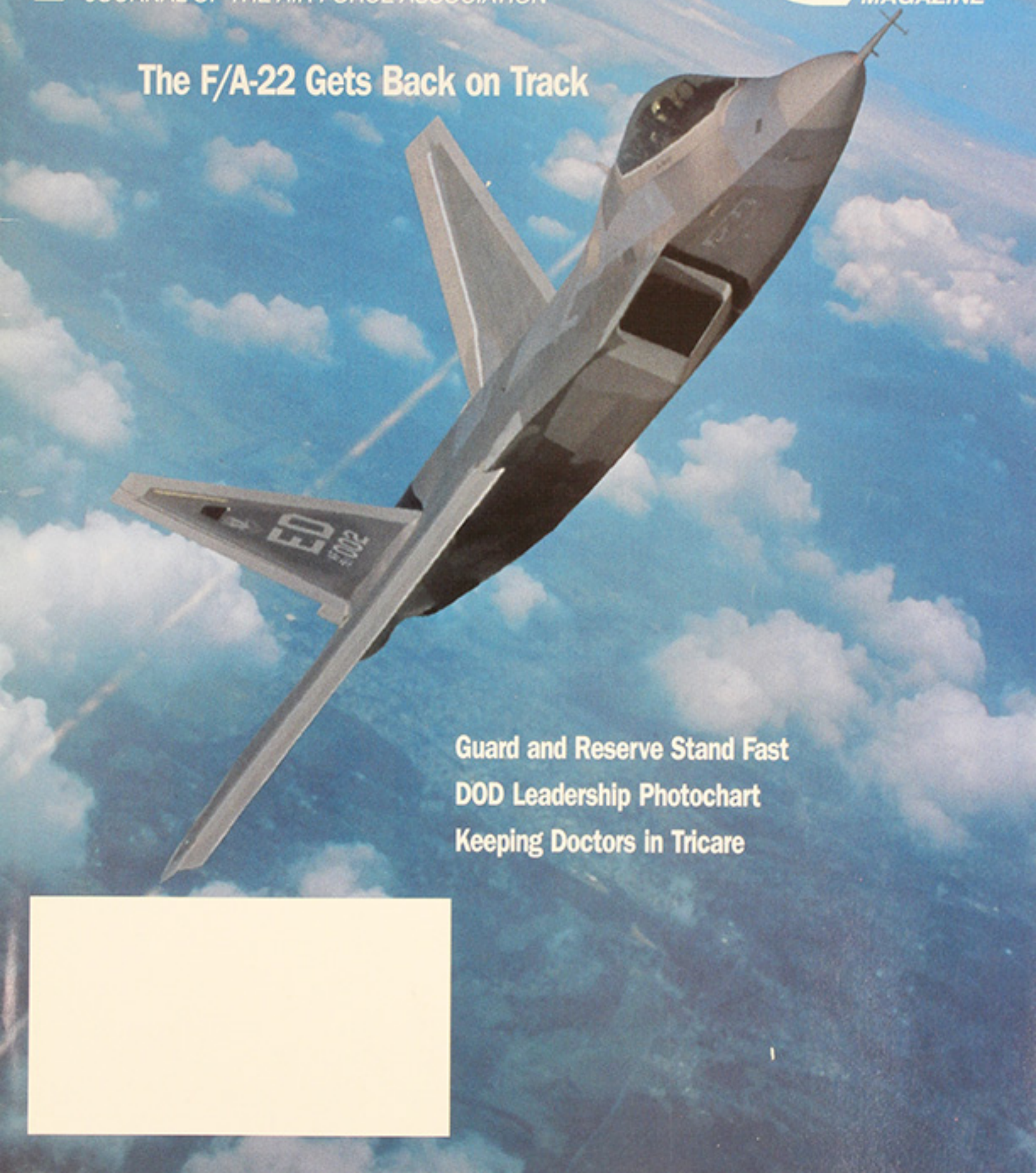
March 2003/$4

AIR FORCE MAGAZINE

JOURNAL OF THE AIR FORCE ASSOCIATION

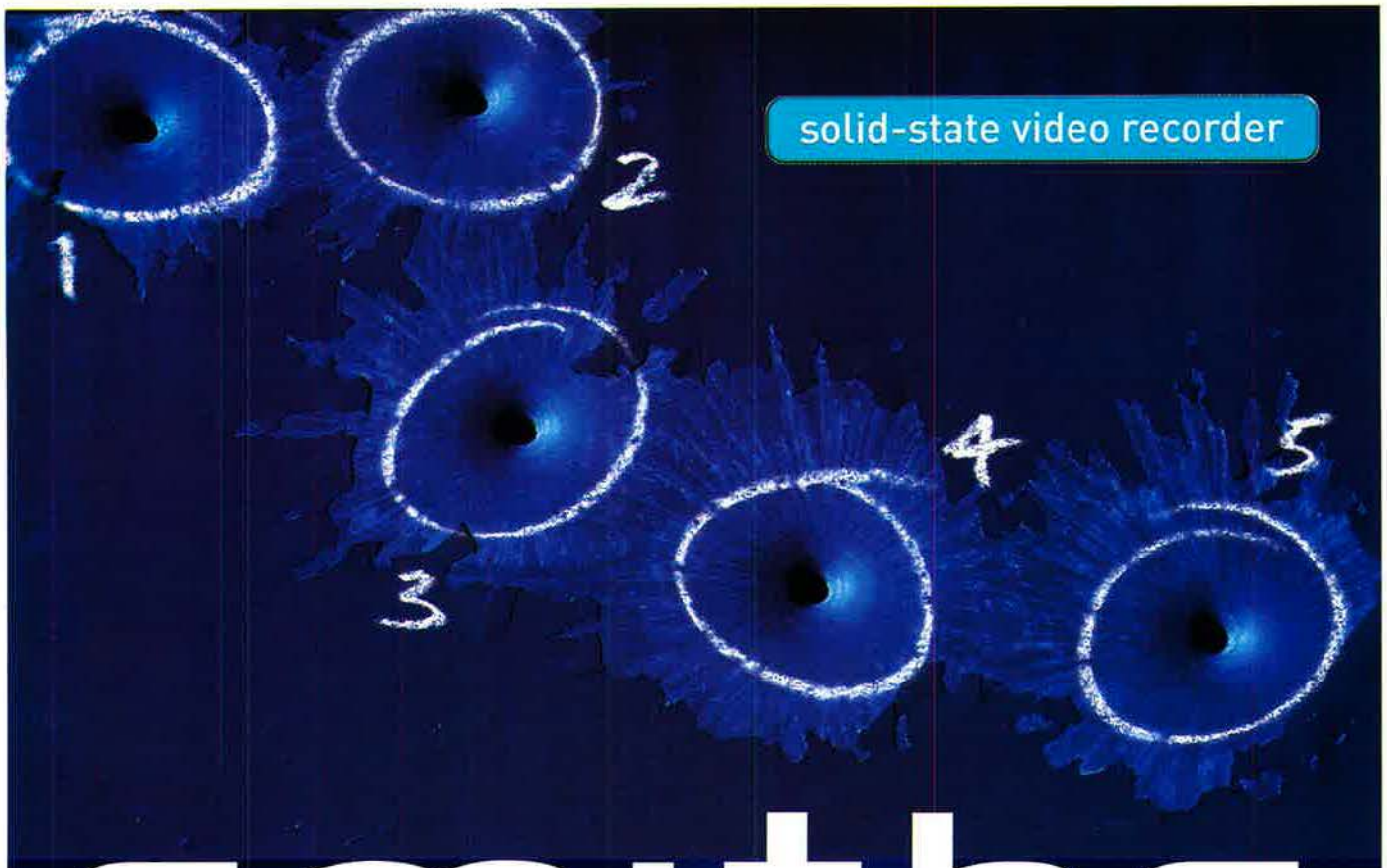
The F/A-22 Gets Back on Track



Guard and Reserve Stand Fast

DOD Leadership Photochart

Keeping Doctors in Tricare



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About the cover: F/A-22 photo illustration by Erik Simonsen. See "The F/A-22 Gets Back on Track," p. 22.

