JUNE 1995/$3

AIR FORCE MAGAZINE

PUBLISHED BY THE AIR FORCE ASSOCIATION

Airland Composite

Micky Blackwell, President, Lockheed Martin Aeronautics Sector

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F22
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June 1995, Vol. 78, No. 6

AIR FORCE MAGAZINE

PUBLISHED BY THE AIR FORCE ASSOCIATION

About the cover: A C-130, two A-10s, and two F-16s from the 347th Wing, Moody AFB, Ga., fly in formation over Georgia. See "Airland Composite," p. 46. Staff photo by Guy Aceto.

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Editorial

By John T. Correll, Editor in Chief

The Confessions of Robert S. McNamara

ROBERT S. McNamara could give duplicity a bad name. In his new memoir, *In Retrospect: The Tragedy and Lessons of Vietnam,* he says that the Vietnam War was a mistake and that he knew it all along. We should have gotten out in 1963, when fewer than 100 Americans had been killed. When he and other US policymakers took us to war, they "had not truly investigated what was essentially at stake."

McNamara was Secretary of Defense from 1961 to 1968 in the Kennedy Administration, which led the US into the Vietnam adventure, and in the Johnson Administration, which widened the involvement to a war in which 58,000 American troops died. He was not some star-crossed functionary who went passively along with a policy he opposed. He was so fiery an advocate that Vietnam became known as "McNamara's War." His actions then and his statements now cannot be reconciled with honor.

The duplicity has another dimension. News accounts bill *In Retrospect* as a stark admission of guilt, but an actual reading of it tells a different story. McNamara does, to be sure, acknowledge that he and his colleagues were "wrong, terribly wrong," but the admissions account for relatively little of the book's substance. The bulk of it explains how these were *honest* mistakes and not altogether the fault of McNamara and his friends. They were deceived, undercut, poorly served, badly advised, and distracted by "the staggering variety and complexity of other issues we faced."

Somehow, it is not altogether surprising that McNamara comes close to ignoring the rank and file of the US armed forces. In the entire book, there are just four brief instances, one of them in a footnote, when the troops cross his mind. The best he can bring himself to say for those killed in action is that "the unwisdom of our intervention" does not "nullify their effort and their loss."

The people who get McNamara's attention and regard are the anguished insiders of the Kennedy and Johnson Administrations and assorted antiwar activists, intelligentsia, and others operating on the fashionable left flank of the Democratic Party in the 1960s. McNamara was able to skip a personal crisis when the draft board reclassified his son, Craig—who, like the rest of McNamara's family, opposed the war—from 1-A to 4-F (for ulcers). McNamara says he was "just as concerned" about those who could not or did not sit out the war at home, but his claim is not convincing. Vietnam veterans called on McNamara to donate the profits from the book to Vietnam veteran charities. He declined and will give the proceeds instead to a program to establish "dialogue" between Americans and Vietnamese.

He still has not learned the real lessons of the Vietnam War.

Reaction to *In Retrospect* has been overwhelmingly negative, but a few voices have spoken in McNamara's favor. President Clinton—who evaded the military draft in 1969—said that McNamara's revelations "vindicated his view." The Vietnamese Foreign Ministry in Hanoi agreed with McNamara that the United States had been "terribly wrong."

McNamara never learned the real lessons of the war. *In Retrospect* ticks off "eleven major causes for our disaster in Vietnam," but they run mostly to philosophical mush like "We misjudged then—as we have since—the geopolitical intentions of our adversaries" and "We failed to recognize that in international affairs, as in other aspects of life, there may be problems for which there are no immediate solutions."

Incredibly, McNamara recalls—but regards it as insignificant—that the service chiefs told him in 1964 that the US had not defined a "militarily valid objective for Vietnam." With similar arrogance, McNamara continues to believe that his strategic and tactical abilities were better than those of the military professionals and that his micromanagement of the war was a good idea. (Air Force operations, in particular, were so controlled that President Johnson once bragged that "they can't even bomb an outhouse without my approval.")

He does not seem to understand that North Vietnam was fighting a war, whereas the United States was sending signals and trying to play mind games with Hanoi. He remains oblivious to the actual lessons of Vietnam, embodied in the "Weinberger Doctrine" of 1984 by his successor, Caspar Weinberger. Before committing US forces to combat, we should ask ourselves six questions: Is a vital US interest at stake? Will we commit sufficient resources to win? Will we sustain the commitment? Are the objectives clearly defined? Is there reasonable expectation that the public and Congress will support the operation? Have we exhausted our other options? The Persian Gulf War of 1991 followed the Weinberger Doctrine to the letter, but Vietnam failed on all counts.

McNamara denies that his purpose is self-justification. *In Retrospect*, however, reveals him to be as stubborn as ever and working to ensure that whatever blame sticks to him or his friends is nominal. Recently, he has been a spokesman for liberal concepts and causes, and he seems to regard his Vietnam memoir as a springboard for further comment. He is irritated that people are ignoring the book's preachy appendix on nuclear weapons.

Given McNamara's disclosures about his judgment and character—on top of what we already knew—it is difficult to imagine that anyone wants to hear any more from him about anything. His best service now would be to go away and shut up. ■

What makes the S211A the most suitable primary trainer aircraft? It's a jet for one. And it's the smallest, most agile, least expensive of any proposed JPATS jet. But that's only one part of our Total Training System. We prepare students through a program of academics and computer-based instruction, simulator and procedures training, and of course, S211A flight training. Each is designed to teach critical piloting skills.

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We've spent the last six years preparing for a mutually supportive, interactive and completely integrated Total Training System. The simple fact is, a well integrated training program will be key to a successful JPATS solution. And no one has more experience integrating systems than we do.

NORTHROP GRUMMAN

Letters

Debating the Special Penalty

"The Special Penalty for Disabled Veterans" *[April 1995, p. 40]* struck a nerve with me. I waived a portion of my retired pay to accept VA compensation, and I urge members facing that decision to factor in other considerations not mentioned in the article.

First, don't cling to the illusion that civilian leaders in the Defense Department care about you. Last year when I first read of Assistant Secretary of Defense Edwin Dorn's opposition to concurrent receipt, I couldn't believe it. I wrote him asking that he reconsider. I got a reply from a Navy captain with an explanation even goofier than Mr. Dorn's. It reflected perfectly the lip service that members of Congress have given veterans for years.

Second, I believe that military retirees are resented within the Department of Veterans Affairs. We seem to be in a special category for most of their programs, especially if compensation is involved. Your battle is all uphill, so get a complete copy of your medical records before you leave active duty.

Third, the VA medical treatment I have received during the past ten years has been mediocre at best, except in one or two instances. Plan to wait months for an appointment with a specialist, then hours in the waiting room. You can also expect to copay for prescriptions in some cases.

Finally, I think the surest way to correct this inequity is to include something in any concurrent receipt bill that directly benefits members of Congress. After all, they have made the tough choices before that increased their pay and allowances.

CMSgt. Leon Adams,
USAF (Ret.)
Jonesboro, Ark.

"The Special Penalty for Disabled Veterans" pointed out the unfairness and inequity of the current compensation policy but failed to make clear its insidiousness. Like Col. William E. Weber, USAF (Ret.), who was quoted in the article, it took me five minutes from being notified of my offset to realize that it was the less fortunate who were really taking it in the shorts. Under our "progressive" tax structure, the less you earn, the less you keep. If two retirees earn $1,000 per month in VA benefits and one is in the twenty-eight percent tax bracket and the other is in the seventeen percent bracket, the latter "keeps" $1,320 less per year than the one earning more income. Those on the bottom rung who pay no taxes, "keep" nothing.

Efforts to rectify the special penalty in the current fiscal climate should concentrate on this inexcusable aspect of the problem.

Col. Carl C. Eppig,
USAF (Ret.)
Searsport, Me.

To say that 350,000 military retirees must unfairly waive at least a portion of their retirement pay is misleading. The vast majority, unlike MSgt. James Norris, USAF (Ret.), probably never heard a shot fired in anger. Most disability claims are the result of illness or injury associated with the service member's entire career and with the aging process.

To be technical, a retiree who is granted a tax-free ten percent, twenty percent, or thirty percent disability as part of the retirement annuity could, if the disability occurred years prior to retirement, have been discharged medically long before reaching retirement.

A member of my family retired at twenty years of service and is very happy with tax-free thirty percent disability rating for a leg problem he suffered playing football during his first few years of service.

It is unlikely that anything will be done during this period of fiscal restraint. Perhaps such special cases as Sergeant Norris's will be addressed, but the majority should not get hopes up.

Frank D. Slocum
Waianae, Hawaii

I have never understood the reason behind veterans' receiving disability compensation when the disability is not incurred in the course of a military exercise. "The Special Penalty for Disabled Veterans" did not enlighten me.

Before we shed tears over the "unfairness" (a much-overused word) of current legislation that "only" gives the retiree some portion of his retired pay in a separate tax-free check, we should ask the following question: Why should a military retiree be given a tax break, much less additional compensation, because, while on active duty, he ate too much, drank too much, smoked too much, or failed to exercise? . . . Or, for that matter, what is there about military service that entitles the health freak to a tax break or additional compensation because he fractures a vertebra while working out or is paralyzed by snake venom while hitting out of the rough at Edwards AFB, Calif.? The examples are numberless.

No connection exists between military service and the everyday vicissitudes of life that may result in some kind of disability. I am not questioning disability compensation in the case of anyone who incurs the disability while engaged in military activity. I am merely questioning why virtually any and all disabling illnesses and injuries sustained during the period of military service qualify for some special benefits from the government that are unavailable to other Americans who suffer the same fate.

While we're at it, we should also question why we're spending billions of taxpayers' dollars on VA hospitals.

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

SOMETIMES IT TAKES A COMPETITION TO PROVE YOU HAVE NO COMPETITION.

Once again, the multi-role F-16 did what it does best - dominate the competition. This time, it was William Tell, the definitive USAF air superiority competition. The F-16 teams captured every major event - Overall, Operations, GCI, Maintenance, and Loading.

WILLIAM TELL '94 FINAL RESULTS					
PLACE	OVERALL	GCI	MAINTENANCE	LOADING	OPERATIONS
1st	**F-16**	**F-16**	**F-16**	**F-16**	**F-16**
2nd	CF-18	**F-16**	**F-16**	**F-16**	CF-18
3rd	**F-16**	CF-18	F-15	F-15	F-15
4th	F-15	F-15	F-15	F-15	**F-16**
5th	F-15	F-15	F-15	CF-18	F-15
6th	F-15	F-15	CF-18	F-15	F-15
7th	F-15	F-15	F-15	F-15	F-15
8th	F-15	F-15	F-15	F-15	F-15

Demonstrating its multi-role talent, the F-16 also consistently dominates Gunsmoke, the premier worldwide air-to-ground competition, sweeping all events. The F-16 is the only aircraft ever to win both weapons competitions.

The F-16 is also undefeated where it counts most - in the real world. It has a 69-0 record in aerial combat and the world's only three combat AMRAAM kills. With this capability and a $20 million price tag, what's left to tell?

LOCKHEED MARTIN

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The issue is precisely the same as it is for VA disability compensation. For nonmilitary-related illnesses and injuries, there is Medicare for the elderly and Medicaid for the needy.

It's the old song. We need to cut government spending, but don't touch *my* program.

Col. William P. Rudland,
USAF (Ret.)
Westlake, Ohio

Remember the Reserve

I'm sure that the omission of the collocated Reserve troops' contribution to the overall outstanding results of the C-17 program was an author's oversight *["Up and Running at Charleston," April 1995, p. 44].* However, I would like to point out that at any given time, the Reserve 315th Airlift Wing (Associate) is always present at Charleston AFB, S. C. The 437th AW has a healthy civilian work force attached to it, the vast majority being Air Reserve technicians assigned to the 315th AW. Last, but never least, are the collocated 315th AW (Associate) personnel maintaining, flying, and training on the C-17 platform.

If you visited this base, you would not be able to tell the Reserve from the active-duty Air Force troops. That shows the pride that the total Team Charleston has in its product: our nation's security.

TSgt. Alan A. Behr,
AFRES (Ret.)
Plantation, Fla.

An Out-of-Date Scenario?

In recent issues of *Air Force* Magazine, unit commanders complain that the current rate of deployments has made it difficult for them to keep their personnel trained to standard. In other words, the military is so busy that it lacks time to prepare for two major regional conflicts (MRCs), but such preparation is the reason for the military's existence.

With such conflicting goals, perhaps we should see if we have missed the big picture. Let's face facts: Few countries are militarily capable of mustering the forces available to Iraq during the Persian Gulf War. Perhaps using a "Desert Storm equivalent" to determine the optimal size of the force to fight the two-MRC scenario brings us back to the historical flaw of looking to wars of the recent past rather than looking ahead.

In the most recent past, we have seen deployments to Somalia, Haiti, Rwanda, and the region surrounding Bosnia-Hercegovina. Military forces continue to participate in counterdrug efforts. There was a deployment back to the Persian Gulf to counter a possible resurgence of Iraq's (smaller) military. Other than the scare from Iraq, the deployments have not focused on protecting borders of sovereign nations.

This leads to my fundamental questions: If we are going to use the MRC method to determine the size of our future forces, how many Haitis equal one MRC? How many relief operations can we engage in before we will be unable to handle one or both of our MRCs? Are we willing to sacrifice our preparation for one or maybe both MRCs in order to engage in various relief operations?

Though not engaged in any MRCs, many military units are being stretched almost to their limits. Perhaps the MRC concept has outlived its usefulness. It seems obvious that relief operations will be in the military's future, so we need a method that accounts for the manning and material to accomplish these missions.

We already know how many MRCs we will accept. Our plan is based on two and no more. We need a comparable threshold on relief efforts. We need an accounting of our maximum peacetime tempo. Until we have these, the military will continue to be overworked every time US elected officials think of a new and pressing concern in the Third World.

We need some way to hold government accountable to "pay" for the relief services they "order." Only in this way will we ever get a clear picture of what our force is capable of and how large a force we will need to accomplish the mix of relief missions, deterrence, and success in conflict.

Because the current method is to size the military first and then select the peacetime commitments, military leaders need the power to say "No." With a limit to the size of our forces, it stands to reason that there is a limit to expectations. We need an accounting method that will tell us when we have reached that limit. Such a system will force government leaders to prioritize their requests.

One system being used is the desired maximum of 120 days of temporary duty per year for the members of the military. This is not used as a limit but as a gauge to tell us how busy we have been during the past year. Perhaps it should be a limit. If the requested operations cannot be done within that framework, that ought to be a clear sign to those in Washington that they must limit their desires or pay for a larger military.

Another method would be to require payment for services rendered. Most of the money to run the operations we are involved in comes from the annual training budget. No special money is allocated for the increased costs of an unscheduled deployment in support of peacetime efforts. If we keep training money separate from employment money, we would have a clear way to stop overuse of our military. When the money ran out, the operations would be suspended.

We must do things differently. The members of the military are dedicated. Too often, the satisfaction they find in doing their job is misinterpreted as indifference to the long separations from family and the endless days of hard work. We show the military members disrespect when we overlook their sacrifices. We show them disrespect when we take money away from modernization and training to pay for another deployment.

Until we have a method of sizing forces for both wartime and peacetime deployments, the whole MRC debate will have a hollow ring to it. . . .

Capt. Jason K. Durfee,
USAF
West Point, N. Y.

"I Am an American"

On p. 88 of the February 1995 issue of *Air Force* Magazine, you stated, " 'I am an American fighting man,' begins the Code of Conduct for the US armed forces." I'm afraid you used an outdated version of the Code of Conduct.

The 1988 version of the code begins, "I am an American, fighting in the forces which guard my country and our way of life. I am prepared to give my life in their defense."

I was deployed four times in the Middle East in support of Operation Desert Storm and Operation Provide Comfort. I was working with the 9th Special Operations Squadron as the chief of Maintenance and Logistics. I am proud of my service and my combat-zone experience. . . .

Capt. Kimberly A. Howell,
USAF
Philadelphia, Pa.

Korean War POWs

In reference to "Name, Rank, and Serial Number" *["Pieces of History," February 1995, p. 88],* I, like thousands of other Americans, was a POW during the Korean War. I was shot down over the Yalu River and landed in China. I spent two and a half years there—two of which were flat on my back in solitary.

It makes me very sad and a little more than angry for you to see fit to completely ignore the Korean War. How was this possible?

Lt. Col. Edwin Heller,
USAF (Ret.)
Grass Valley, Calif.

■ *The open diary depicted in "Name, Rank, and Serial Number" was provided by the US Air Force Museum as an example of Korean War POW memorabilia.*—THE EDITORS

Simple and Wrong

In discussing whether we should send unaccompanied troops to Europe *["The Unaccompanied Airman," March 1995, p. 38],* you have once again chosen the safe and simple and wrong course of trying to support the *status quo.* You have once again asked the wrong question.

World War II has been over for fifty years. England, Germany, Italy, and Japan have not been attacked since. The Cold War is over, and we won. We are closing bases all over America. Congress is trying to balance the budget. It is now time to close all of our foreign bases. . . .

The question has to change. You asked, "Should we send troops to Europe on unaccompanied tours?" The real questions are "When will America close the overseas bases it has kept since World War II?" and "When will our allies be responsible for their own front-line defense?"

Wake up! It is time to leave our overseas bases.

Lt. Col. George C. Armstrong,
USAF
Grand Forks, N. D.

The ban on dependent travel to Europe was put into effect by the Eisenhower Administration (not the Kennedy Administration, as "The Unaccompanied Airman" stated) during the summer of 1960. It was the Kennedy Administration that lifted the ban after President Kennedy took office in January 1961. It took several months for the backlog of dependents to move to Europe until concurrent travel became the norm.

Maj. Jack Ingles,
USAF (Ret.)
Aurora, Colo.

The Vultee *Goose*

In reading "Punching Out" *[March 1995, p. 74],* I noticed a photo of the Vultee XP-54 *Swoose Goose* on p. 77. However, you misidentified the manufacturer as Vought.

Prior to retiring from Convair/General Dynamics/Lockheed Fort Worth Co. after more than forty-six years, I was recognized as the unofficial resident historian.

Two Vultee (Model 84) XP-54-VU aircraft were contracted for June 22, 1940. The first flight was made by Frank Davis (who was later manager of Convair/Fort Worth Division) on January 15, 1943. I doubt that the Vought Co. even thought of designing and producing aircraft for the US Army Air Forces during that time. . . .

C. Roger Cripliver
Fort Worth, Tex.

Unexpected Dividends

The difficulty of finding Civil Reserve Air Fleet 767s to match up with existing aeromedical conversion kits could be eased if USAF replaces the VC-137 fleet with 767s and insists that the distinguished-visitor configuration be compatible with dual use as flying hospitals *["A Bigger Job for Medevac," March 1995, p. 52].* Such a plan would make the 89th Airlift Wing's modernization more palatable to cost-conscious taxpayers and congressmen. It would also make training and testing of the kits much more economical. Besides, distinguished visitors sharing a plane with those who pay the second biggest price in war—the seriously wounded—might pay unexpected dividends.

Col. Michael R. Gallagher,
USAF (Ret.)
Sacramento, Calif.

Credit the Navy

I enjoyed "Black Shield" *[January 1995, p. 66],* but I noticed you omitted the Navy's participation in Project Oxcart. The engine for the SR-71's predecessor was tested in Building 599 at the Aeronautical Engine Laboratory Naval Experimental Station, US Naval Base Philadelphia, Pa.

The engine was tested in Cell 5E and declared "top secret." A list of personnel authorized to enter and test the engine was posted on the door, which was secured by a combination lock.

Give the Navy participants credit. They deserve it.

Jack Podel
Glendale, Ariz.

Erratum

In "The Congressional Defense Establishment" *[April 1995, p. 66],* two members of Congress were misidentified. Reps. Julian C. Dixon (D-Calif.) and Peter J. Visclosky (D-Ind.) are not members of the National Security Appropriations Subcommittee. We regret the error.

Capitol Hill

By Brian Green, Congressional Editor

A Defense Increase Is in Sight

Amazing as it sounds after all those years of cutting, it appears that Congress may put more money into the defense budget.

FOR THE first time in a decade, a congressional majority appears ready to increase the size of the Defense Department's budget. At the forefront of congressional concerns lies weapon modernization—or the lack of it.

The service chiefs and other defense leaders maintain that they can still carry out their assigned missions but not without risk and with almost no margin for error. They express deep reservations about future combat capabilities, in light of the years-long procurement drought. Tight budgets have left them all with long lists of needs to fund, should more money become available.

In a recent speech to the Heritage Foundation, Rep. Floyd D. Spence (R–S. C.) identified the shortfall in modernization funding as the most serious deficiency in the Clinton Administration's proposed defense budget. Representative Spence, chairman of the House National Security Committee, cited estimates of a $70 billion–$300 billion shortfall of funds needed to keep US armed forces modernized during the first decade of the next century.

"That is a problem that could dwarf today's readiness concerns," he said. "It is also a problem that we must begin to manage today."

The shortfall in modernization is extensive. It involves weaknesses in "air and sealift, trucks, combat aircraft, ammunition, spares, and the list goes on," Mr. Spence continued. He called the F-22 air-superiority fighter and the Army's RAH-66 Comanche helicopter program "musts" and noted that the military used more precision guided munitions in the Persian Gulf War than it now has in its inventory. He argued that airlift and sealift forces "certainly can't" support two major regional contingencies, and he doubted the ability to support a "Persian Gulf–type operation today."

Theater and national missile defense programs both will receive increased funding, reflecting the high priority placed on ballistic missile defenses in the new Congress, Mr. Spence said.

Mr. Spence's modernization concerns have been reinforced by a recent Congressional Budget Office (CBO) report. That study points out that the potential gap between resources and programs was reduced largely by cutting back on previously planned procurement.

According to CBO, the 1996 Administration budget and Future Years Defense Program slash procurement by $28 billion through 1999, compared to the request the Administration presented only last year. In 1996 alone, projected procurement funding fell $9 billion. Of that, $4 billion came from USAF's procurement account.

Bomber, Airlift Controversies

Skeptical senior members of the House National Security Committee challenged the Administration plan to maintain an operational force of only about 100 heavy bombers. They challenged Gen. John Michael Loh, commander of Air Combat Command, to demonstrate that such a force could carry out its missions in two nearly simultaneous major regional conflicts. They also challenged him about the requirement for B-2 Stealth bombers.

General Loh argued that the bomber force is adequate for two wars. He conceded under questioning from members of the Military Procurement Subcommittee that "the strategy of swinging bombers from one conflict to another if they are nearly simultaneous, and particularly if they are simultaneous, is risky. It is an untried, untested strategy."

General Loh stated that the Air Force, if it were to receive additional funds, would give top priority to funding the F-22 fighter program fully and to buying more F-16 and F-15E fighters rather than procuring more B-2s. This drew negative comments from some members of the committee, which seems strongly disposed to support additional bomber acquisition.

Gen. Robert L. Rutherford, commander in chief of US Transportation Command, was also challenged by the subcommittee members. He argued that although the current situation is risky, US airlift forces could support US forces in two major regional conflicts. Others disagreed. The panel's senior Democrat, Rep. Ike Skelton of Missouri, said, "I think if we have an Achilles' heel, it is in our lift potential or lack thereof."

General Rutherford urged the committee "not to hurry to a decision on what to do about airlift procurement until we have put the pieces of the pie together." Many committee members, however, seem inclined to move ahead with the C-17 airlifter. Rep. Saxby Chambliss (R-Ga.) contended that the General's "evaluations thus far argue for the most aggressive C-17 procurement rate possible."

EF-111 Concerns

Air Force Chief of Staff Gen. Ronald R. Fogleman testified that current plans for the Navy to handle USAF's electronic warfare mission are not sufficient to meet Air Force requirements.

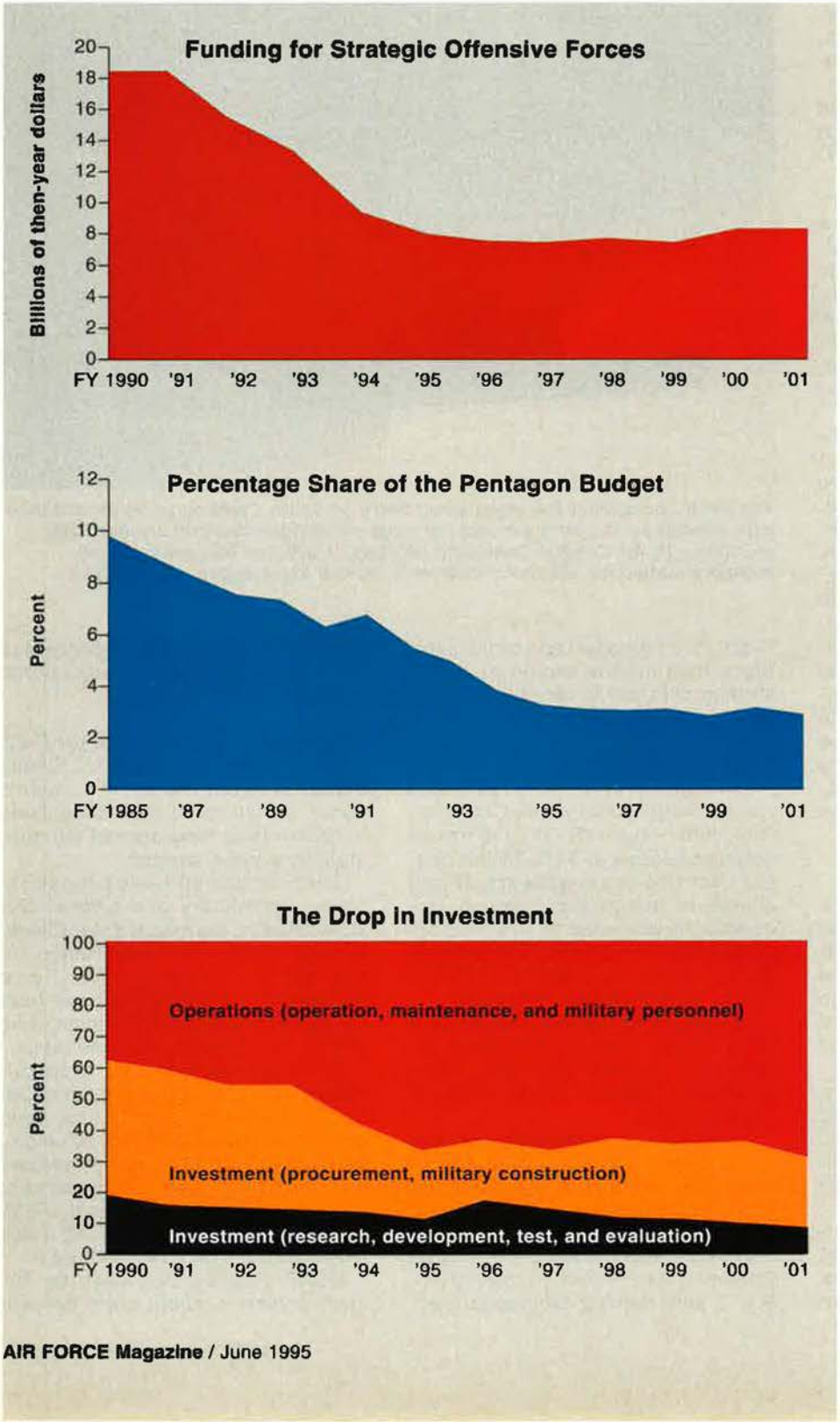
EF-111s are to be phased out in 1997. Electronic warfare support for the Air Force then would be handled by the Navy's EA-6B Prowler. The Navy fleet of more than 100 EA-6Bs would be supplemented by an additional fifteen aircraft that would be taken out of storage and refurbished.

Senators on the Defense Subcommittee of the Appropriations Committee, however, were critical of these moves. Ranking subcommittee member Sen. Daniel Inouye (D-Hawaii) contended that the EA-6B was not as capable as the EF-111 and suggested that the Navy had not funded the program adequately. Sen. Pete Domenici (R–N. M.) noted that former Chairman of the Joint Chiefs of Staff Gen. Colin Powell contended in an earlier roles and missions review that both the EF-111 and EA-6B were needed. ■

The Chart Page

By Tamar A. Mehuron, Associate Editor

Strategic Arsenal on the Decline



The end of the Cold War and the reduction of the strategic nuclear threat to the United States have caused a dramatic drop in funding for US strategic nuclear forces (heavy bombers, intercontinental ballistic missiles, strategic submarines, and submarine-launched ballistic missiles). Total expenditure has plummeted to its lowest level in more than thirty years (top figure). The nuclear arsenal's share of the Pentagon budget also has declined (center). In 1984, during the Reagan Administration's rearmament drive, strategic offensive nuclear programs consumed eleven percent of the Pentagon budget. In 1995, this defense category accounted for only about three percent.

Internal funding priorities are changing. The United States is buying no new bombers, ICBMs, or submarines and only a limited number of SLBMs. In the 1990s, expenditures have increasingly been used to sustain a shrinking strategic force, with such readiness funding growing from forty percent of the total in 1991 to about sixty-six percent today (bottom). Despite force reductions and budget cutbacks, strategic forces remain a crucial part of US military policy, and the Pentagon says it will maintain a capability to expand the nuclear arsenal if overseas threats warrant such a step.

Source: William J. Perry, US Secretary of Defense, "Annual Report to the President and the Congress," February 1995.

Aerospace World

By Suzann Chapman, Associate Editor

C-21 Crash Claims Eight

Clark G. Fiester, assistant secretary of the Air Force for Acquisition; Maj. Gen. Glenn A. Profitt II, Air Education and Training Command's director of Plans and Operations; and six others died in the crash of a C-21A near Maxwell AFB, Ala., on April 17. *[See box on p. 11.]*

The crew declared an in-flight emergency during the flight from Andrews AFB, Md., to Randolph AFB, Tex., and diverted to the Alexander City airport, Ala. The Air Force is investigating the cause of the accident, which is the service's second C-21A crash. The first occurred in 1987 during training for takeoffs and landings. Its cause was pilot error.

Mr. Fiester, who assumed his Pentagon position one year ago, was on his way to Brooks AFB, Tex., to give a presentation on acquisition reform.

Also aboard the aircraft were Mr. Fiester's military assistant, Col. Jack Clark II; Maj. Hubert B. Fisher, assigned to the Air Force's deputy chief of staff for Command, Control, Communications, and Computers; Capt. Paul Carey, instructor pilot, and 1st Lt. Paul M. Bowers, aircraft commander, both assigned to the 332d Airlift Flight, Randolph AFB; retired USAF Maj. James K. Horne; and Army Sgt. Pedro Sanchez Mercado, assigned to the Defense Information Systems Agency, Arlington, Va.

Ralston to Replace Loh

The President has nominated Lt. Gen. Joseph W. Ralston to become Air Combat Command commander when Gen. John Michael Loh, the current ACC commander, retires in June. General Ralston is the Air Force deputy chief of staff for Plans and Operations.

If confirmed by the Senate, General Ralston would be the second person to command ACC, which was activated in June 1992. The President also nominated him for a fourth star.

General Ralston received a commission through Air Force ROTC in 1965 and flew 147 combat missions over Laos and North Vietnam as an F-105 "Wild Weasel" and strike pilot. Since then he has served as an instructor pilot and in various staff and command positions.

Photo by Randy Jolly

The sixth operational B-2 was named* Spirit of South Carolina *in honor of those who worked on the program and the state's distinguished military heritage, according to Air Combat Command officials.* It *will join the other stealth bombers named for Missouri, California, Texas, Washington, and Kansas.

Budget Proposals

The late March proposal from House Budget Committee Chairman Rep. John Kasich (R-Ohio) to freeze defense outlays at $270 billion over the next five years appears at first glance to match the Defense Department's long-standing request for a fixed, five-year budget. It also would add about $50 billion to the proposed Future Years Defense Program.

Critics have pointed out that the $270 billion proposal does not account for inflation and thus would ultimately result in lower defense buying power.

Some House proponents also see the proposal as an opportunity to eliminate nondefense expenditures from the defense budget, an idea shared by some senators. However, Senate Armed Services Committee Chairman Sen. Strom Thurmond (R–S. C.) and ranking Democrat Sen. Sam Nunn (D-Ga.) want to increase FY 1996 defense budget authority and outlays to $273 billion.

Performance Over Weight for F-22

Some opponents of the F-22 Stealth fighter program are using concerns about weight gains and propulsion to bolster their case against the new, stealthy combat aircraft.

The F-22 gained 1,346 pounds between preliminary and Critical Design Reviews, the result of steps taken to meet enhanced performance requirements, according to Air Force officials. The weight gains came from measures to improve the engine, wing design, and stealth characteristics.

In comparison to this (approximately) four percent weight gain, past fighter development programs have also shown increases. For example, the Navy's F/A-18 grew 5.4 percent and the F-16 3.6 percent. Because of upgrades and modifications, the F-16 has continued to add a pound a day since the Air Force first fielded it.

USAF officials also said the aircraft engine is about eight percent

under specification for specific fuel consumption in supercruise at 35,000–40,000 feet. A DoD official noted that the Air Force may change the standard rather than raise costs by attempting to meet it.

Navy Presence

The Navy is currently reviewing concepts for 3,000–4,000-foot-long floating bases, according to a *Commerce Business Daily* notice. The floating bases could accommodate large amounts of prepositioned and sustainment material, airlift or short takeoff and landing aircraft, and provide logistic and maintenance support for Army and Navy assets. *[See "Washington Watch: Roles and Missions Ride Again," February 1995, p. 10.]*

Come Back, Pilots

The Air Force has issued a call for pilots from Air Force Reserve and Air National Guard, along with former active-duty pilots who still have reserve status, to fill instructor pilot positions for fighter aircraft. The service needs up to fifty instructors for Fiscal 1995 and about 200 for Fiscal 1996.

Qualified pilots must have flown in an Air Force cockpit within the last five years and be at least two years away from meeting a promotion board. Pilots who accepted the Voluntary Separation Incentive, Special Separation Benefit, or early retirement are not eligible. Air Force personnel officials at (800) 558-1404 will answer general questions about the recall.

A Billion Dollars for Housing

The Air Force funding request for FY 1996 contains nearly $1.1 billion for military family housing projects and $172 million for dormitories, child development centers, and transient quarters. Included in the request is $249 million to fund "the largest family housing capital improvement budget request that I can remember," said Maj. Gen. James E. McCarthy, USAF's Civil Engineer.

About eighty-four percent of the $249 million has been slated for junior enlisted family housing. Of the $249 million, the Air Force plans to use $94 million to improve 944 existing housing units and $155 million for 176 new houses and 1,027 replacement houses at eighteen Stateside bases and one overseas facility. The bulk of the $1.1 billion covers routine housing maintenance, utilities, leasing, and related civilian pay.

USAF also plans to earmark $132.5 million for twenty-four dormitory projects to create 3,000 single rooms for enlisted people. The Fiscal 1996 request includes $14.4 million to create five child development centers and provide spaces for 1,089 children.

General McCarthy emphasized to the House National Security Subcommittee on Military Installations and Facilities in early April that the funding does not cover current housing requirements. He added that at current funding levels it will take twenty-five years to buy out the backlog.

DoD Creates Stateside COLA

Beginning July 1, service members living in areas where the cost of living (excluding housing) exceeds the national average by more than nine percent will receive a continental US cost-of-living allowance, according to a DoD statement.

DoD budgeted $20.8 million for the CONUS COLA in FY 1996. Approximately 32,000 military members will receive an average monthly benefit of $45. The actual amount depends on grade, location, and family size.

Cheaper F-16s?

Lockheed Martin Corp. believes its Lockheed Martin Tactical Aircraft Systems, formerly Lockheed Fort Worth Co., can reduce the cost of F-16s by about fifteen percent by using commercial standards, practices, and contracts under a proposed defense acquisition pilot plant program at Air Force Plant 4 in Fort Worth, Tex. It would like to implement the pilot program in mid-1996.

The initiative the corporation presented to DoD "guarantees a price reduction on future purchases of the F-16," according to Lockheed Martin TAS President Dain M. Hancock. Based on a commercialization study Lockheed Fort Worth began more than a year ago, the proposal ties in with Defense Department acquisition efforts and the Federal Acquisition Streamlining Act of 1994.

F-16s Fly First AFAC Missions

Pilots from the 555th and 510th Fighter Squadrons, Aviano AB, Italy, are using their F-16 Fighting Falcons to perform airborne forward air con-

Two Air Force Officials Killed in Crash

Clark G. Fiester, assistant secretary of the Air Force for Acquisition, was killed April 17, 1995, when an Air Force C-21 taking him to Brooks AFB, Tex., crashed near Alexander City, Ala. He was responsible for Air Force research, development, and acquisition activities.

Mr. Fiester had been in the position for just under one year after being persuaded by Defense Secretary William J. Perry to come out of retirement. Secretary Perry said in a statement, "Clark has been a colleague and friend for thirty-eight years, when I first hired him in private industry." He added that Mr. Fiester's vast experience in and around defense industry and government helped the Defense Department build "a truly outstanding acquisition team."

An experienced manager of electronic defense system organizations, he spent thirty-eight years in the design and development of advanced intelligence, electronic countermeasures, and imagery systems. He was a former group vice president and general manager for the Electronic Defense Sector, GTE Government Systems, headquartered in Mountain View, Calif.

He earned a bachelor of science degree in electronic engineering at Penn State University in 1955 and a master of science degree also in electronic engineering at Stanford University, Calif., in 1960 and took an advanced management program at Harvard University, Mass., in 1975. He started his long career at Bell Telephone Laboratories, Murray Hill, N. J., in June 1955. He began working at Wright Air Development Center, Wright-Patterson AFB, Ohio, in October 1955. He then started work at GTE Corp. in September 1957, and remained with the corporation until August 1993.

Maj. Gen. Glenn A. Profitt II, director of Plans and Operations for Air Education and Training Command, Randolph AFB, Tex., was killed April 17, 1995, in the same C-21 crash that claimed Clark G. Fiester. General Profitt was responsible for developing and implementing operations plans, programs, and policies for AETC undergraduate pilot training, Euro-NATO Joint Jet Pilot Training, survival training, and combat training for airlift, fighter, tanker, and special operations crews.

He began his career in 1965 after receiving a bachelor of science degree in economics and an ROTC commission at Purdue University, Ind., in 1964. A command pilot with more than 6,000 flying hours in fighter and trainer aircraft, including 496 combat missions in southeast Asia, General Profitt held a variety of assignments in flying, personnel, and manpower, as well as command positions at the squadron, wing, division, and joint levels. He also commanded the 15th Air Division during Operation Desert Storm.

SMSgt. Pete DeFelice (foreground), operations superintendent and Air Force Space Support Team leader at Vandenberg AFB, Calif., is the first competitive winner of the Gen. Charles A. Horner Trophy, established in 1993 as the highest award for 14th Air Force "Flying Tigers."

trol (AFAC) missions. They have been training with A-10 instructor pilots at Davis-Monthan AFB, Ariz., for the new role.

