age mobilization, which we have not yet invented, will be a much different challenge.”

Technology Capability in Jeopardy

Amazing as it may seem during this age of reduced sales, less defense work, and unending questions, profits are up for many defense contractors—their stocks posting gains. Although overall revenues are down because of the reduced work load, some companies are making more

A detailed painting of a bee on a pink and white flower, set against a dark, textured background. The bee is positioned on the right side of the flower, facing left. The flower has large, layered petals in shades of pink, white, and yellow. The background is dark with some green and blue brushstrokes, suggesting foliage.

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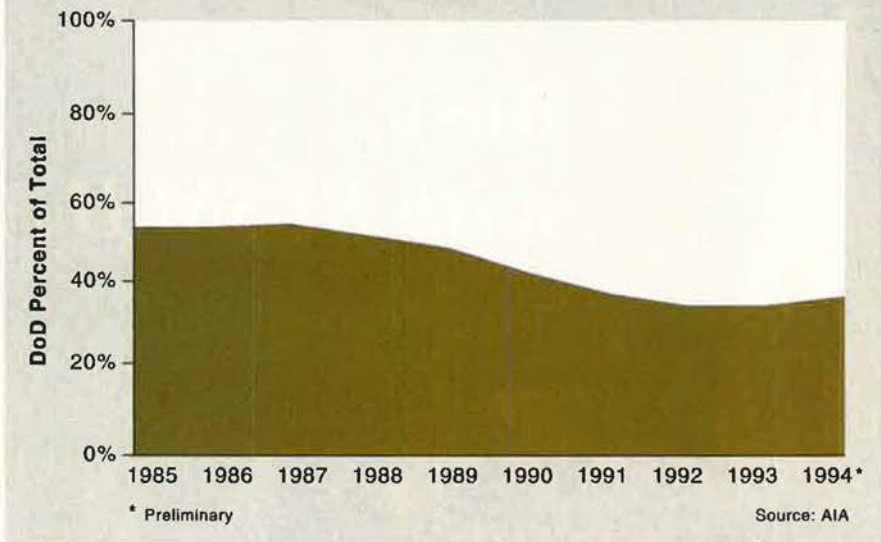
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Defense's Depressed Share of Aerospace Sales, 1985-94



money per dollar of sales. Many credit this strong showing to ongoing restructuring, consolidation, and cost-cutting efforts, as well as foreign military sales. At the same time, others consider these gains a veneer covering potentially disastrous cracks in the foundation.

The defense industry's reduced work load will make it unable to "maintain its capabilities for advanced R&D [research and development] and production of high-tech equipment," Don Fuqua, president of AIA, told a Senate subcommittee in March. He noted that the procurement budget has dropped nearly twice as much as the overall defense budget, which has favored readiness over modernization, and thus "has steepened the rate of decline in the defense industry and inadvertently weakened the industrial base."

Michael Armstrong expressed it slightly differently but with equal emphasis when he spoke with Washington military writers in April. The Hughes Electronics Corp. chairman and chief executive officer said many defense contractors are trying to caution DoD that readiness is a high priority, but "the readiness of tomorrow is today's investment in technology." Whether calling it modernization or tomorrow's readiness, both executives cited the need to establish an appropriate budget to continue investments in advanced technology.

Mr. Gotbaum said that the Pentagon hopes "we've hit bottom," add-

ing that procurement spending should rise over the next four to five years. He said that the aerospace industrial base has "shown a surprisingly real resourcefulness given the fact that revenues are down." He expects that "they're going to do all right as things recover."

At the same time, Mr. Gotbaum and others believe that DoD must broaden its range of suppliers to draw on the best technology available.

"The greatest technological advances are taking place in the commercial sector," he told a Senate subcommittee in March. "In 1965, both DoD and the commercial industrial sector spent approximately the same amount on R&D," he said. "By 1990, the [commercial] industrial sector outspent DoD by nearly two-to-one." He cited the commercial leads in information systems, telecommunications, and microelectronics—"all of which are vital for meeting the needs of the modern military force."

In addition, he said that in an increasingly robust global economy, foreign firms have developed technologies that could benefit DoD. Various department documents and officials have stated that renewing international cooperation with allies and friends will not only help create interoperable systems but also help stretch scarce defense dollars for the US and its allies.

However, as a 1992 Office of Technology Assessment study pointed out, the risk of foreign sources has to be

weighed against the cost of buying components and systems domestically. Vital equipment or supplies might fall prey to either political leverage or simple commercial priorities.

Jacques S. Gansler, defense analyst and former DoD official, agrees and has said that the nation needs a new solution "to reduce the cost of weapons and to provide an industrial base that is affordable and yet state-of-the-art." The shift to information-based warfare and the parallel explosion of information-age technology in the commercial world are the drivers, Mr. Gansler said, behind affordable military technological superiority.

Although he recognizes the need to include foreign technology sources, he told a Senate Armed Services subcommittee in March that the issue is vulnerability, not foreign dependency. He said that as long as there are multiple sources in multiple countries, there is neither military nor economic vulnerability. Economic and national security analysts would need to conduct vulnerability assessments. If needed, he told the subcommittee, "action may be required to assure invulnerability."

To help further its new policy of integrating the commercial and defense industries, the Pentagon has begun to promote integration of the commercial and defense industries through such acquisition reforms as eliminating milspecs [military specifications] in 1994 [see "The End of the Line for Milspec?" *October 1994*, p. 43] and development of its dual-use technology strategy, released in February 1995, which includes the previously established Technology Reinvestment Project.

"My view of dual use is that it is essential to defense not because of any desire to convert but because of a desire to maintain technologies the Defense Department needs for its own purposes," said Mr. Gotbaum. He added that the Advanced Research Projects Agency and each of the services have been doing dual-use research for years. Of course, the focus then was that the military had developed a new technology that, in some cases, had commercial applications—then known as technology transfer, or spin-off. The situation now is reversed with DoD trying to make the most of its reduced budget

through use of commercial products and processes.

Semiconductor chips are one example. Mr. Gansler told a Senate Armed Services subcommittee in March that today comparable semiconductors are often used by the military and the commercial world. "Yet, the commercial item is more than an order-of-magnitude cheaper, more than an order-of-magnitude more reliable, and delivers two to three years more advanced performance than the comparable military part," he said. The reason, he continued, is that the commercial quantities produced are so great that the costs can be driven down, the reliability driven up, and the performance continuously improved.

Another example was the purchase of Global Positioning System receivers during Operation Desert Storm. Mr. Gansler said that instead of waiting eighteen months to buy a GPS receiver weighing seventeen pounds and costing \$34,000, the Pentagon went to the commercial industry, where it bought receivers weighing three pounds for \$1,300 and fielded them in time. However, that process required special relief from standard military procurement practices.

Reduce More Red Tape

To help ease this type of procurement, Congress passed the Federal Acquisition Streamlining Act of 1994, which simplified the military's ability to purchase some commercial products.

As originally passed, FASA permits simplified acquisition for small purchase categories under \$100,000. The Pentagon has asked Congress to enact additional legislation to lift restrictive statutes not covered in FASA, particularly to help streamline purchases of large systems.

The Acquisition Reform Working Group (ARWG), composed of nine defense-related associations that represent thousands of defense firms, has reminded Congress that, in passing FASA in 1994, there was a mutual recognition that more needed to be done.

Peter DeMayo, a Lockheed Martin vice president for contract policy, spoke to a Senate subcommittee in April on behalf of the ARWG. He asked the senators to beef up FASA or write new legislation to cover twelve additional issues.

One of those issues proposes eliminating certifications not required by law. Currently, federal and defense acquisition regulations impose 127 separate certification requirements on defense contractors. Only four are required by law.

Cutting the bureaucratic procedures and endless paperwork involved with defense procurement, according to the accounting firm Coopers & Lybrand, could eliminate eighteen percent of the cost of products the Pentagon buys. In fact, in 1992 when it measured the cost of the DoD regulatory system, the Carnegie Commission on Science, Technology, and Government calculated that the overhead, or management and control costs, associated with the DoD acquisition process was about forty percent of the defense acquisition budget. The standard overhead for commercial firms ranges

Conversely, budget-strapped governments at the city, county, and state levels have increasingly turned to the private sector to provide a variety of services—to save taxpayer dollars. AIA's Mr. Fuqua told Congress that unless the Pentagon reduces its infrastructure commensurate with military force-structure reductions, the continued "wasteful expenditures" created by government operation of depots will directly "influence the funding available for weapons R&D and modernization production"—thereby undercutting the industrial base.

Although changes are taking place, many issues are still unresolved. Both the Pentagon and its contractors agree that more needs to be done to ensure the military has viable sources for weapon systems. Certainly whether future sector assessments will indeed reach the full range of lower-

Geographic Distribution of Aerospace Workers, 1994

Region	Percent of Total Work Force
Pacific	39.7
New England	13.2
W. North Central	10.1
South Central	8.8
E. North Central	8.1
South Atlantic	7.2
Middle Atlantic	6.6
Mountain	6.3

Source: AIA

from five to fifteen percent of their budgets.

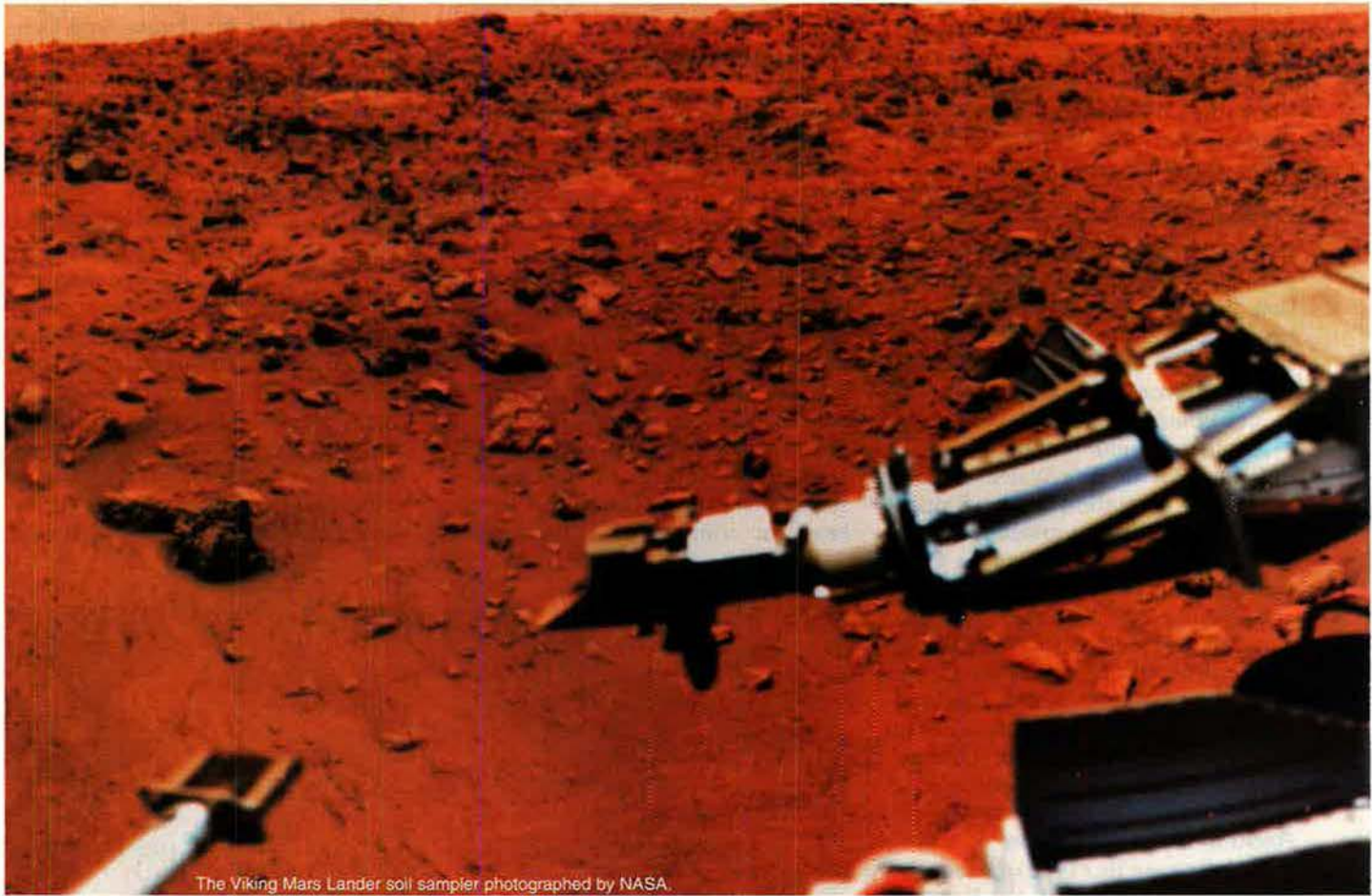
Shift More Work to Private Sector

Additionally, the ARWG asked Congress to reverse its position of restricting the amount of depot maintenance work that the Pentagon can contract to industry. Industry executives have said that the Pentagon has increasingly sought to have government facilities perform more of the services' maintenance and repair operations—a trend that intensifies the problems of the defense industry.

tier military suppliers, as suggested by the DSB, General Marsh, and others, and whether they will be in time to affect change or support, as needed, is still unknown.

Economic security chief Gotbaum sees great benefit coming from the Pentagon's latest efforts at acquisition reform, the application of dual-use technologies, and the department's willingness to be an active partner with industry. However, he cautioned that although changes have occurred, it will take a long time to overcome the inertia built in to a fifty-year-old procurement system. ■

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The Viking Mars Lander soil sampler photographed by NASA.

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will assist NASA with the launch of the Cassini spacecraft on its mission to Venus, Jupiter and Saturn. America's investment is paying off because the Titan IV is a highly cost-effective launch vehicle. Beginning with the Gemini flights in the 1960s, nearly 200 successful space-launch missions have been completed by the Titan family of



AND WORLDS TO PROTECT.

launch vehicles – Titan II, III and IV. So even though few may realize it, the benefits are clear. Titan makes a world of difference.

THE TITAN

America's Silent Hero

A message from Lockheed Martin, proud member of the Titan Team.



Over the Med

It wasn't an international incident. It was a unique training opportunity for two allies.





A few years ago, this could have led to a serious international incident: two USAF fighter aircraft encountering a MiG over the Mediterranean. But in May, when these two F-16Cs from the 510th Fighter Squadron, Aviano AB, Italy, took up positions alongside a MiG-29 from Germany's Fighter Wing 73, they were all merely heading out for training at the Air Combat Maneuvering Instrumentation (ACMI) range near Decimomannu AB, on the Italian island of Sardinia.



Based at Aviano, the 31st Fighter Wing's two squadrons have had a busy time of it lately. As soon as they became permanently established at the USAF base in 1994, they began flying missions in support of Operation Deny Flight over Bosnia-Herzegovina. The 555th Fighter Squadron and the 510th Fighter Squadron fly missions in two-month shifts every six months. They spend a little more than half the remaining time training at Aviano and the rest on deployment.



On a deployment to Decimomannu last year, 510th FS pilot Capt. Will Sparrow (above left) heard that a German MiG-29 unit would be deploying to the NATO base on the southern tip of Sardinia. He immediately signed up for a chance to train against these "adversaries." In May, ten F-16s from the 510th FS and their support team returned to Decimomannu. Above, ready for the day's sorties, F-16s taxi past MiGs from the Luftwaffe's Fighter Wing 73, Laage AB, Germany. At left, a pair of MiGs go into burner as they launch for their next sortie. The Germans brought ten MiG-29s and fifteen older F-4Fs for this four-week session. The German pilots had previously met the F-16 in training with the Dutch, but few USAF pilots have encountered a MiG-29 in the air.



Above, a 510th FS F-16C holds formation with a German MiG-29, poised above the Sardinian coastline. At right, two F-16Cs and a MiG cruise over the cloud deck. Besides basic fighter maneuver sorties, the units flew a wide variety of profiles, pitting different numbers of aircraft against each other. The Germans even added their F-4Fs into the mix in a profile that Captain Sparrow called "two vs. two-plus-two."

In most training sessions, USAF fighter pilots must pit themselves against other USAF fighter aircraft, with the "adversary" trying to mimic potential real-world enemies as realistically as possible, but this deployment gave them a chance for air-to-air training against the real hardware. Ground controllers at Decimomannu's ACMI facilities monitored the more complex engagements against the MiGs. All NATO nations use this range especially because of opportunities for joint training and because of altitude restrictions or other constraints in their own countries.





Above, a few members of the 510th FS and Fighter Wing 73 gather for a group photo that includes the 510th's buzzard mascot. "The Buzzards" took full advantage of this unique opportunity to train against MiGs and by the end of the deployment had rotated almost all of their pilots to Decimomannu for exposure to this high-performance aircraft—one that is flown by some of their potential real-world adversaries.

At left, Lt. Col. Gary West, commander of the 510th, checks out a MiG pilot's helmet-mounted sight. This system allows the pilot to use the AA-11 "Archer" missile most effectively. By turning his head, the pilot can fire the air-to-air missile up to forty-five degrees off the aircraft's nose, thus shooting in a direction different from where the plane is headed. Colonel West said this capability has altered ideas on approaching MiG-29s in a neutral fight. The F-16 has an advantage at speeds higher than 200 knots and has a better turn rate, he said. Pilots must be wary of the helmet-mounted sight's abilities, he continued, but patience and 325 knots of airspeed can bring the MiG-29 to the F-16's nose.



The Germans brought a two-seat training version of the MiG, and three of the 510th's pilots got a chance to fly it, inviting comparisons among the flyers. Capt. Mike McCoy (left) said the experience answered many questions he had had about the MiG-29 and confirmed the aircraft's maneuverability, power, and ability "to fight in the phone booth." He also said that after he got over an initial awe of the plane, he was then able to evaluate it as a weapon. The Germans, he added, were skillful fighter pilots, representing the worst-case scenario US fighter pilots could face.



After their experience in the MiG-29, Captains McCoy and Sparrow gained even more confidence in their F-16s and now particularly appreciate the Fighting Falcon's user-friendly automation. Colonel West, who took part in three of his squadron's more than 120 sorties against the Fulcrum during this deployment, said the experience has given his pilots a tremendous advantage. They will no longer be distracted by awe in a first-time encounter with the MiG-29, having learned how to fight this adversary and its strengths and limitations. ■

US dominance continues to build in international military sales

A Forecast of the Arms Trade

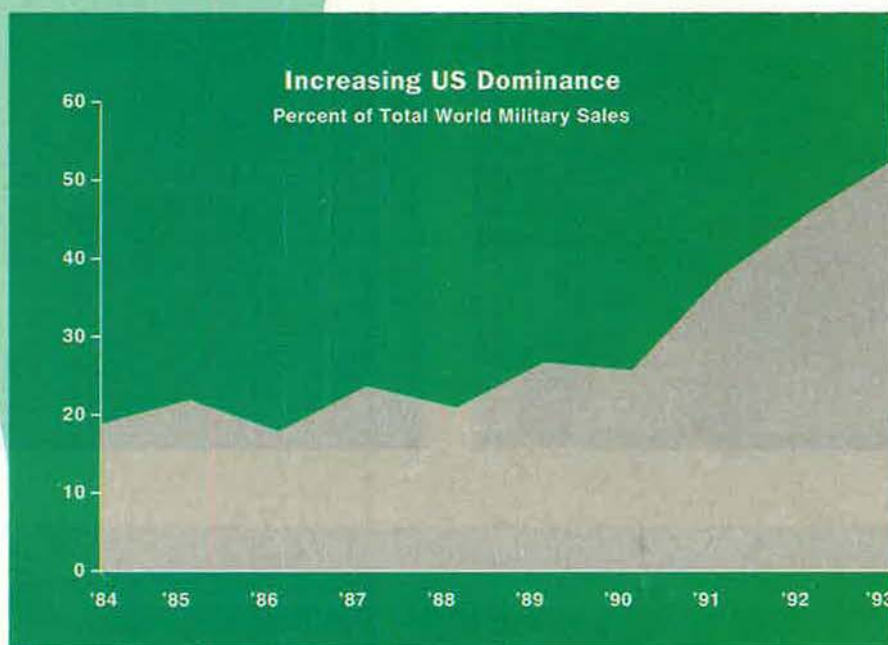
By Stewart M. Powell

HARD-PRESSED US defense contractors, struggling to adapt to changed sales prospects in the turbulent post-Cold War world, are expected to win a greater share of the shrinking worldwide arms trade over the next decade. That assessment is contained in the recent Pentagon study, "Worldwide Conventional Arms Trade (1994-2000): A Forecast and Analysis."

The Defense Department report concludes that American firms will seize as much as fifty-nine percent of about \$291 billion to \$330 billion in arms sales projected for the 1990s, up from about fifty-three percent today.

During the Cold War decade of the 1980s, worldwide weapon sales averaged about \$65 billion each year. The trade has since dropped by about seventy percent, bottoming out at annual sales of barely \$21 billion in the mid-1990s.

Moscow is viewed as the biggest loser in the downturn. Soviet conventional arms exports that averaged \$24 billion a year in the 1980s vanished long ago. By 1993—the last year for which reliable figures are available—sales had fallen to \$2.6



Source: DoD

Though the absolute value of world arms sales has fallen greatly, US sales have remained fairly constant, giving the US a larger market share. The Pentagon expects US contractors to win nearly sixty percent of all sales by 2000.

billion a year, and prospects for improvement are bleak. While the USSR accounted for some forty percent of all arms sales in the 1980s, the report forecasts that Russia will win only about twelve percent of 1990s contracts.

By contrast, the United States is a big winner. Foreign demand for US weapon systems remains strong, says the Pentagon report, a factor that has enabled the United States to emerge as "the world's largest arms exporter by a significant margin." With some \$10.8 billion in arms exports in 1993, Washington accounted for roughly half of worldwide arms deliveries in that year.