Lt. Gen. Michael E. Ryan, commander, Allied Air Forces Southern Europe, assigned 31st Fighter Wing units to become "card-carrying AFACs," according to Col. Jim Turner, 31st Operations Group commander. He said the lack of AFACs worldwide and the situation on the ground in Bosnia-Hercegovina prompted the move as an additional insurance policy to reduce the possibility of friendly fire casualties and collateral damage.

People vs. Weapons

Amid complaints that the Pentagon wants to spend more on family housing and day-care centers than it does on key weapon systems, some have also questioned the rationale for keeping members with families.

Deputy Chief of Staff for Personnel Lt. Gen. (Gen. selectee) Billy J. Boles and other service personnel chiefs told a Senate subcommittee in mid-March that it would be impossible to have an all-volunteer force that doesn't include people with families. He said that the Air Force cannot expect "to operate the equipment we have today with only first-term, unmarried airmen" who would remain in the Air Force for twenty years.

"We need a balance between career airmen and officers and first-term airmen and officers," General Boles said. He added that the married members "have clearly told us that if we do not provide support for their families, they will not stay with us." He also said that the Air Force wants to maintain a balance between readiness and modernization and that readiness includes quality-of-life factors.

Countering High Operations Tempo

The Air Force proposed several broad initiatives to a House subcommittee in March to help relieve problems created by the current high operations tempo. General Boles testified that the operations tempo affects not only those deployed but also the people who remain behind to fill gaps left by deployments.

In addition to supporting the maximum in legal pay raises, the Air Force also wants to trim the out-of-pocket expenses of permanent change of station moves. Air Force members now absorb $1 for every $3 the service spends on PCS moves.

Another initiative involves an inequity in survivor benefit payments that was highlighted in last year's B-52 accident at Fairchild AFB, Wash. Under current law, the widows of two of the four crew members killed will not receive SBP payments because those members were not eligible for retirement. Widows of the other two, who had already served twenty years, will get payments. The Air Force would like to extend SBP payments to cover all deaths in the line of duty.

The Air Force also wants to close the quarters allowance gap. More than half of the service families living off base absorb almost twenty-two percent of housing expenses from their base pay. General Boles said that the Air Force needs congressional help to reduce the out-of-pocket housing expenses to the fifteen percent envisioned by Congress.

Other initiatives include a locality-based floor for housing allowances to help junior members in high-cost

An Air National Guard F-16C from the 192d Fighter Group, Richmond, Va., evaluated an off-the-shelf Lockheed Martin–designed electro-optical pod configuration on April 26 as part of the first step in transferring the manned tactical reconnaissance mission from the RF-4C to the F-16.

Air and Space Museum Director Resigns

Dr. Martin O. Harwit

Dr. Martin O. Harwit, embattled director of the National Air and Space Museum, resigned May 2, declaring that "nothing less than my stepping down from the directorship will satisfy the museum's critics and allow the museum to move forward with important new projects." Dr. Harwit had been under fire for more than a year because of museum plans to exhibit the *Enola Gay*, the B-29 that dropped the atomic bomb on Hiroshima, as a prop in a politically charged program. The Air Force Association and other groups said the exhibition was severely lacking in balance and context and that it came close to depicting Japan as the victim rather than the aggressor in World War II.

Sen. Ted Stevens (R-Alaska) said that Dr. Harwit's resignation would not change his plans to hold hearings by the Senate Rules and Administration Committee, which he chairs, to answer such questions as how plans were allowed to "get so far off track" by the museum and its parent organization, the Smithsonian Institution. The hearings are scheduled for July 11 and 18.

In January, after eighty-one members of Congress had called for Dr. Harwit's resignation or replacement, the exhibition was cancelled by Smithsonian Secretary I. Michael Heyman. In his resignation letter, Dr. Harwit noted that the controversy had not subsided despite the cancellation.

Secretary Heyman had asked for time to conduct an internal review of the problem and to put together a simple, straightforward display of the front section of the *Enola Gay*, presenting the aircraft without a political message. The controversy flared again in April when, unbeknown to Secretary Heyman, Dr. Harwit laid on a breakfast reception to honor the curators and staff "for all their work on the original exhibition," the one that Secretary Heyman had cancelled in January. As soon as Smithsonian Under Secretary Constance B. Newman learned about the reception—from a Washington *Times* reporter who called up for comment—she gave orders to cancel it.

Dr. Harwit had been director of the Air and Space Museum since 1987. Previously, he was a professor of astronomy at Cornell University. Early in his tenure at the museum, he talked about an exhibit that would be a "counterpoint" to presentations of heroism because "we just can't afford to make war a heroic event where people could prove their manliness and then come home to woo the fair damsel."

When the *Enola Gay* controversy broke loose following publication of "War Stories at Air and Space" in the April 1994 issue of *Air Force* Magazine, Dr. Harwit gave conflicting signals with his statements. Publicly, he insisted that the exhibition plan was sound and that the criticism was misleading and unfair. The curators did not need prodding to make whatever modifications were indicated. In an internal memo to the museum staff in April 1994, however, Dr. Harwit acknowledged that "we do have a lack of balance" and that "much of the criticism that has been levied against us is understandable." In August, he told an Air Force historian that the curators had "failed to follow through" and that promised modifications "had fallen through the cracks." Even so, Dr. Harwit resumed his complaints about the Air Force Association in the August-September issue of *Air & Space* Magazine.

Dr. Harwit's public statements had been less frequent since September 1994, when Mr. Heyman became secretary of the Smithsonian and imposed tighter controls on statements and actions by the Air and Space Museum staff.

Rep. Sam Johnson (R-Tex.), a member of the Smithsonian's Board of Regents, said that Dr. Harwit's resignation "is the first in a long line of management changes that I expect to see at the institution."

In other developments related to the *Enola Gay* controversy:

- The American University in Washington, D. C., plans to display, in cooperation with the city of Hiroshima, the "ground zero" artifacts from Japan originally designated for the exhibition at the Air and Space Museum. The university particularly wants to show a schoolgirl's lunch box with remains of peas and rice reduced to carbon by the atomic bomb. The organizer, Prof. Peter Kuznick, was among those who signed a "historical cleansing" protest letter in November.
- On April 24, Mayor Hitoshi Motoshima of Nagasaki—who had declared the use of atomic bombs against Japan to have been a war crime on a par with Germany's program of genocide against the Jews—was defeated in his bid for reelection by a vote of 106,000 to 61,000.
- At a symposium at the University of Michigan April 19, Dr. Tom D. Crouch, head of the Air and Space Museum's aeronautics department, defended the original *Enola Gay* exhibit concept and depicted the problem as a clash between scholarly truth and commemorative myth. "We behaved," he said, "as if there were only one question to be answered: 'Is this script an honest, accurate telling of the story?' We didn't pause to ask a second question: 'Are there factors at work here that might make an honest and accurate account of the events in question unacceptable to museum stakeholders or to the public?' "
- The academicians who held a press conference last November to denounce the Smithsonian for yielding to demands for "historical cleansing" have now organized themselves as the "Historians' Committee for Open Debate on Hiroshima" and are promoting a "National Teach-In on Hiroshima" at colleges and universities across the United States. The committee said in April that teach-ins had been scheduled at Massachusetts Institute of Technology, Towson State University near Baltimore, three campuses of the University of California (Irvine, Los Angeles, and Berkeley), Northwestern University, Central Washington University, City College of New York, Southwest State University in Marshall, Minn., and The American University.
- Prior to his resignation, Dr. Harwit reinstated Frank Rabbitt, a volunteer docent he had dismissed in June 1994 for talking to the press about the *Enola Gay* program and "undermining the exhibition." Dr. Harwit has been held up to ridicule for "firing" a volunteer who disagreed with him; adding to the awkwardness of the situation, some of Mr. Rabbitt's fellow docents took to wearing "Free Frank Rabbitt" signs as they conducted tours at the museum's Garber facility in Suitland, Md.
- In early May, the Air and Space Museum announced a "Flight Time Barbie" exhibit. A spokesman explained that this display—featuring aviation- and space-related Barbie dolls provided by Mattel, Inc.—is not a major exhibit and is intended as a light and temporary gap-filler while a regular museum gallery is closed during preparation of an upcoming exhibit. Museum officials said they hoped the Barbie display would "delight children."

—John T. Correll

Photo by Paul Kennedy

The 178th Fighter Squadron "Happy Hooligans" swept fighter competition in 1994 by winning the Hughes Trophy and William Tell. Above, 178th FS F-16s prepare to launch during William Tell at Tyndall AFB, Fla.

North Dakota ANG Squadron Wins Hughes

The 178th Fighter Squadron, part of the 119th Fighter Group, an Air National Guard unit at Fargo, N. D., won the 1994 Hughes Trophy as the most outstanding air-to-air unit in the Air Force.

Sponsored by Hughes Aircraft Co., the annual award goes to the unit that best performed the air defense/air-superiority mission during the previous year. Competition included forty units from the Air National Guard, Air Combat Command, Pacific Air Forces, and US Air Forces in Europe.

Known as the "Happy Hooligans," the fighter squadron also won the 1994 William Tell competition. "Winning William Tell was like winning the Super Bowl or the World Series," said Col. Michael J. Haugen, 119th FG commander. However, he added that the Hughes award is bigger because it's based on performance over the entire year. "It is another example of our men and women working as a team, day in and day out. There are a great many things that go into being selected."

The 178th FS track record for both competitions is impressive. The unit also won the Hughes Trophy in 1974 when it flew F-4 Phantom IIs and won the overall William Tell in 1970 and 1972 while flying F-101s, and in 1986 flying F-4s.

Among their many accomplishments, the Hooligans have flown more than 14,688 sorties and 21,920 accident-free flight hours since converting from the F-4 to the F-16 in 1990. The squadron also has an unsurpassed record of more than 80,000 accident-free flying hours over the last twenty-two years, according to unit officials.

The 178th was also the first ANG flying unit to employ hot pit refueling, which reduces F-16 turnaround time from forty-five minutes to only ten to fifteen minutes. Maj. Richard J. Utecht, 178th FS commander, said that Hooligan flying excellence is backed by a strong maintenance program and boasts a good mix of pilots.

areas, expanding preventive health programs, increasing manpower to expand fitness center operating hours, and expanding the family day-care program to help lower the cost.

C-17 Faces Critical Evaluation

In July, the Air Force's new C-17 airlift aircraft will begin a major thirty-day reliability, maintainability, and availability (RM&A) evaluation.

Gen. Robert L. Rutherford, commander in chief of US Transportation Command and commander of Air Mobility Command, told the House National Security Committee on March 30 that the results of the RM&A will "aid our decision in November 1995 at the Milestone IIIB DAB [Defense Acquisition Board]." At that time, the Air Force and the Pentagon will determine whether and to what extent it should continue to purchase C-17s.

The C-17 RM&A, which will test the aircraft and evaluate the contractor's warranty specifications, incentives, compliance, and support under operational conditions, marks the first time the Air Force has included an evaluation of this type in the contract.

After taking his first C-17 flight March 29, Defense Secretary William J. Perry said, "We've put a lot of time and effort—planning and engineering—into making the C-17 the best air mobility airplane in the world." He added that buying more C-17s depends on lower production costs, higher production efficiencies, and "whether we get sufficient money appropriated in the outyears . . . to buy more than forty—and I'm hoping conditions will allow us to do that."

C-17 Dazzles Howard

The Air Force's newest airlifter, the C-17 Globemaster III, flew its first operational flight with a short airfield landing and takeoff in mid-April at Howard AFB, Panama. C-17 pilot Capt. Jerry Davidson said his crew used less than 2,000 feet of runway to arrive with 78,000 pounds of cargo.

Maj. James Knight of the 310th Airlift Squadron, Howard AFB, said the one C-17 flight saved transferring the huge amount of cargo to several smaller aircraft. He added, "We can't wait to work with this aircraft here again." The base usually works with C-130s and C-27s.

Posthumous Purple Heart

1st Lt. Laura A. Piper received a Purple Heart April 14, marking one year since she and twenty-five others were killed when US Air Force F-15s accidentally shot down two US Army UH-60 Black Hawk helicopters over northern Iraq.

Retired Air Force Col. Danny Piper and his wife Joan accepted the medal for their daughter. Air Force Secretary Sheila E. Widnall had posthumously promoted Lieutenant Piper to first lieutenant and awarded her the Defense Meritorious Service Medal.

The other thirteen service members killed in the incident also received Purple Hearts. The presentations reversed an earlier decision by Secretary Widnall and Army Secretary Togo D. West, Jr., not to award Purple Hearts because the deaths did not result from enemy fire. Secretary Widnall said that based on the

unique circumstances of the Black Hawk accident, awarding the Purple Heart "is warranted as an exception to normal policy."

Air Force Victims in Oklahoma City Bombing

Six Tinker AFB, Okla., USAF members were killed in the car bombing of the Alfred P. Murrah Federal Building in Oklahoma City on April 19, and two remained among the missing as of May 3, 1995, according to a Tinker spokesperson.

The list of confirmed dead includes active-duty and retired Air Force personnel, as well as three spouses. They are Kimberly Burgess, wife of SrA. Damon Burgess, 552d Air Control Wing; retired Maj. Robert N. Chipman; A1C Lakesha R. Levy, 72d Medical Group; retired MSgt. Larry J. Jones; John Stewart, husband of Clarice J. Stewart, a civilian who worked at the 38th Engineering Installation Wing; and Dolores Stratton, wife of retired MSgt. Charles Stratton.

Two others still missing are retired MSgt. Larry J. Jones and A1C Cartney J. McRaven, 32d Combat Communications Squadron.

USAF Units Aid Oklahoma City

A fire and rescue team from Tinker AFB, about eight miles from Oklahoma City, received a call at 9:55 a.m. about the bombing on April 19 and was on site within twenty minutes. By midmorning the next day, more than 300 medical, fire, rescue, civil engineering, and bomb dog teams from Tinker were on scene helping local officials, according to a base spokesperson.

Since the initial response, more than 700 Tinker personnel have been working at the Federal Building. The base has served as DoD's central staging facility.

As of May 2, Air Mobility Command's Tanker Airlift Control Center, Scott AFB, Ill., had coordinated movement of more than 710 people, forty search dogs, and 208.5 tons of cargo to Tinker AFB. Air Force aircraft transported urban search and rescue task force teams from Phoenix, Ariz.; Sacramento and Los Angeles County, Calif.; Virginia Beach and Fairfax County, Va.; New York, N. Y.; Montgomery County, Md.; Dade County, Fla.; and Puget Sound, Wash.

Other Air Force assistance included a forty-member surgical and critical-care team from Lackland AFB, Tex., and a Dover AFB, Del., C-5 Galaxy carrying an FBI crime laboratory team and vans from Andrews AFB, Md. Security Police forces from Tinker and Altus AFBs, Okla., searched other buildings in downtown Oklahoma City for bombs. Many individual Air Force reservists dropped by the area to see if they could assist and quickly began sorting donated supplies, feeding and clothing the search workers, and helping to control crowds.

In April, Defense Secretary William J. Perry toured the Engels Heavy Bomber Base, 520 miles southeast of Moscow, Russia, where sixty-four Tu-95 strategic bombers have been destroyed under Strategic Arms Reduction Treaty provisions. Here, a propeller assembly is removed to "demilitarize" a bomber.

USAF completed operational tests in March on Texas Instruments' improved "bunker buster," used in Operation Desert Storm. Above, the BLU-113A/B "business end" of the GBU-28A/B laser-guided bomb penetrates fifteen feet of steel-reinforced concrete during a qualification sled test at Eglin AFB, Fla.

Field of Aeronautics Winners

Three of the Air Force's 1994 Field of Aeronautics Awards go to members of Air Combat Command's 56th Rescue Squadron, NAS Keflavik, Iceland, for their efforts to rescue six Icelandic seamen whose ship foundered in heavy seas January 10, 1994.

Capt. John W. Blumentritt won the Aviator Valor Award for his courage during Air Force Rescue 206. He successfully commanded an HH-60G helicopter for the dangerous hoist operation amid thirty-foot waves and sixty-knot winds. Flying through snow and ice storms toward the nearest medical facility, Captain Blumentritt had to make an emergency landing at a coastal village, which had the only visible lights.

USAF photo by MSgt. Fernando Serna

Northrop Grumman's T-38 Talon, the world's first supersonic trainer aircraft, first flew April 10, 1959. Nearly 68,000 USAF pilots earned their wings in T-38s. The Air Force intends to upgrade 425 T-38s with digital avionics, extending the trainer's usefulness into the next century.

SrA. Matthew A. Wells and SrA. Jesse W. Goerz both received the Cheney Award for their actions, including grouping the survivors by medical condition and remaining on the foundering ship until the last seaman had been safely landed on the beach. They also monitored the helicopter's rotor blade clearance of light poles and wires during the emergency landing.

The entire five-member crew won the Mackay Trophy. The other crew members were Capt. Gary W. Henderson and SrA. Jeffrey M. Frembling.

The final Aeronautics Award for 1994, the Gen. Thomas D. White USAF Space Trophy, went to retired Gen. Charles A. Horner. He received the honor for demonstrating "dynamic leadership, outstanding foresight, and superb management skill by orchestrating excellence at all levels of organization in support of military, civil, and commercial space programs." General Horner is the former commander in chief of the North American Aerospace Defense Command and US Space Command and commander of Air Force Space Command.

Pope Sergeant Wins Vanguard

The Noncommissioned Officers Association 1995 Vanguard Award will honor SSgt. Robert E. Vaughan of the 24th Special Tactics Squadron, Pope AFB, N. C., for his "selfless and heroic actions" following a midair collision between an armed F-16 and a C-130 on March 23, 1994, at Pope. The F-16 slid across the ground into a fully fueled C-141 parked on the runway with paratroopers waiting to embark.

Sergeant Vaughan witnessed the explosion, drove directly to the crash site, and began helping victims by applying splints to broken bones and dressing wounds. He also used his body to shield injured soldiers from flames and unexploded ammunition.

Prescription for Chemical Use

Kelly AFB, Tex., won the DoD Pollution Prevention Award following a simple philosophy: "If you don't spill it, you don't have to clean it up. If you don't use it, you don't have to worry about spilling it or disposing of it."

As the home for the San Antonio Air Logistics Center, Kelly uses more than 4,000 chemicals in more than 1,000 industrial shops. To help manage this volume, Kelly developed the "Pharmacy Concept" about ten years ago, and it is now being picked up by other Air Force bases. Bob Chabot, Kelly's Pollution Prevention Division chief, compared the concept to a doctor writing a prescription. "Our customers are given the chemicals for which they have a proven need and only in the minimum amounts needed to do the job."

Among several environmental projects, Kelly has reduced the use of ozone-depleting substances by more than 70,000 pounds. It has virtually eliminated use of such solvents as freon 113 and trichloroethane by switching to new water-based cleaners. The base's Corrosion Control Facility has cut water use per aircraft by 100,000 gallons, for a total of three million gallons per year. Aircraft parts washers and new vapor degreasers have cut the base's water use by an additional five million gallons per year.

Seymour Johnson Is Recycling Winner

Seymour Johnson AFB, N. C., has won the Secretary of Defense 1994 Installation Recycling Award. Called a pacesetter for recycling, the base started the first Air Force in-house bioremediation process to clean soil contaminated with petroleum products. The process saved taxpayers $133,000 during its first year of operation. In another first, the base started a yard waste compost operation, which handled about three million pounds of yard waste during 1993 and 1994.

Seymour Johnson recycled forty percent of its total solid waste stream, exceeding Air Force and state goals. This is the highest recorded rate in the Air Force, according to base officials. The base also increased the number of recycled products it uses from twenty in 1993 to 100 in 1994. *[See "Aerospace World," May 1995, p. 30.]*

GAO Report Shows Rise in Harassment

A General Accounting Office report released March 31 states that the level of sexual harassment experienced by women at the Air Force and Naval Academies has increased—from fifty-nine percent to seventy-eight percent for the Air Force and from fifty percent to seventy percent for the Navy. A majority of these women said the harassment is recurring.

Eleven percent of the men said they were sexually harassed, but only three to four percent reported recurring levels of harassment.

Like its 1990–91 study, GAO's 1993–94 study found that verbal comments and visual displays, such as offensive posters, signs, and graffiti, are the most common forms of harassment. However, between thirty-six percent and forty-two percent of the women at each school reported they were subjected at least once to physical, gender-related behavior that interfered with their performance or created a hostile environment. Between eleven percent and twenty-two percent said they encountered sexual advances tied to some aspect of their careers.

Recent Air Force efforts to curb sexual harassment include a requirement from both Air Force Secretary Sheila E. Widnall and Chief of Staff Gen. Ronald R. Fogelman for everyone to receive additional equal opportunity training.

Peacetime Operations Make History

Operation Provide Promise marked its 1,000th day on March 29. According to an Air Force news statement, Provide Promise is the longest sustained humanitarian airlift in history, surpassing the length of the Berlin Airlift almost a year and a half ago.

US aircraft have airlifted more than 55,953 metric tons of food, medicine, and other relief supplies so far during the humanitarian mission to Sarajevo, Bosnia, which began July 3, 1992. US airlift crews have also dropped more than 18,002 metric tons of relief supplies into areas that United Nations convoys could not reach over land.

The other Bosnia peacetime mission, Operation Deny Flight, has entered its third year. While some people might question its success, Col. (Brig. Gen. selectee) John H. Campbell, commander of the 31st Fighter Wing, Aviano AB, Italy, who led a two-ship formation on April 12, 1993, kicking off US involvement in the NATO operation, believes there are significant achievements.

"First of all, we stopped the use of fixed-wing airpower to wage the war in Bosnia," said Colonel Campbell. "If you recall the [television news] pictures from about two years ago this spring, you will remember that you saw airplanes strafing and bombing Sarajevo, and we've stopped that completely."

Since Colonel Campbell's initial flight, Air Force, Marine, Navy, Air Force Reserve, Air National Guard, Royal Air Force, and Spanish Air Force pilots have flown approximately 18,500 Deny Flight fighter missions from Aviano. The operation also claims 18,700 close air support sorties and 17,500 NATO airborne early warning, tanker, reconnaissance, and support aircraft sorties.

Provide Promise C-130 Hit

On April 10, small arms fire at Sarajevo hit a C-130 from the 37th Airlift Squadron, Ramstein AB, Germany, as it landed and took off again. The aircraft, which carried a load of flour destined for the Bosnian capital, had a total of twelve bullet holes in its windshield, tail, engine, and a fuel tank. Base officials said the crew had not been hit.

Last Launch for Converted ICBM

The final Atlas E booster launched a Defense Meteorological Satellite Program spacecraft into orbit March 24 from Vandenberg AFB, Calif. Originally built as an intercontinental ballistic missile in the early 1960s, the Atlas ICBMs were decommissioned by the Air Force, and 141 of them went into storage at Norton AFB, Calif.

In 1965, the Air Force awarded General Dynamics a contract to refurbish ninety-five of the stored missiles for space launch. Col. John Hungerford, Jr., Space and Missile Systems Center launch programs director at Los Angeles AFB, Calif., said that the Atlas E has been a true workhorse and flawless performer: "The US government and the American taxpayer have gotten their money's worth."

NCO Wins Federal Award

MSgt. Jerome K. Sutton is the fifth active-duty military member to receive the Arthur S. Fleming Award, which includes among its previous winners Neil Armstrong, John Chancellor, and Elizabeth Dole. For the past forty-seven years, the Downtown Jaycees in Washington, D. C., has presented the award to outstanding federal employees under the age of forty who have made significant contributions both to the federal government and their local communities.

Sergeant Sutton worked sixteen-hour days and seven-day weeks to develop the first technical training in

Senior Staff Changes

RETIREMENTS: M/G John D. **Logeman,** Jr., B/G John R. **Wormington.**

PROMOTIONS: To be **General:** Joseph W. **Ralston.**

To be **Lieutenant General:** Ralph E. **Eberhart,** Lloyd W. **Newton,** Eugene D. **Santarelli.**

CHANGES: Col. (B/G selectee) Theodore C. Almquist, from Dir., Dental Services, 59th Medical Wing, Wilford Hall Medical Center, AETC, Lackland AFB, Tex., to Ass't Surgeon General for Dental Services, Office of the Surgeon General, Hq. USAF, Bolling AFB, D. C., replacing retiring B/G Jerry D. Gardner . . . **Col. (B/G selectee) John H. Campbell,** from Cmdr., 31st FW, USAFE, Aviano AB, Italy, to Cmdr., 325th FW, AETC, Tyndall AFB, Fla., replacing B/G (M/G selectee) Clinton V. Horn . . . **B/G Robert J. Courter, Jr.,** from Command Civil Engineer, Hq. AFMC, Wright-Patterson AFB, Ohio, to Cmdr., 37th TW, AETC, Lackland AFB, Tex., replacing M/G Henry M. Hobgood.

M/G (L/G selectee) Ralph E. Eberhart, from Dir., Force Structure, Resources, and Assessment, J-8, Jt. Staff, Washington, D. C., to DCS/P&O, Hq. USAF, Washington, D. C., replacing L/G (Gen. selectee) Joseph W. Ralston . . . **L/G John S. Fairfield,** from Vice Cmdr., Hq. PACAF, Hickam AFB, Hawaii, to DCS/C^4, Hq. USAF, Washington, D. C., replacing retiring L/G Carl G. O'Berry . . . **B/G Dennis G. Haines,** from Dir., Log., Hq. AETC, Randolph AFB, Tex., to Dir., Supply, DCS/Log., Hq. USAF, Washington, D. C., replacing retiring B/G Kenneth G. Miller . . . **Col. (B/G selectee) David A. Herrelko,** from Cmdr., Wright Lab, ASC, Hq. AFMC, Wright-Patterson AFB, Ohio, to Cmdr., Jt. Log. Sys. Ctr., Hq. AFMC, Wright-Patterson AFB, Ohio, replacing retired B/G John R. Wormington.

B/G (M/G selectee) Clinton V. Horn, from Cmdr., 325th FW, AETC, Tyndall AFB, Fla., to Dir., Ops., J-3, Hq. USSOCOM, MacDill AFB, Fla., replacing M/G (L/G selectee) Lloyd W. Newton . . . **B/G Robert G. Jenkins,** from Vice Cmdr., 7th AF, PACAF; Vice Cmdr., USAF Korea; and C/S, ROK/US Air Comp. Cmd., CFC, Osan AB, Korea, to Dir., Log., Hq. PACAF, Hickam AFB, Hawaii, replacing Col. Richard M. May, Jr. . . . **B/G Thomas J. Keck,** from Cmdr., 55th Wing, ACC, Offutt AFB, Neb., to Dir., Strategy, Policy, and Plans, J-5, Hq. USSOUTHCOM, Quarry Heights, Panama, replacing retiring B/G Rudolf F. Peksens.

Col. (B/G selectee) Stephen E. Kelley, from Dir., C^4 Sys., J-6, Hq. USCENTCOM, MacDill AFB, Fla., to Dir. C^4 Sys., J-6, Hq. USTRANSCOM, Scott AFB, Ill., replacing B/G (M/G selectee) George P. Lampe . . . **B/G Rodney P. Kelly,** from Ass't Dir., Ops., Hq. PACAF, Hickam AFB, Hawaii, to Dir., Plans, Hq. PACAF, Hickam AFB, Hawaii, replacing M/G John M. McBroom . . . **Col. (B/G selectee) Michael S. Kudlacz,** from Cmdr., 416th BW, ACC, Griffiss AFB, N. Y., to Cmdr., 55th Wing, ACC, Offutt AFB, Neb., replacing B/G Thomas J. Keck . . . **B/G (M/G selectee) George P. Lampe,** from Dir., C^4 Sys., J-6, Hq. USTRANSCOM, Scott AFB, Ill., to Dir., Plans, Policy, and Resources, DCS/C^4, Hq. USAF, Washington, D. C., replacing retiring M/G Phillip E. Bracher.

B/G (M/G selectee) Eugene A. Lupia, from Dir., Civil Engineering, Hq. AMC, Scott AFB, Ill., to The Civil Engineer, Hq. USAF, Washington, D. C., replacing retiring M/G James E. McCarthy . . . **M/G John M. McBroom,** from Dir., Plans, Hq. PACAF, Hickam AFB, Hawaii, to Dir., Ops., Hq. PACAF, Hickam AFB, Hawaii, replacing M/G (L/G selectee) Eugene D. Santarelli . . . **M/G James C. McCombs,** from Dir., Resources, J-8, Hq. USSOCOM, MacDill AFB, Fla., to Dep. CINC and C/S, Hq. USSOCOM, MacDill AFB, Fla.

Col. (B/G selectee) Harry D. Raduege, Jr., from Cmdr., Air Force C^4 Agency, Scott AFB, Ill., to Dir., C^4 Sys., J-6, Hq. USCENTCOM, MacDill AFB, Fla., replacing Col. (B/G selectee) Stephen E. Kelley . . . **L/G (Gen. selectee) Joseph W. Ralston,** from DCS/P&O, Hq. USAF, Washington, D. C., to Cmdr., Hq. ACC, Langley AFB, Va., replacing retiring Gen. John M. Loh . . . **M/G (L/G selectee) Eugene D. Santarelli,** from Dir., Ops., Hq. PACAF, Hickam AFB, Hawaii, to Vice Cmdr., Hq. PACAF, Hickam AFB, Hawaii, replacing L/G John S. Fairfield.

M/G Donald B. Smith, from Dep. Cmdr., 6th ATAF, AAFSE, NATO, Izmir AS, Turkey, to Cmdt., AWC, AU, AETC, Maxwell AFB, Ala., replacing retiring M/G Peter D. Robinson . . . **Col. (B/G selectee) Todd I. Stewart,** from The Civil Engineer, Hq. AETC, Randolph AFB, Tex., to Command Civil Engineer, Hq. AFMC, Wright-Patterson AFB, Ohio, replacing B/G Robert J. Courter, Jr. . . . **Col. (B/G selectee) Philip G. Stowell,** from The Civil Engineer, Hq. PACAF, Hickam AFB, Hawaii, to Dir., Civil Engineering, Hq. AMC, Scott AFB, Ill., replacing B/G (M/G selectee) Eugene A. Lupia.

B/G (M/G selectee) Arthur S. Thomas, from Dep. Chief of Chaplains, Hq. USAF, Bolling AFB, D. C., to Chief of Chaplains, Hq. USAF, Bolling AFB, D. C., replacing retiring M/G Donald J. Harlin . . . **Col. (B/G selectee) Charles F. Wald,** from Exec. Officer/Dir. Ops., AAFCE, NATO, Ramstein AB, Germany, to Cmdr., 31st FW, USAFE, Aviano AB, Italy, replacing Col. (B/G selectee) John H. Campbell . . . **Col. (B/G selectee) Olan G. Waldrop, Jr.,** from Cmdr., AFLSA, Hq. USAF, Bolling AFB, D. C., to Staff Judge Advocate, Hq. AFMC, Wright-Patterson AFB, Ohio, replacing retired B/G James C. Roan, Jr. . . . **Col. (B/G selectee) Herbert M. Ward,** from Dep. Dir., Operational Requirements, DCS/P&O, Hq. USAF, Washington, D. C., to Dir., Requirements, Hq. AFSPC, Peterson AFB, Colo., replacing retiring Col. Steven C. Stadler.

SES CHANGES: Samuel A. DiNitto, Jr., to Dir., C^3, Rome Lab, Griffiss AFB, N. Y., replacing Raymond Utz . . . **Robert A. Frye,** to Exec. Dir., Standard Sys. Group, ESC, Maxwell AFB, Gunter Annex, Ala., replacing Spain Hall . . . **John H. Wiand,** to Dep. Dir./Tech Ass't, Dir. of Intelligence, J-2, Hq. USSOCOM, MacDill AFB, Fla., replacing Everett Hopson . . . **Harlan G. Wilder,** to Chief, General Law Division, Judge Advocate General, Hq. USAF, D. C. ■

Air Education and Training Command for Airborne Warning and Control System (AWACS) operators. It took ninety days to develop the course, train a staff, and edit the courseware and texts. It normally takes twelve months.

Spurred by the accidental shootdown of two Army UH-60 Black Hawk helicopters by Air Force F-15s last year, Sergeant Sutton designed a simulator that encompasses the critical areas of communication, internal and external coordination, and identification for the E-3 AWACS, the EC-130E Airborne Battlefield Command and Control Center, and the E-8 Joint STARS—a first for the Air Force, according to a USAF news release. This new concept in aircrew simulators proved the project could be built locally, saving taxpayers more than $13 million.

In his spare time, Sergeant Sutton, an element chief with the 355th Training Squadron, Keesler AFB, Miss., also contributes to the local communities in Mississippi and Oklahoma. He counsels troubled youth, presents suicide-prevention workshops for youth organizations, and has developed a visitation program for veterans confined to hospital beds in VA medical centers.

United Shield Airmen Receive Medals

Defense Secretary William J. Perry awarded Joint Service Commendation Medals to SSgt. Jerry L. Bosworth and 1st Lt. Kurt W. Buller, as well as twelve other Americans and one Italian, on March 17 for their participation in Operation United Shield. United Shield was the seventy-two-hour multinational task force mission that evacuated United Nations peacekeepers from Somalia March 1–3.

Sergeant Bosworth, a secure telecommunications systems technician with the Joint Communications Support Element, MacDill AFB, Fla., provided communications repair support at Mogadishu. Lieutenant Buller, a combat controller in charge of Blue Team, 23d Special Tactics Squadron, Hurlburt Field, Fla., was the senior air traffic controller at Mogadishu in Somalia. He handled airspace management and air traffic control for more than 150 aircraft sorties during the operation.

News Notes

■ The Air National Guard's 106th Rescue Group, Westhampton Beach, N. Y., won the Capt. William J. Kossler Award presented annually by the American Helicopter Society for the greatest achievement in practical application or operation of rotary wing aircraft. The 106th helped rescue a Ukrainian seaman from the North Atlantic Ocean. *[See "Aerospace World," February 1995, p. 19.]*

■ Air Force Vice Chief of Staff Gen. Thomas S. Moorman, Jr., won the 1995 Robert H. Goddard Memorial Trophy recognizing his "distinguished space career across the spectrum of national space activities." Among many accomplishments, he has been a leading advocate for integrating military space operations into the nation's warfighting plans.

■ Air Force Secretary Widnall became the first woman to pilot a B-2 on March 9 at Whiteman AFB, Mo. She said that as an aeronautical engineer she knows that flying-wing aircraft shouldn't fly, but she "actually piloted the B-2, and it handled quite easily."

■ DoD will award $31 million to seventy-one academic institutions to help them purchase cutting-edge research equipment costing more than $50,000.

■ Warner Robins Air Logistics Center won the Secretary of Defense Environmental Quality Award for 1994, recognizing the best overall environmental program in DoD.

■ The 4th Wing, Seymour Johnson AFB, N. C., will receive the 1995 Verne Orr Award, presented annually by the Air Force Association to the unit that most effectively uses human resources to accomplish its mission. The wing flew a ten-month total of 12,174 sorties for 24,176 flying hours to support local and worldwide missions.

■ The Air Force Pentagon Communications Agency became part of the single agency manager (SAM) for the Pentagon Information Technology Services on April 6. Army Brig. Gen. Robert L. Nabors, SAM commander, said that the program will eventually link all DoD Pentagon offices to one communications agency to help reduce redundancies to ensure that "top military decision-makers have access to the best possible technology and information."

■ SrA. Allen L. Roby of the 62d Security Police Squadron, McChord AFB, Wash., won the 1994 GEICO Military Service Award for supporting Drug Abuse Resistance programs in the local community and schools.

■ The Air Force Reserve reenlistment or prior-service enlistment incentive will double for eligible Reservists on July 1, according to an AFRES news release. The Reserve will offer increased bonuses as a result of the Pentagon's decision last year to double enlistment incentives for non–prior service recruits going into critical skill specialities.

■ QualMed Inc., Pueblo, Colo., has won the second regional contract for DoD's new Tricare health care program. The $2.5 billion contract covers California and Hawaii and begins October 1. The first contract, which began March 1, covers the Washington and Oregon region. The next region to receive a contract will be Texas, Oklahoma, Arkansas, and Louisiana, with a projected start date of November 1, according to DoD officials.

■ USAF has agreed to purchase fifty tiltrotor CV-22 Ospreys beginning in January 2000 for Air Force Special Operations Command. AFSOC should receive its first aircraft in 2003 and establish an operational capability with twelve Ospreys in 2005.

■ To help increase service standards in delivering new products and information on quality to its customers, the Air Force joined the 175-member Council for Continuous Improvement. The council is a nonprofit, national consortium dedicated to producing, documenting, and sharing quality information. Members include Keebler, Lockheed Martin, General Motors, Anheuser-Busch, and the state of California.

■ Former President George Bush received the Air Force Academy's Thomas D. White National Defense Award in April for "meritorious contributions over five decades to the national defense and security of the United States."

■ The 91st Missile Group, Minot AFB, N. D., and the 2d Bomb Wing, Barksdale AFB, La., won US Strategic Command's Omaha Trophy for 1994. USSTRATCOM awards the trophy to the top ballistic missile and aircraft units for outstanding support to the strategic deterrence mission.

■ Lockheed Martin launched its first satellite aboard an Atlas IIAS booster freshly painted with the new Lockheed Martin logo on March 22.

■ Air Force Space Command units won three Air Force environmental awards. The 12th Space Warning Squadron, Thule AB, Greenland, received the best overall environmental quality award for an overseas site. The 45th Civil Engineer Squadron, Patrick AFB, Fla., won the environmental planning award. Mark Kershner, remedial program manager at Patrick, won the environmental restoration award for individual excellence.

■ Bob Van Orman, director of environmental management at Hill AFB, Utah, received the 1995 Secretary of Defense Individual Award for Environmental Quality, the highest award for a DoD employee in the environmental arena. He oversees more than one million acres of DoD property in Utah and Nevada.

■ The Air Force Material Command outstanding enlisted members for 1994 are SrA. Thomas F. O'Leary, Maxwell AFB, Ala.; SSgt. Fredrick W. Green, Tinker AFB, Okla.; SMSgt. Michael A. Limric, Arnold AFB, Tenn.; and Sgt. Edward C. Jones, Hanscom AFB, Mass.

■ A1C Lisa O'Connor of the 100th Operations Support Squadron, RAF Mildenhall, England, won the 1994 Dodson Award as the Outstanding Air Force Weather Observer. According to her supervisor, she transmitted more than 1,200 observations with a 99.8 percent error-free rate and maintained a 100 percent rate for nine consecutive months.

■ The Air Force announced the winners of the thirty-ninth annual Air Force Media Contest in late March. The print journalist of the year is TSgt. Patrick McKenna of the 60th Air Mobility Wing, Travis AFB, Calif. He also took top honors in three individual writing categories: features, editorial and commentary, and sports. The broadcast journalist winner is SSgt. Erik G. Brazones, Air Force Broadcasting Squadron, Kunsan AB, South Korea (he is now assigned to Yokota AB, Japan).

■ The much-in-demand 429th Electronic Combat Squadron, Cannon AFB, N. M., has its EF-111s deployed to support Operation Deny Flight over Bosnia, and Operations Provide Comfort and Southern Watch in southwest Asia. For some squadron members, it's a return trip to Aviano AB, Italy, to support Deny Flight; they were there late last year.

■ Air Force Reservists from the 442d Fighter Wing, Whiteman AFB, Mo., have returned to Aviano for the third time to support Operation Deny Flight. Their previous deployments came in

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late 1993 and mid-1994. On this tour, Reservists from the 917th Wing, Barksdale AFB, La., will relieve the Whiteman unit after thirty days.

■ Starting late in 1995, the Air Force will retire seventy-four F-111E/F aircraft now stationed at Cannon AFB, N. M., and replace them with fifty-four F-16C/D Fighting Falcons. The F-111 took its maiden flight December 21, 1964.

■ Next door, at Luke AFB, Ariz., the last F-15E departed, marking the end of a twenty-one-year sojourn for F-15s at the base. A base spokesperson said the first F-15 arrived at Luke November 14, 1974, met by a host of officials, including President Gerald Ford.

■ First flight of an EF-111A Raven upgraded by the System Improvement Program took place March 14 at Eglin AFB, Fla. According to Aeronautical Systems Center officials, this is the first major upgrade for EF-111As since their delivery in 1981. The SIP provides Ravens with increased signal processing, memory capacity, and processing speed and improved man-machine interface, reliability, and maintainability.

■ The 1st Communications Squadron, Langley AFB, Va., won the 1994 Air Force Maintenance Effectiveness Award for Communications Electronics in the large unit category.

■ The Air Force will develop a plan to execute the new "DoD Space Architect" function, Paul Kaminski, the Pentagon acquisition head, told a House Appropriations subcommittee in late March. The space architect will report to him through the Air Force Acquisition Executive.

Obituaries

Brig. Gen. James H. Howard, the US military's only World War II fighter pilot to receive the Medal of Honor for action in aerial combat over Europe, died March 25 after a long illness. He was eighty-one.

General Howard earned the Medal of Honor for single-handedly protecting a B-17 formation on a long-range mission near Berlin January 11, 1944. He had become separated from his P-51 unit during an earlier encounter with Luftwaffe aircraft.

According to the citation signed by President Franklin D. Roosevelt, General Howard, rather than wait for help, fended off some thirty aircraft for nearly thirty minutes and shot down at least four of the German fighters. Low on fuel and out of ammunition, he returned to base, but his aircraft had only been hit once, and all the bombers survived.

Born in China to missionary parents, General Howard returned to the US to finish high school. He graduated from Pomona College, Calif., with a bachelor's degree in chemistry. He entered naval aviation training in 1938. Two years later he left the Navy to join the American Volunteer Group, flying with Col. Claire L. Chennault's "Flying Tigers" in Burma and China. He shot down more than six Japanese aircraft but was shot down only once, and that by ground fire.

When the AVG merged with Army Air Forces in 1942, General Howard returned to the US and accepted a commission as a captain. By the fall of 1943, as a major, he commanded the 354th Fighter Group, the first American unit to receive P-51 Mustangs.

After the war, he left active duty to form his own systems engineering company. He retired from the Air Force Reserve in 1966. ■

Today, nations have to develop military aircraft with an eye to export as well as to their own needs.

The Aviation Market Goes Global

By David R. Markov

Staff photos by Guy Aceto

Russian aircraft dealers (such as these at the Farnborough Air Show) shape up to be big wild cards in the fighter business. From France comes Dassault's Rafale (opposite), a next-generation multirole fighter sporting twin engines, Mach 2–plus performance, and a price tag of $50 million to $60 million per copy.

Most nations—the US is a notable exception—can no longer afford to design, develop, and build military aircraft purely, or even mainly, for national needs. The strategy for major aircraft producers is to export extensively. Doing so permits them to save a part of their defense industrial bases, develop next-generation aircraft, and cut per-unit costs for their own forces.

Virtually all of the major air forces are shrinking. The day of huge annual fighter buys by military aircraft producers—the US, Russia, and western Europe—is over, according to plans produced by each nation since 1991. In fact, an analysis of US and foreign aircraft procurement budgets and plans from today to beyond the turn of the century shows no single production line turning out more than sixty aircraft per year.

The result is increasingly fierce competition in the international military aviation market. Though the outcome of the competition is uncertain, the stakes are high. The winners can expect to enter the next century with a strong or at least functioning aerospace capacity; even the US has an important stake in the

export market. For the losers, the outlook will be bleak.

The decline of US fighter aircraft purchases serves as an indicator of a general worldwide military aircraft decline that analysts assert will continue through the turn of the century. The Teal Group, based in the Washington, D. C., area, is a widely consulted forecaster of long-range market trends in aerospace and defense. Its analysts predict that the world's fighter aircraft firms during the next decade will produce only about 2,700 new aircraft, worth approximately $89 billion.

Teal's worldwide market assessment—which tracks closely with others developed by government agencies—is that US producers will build about fifty percent of all new fighters, western Europe 24.1 percent, Russia 16.2 percent, Taiwan 3.7 percent, Japan 2.3 percent, and India 0.8 percent, with the remainder divided among all other producers.

Peaking in 1998

Worldwide fighter production during the decade ahead is expected to peak in 1998 with 341 aircraft, largely as a result of unusually large orders of US aircraft from Saudi Arabia and Taiwan. However, 1998 also will mark the beginning of a slow decline in production each year until the market hits a low of 218 aircraft in 2002.

Analysts explain that the late-1990s downturn results in part from the planned drop in production of F-16 fighters for the world market and termination of F-15 production. They predict a small rise for 2004 and beyond, largely because of USAF plans for sustained production of the F-22 fighter but also as a result of new orders for Europe's European Fighter Aircraft (EFA), France's Rafale, Japan's FSX, and India's Light Combat Aircraft (LCA).

Market conditions also are dictating important changes in the shape of tomorrow's fighter forces. Fighters purchased either domestically or on the export market are more likely to have multimission, all-weather, and nighttime capabilities. In addition, say officials, such aircraft will probably have to possess some degree of stealthiness and be highly cost-effective. They say that the era of superspecialized, single-mission aircraft has largely passed.

This may be true even for the US Air Force's F-22 air-superiority fighter. Gen. John Michael Loh, commander of Air Combat Command, stated that the Air Force will spend a total of $18 billion on F-22 research and development, and "we ought to be trying to find ways to maximize our return on investment"—meaning ways to make broader use of the aircraft. To that end, according to Lockheed Martin officials, ACC initiated a formal study of possible F-22 variants optimized for Suppression of Enemy Air Defenses, precision strike, reconnaissance, and other missions.

European nations have expressed similar plans concerning their newest fighter offerings and are emphasizing that multimission capabilities have been integrated into the flight test programs for the Rafale, the Swedish JAS 39 Gripen, and the EFA.

One of the most capable and modern multirole aircraft being produced is the McDonnell Douglas F/A-18 Hornet, a US Navy and Marine Corps aircraft. The ability of the F/A-18 to operate in both air-to-air and air-to-ground modes is a major factor in its great success on the worldwide mar-

Lockheed Martin concept for a new Joint Advanced Strike Technology fighter. The JAST program envisions production of new fighters to replace the Air Force F-16, Navy F/A-18, Marine AV-8B, and allied warplanes.

ket. The same can be said for USAF's F-16. The popularity of these aircraft is one reason US forecasters believe US exports will remain strong.

$37 Billion Over Ten Years

Teal's experts say US fighter houses will probably receive about $37 billion in production orders over the next decade. Roughly sixty percent of the amount will come from international sales. Without these large export sales, the US aircraft industrial base would be faced with more drastic scaling back of production and would significantly increase per-unit cost to the Pentagon, according to major prime aircraft manufacturers.

Fairchild and Vought have left the production field. General Dynamics' F-16 line was acquired by Lockheed. Northrop has acquired Grumman. McDonnell Douglas and Boeing say they intend to stay in the military aircraft business.

Lockheed Martin's buyouts and mergers have given it control of much of US fighter production, including the F-16 and the upcoming F-22. Experts say that the F-22 aircraft, like the F-15 before it, has tremendous potential for export to wealthy nations in the Middle East (principally Saudi Arabia) and the Far East (principally Japan). Lockheed Martin has a healthy order book for F-16s, and production is expected to continue through 2004. The Teal Group's ten-year forecast envisions Lockheed Martin production of 685 fighter aircraft—the most by any single producer in the world—worth an estimated $14.7 billion.

The other major US fighter house, McDonnell Douglas, clearly is in a position to become the dominant aircraft supplier to the US Navy and Marine Corps. The Navy continues to buy the F/A-18C/D Hornet for its carriers. The upgraded F/A-18E/F variant is viewed by the Navy as a high-priority purchase for the future. Sales to the Navy will permit McDonnell Douglas to pursue major export orders, leading US analysts to predict that the company will produce roughly forty-five Hornets a year over more than a decade.

In addition, McDonnell's F-15 production and AV-8B remanufacturing lines are still open and will remain so through the end of this decade. The company expects to produce 678 fighter aircraft worth an estimated $22.03 billion—the largest dollar volume of any fighter aircraft producer.

Early in the 1990s, there were four major aircraft programs in the United States—the F-22, a new multirole fighter to replace the F-16, the A/F-X, and the F/A-18E/F. Of those four programs, only the F-22 and F/A-18E/F have survived. In addition to the new designs, consideration is being given to upgrading or reworking existing or new production platforms.

One example is USAF's F-117 fighter. Air Force and Lockheed Martin officials said they have begun a midlife improvement program study for the fighter based on eighteen possible low-observable technology improvements developed for the F-117A.

The JAST Factor

Other future fighter aircraft initiatives include the new Joint Advanced Strike Technology program. According to current JAST documents, the program calls for a total of 1,874 aircraft to replace the USAF F-16 and 642 advanced short takeoff, vertical landing (ASTOVL) aircraft to replace Marine Corps AV-8B Harriers and Navy F/A-18E/Fs. The JAST program is also expected to look at possible configurations to replace the F-117, F-111, and F-15E. However, under current plans, JAST-designed aircraft would not enter service before 2010.

The Defense Department and British Defence Ministry have signed a letter of intent on British corporate participation in the US program, according to the JAST program director, Air Force Maj. Gen. George K. Muellner. Aerospace analysts say the UK will participate in the ASTOVL program in order to develop a replacement for British Sea Harriers and Harrier GR Mk. 7s. In addition, said General Muellner, other NATO Allies and at least one non-NATO nation are thinking about participating.

The outlook for European fighter producers is less bright than it is for US concerns, but it remains relatively strong in the view of private forecasters and US government analysts. The Teal analysis foresees European production over the coming decade of 656 aircraft, or about one-quarter of the world total. These projected sales are valued at $24.5 billion.

The internal European market is far different from that in the US. In Europe, three major aircraft-producing countries—France, the United Kingdom, and Sweden—serve many national customers. Each of these producer countries depends on the others to manufacture aircraft. They also are dependent on the United States for systems, as with Sweden's production, under license, of GE F404 jet engines for the JAS 39.

Each European manufacturer can

produce only one military aircraft type at a time. The United Kingdom is gearing up to switch from Tornado production to EFA production. France is switching over from the Mirage 2000 to Rafale. Sweden has turned from the Viggen to the JAS 39. These transition periods can last a long time. For example, it took Sweden nearly five years to convert from Viggen to JAS 39 production. Britain's switch to the EFA probably will take a similar amount of time, as will France's move to Rafale.

The trend toward multirole capabilities is nowhere more apparent than in the European Fighter Aircraft program. The EFA will have a standard airframe but will mix and match avionics to cater to the requirements of each purchaser. To date, this program has been unable to live up to its preproduction marketing claim that it has the capabilities of an F/A-18, or even an F-15, with a lower price tag. The higher-than-expected cost is the result of diminished support from the four original participants—the United Kingdom, Germany, Italy, and Spain.

German support for the EFA has fluctuated. The government is reviewing its current plan to fund the development and procurement of 120 EFAs. Other options include purchasing US F/A-18s, Russian MiG-29s, or a combination of the two.

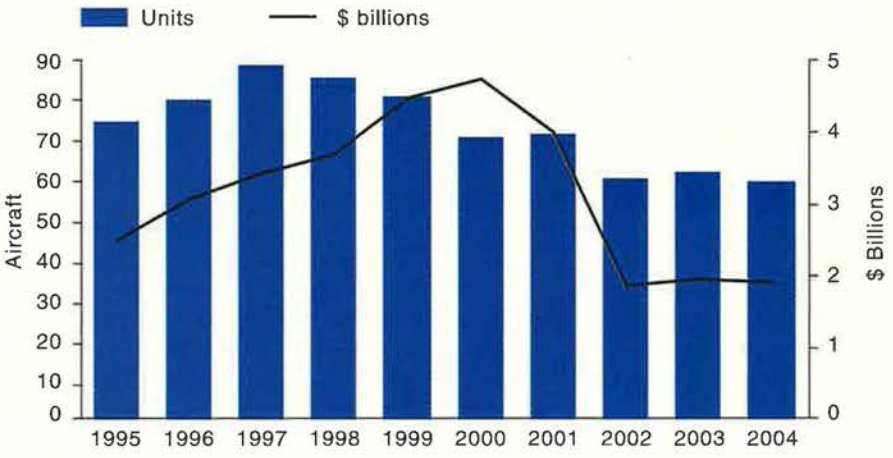
Despite problems with the EFA, German industry can look forward to future fighter aircraft work. In a recent report, the German Ministry of Defense stated that research should begin around the turn of the century on a new combat aircraft. Many in the British aerospace industry also have expressed a desire to cooperate with Germany on producing a future fighter technology demonstrator, with an eye toward replacing the multinational Tornado. Deutsche Aerospace recently released details on an F-117-like, low-observable, full-scale airframe called "Firefly." This model was designed with a relatively small radar cross section and could serve as the starting point for a future fighter design.

Few Are Fully Committed

To date, only the United Kingdom and Italy are fully committed to producing the EFA. In Britain, this support stems from the fear of losing all fighter production capability after the Tornado production line closes in 1999, at the end of a forty-eight-plane run for Saudi Arabia. British Aerospace, according to Teal's ten-year forecast, will produce 184 aircraft, counting EFA, or 6.8 percent of the world market total. This is expected to be worth an estimated $9.3 billion.

The other major actors in the European fighter scene, Sweden and France, have experienced problems producing their aircraft. Sweden has joined with British Aerospace in marketing the JAS 39 overseas and appears to pose real competition for France's fighters. The Gripen is a single-seat, multirole, single-engine supersonic combat aircraft that will incorporate modern look-down/shoot-down radar/avionics similar to the F/A-18 Hornet. Officials at Saab-Scania maintain that the company can provide all this capability for only $30 million per aircraft.

British Aerospace and Saab signed an agreement permitting BAe to



Numbers in this table forecast actual production (not new sales) of specific aircraft for a given year through 2004. Production figures are based on both the backlog of previously announced sales and projected level of anticipated sales. Numbers listed here include prototype, preproduction, and series production aircraft.

Ten-Year Military Transport Production Forecast

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	Total
Units	75	80	89	86	81	71	72	61	62	60	737
$ Billions	2.52	3.06	3.41	3.66	4.45	4.71	3.97	1.89	1.99	1.93	31.57
Military Transports											
Airbus Military	0	2	2	4	4	6	6	4	2	2	32
Airtech CN-235	30	26	28	24	20	18	18	22	22	22	230
Alenia G.222	3	2	1	0	0	0	0	0	0	0	6
Boeing Military	0	4	6	8	8	6	6	6	8	8	60
CASA C-212	14	12	12	10	8	5	4	3	0	0	68
Euroflag FLA	0	0	0	0	0	0	0	0	0	0	0
Fokker 60	1	4	4	4	3	0	0	0	0	0	16
Lockheed C-130	21	24	30	30	28	24	30	26	30	28	271
McDonnell Douglas C-17	6	6	6	6	10	12	8	0	0	0	54

market the JAS 39. British Aerospace believes that the JAS 39 fills a gap between the Hawk trainer/light attack aircraft and the more expensive EFA. This aircraft is uniquely positioned to capture the low-end European fighter market.

US analysts expect Dassault, the French aircraft company, to produce 280 aircraft in the next decade, representing 10.7 percent of the world market and worth $9.61 billion. Much of this will stem from sales of France's Rafale, a next-generation multirole fighter sporting twin engines and Mach 2–plus performance. Dassault engineers tout the merits of the Rafale's RBE2 radar that allows automatic terrain following and simultaneous look-up to track air targets—a feature found only on this aircraft, say Dassault officials.

In addition, the Rafale possesses an Infrared Search and Track System and integrated television for passively tracking targets out to fifty kilometers (thirty-one miles). The French fighter incorporates the Spectra integrated electronic warfare suite, which, according to Dassault officials, is the most adaptive and effective electronic warfare system of its kind. The one drawback to this very capable aircraft is its high cost, expected by analysts to range between $50 million and $60 million per copy. Still, Dassault is confident that the Rafale will carve out a unique market niche.

Political Sensitivity

Production of a follow-on French fighter is a distinct possibility, but that is a politically sensitive subject for Dassault. Any suggestion that the Rafale may not be able to meet future threats could cause the program to lose government support. The high priority given to this program is a sign of its importance to the French Air Force, which may buy up to 250 aircraft. In addition, the French Navy will purchase a small number of Rafale M (Marine) aircraft to be deployed first on the aircraft carrier *Foch* and then on the newly constructed aircraft carrier *Charles de Gaulle*.

The big wild cards in the international fighter market are Russia and China, each of which could be hampered by political turmoil or could resolve their internal problems and wind up grabbing huge shares of the world's fighter sales. Many of the recent movements in aircraft development by the Russians and Chinese are so confusing that forecasting their impact on the worldwide fighter market is next to impossible.

Teal analysts expect Sukhoi to sell more than 400 Su-27 fighter variants, worth nearly $18 billion. These include an air-to-ground version to replace Russia's Su-24 "Fencer." Mikoyan is working on the MiG 1-42, a stealthy aircraft that Mikoyan officials describe as "a fifth-generation fighter" in the same class as the Rafale and EFA. The MiG 1-42 is believed by many in the West to be a thirty-five-ton aircraft with a low multispectral signature, a reliable and superefficient engine, and an array of low-probability-of-intercept sensors. According to Russian sources, the MiG 1-42 recently has undergone high-speed taxi runs at the Flight Test Research Institute at Zhukovsky Airfield, outside Moscow.

It is uncertain when, or even if, this aircraft will ever enter series production, but some Mikoyan representatives claim that it could go into production as early as the turn of the century.

Like Russia, China is working on a sophisticated new aircraft, the F-10, but the work is being done in cooperation with Israel. The proposed F-10, according to Western defense officials, is a next-generation multirole aircraft similar in performance and characteristics to the Israeli Lavi, Swedish JAS 39, or US F-16. The single-engine aircraft will have delta wings and canard flight controls.

Western press reports cite US government officials as saying that full-scale development will begin in a year or two, though production won't begin for a decade. The F-10 represents a major investment for the Chinese and highlights Beijing's desire to produce a sophisticated aircraft to replace its older Soviet-origin inventory. It appears that this aircraft will be used as a stablemate for China's Russian-built Su-27 "Flankers." Recent statements by the Chinese suggest that in addition to buying the Su-27, they would like to license-produce the aircraft.

A certain amount of the world market will be won by smaller producers, but their course will be anything but easy.

Unhappiness in Japan

Japan's rollout of the first FSX prototype provoked a storm of protests regarding how expensive this F-16 variant is when compared to its modest improvement in combat effectiveness. The FSX program was established by Japan and the US to build an improved, specialized, and major upgrade to the F-16C support fighter. The FSX is designed to replace the Japanese F-1 strike fighter and to have an antiship role.

Vernon Lee, Lockheed Martin's

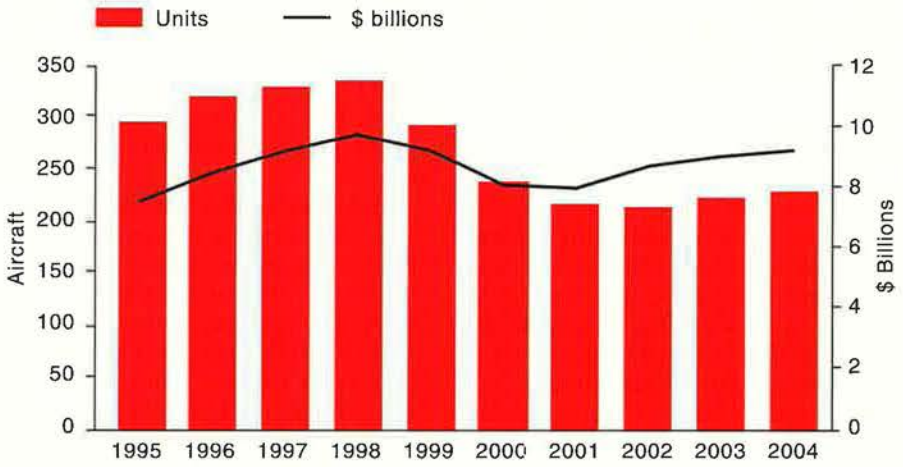
Staff photo by Guy Aceto

A Sukhoi Su-30MK takes off at the 1994 Farnborough Air Show. Private analysts believe that Sukhoi will market seven variants of the Su-27 fighter to both Russian and export customers and produce more than 400 in the next ten years.

Ten-Year Fighter Production Forecast

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	Total
Units	299	324	333	341	298	243	220	218	227	232	2,735
$ Billions	7.7	8.6	9.3	9.9	9.3	8.2	8.1	8.8	9.1	9.4	88.5
Fighter Aircraft											
AIDC Ching-Kuo	20	24	24	18	8	6	2	0	0	0	102
AMX	30	21	17	9	7	0	0	0	0	0	84
BAe/MD AV-8B Harrier II	23	20	5	6	8	6	0	0	0	0	68
Dasault Mirage 2000	37	36	37	34	8	0	0	0	0	0	152
Dassault Rafale	0	4	12	16	16	16	18	18	20	20	140
Eurofighter 2000	2	0	0	2	10	14	24	28	28	28	136
HAL LCA	0	1	1	1	2	0	0	2	6	10	23
Lockheed F-16	78	86	88	88	80	66	50	24	24	20	604
Lockheed/Boeing F-22	0	1	3	4	1	4	8	16	20	24	81
McDonnell Douglas F-15	20	20	24	29	21	24	8	0	0	0	146
McDonnell Douglas F/A-18	41	47	53	54	47	36	40	46	48	52	464
Mitsubishi/LH FSX	2	2	1	0	4	8	10	12	12	12	63
Panavia Tornado	0	12	14	14	8	0	0	0	0	0	48
Saab Gripen	10	14	16	20	26	19	14	22	19	20	180
Sukhoi Su-27	36	36	38	46	52	44	46	50	50	46	444

Numbers in this table forecast actual production and remanufacture (not new sales) of specific aircraft for a given year through 2004. Figures are based on both the backlog of previously announced sales and projected level of anticipated sales. Numbers listed here include prototype, preproduction, and series production aircraft. F-16 production numbers reflect USAF orders, exports, and license production/kit assembly in South Korea and Turkey.



vice president for Japanese matters and its FSX program manager, points out that the FSX is not an F-16C and many of the changes introduced on this aircraft have been included in advanced production models of the F-16. Like the European concerns, Japan appears to be having problems changing over from the F-15J to the FSX. Industry officials say that production cost estimates may have nearly doubled, from $56 million to $100 million per aircraft.

Whatever its problems, the FSX is expected to go forward, with Tokyo eventually buying sixty-three at a cost of $4.41 billion. In addition to producing the FSX, Japan is also exploring possible upgrade and replacement options for the locally produced, US-license-built McDonnell Douglas F-15J. Japan recently announced its plan to develop a next-generation stealth fighter called FIX as one such option. Another is buying F-22s

The Indian Light Combat Aircraft is experiencing many of the teething problems that Sweden suffered with the Gripen, and the program will likely result in a very small production run of only twenty-three aircraft. The LCA is a lightweight, delta-wing, multirole aircraft, designed with extensive assistance from many European countries. The LCA is expected to replace the small and inexpensive Russian MiG-21 and will be India's first indigenous fighter. The first flight for the two LCA prototypes is scheduled for June 1996, with a procurement decision set for 1997.

Taiwan has built the first twenty production Ching-Kuo fighters and will likely produce more than 100 of the aircraft. The Ching-Kuo, also referred to as the Indigenous Defense Fighter, is said to be similar to the F/A-18 and F-16 but is optimized for air-superiority missions. The original order for 250 to 300 aircraft was reduced when Taiwan purchased F-16s from the United States and Mirage 2000-5s from France.

While the general military aircraft market will steadily decline through the end of this decade, the military transport market will likely increase. Each of the major military transport users is placing greater emphasis on the rapid projection of military forces to compensate for smaller standing armies. As a result, many nations—including the US—face large-scale

A Lockheed C-130J theater airlifter on the assembly line at Marietta, Ga. The upgraded transport will be a big player in the global airlifter market, as will wide-body aircraft from the US, France, and Russia.

replacement of their outdated and aging fleets.

To meet these needs, a wide array of military transport aircraft is being proposed. The transport market is, and will remain for some time, embroiled in a bitter political debate between the United States and its European rivals, which have roughly equal shares of the international market.

The Big Four

Four major military transports will dominate worldwide sales over the next ten years, according to government and private experts: the McDonnell Douglas C-17, the Lockheed C-130J, Euroflag's Future Large Aircraft (FLA), and the Antonov An-70. These four aircraft should capture a large share of the dedicated military transport market but will face competition from several militarized civilian airliners.

In the US, civilian transports in military service may become a reality if the Air Force decides to procure a number of so-called Nondevelopmental Airlift Aircraft. The likely candidates for the NDAA role are Boeing 747-400s or 767Fs, and new-production Lockheed C-5s.

The venerable C-130 has received an infusion of new high-technology upgrades, avionics, and engines. This C-130 upgrade program promises a quantum leap in capability over older generations of this aircraft. The Air Force has asked for money in Fiscal 1996 to begin a C-130E replacement program, with C-130J deliveries starting in 1997. Several European countries, Australia, and Canada have expressed interest in purchasing this aircraft. Britain will be the first customer, buying twenty-five. The decision stemmed from Britain's urgent need to replace its aging fleet, said Defence Minister Malcolm Rifkind, but it does not rule out UK participation in the Euroflag venture.

Euroflag's FLA transport represents an attempt by several European countries to replace their aging C-160/C-130 transport fleets. The FLA concept was unveiled at the 1994 Farnborough Air Show, which featured a full-scale mockup of the aircraft. The FLA will have four turbofan engines, a rear loading ramp, and a large T-tail. Potential customers for the transports include Britain, France, Germany, the Netherlands, Italy, Belgium, Spain, and Turkey.

Recent statements by senior Airbus representatives and French government officials, however, have caused many to doubt France's true interest in developing such an aircraft. For example, the head of the French Air Force, Gen. Jean-Philippe Douin, has stated that the Rafale is indisputably the highest budget priority for the French Air Force, and that budget pressures could force France to procure C-130Js. Said the General, "If our budget remains what it is now and until 2006, we will not be able to buy both the Rafale and the FLA."

FLA officials have not given up the fight. Seeking wider support outside Europe, the FLA consortium has pursued Japanese companies to join in developing the aircraft to meet Japan's new CX requirement. The Japanese CX program builds on a requirement for thirty new aircraft to be delivered around the turn of the century to replace Kawasaki-built C-1As. This requirement may also be satisfied by purchasing either Boeing 767Fs or McDonnell Douglas C-17s from the United States.

Another entry in the transport field is the newly designed An-70, built by the Ukraine-based Antonov concern. This program has faced numerous problems, culminating in the crash of its first prototype on February 10, two months after its first flight. The An-70 is intended to meet a Ukrainian and Russian requirement to replace the An-12 Cub, but the loss of the An-70 prototype could cause Russia to withdraw support for this program.

Russia has begun to look for alternatives and plans to begin development of the Tu-330 medium transport, to be created by the Tupolev Design Bureau and built by the Kazan aircraft factory. The wide-body Tu-330 will be capable of carrying thirty-five tons, with five tons on the ramp. Ten prototypes are to be constructed between 1995 and 1998, with full-scale production beginning at the end of the decade.

Overall, the outlook is for the United States, Russia, and western Europe, each with reconstituted and consolidated aircraft production bases and large aircraft surplus inventories, to wage a ferocious battle for a shrinking export market well into the next century. ■

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A statistical portrait of USAAF in World War II.

THE NATION'S air arm was known as the Air Corps from 1926 until June 20, 1941, when it became the US Army Air Forces. It was so designated throughout World War II and up until September 18, 1947, when the US Air Force became a separate military service.

Data charted in this section are from the comprehensive *Army Air Forces Statistical Digest, World War II,* published by the Office of Statistical Control in December 1945.

Aircraft on Hand as of June 30

	1940	1941	1942	1943	1944	1945
Very heavy bombers	—	—	—	2	445	2,374
Heavy bombers	54	120	846	4,421	11,720	12,221
Medium bombers	478	611	1,047	4,242	5,427	5,576
Light bombers	166	292	696	1,689	2,914	3,063
Fighters	477	1,018	2,950	8,010	15,644	17,703
Reconnaissance	414	415	468	486	1,056	1,990
Transports	127	144	824	4,268	9,433	9,473
Trainers	1,243	4,124	12,610	22,849	27,907	12,581
Communications	7	53	1,732	3,051	4,211	3,417
Total	**2,966**	**6,777**	**21,173**	**49,018**	**78,757**	**68,398**

The number of aircraft on hand peaked in July 1944 at 79,908. By December 1945, the fleet was down to 44,782 aircraft. (The decline in the number of aircraft on hand would continue through the postwar period, eventually dropping to a low of 19,944 in June 1951 before the Korean War buildup began.)

USAAF Military Personnel

	Total	Percent of US Army Strength
June 30, 1939	22,387	11.9
June 30, 1940	51,185	19.3
June 30, 1941	152,125	10.5
June 30, 1942	764,415	23.2
June 30, 1943	2,197,114	31.4
June 30, 1944	2,372,292	31.0
June 30, 1945	2,282,259	27.6

USAAF strength peaked at 2,403,806 (342,914 officers, 2,060,892 enlisted members) in July 1944.

Army Air Forces at War

The numbered Air Forces in 1945 and their theaters of operation

Composition of Combat Units

Type of Unit	Major Type of Aircraft	Number of Airplanes (Including Reserve)	Number of Crews (Including Reserve)	Men per Crew	Personnel Total	Personnel Officer	Personnel Enlisted
Very heavy bombardment group	B-29	45	60	11	2,078	462	1,616
Heavy bombardment group	B-17, B-24	72	96	9–11	2,261	465	1,796
Medium bombardment group	B-25, B-26	96	96	5–6	1,759	393	1,366
Light bombardment group	A-20, A-26	96	96	3–4	1,304	211	1,093
Single-engine fighter group	P-40, P-47, P-51	111–126	108–126	1	994	183	811
Twin-engine fighter group	P-38	111–126	108–126	1	1,081	183	898
Night fighter squadron	P-61, P-70	18	16	2–3	288	50	238
Troop carrier group	C-47	80–110	128	4–5	1,837	514	1,323
Combat cargo group	C-46, C-47	125	150	4	883	350	533
Tactical reconnaissance squadron	F-6 (P-51), P-39, P-40, L-4, L-5	27	23	1	233	39	194
Photographic reconnaissance squadron	F-5 (P-38)	24	21	1	347	50	297
Combat mapping squadron	F-7 (B-24), F-9 (B-17)	18	16	9	474	77	397

Today, the organizational structure of the US Air Force is normally expressed in wings. In 1945, however, the* Army Air Forces Statistical Digest *noted that "the unit which has been generally used during World War II has been the combat group. And it was the group which became not only the basic measure of present strength but also the planning unit upon which projected operations were based."

USAAF Military Personnel Overseas

	Jan. 1943	Dec. 1943	Jun. 1944	Dec. 1944	Apr. 1945	Aug. 1945
European Theater of Operations	38,062	294,385	436,417	447,344	453,329	271,613
Mediterranean Theater of Operations	71,967	142,790	168,776	167,854	157,216	56,563
Pacific Ocean Areas	18,521	33,095	52,379	65,915	81,625	46,647
Far East Air Forces	45,641	129,281	173,168	173,620	178,372	216,616
China-Burma-India	13,009	41,936	71,313	91,609	95,985	91,424
Alaska	13,889	19,919	16,177	11,980	11,369	11,013
Twentieth Air Force	—	—	15,131	46,417	72,277	101,465
Air Transport Command	6,477	36,616	75,031	111,755	119,763	149,299
Other	53,064	37,644	28,942	47,642	54,070	54,969
Total	**260,630**	**735,666**	**1,037,334**	**1,164,136**	**1,224,006**	**999,609**

Combat Sorties Flown

	Dec. 1941	1942	1943	1944	Jan.–Aug. 1945	Total
Theaters vs. Germany	**—**	**9,749**	**233,523**	**1,012,101**	**438,192**	**1,693,565**
European Theater of Operations	—	2,453	63,929	655,289	312,381	
Mediterranean Theater of Operations	—	7,296	169,594	356,812	125,811	
Theaters vs. Japan	**212**	**16,939**	**132,417**	**272,094**	**247,573**	**669,235**
Pacific Ocean Areas	—	130	1,413	26,364	31,194	
Far East Air Forces	212	14,311	103,147	163,397	134,912	
China-Burma-India	—	1,341	23,151	78,999	44,538	
Alaska	—	1,157	4,706	815	640	
Twentieth Air Force	—	—	—	2,519	36,289	
Total	**212**	**26,688**	**365,940**	**1,284,195**	**685,765**	**2,362,800**

Air Transport Command Operations, July 1942 to August 1945

	Jul.–Dec. 1942	1943	1944	Jan.–Aug. 1945	Total
Number of passengers	N/A	N/A	1,256,714	1,700,740	**2,957,454**
Millions of ton-miles	64.4	320.4	857.5	1,127.1	**2,369.4**
Millions of passenger miles	157.7	883.5	2,439.7	3,456.4	**6,937.3**
Millions of airplane miles	31.3	128.6	340.7	434.4	**935.0**
Thousands of hours flown	191.5	775.2	2,053.6	2,617.9	**5,638.2**

Tons of Bombs Dropped

	Dec. 1941	1942	1943	1944	Jan.–Aug. 1945	Total
Theaters vs. Germany	**—**	**6,123**	**154,117**	**938,952**	**455,271**	**1,554,463**
European Theater of Operations	—	1,713	55,655	591,959	322,435	
Mediterranean Theater of Operations	—	4,410	98,462	346,993	132,836	
Theaters vs. Japan	**36**	**4,080**	**44,683**	**147,026**	**306,956**	**502,781**
Pacific Ocean Areas	—	35	1,309	17,546	13,843	
Far East Air Forces	36	2,633	29,705	92,134	107,988	
China-Burma-India	—	697	10,841	27,987	22,636	
Alaska	—	715	2,828	295	493	
Twentieth Air Force	—	—	—	9,064	161,996	
Total	**36**	**10,203**	**198,800**	**1,085,978**	**762,227**	**2,057,244**

Enemy Aircraft Destroyed

	1942	1943	1944	1945	Total
Theaters vs. Germany	**327**	**7,605**	**15,664**	**6,251**	**29,916**
European Theater of Operations	169	3,865	10,425	5,960	
Mediterranean Theater of Operations	158	3,740	5,239	291	
Theaters vs. Japan	**608**	**3,232**	**3,778**	**2,226**	**10,343**
Pacific Ocean Area	—	96	226	472	
Far East Air Forces	518	2,466	2,518	416	
China-Burma-India	53	636	772	361	
Alaska	37	34	8	6	
Twentieth Air Force	—	—	254	971	
Total	**935**	**10,837**	**19,442**	**8,477**	**40,259**

World War II was fought on a vast scale with a massive amount of destruction. In Europe alone, USAAF mustered a force of more than 500,000 troops that destroyed almost 30,000 enemy aircraft and dropped 1.5 million tons of bombs.

USAAF Battle Casualties in Overseas Theaters

	Total Casualties	Died	Wounded and Evacuated	Missing, Interned, and Captured
1941 (December)	728	315	401	12
1942	8,788	3,477	469	4,842
1943	22,512	10,002	4,181	8,329
1944	68,617	21,072	9,957	37,588
1945 (January–August)	19,560	4,600	3,046	11,914
Date unknown	1,662	595	184	883
Total	**121,867**	**40,061**	**18,238**	**63,568**

Aircraft Losses on Combat Missions

	1942	1943	1944	Jan.–Aug. 1945	Total
Theaters vs. Germany	141	3,028	11,618	3,631	**18,418**
European Theater of Operations	55	1,261	7,749	2,622	
Mediterranean Theater of Operations	86	1,767	3,869	1,009	
Theaters vs. Japan	**341**	**819**	**1,671**	**1,699**	**4,530**
Pacific Ocean Areas	13	25	116	224	
Far East Air Forces	276	539	910	769	
China-Burma-India	35	217	532	292	
Alaska	17	38	18	15	
Twentieth Air Force	—	—	95	399	
Total	**482**	**3,847**	**13,289**	**5,330**	**22,948**

The statistics give some idea of the size of the effort to defeat the Axis. For example, in 1995 the Air Force has fewer than 5,000 aircraft of all types. In 1944, Army Air Forces had 15,000 fighters. At right are P-51 Mustangs, P-47 Thunderbolts, and an AT-6.

Average Unit Cost of Aircraft as of 1944

Very heavy bombers	
B-29	$605,360
Heavy bombers	
B-17	$204,370
B-24	$215,516
Medium bombers	
B-25	$142,194
B-26	$192,427
Light bombers	
A-20	$100,800
A-26	$192,457
Fighters	
P-38	$97,147
P-39	$50,666
P-40	$44,892
P-47	$85,578
P-51	$51,572
Reconnaissance	
OA-10	$216,617
Transports	
C-43	$27,332
C-45	$52,507
C-46	$233,377
C-47	$88,574
C-54	$285,113
Trainers (as of 1942)	
PT-13, PT-17, PT-27	$9,896
PT-19, PT-23, PT-26	$12,911
BT-13, BT-15	$23,068
AT-6	$25,672
AT-7, AT-11	$85,688
Communications	
L-4	$2,620
L-5	$9,704

The unit cost of an aircraft varied significantly, depending on the point in the production process at which it was manufactured. The earliest B-29 bombers in 1942 cost $893,730 each, for example, whereas unit cost of B-29s had dropped to $509,465 by the end of the war. Unit cost of the classic C-47 "Gooney Bird" was $128,761 at the beginning of the war, compared to $85,035 in 1945.