Weapon sales are expected to inch upward throughout the decade, growing in value to about \$16 billion a year by the turn of the century.

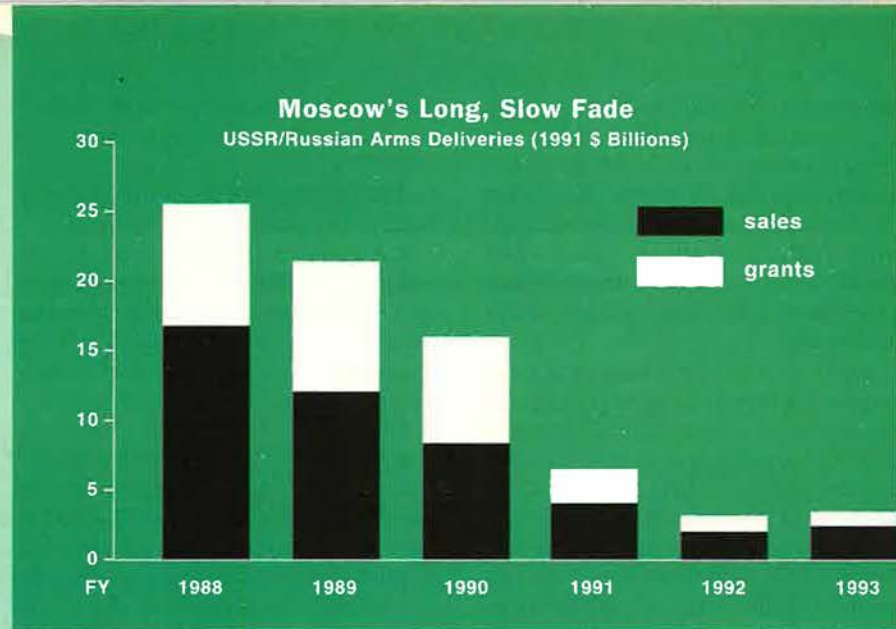
The Clinton Administration has shown more interest in supporting arms exports out of consideration for domestic jobs and preserving an industrial base. However, it is not expected to change US policy much, even though the report notes it is "worth exploring" whether there "may be opportunities to use arms exports to enhance national security" by helping to lower the costs of certain capabilities.

Changed Threat

Weapons useful in an East-West conflict or for jockeying between superpowers' client states have given way to systems that are more useful for individual national defenses in the face of mounting regional threats to security. Regional conflicts fueling the arms trade range from the continued uncertainties on the Korean peninsula and the possibility of renewed fighting between Iran and Iraq to ethnic warfare and territorial rivalries in the Balkans, the Middle East, east Asia, and south Asia. Regimes in north Africa are battling Islamic fundamentalists for power.

The Pentagon assessment warns, "Ironically, in many respects, the post-Cold War world is more unstable than the Cold War era." The globe is beset by "increased violence" as well as "increased proliferation of military technology and by the potential for these trends to continue."

The study, based on a forecast of arms deliveries for a select group of thirty-seven countries, focuses on



Source: DoD

major weapon systems that account for eighty-six percent of defense exports worldwide. The changed threat has altered the marketplace, propelling anxious, cash-strapped buyers to seek fewer but more sophisticated weapons.

Gone are the days of superpower benevolence to client states. Grant aid from the Soviet Union was \$9 billion in 1988. Now, the USSR's successor state, Russia, gives away only about \$100 million a year. American assistance to two favored clients—Israel and Egypt—still runs high. However, grants to all other foreign buys have been slashed, from \$3.2 billion in 1984 to less than \$34 million in 1993.

Still, it's a buyer's market, and customers are demanding—and obtaining—concessions, often in the form of payment stretchouts or generous credit to help offset the loss of grant assistance. Saudi Arabia negotiated breaks from the US for the \$3.35 billion owed in 1994 and the \$4.6 billion owed in 1995, with the US forced to exercise what the DoD report termed "unprecedented flexibility" to allow Saudi Arabia to pay \$1.5 billion in cash and finance the remainder of the 1994 obligation.

International buyers also are shifting from purchasing new weapons to purchasing more cost-effective upgrades. Aircraft modernization, on the average, costs only about one-fourth as much as buying a new system, a factor "making upgrades an attractive option for nations trying to lower defense expenditures," the report says.

Tank buyers can turn to East-West partnerships in Europe to obtain hybrid Soviet-made T-72 tanks equipped with NATO-quality technology at one-tenth to one-fifth the cost of procuring new main battle tanks offered by Western companies.

Middle East Is King

Where will the markets lie over the next decade? Pentagon forecasters anticipate that the Middle East will continue to make the largest share of weapon purchases. The region accounted for thirty-seven percent of worldwide arms imports during the 1980s and will account for a still-healthy thirty percent of projected arms deliveries in the 1990s.

The Middle East market remains preeminent thanks to Saudi Arabia, still the world's largest arms importer, which has plans to import \$32.4 billion worth of advanced fighter aircraft, such as the McDonnell Douglas F-15 and the British Tornado, as well as armored equipment, such as the Abrams M1A2 tank and the Bradley Fighting Vehicle System, through the end of the decade.

According to the Pentagon, the 1990s also are seeing a blossoming market in east Asia where such nations as Japan, South Korea, Thailand, Taiwan, and China are expected to account for thirty percent of arms deliveries in the 1990s—up from just eleven percent of worldwide arms purchases in the 1980s.

Taiwan alone is expected to take delivery of \$16.5 billion in defense

equipment, including French-built *Lafayette*-class frigates and Mirage 2000-5 and US F-16 fighters. In addition, Taiwan is bargaining with Holland and Germany to buy submarines and is consulting with a number of Western suppliers for missiles, naval guns, and sonar equipment for its frigates.

Japan and South Korea will continue with major weapon purchases, too. Japan's acquisition of US-built E-3 Airborne Warning and Control System (AWACS) aircraft, the shipborne AEGIS missile defense system, and the Multiple-Launch Rocket System will push Japanese arms imports to more than \$14 billion over the rest of the decade. South Korea's reliance on high-technology weapons to offset the large size of North Korea's conventional forces will yield projected purchases of up to \$13.5 billion. US firms can look to South Korea for a large share of the business in light of co-production arrangements on the F-16 fighter, Seoul's purchase of US-built P-3C maritime patrol aircraft, and plans to equip domestically produced KDX destroyers with Western combat systems.

Arms-buying countries are turning to US weapon systems in the wake of the stunning victory in the Persian Gulf War.

One reason, says the Pentagon report, is that these nations want interoperability with US armed forces. American firms have built "a well-earned reputation" for producing "reliable, durable" weapon systems, the report says. Prices are competitive. Performance is state-of-the-art. Good

customer relationships exist. Training and post-sale support remain "outstanding."

The study projects arms sales by sector, including the following:

- **Aircraft:** Pentagon analysts foresee up to 4,500 new aircraft sales and 800 aircraft upgrades through the end of the decade, with US firms expected to provide up to seventy percent of total sales of up to \$96.7 billion.

- **Helicopters:** US firms are expected to dominate the worldwide market for helicopters—a market valued at up to \$20.2 billion. US manufacturers are likely to provide up to fifty-six percent of the 1,250 new helicopters being purchased, including AH-64 Apache attack and UH-60 Black Hawk utility helicopters.

- **Aircraft weapons:** US companies can expect to reap up to eighty-nine percent of projected worldwide sales of more than 15,000 missiles and weapons with a total value of up to \$22.1 billion. Says the Pentagon study, "The successful and highly publicized use of a variety of laser-guided bombs and air-to-air missiles by coalition forces during the Gulf conflict combined with innovations that are making precision guided munitions easier to use and more lethal are helping to increase sales."

- **Command, control, communications, and intelligence:** Foreign buyers are flocking to US firms for integrated command-and-control networks, electronic warfare systems, surveillance aircraft, and unmanned aerial vehicles (UAVs) in the wake of the US triumph in Operation Desert

Storm. The market is expected to total about \$3.8 billion—barely two percent of worldwide arms deliveries, but it is seen as a growth area. The Pentagon forecasts that US firms will secure more than sixty percent of the market.

The E-3 AWACS is headed not only for Japan but also for other nations, with Thailand, Indonesia, and South Korea expressing interest. South Korea and Israel are exploring separate orders of the E-8 Joint Surveillance and Target Attack Radar System, with each nation considering purchase of six aircraft. This has the potential for generating \$2 billion worth of new business.

Competition Still Exists

American defense contractors still face competition. "Exporters of advanced equipment and firms specializing in certain niche markets are expected to be the most successful military suppliers for the remainder of the decade," Pentagon analysts conclude.

Thirty-five countries are producing or developing more than 1,000 operational UAV systems, for example. One professional market survey foresees the UAV market expanding from \$435 million in 1996 to more than \$1 billion by 2000.

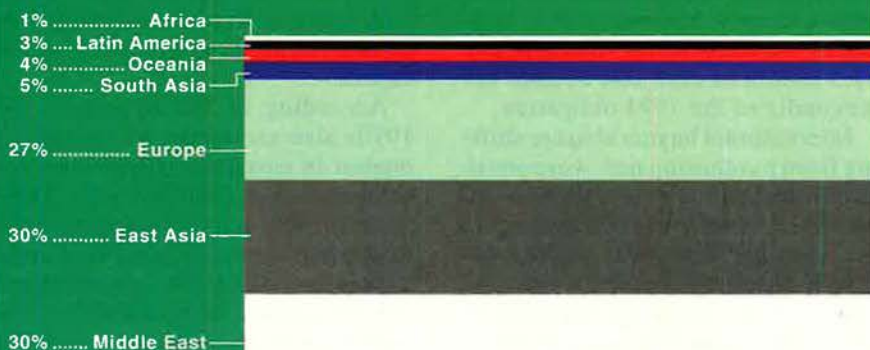
France, which sold \$50 billion worth of arms during the 1980s, could become the second largest arms supplier, behind the United States, providing "the entire spectrum of conventional arms" to foreign buyers. French firms may challenge US firms for sales of tactical missiles, defense electronics, and advanced naval equipment. Aerospatiale's new MM40 Block 2 model of the famous Exocet antiship missile will "rival the US Harpoon because of its flexible targeting capabilities and a somewhat stealthier flight profile," the report claims.

The French firm is also "targeting" customers of American firms by making available an improved AS30L missile modified for operation aboard the F-16 fighter. The French MICA air-to-air missile "will compete" with the US Advanced Medium-Range Air-to-Air Missile in the air-combat missile market.

Britain, which accounted for about twenty percent of the world's arms deliveries in the last two years, "should be able to sustain" its 1980s-

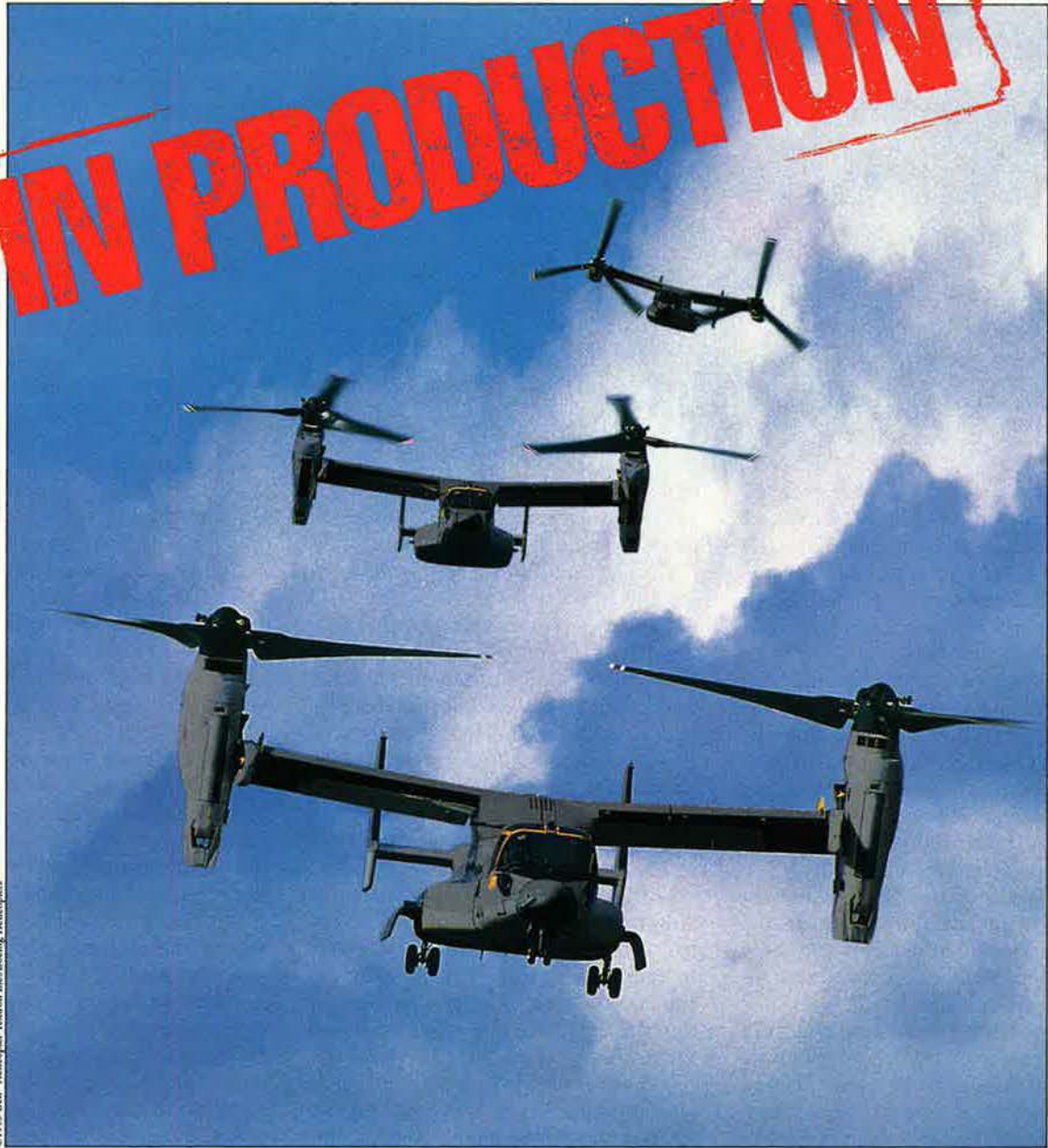
Projected Worldwide Demand, by Region

(Percent of World Imports, 1994-2000)



Source: DoD

IN PRODUCTION!



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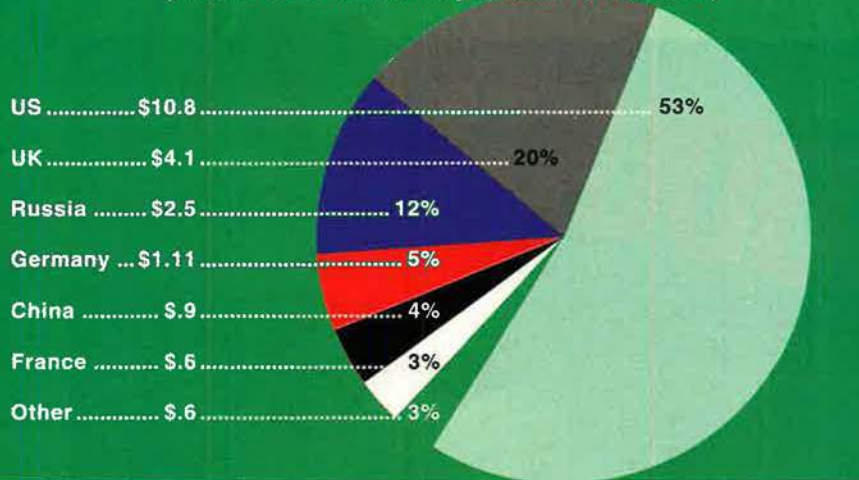
A NEW ERA IN AVIATION

The DoD has made the commitment to produce the V-22 Osprey. And with fleet deliveries scheduled to begin before the end of the decade, America and the world will soon be entering a new era in aviation. Its innovative tiltrotor technology gives the V-22 the speed and range of a fixed-wing aircraft, combined with the vertical takeoff and landing capabilities of a helicopter. Designed to replace aging and obsolete helicopter fleets, this extraordinary aircraft dramatically reduces the risks inherent in long-range, rapid deployment operations – indicative of the U.S. Marine Corps and U.S. Special Operations Forces. There is an urgent need for this model of multiuse development. No other aircraft can match its versatility, survivability and affordability. The right commitment has been made in producing the V-22 Osprey. Right for America. Right for the world. And right into the 21st century.

BELL BOEING
The Tiltrotor Team
 A JOINT SERVICE PROGRAM

Top Six Arms Supplier Nations

(Percent of 1993 World Military Market in 1991 \$ Billions)



Source: DoD

level of exports (\$35 billion over the full decade) through the 1990s and remain "a viable competitor" to US firms. The Hawk attack-trainer remains competitive with American counterparts because of "cost, simplicity, and flexibility."

United Kingdom firms are deemed to be "strong competitors" for the ballooning fighter upgrade market, thanks to system integration efforts, cockpit displays, and weapon delivery systems. Moreover, Britain's Westland-built Lynx helicopter is expected to be "very competitive" in the world helicopter market. British naval systems, ranging from surface ships to diesel submarines to patrol aircraft, also are expected to remain popular around the world.

German arms exports are expected to represent about five percent of the arms traffic and to be concentrated in the fields of aircraft and ships. The Alpha Jet trainer is expected to compete effectively with American counterparts because of "favorable cost and performance." German submarines may "dominate" the global market, and Germany is expected to be "very competitive" in the sale of frigates, smaller vessels, and torpedoes. Germany also will sell a variety of weapon systems that have been taken out of its inventory as a result of post-Cold War cutbacks and the impact of East-West arms agreements.

Such nations as Italy, Spain, and Sweden are expected to target "niche markets" for sophisticated systems. Added to that, Israel is becoming a player, providing world-class elec-

tronics and tactical missiles, as well as becoming a country-of-choice for aircraft and armor upgrades.

China, a major arms exporter during the Iran-Iraq war, probably will have fewer market opportunities in the 1990s as buyers turn elsewhere for sophisticated equipment. China's exports have hovered around \$1 billion a year for the last three years and are not expected to rise much above that.

Limited Government Support

The Pentagon's exhaustive analysis offers little hope to hard-pressed American defense contractors looking for the Clinton Administration to launch a major effort to bolster the nation's shrinking defense industrial base with broader support for arms transfers.

US weapon exporters are doing so well that boosting US government support would have little impact, the analysts conclude. Although Pentagon spending cutbacks "will of course result in a contraction" in the nation's defense industries, the "viability" of the nation's defense industries "does not appear to be threatened by projected declines in defense spending" at home, according to the study.

US arms exports remain relatively steady despite the peaks and valleys of Pentagon spending. Exports that

ranged between \$10.6 billion and \$13.8 billion in seventeen of the twenty-two years between 1971 and 1993 have continued in the \$10 billion-a-year range even after the Cold War.

"Changes in the level of support that the US government provides to arms exports can only marginally affect the aggregate level of US arms exports," the report says. "As a result, it is clear that by themselves changes in the level of government support for arms exports will not make a major difference in the overall financial viability of US defense industry."

Only "broad changes in political, military, and foreign policy decisions concerning arms export approvals"—changes deemed unlikely—would alter the projected range of US domination of worldwide arms transactions, the report adds.

In the face of such developments, "a reasonable projection of the potential maximum impact of increased support for arms exports is \$1 billion to \$2 billion over the forecast period—or less than \$300 million annually."

Arms exports have not been considered in the past as "contributing to the viability of the industrial infrastructure" because of "difficulties in incorporating arms trade into planning assumptions," the study says. There remain "certain areas" where the defense industrial base and the local economy "can be important secondary factors" in decision-making.

"Export sales can mitigate unit costs increases, raise production rates to more economical levels, provide additional revenue to US producers, extend production runs, and close production gaps between a terminated system and a similar or follow-on system coming off the same production line," according to the study.

But, it concludes, "US industry faces serious foreign competition in only a limited fraction of arms exports sales opportunities and, . . . even then, US industry often wins." ■

Stewart M. Powell, White House correspondent for Hearst Newspapers, has covered national and international security affairs from Washington, D. C., and London for two decades. His most recent article for Air Force Magazine, "American Troops—American Command," appeared in the January 1994 issue.



OUR TARGET.



THEIR TARGET.

The AGM-142 precision-guided air-to-ground missile system is so effective it can turn a building's window into a legitimate target without allowing the aircraft that launched it to become a target as well. Designed for use on the B-52 bomber against high-value ground and sea targets, the missile has multiple guidance modes to provide pinpoint accuracy with a proven hit probability of 94%.



It can be launched on various trajectories from significant standoff ranges, so it reduces aircraft exposure and helps ensure crew safety. Plus, it's extremely cost-effective. At Lockheed Martin we're proud to be working with RAFAEL to make the AGM-142 available to the US Air Force. Because when the mission calls for maximum accuracy with minimal risk, it's right on target.

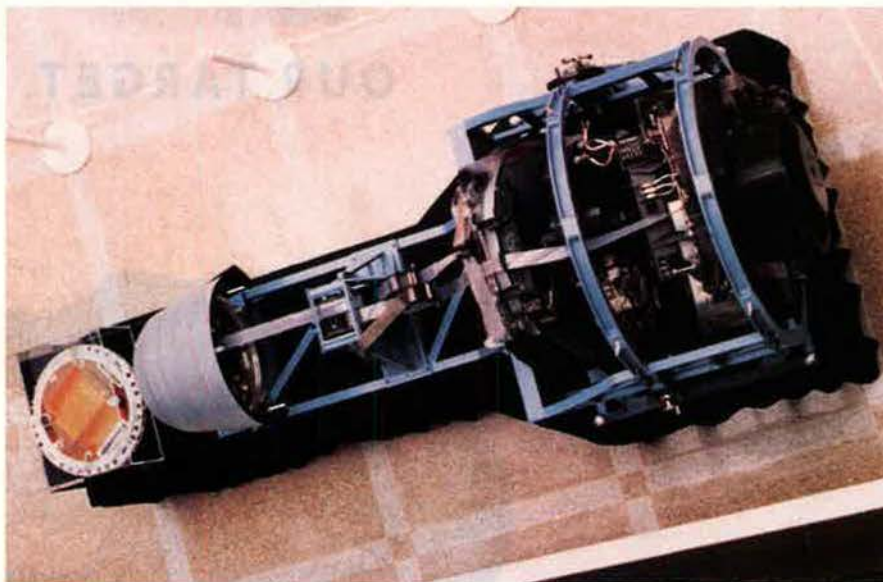
LOCKHEED MARTIN 

 **RAFAEL**

Today, the achievements of the early space satellites sound elementary. In the 1950s, though, it was a different story.