USAAF Military Personnel by Specialty, July 1944

Officers		Enlisted Members	
Pilot	132,477	Airplane maintenance	351,710
Bombardier	18,812	Aerial gunner	135,098
Navigator	24,991	Other aircrew	29,037
Other aircrew	201	Armament	101,931
Administrative	29,534	Communications	144,532
Armament and ordnance	7,546	Radar	34,117
Communications	14,570	Medical	49,013
Engineering	17,821	Supply	81,386
Medical	19,560	Utility and construction	55,480
Operations	11,026	Automotive	182,898
Supply	16,496	Administrative	245,026
Other	49,880	Other specialists	205,119
		Nonspecialists	445,545
Total	**342,914**	**Total**	**2,060,892**

Prior to January 1945, flight engineers were counted in the "Engineering" total and radar observers were included in "Communications." "Other specialists" were primarily photographic, weather, and mess personnel. "Nonspecialists" included basic soldiers, laborers, duty soldiers, and unclassified personnel.

The war against Japan forced USAAF personnel to operate in some exotic locations. C-46 Commandos regularly flew over the Himalayas to resupply Fourteenth Air Force. By 1945, USAAF had 175 airfields in Asia.

USAAF Personnel by Arm or Service, July 1944

Officers		Enlisted Members	
Air Corps	290,474	Air Corps	1,603,420
Chemical warfare	1,696	Chemical warfare	12,513
Engineer	5,064	Engineer	103,829
Finance	1,267	Finance	7,908
Medical	20,889	Medical	67,981
Military police	772	Military police	18,685
Ordnance	4,553	Ordnance	68,248
Quartermaster	5,387	Quartermaster	67,221
Signal	8,999	Signal	109,419
Chaplain	1,833	Other	1,668
Other	1,980		
Total	**342,914**	**Total**	**2,060,892**

USAAF Airfields Outside the Continental United States

	Dec. 31, 1941	Dec. 31, 1942	Dec. 31, 1943	Dec. 31, 1944	May 8, 1945	Aug. 15, 1945
Africa	—	73	94	45	31	21
Asia	—	23	65	96	175	115
Atlantic Islands	5	27	[a]	20	21	21
Australia	—	20	35	10	7	3
Europe	—	33	119	302	392	196
North America	7	74	83	67	66	62
Pacific Islands	—	21	65	100	57	56
South America	—	27	28	22	32	32
US possessions	19	60	70	89	130	128
Total	**31**	**358**	**559**	**751**	**911**	**634**

[a]Included in North America total for 1943

USAAF Airfields in the Continental United States

	Main Bases	Sub-bases	Auxiliary Fields	Total
November 1941	114	—	—	**114**
December 1941	151	—	—	**151**
December 1942	345	71	198	**614**
December 1943	345	116	322	**783**
December 1944	377	37	309	**723**
April 1945	356	56	291	**703**
August 1945	344	57	269	**670**

Air warfare was a more labor-intensive proposition during World War II. B-17s, such as this one, had aircrews of nine to eleven in addition to all the ground crew personnel necessary to load and maintain the bomber.

Flying Training Graduates, July 1939 to August 1945

Total	**1,561,288**
Pilot total	**768,991**
Primary	233,198
Basic	202,986
Advanced	193,440
Single engine	102,907
Two engine	90,553
Transition total	108,337
Single engine	262
Two engine	1,983
Four engine	11,938
P-38	252
P-39	3,448
P-40	14,917
B-25	2,890
B-26	4,691
B-17	24,843
B-24	24,222
B-29	5,072
B-32	240
Liaison field artillery	2,792
Advanced liaison	1,155
Photographic reconnaissance (P322)	204
Helicopter	129
Observation	931
Primary ATC	35
Advanced phase ATC	35
ATC	3,464
B-17 instructor	1,621
B-24 instructor	1,067
Four engine instructor	2,146
Women	1,282
US in British schools	552
Instructor training	24,805
Pilot instructor	16,985
Instrument pilot	7,820
Other	4,391
Bombardier total	**28,361**
Precision	9,444
Instructor	14,571
Refresher	4,346
Navigation total	**56,119**
Celestial	47,273
Dead reckoning	1,597
Instructor	2,815
Refresher	4,434
Bombardier-navigation total	**28,480**
Bombardier-navigation	2,546
Bombardier–DR & D8 navigation	25,828
Instructor bombardier–DR navigation	106
Radar observer bombardment	**1,477**
Flight engineer officer training	**403**
Flight engineer B-29 transition	**3,707**
Aerial engineer B-32 transition	**146**
Flexible gunnery total	**309,236**
Cadets and enlisted men	290,628
Gunnery officer	1,175
Observer nonpilot	866
Instructor	16,567
Aircrew, preflight	**335,495**
Instructor total	**4,593**
Instrument training	4,245
Other	348
Glider pilot total	**21,240**
Basic	6,354
Elementary-advanced	777
Other	14,109
Other	**3,040**

Airborne drug smugglers will find it more difficult to hide from the customs service thanks to the advanced radar and infrared sensor systems on board U.S. Customs patrol aircraft. With the aid of Hughes Electronics' APG-63 radar, coordinates of the suspected drug smugglers are relayed to customs service tracker aircraft, which guide "Bust Crews" in helicopters to meet the would-be drug traffickers when they land. Hughes integrated the radar with a new navigation system, an air data computer, and an infrared detection system using a new Sensor Integration Package, which has recorded numerous mission days of operations with no failures. The APG-63 radar system was originally designed and built by Hughes for the U.S. Air Force F-15 fighter aircraft.

Military and commercial satellites will now have better guidance and control accuracy, thanks to Star Tracker. Designed and built by Hughes, the seven-pound star tracker outperforms units three times its weight, helping meet spacecraft goals for maximum data return with minimal hardware and operating costs. A simple, high performance optical systems, ASIC-based electronics and a high throughput firmware architecture make the lightweight system an accurate, reliable, and affordable star tracker for a wide variety of spacecraft applications.

Law enforcement officers can now detect motion through non-metallic walls, floors, and ceilings with a portable radar weighing less than ten pounds and small enough to fit in a briefcase. Developed by Hughes, the MDR is the result of Doppler radar technology applied to a portable, multimode surveillance system. Operating on a rechargeable battery, the MDR consists of a non-imaging radar and FM radio frequency transmitter. The radar produces a low beep if there is no motion and a high-pitched beep if movement is detected. These sounds are sent by the transmitter to a receiver located up to a distance of 200 feet. This revolutionary surveillance unit provides protection and is a valuable aid for persons in law enforcement, private security, and search and rescue.

Dislocated workers can now be steered into productive industries, thanks to an information management system and process that provides continually updated data on career fields. Developed by Hughes, JOBMAP lists the requirements that must be fulfilled to secure positions in particular fields, and can be used to match individual skills to the requirements of demand occupations — occupations that need people. Among its various functions, JOBMAP compares individuals' background and skills with demand occupation needs and identifies good matches; evaluates a person's readiness to enter a demand occupation by comparing current versus required skills; and provides a tailored plan for fulfilling skill needs by defining training requirements. JOBMAP is being implemented at Hughes Resource Centers, and may someday form the foundation of a national skills information system.

Aircraft pilots will be able to read their gauges more easily, even in sharp sunlight, with an advanced cockpit display. Developed by Hughes for military airborne applications, this compact, lightweight, multi-function cockpit display unit offers improved performance and reliability. The new display incorporates a cathode ray tube display and electronics elements in a single package weighing less than 14 pounds. Compatible with Hughes' AN/AAQ-16B helicopter night vision systems, this high resolution display has a maximum brightness and can be read easily in all conditions.

For more information write to: P.O. Box 80032, Los Angeles, CA 90080-0032

HUGHES
ELECTRONICS

Now it's nine squadrons, not nine wings. Old names—like Upper Heyford, Zweibrücken, Torrejon, and Soesterberg—are history. In some ways, though, the mission is more difficult than before.

USAFE After the Cold War

By John A. Tirpak, Senior Editor

Not so long ago, grim-faced strategists poring over maps, charts, and intelligence data at NATO's military headquarters in Mons, Belgium, developed some harsh statistics. They determined that "anticipated" Allied casualties in a defensive war with Soviet-led Warsaw Pact forces—even if the war took place only on German soil and neither side used nuclear weapons—would run into the tens of thousands. The planners also concluded that in a wider European war, military and civilian casualties could quickly climb into the millions.

The payoff for all this sacrifice—assuming that NATO forces succeeded in pushing Soviet forces back within their own frontiers—would be a liberated eastern Europe free to pursue democracy and capitalism.

Five years later, without the firing of a single shot, eastern Europe is free of Soviet communism, the lands of the former Soviet empire are free and independent nations, and the economic chaos brought on by the USSR's disintegration finally shows signs of abating. Even more remarkable, former Warsaw Pact nations are petitioning to join NATO.

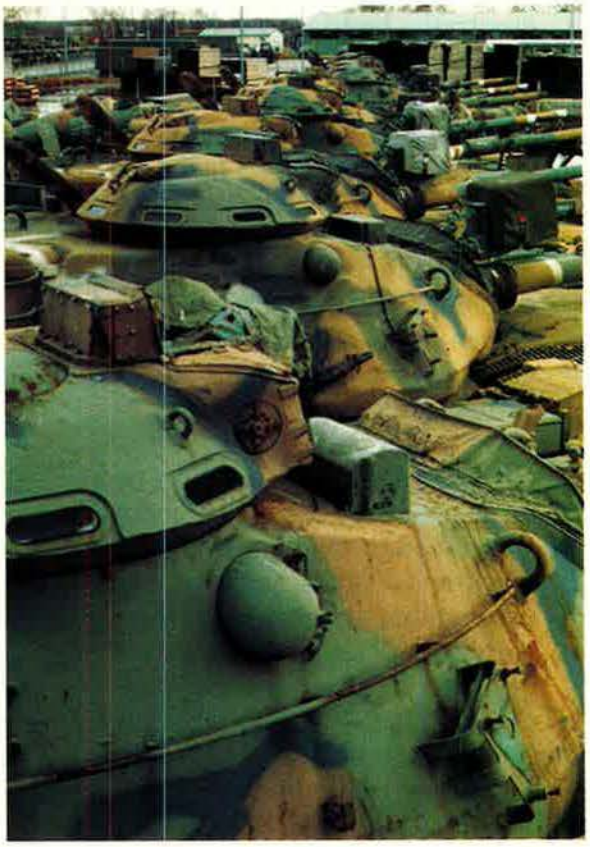


Photo by John A. Tirpak

January 1946 or January 1995? This recent scene at Germersheim, Germany—showing a few of the more than 55,000 excess vehicles from the unfought war with the Soviet Union—is reminiscent of the demobilization after World War II. Stripped and rusting, these tanks will likely be sold for scrap. Opposite: Though fewer in number than their Cold War predecessors, USAFE's fighter force is in many ways more potent than before. USAFE units are more "composite wing" oriented, as this group of F-16s, an F-15, and an A-10 attest.

USAF photo by SSgt. Jason White

Though some argue that the purpose of NATO has now been fulfilled and the two-million-strong multinational alliance can now safely be retired, that is not the view of Army Gen. George A. Joulwan, Supreme Allied Commander of NATO forces in Europe and commander in chief of US European Command.

"One of the biggest challenges here is how to redefine the mission," General Joulwan acknowledged in a session at Supreme Headquarters Allied Powers Europe (SHAPE) in Mons. "It used to be very clear. You had NATO on one side, Warsaw Pact on the other; democracy on one side, communism on the other. That all changed in 1989 and 1990."

A New NATO

What had been an easily identified and plainly understood threat has now devolved into a kaleidoscope of dangers—but also a "window of opportunity," General Joulwan asserted. There is now a chance to establish "democratic, free, prosperous nations from the Atlantic to the Urals," he said, and NATO, rather than withdrawing from the scene, has an important and direct role to play in making that vision a reality.

"We are involved in a 'new NATO,' " General Joulwan said, adding that its emphasis should now be on figuring out "where we want to be in ten or forty years." The transition to whatever the "new Europe" will finally look like "will take some time. . . . We have to reach out" to the newly independent nations of the old Soviet empire, he said.

NATO, General Joulwan observed, faces a mission that is as tough now as it was before the fall of the Berlin Wall. In some ways, he said, it is more difficult because of the multiplicity of threats and the geometrically increasing variables involved. "Not like the old days," he said, "when it was Them and Us."

General Joulwan emphasized that NATO's number one mission continues to be deterring or defeating aggression emanating from a nuclear-armed Russia, and the Western Alliance has not given it up. However, US forces in Europe are adapting to smaller roles that have come up—the peacekeeping and humanitarian operations—while still maintaining their edge and readiness for what some troops call, with black humor, "Round Three."

The US contingent to NATO has changed dramatically over the last five years. From a standing force of more than 320,000 troops, airmen, and sailors, the US contribution will finally drop to its target level of 100,000 this year. Of those, Army troops will remain the biggest chunk, at 65,000 troops. The Air Force share will be about 20,000, and the Navy, depending on whether the bulk of the fleet is in Mediterranean or Middle East waters, will make up 10,000–15,000.

"The force remains well-equipped, well-trained, and ready," General Joulwan said.

When asked by President Clinton if he thinks 100,000 is the rock-bottom level for US forces in Europe, the General answered that he would like to wait until "we get down close to that number first and see how stressed we are." He added that his force "will be stressed" at a level of 100,000 but "probably can do the job" if it doesn't have too many more contingencies to deal with.

"It's hard to predict whether 100,000 is enough when you're un-

Staff photo by Guy Aceto

USAFE units are on the road more and are busier than ever. The squadrons of the 48th Fighter Wing at RAF Lakenheath, UK, have not been "home" at the base together since they converted from the F-111 to the F-15E in 1993.

sure of the requirements," he said. "I'd like to stabilize the free-fall . . . and see where we are. So far, we're doing it."

General Joulwan also noted that "we're getting very good support from the reserves, particularly in the Air Force. Sending the [Guard and] Reserve forces . . . helps offset some of the forces we don't have."

A Challenging Retrenchment

The drawdown has been managed as efficiently as possible but has still been one of the most massive movements of personnel and materiel in history. Huge stockpiles of equipment intended for the war that didn't happen have been shipped back to the States, put aboard prepositioning ships or in prepositioned stockpiles, or sold to Allied nations. Even so, acres of tightly parked tanks, trucks, and other surplus equipment remain in Germany, waiting for takers.

US forces in Europe, which once deployed at 1,400 locations during the height of the Cold War, now maintain a presence on fewer than 700 sites.

For the Air Force, which has withdrawn more than sixty percent of its Cold War strength in Europe, the retrenchment has been extremely challenging. "A lot of grand old names that were associated with USAFE are gone," said Gen. James L. Jamerson, head of USAFE. "From sixteen main operating bases, we're down to just four"—the complex of RAF Mildenhall and RAF Lakenheath in the UK, Ramstein AB and Spangdahlem AB in Germany, Incirlik AB in Turkey, and Aviano AB in Italy.

Now closed are some of the biggest bases in USAFE's long history, including RAF Bentwaters and RAF Upper Heyford, UK; Bitburg, Hahn, and Zweibrücken ABs, Germany; Torrejon AB, Spain; and Soesterberg AB, the Netherlands. "I still have trouble believing that," General Jamerson said.

No longer do USAFE's F-15s at Bitburg sit on two-minute "Zulu Alert," awaiting a possible surprise attack by Warsaw Pact aircraft. Recently, those former "Zulu" planes began making routine patrols over what used to be East Germany. Today, when F-15s at Spangdahlem scramble, it's just for practice.

The USAFE inventory of fighters has gone down sharply, too.

"We used to have nine wings; now we have nine squadrons," General Jamerson pointed out. NATO-wide, the reduction has been from ninety-three squadrons in 1991 to fifty-one squadrons now.

The mission has been transformed. While once the bases of central West Germany waited for the no-warning third world war, now they have been consolidated around Ramstein, which has gone from being a fighter base to the "air mobility hub of central Europe," General Jamerson said.

Sembach AB, Germany, has become an annex of Ramstein, and Rhein-Main AB has been downgraded to an auxiliary site that will serve to handle the overflow at Ramstein. "We could open it in a hurry" in the event of a major contingency, General Jamerson said.

"It used to be 'Fight from where you are,' " he added. "Now it's 'Pick up and go' " to a contingency operation. "Some of that we knew how

Photo by John A. Tirpak

To become more interoperable with NATO, participants in the Partnership for Peace program—former Warsaw Pact and other nations seeking NATO membership—may be customers for these never-used M60 tanks.

to do, some of that we had to learn." Part of the change has also been to go to a more "composite wing" structure. "We're more of a full-service Air Force," he explained, but "we're just doing it on a much smaller scale."

While USAFE has gotten smaller, it has upgraded a lot of its equipment. The command has more aircraft capable of dropping precision guided munitions now than it did before the drawdown. There are F-15Es and Block 40 F-16s with capability for LANTIRN (Low-Altitude Navigation and Targeting Infrared for Night) navigation and laser-designating pods, as well as Block 50s with the High-Speed Anti-radiation Missile (HARM) targeting system, providing a larger degree of defense suppression capability. A-10 and OA-10 pilots have night vision goggles, and the inventory of precision weapons available to the fighter force is larger.

"In many respects, we have more capability than we had before," General Jamerson said. "We've really opened up the night."

High Ops Tempo Takes Its Toll

The biggest USAFE story since the Berlin Wall fell has been the many contingency operations it has dealt with—and continues to deal with—daily. USAFE is "fully employed and fully deployed," General Jamerson observed.

USAFE has been supplying fighter crews to patrol northern Iraq in Operation Provide Comfort since the end of the Persian Gulf War. General Jamerson describes Provide Comfort as having "evolved into an aerial occupation" that has now gone on "longer than the Korean War," and he doesn't see "any real prospect . . . of coming out of there anytime soon."

There are the constant combat air patrols over the former Yugoslavia—Operation Deny Flight, "a major air operation"—as well as the relief flights into the area. "It's a larger and longer effort than the Berlin Airlift," General Jamerson noted.

On top of those are the unexpected calls, such as supplying emergency relief to refugees in Rwanda.

"As our forces have been coming down, our operational tempo is going the other way," General Jamerson said.

"To Consolidate the Gains of Democracy"

The West has "learned from history . . . that [success] is not just bringing about the revolution. It's what you do afterward. We found that out in World War II. We need to stay involved . . . and engaged. . . . We need to consolidate the gains of democracy." So said Gen. George A. Joulwan, Supreme Allied Commander of NATO forces in Europe and commander in chief of US European Command. The "engagement" of which he speaks comes in many forms, but the most dramatic is the Partnership for Peace (PFP) program, in which former adversary nations may apply to participate in a variety of military-to-military contacts with NATO, including everything from seminars on civilian control of the military to full-scale field exercises.

NATO, General Joulwan believes, should not step back and hope for the best in eastern Europe and the former Soviet Union but should help the newly independent states by providing the continent with a measure of stability. Without it, "you don't get investment" in the new republics, and without investment, their economies will falter—"a better quality of life for their people would be impossible"—and "they could slide back" to authoritarian rule, he said.

The Partnership for Peace plan was a compromise to address the concerns of the many newly independent nations desiring NATO membership. Some founding members of NATO wanted to welcome these new states into the Alliance at once. Others felt it was unwise to almost instantly grant these countries "Article 5" protection under the NATO charter, which states that an attack on one is an attack on all. At the very least, these members felt, expanding NATO should wait until prospective new members show they can coordinate with the Alliance, contribute meaningful military capability to it, and support its centralized functions with appropriate levels of funding.

There was also concern that admitting a whole slate of new members right away would be seen as threatening in Russia. This in turn might advance the cause of demagogues in the former Soviet empire who wish to restore a semblance of the Soviet state.

The PFP was therefore structured so that participants do not necessarily seek NATO membership but peaceful military relations. The terms of PFP don't establish firm criteria for membership.

General Joulwan expressed some amazement with the whole PFP process, which started only fourteen months ago and now has more than two dozen signatories. "In Brussels . . . that's the speed of light," he observed.

There is a Partnership Coordination Cell at SHAPE. One Allied officer there said it's "still a little unnerving" to see Czech, Polish, and Hungarian officers at the headquarters and the flags of former Warsaw Pact nations flying over the SHAPE building.

Reports that Europe-based US troops are overstressed have circulated for several years. Press stories describing a sharp rise in domestic violence among the troops and their families, for example, drew a visit from Defense Secretary William J. Perry last year. His findings on that visit prompted him to redouble his efforts at improving the quality of life for his all-volunteer troops, beginning in earnest with the Fiscal 1996 budget.

"When the Secretary came over, we did have some individual quality-of-life issues," General Jamerson acknowledged. "Family strife . . . is one of the hardest" things to measure and use as a yardstick of how stressed the troops are.

The contingencies mean "a lot of time gone, a lot of family separation, a lot of turmoil," the General acknowledged, but "we still have a pretty good 'trample factor,' " which he explained is his own measurement of morale. The trample factor refers to "how likely you are to get trampled by volunteers" for a new operation when it comes along. By this reckoning, he said, the troops "like their jobs. Morale is still pretty high."

General Jamerson is still anxious to lower the number of days his crews are "on the road," which in some categories is as high as 240 days a year. He noted that the squadrons of the 48th Fighter Wing at RAF Lakenheath never have been together in one location since they converted from F-111s to F-15Es in 1993.

Even when the "away days" total is held below the Air Force goal of 120, it's still harder on families living abroad. "No matter how you cut it, overseas is still overseas," General Jamerson said, and families can't count on the amenities of home or their relatives for support, and it tends to heighten the stress of a tour.

While he admits that coping with

USAF photo by TSgt. James Bowman

USAFE bases have become "hubs" for all types of missions, with all kinds of players. Aviano AB, Italy, plays host to Deny Flight operations over the former Yugoslavia, and to participating Guard, Reserve, and other-service aircraft. Here, Marine Maj. Steve Nedderson, an F/A-18 weapon systems operator, dismounts at Aviano after a mission.

the drawdown and all the contingencies of the last few years simultaneously did tend to wear down his people, "I think we kind of bottomed out last year . . . as far as stretching the troops too thinly," he said.

Easing the Burden

The trend has improved greatly because of "all the help we are getting from the Guard and Reserve . . . and other parts of the Air Force," the General continued. These days, it's not uncommon to see the colorful tail flashes of a Hawaiian Air National Guard squadron flying patrol over the skies of northern Iraq.

Not only have the Guard and Reserve provided "enormous help" in taking over some of the jobs USAFE was carrying alone, but the presence of those troops—even in ordinary jobs not directly supporting a contingency—has also "allowed our people to go home and get the training they need to keep current," General Jamerson said.

While flying operations in a hot spot like Bosnia-Hercegovina or northern Iraq may seem like an excellent place to get experience, in truth the aircrews involved ordinarily do not see much action. The flying hours they get are not the intense, simulated air combat they get on ranges and at schools at home; typically, they fly "racetrack patterns in the sky," General Jamerson said.

The Guard and Reserve "have been absolutely forthcoming," he noted. "They are integrated into everything we're doing." The USAFE commander in chief cited as an example a situation where, in a Deny Flight operation, "we had a Guard pilot in a Reserve A-10, refueled by a Reserve pilot in a Guard KC-135."

In USAFE, "we mix and match [Guard, Reserve, and active-duty] very effectively. . . . It's a source of pride . . . and amazement."

When Air National Guard F-16 pilots took up residence at Aviano AB, Italy, to conduct Deny Flight operations, they "took some of the heat off" active-duty USAFE pilots, who usually can't bring their families with them from Ramstein or Spangdahlem to Italy. Aviano "was never designed" for the kinds of permanent operations it's seeing, he noted.

Thanks to the backup from other units, the number of waivers issued on flight and support crews who have missed training requirements "has leveled off and should go down" in 1995, said the General.

The Guard and Reserve units, General Jamerson noted, often deploy "directly into shooting contingencies." Maj. Gen. Robert A. McIntosh, head of the Air Force Reserve, said his troops "like being part of the First Team," and he's had no trouble getting volunteers to go to USAFE to provide relief for the forward-deployed troops, even at Christmastime. "They see that there's a vital mission there," he said. "When they come home, they can point to the pictures on television of a relief operation and say that they were a part of it. . . . It's a source of great pride."

Though many Reservists and Guardsmen felt they signed up to be of service in a national emergency, General McIntosh sees no signs that the many relief operations and other contingencies—some of which are obviously not US national emergencies—are dampening the desire to remain in the Guard and Reserve.

"When they sign up, they know they'll be a part of whatever the Air Force is doing," whether it be warfare or answering a call for help, General McIntosh said. "Retention in the Air Force Reserve is as good as it's ever been."

One reason for the smooth operation is that the Guard and Reserve units are getting more notice of deployments. The service commits them months in advance to deploy for three to five weeks in a theater where it's fairly certain they'll be in demand. Participants can plan their absence well before their actual departure date. A goal is to develop deployment schedules as much as a year to eighteen months in advance.

For shorter-notice contingencies, "we have good historical data on what percentage" of a unit's personnel will volunteer to go, and it's always enough to do the job, General McIntosh said. Invariably, he noted, "any unit would rather do a real-world mission" than its usual drill.

Because more than eighty percent of the Guard and Reserve are veterans of the active-duty force, the experience level means the units typically "don't need a lot of spin-up time" to get ready. He emphasized, though, that the Guard and Reserve are not just backups when the active forces get tired. One A-10 unit in

particular has deployed to Deny Flight three times.

"We're fully integrated," he said. "We go together on day one, and we'll be there on the last day" of any operation.

Complex Missions

Some of USAFE's capabilities were lost in the drawdown, complicating the mission, General Jamerson noted. Capabilities no longer in the theater now must be requested from other services or other countries. One example: electronic combat.

"If you need jammer [aircraft] and you have to get them from the Navy, you have to go find out first where they are," explained General Jamerson's operations director, Maj. Gen. Jeffrey G. Cliver.

"We have to be a lot more joint . . . and multinational," General Jamerson added. "We used to talk a good game at that. Now we really do it."

The USAFE commander in chief noted that of the 13,000-plus missions flown in Bosnia by UN pilots, just a third have been flown by US forces, and more than half of those come from Navy carriers in the Adriatic Sea. Meanwhile, USAFE has provided the aircraft to carry eighty-three percent of the relief supplies air-dropped into Bosnia.

"These are complex . . . multinational missions," General Jamerson said, "and they have been performed virtually flawlessly." The effectiveness of the teamwork, he said, stems from "forty years of harmonizing and streamlining procedures."

USAF photo by SrA. Andy Dunaway

Relief flights to the former Yugoslavia have gone on longer than the Berlin Airlift. Here, personnel from the UN High Commission for Refugees offload an AFRES C-130 Hercules supporting Operation Provide Promise.

"As we work with our Allies," the General told attendees at AFA's Air Warfare Symposium in Orlando, Fla., earlier this year, "these things all create a common doctrine, common tactics, mutual understanding, and shared trust. It spells success when you go to war" as an Allied force.

Asked what "investments" USAFE needs to be more effective, General Jamerson said he just wants to maintain "full-up spares kits . . . so we don't have to worry about things like that . . . when it's time to go somewhere."

Back in Washington, USAF planners hope they can find the money to buy a few more high-demand aircraft—such as F-15Es and E-3 AWACS—to alleviate some of the stress on the force involved with those types. But additional planes are for now a lower priority than other requirements; more could only be bought with an increase in the Air Force's budget.

Some have suggested that USAFE, because it is so busy these days answering international "911 calls," has virtually forsaken its true underlying mission. General Cliver chafed at such statements. "Our job here has not changed," he said. "It is to prepare for a major regional contingency in this part of the world. That's our stated national strategy, and that's what we're training to do."

The training problem is a tough one, he acknowledged, because it is something "we have to try to wedge in between these 'operations other than war.' "

In General Jamerson's view, USAFE's units "have remained on the track set by [Gens.] Mike Dugan and Bob Oaks [both of whom were USAFE commanders in chief]: to be a forward-based force that concentrates on core capabilities. These make you a credible power source for the theater commander in chief." ■

USAF photo by SrA. Andy Dunaway

More with less: USAFE F-16s have been enhanced to pack more missions into fewer airframes. New capabilities include Advanced Medium-Range Air-to-Air Missiles and Low-Altitude Navigation and Targeting Infrared for Night capability.

You are about to make a decision that will have a profound effect on the quality of our nation's future pilot training.

The JPATS aircraft you select will still be training young pilots at least 30 years from now. Perhaps even your own grandchildren. Obviously, this is not a short-term decision. Or an easy one. But when you consider what is in our nation's best long-term interests, the best JPATS choice is quite clear.

Compare the age of the technology.

Nobody knows exactly what the future will bring. But it takes no crystal ball to recognize that technology from the past is not the best way to prepare young pilots for the future.

The JPATS CitationJet is the only candidate developed specifically for primary training in the 21st century. It isn't a reworked turboprop or a made-over foreign trainer. It's a modern jet trainer designed to serve JPATS well into the future.

Compare the training capabilities.

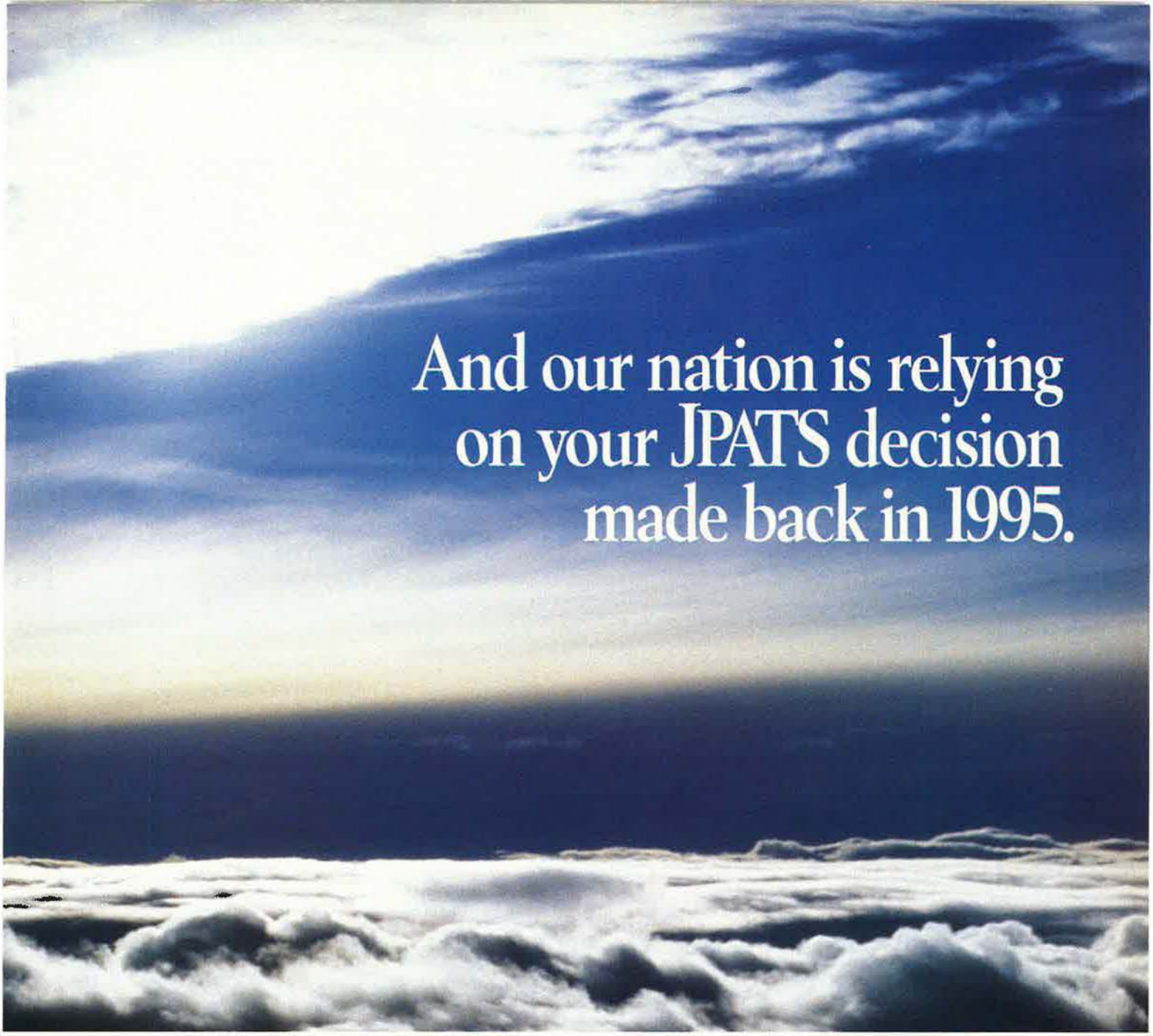
The superb flight characteristics and performance of the JPATS CitationJet are ideally matched to primary training. From basic maneuvers to formation flight to instrument training to six-turn spins.

It is also the only twin-engine candidate. So it will teach certain basic skills that simply cannot be taught in any single-engine trainer.

The JPATS CitationJet will produce pilots who are far better prepared to advance to higher levels of training. It won't instill habits that have to be unlearned, as turboprops or single-engine trainers would do. And no other candidate would allow a smoother transition from the highly successful twin-engine T-37 primary training system.

Compare the cost of attrition.

Any evaluation of life-cycle costs must include the cost of attrition. The attrition projections for the single-engine JPATS candidates are so much higher than the twin-engine projections that 30 to 40 fewer JPATS CitationJets would be needed to complete the primary training program.



Compare the organizational expertise.

Our nation needs an organization with the strength to stand firmly behind JPATS. Far into the future.

No organization is better prepared to meet that challenge than Cessna – the world's leading manufacturer of JPATS-size jet aircraft. No other JPATS candidate has such total design and technical knowledge of its own basic aircraft. No other candidate has more jet production lines in operation. And no other candidate supports more aircraft, worldwide.

Over 78,000 U.S. military pilots have trained in the Cessna T-37, and more than four million pilots have received their initial training in Cessna aircraft.

Cessna also has extensive experience in managing primary flight training centers and integrating sophisticated training systems. This is the ideal foundation for managing the JPATS Ground-Based Training System.

Compare the total program.

The JPATS program must have the best aircraft, the best support, and the best ground-based training system.

One American company offers all three. Cessna Aircraft Company.

It's the right manufacturer and the right CLS provider. It has the right heritage and vision in ground-based flight training. And Cessna's JPATS CitationJet is the right aircraft.

That's why this is clearly the right choice for the future of our nation.

JPATS CitationJet

THE ONLY ALL-AMERICAN

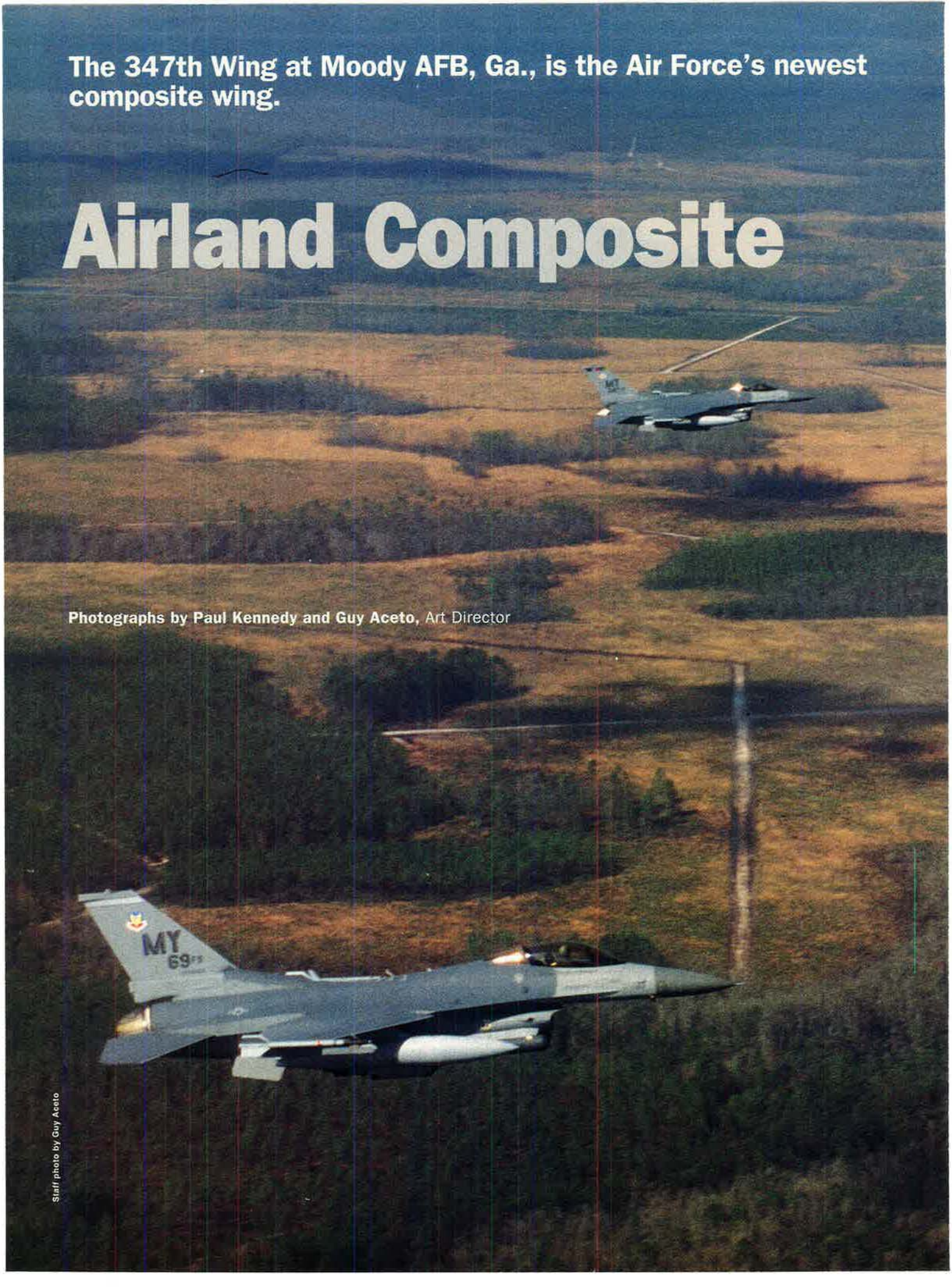
Cessna

A Textron Company

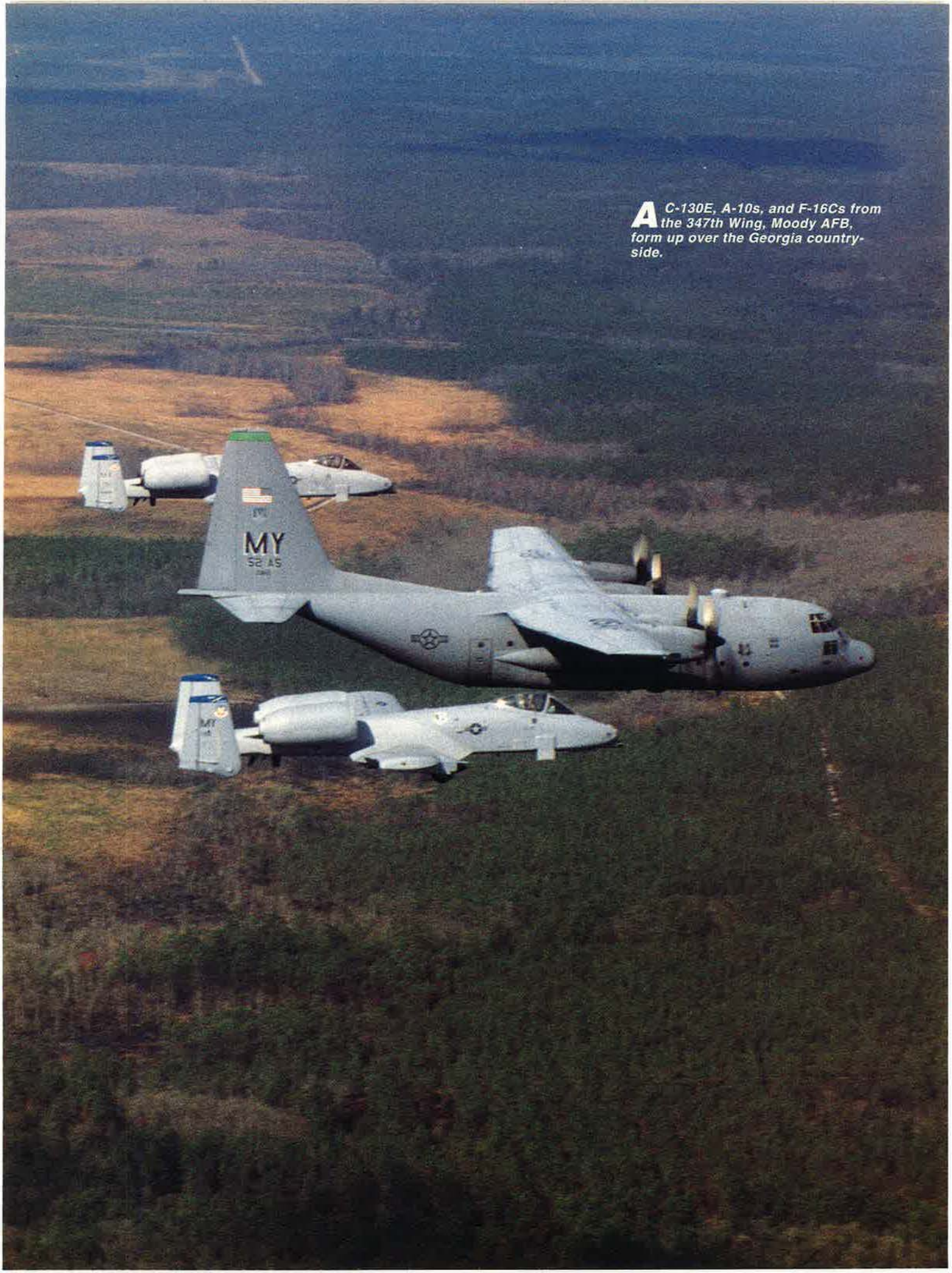
The 347th Wing at Moody AFB, Ga., is the Air Force's newest composite wing.

Airland Composite

Photographs by Paul Kennedy and Guy Aceto, Art Director



Staff photo by Guy Aceto



A C-130E, A-10s, and F-16Cs from the 347th Wing, Moody AFB, form up over the Georgia countryside.

Photo by Guy Aceto

If there is strength in diversity, the 347th Wing epitomizes it. At left, three vastly different aircraft hold formation in a turn over Moody AFB. Their varying sizes and speeds make this maneuver a challenge even for experienced pilots. The 347th began its transition from a fighter wing to a composite wing last July with the arrival of C-130s. This January, A-10s joined the wing. "We're now one of only three composite wings in the entire Air Force," noted Brig. Gen. Timothy A. Kinnan, 347th Wing commander.

"Being a composite wing has its advantages in that we can train together, we can learn each other's capabilities, and we'll be more effective in any scenario that we go to," said Col. John Craig, 347th Operations Group commander. The 347th supports forces on the forward edge of the battle area (FEBA) with formidable close air support and precision strike capabilities. Airlift is a key element in carrying out these responsibilities. The 52d Airlift Squadron and the legendary C-130 Hercules are more than capable of doing the job. They not only transport equipment required by the wing in-theater but also bring in the personnel and ground forces that must be close to the FEBA.

Photo by Paul Kennedy

Commenting on merging fighter and transport pilots in the 347th, one F-16 pilot said it was startling at first to have C-130s show up in his flying pattern. But integrating three aircraft and their cultures has gone well at Moody. Colonel Craig, who flies F-16s and C-130s, stressed that the three groups "want to help each other. They want to know about the other airplanes. That's an attitude—and that's something we can take anywhere we go in the world."

Photo by Guy Aceto

Photos by Guy Acelo

The 68th and 69th Fighter Squadrons provide F-16s for the wing. The multirole fighters carry a wide variety of ordnance and are equipped with Low-Altitude Navigation and Targeting Infrared for Night (LANTIRN) pods. "Seven months of the year, we fly a fair amount of our sorties at night," said Colonel Craig. At right, Capt. Bill Smith pulls off a strafing run in a blur of speed and condensation sometimes called a "cotton ball." Above, flying an F-16 with markings for the wing commander, Captain Smith maintains position for a more formal portrait above the clouds.

With LANTIRN providing information for day and night operations, and a training range almost adjacent to Moody, pilots fly their F-16C/Ds four or five times a week.

Photo by Paul Kennedy

The airland composite wing's versatility is enhanced by its proximity to the US Army's 24th Infantry Division (Mechanized) at nearby Fort Stewart, Ga. At left, USAF air liaison officers, assigned to support the 24th ID, link flyers to ground troops. In conjunction with tactical air control teams, air liaison officers are the eyes and ears for fighter pilots, planning and calling in air strikes and providing targeting information for incoming fighters. Most ALOs are pilots, and their experience with the ground troops will prove invaluable once they get back in the air.

Photos by Paul Kennedy

In joint Army-USAF training exercises, the 347th pursues opportunities to learn how to coordinate the airland battle. Col. Russel L. Honoré, commander of the 24th ID's 1st Brigade, said training with the Air Force gives green-suiters an appreciation for the difficulties of an Air Force pilot flying 500 miles an hour, talking to a forward air controller while trying to pick out targets and put ordnance on the ground. "That ain't easy business," the Colonel said. He added that the Army is no stranger to the composite concept: His infantry brigade goes to war with armor and artillery battalions. "The Air Force uses 'composite wing.' We call it 'task organization,' " Colonel Honoré explained. "I'm task-organized, and now my Air Force buddy is task-organized, and I know the power that brings to the battlefield."

Above right, under the watchful eyes of the loadmaster and jumpmaster, 24th ID troops prepare to jump into their work with both feet. Below right, Capt. Dave Knight, navigator, and Capt. Casey Sreenan, pilot and aircraft commander, go over plans with a 24th ID jumpmaster before a training mission at Fort Stewart.

Photos by Paul Kennedy

"To some extent, a bomb is a bomb, a bullet is a bullet," Colonel Craig observed. The variety of aircraft weaponry in a composite wing does call for some cross-training, however, and the personnel at Moody's weapons load training facility must learn many systems well. They become instructors for crews of all the other squadrons of the wing. Above, a load crew moves a device called a "dragon" up to an A-10, in order to load the aircraft's 30-mm GAU-8/A gun. At right and below, Team Chief SSgt. Rusty L. Harrell and team members SrA. Jona L. Recktenwald and SrA. Les Bowen prepare a GBU-24 laser-guided bomb for an F-16.

Colonel Craig said the composite wing's ground crews enjoy the job enrichment that comes from working with different aircraft. "They do not get bored."

Photo by Guy Aceto

With the wing called on to respond to an increasing number of contingencies, maintenance and repair are more important than ever to unit readiness. At left, SrA. Cedric Weatherspoon, an electro-environmental systems journeyman with the 69th FS, splices wires on a door switch harness.

Originally from MacDill AFB, Fla., the 71st Air Control Squadron joined the 347th in October 1993. It has been a force-multiplier, adding capabilities that have made the 71st as important to the wing's success as the four flying squadrons.

The 71st ACS monitors the skies around the base, even when the base is miles away. This is possible because of satellite and other communications equipment and state-of-the-art radar that can work three missions in different airspaces simultaneously. The squadron can provide early warning for local base defense while conducting air refueling and defensive counterair missions. It can deploy at a moment's notice, performs complete maintenance on almost all of its equipment, has its own ground transportation, and is designed to be self-sufficient for extended periods. "As long as you can keep bringing me beans and bullets and fuel, I can stay out here for a long, long time," said Capt. Lee Gardner, director of Operations for the 71st ACS. At right, inside an air control center, Amn. Corie Pacileo monitors the skies around Moody AFB. Below, Amn. Roberta Torregiante returns to the air control van.

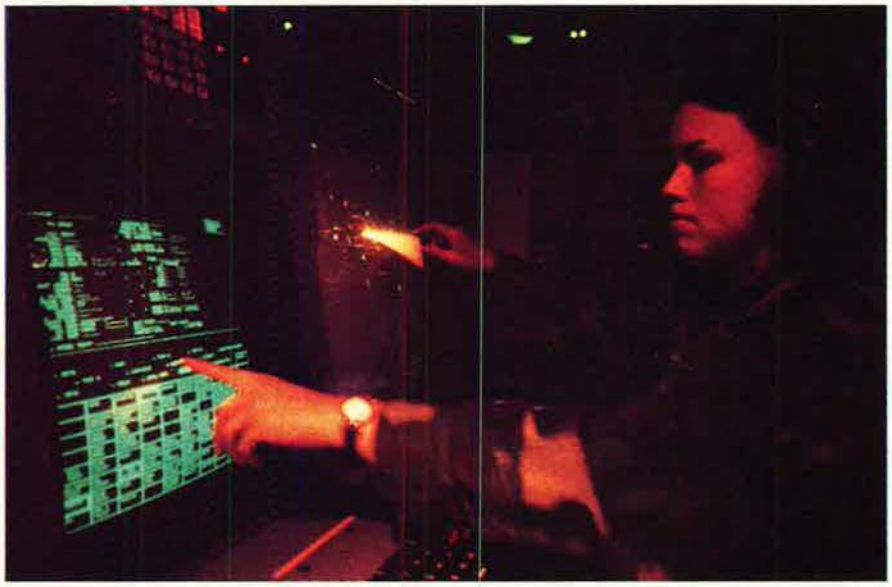


Photo by Guy Aceto

Photo by Paul Kennedy

Photo by Guy Aceto

Above, A-10 "Warthogs" from the newly formed 70th Fighter Squadron. The A-10's "wide combat radius and short takeoff and landing capability permit operations in and out of locations near the front line—[making it] the perfect aircraft for our new airland mission with the US Army at Fort Stewart," said General Kinnan. Despite being called away in individual units for real-world missions, the 347th trains together as much as possible and accompanies the Army to the National Training Center at Fort Irwin, Calif., in an exercise called Air Warrior. "We have signed up for every Air Warrior possible with the 24th Infantry Division," said Colonel Craig.

Photo by Paul Kennedy

With the ability to bring airpower and equipment right to the battle and the experience of working with Army troops on the ground, the 347th Wing combines its different aircraft types in a unique, ready-made Air Force package.

Photo by Guy Aceto

The first four rounds of base realignment and closure actions reduced infrastructure by only twenty-one percent.

More Base Closings in the Works

By Suzann Chapman, Associate Editor

BRAC Costs and Savings

(billions of FY 1996 dollars)

	Number of BRAC Actions	Closure Costs	Six-Year Net Savings[1]	Annual Savings	Total Savings[2]
BRAC 1988	145	$ 2.2	$0.3	$0.7	$ 6.8
1991	82	4.0	2.4	1.6	15.8
1993	175	6.9	0.4	1.9	15.7
1995	146	3.8	4.0	1.8	18.4
Total	**548**	**$16.9**	**$7.1**	**$6.0**	**$56.7**

Cost and savings figures exclude environmental costs and land-sale revenues.

[1]Net savings over the six-year statutory implementation period

[2]Net savings over twenty years, discounted to present value at 4.2 percent

Source: Department of Defense

THE UNVEILING of the Defense Department's 1995 Base Closure and Realignment Report on March 1 put an end to speculation that this base closure round would be larger than all previous rounds combined. In fact, reports had started to surface late last year that the fourth and supposedly final round would not be the massive cutback predicted earlier by Defense Secretary William J. Perry.

The Pentagon proposed only 146 individual actions in this round, compared to 175 in the 1993 round. Even so, DoD predicts that the 1995 base realignment and closure (BRAC) actions will provide a total savings over twenty years of $18.4 billion, more than any of the previous three BRAC actions.

For the 1993 round the Defense Department barely breaks even over the course of the Future Years Defense Program (FYDP) six-year period, while in this latest round DoD expects to realize about $4 billion in savings at the end of the six years, as shown on the BRAC Costs and Savings chart above. That amounts to an average of about $1.8 billion in annual savings, or very close to the savings of the larger 1993 BRAC. DoD also predicts that 1995 closure costs will be about half what they were for 1993.

Secretary Perry attributed the increased savings in BRAC 1995 to a determined effort to reduce up-front costs and achieve earlier payoffs, as well as to experience gained in the closing process. In 1993 actions, DoD encountered high up-front costs in the form of new military construction needed to support units relocating from one base to another. In contrast, the latest round emphasizes net present value savings, focusing on lower up-front costs and earlier payoffs.

The net present value is a twenty-year accumulation of costs and savings—discounted for the cost of money—based on a discount rate approved by the Office of Management and Budget. DoD projections for each of the four rounds actually show greater dollar savings for the two "smallest" rounds (1991 and 1995) than for the two "largest" (1988 and 1993). (The last column of the chart on p. 54 lists the net present value for each round.)

Coming: Another BRAC?

Though he emphasized the high savings expected from BRAC 1995, Secretary Perry also stated in his presentation to the Defense Base Closure and Realignment Commission that the infrastructure cuts still do not balance the reduced force structure. Consequently, he thinks another round of closures and realignments will be necessary in three to four years.

During the period covered in the first three rounds, DoD cut force structure by about thirty-three percent. Taking all four BRAC rounds together, however, DoD will have reduced infrastructure by only twenty-one percent. The total Air Force infrastructure reduction is slightly less, about twenty percent.

The current force-structure plan as set out in the FYDP calls for the active-duty Army to have ten divisions in 1999, the active-duty Navy to have eleven carriers, the active-duty Air Force to have 936 fighters, and the active-duty Marine Corps to have three divisions. According to Secretary Perry, the services will retain capacity to accommodate those forces, plus some redundancy in basing to handle returning overseas forces, if necessary.

Gen. John M. Shalikashvili, Chairman of the Joint Chiefs of Staff, also testified before the commission. He pointed out that the services could further reduce excess infrastructure "through smart joint basing" and joint operations. Secretary Perry emphasized early in his remarks that DoD had "not gone the distance in effecting cross servicing."

Both leaders cautioned that the services need time to absorb the changes not only from new and previous BRAC actions but also from the general downsizing.

Characterizing the issue as a management problem, Secretary Perry told the commission, "Anybody that manages any enterprise, whether it's government or industrial or a university, knows that the most difficult management task is managing a downsizing. We have had three downsizings going on in parallel: the downsizing of the personnel in the active-duty forces, . . . a thirty-three percent reduction over about six years, seven years; the downsizing of the industrial base, the defense industry; the downsizing of the bases themselves."

He said that the military has not "fully digested the previous BRACs." Actions are still ongoing from BRAC 1991, primarily work to assist communities with base reuse activities, and for 1993, continuing the closure process. He added, "This was about as big a lump as we could swallow at this stage and manage effectively and efficiently, in my judgment."

In stating that he may ask Congress to approve another BRAC, Dr. Perry indicated that he does not believe a new round would be as massive as the first four. He said, "We're talking about fine-tuning rather than another major reduction."

Jeopardizing Modernization

Commission Chairman Alan J. Dixon, a former Democratic senator from Illinois, voiced congressional concerns that DoD might be sacrificing future modernization with its scaled-back BRAC 1995 actions. He asked Secretary Perry to defend leaving excess infrastructure in place when no future BRAC round has been authorized.

Dr. Perry responded that the 1995 base closing is "not a free lunch." He said, "If you were to close twice as many bases right now, you're taking a terrible hit on readiness and modernization over the next three or four years. . . . In order to get savings on into the next century, we have tried to make a balance between near-term and far-term readiness."

He also said that the $6 billion in total annual savings, which begins to be realized toward the end of the decade, is absolutely crucial to DoD plans for increasing outlays for weapon modernization programs. He emphasized, "In our planning, the entire $6 billion transfers over to an improvement in the modernization program."

DoD's recommendations to trim excess depot capacity also figure in the total savings from BRAC 1995. The 1993 commission requested that DoD look at cross servicing, particularly in relation to depot activities—even going so far as to recommend, "All DoD maintenance depots should come under the direct command and control of a single joint services organization."

Based on that recommendation, DoD conducted a study of depot activities. As a result of that 1993 study, DoD decided to create a Defense Depot Maintenance Council (DDMC) rather than a separate organization. Separate affirmation for the council approach came last year when a congressionally mandated government-industry task force endorsed DDMC oversight as the preferred method for depot management.

The Air Force Retains Depots

In this latest BRAC round, the Navy, Army, and Defense Logistics Agency have proposed closing major depots or shipyards to solve their excess depot capacity. The Air Force, on the other hand, has proposed to keep all five of its air logistics centers open and to obtain greater savings through economies of work.

In his letter prefacing the DoD report, Secretary Perry wrote that the Air Force proposal will "achieve significant savings, . . . as well as [provide] consolidation sites for DLA storage activities. Because of the Air Force's unique logistics complexes, this approach proved significantly more cost-effective than closures."

In fact, the Air Force determined that scaling back the depots results in a one-time cost of $218 million vs. about $1 billion for closing two depots. Additionally, by scaling back, the Air Force will save $627 million, about twice what the service could achieve by closing two depots.

In March testimony to the commission, Air Force Secretary Sheila E. Widnall said closing even one depot would essentially drain the full Air Force budget for BRAC 1995 actions. She said that the proposed alternative "will decrease excess capacity in a way that makes operational sense and that will achieve savings at a realistic cost."

What the Air Force has proposed actually includes some actions that fall outside the BRAC umbrella but will achieve the same downsizing goal (see "Non-BRAC actions" on the Cost Implications chart below). According to Dr. Widnall, "Programmed work reductions, downsizing through contracting or transfer to other service depots, and the recommended BRAC consolidations will achieve a total real-property infrastructure reduction equal to 1.5 depots and a manpower capacity reduction equivalent to nearly two depots."

Cost Implications

(millions of FY 1996 dollars)

Consolidate at All Depots	One-Time Costs	Net Costs (Savings)	FY 1996–01 Annual Savings	Total Savings[1]
BRAC actions	$ 183	($139)	$ 89	$ 991
Non-BRAC actions	35	(488)	146	1,875
All actions	**$ 218**	**($627)**	**$235**	**$2,866**
Alternative: close two depots	1,107	(363)	161	699

[1]Savings in twenty-year net present value
Source: Department of Defense

Chairman Dixon questioned this new approach because the Air Force had proposed closing Sacramento ALC and McClellan AFB, Calif., in BRAC 1993 while following the same selection criteria as this year. He asked Secretary Perry on what basis he determined that the Air Force continues to need five ALCs.

Secretary Perry replied, "The basis was arithmetic." Using DoD's primary criterion for evaluation, net present value, the Air Force figured a savings of nearly $3 billion for scaling back, compared to only $700 million from closure of two depots.

However, additional questions are certain to come up regarding the Air Force's approach to the depot issue, in view of an analysis released by the General Accounting Office in mid-April. The GAO report states that the Air Force based its depot realignments, which includes consolidation of fourteen work load processes, "on studies that were incomplete and ongoing outside the BRAC process." GAO referred to studies begun in July 1994 by Air Force Materiel Command "to evaluate the feasibility of realigning twenty-four commodity/process work loads."

While the Air Force used the incomplete study, according to GAO, it altered some of AFMC's preliminary recommendations. For example, GAO noted that unlike the study, the Air Force proposes eliminating the plating process at one depot and at the same time making that depot a consolidation center for hydraulics, a process that requires plating capability.

The report cites other inconsistencies, but the GAO's bottom line concluded, "If the Air Force continues to spread work load among all five depots, it will continue to be costly to close any of these activities in the future."

In response, an Air Force spokesperson said that USAF has provided "refined information on the consolidations of commodities at the depots" to the commission and Congress. The Air Force gathered new data from site surveys conducted after DoD submitted its BRAC recommendations to the commission on March 1.

Additional Cross-Servicing Needed

The depot issue was one of five areas that DoD evaluated for potential joint or common activities. Joint cross-service groups (JCSGs) analyzed depot, medical, pilot training, laboratory, and test and evaluation facilities, then presented recommendations to the services.

Even though Secretary Perry indicated that more cross servicing should be performed, he said, "The cross-service effort did assist in reducing excess capacity and determining where joint or collocated functions made functional and economic sense."

One JCSG recommendation led to the Air Force proposal to close Rome Laboratory at Griffiss AFB, N. Y., and relocate some of its activities to the Army's Communications-Electronics Command, Fort Monmouth, N. J.

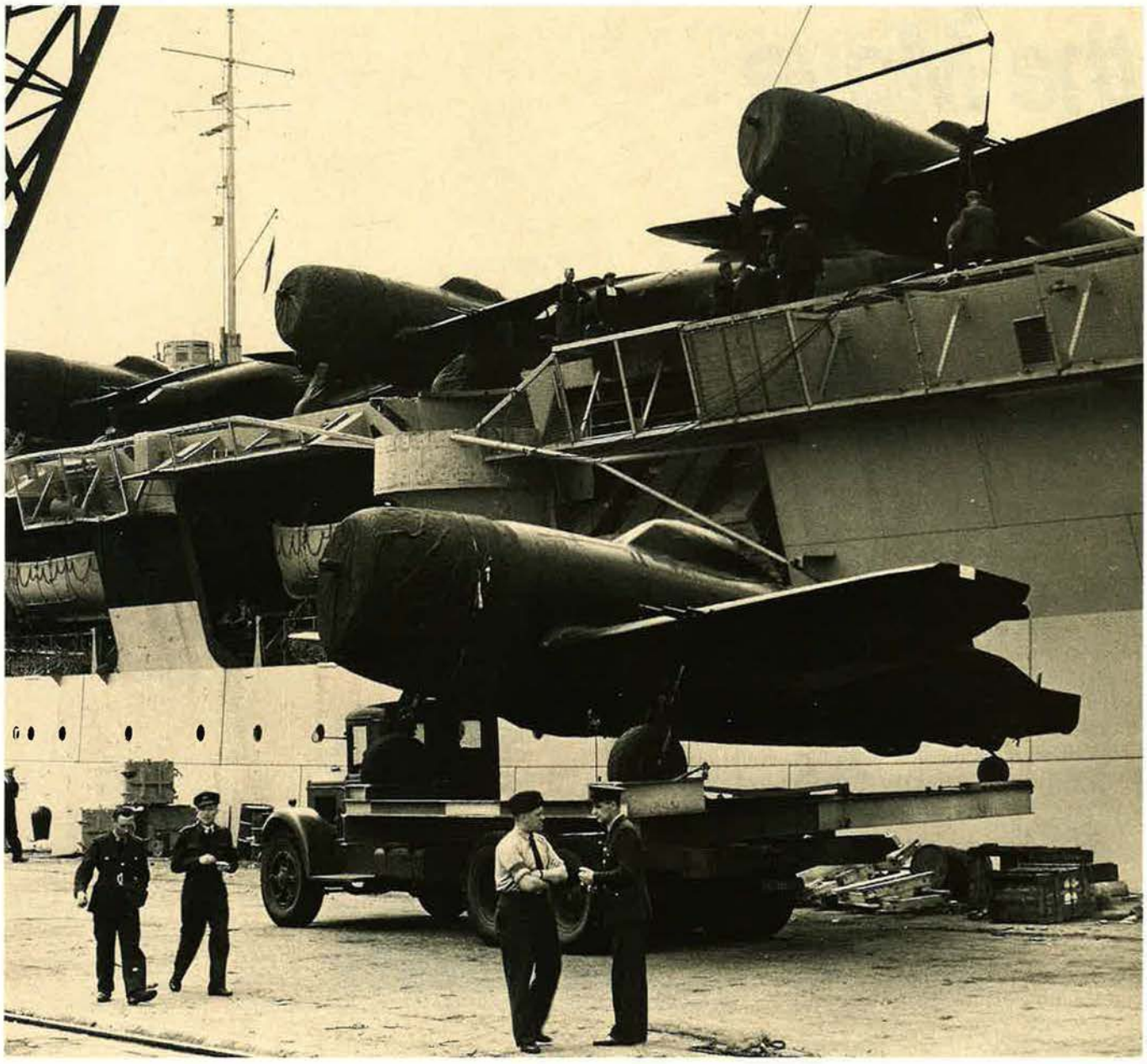
According to the DoD report, other laboratory work load transfers proposed by the JCSG were too small to have much of an impact on installation decisions and were not cost-effective. Additionally, the test and evaluation infrastructure remained virtually untouched because each service concluded that "preservation of core test facilities, which have irreplaceable land, air, and water ranges, precluded closures of major facilities and that cross servicing of test and evaluation functions would not be cost-effective."

The BRAC report also stated that the undergraduate pilot training group recommended no additional reductions or consolidations beyond the earlier agreement between the Air Force and Navy to combine fixed-wing training under the Joint Primary Aircraft Training System. Similarly, the medical facilities group drew on cross-servicing policies already in effect and followed realignment and closure actions of each service "since location of military medical facilities is largely dependent on the major military installations which provide their patient load." The group did recommend continued cross-service efforts.

The testimony of both Secretary Perry and General Shalikashvili clearly indicated that cross-service actions have not gone far enough. Secretary Perry said that DoD "could have gone farther by simply . . . making an edict and making it happen."

He added, "While we are not satisfied we have the final answer, we are satisfied that this is the best step, and this is the best path to that final answer." ■

Unfinished Business



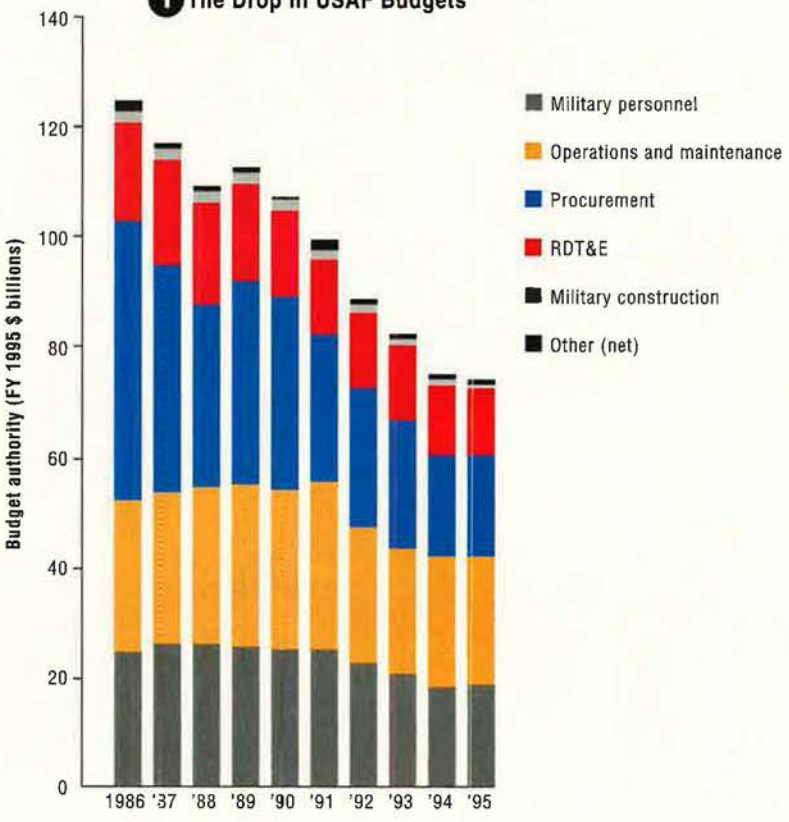
After the victory in Europe in May 1945, some of America's fighting men in the European theater could head for home, but US fighter planes were not through with the war. P-51 Mustangs, P-38 Lightnings, P-61 Black Widows, and P-47 Thunderbolts (shown here) gathered at Liverpool, England, high on the priority list for redeployment. They were partially disassembled, taped for protection against the weather, and hoisted by sixty-ton cranes onto the decks of "pocket aircraft carriers" like this converted grain ship. The fighter planes then sailed for the States before returning to action half a world away to finish the war in the Pacific.

Commitments are up, resources are down, and the pressures are tremendous.

Snapshots of a Force on the Move

By Peter Grier

1 The Drop in USAF Budgets



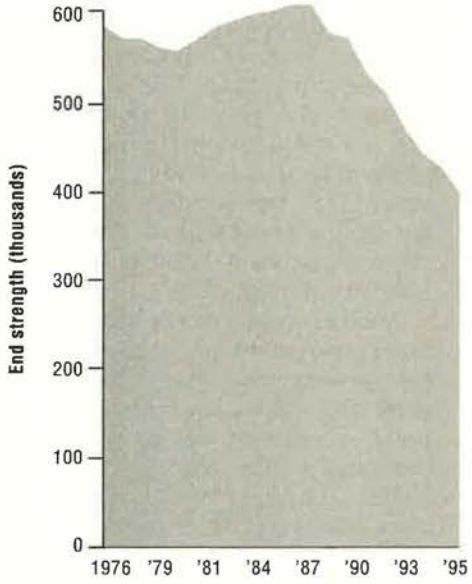
IT WAS another typical week for the US Air Force's 52d Fighter Wing at Spangdahlem AB, Germany. Twelve of its eighteen A-10s were deployed at Aviano AB, Italy, supporting NATO operations over Bosnia-Hercegovina. Six of its eighteen F-15s and twelve of its thirty-six F-16s were at Incirlik AB, Turkey, enforcing the no-fly zone over Iraq. Many of the wing's remaining fighters were at Decimomannu AB on the Italian island of Sardinia, going through intensive air-to-air and air-to-ground training.

All told, almost three-quarters of the aircraft assigned to the 52d FW were deployed away from home base when this spring 1995 "snapshot" was taken, according to the wing's commanding officer, Brig. Gen. John R. Dallager. "Our people are very busy—so busy, in fact, that this Christmas was the first time in almost a year that all our flying squadrons were home at once," General Dallager told Congress in March.

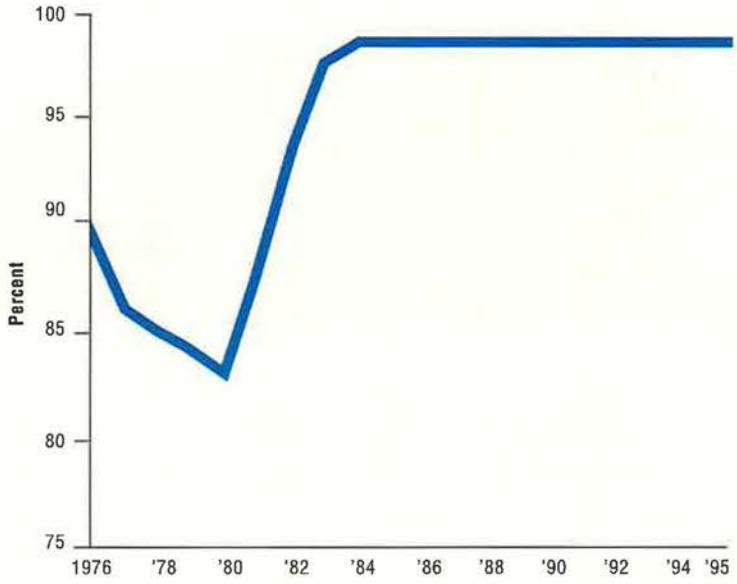
That situation highlights some of the Air Force's principal readiness concerns. While the size of the force has shrunk dramatically in recent years, the demand for aircraft operations has risen in absolute terms. The result is that pressure on remaining aircraft and personnel has skyrocketed, and the need to fulfill national requirements means that many front-line units are now operating at a pace reminiscent of Operation Desert Storm.

Air Force officials are worried that

2 USAF's Dwindling Force



3 New Recruits With a High School Diploma



this heavy use of the force will have a high cost, both in human stress and in overall combat training and readiness. If the late 1970s and early 1980s were the years of the "hollow force," the mid-to-late 1990s may well become known as the time of the "tired force."

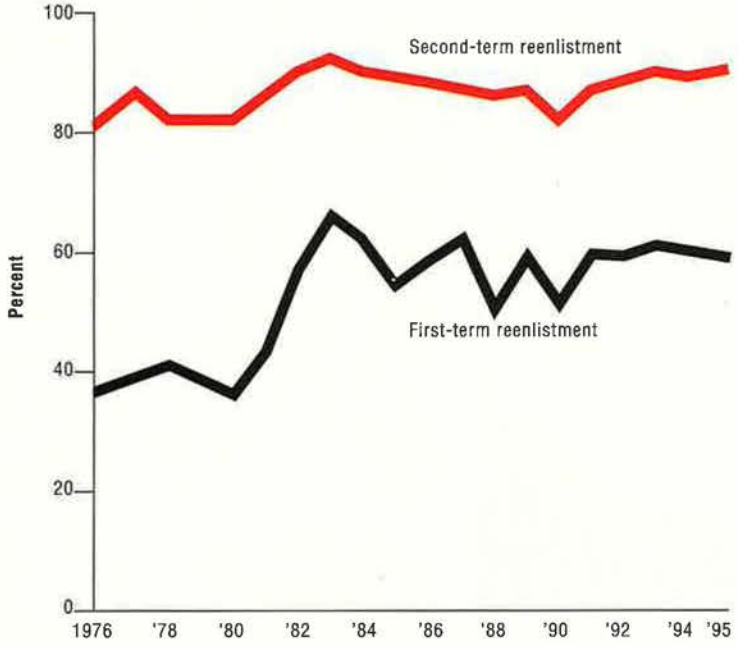
The most fundamental statistical measurements show that thus far at least, short-term readiness is holding up relatively well, given the wear and tear on the force. But with more and more demands being made of fewer and fewer people, and modernization dollars in short supply, the state of tomorrow's Air Force is another question.

"I have the same concerns as my fellow Chiefs about future readiness," said Air Force Chief of Staff Gen. Ronald R. Fogleman in March. "Here, I am talking about modernization dollars because today's modernization dollars are what buys tomorrow's relevant and capable force."

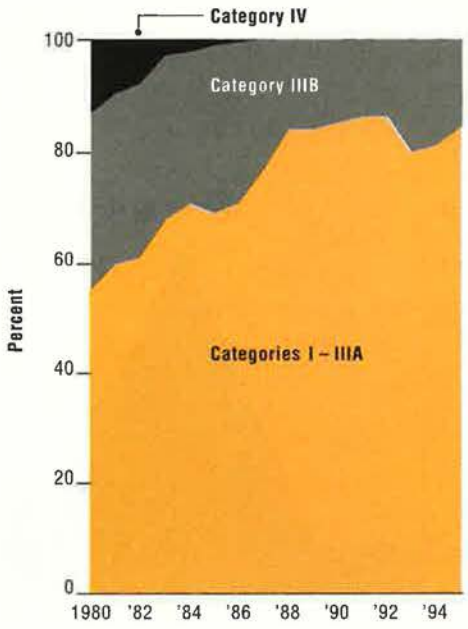
Budget and Size

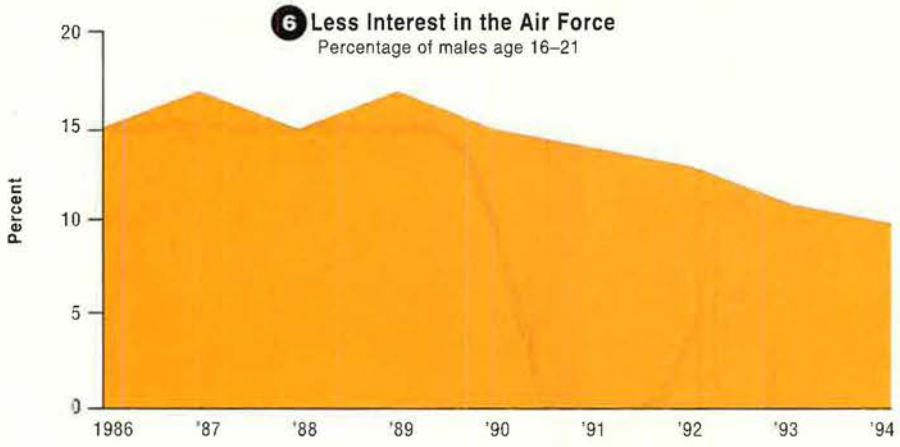
Anyone connected with USAF knows that budgets have been shrinking in recent years. The dramatic extent of the cuts is evident in the falling slope depicted in Figure 1. The expenditures of the Reagan years peaked in 1986, at about $125 billion in today's dollars. For Fiscal 1995 the comparable figure is only $75 billion. (Numbers for Fiscal 1995 are projections throughout this article; all years in figures are fiscal years.)

4 Reenlistment Trends



5 Percent of Recruits by Armed Forces Qualification Test Category





Within that budget total, USAF's operations and maintenance funding has been protected fairly well. No one—least of all Air Force leadership—wants to see a return to the days of cannibalized aircraft and deferred repairs that characterized the late 1970s and early 1980s. For that reason, the most profound reductions have been applied to procurement funds, which fell from $51 billion in 1986 to $18 billion in 1995.

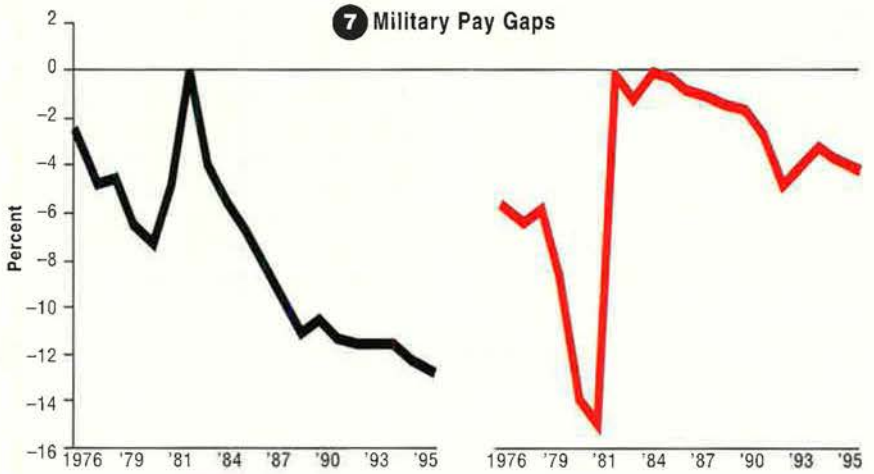
This led to the Air Force's budget-cut strategy: Shrink the force while keeping up the quality of what remains. Figure 2 shows what that decision has meant in human terms. USAF end strength has fallen from a peak of 608,000 in 1986 to only slightly more than 400,000 today.