Corona Comes in From

By Theresa Foley



THE BLACK-and-white photos are scratchy, with big, clumsy labels. Lumpy round craters caused by nuclear testing are visible in one; another shows neat geometric patterns formed by missile silos, perimeter roads, and security barriers—sure signs of a nuclear weapons facility.

These photographs resemble something the hero might produce in the latest Tom Clancy movie, but this is not Hollywood. The pictures are for real.

They are from Corona, the nation's first spy satellite project. And although the reality they depict existed thirty-five years ago, the recently declassified pictures make a fascinating study for any student of technology, deception, and the path over which reconnaissance satellites traveled to become a modern tool of truth for the intelligence community.

On a cold day in February, Vice President Al Gore traveled from the White House to CIA headquarters in

suburban Virginia to speak to a crowd of CIA workers and Washington VIPs. He had come to lift the veil of secrecy on Corona and announce that some 800,000 satellite images snapped by cameras flown on satellites in the Corona program between 1960 and 1972 would be declassified and released to the public.

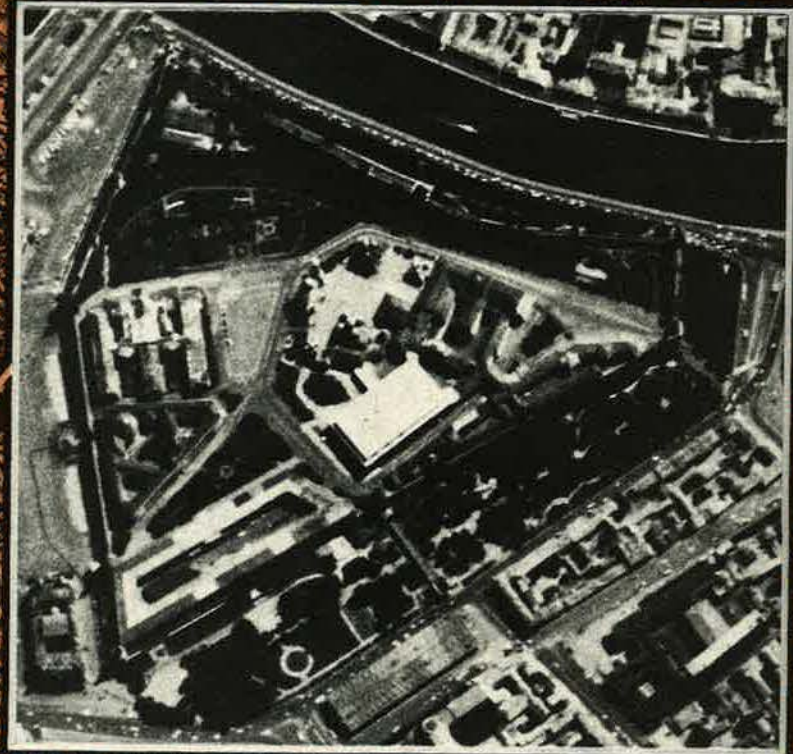
At last, the story of the first US spy satellite program could be told, although by 1995 some of the key participants had died and the technical wizardry that enabled the return of high-resolution photos to Earth—special cameras to snap detailed pictures from 100 miles away, platforms that could speed through space without jittering, and return capsules that could survive reentry for secret recovery by aircraft or ships—now seems old hat.

Through the Iron Curtain

Corona was a broad spy satellite effort that entailed 130 launches. The program produced imagery from August 1960 to May 1972, though

Corona, the first US spy satellite program, got under way in 1959. Its final mission, using the camera and recovery system shown above, took place in 1972. At the height of its success, Corona returned high-resolution photos like this one of Moscow, taken in 1970. The inset enlargement shows the Kremlin, cars, trucks, and people waiting in line to visit Lenin's Tomb in Red Square.

the Cold



launches of the first Corona hardware began in January 1959. The satellites used a Thor booster topped by an Agena spacecraft to house the cameras and all the equipment needed to support them. The satellites were launched from Vandenberg AFB, Calif., into 100-nautical-mile-high orbits over the poles.

"Almost every phase of the program was pioneering," said James W. Plummer, program manager for

and keep it steady. The ability to point from a stable platform while whizzing through space as the Earth rotated below was especially important if the camera were to get clear pictures.

The recovery system, supplied by General Electric, had a thermal protection system, retrorocket, cold-gas spin-stabilized attitude control system, power and telemetry gear, and a parachute. The capsules were in-

achieved using a twenty-four-inch-focal-length Tessar lens with image-motion compensation.

By the time the Corona program reached the end of its life in 1972, the resolution had improved to six to ten feet. The return capsules' film cargo had increased from only ten pounds in weight to eighty pounds, corresponding to 16,000 feet of film. Each mission was able to stay aloft for nineteen days, returning images of 8.4 million square nautical miles of territory.

String of Failures

On January 21, 1959, the first Corona vehicle was launched under the designation Discoverer 0. The flight was aborted when the ullage rockets on the Agena upper stage prematurely ignited. The next mission, February 28, delivered the platform to an orbit of more than ninety-nine miles. Though no recovery capsule or camera was aboard, the mission was deemed a success.

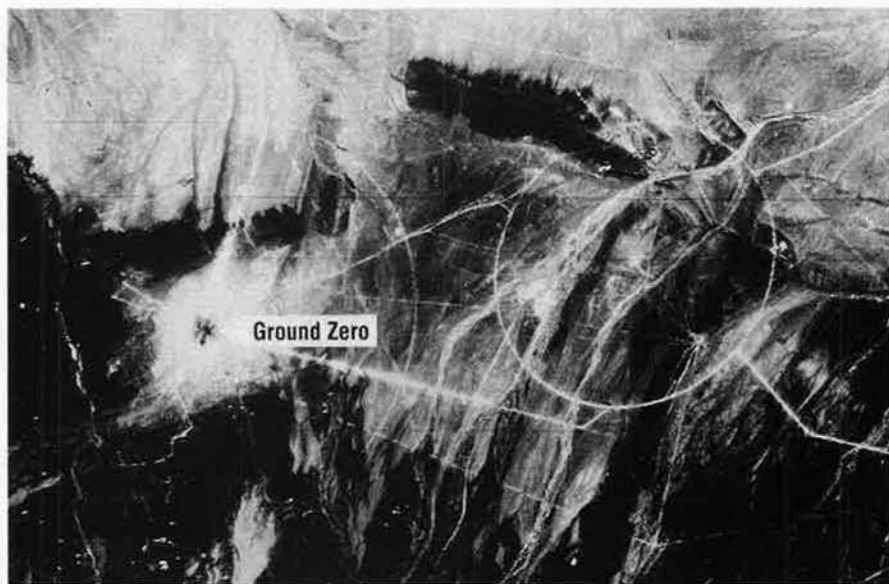
Then began a string of failures and problems. Discoverer II, launched April 13, 1959, put its recovery capsule down on the wrong side of the planet. The next two missions, both in June, did not achieve their correct orbits because of inadequate thrust from the Agena engines.

President Eisenhower and Allen W. Dulles, director of the CIA, began to ask questions about the troubles. In August 1959, the next two missions also failed, resulting in the program's being grounded for tests and changes. The Corona team found that the reentry system was being subjected to temperatures lower than its design minimum and was experiencing problems in subsystems.

Changes were made, and flights began again. The next two flights had system and camera problems, sending the team back for more engineering changes. In February 1960, Discoverers IX and X continued the string of failures. Destruction of the Discoverer X flight vehicle occurred during climb-out, raining debris on the Vandenberg launch site.

Cancellation of the program again became a subject of high-level discussion, but Corona managers convinced the higher-ups to keep trying.

On April 15, 1960, Discoverer XI made it into orbit. The camera worked, thanks to a new type of polyester-based Kodak film. Corona was al-



Corona opened an intelligence treasure chest. In October 1964, its cameras captured this image of the Chinese nuclear test site near Lop Nur, four days after China conducted its first nuclear test.

Corona at Lockheed, the prime contractor for the project.

To succeed, the Corona effort had to achieve a number of technological firsts. For the first time, engineers had to stabilize a satellite in three directions—a technique known as three-axis stabilization. It has since become routine for spacecraft, but in the 1950s it was not. The required orbital velocity had never before been reached, nor had reentry vehicles survived the hot trip back through the atmosphere to the ground. In addition, designers had to figure out how to build a camera that could operate remotely in the cold vacuum of space.

Agena included a Bell rocket engine with 16,000 pounds of thrust to propel the system into final orbit and a platform to carry the Corona payload. Unlike other early satellites that spun to stay stable, Agena used horizon sensors and cold-gas valve-thruster firings to correct its attitude

tended to be caught by a recovery aircraft as they reentered the atmosphere, with water landing and recovery used as backup.

The cameras emerged from an earlier program called Genetrix, which used high-altitude balloons for spying on the Soviet Union. The earliest Corona cameras were built by Fairchild Camera & Instrument Corp. These were given the designation KH-1 and KH-2, and only five of the twenty that were launched produced usable images. Corona program managers switched to Itek Corp. as the camera supplier, making five major design changes to improve the resolution and flexibility of the cameras.

The 70° panoramic Itek camera looked down at Earth, exposing the Eastman Kodak film by scanning at a right angle to the direction of flight. Corona's resolution in the early years was thirty-five to forty feet (meaning that objects of that size could be detected in the photos) and was

most there, but the recovery system malfunctioned this time. Lockheed and its government supervisors again felt rising pressure to fix the program. They heard directly from Air Force Vice Chief of Staff Gen. Curtis E. LeMay, who wanted positive results—and fast. More tests and more instruments were added.

Discoverer XII lifted off June 29, 1960. The Agena horizon sensor operated erratically, putting the spacecraft in the wrong position during separation from its booster, causing yet another Corona failure.

The technical problems were bad enough, but politics and competition from other space systems were increasing the pressure to get the satellites to produce intelligence information. Francis Gary Powers's U-2 had been shot down just two months earlier, and now another US spy satellite system, Samos, was nearing first flight [*"Corona's Code-Named Cousins,"* p. 87]. Corona managers needed a success.

Lockheed switched from using hot-gas spin rockets on the recovery vehicle to cold gas to address the possibility that the hot-gas rockets were making the vehicle cartwheel through space instead of spiraling like a football, as intended.

"Capsule Recovered Undamaged"

With the latest correction made, Discoverer XIII lifted off August 10. To the great relief of the Corona team, the mission flew into space and sent its recovery capsule back just as planned. On August 12, Maj. Ralph J. Ford, one of Corona's program officers, wired an encrypted message to the CIA: "Capsule recovered undamaged."

It was an unplanned water landing; the capsule had to be recovered from the Pacific 330 nautical miles northwest of Hawaii after the air recovery teams received confused communications on the reentry path. Except for that, Corona had finally performed exactly as planned. The flight did not carry a camera or film, so photos had yet to be taken, but the system had worked.

The effort took more than eighteen months and fourteen launches, but the nation's first spy satellite system was finally close to starting operations.

"From Discoverer XIII on, it was smooth sailing," said Mr. Plummer.



Although Corona mission capsules were intended to be caught when reentering the atmosphere by recovery aircraft (above), the first successful Corona effort in August 1960 involved an unplanned water landing.

"My trips to Washington up to that time had been very difficult because we were explaining failures to people who were really concerned but still supported it. After that, we were heroes going into town."

On August 18, 1960, Discoverer XIV succeeded through all phases of the flight: liftoff, camera operations, reentry, and film recovery by the crew of a C-119 aircraft. Corona returned 1.65 million square nautical miles of imaged area to intelligence analysts with a single flight, practically sending the photo interpreters themselves into orbit with praise for the product, according to an internal Lockheed history of the work.

An intelligence treasure chest had been opened. Indeed, the Corona photos ultimately were to reveal all of the Soviet missile complexes, each class of Soviet submarine, a complete inventory of fighters and bombers, the presence of Soviet missiles in Egypt to protect the Suez Canal, Soviet nuclear assistance in China, antiballistic missile defense inside the Soviet Union, atomic weapons storage sites, Chinese missile complexes, air defense batteries, surface ship fleets, command-and-control facilities, and the Plesetsk Missile Test Range north of Moscow.

The U-2 flights had been able to cover one million square miles of territory in the Soviet Union; Corona produced photos of 510 million square nautical miles of Earth's sur-

face, some ninety-five percent of which was of foreign areas of intelligence interest.

The Genesis

The Air Force began the program that led to Corona in the mid-1950s, a few years before the actual spaceflights started. Lockheed started working as prime contractor on the system in 1956 under a classified program known as Weapon System 117L.

Two years earlier, the Air Force had established the need for the 117 program after intelligence information gained during the early years of the Eisenhower Administration indicated that the Soviets were moving fast in nuclear technology, creating a fear that the United States could be attacked by nuclear weapons. The Soviets tested a hydrogen bomb in 1953, began operating a strategic bomber in 1955, and were hard at work developing ICBMs.

In early 1956, the United States began to take photographs of Soviet territory using cameras aboard high-altitude balloons as part of the Genetrix program. The next step was to fly U-2 aircraft over the Soviet landmass. The U-2 flights went on secretly from July 4, 1956, until May 1, 1960, when Powers was shot down during one of the missions. President Eisenhower canceled U-2 overflights, and US ability to use overhead cameras to

Anatomy of Corona

Designation	Camera	Resolution	Launches	Period
KH-1	C	40 feet	10	1959-60
KH-2	C' (C Prime)	25 feet	10	1960-61
KH-3	C''' (Triple Prime)	12-25 feet	6	1961-62
KH-4	M (Mural)	10-25 feet	26	1962-63
KH-4A	J (J-1)	9-25 feet	52	1963-69
KH-4B	J-3	6 feet	17	1967-72
Test, Other	none	n/a	9	1959-65

Sources: Central Intelligence Agency and National Reconnaissance Office.

monitor the Soviet advances came to a temporary halt.

However, development of Corona and related systems was well under way. When Corona arrived on the scene, its first intelligence coup was to debunk the alleged "missile gap" that supposedly existed. The images from the system proved that the Soviets did not possess vastly higher numbers of missiles than the US.

Like all good spies, Corona had an alias. The Air Force decided to conduct the project under the cover story that it was a scientific satellite project, "Discoverer," which was a real program supported by Air Force labs. The public was told that Corona's launches and reentry capsules were used to develop and acquire biomedical data on animals. Mice were flown after the Air Force changed its plans to put rhesus monkeys into space when the Indian government objected. (The monkey is sacred in India).

The science project really existed, but its bigger purpose was to be a cover story to hide the real mission—satellite spying on the USSR. Corona's operators did not want the Soviets to find out that spy cameras were aboard because the enemy then would be able to devise dummies on the ground to fool the cameras.

Mr. Plummer said talking with the press presented great difficulty because reporters would inquire deeply about the work, and while the managers did not want to lie, they often had to respond with no comment. Even worse for Mr. Plummer was when he had to brief a high-ranking Army research-and-development official who had no access to Corona but asked a lot of questions anyway. Few Pentagon officials were cleared for Corona. Mr. Plummer had to dodge the official's questions.

"It turned out he was a friend of my boss," recalled Mr. Plummer. "He

called my boss when the briefing was over and said, 'Who is this idiot you sent to Washington?'"

The deception worked well in some respects, allowing the program managers to acknowledge some things and deny others. Even within the project, only a few of the hundreds of people involved knew its true nature and scope.

When the first pictures were finally obtained, the quest for secrecy again was taken to extremes. President Eisenhower was shown the photos and was said to be so impressed that he ordered everything about the intelligence take to be kept secret so that the USSR would not object to the new technology.

Word was passed down the chain of command, and as in the child's game of passing a whispered message around in a circle until it is garbled, the Corona hierarchy dutifully relayed "keep it secret" to the worker level, where it finally arrived as a command to "destroy the capsule." The first real Corona capsule to bring back photos was beaten to pieces and thrown away.

Unique Management

To carry out the urgent, top-secret work, Lockheed developed new management methods and technology. The company says that reentry vehicle technology for Corona made NASA's Apollo flights to the moon possible.

Mr. Plummer said that the core Corona crew was small, consisting of about thirty persons who worked on the payload. The team could ask the main engineers at Lockheed Missiles and Space to help with problems, as long as they were not specific about the mission. The total Lockheed work force on Corona eventually grew to about 300 people. Each subcontractor had roughly fifty people directly assigned.

The workers were given information only about their portion of the system, not about the whole program. If a problem occurred, the specialists were given general information about a failure and asked to work on it. Some problems were difficult to solve as a result: for example, thermal imbalance problems that centered on how to maintain an internal temperature using coatings outside.

"That was hard, because we couldn't tell them what was inside the shell,"



Corona operated under the cover of a scientific satellite project "Discoverer." Thus, for this White House ceremony, President Eisenhower is inspecting a flag returned from Discoverer XIII's capsule.

Other Early Spy Satellite Programs

Program Name	Designator	Purpose	Resolution	Launches	Period
Argon	KH-5	mapping	460 feet	12	1961-64
Lanyard	KH-6	targeting	6 feet	3	1963

Sources: Central Intelligence Agency and National Reconnaissance Office.

Corona's Code-Named Cousins

Corona was associated with several other code-named secret space projects of the era that also have been declassified.

Corona satellites frequently have been called Keyhole by outsiders. Keyhole actually describes the cameras flown on space reconnaissance missions. As camera technology improved, subsequent versions were given numbers. The designators KH-1 through -4 apply to those cameras flown in the Corona program. Later all the Corona images were retroactively designated as KH-4 photos.

Lanyard and Argon are two other names associated with Corona. Like the Corona cameras, those of Argon and Lanyard had Keyhole designators as well, flying as KH-5 and -6, respectively. Argon was to develop a mapping system of great precision. Lanyard was a separate program to develop a system for higher-resolution imaging.

Argon was intended to make maps for the US Army Map Service to be used for precision strategic targeting. Its cameras flew twelve times between February 17, 1961, and August 21, 1964.

Lanyard was aimed at providing two-foot-resolution imagery to address the lack of intelligence data on suspected antiballistic missile sites at Leningrad. The project conducted three launches, but the KH-6 camera flew only once, in 1963, collecting six-foot-resolution data, and thus was deemed only a partial success.

Weapon System 117L was renamed Sentry in 1959 and then later divided into three subprograms called Discoverer, Midas, and Sentry. Sentry was then renamed Samos.

Samos, which flew only a few missions in 1961 and 1962 before it was terminated, was designed to produce higher-resolution visual reconnaissance with either film recovery or electronic readout to the ground. But while Corona was achieving technical success, Samos was having trouble. Samos was ended, but the press and public believed the opposite, according to a Lockheed history of the program.

Midas was an infrared sensor development that led to the current Defense Support Program satellites for early warning of ballistic missile attack.

Mr. Plummer said. "It was a very high-pressure program. We didn't have months to work on these things. We generally had to solve these problems in a very short time, usually a week."

What the Corona team did—going from start-up to flight in a year, launching thirteen nonfunctioning missions in another eighteen-month period, and reengineering in a matter of days—is unheard of in today's space program.

How did they do it?

"The big difference is, we were a special-access program, provided by the rules of security," said Mr. Plummer. "The model for what we did was [Clarence] 'Kelly' Johnson's

'Skunk Works,' down at Lockheed. The Skunk Works had rules that the customer could only have a single person" with access to work at the factory, Mr. Plummer says. "We didn't have it quite like that, but, other than Col. [Clarence] Battle [head of the Corona program office] and his small staff, we had no technical second-guessers in the program. They just said, 'Here's the money, here's what we want to do. Go do the job, and do the best you can.'"

No outside agency, no congressional oversight from multiple committees, no Washington approval other than from the under secretary of the Air Force was needed. "It was a model

of streamlined management," Mr. Plummer said. "That's why we could move so fast. We could make a decision at two o'clock in the morning and have the engineers designing the thing at eight o'clock in the morning and have it in the shop that afternoon."

"We made some mistakes, of course," he added.

For modern systems, more oversight is needed in part because the complexity of today's satellites has grown, Mr. Plummer said. But a program like Corona could be done today if "the powers that be accepted streamlined management."

Although many space programs try to streamline management to save money, Mr. Plummer said he sees nothing in today's hardware programs that comes close to what Corona did in efficient management.

Corona also had unlimited budget authority, which undoubtedly helped the program to overcome its problems quickly. Although no official budget for the program has been released, John McMahon, a former top CIA and Lockheed manager, has said that the Corona program cost \$850 million, which in today's dollars would run into billions.

Lockheed established its Space Systems organization in 1957 in Palo Alto, Calif. As prime contractor for Corona, Lockheed's role was central and set the stage for its subsequent success in producing intelligence satellites. The contractor integrated all Corona equipment from other contractors, developed the Agena system, and then conducted the mission from testing to on-orbit operations.

Several of the Air Force and industry managers who led the Corona program are deceased, while most of the others are retired. The program managers, Richard Bissell of the CIA and Air Force Brig. Gen. Osmund Ritland, died years ago.

Public tribute was finally paid to the Corona workers in late May at a symposium and reception in Washington, D. C., ending the long silence for the team members, who for thirty years had not been allowed to tell their families or friends about the role they played in the historic space program. Said Mr. Plummer, "It's a relief to be able to talk to people [about Corona], including my own family, who never knew exactly what I was doing." ■

Theresa Foley, a free-lance writer living in Florida, is a former editor of Space News. Her most recent article for Air Force Magazine, "How Ariane Does It," appeared in the February 1995 issue.



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The New Way of Officer Assignments

By Bruce D. Callander

● Osan AB

FROM 1991 until very recently, most Air Force officers enjoyed the best of two worlds. On one hand, a computerized job system enabled them to shop for attractive new assignments. On the other, Air Force policy shielded them from involuntary moves until they had completed at least fifteen years of service.

The situation seemed too good to last, and it didn't.

In January, USAF dropped the "V word" from the Officer Voluntary Assignment System (OVAS), turning it into the OAS. This was more than a mere change of wording. The service made officers vulnerable to involuntary transfers of location and assignment after as few as three years on station, essentially restoring the assignment system that had existed before 1991.

In another major change, the new system required commanders to take a more active role in counseling officers. The idea is to convince more of them to consider the good of the service as well as their career development when considering a move.

Air Force Chief of Staff Gen. Ronald R. Fogleman captured the spirit of the new philosophy in the phrase, "service above self."

USAF's volunteer policy has not undergone a complete reversal. While the service has eliminated the sanctuary that let officers avoid unwanted moves, most of the machinery of the old OVAS is intact. OAS will give

officers the same opportunity to express a preference in assignment.

In addition, USAF instituted a change that is certain to be well-received by the force. The Air Force will allow its officers to acquire more overseas credit for short periods abroad in a temporary duty status or in contingency operations.

Air Force leaders hope that, with the spur of knowing they now are vulnerable for involuntary assignment, officers will take the initiative and apply for new assignments while they have the chance to choose where they go, even if the assignment is not ideal. If the approach works as planned, USAF may actually see little change in assignment statistics. In fact, given the prod of increased vulnerability, an even higher percentage of officers may be inspired to become volunteers.

The System Worked

Whether or not that proves to be the case, the Air Force could not have afforded to keep the former OVAS in place too much longer. That system had been adopted to assuage complaints from officers that they had too little say in their assignments and, in dealing with that narrow problem, the system worked.

Just how well it worked shows up in a comparison of gripes then and now. In a 1990 survey, officers ranked the topic "say in base assignments" as the second highest career "dissatisfier."

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● Incirlik AB ●

● The Pentagon

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● Hickam AFB

By 1994, the problem had fallen to eighth place on the gripes list. Over the same period, "say in job assignments" fell from third place to fifth.

Obviously, OVAS had been a popular program, but by late 1994, it was apparent the Air Force could not sustain it. Having so many officers in assignment-protected status threatened to become a major problem for assignment officials.

Service officials warned that they could not fill some critical assignments because nobody wanted to take them. Others were handed out to officers too senior for the positions. In some cases, field-grade officers had to be assigned to company-grade billets because no other officers had been in service long enough to be moved against their wishes.

Through all this, the Air Force could still claim that ninety-eight percent of officer assignments went to volunteers, but the statistics did not tell the whole story.

Many of the "volunteers" were officers forced to move because they were completing overseas tours or controlled assignments in the continental US (CONUS). Others were close to the fifteen-year point when they could be selected involuntarily anyway. In both cases, many volunteered knowing that if they didn't they might have no say in their next assignments. Other jobs simply went unfilled for lack of volunteers and did not show up in the total moves.

The situation promised to get worse. During the drawdown, reductions—voluntary and involuntary—had stimulated heavy losses and reduced the pool of available nonvolunteers. As long as OVAS remained intact, a small percentage of officers—the more senior ones—would draw a disproportionate share of unpopular assignments.

The situation was bad for the Air Force because it meant some positions were left vacant or filled by officers less than ideally suited for them. It was equally bad for the officers who had extensive experience but were being tapped to fill jobs that were anything but career enhancing.

Soon after taking office, General Fogleman ordered a review of the officer promotion system and a full-dress study of OVAS. A panel of officers in grades from captain through colonel met at the Air Force Military Personnel Center (AFMPC), Randolph AFB, Tex., and by mid-January, the

panel's recommendations had gone to the Chief of Staff and Secretary of the Air Force. Most were approved.

Carrot and Stick

The main change—the expansion of the pool of officers potentially available for involuntary assignment—was paired with the program to involve commanders more deeply in counseling officers about their professional development. In a sense, it was a carrot-and-stick approach, designed to convince officers of the following:

- Their career interests lay in being open to reassignments that benefit the Air Force.

- They would be better off volunteering than waiting for the service to reassign them.

The new OAS rules represent more than a get-tough approach, however. The system is a long way from returning to the days when the overriding principle in assignments was summarized, "The needs of the service come first." The difference lies in the parts of the OVAS program that have not changed.

A major element of that more liberal volunteer system was the computer-based assignment program, "Daedalus." This system gave Air Force officers access to a number of USAF services, including an electronic bulletin board, a worldwide listing of assignments open to or soon to be available to officers. The program also continued to provide officers with e-mail and phone links with AFMPC assignment teams that could advise them on their best career moves.

Those parts of OVAS remain in effect under OAS. The Air Force recently added a "help screen" to Daedalus. The screen gives officers clues to determine how vulnerable they are to an involuntary assignment.

Officers still may volunteer for jobs of their choice from among those advertised, and the Air Force still will give priority to volunteers. The main difference is that many more officers now will know that if they do not choose to move when they have the chance, they soon will be eligible for involuntary selection and will have to accept the post or assignment that comes up.

Under OAS, most officers will become eligible for involuntary moves when they have three years on station. Others, including those on controlled tours and those forced to move

by base closings, may become eligible somewhat sooner or later. Either way, when officers are within nine months of being eligible to move, they will receive alert notices.

Heads Up

Similar "heads-up" notices will go to these officers' commanders. This alert system is intended to trigger a period of counseling and planning involving the officer and his or her commander and supervisor. Officers also can contact their major command and AFMPC assignment officers for more advice.

At the same time, they can check their vulnerability on the help screen of the electronic bulletin board. It will not tell them exactly how close they are to being picked involuntarily, but it will indicate the general status of officers in their grades and skills. By noting the time on station (TOS), overseas selection dates, short-tour return dates, and other demographics, officers can reach their own conclusions about their own status. Separate readings are provided on CONUS and overseas long and short tours.

An officer's assignment experience is important to judging his or her chances of selection. In general, vulnerability for CONUS involuntary assignment is based primarily on time on station, so priority for a given assignment goes to the officer with the earliest date arrived on station.

For overseas long-tour assignments, officers who never had one are most vulnerable, followed by those who have the earliest return dates. The selection order is similar for short tours, except that USAF considers the number of short tours an officer has had and some other factors.

If all of this counseling and information convinces the officer that he or she had better take the initiative before it's too late to choose, the next step is to explore the available openings. For that purpose, most elements of the old OVAS are also still intact.

Officers can review the "want ads" on the electronic bulletin board and choose slots fitting their grades and skills. Except for the positions of commanders, operations officers, general officer aides and executives, and a few other posts, most openings in CONUS and overseas are advertised. Also not advertised are moves within organizations, such as job shifts in a unit headquarters.

Options for Airmen

The Air Force, after a review, decided to leave its airman assignment system essentially intact, continuing to apply it with slight modifications. The service has always had the authority to meet its enlisted requirements with involuntary measures, and that authority remains in effect, though the system gives clear preference to volunteers.

In the biggest change, USAF decided to permit the troops to acquire more overseas credit for short deployments abroad, either in TDY status or as part of a contingency operation. Shorter periods will cause adjustments of overseas-vulnerability dates. Accumulation of enough TDY credit will earn full credit for overseas tours.

In making enlisted overseas assignments, the Air Force continues to rely on a system called "EQUAL" (Enlisted Quarterly Assignments Listings). The Air Force works out its overseas requirements, advertises them at base level, then allows all interested airmen to express a preference for the positions calling for their skills and ranks. Computers then match people with jobs.

Under EQUAL, selection priority goes to volunteers, and they are rank-ordered. The first airmen considered for a post are those who bid for consecutive overseas tours. Next-highest priority goes to CONUS-based volunteers who, for some reason—base closure, completion of training, and the like—must be moved. The third-highest priority goes to all other volunteers.

Only when all the volunteers have been considered and the jobs remain open does the Air Force turn to nonvolunteers to fill positions. Such airmen also are considered according to a specified order, starting with those who have no overseas time. Next come those with the fewest previous tours, and so on.

The Air Force uses a similar process for involuntarily assigning airmen returning from overseas to new positions within CONUS. Top selection priority falls on those ending short tours, followed by unaccompanied airmen on long tours, and then by others finishing long tours.

A companion program called "EQUAL-PLUS" fills special duties, posts reserved for chief master sergeants, and joint and headquarters assignments. EQUAL-PLUS replaced the old practice of advertising openings for jobs in such areas as recruiting and AFROTC staffs; it handles these assignments in the same way it handles overseas assignments.

The Air Force will continue to offer airmen a variety of other ways to express their preferences for particular jobs and locations. Some are open to officers as well, and others are exclusively for enlisted members. Here are the major ones:

- Volunteer Enlisted CONUS Assignment Program (VECAP). This program allows an airman with at least five years and five months on station to apply for bases of his or her choice. The Air Force considers such bids, along with those made by overseas returnees, and uses the volunteers when it cannot match others to the jobs.
- In-Place Base of Preference. In addition to asking for a new base, a qualified airman can ask to remain longer at the one where he or she currently is serving.
- Consecutive Overseas Tours and In-Place Tours. An airman already based overseas can ask for a new tour in a new location or for an additional tour in the same location.
- Permissive PCS. This program allows an airman to request a new assignment with a permanent change of station, with the understanding the airman will pay his or her own moving expenses.
- Join-Spouse. An airman can ask for assignment to the same location as his or her in-service spouse. Officers may do this also. As with officers, getting the desired location depends on whether the Air Force has a job opening to match the grade and skill level of each spouse.
- Follow-On and Homebasing. In this program, the Air Force offers a volunteering airman the inducement of returning to the same CONUS base after an unaccompanied overseas tour of fifteen months or less.
- Stabilized Base Assignments. Airmen are guaranteed fixed tours of four to five years in return for first volunteering for hard-to-fill slots at unpopular bases.

For airmen, the "lack of say" in both job and base assignments remains among the top five "dissatisfiers" of life in the service, according to polls. The Air Force has tried to give airmen some means for expressing their assignment preferences, but, in the end, officials will still follow the rule that the needs of the service come first.

Though these positions are not advertised, officers will find a variety of billets open. He or she can ask for one assignment or put down two or more possibilities but in the latter case may not state a preference for any. AFMPC will make the selection, and the officer must take the first "best-match" assignment offered.

Before volunteering to leave, officers must notify their commanders because AFMPC asks the losing commanders to supply it with Commander Involvement Program recommendations on the officer's qualifications for the jobs requested. An organization interested in a specific officer can encourage that officer to volunteer for an assignment but can promise only that he or she will be considered along with other volunteers. Volunteers are not required to submit résumés to the gaining unit unless the unit makes a specific request.

Must Movers

The process of matching officers and openings begins with those in a must-move status. Included are officers who are completing training, officers finishing maximum tours in CONUS or overseas tours with established return dates, and those made surplus because of base closure, unit inactivation or deactivation, major weapons changes, reorganizations, or changes in personnel authorizations.

These mandatory movers take precedence in assignments and, in some cases, are steered toward specific assignments. Officers completing staff schools, for example, are encouraged to bid for joint-duty assignments. Those approved for humanitarian assignments or moving under the Exceptional Family Member Program are considered for assignments that will meet their specific needs. Officers not in a must-move status are counted as voluntary movers.

In all cases, officers picked must have enough obligated service time to complete the assignments in question.

In making its selections for a particular job, AFMPC considers any prior experience and training listed as required or desired for the new assignment. It also notes any unique qualifications called for, such as security clearance or foreign language skills.

In weighing individual candidates, it considers a variety of factors, such as career progression and current duty performance. In some cases, there are

“pay-back” considerations for those who have completed training through the Air Force Institute of Technology or technical schools. Most AFIT graduates, for example, get assignments that require advanced academic degrees.

Where all other factors are equal, TOS is a tiebreaker, the officer who has been in place the longest being the one most likely to be moved first.

In most cases, AFMPC makes the final selection, but there are exceptions. If the assignment is to a major command headquarters, the Air Staff, or the Joint Chiefs of Staff, the center makes two nominations and the organization makes the final selection. For billets with DoD and other joint agencies, AFMPC makes one nomination, which is accepted or rejected.

A separate set of rules applies to officers on overseas tours. As they near their date of effective return from overseas (DEROS), they have three volunteer options:

- Stick with their original return dates and volunteer for openings on return. The best time to put in for an assignment is at least six months before DEROS, but they can ask for short-notice assignments with the approval of their commanders and major commands.

- Ask for a DEROS extension, normally twelve months before their return dates. AFMPC must approve such extensions, and they usually are granted only in increments.

- Request an indefinite DEROS—again, normally twelve months before scheduled rotation. Officers on indefinite DEROS are not considered mandatory movers and have lower assignment priority. When they have finished their original overseas tours and reach three years’ TOS, however, they are eligible for involuntary assignment.

Special Protection

USAF has built special protection into the system for officers who have pulled TDY assignments or have been involved in contingency moves. Both types of duty have increased in recent years, and, given today’s unsettled world climate, officials say that more can be expected.

The Air Force keeps records of overseas TDY time in both a “history file” and a “TDY accumulator” file. With this data, it can adjust officers’ overseas duty selection dates (ODSDs) and short-tour return dates (STRDs) to prevent their spending unfairly long periods abroad. The system counts all TDY time served outside the continental United States, including sea duty with the Navy.

Any time an officer serves two or more days on such TDY, AFMPC adjusts the ODSD and STRD by the number of days involved. If the member has served 300 or more days TDY in an eighteen-month period or 548 days in a three-year period, he or she receives credit for a short tour with ODSDs and STRDs based on the date of return from the last TDY. For 365 or more days during a three-year period, the officer will be given credit for having served a long tour.

Similar adjustments are allowed for officers based in long-tour overseas areas who accumulate TDY and contingency credits.

USAF had a system for giving special credit for TDY time, but at General Fogleman’s insistence, the service revised the formula in January to make it more generous. For example, the old system made no adjustments for fewer than ninety days’ total TDY. Now, it will give credit for as few as two days.

The change is important to members tapped to deploy to some trouble spot and then recalled after only a few weeks.

These TDY adjustments also are critical to tanker crews and tactical aircraft maintenance officers who rank among the most frequently deployed members. Security Police, AWACS personnel, and others in service units also are hard hit. USAF has only partial information on some of the individual members, but officials hope that by the end of this year, they will have detailed reports, by skills, on who is carrying the bulk of the deployment load.

The Air Force continues in effect the “join-spouse” policy, which allows married couples to ask for assignments to the same locations. Both

spouses can ask for a given base, but approval depends on their both being eligible and qualified for openings there. The assignments, officials say, are based on “the needs of the Air Force and the opportunity for continued professional development of each officer.” If two or more officers are best-matched, the one with a join-spouse requirement takes priority.

As with the rest of the assignment system, however, this program allows officers to express a preference. The difference under OAS is that more will be under pressure to voice their preferences before they become vulnerable for involuntary moves.

There is little doubt that the Air Force, given a larger pool of officers from which to choose, will be able to fill those positions that have gone begging for months and sometimes for years. It is considerably less certain, however, whether those less-desirable jobs will be filled by nonvolunteers who are dragged into them kicking and screaming.

Given the realities of the new service-above-self concept, some officers doubtless will take a second look at these billets and decide that, all things considered, they are not that bad. Others, who preferred to homestead at their bases as long as the OVAS rules gave them sanctuary, may decide that it is better to initiate a move than wait to be handed one. In either case, there is little doubt that the Air Force will take pains to emphasize where the officer’s duty and career interests lie.

Early indications are that the changes are having the desired effect. Between April 24 and June 7, the Air Force made 2,531 officer assignments, of which 2,312 were counted as voluntary moves. Only 219 officers, less than nine percent, were considered nonvolunteers.

Even that percentage could change under another feature of the new OAS that gives some officers the chance to become volunteers even after an involuntary move seems inevitable. For a while after a nonvolunteer has been picked, the Air Force will accept applications for the slot from eligible and qualified officers. If a volunteer steps forward, the nonvolunteer will be released from the obligation. Chances are, that having come that close to an involuntary assignment, he or she will put in for an assignment of choice. ■

Bruce D. Callander, a regular contributor to Air Force Magazine, served tours of active duty during World War II and the Korean War. In 1952, he joined Air Force Times, becoming editor in 1972. His most recent article for Air Force Magazine, “A New Shot at the Promotion System,” appeared in the July 1995 issue.

At AFA's Acquisition Update, speaker after speaker stressed the importance of defining a system's purpose before the acquisition process begins.

Requirements Are the Key

THE DEVELOPMENT and acquisition of military satellite communications have long been divided into mission areas according to electronic frequency. Whether their systems were ultrahigh frequency, super-high frequency, or extremely high frequency, program offices rarely talked to one another. User equipment was very different, and there was little interoperability between networks.

In today's world of small budgets and joint missions, such "stove-piping" is no longer acceptable, Air Force officials warn. The military satellite communications architecture of the future simply cannot be as frequency-dependent as it always has been.

That is just one of the many changes now beginning to sweep through the Air Force space acquisition community. From increased use of commercial products to drastic cuts in the number and use of military specifications (milspecs) and plans for an integrated space system architecture, reforms are fast taking hold, said speakers at the Air Force Association's Acquisition Update, held May 26 in Colorado Springs, Colo.

Not that the path of reform always runs smoothly. Many continue to resist or oppose changes. "We need to certainly get from talking the talk to walking the walk," remarked Gen. Joseph W. Ashy, commander in chief of US Space Command, Peterson AFB, Colo.

Still, said Brig. Gen. (Maj. Gen.

selectee) Roger G. DeKok, then director of Plans at Air Force Space Command, also at Peterson, "Change is already starting to occur in virtually everything that we do in the acquisition community."

Joining Generals Ashy and DeKok at the conference were Brig. Gen. Robert W. Drewes, then deputy assistant secretary of the Air Force for Contracting; Brig. Gen. Donald R. Walker, director of Special Projects in the Office of the Secretary of the Air Force; and Col. Brent R. Collins, deputy director for Space Programs under the assistant secretary of the Air Force for Acquisition.

More Vital Than Ever

Planning and implementation of space acquisition reforms have been significant, according to the Air Force, because of the crucial role information will play in future wars. Spacebased communication is a key conduit for the rapid flow of information. The use of spacebased sensors is virtually the only way to gather information on a truly global scale.

The need for rapid global communication is not diminishing. If anything, said USAF officials, the end of the Cold War has made military satellites even more vital. The Air Force is now increasingly dispatched on missions for which it has not specifically planned, such as the 1994 humanitarian effort in Rwanda. When operators lack such basic information as the location of airstrips or

refugee populations, satellites become the only system that can be quickly called on to help the operators out.

The problem is that many current space systems were developed some twenty years ago and were produced in the early to mid-1980s, when procurement budgets were much fatter than they are today. These satellites will reach the end of their estimated service lives in five to ten years. Air Force officials pointed out that satellites, unlike aircraft, cannot be modified with a Service Life Extension Program in hopes of muddling through.

"Satellites fail," said General DeKok. "We are going to be forced to replace those systems when we don't have as much money. That is truly a dilemma."

The Air Force could simply take a business-as-usual approach and plan to replace all of its 1980s-vintage satellites with similar systems sometime early in the next century. Unfortunately, that kind of modernization program would exceed planned budget levels by about \$2 billion per year. Air Force planners do not believe that the service will get funds to make up for that shortfall and believe they will have to find ways to make do with the money they have.

More than ever, Air Force officials plan to treat military space equipment as part of an integrated architecture—a "system of systems"—rather than a somewhat random collection

of parts. Elimination of MILSATCOM "stovepiping" could be one aspect of this new approach. Another is integration of all US government space capabilities.

For years, the Department of Defense and the National Oceanic and Atmospheric Administration have

By Peter Grier

flown separate, similar, polar-orbiting meteorological satellites. The time has come, according to Air Force officials, to merge these programs and achieve economies of operation. Eventually, they said, the US will end up with two government-owned satellites and one European satellite as part of its polar orbiting mix.

"Those kinds of things are going to happen more and more," said General DeKok.

Explosive Growth

Air Force officers reported that the US military also must take advantage of the explosive growth of space systems in the commercial sector. To some extent, this already has begun to happen. For example, instead of building its own multispectral imaging satellite, the Pentagon chose to rely on the commercial Landsat system, becoming its largest customer.

The next step will be to begin using private space communications. Such firms as Motorola and TRW are spending large sums to put up their own constellations of communications satellites. "It really is an information sphere out there that is emerging," said General DeKok, who added that the Pentagon "has not yet accommodated to what is occurring in the commercial community."

The Air Force believes that the United States military must not only take advantage of commercial products but that it also must continue to

surpass them, which is not an easy task. Still, it must be done, said General Ashy, because "our adversaries will take advantage of what's available on the world market."

From the viewpoint of someone who operates space systems, the first step toward effective acquisition is to make a clear and coherent statement of the purpose of a new military purchase, said General Ashy. The goal of US Space Command and Air Force Space Command is to make space support for warfighting forces routine.

Reaching that goal will become more and more difficult if Air Force officials have to deal with satellites or sensors whose purpose was not well defined at their start. The requirements process thus becomes key, the General remarked. Everyone involved—contractors, commercial suppliers, acquisition officials, and users—must work together to define key objectives.

"One thing that you can't forget is that when you establish the objectives and key parameters, you need to think in advance on how you are going to test them," said General Ashy. Each requirement should be accompanied by a short explanation, he said.