Personnel Quality Issues

The cutback has affected morale, but it does not seem to have had a large impact on the quality of the force. As Figure 3 shows, the percentage of the Air Force's new recruits with high school diplomas remains high. This key aspect dipped sharply in the late 1970s, in one of the most critical indicators of force "hollowness." As Figure 4 shows, today's reenlistment trends also remain strong, in both the first-term and career categories. This stands in sharp contrast to the "hollow force" days, when experienced noncommissioned officers left the Air Force in large numbers.

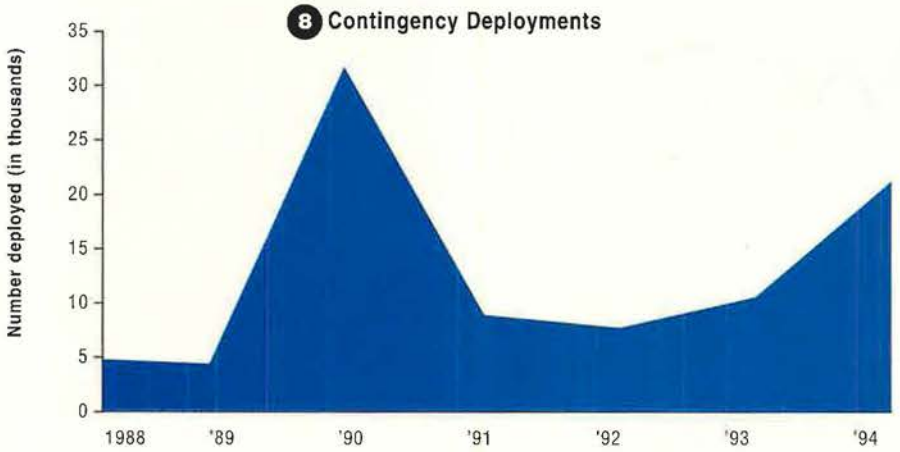
The quality of service personnel can change quickly, however, and not all signs point upward. The percentage of Air Force recruits scoring in the top half of the Armed Forces Qualification Test (Categories I–IIIA) has dipped a bit in recent years, dropping from an all-time high of eighty-six percent in 1991 and 1992. It stood at eighty-one percent for Fiscal 1994, as shown in Figure 5, a percentage that is still higher than that of the other services, but it has not been this low since 1987. The service expects a slight rise in this indicator during 1995.

Another worry: According to current Pentagon studies, men aged sixteen to twenty-one—the prime recruitment age—show much less interest today in military service generally, compared to the peak years of the 1980s. The problem hits other services harder, but the Air Force feels pressure, too, as the trend line in Figure 6 makes clear. The lower propensity to serve in the Air Force means that USAF recruiters have to work harder to get the same—or perhaps a lower—caliber of recruit.



ECI gap: cumulative difference between military pay increase and employment comparability index increase

CPI gap: cumulative difference between military pay increase and consumer price index increase

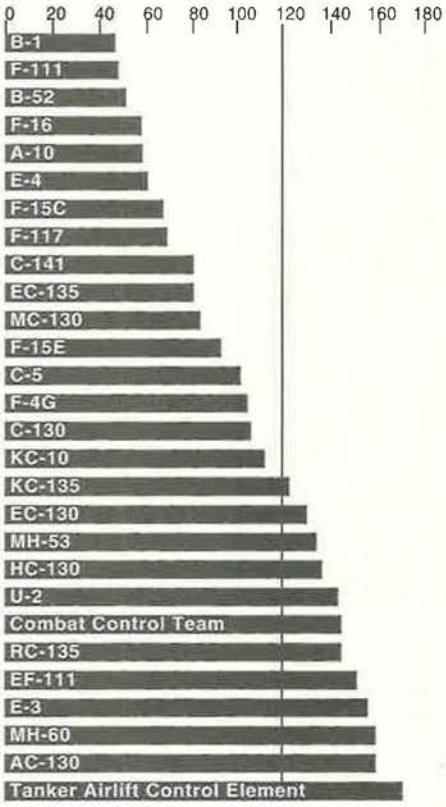


Major military pay increases in 1981–82 restored comparability between military and civilian compensation. In the 1980s, pay increases generally matched inflation, but the difference between the two (the "CPI gap") is growing again, as Figure 7 shows, and even maximum legal pay raises still fall short. The bigger difference is between military and private-sector pay, known as the "ECI gap."

"We are cautiously optimistic about meeting FY 1995 [personnel] goals, but if current trends continue, we will

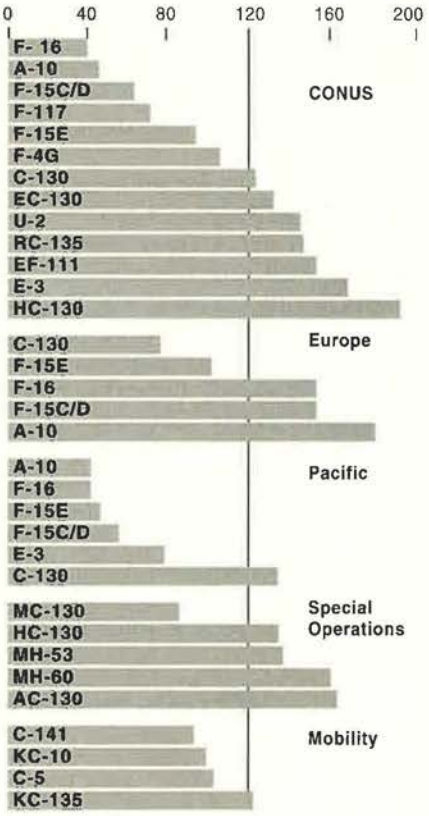
9 Personnel Tempo

Days TDY per year, by type of crew



10 Personnel Tempo by Region

Days TDY per year, by type of crew



miss FY 1996 targets," Gen. Thomas S. Moorman, Jr., USAF's Vice Chief of Staff, told Congress in April.

Tempo Issues

With both dollars and strength levels headed downward, what has happened to the work load? That, according to senior service officials, is where the most worrisome crunch is coming. The pressures created by regional conflicts and humanitarian ventures have increased the demand for Air Force units to deploy in action, even while the number of people available to fly and maintain airplanes is shrinking. As seen in Figure 8, the Air Force's deployment rate was 400 percent higher, as of fall 1994, than it was five years earlier. While the Air Force Reserve and Air National Guard have taken some of the strain, this pace is largely being kept by an active-duty force that is thirty percent smaller that it was five years ago.

In this situation, the personnel tempo has become a major challenge for many specialized units. The Air Force's goal is to avoid sending anyone on temporary duty away from home base for more than 120 days per year. As Figure 9 shows, however, the crews for many types of Air Force aircraft are exceeding the Air Force's self-imposed limit. Figure 10, which expresses the same reality in a different way, shows the impact by region.

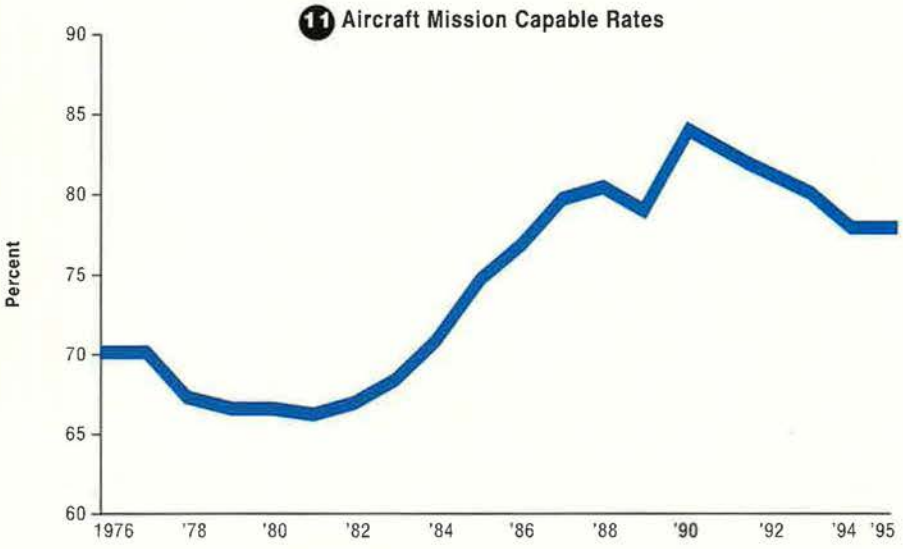
For selected units, the pressure of deployment can go far higher than even these data suggest. According to General Dallager, the 52d FW's A-10 attack aircraft averaged more than 190 days TDY in 1994. For the wing's F-15s and F-16s, the figure was around 150 days.

Maintenance and Logistic Issues

So far, the classic overall readiness measures for the Air Force remain fairly strong. The aircraft mission capable rates, so high during the latter stages of the Cold War, have dipped slightly in recent years, as Figure 11 shows.

Even so, the rates remain near historically high levels. Air Force officials say that spares availability is still good, though some parts shortages have developed in war reserve spares for multimission F-15E fighters, B-1B heavy bombers, and KC-135 refuelers.

11 Aircraft Mission Capable Rates



General Moorman said that today nearly ninety percent of Air Force units are combat ready and stocked for wartime missions—a percentage that has remained "fairly stable over the last ten years."

Air Force planners predict that parts shortages will cause a further one to two percent degradation in composite mission capable rates before the end of Fiscal 1995. "This is an area we are working hard," said General Moorman.

Training Issues

Poor training was another characteristic of the "hollow force." The flying-hour program is the Air Force's most prominent training item. Flying hours are no guarantee of readiness in and of themselves, but they are the prerequisite for such programs as dissimilar air combat training.

The program allows aircrews to maintain basic proficiency as well as hone specific combat skills. The flying-hour program not only helps to train aircrews but also provides a *de facto* readiness program for maintenance and logistics personnel who prepare aircraft.

The overall flying-hour program for the period 1976–95 is shown in Figure 12. Totals include operational flying, training sorties, and strategic airlift channel missions. The flying-hour program hit a low of slightly more than 3.1 million hours in 1978, then grew modestly during the 1980s to a peak of nearly 3.5 million hours in 1985. In the early 1990s, however, total hours began a dramatic drop, largely because the force itself was shrinking and there were fewer airplanes to fly and pilots to fly them.

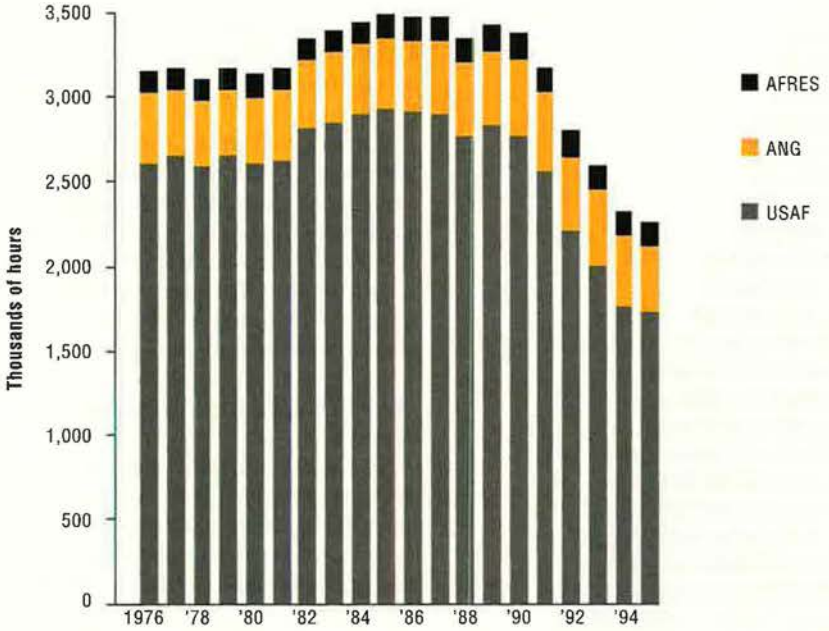
The averages have been steady. At the end of the hollow force era and beginning of the Reagan buildup, the flying hours of tactical aircrew members rose by twenty-five percent. As Figure 13 illustrates, fighter flying hours have been fairly stable for a decade.

The strong fighter flying program doubtless has had a beneficial effect on the Air Force's accident rate—another important measure of readiness. Figure 14 shows that the rate for Class A fighter mishaps spiked in 1979, hitting an average of eight per 100,000 flying hours. As the flying-hour program picked up, the mishap rate plummeted. Today, the rate hovers between three and four per 100,000 flying hours, somewhat less than half the "hollow force" rate.

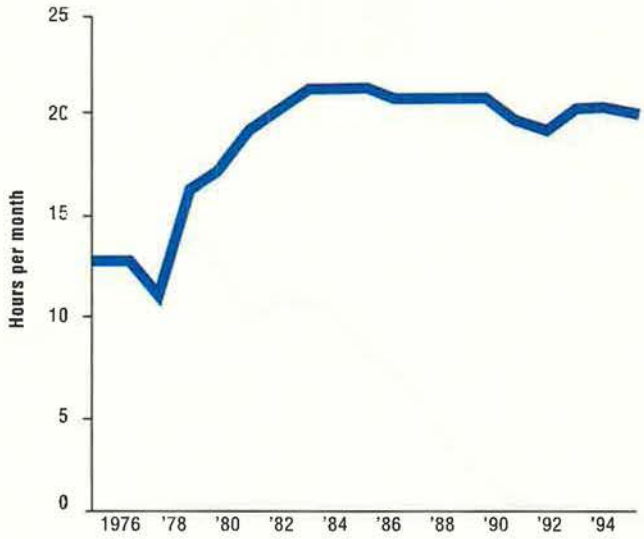
Air Force officials also worry about the effect of the service's growing work load on training. Combat training programs are fully funded in the Fiscal 1995 budget, and flying hours are predicted to remain at the levels of the last several years.

Contingency operations are already pulling key units away from important training missions. According to General Moorman, last year neither of the Air Force's F-15E units based in England was able to take part in Maple Flag or the Weapon System Evaluation Program because of contingency requirements. Other busy USAFE units have required waivers to maintain mission ready status, General Moorman told Congress in April. ■

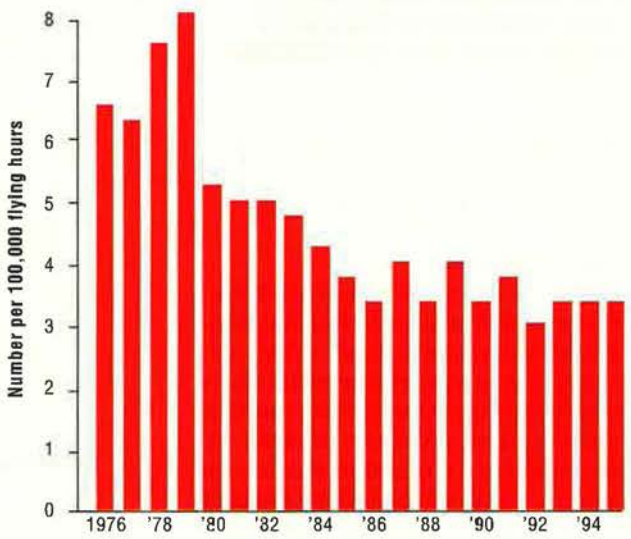
12 Total Annual Flying Hours



13 Fighter Crew Flying Hours



14 Class A Fighter Mishaps



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The top attraction is training opportunity. The leading complaint is pay and allowances.

The Quality of Military Life

By Bruce D. Callander

One of the hot-button issues in Washington these days is how to improve the quality of military life. Politicians—including some who have been eager to cut defense spending generally—mostly support the moves to better the lot of the troops. Service officials say it is essential to preserving a strong defense. Service members claim that it will have much to do with whether they continue their military careers.

To longtime observers of military life, it's a familiar scenario. About once every ten years during the postwar era, slumps in recruiting and retention of high-quality personnel have sparked at least a temporary interest in improving "people programs" in the armed forces.

In the 1960s, manpower problems became so serious that the Air Force formed a task force to deal with them and put a major general in charge. It was this group that picked up the 1960s catchphrase "quality of life" and applied it to the collection of pay, benefits, and less tangible rewards of service. The study resulted in a number of internal and external reforms, including overhauls of the assignment and promotion systems.

Despite a rash of quick fixes and a few longer-range remedies, successive generations of service members have voiced their discontent with military life, and Washington has come up with new initiatives to address their complaints.

Late last year, President Clinton and Defense Secretary William J. Perry announced that the Administration would add $2.7 billion to defense spending over six years for the specific purpose of improving the quality of life for American troops, proposing advances in such areas as family housing, bachelor quarters, child care, family advocacy, and recreation.

A Wrenching Change

For the troops, today's concerns differ in many respects from those of the past. For close to ten years, the services have been shrinking their forces, closing bases, reorganizing, consolidating, and economizing. During the same period, the Pentagon has shifted its attention from Cold War threats to regional conflicts. Successive administrations have taken on a variety of peacekeeping and humanitarian missions.

USAF photo by Fernando Serna

Meanwhile, the services have been undergoing some of the most traumatic internal changes in their history. Individuals have faced profound uncertainties, ranging from whether they would be allowed to remain in the service at all to whether they wanted to remain even if they could.

In the Air Force, some flyers faced repeated deployments while others remained banked in nonflying jobs. Those in critical specialties were paid fat bonuses to stay in, while those in other skills were offered cash incentives to leave. Many who had their eyes on thirty-year retirement found careers cut short. Service members shared the uncertainties of a fickle economy with their civilian counterparts and underwent the uniquely military stress of short-notice assignments, family separations, and other forms of "personnel turbulence."

Over the same period, military compensation, particularly for retirees, was nibbled away by inflation and reduced by congressional moves to lower defense spending.

Little wonder then that personnel surveys and, by extension, recruiting and retention forecasts have begun to reflect changing attitudes toward what is broadly called the quality of service life.

In just four years, for example, the Air Force has seen major shifts in the factors that officers said make them most satisfied or least satisfied with USAF careers. In 1990, the retirement system ranked fourth among the satisfying features. By last year, it had dropped to sixteenth place on the list, and the availability of commissary service had risen to rank among the top five.

During this same period, dissatisfaction with assignments and medical and dental care decreased, and the top officer gripes centered on promotion opportunities, additional duty, and pay.

Some of the officers' attitude shifts are readily explainable. Traditionally, for example, the retirement system has ranked high among the attractions of service life, but the retirement formula changed significantly in the 1980s. Those in service by September 1980 were guaranteed retirement annuities based on 2.5 percent of their final base pay multiplied by the number of years of service and normal cost-of-living adjustments. For those entering after that date, however, retired pay is based on the highest thirty-six months' worth of pay, effectively reducing the annuities. In 1986, another change limited twenty-year retirees to forty percent of base pay, rather than half. At the same time, Congress lowered future cost-of-living adjustments.

Such changes have been slow to take effect because Congress "grandfathered" military members already in service. However, the number of younger service members who are affected has been growing and now shows up in attitude surveys. Smaller percentages of officers now see retirement as one of the most attractive features of service life.

There have been fewer attitude shifts among airmen over the same period. Pay and allowances remain the top gripe and training opportunities the number one attraction. The only significant change since 1990 has been that the availability of medical care dropped from the roster of top-five satisfiers despite Pentagon efforts to improve it.

Recruiting and Retention

So far, the attitude changes seem to have had little impact on the Air

Force's ability to recruit and retain younger members. Presumably, they are less concerned about long-range pocketbook issues than about traditional opportunities for training and education. Even so, USAF is concerned about meeting its recruiting goals in coming years.

One problem is that USAF now needs to bring in more recruits than it has in recent years because of the cuts it made in new accessions during the drawdown. Without such an influx, first-term strength will fall below the levels needed to maintain the future career force. In 1994, USAF raised recruiting goals slightly to begin to catch up. It will have to recruit at even higher levels for some time to make up the deficit.

That won't be easy, USAF officials said. Last year, with only modest increases in goals, recruiters missed their targets in seven out of twelve months. They managed to meet end-year strength goals—but just barely. Officials expect that Fiscal 1996 and later years will be just as tough as they face still higher recruiting objectives. As always, a few skills, such as those in the medical area, face continuing shortfalls.

The economy has improved and brought increased competition from the private sector. More high school graduates are going directly to college, and fewer service-age youngsters are interested in the military as an alternative. As a result, fewer recruits score in the top mental categories. Recent months have seen improvement, but quality remains a concern.

Retention generally seems to have been good, but signals are mixed. Last year, the continuation rate for rated officers was above eighty percent and for line officers sixty-six percent. Among airmen, the re-up rates also were up, although not so dramatically. For 1994, almost sixty percent of first-termers reenlisted, as did more than eighty percent of second-termers and ninety-five percent of career airmen. However, USAF officials said, it has been hard to get a reading on retention during the drawdown because it has made many members ineligible to reenlist and may have inflated the reenlistment rates.

Not Cheap

Retention has not been cheap. The Air Force has used the selective reenlistment bonus to hold first-termers in skills with low numbers and to encourage others to retrain into such specialties. Recently, it also offered the SRB to lure back second-termers in such critical skills as signals intelligence exploitation. Special Duty Assignment Pay also has been used to attract and hold airmen in such skills as combat control and pararescue. A variety of bonuses has been paid to officers in critical areas.

The long-term solution to USAF's manning problems may have to be a much broader and longer-lasting effort to improve the overall quality of military life. In some cases, that could mean replowing familiar ground.

In the pay area, for example, the services went into the All-Volunteer Force in the early 1970s with the understanding that service compensation would be kept comparable with private-sector wages. By the late 1970s, pay shortfalls already were hurting retention, and Congress had to approve a catch-up raise. The current Administration has supported further improvements, but the actual increases continue to lag behind the Employment Cost Index, the measure of wage growth for average Americans. The 1995 raise reduces the gap to 12.6 percent, but it is expected to widen to more than eighteen percent by Fiscal 2001.

Housing pay also has lagged behind costs. Congress's stated intention, USAF officials said, was that sixty-five percent of housing costs would be covered by basic allowance for quarters and twenty percent by the Variable Housing Allowance. The remaining fifteen percent was to be absorbed by the service member. However, allowances have fallen behind costs, and the out-of-pocket contribution has risen to almost twenty-two percent.

The Defense Department has asked for improvements in pay and allowances for the rest of the decade, and officials are confident of congressional support, but they concede that direct pay is only part of the solution. The other part involves less visible fringe benefits.

Traditionally, much of what made up the military standard of living consisted of small perquisites that made life more pleasant but cost the individual little or nothing. For many, those benefits made up for the low pay, turbulent lifestyle, and potential risks of being in service.

In earlier times, for example, health care was virtually free for service members and their families. Commissaries and exchanges sold goods at or near wholesale costs. On-base clubs offered meals and entertainment at a fraction of off-base prices.

The End of An Era

Those days are largely over. Dependent health care, while still better than that found in many civilian programs, now requires substantial contributions from service members. Commissaries and exchanges offer convenience at good prices but few spectacular bargains. Clubs, golf courses, and recreation programs also continue to serve active-duty and retired military, but since the drawdown they have had to choose between becoming self-sustaining or going under. Most have had to raise prices to survive.

The retirement package still is a major attraction of service life, but there has been noticeable erosion not only in the annuities but also in some of the fringe benefits. Along with active-duty members, retirees must pay more for health care, and they are finding that their dollars don't go as far in commissaries, exchanges, and clubs. For retirees in areas where bases are closing, a different form of health care still is available, but other types of base support are disappearing.

The nature of base support has changed in recent years, both for active-duty service members and for retirees. In earlier decades, facilities were geared to serve larger numbers of single people and to accommodate more traditional families in which the military member was the sole wage earner. Today, the great majority of service members are married, and most families have two working spouses. The services also have more single parents and couples with both spouses in service.

As a result, families look to the bases less to provide social life than to furnish basic support, particularly for children. The Air Force has child-care facilities at most bases and is working on more than thirty new or renovated centers. It has requested funds for twenty-two more in coming years. Some ninety-one percent of all Air Force child-development centers have been certified by the National Academy of Early Childhood Pro-

grams, more than twice the percentage certified in any other service.

Fitness centers also are a major part of today's morale, welfare, and recreation (MWR) program. Time was when base gyms attracted only the athletically inclined and others used them only when pressured to shape up. Now, with more people pursuing healthy lifestyles, close to two-thirds of all military members use the fitness centers regularly.

With many MWR programs required to break even or go out of business, however, managers have had to update facilities to attract customers. The days when gyms and clubs operated on a take-it-or-leave-it basis are over; customer preference is in.

Last year, focus groups asked customers what they wanted in their clubs and made a review of the facilities. Results of these studies should begin to show up this year in the operation of clubs. Similarly, the Air Force studied its most successful base golf courses and their civilian counterparts to see what they were doing right. The results have gone to all bases to help them improve operations. Child-care facilities also have been under scrutiny to see that they provide the best service at the lowest cost.

Why Not Just Raise Pay?

Improvements in support and recreation facilities are expensive, and some critics suggest that it would be cheaper simply to increase pay so that members could pay for the programs they want off-base.

Pentagon officials provided several arguments against that idea. For one thing, they said, the availability of such facilities off-base varies widely by location. Often, where local towns are small and distant, the base offers the only hometown atmosphere available for members and families. Another problem is that retirees are authorized to use MWR services, and most consider it an earned entitlement. There would have to be some way to compensate retirees as well as active-duty members for the loss of such services and to do the same for civilian employees, many of whom use child care, clubs, and other facilities.

A third argument against cutting on-base MWR programs is that they are not simply perquisites. They help to improve the quality of life and readiness and foster *esprit de corps,* Air Force officials said. Many, such as fitness centers and libraries, are deployable to areas where members are engaged in contingency and wartime missions. As for child-care and youth programs, officials said they become increasingly important as the military deploys more often and families face longer, frequent separations.

Air Force officials said that many MWR programs operate on a break-even basis with no appropriated-fund support. If they shut down and members had to be compensated for the loss, taxpayers would pay more and commanders would lose some valuable tools needed to train members and maintain readiness.

One element of family support appears to be improving, at least in terms of the numbers accommodated. The Air Force currently owns some 120,000 family housing units and leases another 16,000. With the force shrinking, the ratio of units per family has increased somewhat, and about forty-five percent of all families now live in some form of government housing.

The catch is that the average age of USAF-owned family quarters is about thirty-two years, and roughly half the units need extensive renovation. These will have to be improved or replaced.

Little Progress

The Fiscal 1995 budget includes only about $227 million for housing, enough to improve 810 units and replace 1,777. The only new construction will be at Pope AFB, N. C., and Los Angeles AFB, Calif. Similar programs have been submitted for the next two years—hardly enough to make a dent in the housing deficit.

Air Force officials concede that it is cheaper to have service members live in local communities and to pay them a quarters allowance. With housing costs rising, however, the savings may come at the expense of having the troops pay a larger share from their basic pay.

Again, the remedy may be expensive to the taxpayers. A new commission is looking at housing allowances to see if they are adequate. The services already have asked for increases in cost-of-living allowances for areas in the continental US where transportation, goods, services, and taxes are expensive, and they may seek other increases.

Though such improvements are important, USAF officials said that attention should not focus too much on narrow problem areas. Quality-of-life programs, they maintained, cannot be viewed in isolation. If pay increases but affordable housing and child care decrease, there may be a net decrease in quality of life.

For all its shortcomings, military life still has appeal for most Air Force members. In a recent survey, some seventy-two percent of the officers and more than two-thirds of all airmen said they planned to stay until retirement. Almost identical percentages said they thought the Air Force was a good place to bring up children.

A similar poll focused on job satisfaction, using a scale of six to thirty, with 19.7 as the mean score. Officers reported a 20.4 level of satisfaction and enlisted members 19.3.

All in all, officials contended, the quality of life in the Air Force is good, but it could stand improvement. The Air Force's priorities include such familiar items as a fully funded compensation and benefits package, preservation of the retirement system and commissary benefits, safe and affordable housing, and high-quality health care.

On the wish list are some less traditional entries, including enhancing "people first" programs, such as child care, fitness centers, and other recreational activities and otherwise improving the living, working, and recreation environment. With an eye toward the rash of recent overseas deployments, Air Force officials also list the need to reduce the frequency and length of TDYs and family separations, particularly on crews that deploy with E-3 AWACS and RC-135 Rivet Joint aircraft and certain fighter units. If they cannot be limited, they said, at least there should be more effort to share the burden of deployments. ■

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, "The Unaccompanied Airman," appeared in the March 1995 issue.*

RUSSIAN MILITARY ALMANAC

By Tamar A. Mehuron, Associate Editor, **with Harriet Fast Scott, William F. Scott, and David Markov**

ORGANIZATION OF THE RUSSIAN ARMED FORCES

The Russian Armed Forces today consist of troops in a number of ministries and federal agencies directly subordinate to the president. Among these are the Ministry of Defense, Interior Troops of the Ministry of Internal Affairs (MVD), the Federal Border Guards Service, and the Federal Security Service. Units from these organizations composed the "federal troops" fighting in Chechnya. Border Guards and Interior Troops are rumored in many cases to be better trained and armed than Ground Forces units of Gen. Pavel Grachev's Ministry of Defense.

Gen. Col. Mikhail Kolesnikov, chief of the General Staff of the Russian Armed Forces, has complained that "a multiplication of power structures is now going on in Russia." These power structures include not only the four organizations already mentioned but also troops of the Ministry for Civil Defense and Extraordinary Situations, the Federal Communications Agency, the Courier Communications Agency, Railroad Troops, the President's Security Service, the Main Security Directorate, and other armed bodies. These operate under the Military Regulations of the Armed Forces of the Russian Federation. Estimates of uniformed military forces outside the Ministry of Defense vary from 500,000 to more than 1,000,000. These are not paramilitary troops.

This proliferation of power structures in the Russian Federation makes it difficult to determine the actual composition and strengths of all the uniformed Russian forces. During the Soviet era, the organizational statement was clear: "Strategic Rocket Troops, Ground Troops, Air Forces, Troops of Air Defense, and Navy, forming the services of the Armed Forces, and also the Rear Services of the Armed Forces, staffs and troops of Civil Defense, Border Guards, and Interior Troops." Today, no similar organization identifies the "Armed Forces of the Russian Federation."

Tactically, the Russian power structures have made a poor showing. Strategically, they have achieved major goals. Russia's geopolitical position in 1995 is much improved over that of 1993. Russian Border Guards now monitor many of the posts previously operated by Soviet Border Guards in most of the central Asian republics. Georgia, Kazakhstan, Armenia, and Belarus are among the nations in which Russia has secured military base rights. Critical research and development programs are being maintained, demonstrating Moscow's intention to sustain its strategic forces and superpower status.

Armed Forces under the Defense Ministry are primarily responsible for defending Russia against a foreign foe and remain divided into five services as in the Soviet era. In addition, there are two smaller services: Military Space Forces, a "special service branch of central subordination," and Mobile (Airborne) Forces, referred to as a "means of the Supreme Command."

Plans are under way for four major troop groupings, roughly comparable to the four theaters of military operations (TVDs) of the Soviet period: North (the Northern Fleet and the Leningrad Military District), South (North Caucasus Military District), Ural-Transbaykal, and Far East.

The Defense Ministry. For the past year, this once highly professional military body has been rife with dissent. Defense Minister Grachev was openly criticized in the Russian media by other senior officers. Planning for the Chechnya operation was kept secret from key deputy ministers of defense, two of whom were removed from office early this year. Military reforms, a heated issue since the late 1980s, have never progressed beyond the discussion stage. "If there is money, there will be reforms," declared General Grachev last February.

Despite the turmoil, the two first deputy defense ministers, General Kolesnikov and Dr. Andrei Kokoshin (the latter responsible for military-technical and economic policy), have maintained some order within this critical ministry. Officer education and training at military academies, schools, and institutes maintains its high standard. Research and development in key advanced weaponry areas is given high priority.

The Strategic Rocket Forces (RVSN) continue to lead the five Russian services in importance. They also rank first in combat readiness. The poor showing of Russian conventional forces in Chechnya highlights the role of the Strategic Rocket Forces even more. Without them, Russia would be regarded as a Third World military power, a fact fully recognized by Moscow's political leadership.

Upgrading of the Strategic Rocket Forces has not slackened. On December 20, 1994, the first test model of the ICBM RS-12M2 Topol was launched from Plesetsk. This improved missile, a monoblock, three-stage, solid-fuel rocket, reportedly will not need overhauling for fifteen years. There is no indication that work has ceased on the new massive underground battle station under construction in the Ural Mountains near Ufa. Existing deep underground shelters are being maintained.

In compliance with the START Treaty, by January of this year Russia had eliminated 400 out of 1,398 launchers, a twenty-nine percent reduction. SS-11 missiles have been removed from inventory, and SS-13 missiles are now off combat alert. Although difficulties remain, both Ukraine and Kazakhstan are transferring their ICBMs to Russia and appear to be complying with the provisions of both START I and II. Belarus's strategic forces are under Russian control.

The Troops of Air Defense (VPVO) remain the second largest service. Its Central Command Post, located near Moscow, is a specially fortified structure, reported to be "tens of meters underground." Orbiting satellites, radars, and other means provide data on air and space vehicles. Hundreds of targets can be recorded and tracked simultaneously.

All of the Commonwealth of Independent States (CIS) republics, except Azerbaijan and Moldova, have signed an agreement on the creation of a joint air defense force. Air defense matters with these two republics will be handled by bilateral agreements. Arrangements also have been made with Latvia to let the early warning radar there continue operations.

The Air Forces (VVS) are divided into long-range (strategic), frontal (tactical), and transport aviation. Cosmonaut training remains an Air Forces responsibility. With the breakup of the Soviet Union in late 1991, most of the Tu-160s were based in Ukraine, and Tu-95 bombers were in both Ukraine and Kazakhstan. If current agreements are followed, by May 1995 all of these aircraft will have been turned over to Russia. This will give the strategic air component twenty-eight Tu-160 and eighty-seven Tu-95MS bombers armed with cruise missiles.

Despite Russia's economic condition, major efforts are being made to produce new aircraft. The press heralds the MiG-33 as "unrivaled in the world." A second Su-34 experimental bomber has been constructed; it is expected to become the nucleus of the Russian Air Forces front-line aircraft. Military Air Transport had placed great hope on a new medium transport, the An-70. This aircraft was said to be able to take off in 600 meters from a sod runway and carry twenty tons of freight 3,000 kilometers. On a concrete runway this "aircraft of the future" was supposed to have lifted thirty-five tons of freight for 5,000 kilometers. However, in a February 1995 test flight, the only An-70 prototype collided with its escort aircraft and crashed. It is estimated a new prototype will cost seventy-eight billion rubles and require eighteen months to build.

Except for military transport pilots, the number of flying hours for pilots continues to decrease, averaging less than twenty-five hours a year for 1995. Lack of spare parts keeps many aircraft out of commission, and fuel supplies are irregular. Airfields receive little maintenance. Pilots in training are encouraged to

make touch-and-go landings in order to reduce wear on the runways.

The Ground Forces (SV), still the largest of the five services, showed glaring weaknesses in the Chechen war. TV viewers worldwide saw poorly trained Russian soldiers, many still in their teens, barely able to operate their equipment.

There were reasons for this. In 1993, the revitalized Russian Border Guards took away many of the Ground Forces' best officers. Manning of the Ground Forces had declined to forty percent in February 1995. Compulsory service, from which many are excused, has been cut from twenty-four to eighteen months. Conscripts often are used for guard duty and harvesting crops. Little time or funding is available for training. Army helicopter pilots are able to fly only fifteen to twenty hours per year. Ground Forces housing is the worst of any of the services. At the same time, Ground Forces personnel make up most of the peacekeeping forces, many of which serve in the most difficult areas of former Soviet republics.

The Navy (VMF) has scrapped most of its surface fleet. Only a skeleton force is maintained, to expand when funding is available. Manning is about fifty percent of authorized strength. Emphasis now is given to nuclear-powered submarines carrying strategic missiles. Russia's front-line submarines are as quiet or quieter in some respects than those of the US Navy. Within five years, the new multimission submarine, the Severodvinsk class, is scheduled to become operational. The US Navy projects this submarine will "outperform today's most advanced Western submarines in many respects." Under the provisions of START II, by 2003 more than half of the Russian strategic strike force will be aboard submarines.

Lineup of Russian Aerospace Power, 1994

Strategic Forces

Note: includes Russia, Belarus, and Kazakhstan Strategic Forces

773—Intercontinental Ballistic Missiles. SS-11 (RS-10): 20. SS-13 (RS-12): 20. SS-17 (RS-16): 11. SS-18 (RS-20): 188. SS-19 (RS-18): 170. SS-24 (RS-22): 46 (10 silo-based, 36 rail-based). SS-25 (RS-12M): 318.
140—Strategic Rocket Forces Helicopters. Mi-8 Hip: 140.
95—Long-Range Bombers. Tu-95M/K Bear-B/G: 24. Tu-95MS6 Bear-H: 28. Tu-95MS16 Bear-H: 37. Tu-160 Blackjack: 6.
732—Submarine-Launched Ballistic Missiles. SS-N-6 (RSM-25): 32. SS-N-8 (RSM-40): 244. SS-N-18 (RSM-50): 224. SS-N-20 (RSM-52): 120. SS-N-23 (RSM-54): 112.
47—Strategic Ballistic Missile Submarines. Delta I–class (Murena): 15. Delta II–class (Murena-M): 4. Delta III–class (Kalmar): 13. Delta IV–class (Delfin): 7. Typhoon-class (Akula): 6. Yankee-I (Navaga): 2.

Air Defense Forces

866—Interceptors. MiG-23 Flogger: 235. MiG-25 Foxbat: 131. Su-27 Flanker: 200. MiG-31 Foxhound: 300.
16—Airborne Early Warning and Control Aircraft. A-50 Mainstay: 16.
100—Strategic Antiballistic Missile Launchers. ABM-3 (SH-11) Gorgon: 36. ABM-3 (SH-08) Gazelle: 64.
3,175—Strategic Surface-to-Air Missile Launchers. SA-2 (S-75): 300. SA-3 (S-125): 200. SA-5 (S-200): 600. SA-10 (S-300P): 2,075.

Air Forces

182—Medium-Range Theater Bombers. Tu-16 Badger: 30. Tu-22 Blinder: 52. Tu-22M Backfire: 100.
941—Tactical Counterair Interceptors. MiG-23 Flogger: 400. MiG-25 Foxbat: 21. MiG-29 Fulcrum: 345. MiG-31 Foxhound: 25. Su-27 Flanker: 150.
1,072—Ground-Attack Aircraft. MiG-27 Flogger: 253. Su-17/22 Fitter: 260. Su-24 Fencer: 367. Su-25 Frogfoot: 192.
761—Reconnaissance/ECM Aircraft. Tu-16 Badger: 70. Tu-22 Blinder: 30. MiG-25 Foxbat: 80. Su-24 Fencer: 80. Su-17 Fitter: 60. Yak-28 Brewer: 40. Il-22 Coot: 20. An-12 Cub: 125. An-26 Curl: 250. Tu-134 Crusty: 6.
40—Tanker Aircraft. Tu-16 Badger: 20. Il-78 Midas: 20.
1,457—Aircraft of Military Transport Aviation. An-2 Colt: 300. An-12 Cub: 350. An-22 Cock: 40. An-24 Coke: 100. An-32 Cline: 50. An-72/74/79: 20. An-124 Condor: 26. An-225: 1. Il-76 Candid: 375. Tu-134/154 Careless: 20. Yak-40 Codling: 25. L-410VP Turbojet: 150.