US Space Command recently finished a new requirements document, based on these principles, for the proposed Spacebased Infrared (SBIR) system. It also produced a request for proposal for the Evolved Expendable Launch Vehicle (EELV), a document that has been well received by contractors and the Pentagon, said General Ashy. The EELV document can be easily obtained from electronic bulletin boards. It is short on military specifications and long on clear statements of objectives.

"We need a responsive acquisition process," General Ashy continued. "It has got to start with the operator, who works as a team member of a teams-within-a-team [process] to start with a clear, attainable requirements document."

From "Reform" to "Renaissance"

Air Force officials claimed that overall acquisition reform is finally making some progress after years in which there was much talk and motion but not a great deal of accomplishment. The word "reform" is itself beginning to be heard less often.

In its place, many in the acquisition world are now using milder terms, such as "renaissance."

"We are getting down to talking about new ideas in ways that make sense, not worrying so much about just the laws," said General Drewes, the deputy assistant secretary of the Air Force for Contracting.

The requirements determination process has been given a new focus by the Air Force Requirements Oversight Council, said General Drewes. The move away from milspecs and the reduction of paperwork have succeeded. For some programs, officers once had to provide twenty-two volumes of paperwork for a major Defense Acquisition Board review. Now, the DAB review requires only four volumes.

Hand in hand with paperwork reduction, "you have fewer people who have an opportunity to really meddle in a program as it is going through its wickets," said General Drewes.

Air Force officers told the Colorado conference that purchase of off-the-shelf items is now producing big savings. Examples, large and small, abound. A commercial spectrum analyzer costs \$23 million less than a counterpart system built to military standards. Power transistors for the Joint Direct Attack Munition cost \$25 apiece when ordered under milspecs but only \$4.05 when bought commercially.

For many military acquisition officers, the commercial market is far more chaotic than anything they have experienced. Compared to the usual dealings with defense contractors, negotiations are more difficult and there is less leverage. "What we have to do is to raise a generation of folks who understand these commercial marketplaces well enough to be able to successfully represent the Air Force interest in them," said General Drewes. "Right now, it is pretty spotty."

Furthermore, the acquisition "renaissance" is running counter to the trend toward stricter financial accounting rules in the Department of Defense. General Drewes said that Pentagon officials are being forced to get tougher on how money can be spent, and those rules are interfering with the ability of the Air Force to operate in the fluid, fast-moving commercial area.

"We don't have the flexibility to

have long, drawn-out negotiations because people are nagging us about our obligation rates," said General Drewes.

What is really needed, the officers agreed, is stable funding. If program directors knew years in advance what their budgets would be, they could commit to long-term contracts, establish stable relationships with contractors, and, in general, run tighter, more efficient program ships.

Only Nibbling

"Multiyear funding would offer tremendous strides for us in doing business in a smarter kind of way," said General Drewes. "We are nibbling at that, but we have a lot of work yet to be done."

General Walker dealt with the subject of acquiring small quantities of high-tech satellite systems, a process he said could be used to help show young officers the way to carry out a major program.

"We are very high on delegating responsibility," General Walker said. "It is not uncommon for very junior-level people—captains—[to be] directors of engineering and acquisition on satellite systems. There is a need to do small satellite acquisitions because that is a place where you can train your young people and there is less risk."

He went on, "If you are dealing with a billion-dollar satellite, you don't want to put a neophyte in charge of it. On the other hand, if you're dealing with a smaller satellite, it gives an opportunity to learn the trade."

General Walker talked of the Air Force's being in a "box" when it comes to satellite acquisition. "The box that I get into is that, as we get larger and larger satellites, we become more and more risk-averse," General Walker said. "We have more and more people depending on them; the consequences of failure become greater and greater. We need to look at different paradigms—to say, 'Little satellites only do little jobs, but perhaps large constellations of little satellites can do big jobs.' We need to keep on looking at that kind of

technology, where it is, whether it is affordable, what are the risks."

Acquisition is down, but, as the upcoming SBIR and EELV projects demonstrate, the Air Force is not totally lacking major space development projects, despite the budget cuts of recent years. "We've got as much development going on today in Air Force space programs as we ever have," said Colonel Collins, deputy director for Space Programs, under the assistant secretary of the Air Force for Acquisition.

The SBIR, for its part, is intended as a follow-on to the Defense Support Program satellites. It incorporates four areas of spacebased infrared activity: missile warning, ballistic missile defense, intelligence support, and space surveillance. Plans call for producing geosynchronous and other types of orbital satellites in the SBIR constellation, with a deployment decision in 2000.

SBIR has become a prototype for testing some of the Pentagon's theories about ways acquisition might be speeded up. For one thing, the integrated product team overseeing SBIR has both DoD and Air Force acquisition personnel as members. This greatly eased the way in communication and review sessions and helped cut preparation for the DAB review from the normal 180 days to only sixty-two days.

SBIR program officers have strictly limited the use of milspecs. They have tried to tell contractors what their high-level requirements are without attempting to control subsystem specifications. These and other reforms have contributed to a reduction in the program's cost estimate by some \$300 million. In addition, "we were able to move the initial launch capability from 2004 to 2002," said Colonel Collins.

Private Sector is Crucial

Similarly, the EELV is being developed by an integrated product team comprising Pentagon, USAF, and commercial-sector members. Here, the involvement of the private sector is particularly crucial: Pentagon officials expect that EELV will

not only satisfy the needs of the military but also help US industry bolster its competitive position in the world space-launch market. Payload specifications, among other things, are being developed with the participation of the commercial sector.

The Milstar communications satellite is now up and running as an operational system, but the Air Force continues with lower-level development efforts. A review of Milstar development shows that acquisition reform yielded \$236 million in savings on the program, according to Colonel Collins. Control of specifications and a reduction in inspections were significant contributors to cost reduction.

"You don't have to have government inspectors there . . . to witness and certify [the service's] test and verification at the subsystem and component level," said Colonel Collins.

The Global Positioning System is now at its final operational capability, with twenty-four satellites in orbit. Plans call for equipping ninety-four percent of all Air Force aircraft with GPS reception capability by 2000. As the military becomes more dependent on GPS navigation, the Air Force is studying new ways of protecting GPS signals from jamming. It is also developing GPS follow-on satellite launches for 2002.

Handheld GPS receivers are yet another acquisition reform success story, in the eyes of the Air Force. Original estimates held that these items would cost some \$3,500 apiece. By reducing military specifications, however, and taking better advantage of commercial development, the cost went down to \$1,200. "We expect a continuing reduction in that price," said Colonel Collins.

Development of space systems is now supposed to take place under the auspices of the deputy under secretary of defense for Space. The new under secretary will oversee activities of a DoD space architect office, which will work directly under the Air Force acquisition executive.

The Pentagon space architect's office is intended to serve as a complement to the existing intelligence community space architect post. "At some time in the future, we will bring those two organizations together to create a national security space architect," concluded Colonel Collins. ■

Peter Grier, the Washington bureau chief of the Christian Science Monitor, is a longtime defense correspondent and regular contributor to Air Force Magazine. His most recent article, "The Comeback of CRAF," appeared in the July 1995 issue.

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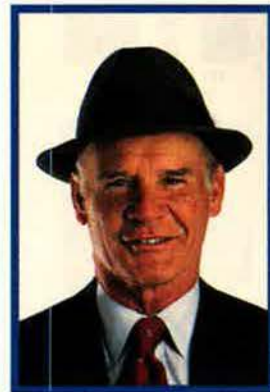
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The 33d Squadron has been named the Academy's outstanding squadron for the second year running.

A Repeat for the Ratz

By James A. McDonnell, Jr.

IN 1994, the 33d Squadron at the US Air Force Academy won the AFA Outstanding Squadron Trophy for the first time in the unit's history. Having found the key to success, in 1995 the 33d—known as “the Ratz”—became one of the few squadrons ever to win in consecutive years.

Fall Squadron Cadet Commander R. Bryan Christensen told the 500 guests at the thirty-sixth annual black-tie salute dinner that when the Ratz began the school year, “Our goal was not to . . . win the trophy again, [but to] do our absolute best at everything we do.”

Doing their best, Cadet Christensen continued, meant emphasizing teamwork. “The synergistic effect of teamwork has made all the difference in our performance at the Academy, and it will, we know, have far-reaching effects for years to come.”

The dinner, sponsored in cooperation with AFA's Colorado Springs/Lance Sijan Chapter, recognizes one of the Academy's forty squadrons as the best, based on military, athletic, and academic achievements.

In all three areas, the 33d was active and successful. Six of the fourteen intramural sports teams fielded by the squadron went to the Wing Finals—a truly amazing statistic. Throughout the year, squadron members were among the leaders in overall academics. One way they got there was by devising a mentoring system and actively working it. Fifty percent of their fourth class made the Dean's list. All year, they placed consistently among the top three squadrons in military-related endeavors and in August achieved number one in marching.

It all came back to teamwork, noted Academy Superintendent Lt.



Fall Cadet Squadron Commander R. Bryan Christensen (left) and Spring Commander David J. Abrahamson (second from right) receive congratulations from AFA President R. E. Smith (right) and Gen. Ronald W. Yates.

Gen. Paul E. Stein. “This squadron was the example for the entire cadet wing of teamwork at its best—the one intangible that allows the Air Force and the military to get the job done. Effective teamwork doesn't happen by accident,” he continued. “It's a function of outstanding leadership . . . leadership that nurtures commitment, motivates extra effort, and inspires excellence.” The 33d filled that description perfectly.

Gen. Ronald M. Yates, commander of Air Force Materiel Command who retired in June after thirty-five years on active duty, was this year's traditional “returning graduate.” He, too, saluted the squadron for its exceptional teamwork and pointed out how his Academy experience prepared him for his Air Force career. He then noted the importance of the balanced education cadets receive

in liberal arts, physical sciences, and engineering. “You must understand Air Force technology, and you must understand how to communicate—orally and in writing.” He concluded, “Most importantly, what you learn in your formal education at the Academy is to learn how to learn.”

There is little doubt that the 33d incorporated all these elements into its learning during its winning year. Pointing out the lessons the squadron learned, Cadet Christensen quoted former Chairman of the Joint Chiefs of Staff Gen. Colin L. Powell, “Success is the result of hard work, learning from failure, loyalty to those for whom you work, and persistence. You must be ready for opportunity when it comes.”

In 1994 and 1995, the Ratz were ready. ■



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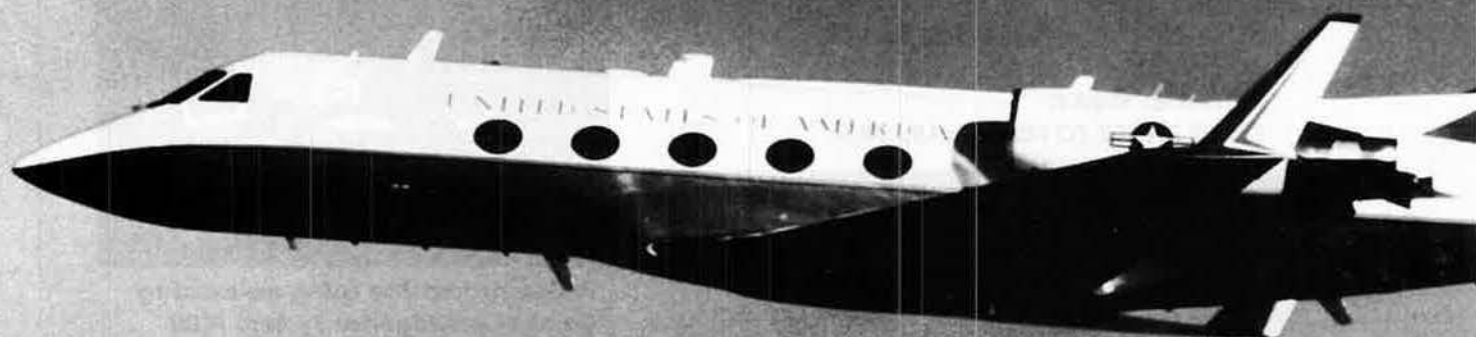
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By John L. Frisbee, Contributing Editor

Beating the Luftwaffe's Best

How a B-26 straggler, its pilot critically wounded, survived repeated attacks by Luftwaffe jet fighters.

APRIL 20, 1945, promised to be a good day for twenty-year-old 1st Lt. Jim Vining, a B-26 aircraft commander of the 323d Bomb Group based at Valenciennes in northern France. The forty-eight crews that were to bomb marshaling yards at Memmingen in southwest Germany had been briefed to expect no opposition from Luftwaffe fighters and little if any flak. Allied armies were closing in on Berlin; German surrender could be only days away.

Lieutenant Vining had flown his thirty-ninth mission—a milk run—the previous day. Today's strike had the earmarks of another. He could not know that he was to become the central character in one of the most unusual but little-noted dramas of World War II.

Jim Vining was assigned a war-weary B-26 borrowed from another squadron. By the time it was ready to roll, the bomber stream had disappeared to the southeast. He would have been justified in aborting, but that wasn't Vining's style. At max cruise, he caught up with the formation as it crossed the Rhine. There, the benign operational briefing began to break down. The bombers were greeted by heavy flak. When they turned north at Kempten on a bomb run to Memmingen, they were attacked by some twenty Me-262 jet fighters, each armed with four 30-mm cannon firing explosive shells.

Three of the German jets attacked Vining's flight leader, the third coming so close that part of its tail was chewed off by the flight leader's right propeller. As the -262 flashed past Vining, he broke from formation and opened fire with his four forward-firing .50-caliber guns, scoring hits before the jet dove away. Vining pulled back into formation and immediately was hit by a fourth -262 that had come up from behind. The Lieutenant felt what he describes as "a

slight sting" in his leg. Looking down, he saw his right foot dangling by a shred of skin, blood gushing from the severed artery. Simultaneously, the right engine went to idle, and the B-26 rolled sharply to the right.

Before attempting to stanch the flow of blood from his severed foot, Vining helped his copilot, Lt. Jim Mulvihill, roll the wings level. He then feathered the right prop, trimmed the plane for one-engine flight, and signaled the bombardier to jettison the bomb load. Only then did Vining use both hands to compress the pressure point behind his right leg to slow the flow of blood.

Now a straggler, Vining's B-26 was attacked by several Me-262s coming in from all directions and turning violently to avoid each other. Though gradually weakening from shock and loss of blood, he continued to act as aircraft commander, telling his copilot when to break to spoil the enemy attacks and drive them away.

Ten minutes later, three enemy jets returned. Vining continued to direct his crew's defense. Thanks to his split-second tactical assessments, the jets scored no hits on the B-26. During the two engagements in which his gunners believed they shot down four -262s, Vining gave his copilot, who had come to the group directly from pilot training with no B-26 transition, a cram course on how to get the bomber safely on the ground.

Vining did not believe he would survive, but he was determined to save the crew. He told them to set course for Trier, the nearest field that could handle a single-engine landing flown by a copilot whose controls did not have brake pedals.

During its engagements with the -262s, the B-26 had been forced down to less than 3,000 feet. When the last of the enemy fighters left and waist gunner TSgt. N. C. Armstrong had applied a tourniquet to Lieutenant Vining's leg, they were near Stuttgart. Vining knew they could not clear the mountains bordering the Rhine. The crew refused to bail out and leave him to die in the inevitable crash. He told copilot



Despite severe injuries, Jim Vining tried to save his crew.

Mulvihill to find a suitable field and prepare to belly in, but first bombardier SSgt. J. D. Wells had to get out of the nose. That required the copilot to slide his seat back, out of reach of the controls, to give Wells access to the flight deck.

While that was being done, Vining took control of the B-26 and flew a 360° turn to the left before losing consciousness. The belly landing, with flight engineer TSgt. Paul Yates assisting Mulvihill, would have been successful had it not been for an unobserved tank trap. When the B-26 hit the trap, it broke up, killing the top turret gunner, SSgt. Bill Winger, and critically injuring Wells.

By coincidence, they had landed beside a hospital train whose medics gave them emergency care. Vining, near death from loss of blood, was rushed by Jeep to an Army hospital at Metz, three-and-a-half hours away. Both he and Wells survived.

Lieutenant Vining was awarded the Silver Star for extraordinary heroism that April day fifty years ago. Copilot Mulvihill received the Distinguished Flying Cross. Vining was promoted to captain, retired for physical disability, and completed graduate school. Later, he spent thirty years with the CIA before retiring in the Washington, D. C., area, where he continues to fly. As the saying goes, you can't keep a good man down. ■

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Information managers are AFA's 1995 Team of the Year.

Their Business Is Information

THE FIVE members of the 1995 Air Force and Air Force Association Team of the Year, all information managers, performed work that was critical to the smooth functioning of their units. By applying their skills and expertise, they helped strengthen the data connection that sustains today's modern Air Force at every echelon.

Each of the winners was deemed outstanding contributors to his or her unit in a wide range of administrative capacities.

■ **SrA. Jo Paulla Baca**, an information management journeyman with the 353d Special Operations Group at Kadena AB, Japan, administers the local area computer network, for which she initiated her own training. While on deployments at other bases, she trained local communications operators to use new types of software and designed a quick reference guide for their use. Her supervisors report that she significantly improved correspondence control and increased office efficiency.

■ **MSgt. Catherine A. Brean** (now assigned to Edwards AFB, Calif.) was the chief, Laboratory Support Information Management, for the Air Force Technical Applications Center's Technical Operations Division/Laboratory Support at McClellan AFB, Calif. In that position, she managed the administrative closure of an office, helping to preserve historically significant items and ensuring economical reuse of other items. In addition, she almost single-handedly developed administrative services for a new organization.

■ **SrA. Lewis G. Robinson III** is an information management journeyman now assigned to the Air Force



At the reflecting pool in the nation's capital poses the Team of the Year (left to right): MSgt. Catherine A. Brean, SSgt. Mark A. Seelbaugh, SrA. Lewis G. Robinson III, SrA. Jo Paulla Baca, and SSgt. Kathy M. Williams.

Flight Standards Agency at Andrews AFB, Md. He previously worked at Air Mobility Command, Scott AFB, Ill. While at AMC, he prepared an Enlisted Professional Preparation Guide for AMC's Senior Enlisted Advisor. The guide became a command pamphlet used by 46,000 enlisted service members. In addition, he coordinated efforts to provide administrative support for a USAF-wide conference hosted by the Air Force Flight Standards Agency.

■ **SSgt. Mark A. Seelbaugh**, assigned to Air Force Materiel Command at Wright-Patterson AFB, Ohio, served as NCO in charge of publications storage and distribution policy and now works in the command's Communications Directorate. As the project manager for a new state-of-the-art warehousing and inventory

control system, he demonstrated to Air Force leaders new types of computer tools designed to produce significant savings and streamline operations. He also drafted the AFMC concept of operations for electronic publishing.

■ **SSgt. Kathy M. Williams** is the NCO in charge of the Aerospace Defense Operations Information Management Division at North American Aerospace Defense Command, Peterson AFB, Colo. Sergeant Williams developed an administrative action officer handbook, which her supervisors report has significantly improved unit efficiency. In addition, Sergeant Williams evaluated and rewrote job descriptions and developed computerized tools that have led to an increase in unit effectiveness. ■

AFA and the Air Force recognize award winners for their accomplishments in 1994.

An Elite Eight

Power Award

Best Strategic Missile Combat Crew

1st Lts. (from left) Robert Vercher and Andrew Kovich earned Superior Performer honors during Air Force Space Command's 1994 Nuclear Surety Inspection, helping to garner them the award as USAF's best missile crew for 1994. Their performance at Guardian Challenge—being named Best Minuteman Command Data Buffer/Peacekeeper Crew and Best Missile Crew—helped their unit, the 742d Missile Squadron, win the Blanchard Trophy for the first time. They also produced and reviewed group weapon system training scripts on their own time, avoiding a manning shortage in the 91st Operations Support Squadron Operations Training Flight.



Tunner Award

Best Air Mobility Aircrew

Despite nose gear and hydraulic problems, Capt. Robert Svetz's C-5 crew completed its high-profile, high-priority mission on time: transporting President Clinton to a meeting of world leaders in Jakarta, Indonesia. But their mission did not end there. The 22d Airlift Squadron crew supported Operation Keen Edge at Andersen AFB, Guam, and returned safely to Travis AFB, Calif., after overcoming engine difficulties and an on-board fire and experiencing an earthquake in the Philippines. The crew: Captain Svetz, Maj. Donald Scherbinske, 1st Lt. Joel Miller, SMSgt. Otto Jean, TSgt. Khris Kennedy, TSgt. Tim Ritz, SrA. Robert Deluca, SrA. Thomas Preast, SSgt. Jeff Rutter, TSgt. James Mueller, TSgt. Michael Roe, SrA. Louis Szbados, and SrA. Lonnie Darvell.



Space Operations Award
Best Space Unit

Global Positioning System Centurion Flight, 2d Space Operations Squadron, Falcon AFB, Colo., has set a record of 5,327 error-free satellite flights in its mission of maintaining and running the world's largest navigation system. Also in 1994, the flight supported Operations Restore Hope, Uphold Democracy, and Provide Comfort, overcoming shortfalls in GPS receiver availability. The crew: A1C Thomas Arns, A1C Michael Cronis, 1st Lt. Kevin Westburg, TSgt. Eugenio C. Camacho, SrA. William Greene, Capt. Mark Dahle-Melsaether, Capt. Steven Gottschalk, and Capt. Michael Stern and (not pictured) Capt. James Cashin, 1st Lt. Fred Janack, 1st Lt. Lisa Alberts, and SSgt. Timothy Ridgely.

Hoyt Award
Best Air Refueling Aircrew

A 905th Air Refueling Squadron crew's cool response in a crisis helped save 1st Lt. James Flattery's life. His crewmates' refusal to panic kept the annual proficiency evaluation of Lieutenant Flattery, a KC-135 navigator, from turning deadly. The crew, from Grand Forks AFB, N. D., was almost through the navigation leg of the sortie when instructor pilot Capt. Mark Lane noticed all was not right with Flattery—fixed stare, clenched teeth, ashen face. He was clearly experiencing a seizure. Captain Lane told instructor boom operator SSgt. Gregory Smith to administer oxygen, but Flattery soon stopped breathing. Lane, Smith, and instructor navigator Capt. Michael Parlow got him out of his seat, and Lane began mouth-to-mouth resuscitation. Aircraft commander Capt. Todd Hoppe and command pilot Capt. Adam McLean diverted to Ellsworth AFB, S. D., and made sure a rescue team and ambulance were waiting. Flattery survived. The crew: Captains Hoppe, Lane, and McLean and (not pictured) Captain Parlow and Sergeant Smith.



Crew Chief of the Year
USAF's Top Crew Chief

Nobody is perfect, but TSgt. Christopher A. Hargis, a dedicated crew chief with the 494th Fighter Squadron at RAF Lakenheath, UK, came awfully close in 1994, helping his squadron's F-15Es achieve a 97.3 percent fully mission capable rate, well above USAFE's standard of seventy-five percent. In support of Operation Provide Comfort, his unit deployed to Incirlik AB, Turkey, and flew twenty-four missions while maintaining a 100 percent fully mission capable rate. Sergeant Hargis's leadership led to the squadron's receiving 3d Air Force's Maintenance Effectiveness Award for 1994.



O'Malley Award
Best Reconnaissance Crew

Because USAF has few RC-135s and their ability to deliver reconnaissance data is prized, Cobra Ball crews spend a lot of time traveling. This composite crew from the 45th Reconnaissance Squadron and the 97th Intelligence Squadron flew from Offutt AFB, Neb., to Diego Garcia (twice), Shemya and Eielson AFBs, Alaska, Misawa AB, Japan, and NAS Souda Bay, Greece, gathering important intelligence data on each mission. The crew: (standing) MSgt. David Hardy, Capt. Geoffrey Pokorny, SSgt. Steven Klamon, Capt. Thomas Floring, SSgt. Gregory Higgins, and Capt. Gregory Topps and (kneeling) Capts. Brent Bigger and Alvin Brunner, SSgt. David Parker, 1st Lt. Steven Biggs, and SSgt. Roger Allen and (missing) Capts. Mitch Berger, Richard Chambers, and Steven Warrior, TSgt. Dale Caldwell, and SSgt. Sherolyn Hallmark.

LeMay Award
Best Strategic Aircrew

Crew R-26, 9th Bomb Squadron, Dyess AFB, Tex., broke new ground when it served as lead crew for Central Enterprise sorties in Europe. Central Enterprise is a European exercise combining NATO and French strike forces. Crew R-26 achieved a ninety-six percent mission capable rate with its B-1B in the Lancer's first participation in Central Enterprise. The crew also had to make an emergency ground egress after an electrical malfunction during a Red Flag sortie, saving the crew and the aircraft. R-26 also racked up 2,953 out of 3,000 possible points in Proud Shield 1994, earning top aircrew honors. The crew: Capts. Karl Shawhan, Mark Schlichte, Mark Wheelhouse, and Steven Ramer.



Chennault Award
Best Aerial Warfare Tactician

Maj. Arnold Balthazar of ANG's 199th Fighter Squadron, Hickam AFB, Hawaii, is an innovative thinker whose development of new tactics and testing techniques has enhanced the capabilities of the F-15. Major Balthazar pioneered tactics to incorporate the use of night vision goggles into AIM-120 Advanced Medium-Range Air-to-Air Missile employment. His efforts also resulted in the first night missile shots of the AIM-120, AIM-7, and AIM-9 missiles by pilots wearing NVGs. He has also worked closely with the Space Warfare Center to use space assets to bring real-time targeting and command-and-control data directly to the cockpit.



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The 1994 ANG and AFRES award winners showed their strengths both at home and abroad.

On the Road With the Guard and Reserve

President's Award Outstanding AFRES Crew

When a routine airlift mission turned into an emergency rescue, Capt. David Kratzer and his crew successfully evacuated seventy-nine US and foreign nationals from the ravages of Rwanda's civil war. While on Crete for an airlift mission in April 1994, the 315th Airlift Wing crew from Charleston AFB, S. C., was ordered to Mombasa, Kenya, to await the go-ahead for an evacuation of the seventy-nine. Within hours, the crew had downloaded cargo, re-fueled the C-141, and loaded supplies. Once airborne, they were diverted to Burundi, where they made a night landing at an austere airstrip, waited overnight, picked up the evacuees, and flew them to Kenya. The crew: Captain Kratzer, copilot 2d Lt. Jerry Duke, loadmaster SSgt. Emory Nix, flight engineer TSgt. Michael Bishop, and (not pictured) instructor flight engineer MSgt. Keith Schell, loadmaster TSgt. Allen Newhart, and flight engineer SSgt. Michael Reichenbach.



Earl T. Ricks Award Outstanding Airmanship in the ANG

Capt. Gregory Carr and his 166th Airlift Group crew from New Castle, Del., also had to cope with the unexpected far from home. While at Soto Cano AB, Honduras, in support of a Coronet Oak exercise, Captain Carr and his crew took off in their C-130H, carrying a high-priority cargo. Immediately after takeoff, he realized he had lost ninety percent of aileron control and attempted an emergency landing. A first attempt was aborted after a near collision with the rugged terrain. With the aid of his copilot, navigator, and loadmaster, Captain Carr began running down the emergency procedures checklist. After twelve minutes, despite complete loss of aileron control, the crew guided the aircraft safely back to base. From left: loadmaster SSgt. William Wilmer, Captain Carr, copilot 2d Lt. Todd Waggoner, engineer SSgt. William Darnell, and navigator Maj. Lawrence Wooding.



Outstanding Reserve Unit

The 512th Airlift Wing crews from Dover AFB, Del., flew fifteen Operation Southern Watch missions to Kuwait and Saudi Arabia in response to threatening actions by Iraq in October and November 1994. They flew fifty-one other missions to southwest Asia and also flew to Haiti and NAS Guantanamo Bay, Cuba. They supported the Rwandan relief effort and flew Deny Flight missions to Aviano AB, Italy. The 512th AW participated in AMC Rodeo, its maintenance team placing first among C-5 teams and its 512th Security Police Squadron placing first among Reserve teams in Combat Tactics. The 512th extended its exemplary safety record, surpassing 162,000 accident-free flying hours during its twenty-first consecutive year without an accident.

Chief Red Award

Outstanding Aerospace Maintenance

As aircraft maintenance manager for the 147th Fighter Group at Ellington Field, Tex., CMSgt. Robert Heinrich can point to many accomplishments. In his role as exercise evaluation chief for operational readiness exercises, he helped transform his F-16 unit into one that earns consistently excellent ratings from Air Combat Command headquarters. While at the ANG Readiness Center during Operation Desert Storm, he ensured that fuel tank buildup assets were positioned at fighter sites and coordinated ANG unit responses. He has also coordinated the unit's smooth transition from F-4s to F-16s.



Outstanding Guard Unit

Also on the road during 1994 was the 193d Special Operations Group, Harrisburg IAP, Pa., which played a vital role in the attempt to restore democracy in Haiti. For 103 days, the unit attempted to deter boat people fleeing the island nation, using its EC-130E "Commando Solo" aircraft to broadcast the message to stay on the island. With three aircraft, four crews, and 100 personnel in two-week rotations, the 193d SOG flew 107 sorties and almost 900 flight hours. On its first day of operations, 2,900 Haitians in forty-six boats were picked up. Within a month, interdictions had virtually ceased.



National Report

AFA President Makes Capitol Hill Visits to Address Budget Issues

AFA President R. E. Smith conducted a series of meetings on Capitol Hill during August as members of Congress were considering issues ranging from the B-2 bomber to access to child care.

Smith urged Rep. John Mica (R-FL) of the Government Reform and Oversight Committee and Rep. Lorie Evans (D-IL), who serves on both the Veterans' Affairs and National Security Committees, to protect the military retirement system from a further erosion of benefits. He argued that the reduction of retirement benefits hurts recruiting and retention and violates the contract between the nation and its military members.

AFA's president also spoke strongly in favor of a bill that assures the viability of the Army, Navy, Marine and Air Force Reserves. He consulted with both Rep. Greg Laughlin (R-TX), the bill's sponsor, and Rep. Sonny Montgomery (D-MS), a strong proponent of Guard and Reserve forces.

Smith also underscored the importance of child care centers to Air Force members during several visits, including one with Rep. Pat Schroeder (D-CO) of the National Security Committee. He pointed out that more Air Force members have families than ever before, and adequate child care is an important readiness issue.

The B-2 bomber faced several critical votes during the summer in the House. During all of his visits, Smith argued forcefully for continued production of the B-2 stealth bomber, citing its extraordinary range, payload, and



AFA President R. E. Smith (right) poses with Rep. Greg Laughlin (R-TX), who is sponsoring the Reserve Forces Revitalization Act of 1995 (H.R. 1646), which includes economic help for reservists and their employers, among other provisions.

survivability. That program is now slated to end at 20 aircraft and faces another critical vote after the August recess.

President Smith also met with Sens. John McCain (R-AZ), Trent Lott (R-MS), Thad Cochran (R-MS), Rep. Gene Taylor (D-MS), and staffers from the offices of Reps. Spencer Bachus (R-AL), William Jefferson (D-LA), and Sam Johnson (R-TX).

AFA Opposes Cuts to CAP and AFJROTC Programs

The Air Force Association has long been a strong supporter of a range of cadet leadership programs, including the Air Force Junior Reserve Officers Training Corps (AFJROTC), Air Force Reserve Officers Training Corps, Arnold Air Society, Angel Flight/Silver Wings, Air Force Academy cadets, and the Civil Air Patrol (CAP).

Two of these programs have come under attack recently during the congressional budget process—CAP and AFJROTC. AFA strongly opposes any cuts to these worthwhile programs. In fact, AFA is working to expand them. The Association believes that both programs not only prepare young men and women for military service, but also are superb character-building and citizenship-development programs.

In addition to its cadet program, CAP is involved in a wide range of activities performed by highly qualified, dedicated volunteers. Last year, CAP flew 85 percent of the inland search and rescue missions in the United States and was credited with saving 154 lives. In addition, CAP flew 32,000 hours of counterdrug missions. CAP's vast network of light aircraft and communications systems often are pressed into service during disasters, such as floods, earthquakes, and hurricanes. CAP also is credited with saving many lives through its organ and blood relief missions. CAP's missions are so important to the United States Air Force that it has been designated as the official auxiliary of the Air Force, the only organization to hold the title.

Like CAP, the AFJROTC program has been under the budget microscope. AFJROTC is now in 586 schools around the country and

is in the process of expanding. Local school districts bear a significant amount of the cost for these programs, often using bond issues to finance dedicated facilities for the program. If congressional cuts come about, current expansion plans will be canceled, 83 units will be closed, and 9,000 students will be denied the opportunity of participating in this dynamic program.

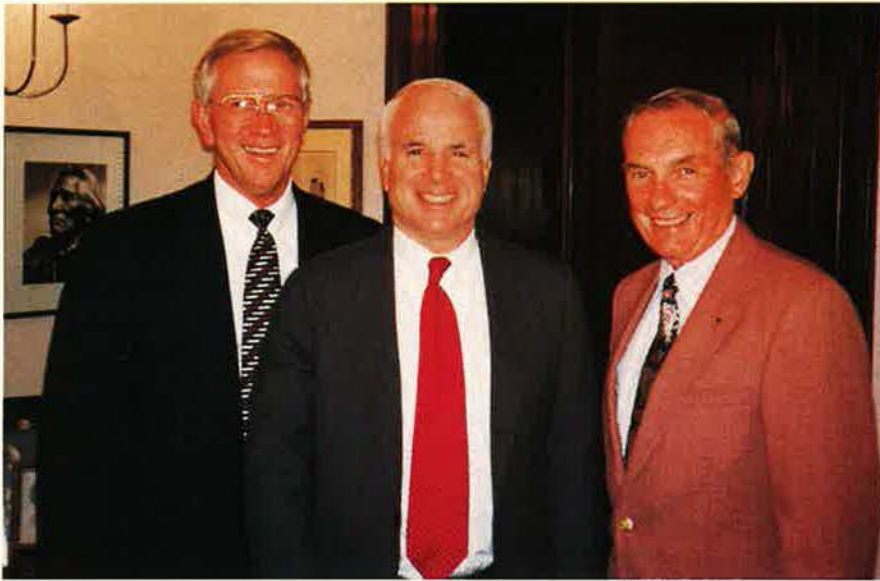
AFA urges all members to support these programs locally and nationally. Encourage cadets and their leaders to be involved in all of your state and chapter activities. And, most importantly, take time to write to your elected representatives to let them know you believe these programs are a sound investment that will pay rich dividends in the future.

New AFA Fax Service

AFA has initiated a new 24-hour-a-day fax broadcast service to better serve its members. The service leads the caller through a series of prompts and then faxes selected documents directly to the fax number the caller specifies. The documents and information available are listed on an index. To use the service and to order the index, please call (800) 232-3563.



By Frances McKenney, Assistant Managing Editor



AFA President R. E. Smith (left) and Chairman of the Board James McCoy (right) met with Sen. John McCain (R-Ariz.) on Capitol Hill in August. The AFA leaders also discussed defense issues with Sens. Trent Lott (R-Miss.) and Thad Cochran (R-Miss.) and several representatives.

Honoring a Chief

The late Richard D. Kisling served as the third Chief Master Sergeant of the Air Force, from October 1971 to September 1973, and the **Montgomery (Ala.) Chapter** is working hard to ensure that his achievements are remembered.

The chapter and several other organizations have been planning a life-size bronze statue of Chief Kisling for permanent display at the Air Force Senior NCO Academy, Maxwell AFB, Gunter Annex, Ala.

Chief Kisling was "the GI's man in Washington," Montgomery Chapter President Roy Boudreaux said. There are many other USAF-related monuments at Maxwell AFB, he pointed out, "but at Gunter there was a void." Sculptor John Lajba of Omaha, Neb., is creating the statue.

Chief Kisling has an Air Force Association chapter in his home state of Iowa, as well as a USAF NCO Academy at Kapaun AS, Germany, named in his honor.

The **Montgomery Chapter** also recently presented the Douhet-Mitchell International Airpower Award to ANG

Lt. Col. Michael W. Corbett. The award, sponsored by the chapter and the Order Sons of Italy in America, is given for professional writing at the Air War College at Maxwell AFB, Ala. Chapter Vice President for Government Relations Rod Payne made the presentation.

A Full Day in Key West

In June, **John W. DeMilly, Jr. (Fla.), Chapter** members toured Air Force units in Key West, Fla., and presented Airman of the Quarter awards to four 23d Intelligence Squadron members.

The day began with a visit to the 23d IS's headquarters at Truman Annex, where they were hosted by Squadron Commander Lt. Col. Robert Butler and MSgt. Lou Case.

The chapter members then visited the Florida ANG's air defense detachment at its temporary location at NAS Key West at Boca Chica. Maj. Jim Firth, operations officer for Detachment 2, 125th Fighter Group, briefed the visitors on the unit's mission and took them on a tour of the Alert Support Facility.

At the Special Forces Underwater Operations School, Lt. Col. Jose Olivero and Sgt. Maj. Tony Bell guided chapter members around Fleming Key, where combat divers from all services receive training.

The day's activities concluded with an outdoor ceremony on Florida Bay, where Amn. Yvonne M. Price was named Airman of the Quarter, TSgt. Scott A. Van Voorst and MSgt. Gregory A. Davis were named NCO and Senior NCO of the Quarter, respectively, and Capt. Edgardo Santiago received the Company-Grade Officer of the Quarter Award.

Camellia State Convention

Members of the **Birmingham, Gadsden, Mobile, Montgomery, and Tennessee Valley Chapters** welcomed Sen. Richard C. Shelby (R-Ala.) as keynote speaker for the 1995 Alabama State Convention in May. A member of the Senate Appropriations Committee, Senator Shelby told the audience that his legislative agenda focuses on support of our nation's air defense capabilities.

AFA National Secretary Mary Anne Thompson and AFA Director of Communications Steve Aubin attended the Executive Committee Business meeting, held in conjunction with the convention. Ms. Thompson presented information on planning and administering chapter activities, while Mr. Aubin highlighted the need for chapters to communicate with members and their communities.

Other special convention guests included military science students from Auburn University, Ala., and four AFA members who traveled from Louisiana for the activities.

Chapter News

"I think this is a great program," Gene Royer wrote enthusiastically. The **Fort Wayne (Ind.) Chapter** vice president (Communications) attended a JROTC activation ceremony at Wayne High School in June and was proud to note that the new program had seventy-three members last year and will have 110 this school year. Maj. Gen. Herbert J. Spier, Jr., ANG assistant to Air Education and Train-



An Air Force Association National Symposium

Annual Air Force Ball and Golf Day

Los Angeles Airport Marriott Hotel (310) 641-5700

October 27, 1995

The US Air Force Today and Tomorrow

This national symposium, now in its twentieth year, will provide extensive reviews of today's Air Force requirements and capabilities and projections on how they will evolve in the future in the context of changing national security conditions.

Invited participants include the Secretary of the Air Force and the Chief of Staff, as well as other Air Force leaders from the major commands.

The 24th Annual Air Force Ball

The twenty-fourth Annual Air Force Ball will also be held this year at the Los Angeles Airport Marriott. The theme for this year's black-tie affair is "Proud to Serve." We will honor those individuals who are now serving in the armed forces and those who have served. We will also recognize two individuals, one from the private sector and one from government, who have made significant advances in aerospace.

Air Force Symposium Golf Day

Please join us for the Air Force Symposium Golf Day, which will be held at the Los Alamitos Navy Golf Course on Thursday, October 26. Tee times will be from 11:00 a.m. to 1:00 p.m. Attendance is limited, so be sure to register early.

Registration Information

Symposium: The cost to attend the Symposium is \$275 for AFA members and \$325 for nonmembers. The registration fee includes a continental breakfast, refreshments, and lunch. Additional luncheon tickets are available at \$40 each. Call Elizabeth Smith at (800) 727-3337, extension 5838, or, for information twenty-four hours a day, call extension 2030.

Air Force Ball: For additional information on the Ball and to reserve tickets and/or a table, please call Henry Sanders at (310) 645-3982.

Los Angeles Marriott: Please identify yourself as an AFA member when you call the LA Marriott at (310) 641-5700 to make reservations at the special room rate of \$99 per night, single or double.



Remembering V-J Day, Rickenbacker (Ohio) Chapter members Warren Motts, Russell Stiteler, and Jack Reed (left to right) display an Army Airways Communications System radiogram of surrender instructions from Gen. Douglas MacArthur. Mr. Stiteler found the radiogram duplicate at an antiques show.

Medal, and Jamieen Izumi won the chapter's Cadet of the Year Award.

AFA cosponsors a Career Transition Workshop in Arlington, Va., this month. The program will cover job-search and career-assessment topics useful for military members moving into the civilian sector. A second workshop will take place in October, also in Arlington. Similar workshops may be offered at Air Force installations facing downsizing. For information, contact: AFA, Member Services Office, 1501 Lee Highway, Arlington, VA 22209-1198. Phone: (703) 247-5831 or (800) 727-3337. E-mail: MbrServAFA@aol.com.

Have AFA/AEF News?

Contributions to "AFA/AEF Report" should be sent to the Director of Volunteer and Regional Activities or to *Air Force Magazine*, 1501 Lee Highway, Arlington, VA 22209-1198. ■

Coming Events

September 8-10, **Utah State Convention**, Wendover, Utah; September 18-20, **AFA National Convention and Aerospace Technology Exhibition**, Washington, D. C.

ing Command, was keynote speaker for the ceremony. The cadets also toured the Air National Guard's 122d Fighter Wing facilities at Fort Wayne IAP, Ind.

An awards ceremony at Martin County High School, in Stuart, Fla., brought together more than 200 people to honor AFJROTC cadets. Cadet Commander Torrey Fenn received an AFA Medal presented by **Indian River (Fla.) Chapter** President Robert Stiastry during the ceremony.

The New Jersey State Convention in Absecon, N. J., "brought out AFA's heavy hitters," reported Martin T. Capriglione, state vice president. Convention attendees included State President Joseph M. Capriglione, National Vice President (Northeast Region) Allen G. Harris, National President R. E. Smith, National Director Robert L. Carr, and Lt. Gen. Malcolm B. Armstrong, then commander of 21st Air Force.

Indiana State Vice President Ted Eaton describes it as "an inactive chapter that had done very little in the last two years." Through the efforts of James A. Humbert, though, the **Falls Cities (Ind.) Chapter** has made a comeback. The chapter recently reorganized itself and elected new office-s, including Mr. Humbert, chapter president, and Earnest Headberg, secretary-treasurer. Mr. Eaton and Harold F. Henneke, National Vice President (Great Lakes Region) were among those at the reorganization meeting.

The **Colonel H. M. "Bud" West (Fla.) Chapter** listened to Brig. Gen. James L. Higham, vice commander of Air Force Special Operations Command, as guest speaker at its May meeting and honored two AFJROTC cadets. Curtis Pope received an AFA

Rep. Joe Scarborough (R-Fla.), at right, receives a plaque from Eglin (Fla.) Chapter's then President Michael J. Butchko after his speech at a chapter meeting. Congressman Scarborough is a member of the House National Security Committee.