Naval Aviation

2—Aircraft Carriers. *Kuznetsov*-class CTOL ship: 1. *Gorshkov*-class VTOL ship: 1.
271—Bombers and Strike Aircraft. Tu-16 Badger: 66. Tu-22 Blinder: 40. Tu-22M Backfire: 165.
162—Fighter/Interceptors. MiG-29 Fulcrum: 110. Su-33 Flanker: 52.
265—Fighter/Attack Aircraft. Su-17 Fitter: 35. Su-24 Fencer: 110. Su-25 Frogfoot: 70. MiG-27 Flogger: 50.
6—Tankers. All Tu-16 Badger.
98—Reconnaissance/Electronic Warfare Aircraft. Tu-16 Badger: 24. Tu-95 Bear: 24. Tu-22 Blinder: 20. Su-24 Fencer: 20. Il-20 Coot: 3. An-12 Cub: 7.
388—Antisubmarine Warfare Aircraft. Tu-142 Bear-F: 58. Il-38 May: 36. Be-12 Mail: 55. Ka-25 Hormone-A: 88. Ka-27 Helix-A: 88. Mi-14 Haze-A: 63.
155—Helicopters. Ka-25 Hormone: 25. Ka-29 Helix: 25. Mi-6 Hook: 10. Mi-8 Hip: 70. Mi-14 Haze: 25.

Note: Increases in some categories from last year's military aircraft lineup reflect equipment coming back from abroad, specifically from former Soviet republics and eastern Europe, or new production. In addition, new information on some aircraft inventory types is also reflected in changes to individual aircraft inventories.

Space Facts

★ In 1994, Russia's Military Space Forces conducted forty-nine launches, putting sixty-four satellites in orbit. Thirty launches, carrying thirty-six satellites, were from Baikonur, and nineteen launches with twenty-eight satellites from Plesetsk. This is a slight increase from 1993, when twenty-six launches from Plesetsk put thirty-six satellites into orbit, and twenty-two launches from Baikonur put up twenty-three satellites. For 1995, Russia expects the number of launches to increase by approximately fifty percent. These will include a number of commercial launches for foreign firms, such as the US "Panamsat" communication satellites.

★ All Russian satellites in geostationary orbits have been launched from Baikonur because Plesetsk, north of Moscow, does not have the capability for such launches. Russia has signed a twenty-year lease, at $115 million per year, for the use of the Baikonur cosmodrome in Kazakhstan.

★ The Mir space station weighed approximately twenty tons when launched February 20, 1986. Now, after two research modules have docked, its weight is approximately 100 tons. Preparations are under way for the US space shuttle to dock with Mir this year.

★ One general colonel (three-star) and at least four general lieutenants (two-star) and six general majors (one-star) serve in the Military Space Forces.

★ The Mozhaisk Military Space-Engineering Academy, about fifty miles west of Moscow, offers a six-year education for youths aspiring to become officers in the Military Space Forces. Candidates must be between seventeen and twenty-one years old or servicemen under twenty-three who have completed active-duty service. Military Space Forces officers, after being commissioned, also may receive additional education at the Academy. Nine faculties offer courses, and the Academy's staff includes sixty-three Ph.D.s and approximately 600 "candidates"—the Russian equivalent of the master's degree in the US. Cosmonaut and Hero of the Soviet Union Gen. Maj. Leonid Denisovich serves as commandant.

RUSSIAN DEFENSE MINISTRY

As of March 15, 1995

Gen. of the Army Pavel Sergeievich Grachev

Born 1948. Russian. Russian Federation Minister of Defense since May 1992. Member of Security Council (October 1993, February 1994). President Boris Yeltsin appointed him leader of group to disarm Chechens (December 1994–February 1995). Commander of a detached airborne regiment, then chief of staff, commander of an airborne division in Afghanistan. More than five years in two tours in Afghanistan (1981–83, 1987–89). First Deputy Commander of Airborne Troops. Commander of Airborne Troops (December 1990–August 1991). First Deputy Minister of Defense, USSR, and Chairman of the State Committee, RSFSR, for Defense Questions (August 23, 1991). First Deputy Commander in Chief, Joint Armed Forces, CIS (January–April 1992). First Deputy Minister of Defense, Russian Federation (April–May 1992). Ryazan Higher Airborne Command School (1969). Frunze Military Academy (1981). Military Academy of the General Staff (1990). Hero of the Soviet Union (1988). Promoted May 1992. Married, two sons.

Gen. Col. Mikhail Petrovich Kolesnikov

Born 1939. Russian. Chief of the General Staff and First Deputy Minister of Defense since December 1992. Served thirteen years in the Far East. Commander of a corps (1983). Commander of an army in the Transcaucasus Military District, USSR. Chief of Staff and First Deputy Commander of the Siberian Military District (1987). Chief of Staff and First Deputy Commander in Chief of the Southern Theater of Military Operations, USSR (1988). Chief of the Main Staff and First Deputy Commander in Chief, Ground Forces, USSR, (1990). Deputy Chief of the General Staff, Chief of the Main Organization and Mobilization Directorate (1991). Same for Joint Armed Forces CIS (April–June 1992). First Deputy Chief of the General Staff, Armed Forces, Russian Federation (June–December 1992). Omsk Tank-Technical School (1959). Malinovsky Military Academy of Armored Forces (1975). Military Academy of the General Staff (with gold medal, 1983). Promoted 1990. Married, son and daughter.

Dr. Andrei Afanasievich Kokoshin

Born 1945. Russian. Civilian First Deputy Minister of Defense since April 3, 1992. Deals primarily with the military-industrial complex. On Council for the Military-Technical Policy of the Ministry of Defense. Previously Deputy Director of the Institute of the United States and Canada, specialist for military-political questions and national security. Graduated from the Moscow Bauman Institute of Technology (1969). Doctor of Sciences (History, 1982). Professor. Corresponding member, Russian Academy of Sciences. Author of many articles and books on military policy, disarmament, and conversion. Reserve officer. Married, two children.

Gen. Col. Vladimir Mikhailovich Toporov

Born 1946. Russian. Deputy Minister of Defense, Russian Federation, since June 10, 1992. Twenty years in Airborne Troops. Chief of Staff and First Deputy Commander, Far East Military District (1989–91). Commander of Moscow Military District (September 1991). Odessa Artillery School (1968). Frunze Military Academy (1975). Military Academy of the General Staff (1984). Promoted 1991. Married, two sons.

UNIFORMED CHIEFS OF THE MILITARY SERVICES

The following service commanders in chief are listed in the same order of precedence as they were under the old Soviet Ministry of Defense: SRF, Ground Troops, PVO, Air Forces, and Navy. However, they are no longer deputy ministers of defense.

Gen. Col. Igor Dmitrievich Sergeiev

Born 1938. Russian. Commander in Chief, Strategic Rocket Forces, Russian Federation, since August 26, 1992. Transferred from coastal artillery to Strategic Rocket Forces in 1960. Chief of staff, then division commander (1975). Chief of staff and first deputy commander of a rocket army (1980–83). Deputy Chief of Main Staff of Strategic Rocket Forces (1983), then First Deputy (1985). Deputy Commander in Chief, Rocket Troops, USSR, for Combat Training (1989–December 1991). Deputy Commander, Strategic Forces, Joint Armed Forces CIS; Deputy Commander, Strategic Rocket Troops for Combat Training (January–August 1992). Black Sea Higher Naval School (1960). Dzerzhinski Military Engineering Academy (with distinction, 1973). Military Academy of the General Staff (1980). Promoted 1991. Married, one son.

Gen. Col. Vladimir Magomedovich Semenov

Born 1940. Karachaievets. Commander in Chief of the Ground Forces since August 1992. Chief of staff and deputy commander (1975–76), then commander of a division (1979). Commander of an army corps (1982) and commander of an army (1984). First Deputy Commander, Transbaikal Military District (1986–88), then Commander (1988–91). Commander in Chief of the Ground Forces and Deputy Minister of Defense, USSR (August 31–December 31, 1991). Commander of General Purpose Forces, Joint Armed Forces CIS (March 1992). Baku Higher Combined Arms Command School (1962). Frunze Military Academy (1970). Military Academy of the General Staff (with distinction, 1979). Promoted 1989. Two daughters.

Gen. Col. of Aviation Victor Alexeievich Prudnikov

Born 1939. Russian. Commander in Chief of the Russian Air Defense Troops (since August 1992) and Commander in Chief of the Commonwealth Joint Air Defense Force since February 1995. More than two years as commander of a fighter aviation regiment (1971). Deputy commander (1973), commander (1975) of an air defense division; first deputy commander of a detached air defense army (1978–79 and 1981), then commander (1983). Deputy commander of a district for Troops of Air Defense. Commander of the Moscow Air Defense District (1989–91). Commander in Chief of the Troops of Air Defense and Deputy Minister of Defense, USSR (August 25–

Gen. Col. Boris Vsevolodovich Gromov

Born 1943. Russian. Deputy Minister of Defense since June 25, 1992 and Chief Military Expert with Special Portfolio in the Ministry of Foreign Affairs since February 1995. He will handle military cooperation with countries in the former Soviet Union. From early 1980 to 1982, part of the 108th Division in Afghanistan. Served again in Afghanistan from March 1985 to April 1986. Commander of an army in Belorussian Military District (1986). As the last Commander of the 40th Army (1987–89), completed withdrawal from Afghanistan. Commander, Kiev Military District (1989–90). First Deputy Minister of Internal Affairs (December 1990–September 1991). First Deputy Commander of Ground Forces/General Purpose Forces (1992). Suvorov military prep school. Leningrad Higher Combined Arms School (1965). Frunze Military Academy (1972). Military Academy of the General Staff (with gold medal, 1984). Promoted in 1989. Hero of the Soviet Union. First wife killed in air crash. Remarried. Two sons, two stepdaughters.

Gen. Col. Valery Ivanovich Mironov

Born 1943. Russian. Deputy Minister of Defense of the Russian Federation since June 10, 1992. Chief Military Advisor under the chairman of the government. From December 1979 to 1982, Commander of the 108th Motorized Rifle Division, part of the 40th Army that invaded Afghanistan. First deputy commander, then commander of an army, Soviet Forces Germany (1984–89). First Deputy Commander of the Leningrad Military District (1989–91). In September 1991, Commander of the Baltic Military District, renamed the Northwest Group of Forces in November 1991. Suvorov military prep school. Moscow Higher Combined Arms Command School (1965). Frunze Military Academy (1973). Military Academy of the General Staff (1984). Promoted 1991. Married, daughter and son.

Gen. Col. Vladimir Timofeievich Churanov

Born 1945. Deputy Minister of Defense since January 1995. Chief of Logistics of the Armed Forces since July 1992. Served in Soviet Forces Germany (1966–71), Transbaikal Military District (1972–76), Kiev Military District (1979–84). From chief of logistics of an army, became Deputy District Commander for Logistics, Chief of Logistics of the Moscow Military District. Volsk Military School (1966). Military Academy of Logistics and Transport (1979). Military Academy of the General Staff (1987). Promoted 1993. Married, son and daughter.

Gen. Col. Anatoly Vasilievich Solomatin

Born 1939. Deputy Minister of Defense since January 1995 and Chief of Construction and Billeting of Troops since December 1993. Started service in the Main Directorate of Naval Construction. Later assigned to the Main Military-Construction Directorate. After 1969, served in the Far East Military District, from chief of a construction directorate to Deputy Commander for Construction and Billeting (1983–87). Chief of the Main Engineering Directorate of Air Defense Troops (1987–91). Deputy Chief of Construction and Billeting Troops of Armed Forces (October 1991–93). Pushkino Military Construction and Technical School (1962). Leningrad Higher Military Engineering-Technical School (1969). Distinguished Builder award. Promoted 1994. Married, one daughter.

Gen. of the Army Konstantin Ivanovich Kobets

Born 1939. Russian. Deputy Minister of Defense since June 1993 and Chief Military Inspector of the Armed Forces Russian Federation since September 1992. Doctor of Military Sciences. Professor. Chief of Signal Troops, USSR, and Deputy Chief of the General Staff (1987–91). In 1991–92, Chairman of the State Committee, RSFSR, for Defense and Security; State Advisor, RSFSR, on Defense; since September 1991, simultaneously Chairman of the Committee on Military Reform. Kiev Military Signals School (1959). Military Signals Academy (1967). Military Academy of the General Staff (1978). Promoted 1991. Married, one son.

December 31, 1991). Commander, Troops of Air Defense, Joint Armed Forces CIS (January 1992). Armavir School for Pilots (1959). Gagarin Military Air Academy (1967). Military Academy of the General Staff (1981). Military Pilot First Class. Promoted 1989. Married, two sons. (Younger son died in 1991.)

Gen. Col. of Aviation Peter Stepanovich Deynekin

Born 1937. Russian. Commander in Chief of the Air Forces since October 1992. Bomber pilot. Deputy commander (1982), then commander of an air army (1985). Commander of Long-Range Aviation (1988). First Deputy Commander in Chief, Air Forces (1990–91). Commander in Chief of the Air Forces and Deputy Minister of Defense, USSR (August 31–December 31, 1991). Commander, Air Forces, Joint Armed Forces CIS (January–July 1992). Balashov Military Aviation School for Pilots (1957). Gagarin Military Air Academy (1969). Military Academy of the General Staff (with gold medal, 1982). Distinguished Military Pilot (1984). Promoted 1991. Married, three children.

Adm. Felix Nikolaievich Gromov

Born 1937. Russian. Commander in Chief of the Navy since August 1992. Pacific Fleet 1967–76. Chief of staff of a training division, Leningrad Naval Base (1977–81). Chief of staff, later commander of an operational squadron (1981–84). First Deputy (1984–88), then Commander of the Northern Fleet (1988–92). First Deputy Commander of the Navy, CIS (March 1992). Pacific Ocean Higher Naval School (1959). Naval Academy (1983, by correspondence). Military Academy of the General Staff (1991, by examination). Promoted 1988. Married, daughter and son.

Strategic Nuclear Weapons of Russia and the Other Nuclear-Armed Former Soviet Republics, 1994

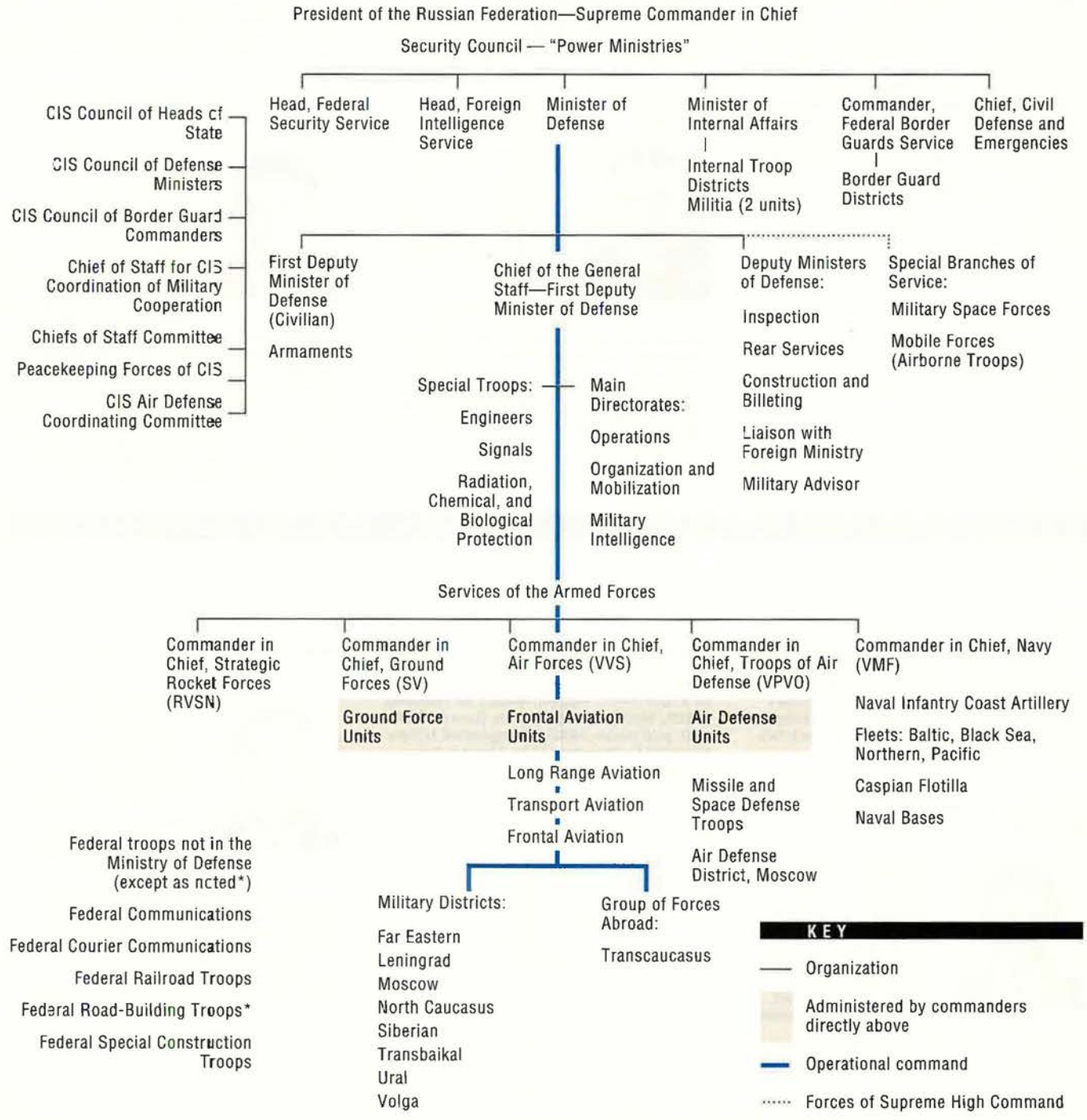
Russia has operational command and control of the nuclear weapons of Kazakhstan and Belarus.

Ukraine has asserted its administrative control over nuclear forces on its territory.

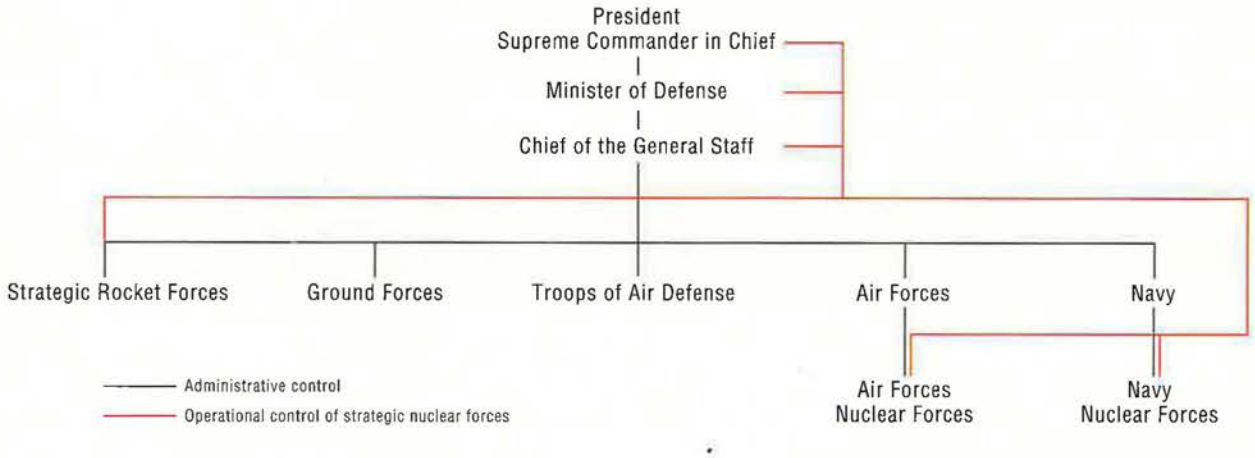
Zero incicates that a nuclear weapon was deployed in that republic at one time, though there are none there now; a dash indicates that a weapon was never deployed in that republic.

	Russia	Ukraine	Kazakhstan	Belarus	Total
ICBMs	773	176	104	36	**1,089**
Warheads	3,762	1,240	1,040	36	**6,078**
Bombers	95	46	0	0	**141**
Warheads	592	354	0	0	**946**
SSBNs	47	—	—	—	**47**
SLBMs	716	—	—	—	**716**
Warheads	2,548	—	—	—	**2,548**
SNDVs	1,584	222	104	36	**1,946**
Warheads	6,902	1,594	1,040	36	**9,572**

Structure of the Russian Armed Forces



Supreme High Command of the Armed Forces of the Russian Federation



Russian and US Grades

Naval grades in italics

Russian Federation	United States
Five Stars	
Marshal of the Russian Federation	General of the Army General of the Air Force *Admiral of the Fleet*
Four Stars	
General of the Army	General (USA)
Marshal of Aviation	General (USAF)
Admiral of the Fleet	*Admiral (USN)*
Three Stars	
General Colonel	Lieutenant General
Admiral	*Vice Admiral*
Two Stars	
General Lieutenant	Major General
Vice Admiral	*Rear Admiral (Upper Half)*
One Star	
General Major	Brigadier General
Rear Admiral	*Rear Admiral (Lower Half)*
O-6	
Colonel	Colonel
Captain (1st Class)	*Captain*
O-5	
Lieutenant Colonel	Lieutenant Colonel
Captain (2d Class)	*Commander*
O-4	
Major	Major
Captain (3d Class)	*Lieutenant Commander*
O-3	
Captain	Captain
Captain Lieutenant	*Lieutenant*
O-2	
Senior Lieutenant	First Lieutenant
Senior Lieutenant	*Lieutenant Jr. Grade*
O-1	
Lieutenant	Second Lieutenant
Lieutenant	*Ensign*

No Russian officer currently holds the rank of "Marshal of the Russian Federation." Four "Marshals of the Soviet Union" are alive today: S. L. Sokolov, V. G. Kulikov, V. I. Petrov, and D. T. Yazov. The first three are officially listed as "advisors to the Minister of Defense of the Russian Federation." Marshal Yazov was imprisoned for his role in the August 1991 coup attempt in Moscow but was released under the parliamentary amnesty granted in February 1994 to numerous political plotters.

Active-Duty Military Population

(As of January 1, 1995)

Force Element	Authorized	Actual
Ground Forces	1,100,000	790,000
Air Forces	170,000	90,000
Naval Forces	295,000	165,000
Strategic Defensive Forces	205,000	135,000
Strategic Offensive Forces[1]	114,000	110,000
Command and Rear Services	150,000	105,000
Total	**2,034,000**	**1,395,000**

[1]Includes Strategic Rocket Forces and strategic nuclear elements of Air Forces and Navy

Other Military Forces

Internal Troops of Ministry of Internal Affairs (MVD)	200,000
Federal Border Guards Service	225,000
Total	**425,000**

External Deployments and Peacekeeping Forces

Algeria	100
Angola (peacekeeping)	50
Bosnia-Hercegovina (peacekeeping)	575
Cambodia	500
Chechnya (invasion)	40,000
Congo	20
Croatia (peacekeeping)	879
Cuba	800
Georgia/South Ossetia (peacekeeping)	2,500
India	500
Iraq/Kuwait (peacekeeping)	15
Moldova/Dniestr (peacekeeping)	1,500
Mongolia	500
Mozambique (peacekeeping)	25
Peru	10
Rwanda (peacekeeping)	15
Syria	500
Tajikistan (peacekeeping)	20,000
Vietnam	500
Western Sahara (peacekeeping)	29
Yemen	300
Total	**69,318**

The task was to grab a descending satellite in midair at night. All manner of things could go wrong.

The Starcatchers

By Col. Philip A. Rowe, Jr., USAF (Ret.)

In the days before satellites could transmit data directly to Earth, they had to be recovered, preferably in midair, so analysts on the ground could study what they had collected. Specially modified C-130s (above, and opposite) would unspool cables from the rear of the cargo hold and attempt to snag the parachute of the descending satellite.

JUST AFTER dusk, in the expanse of California's Mojave Desert, a specially modified C-130 Hercules transport rolled for takeoff. Its pilot and crew were destined to make aviation history, but few could be told of the special mission, which was but one of many extraordinary test flights undertaken in support of military intelligence operations during the Cold War.

Though proven technologically possible, such missions were deemed far too dangerous to become routine. One useful pilot aid did result from these flight tests: the head-up display, which was first developed for the JC-130. The Bendix-designed HUD system, intended to give JC-130 pilots an all-weather horizon reference and greater flight safety, became standard equipment on Air Force aircraft. It proved valuable even during daylight recoveries, especially under marginal visibility conditions or between cloud levels where visual cues can be misleading.

Shortly after the Soviet Union launched the Sputnik satellite in 1957, military and civilian intelligence agencies knew that the race was on to use orbiting spacecraft as

information-gathering tools. In the 1960s and 1970s, the US launched dozens of reconnaissance satellites to peer down on the Soviet landmass. They were equipped with cameras, radio receivers, and a variety of special sensors with which to gather data on Soviet activities. The Soviet Union reciprocated, launching its own satellites to keep track of United States activities.

Though these orbiting satellites collected vast quantities of valuable information, it was a major technical challenge to get the data back down to intelligence analysts on Earth. The film in those special cameras and the tape recordings of vital electronic signals needed to be recovered and processed, but it was not as simple as taking the film out of a camera and down to the corner drugstore for developing.

Government engineers and aerospace contractors devised a unique method for retrieving the vital data, and that is where the Hercules enters the picture.

No Easy Task

Earthbound tracking stations relayed a signal to a satellite to fire its retrorockets. That slowed down the satellite, causing it to fall into the atmosphere. At an altitude of about 30,000 feet, a parachute would automatically open, and the satellite would descend more slowly. A radio transmitter permitted airplanes to home in on the descending payload, which they would have to catch before it splashed into the ocean or crashed onto the rocks. Otherwise, it would be lost.

Two problems had to be overcome to effect recovery. The point of reentry had to be controlled to make sure that recovery airplanes would rendezvous with the parachute in time. It would not be helpful if the payload landed where unfriendly nations could get to it first. The second problem concerned how to get the recovery airplanes to locate the payload during descent.

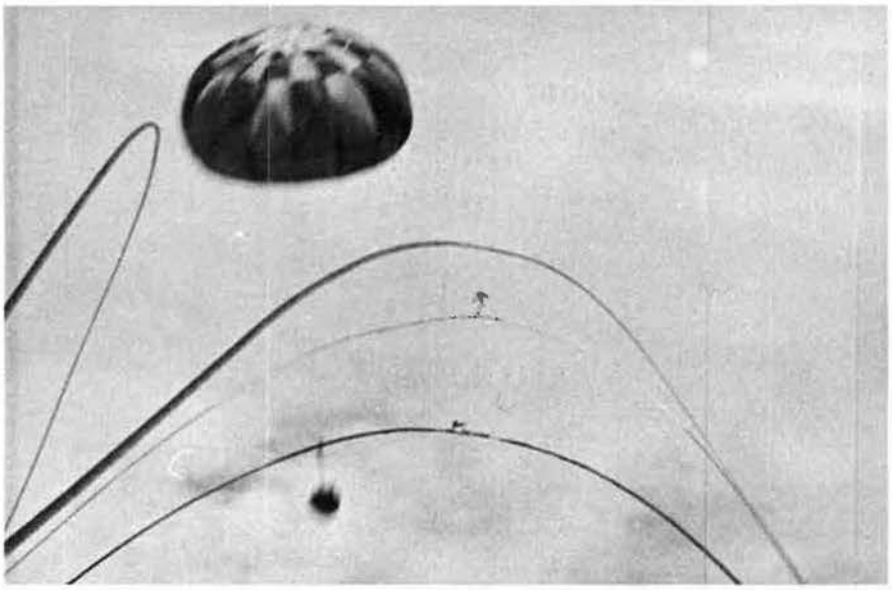
What made this flight unique was that it would be the first nighttime recovery. It is difficult enough to make airborne retrievals in daylight, but a catch in the dark is a real challenge. The pilot had to be able to see the parachute and maneuver his airplane to slightly above it while attempting to snare the quarry.

An array of grappling hooks and cables hung below and behind the transport to engage the parachute. Hooking the parachute without flying into the canopy or fouling the propellers in the lines required considerable flying skill and precision.

In the cargo bay, other crew members prepared for the catch. A winch equipped with hydraulic brakes stood ready to unwind almost fifteen hundred feet of cable in barely four seconds as the hooks engaged the parachute. Braking would slow the cable to bring the payload into steady trail behind the plane. Then, like a fisherman reeling in his prize, the winch would wind the cable to draw the parachute and payload into the cargo bay.

It was dangerous work for the cargo handlers too, for several things could go wrong. The rapidly unwinding cable could become fouled; instant death awaited the crewman caught by that metallic snake. The hooks might tear through the parachute after the cable pulled taut, or they might recoil back into the airplane. The handlers weren't safe until the payload was secured within the cargo bay.

The pilot and copilot anxiously



C-119 Flying Boxcar crews were the first to attempt this difficult and important mission. Here, a C-119 makes its second pass prior to grabbing Discoverer XIV in the first-ever successful recovery.

scanned the starry sky for the thirty-foot parachute and its suspended payload. The payload's radio signal was being received by the special direction-finding equipment mounted atop the customized Hercules. The instrument panel needle pointed to the payload indicating the radio source was to the southwest. The payload was also fitted with upward pointing spotlights that illuminated the parachute canopy.

A Moving Target

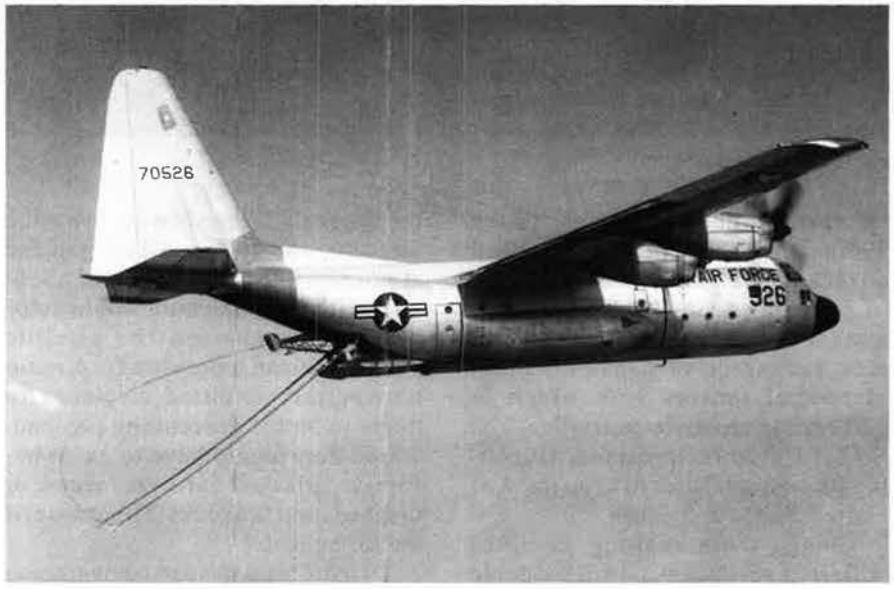
The pilot finally saw the parachute canopy, glowing about six miles away. It appeared to be hanging motionless slightly above him at first, but the payload was descending at about fifteen hundred feet per minute. The Hercules was at nearly 18,000 feet as it approached to within a mile or two of the target. It had about ten minutes to retrieve the object before running out of altitude.

During that time, the pilot had to evaluate the behavior of the target and then close in to bring the hooks into the parachute. The usual procedure was to make an initial pass some two hundred feet over the parachute to assess its trajectory and stability. Because some parachutes sway wildly, others drop pretty much straight down, and a few appear to dance left and right, it is difficult to predict where they are going. After the first pass, the pilot would enter a cloverleaf pattern while attempting to match the descent rate of the parachute. After one or two turns, he would close and swoop down to place the hooks for a catch.

On this night, things did not go well. Just as the Hercules got close to the parachute on the first pass, perhaps no more than a half mile away, the lights illuminating the canopy went out. The glowing orange parachute went black, and the pilot could not see it at all. Without hesitation, he added power and pulled the big JC-130 up to clear the unseen hazard.

Giving the darkened parachute a wide berth, the pilot abandoned the area and returned to Edwards AFB, Calif. It would not be until the next morning that USAF personnel would drive into the desert to retrieve the test payload and its parachute, snagged on a cactus.

This flight took place in late 1969. Though it did not achieve its main goal, it was followed by more successful tests and, eventually, a successful night recovery. Nighttime satellite recovery never became accepted procedure, however. Recovery of intelligence satellites remained restricted to daylight hours. It had to be done in weather permitting safe flight, with a high probability that pilots could see the targets. Efforts to expand satellite recovery operations to nighttime failed, but credit still must go to the highly skilled and courageous flight test crews that participated in these hazardous night recoveries. ■



By 1969, Air Force crews were attempting midair recoveries at night. Although they had a measure of success, such missions were abandoned as dangerously impractical.

Col. Philip A. Rowe, Jr., served as chief of flight test engineering for the satellite recovery organization at Edwards AFB, Calif., in 1969–70. He is a master navigator with more than 4,000 flight hours, including 168 RF-4C combat missions in Vietnam. This is his first article for Air Force *Magazine.*

Valor

By John L. Frisbee, Contributing Editor

Four-Engine Fighter Pilot

Fourteenth Air Force B-24s flew many different missions, but dogfighting with enemy heavies was not part of their usual repertoire.

Most of us think of Maj. Gen. Claire L. Chennault's Fourteenth Air Force as a fighter outfit with shark-nosed P-40s and P-51s. Less well remembered are the Flying Tiger bombers. In January 1944, Chennault had about forty B-25s and fewer than fifty four-engine B-24 strategic bombers, the latter belonging to the 308th Bomb Group. There were no strategic targets in China comparable to the great industrial centers of Germany, and those in Japan were beyond the range of the B-24s.

How, then, were the B-24s used? Japan depended on external sources of raw materials, and Japanese armies in China were dependent on the home islands for military supplies. The "strategic" 308th therefore operated largely against interdiction targets: port facilities from Rangoon to Formosa, military depots in China, and traffic on the open seas and the Yangtze River. Many of these targets were beyond the range of Fourteenth Air Force fighters. Those missions were flown deep in enemy territory without escort.

Rarely was the 308th able to put up more than twenty B-24s for a mission. This was not entirely a result of combat attrition. The group also had another demanding mission: flying in its own fuel and other supplies over the Hump from India.

In its first eight months of operations beginning in April 1943, the 308th flew 1,331 round trips over the Hump. The extreme altitude required to cross the Himalayas, lack of navigation aids, unpredictable violent weather, and the relative inexperience of many crews all took their toll. By August 1944, 550 aircraft—transports and bombers—had gone down between Chabua, India, and Kunming, China. Each Hump trip counted as a combat mission—with good reason.

During the early months of bombing operations, the 308th generally attacked from an altitude of 16,000 feet or higher. With some exceptions, results were not good. In January 1944, the group's first priority shifted to low-level sea searches to find and destroy Japanese ships. Some of these searches extended as far away as the Philippines.

One of the most unusual coastal searches was flown by Lt. Glenn McConnell, who arrived in China in the fall of 1943. Assigned to the 308th Group, he flew twenty-three Hump missions. He liked the excitement and challenge of those flights. By March 1944, he had logged 250 combat hours.

Now an experienced and highly competent pilot, he was given command of a B-24 named *Sweepy Time Gal,* locally modified for low-altitude attacks on shipping. The bomber's lower turret had been removed. Two fixed .50-caliber nose guns were added, fired by a trigger on the control column. A new position for a radar operator was installed on the flight deck. For surprise and bombing accuracy, sea sweeps typically were flown at 200 feet.

On a March 19 sweep, the crew of this modified B-24 sighted a four-engine "Mavis" flying boat. McConnell turned in to the Mavis and opened up with all his forward-firing guns. The enemy pilot, no doubt shaken by this display of awesome and accurate fire, ducked into an overcast trailing smoke and may or may not have made it home.

Lt. Glenn McConnell, B-24 dogfighter

An hour later, a second Mavis appeared, headed directly for *Sweepy Time Gal.* The enemy plane went into a violent turn. McConnell followed under its left wing. All guns that could bear on the Mavis fired, scoring many hits at close range. The enemy gunners, firing back, wounded McConnell—who would have been killed had he not been leaning forward for a better view of the action—and two other crew members before the flying boat caught fire and plunged into the sea. Thus ended the only known dogfight between four-engine aircraft. With no hydraulic pressure for gear or brakes, the wounded McConnell landed his B-24 safely at Kweilin with photographs of the downed Mavis.

A month later, McConnell's B-24 was critically damaged by three "Oscars" while 100 feet above the water. The B-24, its two right engines on fire with both props refusing to feather, went in, cartwheeled, and broke up. Several crew members got out of the wreckage, only to be strafed by the enemy fighters. All but two were killed in the water. McConnell escaped by shedding his Mae West and diving under the waves each time the Oscars began firing. He and wounded radio operator SSgt. Tony Spadafora were picked up by a Japanese ship and spent the rest of the war as POWs in several prisons, the last in Tokyo. They survived US fire bombing of that city.

Glenn McConnell stayed in the Air Force after the war, flying B-29s, B-47s, and B-52s in Strategic Air Command. He retired as a colonel, probably the only four-engine "fighter pilot" of World War II, or any other war, to shoot down an enemy heavy in a dogfight. ■

Thanks to Gen. Bruce K. Holloway, USAF (Ret.), and Maj. John T. Foster, USAF (Ret.), of Keene, N. H., a veteran of the 308th Bomb Group.

AFA President R. E. Smith has appointed these advisors and councils for 1995.

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By Casey Wilkinson

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Verbatim

"Irresponsible Internationalism"

American lives should not be risked—and lost—in places like Somalia, Haiti, and Rwanda with marginal or no American interests at stake. Such actions make it more difficult to convince American mothers and fathers to send their sons and daughters to battle when vital interests *are* at stake. The American people will not tolerate American casualties for irresponsible internationalism.

***Sen. Robert Dole (R-Kan.), Senate Majority Leader and candidate for the 1996 Republican presidential nomination, writing in the spring 1995 issue of the journal* Foreign Policy.**

Iran's Threat to the Gulf

This [Iranian force deployment] involves almost 8,000 military personnel moved to those islands. It involves antiship missiles, air defense missiles, chemical weapons. It can only be regarded as a potential threat to shipping in the [Persian Gulf] area.