AFA Units of the Year

YEAR	RECIPIENT(S)
1953	San Francisco Chapter (Calif.)
1954	Santa Monica Area Chapter (Calif.)
1955	San Fernando Valley Chapter (Calif.)
1956	Utah State AFA
1957	H. H. Arnold Chapter (N. Y.)
1958	San Diego Chapter (Calif.)
1959	Cleveland Chapter (Ohio)
1960	San Diego Chapter (Calif.)
1961	Chico Chapter (Calif.)
1962	Fort Worth Chapter (Tex.)
1963	Colin P. Kelly Chapter (N. Y.)
1964	Utah State AFA
1965	Idaho State AFA
1966	New York State AFA
1967	Utah State AFA
1968	Utah State AFA
1969	(no presentation)
1970	Georgia State AFA
1971	Middle Georgia Chapter (Ga.)
1972	Utah State AFA
1973	Langley Chapter (Va.)
1974	Texas State AFA
1975	Alamo Chapter (Tex.) and San Bernardino Area Chapter (Calif.)
1976	Scott Memorial Chapter (Ill.)
1977	Thomas B. McGuire, Jr., Chapter (N. J.)
1978	Thomas B. McGuire, Jr., Chapter (N. J.)
1979	General Robert F. Travis Chapter (Calif.)
1980	Central Oklahoma (Gerrity) Chapter (Okla.)
1981	Alamo Chapter (Tex.)
1982	Chicagoland-O'Hare Chapter (Ill.)
1983	Charles A. Lindbergh Chapter (Conn.)
1984	Scott Memorial Chapter (Ill.) and Colorado Springs/Lance Sijan Chapter (Colo.)
1985	Cape Canaveral Chapter (Fla.)
1986	Charles A. Lindbergh Chapter (Conn.)
1987	Carl Vinson Memorial Chapter (Ga.)
1988	General David C. Jones Chapter (N. D.)
1989	Thomas B. McGuire, Jr., Chapter (N. J.)
1990	General E. W. Rawlings Chapter (Minn.)
1991	Paul Revere Chapter (Mass.)
1992	Central Florida Chapter (Fla.) and Langley Chapter (Va.)
1993	Green Valley Chapter (Ariz.)
1994	Langley Chapter (Va.)
1995	Baton Rouge Chapter (La.)

Aerospace Education Foundation Officers

YEAR	PRESIDENT	CHAIRMAN OF THE BOARD
1961-63	—	Dr. W. Randolph Lovelace II
1963-64	John B. Montgomery	Dr. W. Randolph Lovelace II
1964-66	Dr. Lindley J. Stiles	Gen. Laurence S. Kuter, USAF (Ret.)
1966-67	Dr. B. Frank Brown	Dr. Walter J. Hesse
1967-68	Dr. Leon M. Lessinger	Dr. Walter J. Hesse
1968-69	Dr. L. V. Rasmussen	Dr. Walter J. Hesse
1969-71	Dr. L. V. Rasmussen	J. Gilbert Nettleton, Jr.
1971-73	Dr. Leon M. Lessinger	J. Gilbert Nettleton, Jr.
1973-74	Dr. Wayne O. Reed	George D. Hardy
1974-75	Dr. William L. Ramsey	George D. Hardy
1975-81	Dr. William L. Ramsey	Sen. Barry Goldwater
1981-84	Dr. Don C. Garrison	Sen. Barry Goldwater
1984-86	George D. Hardy	Sen. Barry Goldwater
1986-87	Eleanor P. Wynne	George D. Hardy
1987-89	James M. Keck	George D. Hardy
1989-94	Gerald V. Hasler	James M. Keck
1994-	Thomas J. McKee	Walter E. Scott

AFA's Network of Units Overseas

AFA UNIT	LOCATION
United States Air Forces in Europe (USAFE)	
Dolomiti	Aviano AB, Italy
Lufbery-Campbell	Ramstein AB, Germany
Spangdahlem	Spangdahlem AB, Germany
Pacific Air Forces (PACAF)	
Keystone	Kadena AB, Japan
Manila	Manila, the Philippines
Misawa	Misawa AB, Japan
Tokyo	Tokyo, Japan
Supreme Headquarters Allied Powers Europe (SHAPE)	
General Lauris G. Norstad	Mons, Belgium

Christa McAuliffe Memorial Award Winners

YEAR	RECIPIENT	SPONSOR
1986	Allen T. King	Fort Wayne-Baer Field Chapter, Ind.
1987	Betty Ann Mosen	Sacramento Chapter, Calif.
1988	John W. Barainca	Salt Lake Chapter, Utah
1989	Dr. Ben P. Millsbaugh	Mile High Chapter, Colo.
1990	Sue Ellen Darnell	Lexington Chapter, Ky.
1991	Melba Iris Harris	Mobile Chapter, Ala.
1992	Arthur I. Kimura	Hawaii Chapter, Hawaii
1993	Dr. Joseph E. Ciotti	Hawaii State AFA
1994	Carol Denicole	Central Florida Chapter, Fla.
1995	Barbara Walters-Phillips	Central Florida Chapter, Fla.

H. H. Arnold Award Recipients

Until 1986, AFA's highest Aerospace Award was the H. H. Arnold Award. Named for the World War II leader of the Army Air Forces, it is presented annually in recognition of the most outstanding contributions in the field of aerospace activity. In 1986, the Arnold Award was redesignated AFA's highest honor to a member of the armed forces in the field of National Security. It continues to be presented annually.

YEAR	RECIPIENT(S)
1948	Hon. W. Stuart Symington, Secretary of the Air Force
1949	Maj. Gen. William H. Tunner and the men of the Berlin Airlift
1950	Airmen of the United Nations in the Far East
1951	Gen. Curtis E. LeMay and the personnel of Strategic Air Command
1952	Sens. Lyndon B. Johnson and Joseph C. O'Mahoney
1953	Gen. Hoyt S. Vandenberg, former Chief of Staff, USAF
1954	Hon. John Foster Dulles, Secretary of State
1955	Gen. Nathan F. Twining, Chief of Staff, USAF
1956	Sen. W. Stuart Symington
1957	Edward P. Curtis, Special Assistant to the President
1958	Maj. Gen. Bernard A. Schriever, Commander, Ballistic Missile Division, ARDC
1959	Gen. Thomas S. Poyer, Commander in Chief, Strategic Air Command
1960	Gen. Thomas D. White, Chief of Staff, USAF
1961	Hon. Lyle S. Garlock, Assistant Secretary of the Air Force
1962	Dr. A. C. Dickieson and John R. Pierce, Bell Telephone Laboratories
1963	The 363d Tactical Reconnaissance Wing, TAC, and the 4080th Strategic Wing, SAC
1964	Gen. Curtis E. LeMay, Chief of Staff, USAF
1965	The 2d Air Division, PACAF
1966	The 8th, 12th, 355th, 366th, and 388th Tactical Fighter Wings and the 432d and 460th Tactical Reconnaissance Wings
1967	Gen. William W. Momyer, Commander, 7th Air Force, PACAF
1968	Col. Frank Borman, USAF; Capt. James Lovell, USN; and Lt. Col. William Anders, USAF, Apollo 8 crew
1969	<i>(No presentation)</i>
1970	Apollo 11 team (J. L. Atwood; Lt. Gen. Samuel C. Phillips, USAF; and astronauts Neil Armstrong, Col. Edwin E. Aldrin, Jr., USAF, and Col. Michael Collins, USAF)
1971	Dr. John S. Foster, Jr., Director of Defense Research and Engineering
1972	Air Units of the Allied Forces in southeast Asia (Air Force, Navy, Army, Marine Corps, and the Vietnamese Air Force)
1973	Gen. John D. Ryan, USAF (Ret.), former Chief of Staff, USAF
1974	Gen. George S. Brown, USAF, Chairman, Joint Chiefs of Staff
1975	Hon. James R. Schlesinger, Secretary of Defense
1976	Sen. Barry M. Goldwater
1977	Sen. Howard W. Cannon
1978	Gen. Alexander M. Haig, Jr., USA, Supreme Allied Commander, Europe
1979	Sen. John C. Stennis
1980	Gen. Richard H. Ellis, USAF, Commander in Chief, Strategic Air Command
1981	Gen. David C. Jones, USAF, Chairman, Joint Chiefs of Staff
1982	Gen. Lew Allen, Jr., USAF (Ret.), former Chief of Staff, USAF
1983	Ronald W. Reagan, President of the United States
1984	The President's Commission on Strategic Forces (the Scowcroft Commission)
1985	Gen. Bernard W. Rogers, USA, Supreme Allied Commander, Europe
1986	Gen. Charles A. Gabriel, USAF (Ret.), former Chief of Staff, USAF
1987	Adm. William J. Crowe, Jr., USN, Chairman, Joint Chiefs of Staff
1988	The men and women of the ground-launched cruise missile team
1989	Gen. Larry D. Welch, Chief of Staff, USAF
1990	Gen. John T. Chain, Commander in Chief, Strategic Air Command
1991	Lt. Gen. Charles A. Horner, Commander, US Central Command Air Forces and 9th Air Force
1992	Gen. Colin L. Powell, USA, Chairman, Joint Chiefs of Staff
1993	Gen. Merrill A. McPeak, Chief of Staff, USAF
1994	Gen. John Michael Loh, Commander, Air Combat Command
1995	World War II Army Air Forces veterans

AFA "Member of the Year" Award Recipients

State names refer to winner's home state at the time of the award.

YEAR	RECIPIENT(S)
1953	Julian B. Rosenthal (N. Y.)
1954	George A. Anderl (Ill.)
1955	Arthur C. Storz (Neb.)
1956	Thos. F. Stack (Calif.)
1957	George D. Hardy (Md.)
1958	Jack B. Gross (Pa.)
1959	Carl J. Long (Pa.)
1960	O. Donald Olson (Colo.)
1961	Robert P. Stewart (Utah)
1962	<i>(no presentation)</i>
1963	N. W. DeBerardinis (La.) and Joe L. Shosid (Tex.)
1964	Maxwell A. Kriendler (N. Y.)
1965	Milton Caniff (N. Y.)
1966	William W. Spruance (Del.)
1967	Sam E. Keith, Jr. (Tex.)
1968	Marjorie O. Hunt (Mich.)
1969	<i>(no presentation)</i>
1970	Lester C. Curl (Fla.)
1971	Paul W. Gaillard (Neb.)
1972	J. Raymond Bell (N. Y.) and Martin H. Harris (Fla.)
1973	Joe Higgins (Calif.)
1974	Howard T. Markey (D. C.)
1975	Martin M. Ostrow (Calif.)
1976	Victor R. Kregel (Tex.)
1977	Edward A. Stearn (Calif.)
1978	William J. Demas (N. J.)
1979	Alexander C. Field, Jr. (Ill.)
1980	David C. Noerr (Calif.)
1981	Daniel F. Callahan (Fla.)
1982	Thomas W. Anthony (Md.)
1983	Richard H. Becker (Ill.)
1984	Earl D. Clark, Jr. (Kan.)
1985	George H. Chabbott (Del.) and Hugh L. Enyart (Ill.)
1986	John P. E. Kruse (N. J.)
1987	Jack K. Westbrook (Tenn.)
1988	Charles G. Durazo (Va.)
1989	O. R. Crawford (Tex.)
1990	Cecil H. Hopper (Ohio)
1991	George M. Douglas (Colo.)
1992	Jack C. Price (Utah)
1993	Lt. Col. James G. Clark (D. C.)
1994	William A. Lafferty (Ariz.)
1995	William N. Webb (Okla.)

W. Stuart Symington Award Recipients

Since 1986, AFA's highest honor to a civilian in the field of National Security has been the W. Stuart Symington Award. The award, presented annually, is named for the first Secretary of the Air Force.

YEAR	RECIPIENT
1986	Hon. Caspar W. Weinberger, Secretary of Defense
1987	Hon. Edward C. Aldridge, Jr., Secretary of the Air Force
1988	Hon. George P. Schultz, Secretary of State
1989	Hon. Ronald W. Reagan, former President of the United States
1990	Hon. John J. Welch, Assistant Secretary of the Air Force (Acquisition)
1991	Hon. George Bush, President of the United States
1992	Hon. Donald B. Rice, Secretary of the Air Force
1993	Sen. John McCain (R-Ariz.)
1994	Rep. Ike Skelton (D-Mo.)
1995	Hon. Sheila E. Widnall, Secretary of the Air Force

Aerospace Education Foundation Fellows

The following is a listing of individual Fellows who have become fellows since the last such listing in the September 1994 issue of this magazine.

Individual Jimmy Doolittle Fellows

(Listed in order of affiliation. Represents \$1,000 contribution)

NAME	SPONSOR
1994	
William Russell	Langley Chapter
George E. Batchelor	John W. DeMilly, Jr., Chapter, Miami Chapter, and the Greater Miami Air Force Ball Committee
Mrs. Doris Gilpin	General Dan F. Callahan Chapter
George Haddaway	Mrs. H. H. Timken, Jr.
Daniel Hendrickson	Ogden-Wasatch Chapter
1995	
Dean Hart	Dean Hart Family
Maj. Gen. Robert E. Linhard, USAF	Iron Gate Chapter
Col. Arthur C. Forster, Jr., USAF	Iron Gate Chapter
Geraldine Jones	Thomas B. McGuire, Jr., Chapter
Col. W. Calvin Phillips, USAF (Ret.)	456th Bomb Group Association
Lt. Col. Susan Helms, USAF	Central Florida Chapter
Hon. Sheila E. Widnall	Central Florida Chapter
1st Lt. Jeannie M. Flynn, USAF	Central Florida Chapter
Maj. Jaquelyn S. Parker, USAF	Central Florida Chapter
Zachary and Elizabeth Fisher	Iron Gate Chapter
Maj. Henry L. Andrews, Jr., USAF	Arnold Air Society/Angel Flight/Silver Wings Society
Joseph Rector	Personal
Lt. Gen. Charles E. Franklin, USAF	Iron Gate Chapter
Kenneth Chase	Langley Chapter
Brig. Gen. (Maj. Gen. selectee) William S. Hinton, Jr., USAF	Langley Chapter
George Golden	Langley Chapter
Mearl A. Nichols	Frank P. Lahm Chapter
Ralph E. Shadel	Frank P. Lahm Chapter
Cletus J. Pottebaum	Kansas State AFA
Karolyn J. Uebersezig	Quality Image Communications, Inc.
Dr. Harold W. Sorenson	Paul Revere Chapter
John Craig	Donald W. Steele, Sr., Memorial Chapter

Individual Ira C. Eaker Fellows

(Listed in order of affiliation. Represents \$1,000 contribution)

NAME	SPONSOR
1994	
Kathy McCoy	James McCoy
1995	
Capt. William L. Scott, Jr., AAC, Maj. Gen. Howard Bunker, USAF (Ret.), Maj. Daniel D. McFadden, USAF, Maj. Charles Roseburg, USAF (in memoriam)	Paso Del Norte Chapter; Roadrunner Flight, Order of Daedalians; Lt. Col. W. L. Scott, USAF (Ret.); and Lt. Col. G. H. Scott, USAF (Ret.)
Maj. Gen. Robert S. Dickman, USAF	Cape Canaveral Chapter
Maj. Gen. John W. Handy, USAF	Iron Gate Chapter
Lt. Gen. John E. Jackson, Jr., USAF (Ret.)	Iron Gate Chapter
Brig. Gen. Thomas R. Mikolajcik, USAF	Iron Gate Chapter
Maj. Gen. John B. Sams, Jr., USAF	Iron Gate Chapter
Tanker Airlift Control Center	Iron Gate Chapter

Barry Goldwater Fellows

(Represents \$5,000 contribution)

NAME	SPONSOR
1994	
Gerald V. Hasler and James M. Keck	AEF Board of Directors
1995	
Dorothy L. Flanagan	Iron Gate Chapter
Joseph G. Wilson	Litton Data Systems

Aerospace Education Foundation 1994-95 AFJROTC Contest Winners

Subject: Our Best Community Service Project

First-Place Winner (\$1,000)

Del Campo High School, Fair Oaks, Calif.

Second-Place Winner (\$750)

McDowell Intermediate High School, Erie, Pa.

Third-Place Winner (\$500)

Madison Central High School, Madison, Miss.

Honorable Mention

Scotch Plains-Fanwood High School, Scotch Plains, N. J.

Novato High School, Novato, Calif.

Spaulding High School, Rochester, N. H.

Bolingbrook High School, Bolingbrook, Ill.

Coatesville Area Senior High School, Coatesville, Pa.

Forest High School, Ocala, Fla.

Lake Worth High School, Lake Worth, Fla.

Bellevue West High School, Bellevue, Neb.

Seventy-First Senior High School, Fayetteville, N. C.

Karns High School, Knoxville, Tenn.

Sumter High School, Sumter, S. C.

Edmond North High School, Edmond, Okla.

John R. Alison Award Recipients

Established in 1992, the John R. Alison Award is AFA's highest honor for industrial leadership.

1992	Norman R. Augustine, Chairman, Martin Marietta Corp.
1993	Daniel M. Tellep, Chairman and Chief Executive Officer, Lockheed Corp.
1994	Kent Kresa, Chief Executive Officer, Northrop Grumman Corp.
1995	C. Michael Armstrong, Chairman and Chief Executive Officer, Hughes Aircraft

Sam E. Keith Aerospace Education Award of Excellence

YEAR	RECIPIENT	SPONSOR
1991	Jule Zumwalt	Sacramento Chapter, Calif.
1992	Col. Kenneth O. Wofford, USAF (Ret.)	General E. W. Rawlings Chapter, Minn.
1993	Pope Chapter	Pope Chapter, N. C.
1994	Alamo Chapter	Alamo Chapter, Tex.
1995	Dr. Phillip R. Brieske	Hawaii State AFA

AFA's Regions, States, and Chapters

These figures indicate the number of affiliated members as of June 30, 1995. Listed below the name of each region is the National Vice President for that region.

CENTRAL EAST REGION 15,317
George H. Chabbott

Delaware 971
Delaware Galaxy 734
Diamond State 199
Henlopen Area 38

District of Columbia 1,130
Nation's Capital 1,130

Maryland 3,348
Baltimore* 939
Central Maryland 473
College Park Airport 148
Thomas W. Anthony 1,788

Virginia 9,515
Danville 52
Donald W. Steele, Sr., Memorial 4,060
Gen. Charles A. Gabriel 1,050
Jack Manch 100
Langley 2,577
Leigh Wade 130
Lynchburg 135
Northern Shenandoah Valley 100
Richmond 492
Roanoke 291
Tidewater 358
William A. Jones III 170

West Virginia 353
Chuck Yeager 353

FAR WEST REGION 27,628
William A. Lafferty

Arizona 5,351
Barry Goldwater 200
Cochise 108
Frank Luke 1,294
Phoenix Sky Harbor 1,213
Prescott 146
Richard S. Reid 305
Tucson 2,085

California 18,327
Antelope Valley 746
Bakersfield 85
Bob Hope 1,228
David J. Price/Beale 634
Edward A. Stearn 1,045
Fresno* 489
General B. A. Schriever Los Angeles 1,153
General Doolittle Los Angeles Area* 1,952
General Robert F. Travis 1,556
Golden Gate* 776
High Desert 277
Maj. Gen. Charles I. Bennett, Jr. 459
Monterey Bay Area 348
Orange County/Gen. Curtis E. LeMay 1,087
Pasadena Area 448
Redwood Empire 369
Robert H. Goddard 975
Sacramento 2,171
San Diego 1,146
Tennessee Ernie Ford 1,092
Ventura County 291

Guam 250
Guam-Arc Light 250

Hawaii 1,306
Hawaii* 1,272
Maui 34

Nevada 2,394
Dale O. Smith 505
Thunderbird 1,889

GREAT LAKES REGION 17,534
Harold F. Henneke

Illinois 4,547
Chicagoland-O'Hare 1,214
Greater Rockford 89
Illini 282
Land of Lincoln 210
Quad Cities 315
Scott Memorial 1,988
West Suburban 449

Indiana 1,837
Central Indiana 513
Columbus-Bakalar 43
Falls Cities 59
Fort Wayne 197
Grissom Memorial 222
Gus Grissom 152
Lawrence D. Bell Museum 310
Lester W. Johnston 35
P-47 Memorial 66
Southern Indiana 137
Terre Haute-Wabash Valley 103

Kentucky 807
Gen. Russell E. Dougherty 436
Lexington 249
West Kentucky 122

Michigan 2,600
Battle Creek 277
Huron 152
James H. Straubel 929
Kalamazoo 282
Lake Superior Northland 314
Lloyd R. Leavitt, Jr. 166
Mid-Michigan 85
Mount Clemens 307
PE-TO-SE-GA 88

Ohio 6,397
Capt. Eddie Rickenbacker Memorial* 707
Cleveland 435
Frank P. Lahm 569
Mid-Ohio 216
Steel Valley 221
Wright Memorial* 4,249

Wisconsin 1,346
Badger State 255
Billy Mitchell 713
Madison 378

MIDWEST REGION 7,269
Samuel M. Gardner

Iowa 722
Gen. Charles A. Horner 262
Lancer 157
Northeast Iowa 93
Richard D. Kisling 210

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Kansas	1,320	Otis	190	Brig. Gen. Frederick W. Castle	200
Contraills	51	Paul Revere	686	Garden State	23
Lt. Erwin R. Bleckley	826	Pioneer Valley	215	Hangar One	165
Major General Edward R. Fry	443	Taunton	172	High Point	88
		Worcester*	183	Hudson*	99
Missouri	2,370			John Currie Memorial	36
Central Missouri	554	New Hampshire	667	Mercer County	231
Harry S. Truman	598	Amoskeag	319	New Jersey Public Affairs	26
Ozark	241	Pease	548	Passaic-Bergen*	255
Spirit of St. Louis	977			Sal Capriglione	129
		Rhode Island	266	Teterboro-Bendix	31
Nebraska	2,857	Metro Rhode Island	266	Thomas B. McGuire, Jr.	1,388
Ak-Sar-Ben	2,561			Tri-County	68
Lincoln	296	Vermont	266	Union Morris	333
		Burlington	266	Wings	71
NEW ENGLAND REGION	5,619				
Dr. Phillip J. Sleeman		NORTH CENTRAL REGION	3,294	New York	4,238
		Vic Seavers		Albany-Hudson Valley*	431
Connecticut	1,114			Brooklyn "Key"	307
Central Connecticut	141	Minnesota	1,367	Chautauqua	68
Charles A. Lindbergh	159	General E. W. Rawlings	1,111	Colin P. Kelly	482
First Connecticut	170	Richard I. Bong	256	Forrest L. Vosler	297
Flying Yankees	161			General Daniel "Chappie"	103
General Bennie L. Davis	66	North Dakota	1,104	James, Jr., Memorial	
General George C. Kenney	78	General David C. Jones	512	Genesee Valley	287
Igor Sikorsky	121	Happy Hooligan	166	Iron Gate	222
Northern Connecticut	163	Red River Valley	426	L. D. Bell-Niagara Frontier	509
Sergeant Charlton Heston	55			Lloyd Schloen-Empire	42
		South Dakota	823	Nassau Mitchel	430
Maine	460	Dacotah	284	Queens	275
Eastern Maine	245	Rushmore	539	Suffolk County	309
Major Charles J. Loring, Jr.	106			Thomas Watson, Sr., Memorial	189
Southern Maine	109	NORTHEAST REGION	11,605	Westchester Falcon	287
		Allen G. Harris			
Massachusetts	2,646			Pennsylvania	3,792
Boston	226	New Jersey	3,575	Altoona	71
Laurence G. Hanscom	214	Admiral Charles E. Rosendahl	153	Beaver Valley	103
Major John S. Southrey*	258	Aerospace Founders	74	Brandywine	182
Minuteman	302	Atlantic City Area	205	Colonel Stuart E. Kane, Jr.	169




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Eagle	66
Erie	107
Freedom	387
Greater Pittsburgh*	560
Joe Walker-Mon Valley	129
Lehigh Valley	271
Lt. Col. B. D. "Buzz" Wagner	129
Metropolitan Philadelphia*	361
Mifflin County*	127
Olmsted	412
Pocono Northeast	215
Total Force	222
York-Lancaster	281

NORTHWEST REGION 8,218
John Lee

Alaska	1,451
Anchorage	1,099
Fairbanks Midnight Sun	352

Idaho	865
Boise Valley	574
Magic Valley	97
Snake River Valley	194

Montana	640
Big Sky	528
Bozeman	112

Oregon	1,326
Eugene	325
Klamath Basin	154
Portland*	847

Washington	3,936
Greater Seattle	1,321
Inland Empire	1,024
Tacoma	1,591

ROCKY MOUNTAIN REGION 7,939
William D. Croom, Jr.

Colorado	5,503
Colorado Springs/Lance Sijan	3,180
Flatirons	204
General Robert E. Huyser	140
Longs Peak	287
Mel Harmon	132
Mile High	1,560

Utah	1,863
Northern Utah	738
Salt Lake	479
Ute-Rocky Mountain	646

Wyoming	573
Cheyenne Cowboy	573

SOUTH CENTRAL REGION 10,450
Henry W. Boardman

Alabama	3,006
Birmingham	448
Gadsden	38
Mobile	350
Montgomery	1,833
Tennessee Valley	337

Arkansas	1,626
David D. Terry, Jr.	1,153
General Ira C. Eaker	111
Ouachita	85
Razorback	277

Louisiana	2,043
Alexandria	171
Ark-La-Tex	1,111
Baton Rouge	356
Greater New Orleans Area	405

Mississippi	1,635
Golden Triangle	437
Jackson	222
John C. Stennis	976

Tennessee	2,140
Chattanooga	129
Everett R. Cook	503
General Bruce K. Holloway	582
General Dan F. Callahan	619
H. H. Arnold Memorial	307

SOUTHEAST REGION 25,123
Dr. Dan Callahan

Florida	13,417
Cape Canaveral	1,565
Central Florida	1,301
Citrus Belt	142
Colonel H. M. "Bud" West	313
Eglin	2,526
Falcon	375
Florida Gulf Coast	341
Florida Highlands	138
Gainesville	162
General James R. McCarthy	350
General Nathan F. Twining	527
Gold Coast	415
Hurlburt	522
Indian River	136
Jerry Waterman	1,131
John C. Meyer	184
John W. DeMilly, Jr.	318
Miami	415
Morgan S. Tyler	251
Ocala	124
On Wings of Eagles	156
Panama City	1,057
Peace River	140

Southwest Florida	260
Spacecoast	93
St. Augustine	68
West Palm Beach	407

Georgia	5,004
Athens	187
Atlanta	650
Carl Vinson Memorial	2,326
Chatahoochee Valley	100
Coosa Valley	67
Dobbins	885
Savannah	228
South Georgia	514
Southeast Georgia	47

North Carolina	3,641
Blue Ridge	314
Cape Fear	140
Eastern Carolina	83
First in Flight	55
Kitty Hawk	76
Piedmont	473
Pope	882
Roanoke Valley	36
Scott Berkeley	868
Tarheel	418
Triad	296

Puerto Rico 203
San Juan 203

South Carolina	2,858
Charleston	901
Columbia	496
Ladewig-Shine Memorial	259
Strom Thurmond	355
Swamp Fox	847

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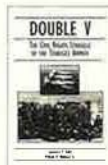
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L. B. Webber	24,288
New Mexico	
Albuquerque	2,974
Fran Parker	1,677
Llano Estacado	670
	627
Oklahoma	
Altus	4,145
Central Oklahoma (Gerrity)	594
Enid	2,335
Tulsa	738
	478
Texas	
Abilene	17,169
AggieLand	656
	196

Alamo	5,905
Austin	1,479
Concho	438
Corpus Christi	165
Dallas	1,227
Del Rio	255
Denton	313
Fort Worth	2,365
Gen. Charles L. Donnelly, Jr.	843
Ghost Squadron	152
Heart of the Hills	195
Lee Glasgow-Waco	303
Lubbock	463
Northeast Texas	397
Panhandle	157
Paso Del Norte	191
Permian Basin	141
San Jacinto	1,328

AFA's First National Officers and Board of Directors

This panel of officers and directors acted temporarily until a representative group was democratically elected by membership at the first National Convention.

OFFICERS

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- Second Vice President** Meryll Frost
- Third Vice President** Thomas G. Lanphier, Jr.
- Secretary** Sol A. Rosenblatt
- Assistant Secretary** Julian B. Rosenthal
- Treasurer** W. Deering Howe
- Executive Director** Willis S. Fitch

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| Burton E. Donaghy | Benjamin F. Warner |
| James H. Douglas, Jr. | Lowell P. Weicker |
| G. Stuart Kenney | C. V. Whitney |
| Reiland Quinn | J. H. Whitney |

AFA's National Presidents

James H. Doolittle (1946-47)	Thomas G. Lanphier, Jr. (1947-48)	C. R. Smith (1948-49)	Robert S. Johnson (1949-51)	Harold C. Stuart (1951-52)	Arthur F. Kelly (1952-53)
George C. Kenney (1953-54)	John R. Alison, Jr. (1954-55)	Gill Robb Wilson (1955-56)	John P. Henebry (1956-57)	Peter J. Schenk (1957-59)	Howard T. Markey (1959-60)
Thos. F. Stack (1960-61)	Joe Foss (1961-62)	John B. Montgomery (1962-63)	W. R. Lovelace II (1963-64)	Jess Larson (1964-67)	Robert W. Smart (1967-69)
George D. Hardy (1979-81)	Martin M. Ostrow (1969-71)	Joe L. Shosid (1971-73)	George M. Douglas (1973-75)	Gerald V. Hasler (1975-77)	Victor R. Kregel (1977-79)
John G. Brosky (1986-88)	David L. Blankenship (1988-90)	Martin H. Harris (1990-92)	Sam E. Keith, Jr. (1981-82)	Jack C. Price (1982-84)	O. R. Crawford (1984-86)
James M. McCoy (1992-94)	R. E. Smith (1994-95)				

AFA's Board Chairmen

Pictured are Chairmen who never served as National President.

Edward P. Curtis (1946-47)	Carl A. Spaatz (1950-51)
James M. Trail (1958-59)	Julian B. Rosenthal (1959-60)
Jack B. Gross (1963-64)	Daniel F. Callahan (1979-81)
Edward A. Stearn (1985-86)	

Unit Reunions

Air Force Flight Checkers. October 5-6, 1995, in San Antonio, Tex. **Contact:** Fred Heuston, 230 Regal Oaks Dr., San Antonio, TX 78233. Phone: (210) 655-8779.

Air Force Space and Missile Systems Center, Detachment 10 (formerly the Ballistic Missile Organization), Norton AFB, Calif. September 26-28, 1995, at the Radisson Convention Center in San Bernardino, Calif. Former permanent party and contractor personnel are invited. **Contact:** Capt. Andy Dobrot, USAF, Space and Missile Systems Center, Det. 10, 1111 E. Mill St., San Bernardino, CA 92408-1621. Phone: (909) 382-8254.

Air Force Space Operations Ass'n. September 7-9, 1995, in Sunnyvale, Calif. **Contacts:** Ed Swallow, 16505 Apple Blossom Lane, Los Gatos, CA 95032. Phone: (408) 356-2964. TSgt. Jennifer Walsh, USAF, 999 Mills Corner Lane, San Jose, CA 95122. Phone: (408) 752-3588 or DSN 561-3588.

Air Weather Reconnaissance Ass'n. October 4-8, 1995, at the Red Lion Sacramento Inn in Sacramento, Calif. **Contact:** Vernon M. "Robbie" Robertson, 8513 Hayden Way, Fair Oaks, CA 95628. Phone: (916) 961-2399.

Korean War Veterans (1950-53). October 19-21, 1995, at Virginia Beach, Va. **Contact:** Dick Gallmeyer, 808 Oldham Rd., Virginia Beach, VA 23464. Phone: (800) 523-4715 (home) or (804) 467-1233 (work).

20th Bomb Squadron. October 13-15, 1995, at Barksdale AFB, La., Officers Club. **Contact:** Frank Rogers, 2426 Melrose Ave., Bossier City, LA 71111. Phone: (318) 747-4985.

34th Air Refueling Squadron (Offutt AFB, Neb.), 1958-66. September 28-October 1, 1995, in Wichita, Kan. **Contact:** Rick G. Leech, 743 Wedge Dr., Grand Junction, CO 81506-1810. Phone: (970) 242-1700.

Pilot Class 53-B. October 8-10, 1995, in Myrtle Beach, S. C. **Contact:** Ray Schnabel, 4535 W. Rancho Dr., Glendale, AZ 85301. Phone: (602) 934-4313.

Bulletin Board

Seeking the whereabouts of F-4 pilots or weapon system officers **Robert D. Anderson, Frank J. Bettine, Gordon L. Clouser, S. W. George, Halbert E. Gossard, and Rex D. Howerton**, all from Oklahoma. **Contact:** Ron R. Lalli, 1612 Yosemite Place, Edmond, OK 73003-4651.

Seeking information on **Capt. Bernard H. Hoffman**, a B-29 pilot with the 883d Bomb Squadron, 500th Bomb Group, on Saipan, June-October 1945. **Contact:** Ralph E. Smith, 526 Bender Rd., West Bend, WI 53095.

Seeking the whereabouts of **Sgt. Ronnie S. "Dogg" Adams**, who was stationed at Davis-Monthan AFB, Ariz. **Contact:** Carl Richards, 306 Cozby S., Benbrook, TX 76126.

To form an association, seeking contact with military and civilian personnel who were assigned

390th Bomb Group Veterans Ass'n, 8th Air Force (World War II). October 18-22, 1995, in Tucson, Ariz. **Contact:** Tom McCall, 390th Memorial Museum Foundation, 6000 E. Valencia Rd., Tucson, AZ 85706. Phone: (520) 574-0287.

Mall 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.

390th Strategic Missile Wing. October 4-8, 1995, in Tucson, Ariz. **Contact:** James A. Flowers, P. O. Box 17916, Tucson, AZ 85731. Phone: (520) 886-3430.

463d Bomb Group (World War II) and support squadrons. October 11-15, 1995, at the Holiday Inn-Executive Conference (Koger) Center in Richmond, Va. **Contact:** Eugene E. Parker, Rte. 3, Box 188, New Matamoras, OH 45767-9732. Phone: (614) 473-1515.

Pilot Class 43-G. For a possible reunion, seeking anyone who trained at Lakeland Field, Fla., Cochran Field, Ga., or Moody AFB, Ga. **Contact:** Lew Johnston, 2665 Chestnut St., Apt. #11, San Francisco, CA 94123-2419. Phone: (415) 567-4717.

66th Air Police Squadron/66th Tactical Reconnaissance Wing, Laon AB, France. Seeking members who served between 1958 and 1962 to update our roster or plan a reunion. **Contacts:** Robert Shook, 942 N. E. Fifth Ave. Dr., Hillsboro, OR 97124. CMSgt. William M. Poe, USAF (Ret.), 220 Dominica Cir., Niceville, FL 32578-4068. ■

to **Iraklion AS**, Greece. **Contact:** Lt. Col. Richard Gouin, USAF, 3791 Hampton Oaks, Millbrook, AL 36054.

Seeking contact with anyone who knew **2d Lt. Donald W. Muir**, who flew the Hump and was killed in June 1944. **Contact:** MSgt. Robert R. Shafley, USAF, 311 Woodberry Cir., Raeford, NC 28376.

For association membership, seeking contact with anyone who flew **SAC Post-Attack Command-and-Control System** missions. **Contact:** Col. Jack W. Suggs, USAF (Ret.), 855 Crewshaw Loop N., Keizer, OR 97303.

Seeking contact with B-52 aircrews from **Dow AFB, Me.**, and B-57 aircrews from **Stewart Field, N. Y.**, in the 1960s. **Contact:** Larry Posament, 955 S. Springfield Ave., Unit 907, Springfield, NJ 07081.

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MILITARY REUNION CENTRAL

Bulletin Board

Seeking contact with anyone involved in **F-105D** operations in Europe. **Contact:** Jean-Pierre Hoehn, 11 place des Halles, 67000 Strasbourg, France.

Seeking contact with former members of the **552d Airborne Early Warning and Control Wing**, McClellan AFB, Calif., and the **79th Airborne Early Warning and Control Squadron**, Homestead AFB, Fla. **Contact:** Delbert Mitchell, 1426 Gardenia Ave., Camarillo, CA 93010-1162.

Seeking photos of or memorabilia from **Alamogordo AAF**, N. M., 1942-45. **Contact:** Maj. Otto K. Mueller, USAF (Ret.), 1145 Florian Way, Spring Hill, FL 34609.

Seeking contact with anyone who knew **Boris J. Sursky**, who died March 1977 in Florida. **Contact:** Charles Meyers, 3614 Sir Michael Dr., Montgomery, AL 36109.

To form an association, seeking contact with active-duty and former **F-16 pilots**. **Contact:** Rick Mitchell, 730 White Oaks Ave., Baltimore, MD 21228.

Seeking information on whether **Leon Klinghoffer**, killed by terrorists on *Achille Lauro*, was the second lieutenant and navigator with the 389th Bomb Group who took part in an August 1943 raid on Ploesti. **Contact:** Lt. Col. Hal Richter, USAF (Ret.), Rte. 2, Box 66, Spring Creek Rd., Barrington Hills, IL 60010.

Seeking USAF unit **patches**. **Contact:** Richard M. Opherhall, 2001 N. Perkins Rd., Apt. #A-13, Stillwater, OK 74075-2928.

Seeking the whereabouts of **Johnny Karvalinski** (or Carvalinski), who was stationed at RAF Bentwaters, UK, until September 1945. **Contact:** Rita Skippings, 142 Church Row, Framsdens, Stowmarket, Suffolk IP14 6HS, UK.

Seeking photos of **Col. Neel E. Kearby**, **Lt. Col. James H. Howard**, **Frank Luke, Sr.**, and **Doris Davis** (widow of George Davis, Jr.), accepting Medals of Honor. **Contact:** Tex Powell, 1919 W. Carol Dr., Fullerton, CA 92633.

Seeking the whereabouts of **Col. Raymond A. Crockett**, whose last known assignment was as director of Public Affairs, PACAF, in 1993. **Contact:** Lt. Col. R. Keys, Hq. USEUCOM, Unit 30400, Box 606, APO AE 09128.

Seeking contact with **Johnny Jones**, stationed at RAF Woodbridge, UK, until August 1965. He served in the Vietnam War and returned to the US in May 1966. **Contact:** Cheryl Ann Curtis, 58 Milton Rd., Tottenham, London N15 3DS, UK.

Seeking information on or pictures of the B-26 **Dixie D**, #44-34713, during the Korean War, especially from **452d and 17th Bomb Wing** personnel, Pusan AB, Korea, September 1951 to August 1952. **Contact:** Lane Etheredge, 6A Hidden Valley Airport Rd., Denton, TX 76208.

Seeking **patches** for the 63d Fighter Wing, 446th Tactical Airlift Wing, 136th Fighter-Interceptor Group, 236th Air Service Group, and 705th Tactical Airlift Group. **Contact:** Lt. Col. Elwood H. Paradowski, AFRES (Ret.), 2530 Droxford Dr., Houston, TX 77008.

Seeking the whereabouts of **A1C William C. Tait**, who was stationed at Haneda AB, Japan, 1948-50, and served with the US Army in the Korean War. **Contact:** Dennis L. Dagen, 101 Elm St., Warroad, MN 56763.

Seeking **Willard B. Park** and **Roy E. Hartman** to return items found at Avon Park Bombing Range, Fla. Also seeking contact with **SSgt. Earl Kaiser** (Kyzer or Kyser), stationed at Detachment 1,

Pieces of History

Photography by Paul Kennedy

Going Home

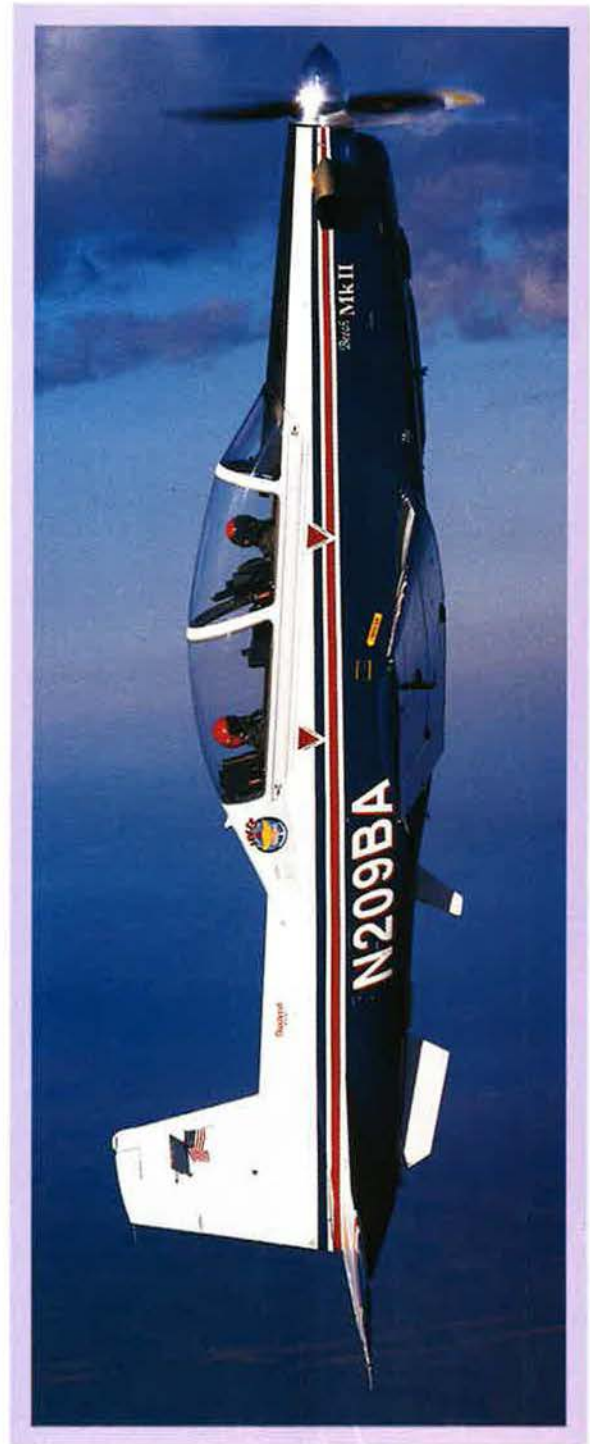


Office setting and memorabilia courtesy Airman Memorial Museum, Sullitland, Md.

The end of World War II brought one more invasion: the return of thousands of service members to a grateful nation. The ticket home was just a bit of paperwork, filled out in an orderly room much like this one. After every "i" was dotted and every "t" was crossed, soon-to-be veterans might receive a half-forgotten medal or two for bravery in the field, a

booklet of helpful hints for readjusting to civilian life, and a "ruptured duck" lapel button to wear back home, signifying their veteran status and proud service to their country.

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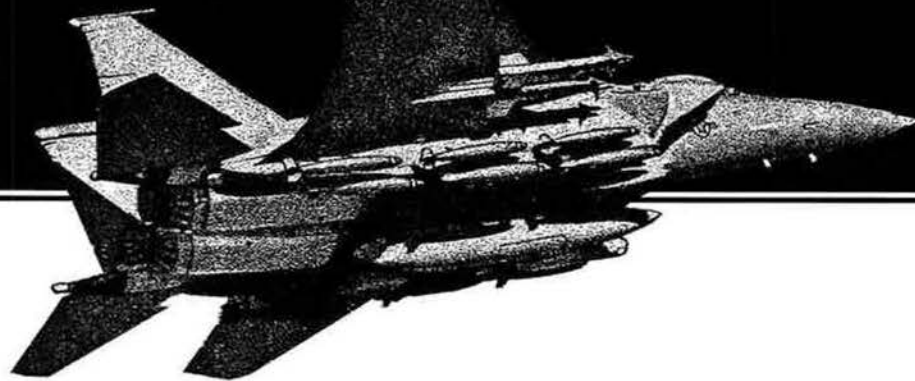


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