Secretary of Defense William J. Perry, in a March 22, 1995, press conference in Bahrain concerning the recent buildup of Iranian military forces and equipment on several Persian Gulf islands.

Global "Presence" From Afar

[T]he Air Force has reconceptualized "presence." . . . Our concept of presence includes *all* peacetime applications of military capability that promote US influence, regardless of service. Correspondingly, *the way we exert presence is changing*. . . . Our space and airborne collection platforms help provide global situational awareness. Sometimes this information by itself can promote US influence. In other cases, information linked to forces that can react swiftly with the right mix of joint capabilities anywhere on the globe reduces the need for traditional physical presence. Our bomber force, for instance, can deliver incredible firepower anywhere on Earth in less than twenty hours. . . . Of course, permanent presence is still imperative in many areas, . . . but the United States *doesn't need and cannot afford* to be everywhere at once.

Air Force Secretary Sheila E. Widnall and USAF Chief of Staff Gen. Ronald R. Fogleman, in a March 2, 1995, statement to the Senate Armed Services Committee. Emphasis in original.

Here's the Future

During World War II, the Eighth Air Force attacked something like fifty target sets in all of 1943. In [Operation] Desert Storm, the coalition struck 150 individual targets in the first twenty-four hours. Not too far into the next century, we may be able to engage 1,500 targets within the first hour, if not the first minutes, of a conflict. Gone are the days of calculating aircraft-per-target kinds of ratios. Now we think in terms of targets-per-aircraft.

Gen. Ronald R. Fogleman, US Air Force Chief of Staff, in a February 24, 1995, address to the Air Force Association's Air Warfare Symposium in Orlando, Florida.

Quick, Somebody Call Oprah

The honeymoon [between post-Soviet Russia and the United States] has come to an end. The sobering period has not ended in divorce but rather in a growing ability to resolve jointly [the] problems we face. Something we won't allow to happen is unfaithfulness.

Russian Foreign Minister Andrei Kozyrev, in a March 23, 1995, news conference at the conclusion of two days of talks in Geneva with Secretary of State Warren Christopher.

Now *That's* a Cutback

Over the past decade, the total obligational authority dedicated to strategic nuclear forces has decreased by some seventy-five percent, so that it now constitutes less than 3.5 percent of the total defense budget. Since 1985, the number of people in our strategic nuclear forces has declined approximately fifty percent; the number of strategic bases has dropped sixty percent; and the number of strategic nuclear weapons platforms—bombers, ballistic missile submarines, and intercontinental ballistic missile silos—has been reduced about forty-four percent. Many strategic force programs have been terminated, curtailed, or outright canceled, resulting . . . in a cost-avoidance savings of approximately $100 billion.

Adm. Henry G. Chiles, Jr., commander in chief of US Strategic Command, in February 23, 1995, testimony to the Senate Armed Services Committee.

South of the Border

Real, immediate challenges to NATO Allies have been mounting to the south [of Europe]. Flash points have emerged in the Mediterranean, in southwest Asia, in the Balkans, and in North Africa. The potential spread of instability across the Mediterranean would not only threaten friendly regimes of North Africa and the prospects for peace in the Middle East, it would also threaten Europe with new social and security problems. Not, in the first instance, "military" in the traditional sense, but nonetheless immensely challenging because they would involve terrorism and the proliferation of weapons of mass destruction. Attention to these issues has to be high on the agenda of NATO.

Walter B. Slocombe, under secretary of defense for Policy, in a March 2, 1995, address to the Center for Strategic and International Studies in Washington, D. C.

And Congress Will Be a Big Help

That whole building [the Pentagon] needs to be reinvented. Look at the procurement system. It takes you twenty-five years to bring a C-17 from development to on-line [status]. I mean, the whole procurement system is a disaster, and we are going to have changes in that Pentagon.

Rep. John R. Kasich (R-Ohio), chairman of the House Budget Committee, in March 19, 1995, remarks on NBC's "Meet the Press." ■

Air Force Association - Working for its National Membership. June 1995

National Report

Congressmen Say *Read About the F-22 in* Air Force *Magazine*

Reps. Robert K. Dornan (R-CA) and Sam Johnson (R-TX) invited their colleagues to read the April 1995 issue of *Air Force* Magazine, which "describes the compelling reasons why we need to produce the US Air Force F-22 'air superiority' jet fighter."

The April 12 "Dear Colleague" letter included the article headline "Who Needs the F-22? The US Air Force Does. Here's Why." and a full reprint of the article. *Aerospace Daily* reported on the "Dear Colleague" letter in its April 24 issue, drawing further attention to the F-22 article.

COLAs: AFA President Issues "Call to Action"

In April, AFA President R. E. Smith issued a "Call to Action" to AFA field organizations urging members to contact their congressional delegations to express concern about the latest attack on military cost-of-living adjustments (COLAs).

A senate task force, chaired by Sen. Judd Gregg (R-NH), has proposed two "options" for changing the Military Retirement System that would violate America's Contract with Service Members. These "options" would affect the retirement rules for members already serving — and even those who have retired after a 20- to 30-year military career:

(1) Zero COLAs for military and federal civilian retirees under age 62, beginning Jan. 1, 2005.

(2) Limit COLAs to the maximum Social Security annuity (currently about $14,000 annually) with zero COLAs above that amount.

Through practice and tradition, Congress has provided military retirees with COLAs since 1871. AFA has long held that COLAs are a valuable recruiting and retention tool and are an earned benefit to which retired service members are entitled.

In recent testimony before the Defense Subcommittee of the Senate Appropriations Committee, AFA, along with the Military Coalition, stated, "At a time when recruiting is slipping, when more and more members are being forced to leave military careers in their mid-forties despite high unemployment, and when the remaining active forces face even more intense operations requirements, the Nation can ill afford perceptions that military retirees are relegated to 'second-class' treatment upon retirement."

Let your congressional delegation know where you stand today!

AFA Supports Flag Legislation

AFA is urging members of Congress to support joint resolutions in the House and Senate proposing an amendment to the Constitution of the United States to prohibit the physical desecration of the flag of the United States.

The proposed amendment is straightforward in content and ideals. It says, "The Congress and the States shall have the power to prohibit the physical desecration of the flag of the United States."

As of the end of April, there were 54 cosponsors of Senate Joint Resolution 31 and 252 cosponsors of House Joint Resolution 79.

AFA is a charter member of the Citizens Flag Alliance. For additional information, call 800-424-FLAG.

AFA/AEF Report

By Daniel M. Sheehan, Assistant Managing Editor

Weighing In on *Enola Gay*

Although the National Air and Space Museum's planned exhibit on the *Enola Gay*, the B-29 that dropped the atomic bomb on Hiroshima, and the end of World War II, was drastically scaled back, the controversy continued to boil. The Indiana General Assembly passed a resolution condemning the exhibit, calling on Museum Director Martin O. Harwit (who has since resigned) to apologize publicly to veterans, and praising the groups "who worked so hard to have the exhibit discontinued as previously planned," specifically citing AFA as one of those groups.

National Vice President (Great Lakes Region) Harold F. Henneke spearheaded the efforts to bring the resolution before the Assembly, working with Assemblyman David Nason Frizzell, who introduced it. Mr. Henneke was given the opportunity to address the Assembly after the resolution's passage. He accepted the resolution on behalf of AFA, the American Legion, and the other organizations that objected to the original exhibit, saying, "Our quarrel . . . is not with the museum itself, but rather with the curators and their . . . approach to rewriting history, thus making the [US] look like the aggressor, rather than portraying the actual happenings fairly."

Members of the town council of Kendallville, Ind., agreed with their counterparts in the state legislature, passing a virtually identical resolution. Fort Wayne Chapter Vice President (Government Relations) Tom Hissem was instrumental in getting the resolution before the council.

An Enriching Tradition

Every year the **Central Florida Chapter** hosts an Air Force Gala in conjunction with AFA's Air Warfare Symposium, and every year AFA, AEF, and other aerospace groups are thousands of dollars richer as a result. This year's gala—the eleventh annual—was another success. "Women in Aviation" was the theme, and several pioneering women, including Secretary of the Air Force Sheila E. Widnall, were honored.

The Central Florida Chapter, led by President Tommy G. Harrison (left) and Gala Chairman Martin Harris (right), paid tribute to Women in Aviation, including (from left) Lt. Col. Susan Helms, Air Force Secretary Sheila E. Widnall, Maj. Jacquelyn Parker, and 1st Lt. Jeannie Flynn, at the 1995 Air Force Gala held in conjunction with the Air Warfare Symposium.

The first female Air Force astronaut, Lt. Col. Susan Helms; the first woman to graduate from USAF Test Pilot School, Maj. Jacquelyn Parker; and the first female Air Force fighter pilot, 1st Lt. Jeannie Flynn, each received a Jimmy Doolittle Fellowship from AEF, sponsored by the Central Florida Chapter.

ACC Commander Gen. John Michael Loh, a longtime supporter of both the gala and the symposium, received a special honor. The chapter presented a $10,000 check in his name to the Air Force Memorial Foundation, which entitles his to be the first name on a plaque to be placed in the memorial once it is built.

More than 1,000 people attended the gala, including more than sixty general officers, allied air force officers, and senior executives of AFA's Industrial Associates. AEF received a $10,000 donation, and the Air Force Memorial Foundation received an additional $10,000, bringing the chapter's total contributions to the two foundations to $175,000 and $50,000, respectively. Former National President and Chairman of the Board Martin H. Harris chaired the gala, and Central Florida Chapter President Tommy G. Harrison served as master of ceremonies.

Chapter News

The **Fort Wayne (Ind.) Chapter** also honorec women aviation pioneers at a quarterly luncheon meeting. Margaret Ringenberg, a pilot for more than fifty years, accepted an AFA membership from Chapter President Ted Huff and Nationa Vice President Henneke. Ms. Ringenberg was a pilot and flight instructor in the Women's Airforce Service Pilots during World War II and has flown around the world several times.

The focus was on the enlisted force at a recent meeting of the **Langley (Va.) Chapter.** Guest speaker CMSAF David J. Campanale delivered an inspiring talk that called on every Air Force member to be a leader. He also addressed today's difficult recruiting environment. "It's *our* Air Force," he said, "and we all have a vested interest in it. . . . We must all be recruiters."

Texas Vice President (Aerospace Education) Kaye H. Biggar receives an events schedule from AFJROTC cadets Markas Jackson and Jamie Holt at an aerospace education symposium sponsored by the Alamo Chapter at Samuel Clemens High School in Schertz, Tex. Mr. Biggar's remarks opened the symposium, which also featured talks on astronaut training and space.

More than 300 heard Chief Campanale's talk, including 1st Fighter Wing Commander Brig. Gen. Gregory S. Martin, ACC Senior Enlisted Advisor CMSgt. Tommy A. Roberts, and 1st Fighter Wing SEA CMSgt. Marc Mazza. The event's chief organizer was Rick Rohrer, a member of the Langley Chapter Executive Council.

Students at Jonathan Dayton Regional High School in Springfield, N. J., got the opportunity to hear a program of patriotic music from the Air Combat Command Heritage of America Band, courtesy of the **Sal Capriglione (N. J.) Chapter.** Chapter President Ralph Devino, Public Relations Director Jeffrey Katz, Chapter Liaison Martin Capriglione, and Program Coordinator and New Jersey President Joseph Capriglione worked hard to make the concert, heard by more than 750 people, a reality.

Also in New Jersey, **Thomas B. McGuire, Jr.,** Chapter President Gerry Jones presented MSgt. Frank Smith with a Scott Associate plaque in honor of his being selected First Sergeant of the Year. The chapter also honored other outstanding officers and enlisted personnel at its annual awards banquet. The chapter is named for USAAF's second-ranking ace of World War II.

The **Florida Highlands Chapter** could not allow a visit from Major McGuire's widow to pass unnoticed. When Mrs. Marilyn McGuire Beaty visited Florida from her home in San Antonio, Tex., Chapter President Roy P. Whitton made sure to let her know that Major McGuire's exploits were not forgotten in Sebring, where he was raised. She received an AFA membership and a framed lithograph of her husband's plane, *Pudgy V,* which Major McGuire had named for her. Major McGuire, a Medal of Honor recipient, was killed over the Philippines in 1945.

Florida AFA also names the trophy for Outstanding Drill Team Commander in its AFJROTC Drill Competition after Major McGuire. The annual competition, which brought together twenty-two drill teams and thirty-two color guards from all over Florida, was held at Patrick AFB. Cadet Maj. Rhodora Reyes of Nathan Bedford Forrest High School accepted the McGuire Trophy from Florida President Bill Sparks. Major Reyes's squad also took home the Drill Team Excellence Award and the Overall Excellence Trophy.

The **Brandywine (Pa.) Chapter** picked a particularly appropriate gift for Peter Wright, Sr., president of the Keystone Helicopter Corp., as a token of appreciation for a guided tour of the huge helicopter-servicing facility. Chapter President Joe Dougherty gave him a model of a P-40 Warhawk, the plane Mr. Wright piloted as a member of the Flying Tigers in the China-Burma-India theater during World War II.

Recognizing the importance of the Total Force concept, **John W. DeMilley, Jr. (Fla.), Chapter** members in two separate events this spring sought to acquaint themselves with a local AFRES unit and recognized the achievements of members of local ANG and active-duty units.

Seventy chapter members and guests toured the 93d Fighter Squadron's facilities at Homestead ARB, Fla. Squadron Commander Maj. Hal Quanbeck, aided by Majs. Sam D'Angelo, Dennis Dailey, and Al Estis; Capt. Tracey Hunt; Lt. Bill Kountz; and TSgt. George Vi-

Ohio Gov. George V. Voinovich (left) congratulates Harold E. Sawyer, a member of the Capt. Eddie Rickenbacker Memorial Chapter, on his induction into the Ohio Veterans Hall of Fame. At right is Debra R. Bowland of the Ohio Bureau of Employment Services, which established the Hall of Fame. Mr. Sawyer was a fighter pilot with the famed Tuskegee Airmen during World War II.

Coming Events

June 2–3, **Oklahoma State Convention,** Altus, Okla.; June 3, **Minnesota State Convention,** Duluth, Minn.; June 9–10, **Missouri State Convention,** Branson, Mo.; June 16–18, **Arizona/Nevada State Convention,** Laughlin, Nev.; June 16–18, **New York State Convention,** Melville, N. Y.; June 23–25, **Ohio State Convention,** Wright-Patterson AFB, Ohio; July 7–8, **Arkansas State Convention,** Jacksonville, Ark.; July 7–9, **Washington/Oregon State Convention,** Tacoma, Wash.; July 14–15, **Georgia State Convention,** Robins AFB, Ga.; July 21–23, **Kansas State Convention,** Wichita, Kan.; July 21–23, **Pennsylvania State Convention,** Harrisburg, Pa.; July 21–23, **Texas State Convention,** Wichita Falls, Tex.; July 21–23, **Virginia State Convention,** Hampton, Va.; July 28–30, **Florida State Convention,** Tampa, Fla.; July 28–30, **Iowa State Convention,** Sioux City, Iowa; August 4–5, **New Mexico State Convention,** Alamogordo, N. M.; August 10–12, **California State Convention,** Santa Clara, Calif.; August 12, **North Carolina State Convention,** Greenville, N. C.; August 18–19, **Colorado State Convention,** Colorado Springs, Colo.; August 19, **Indiana State Convention,** Indianapolis, Ind.; August 25–27, **Michigan State Convention,** Petoskey, Mich.; September 18–20, **AFA National Convention and Aerospace Technology Exhibition,** Washington, D. C.

nal, explained the history, workings, and mission of their F-16 aircraft. The tour group, which included AFJROTC cadets from Hialeah High School and local elementary school children, heard about the aircraft's capabilities, weapon systems, and simulators from both pilots and maintainers.

Because of the devastation caused by Hurricane Andrew, the DeMilley Chapter had to travel to NAS Boca Chica on Key West to pass out honors to a member of Detachment 2 of ANG's 125th Fighter Group who is normally stationed at Homestead. The detachment's nominee as the 125th FG's Airman of the Year, SrA. Stacey L. Walker, received an AFA membership, an illustrated history of the Air Force, and a framed citation in recognition of his performance in 1994.

The active-duty side of the total force was not forgotten as the DeMilley Chapter honored members of the 23d Intelligence Squadron, also at Boca Chica. Awards went to Airman of the Year SrA. Robert A. Orrell, NCO of the Year SSgt. Dawn E. Jefferies, Senior NCO of the Year MSgt. Eric W. Ruedemann, and Company Grade Officer of the Year Capt. Howard Mardis.

Capt. Nena Wiley, a decorated member of the Civil Air Patrol, has been named interim president of the **Frank Luke (Ariz.) Chapter.** Captain Wiley, the special assistant to the vice commander, southwest region, CAP, will serve until elections are held in October. In one of her first duties as president, Captain Wiley presented AFA's Silver Star to AFROTC cadet Kirk Jones of Det. 25, Arizona State University. Mr. Jones, who was recently promoted to cadet wing commander, was named outstanding junior in the cadet corps.

Have AFA/AEF News?

Contributions to "AFA/AEF Report" should be sent to the Director of Volunteer and Regional Activities, AFA National Headquarters, 1501 Lee Highway, Arlington, VA 22209-1198. ■

Unit Reunions

Air Force Postal and Courier Ass'n. October 10–12, 1995, at Sam's Town Hotel in Las Vegas, Nev. **Contact:** Maj. James K. Foshee, USAF (Ret.), 3509 Deer Trail, Temple, TX 76504. Phone: (817) 774-7303.

Air Force Photo Mapping Ass'n. September 20–24, 1995, at the Canterbury Inn in Sacramento, Calif. **Contact:** Jim McNeil, 8057 Twin Oaks Ave., Citrus Heights, CA 95610. Phone: (916) 722–4994.

Air Weather Service Parachutists. July 28–30, 1995, hosted by the 18th Weather Squadron, Fort Bragg, N. C. All jumpers and friends are invited. **Contact:** 2d Lt. Steven N. Dickerson, USAF, 18th Weather Squadron/7th SFGA, Building AT-3551 Prager St., Fort Bragg, NC 28307-5000. Phone: (910) 396-3805. DSN: 236-3805.

Airways and Air Communication Services Alumni. September 28–October 1, 1995, in San Diego, Calif. **Contact:** Ted Carlson, P. O. Box 177, Stickney, SD 57375. Phone: (605) 732-4476.

B-29 Veterans, Alamogordo AAF, N. M., 1943–45. September 1–4, 1995, at Holloman AFB, N. M. **Contact:** Maj. Otto K. Mueller, USAF (Ret.), 1145 Florian Way, Spring Hill, FL 34609. Phone: (904) 688-9395.

B-36/RB-36 Peacemaker, aircrew and ground crew members. October 13–15, 1995, at Castle Air Museum, Castle AFB, Calif. **Contacts:** Meyers K. Jacobsen, 671 S. Riverside Dr., #4, Palm Springs, CA 92264. Phone: (619) 320-8788. Chuck Barber, 9506 Emerald Grove, Lakeside, CA 92040. Phone: (619) 561-5505.

Base Air Depot 2 Ass'n. September 28–October 1, 1995, in Colorado Springs, Colo. **Contacts:** Ken Haraldsen, 3018 S. Washington St., Englewood, CO 80110-1672. Dick McClune, 527 Quarterfield Rd., Newport News, VA 23602-6140.

Bergstrom Field/Del Valle AAB, Tex., military personnel, 1942–45 (World War II). September 13–16, 1995, in Overland Park, Kan. **Contact:** Wayne Taylor, 5015 S. W. 20th Terr., Topeka, KS 66604-3576. Phone: (913) 272-2584.

Eagle Squadron Ass'n. September 21–24, 1995, at the Hope Hotel in Dayton, Ohio. **Contact:** James A. Gray, 7283 Kolb Pl., Dublin, CA 94568. Phone: (510) 828-0227.

F-16 Fighting Falcon. Twentieth-year reunion, October 6–8, 1995, in Dayton, Ohio. **Contact:** Sandy Bunn, P. O. Box 340146, Dayton, OH 45434-0146. Phone: (513) 429-0537.

Luft III POWs. Tour Germany, Czechoslovakia, and Austria and visit Stalag Luft III and Moosburg. September 18–October 5, 1995. **Contact:** Thomas L. Thomas, Sr., 1607 E. Willow Ave., Wheaton, IL 60187. Phone: (708) 668-0215.

Moroccan Ass'n, personnel assigned to Morocco, 1951–60. October 1995 in Omaha, Neb. **Contact:** Col. Robert Bradshaw, 3406 Lynwood Dr., Omaha, NE 68123-2173.

National World War II Glider Pilots Ass'n. Fiftieth-anniversary reunion, September 7–10, 1995, in Atlanta, Ga. **Contact:** Charles J. Giallanza, 3881 Stone Mountain Fwy., Suite 2, Snellville, GA 30278. Phone: (404) 972-7100.

Topeka AAF/Forbes AFB, Kan., personnel, 1942–73. August 24–27, 1995. **Contact:** Forbes Reunion, P. O. Box 19142, Topeka, KS 66619.

1st Air Commando Ass'n, CBI (World War II). August 31–September 3, 1995, at the Sheraton Old Town Hotel in Albuquerque, N. M. **Contact:** Harry D. McLean, 7928 Golden Spike N. W., Albuquerque, NM 87120. Phone: (505) 898-4911.

2d Emergency Rescue Squadron. August 17–20, 1995, at the Bloomington Marriott Hotel in Minneapolis, Minn. **Contact:** 2d Emergency Rescue Squadron, 3832 45th Ave. S., Minneapolis, MN 55406. Phone: (612) 722-7683.

10th Training Command/215th Bomb Group, 2d Air Force (World War II). Fiftieth-anniversary reunion, June 15–17, 1995, at the Pueblo Hotel in Pueblo, Colo. **Contact:** W. C. Davis, 1233 Eilers Ave., Pueblo, CO 81006-1009. Phone: (719) 543-3811.

21st Weather Squadron, 49th Mobile Communication Squadron (World War II). September 29–October 1, 1995, in Albuquerque, N. M. **Contact:** I. J. Kirch, 34 Hoss Rd., Indianapolis, IN 46217. Phone: (317) 786-6858.

22d Bomb Squadron Ass'n, 341st Bomb Group (World War II). September 21–24, 1995, in Braintree, Mass. Members of the 11th, 490th, and 491st Bomb Squadrons are invited. **Contact:** David K. Hayward, 6552 Crista Palma Dr., Huntington Beach, CA 92647. Phone: (714) 842-8478.

27th Troop Carrier Squadron Foundation. September 18–23, 1995, in Oak Harbor, Whidbey Island, Wash. **Contact:** Robert B. Gruber, 15003 S. E. 46th St., Bellevue, WA 98006. Phone: (206) 641-9427.

31st Transport Group (World War II). October 19–21, 1995, in Dayton, Ohio. **Contact:** James B. Hill, 1638 Monte Sano Blvd., Huntsville, AL 35801. Phone: (205) 536-6816.

36th Tactical Airlift Squadron (Eagle airlifters/enlisted personnel). July 22, 1995, at the Holiday Park Pavilion, McChord AFB, Wash. **Contacts:** Melvin H. Rae, 17826 B St. E., Spanaway, WA 98387. Phone: (206) 847-1905 or (206) 847-1126 (Betty Burns).

37th/62d Troop Carrier Ass'n. October 5–8, 1995, in Washington, D. C. **Contact:** Clarence E. Wolgemuth, 130 N. Fairfield Dr., Dover, DE 19901. Phone: (302) 697-1983.

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

Flying Cadet Class 42-A (Kelly, Foster, and Ellington AFBs, Tex.). September 14–17, 1995, at the Marine Memorial Club in San Francisco, Calif. **Contact:** Col. Mike Kovar, USAF (Ret.), 24407 S. Ribbonwood Dr., Sun Lakes, AZ 85248-7749. Phone: (602) 895-8848.

42d Bomb Wing (Loring AFB, Me.). October 13–15, 1995, in Annapolis, Md. **Contact:** Paul Maul, 501 Slaters Lane, #923, Alexandria, VA 22314. Phone: (703) 549-5146.

51st Fighter Group, CBI (World War II). October 24–28, 1995, at the Holiday Inn International Resort in Orlando, Fla. **Contacts:** Jack G. Hamilton, 1102 St. Tropez Cir., Orlando, FL 32806. Phone: (407) 425-6158. Robert G. Haines, 1720 13th Ave., Belle Fourche, SD 57717. (605) 892-4623.

52d Fighter Group, World War II and later. September 14–15, 1995, in Dayton, Ohio. 2d, 4th, 5th Fighter Squadrons and headquarters detachment are welcome. **Contact:** Tom Thacker, 1334 Walnut Bend Ct., Fairborn, OH 45324. Phone: (513) 879-3832.

Pilot Class 53-F. October 20–22, 1995, in Fort Walton Beach, Fla. **Contact:** Jake Watson, P. O. Box 3415, Montgomery, AL 36109. Phone: (334) 277-3372.

Pilot Class 54-H. October 20–23, 1995, in Houston, Tex. **Contact:** John Taylor, 15807 El Camino Real, Houston, TX 77062-4416.

79th Fighter Group Ass'n (World War II). September 7–10, 1995, at the Holiday Inn West in Little Rock, Ark. **Contact:** Edwin Newbould, 1206 S. E. 27th Terr., Cape Coral, FL 33904. Phone: (813) 574-7098.

93d Troop Carrier Squadron, 439th Troop Carrier Group (World War II). September 13–17, 1995, at the Holiday Inn in Peabody, Mass. **Contact:** Lt. Col. Tom Morris, USAF (Ret.), 456 St. George's Ct., Satellite Beach, FL 32937. Phone: (407) 773-6960.

96th Air Refueling Squadron, pilots and navigators (Altus AFB, Okla.). October 12–15, 1995, in Bossier City, La. **Contact:** Richard F. Lyon, 1054 Woodlore Cir., Gulf Breeze, FL 32561. Phone: (904) 932-0124.

320th Air Refueling Squadron, March AFB, Calif. (1952–62). September 14–17, 1995, in Seattle, Wash. **Contact:** CMSgt. Herman G. Benton, USAF (Ret.), 6513 Sandia Vista Place, Rio Rancho, NM 87124. Phone: (505) 892-2344.

321st Missile Group, 321st Missile Wing, 321st Bomb Wing, and 321st Bomb Group. July 6–8, 1995, at Grand Forks AFB, N. D. **Contacts:** 2d Lt. Charles A. Baird, USAF, 321st Association, Grand Forks AFB, ND 58205-6227. Phone: (701) 747-3558 or (701) 747-4812 (Major Sheridan).

385th Bomb Group, 8th Air Force (World War II). September 27–October 1, 1995, in Omaha, Neb. **Contact:** George Hruska, 7442 Ontario St., Omaha, NE 68124. Phone: (402) 397-1934.

392d Bomb Group, 2d Air Division, 8th Air Force (World War II). Reunions July 3–6, 1995, in Lexington, Ky., and September 5–10, 1995, in St. Louis, Mo. **Contact:** Teddy Egan, 2619 Lafayette Ave., Winter Park, FL 32789. Phone: (407) 644-5439.

433d Fighter-Interceptor Squadron, Truax Field, Wis., and Ladd AFB, Alaska, 1953–57. October 27–28, 1995, in Middlesboro, Ky. **Contact:** Dave Eby, 3206 Martin Blvd., Wichita Falls, TX 76308. Phone: (817) 766-2523.

435th Troop Carrier Group, 76th, 77th, and 78th Troop Carrier Squadrons. September 27–October 1, 1995, at the Ramada Classic in Albuquerque, N. M. **Contact:** Al Forbes, 1614-B Berwick Ct., Palm Harbor, FL 34684. Phone: (813) 785-6075.

442d Fighter Wing. June 30–July 1, 1995, at the Richards-Gebaur Military Club in Belton, Mo. **Contact:** Joe C. Blair, 3214 E. 104th St., Kansas City, MO 64137-1501. Phone: (816) 761-5001.

453d Bomb Squadron, 323d Bomb Group, 9th Air Force (World War II). October 4–9, 1995, at the Radisson Inn–Airport in Cincinnati, Ohio. **Contact:** C. V. Sochocki, 1314 N. Brookfield St., South Bend, IN 46628-3074. Phone: (219) 233-6044.

487th Bomb Group, 8th Air Force (World War II). October 18–21, 1995, in Orlando, Fla. **Contact:** Robert D. Hesse, 6308 Heather Lane, Pinellas Park, FL 34665.

505th Bomb Group, 313th Bomb Wing. September 6–10, 1995, at the Sheraton Hotel in Conway, N. H. **Contact:** John Hall, P. O. Box 451, Freedom, NH 03836. Phone: (603) 539-4363.

586th Tactical Missile Group (including the 69th Tactical Missile Squadron), 701st Tactical Missile Wing (1951–58). September 17–20, 1995, in New London, Conn. **Contact:** Fred Herbert, 282 Old Jewett City Rd., Preston, CT 06365. Phone: (203) 889-5870.

601st Tactical Control Squadron, 601st Aircraft Control and Warning Squadron, and 601st Aircraft Control Squadron members who served in Germany, 1945–95. October 10–13, 1995, at Days Inn in Bloomington, Minn. **Contact:** Harry E. Ambrose, 18720 Dallas Lane, Little Rock, AR 72211. Phone: (501) 821-3509.

806th Air Police Squadron. October 14–16, 1995, in Opelousas, La. **Contact:** Austin Wyble, P. O. Box 374, Opelousas, LA 70571-0374. Phone: (318) 942-7408.

4135th Strategic Wing, 39th Bomb Wing, Eglin AFB, Fla. (1959–65). October 13–15, 1995, in Fort Walton Beach, Fla. **Contact:** Al Halloran, 1008 Regatta Dr., Niceville, FL 32578. Phone: (904) 729-2467.

7330th Flying Training Wing, Fürstenfeldbruck, West Germany, from 1954 to 1957. September 7–10, 1995, at the Sheraton Hotel in Anchorage, Alaska. **Contact:** Father William L. Travers, American Embassy Bonn, Box 270, APO AE 09080.

The Horned Toad, a loose-knit permanent party group stationed at the Las Vegas Gunnery School between 1941 and 1945, seeks names and addresses of former members for planning a reunion in fall 1995 in Las Vegas, Nev. **Contact:** Frank Hathorn, 301 Ruthlynn Dr., Longview, TX 75601-2334. Phone: (903) 758-8889. ■

If you need information on an individual, unit, or aircraft, or if you want to collect, donate, or trade USAF-related items, write to "Bulletin Board," *Air Force* Magazine, 1501 Lee Highway, Arlington, VA 22209-1198. Letters should be brief and typewritten; we reserve the right to condense them as necessary. We cannot acknowledge receipt of letters. Unsigned letters, items or services for sale or otherwise intended to bring in money, and photographs will not be used or returned.—THE EDITORS

Bulletin Board

Seeking contact with **B-52, KC-135, and T-37** aircrews who were with the 379th Bomb Wing, Wurtsmith AFB, Mich., during the late 1980s and Operation Desert Storm. **Contact:** Robert J. Egloff, 99 Collins Ave., Chicopee, MA 01022.

Seeking information on the **15th Fighter-Interceptor Squadron,** 34th Air Division, Davis-Monthan AFB, Ariz., 1955–56. **Contact:** TSgt. Benny R. Byrd, USAF (Ret.), 107 Hilltop Cir., Weatherford, TX 76086.

Seeking contact with American airman **Al Porrier (or Porrer)** and his crew, **Hank, Buzz, Ralph, and Doug,** who were based in **Edinburgh, Scotland,** in 1944 and 1945. **Contact:** Mary D. Lanny, 30 Pentland View Terrace, Roslin, Midlothian EH25 9LZ, Scotland.

Seeking contact with **Charles Garrett Stephens,** who was with the 20th Field Maintenance Squadron at Wethersfield, UK, and married Monica Valerie Jarvis in 1956. **Contact:** Ann Gardner, 29 Sycamore Ave., Upminster, Essex RM14 2HR, UK.

Seeking the whereabouts of **Sgts. Rodger K. Summerfield, Huey C. Scott, Arthur Hunt, and Gabriel Sanchez,** who were with the 432d TRW, Udorn RTAFB, Thailand, during the Vietnam War. **Contact:** Bill Crean, 842 Waterford Dr., Delran, NJ 08075-2220.

Seeking contact with **James Hodge,** a fighter pilot based in Kent, UK, in 1944, who knew the Pegler family of Mundy Manor. **Contact:** Jackie Pegler Allingham, 197 Maplehurst Rd., Chichester, West Sussex PO19 4XJ, UK.

Seeking anyone who knew **Cpl. Harry Dwight Paige, Jr.,** a radioman stationed in the Admiralty Islands, declared MIA on a reconnaissance mission in the Pacific in 1945. **Contact:** Jean Hamilton, Box 4056, Naples, ME 04055-4056.

In return for shipping cost reimbursement, offering **complete collection of *Air Force* Magazine** from 1944 to present. **Contact:** Lt. Col. Douglas D. Stewart, USAF (Ret.), 409 W. River Rd., Oscoda, MI 48750.

Seeking contact with **women veterans** willing to be interviewed or provide material for a journal for women veterans. **Contact:** Barbara Sweatt, P. O. Box 1171, New Market, VA 22844.

Seeking to contact anyone with information on **ditchings** near Seattle during the 1940s involving aircraft from McChord AFB, Paine Field, Olympia, and Port Angeles, Wash. **Contact:** David R. Mahre, 2762 Cook Rd., Yakima, WA 98908.

For a museum, seeking World War I and II **flight gear, uniforms, and photos.** Also seeking contact with former fighter and bomber pilots for personal stories. **Contact:** Matthew Bole, 4 Mobile Coach Lane, Mt. Vernon, NH 03057.

Seeking information on **Lt. R. V. Bell,** who was with the 8th Air Force in the UK during World War II. **Contact:** Tom McGrath, 1733 Wandering Winds Way, Las Vegas, NV 89128.

Seeking information on **Lazy Dog,** a high-altitude antipersonnel weapon. **Contact:** Bill Hill, P. O. Box 753, Peralta, NM 87042. ■

Pieces of History

Photography by Paul Kennedy

To Honor With Dignity

Memorabilia courtesy of the United States Air Force Honor Guard, Bolling AFB, D. C.

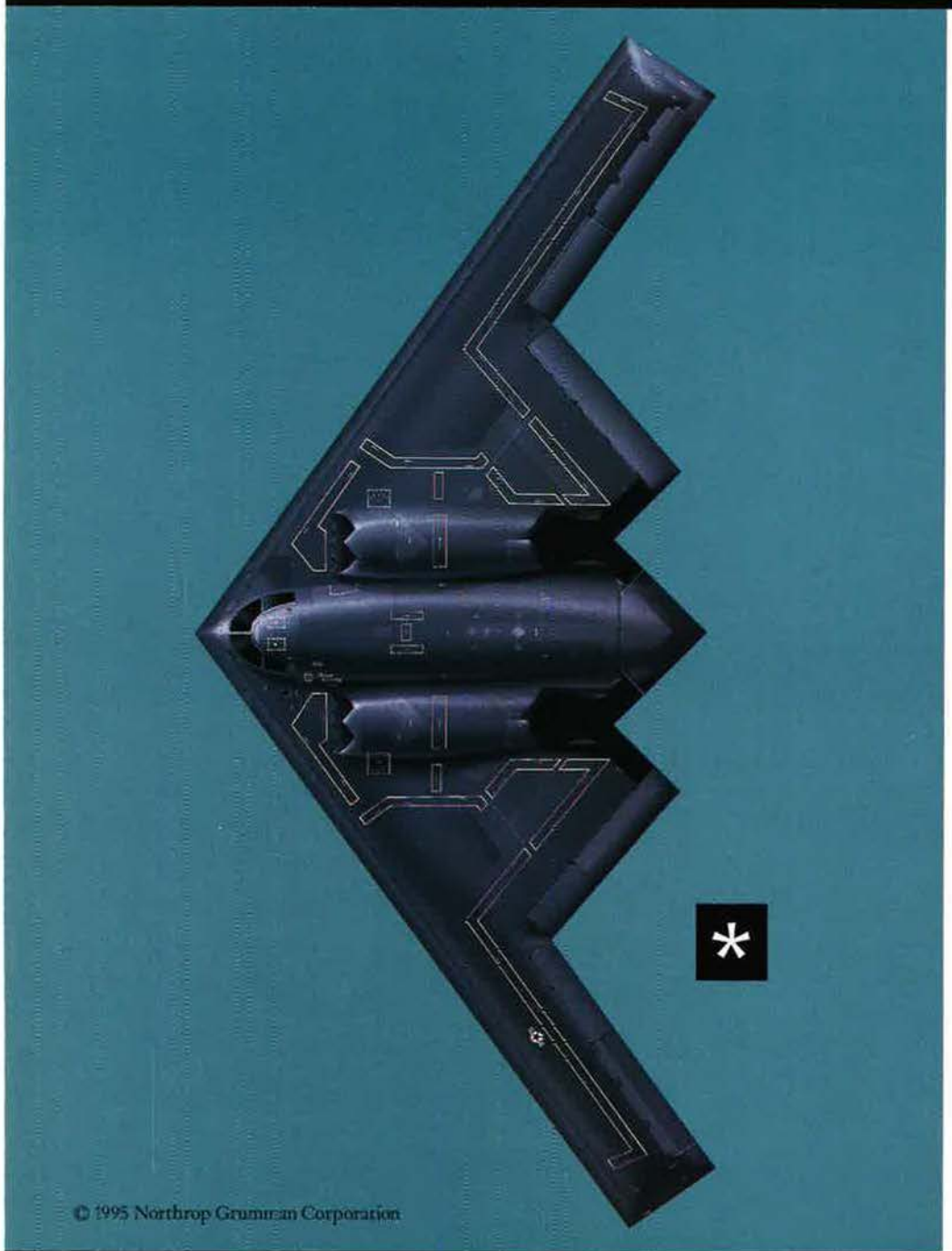
With superb professionalism and exceptional standards of conduct and appearance, the USAF Honor Guard and its Precision Rifle Drill Team represent the service in ceremonial functions around Washington, D. C., and elsewhere in the world. The unit, stationed at Bolling AFB, D. C., began as part of the air police in 1948. It became a separate entity in 1972.

Honor Guards come from many specialty codes, including computer maintenance, supply, and pharmacy technician. They participate in White House and Pentagon ceremonies, render military honors at Arlington National Cemetery, and guide Pentagon tours. In every capacity, these representatives of the US Air Force serve "to honor with dignity."

*

The B-2 was built with technologies that will remain relevant well into the 21st century.

When we discuss its merits, shouldn't we use the same foresight?



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Stealth combined with global range will enable the B-2 to fly anywhere in the world on short notice, penetrate the most advanced air defenses, and strike with conventional precision weapons.

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And the Air Force's C-17 Globemaster III is the best. It can carry critical military and humanitarian material to more distant and remote locations than any other widebody airlifter. Because in this volatile world, the way some people behave, you'd think a crisis could arise at any time.

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