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Editorial

By Robert S. Dudney, Editor in Chief

The Thirty Years' War

Over the decades, the nation's all-volunteer force has absorbed its share of criticisms, carping, and complaints. The early post-draft years featured worries about drugs and morale. Then came complaints about cost. In the 1970s and early 1980s the force had trouble recruiting enough high-quality troops. Critics at various times claimed the services were "too black" or too poor.

Or too unreliable. In June 1976, *Military Review* published a piece entitled, "The American Volunteer Soldier: Will He Fight?" Desert Storm in 1991 demolished all lingering doubts.

Recently, the Triangle Institute for Strategic Studies voiced concern about a gap between civilian and military societies in their outlook on major issues. Others say civilian leaders have lost control of a headstrong professional warrior class.

The force persevered, achieving successes that few expected in 1973 when the draft ended. Evidently, success isn't enough. As it nears its 30th birthday on July 1, the volunteer military finds itself in an all-too-familiar spot—under political fire.

In January, Rep. Charles Rangel (D–N.Y.) called for reinstating a draft in the name of "shared sacrifice." According to Rangel, the US needs to scrap the all-volunteer concept because it does not equitably distribute the burden of service to the rich as well as the poor and middle classes.

Some charged that Rangel's motive was political; a foe of war with Iraq, he hoped to embarrass pro-war lawmakers by noting their own children would not be in the line of fire.

Even so, Rangel's move has generated a surprising amount of commentary, much of it favorable. It is worth taking stock of the implications of what he proposes. Even leaving aside the draft's complex moral issues, there is quite a lot to ponder.

The first thing to say is that a draft would bring the US no strictly military benefits and might cause harm. One great virtue of a draft is that it quickly produces large numbers of troops. Today's armed forces are at their authorized troop levels, however.

Military leaders note that the past three decades brought into being a different force—smaller, faster, and equipped with fewer but more effective weapons. "The systems have been designed and procured with the [all-volunteer force] in mind, and that design is not compatible with a conscripted force," said a recent Pentagon paper.

With more troops serving shorter tours of duty, training costs in a conscript force would soar, siphoning funds from other needs.

The volunteer military has had its problems, but a conscript force would have even more.

Second, the draft would pose vast practical problems. As the US population has grown to 281 million, the armed forces have shrunk to 1.4 million active troops. Today's cohort of draft-age youth would simply swamp the armed forces. Each year, about two million American men turn 18. From that annual pool, the services need at most 200,000—or 1 in 10.

This marks a dramatic departure from pre–Vietnam drafts, when most young men served. The new ratio immediately raises the question, "Who serves when not all serve?" Inequities such as this helped destroy the Vietnam draft, analysts note.

There is another inconvenient question: What about all of the volunteers, both those serving and those who will wish to serve? Does DOD force them aside to make room for unwilling draftees?

It appears that Rangel has misconstrued the magnitude of the problem for which he prescribes the draft. "Most enlistees," he said, "are low-income people, of all races." This is not true.

A recent Columbia University study measured recruit status in four ways—family socioeconomic status, verbal and quantitative skills, educational achievement, and work orientation. It states flatly that today's recruits "do not come from the more-marginal groups on any of four dimensions."

DOD agrees. Its data show the general socioeconomic status of new recruits is roughly the same as that of the overall population.

To Rangel's credit, he did put his finger on a real problem—wealthy, influential families are not well-represented in the volunteer force.

Charles Moskos, a military personnel expert at Northwestern University and a draft supporter, puts it this way: "The problem with the all-volunteer force is that the children of America's elite are not serving. It's not good for the military, and it's not good for the nation."

Most would like to see the privileged take a larger role in national defense. The question is how to make it happen.

John F. Lehman Jr., President Reagan's Navy Secretary, argues that the problem is no longer "elitist disdain" for the uniform but often the roadblocks put up by recruiting bureaucracies. "Students from the best campuses all over the country are applying to the services in large numbers," Lehman wrote in the *Washington Post,* "but ... they are finding that they are not particularly welcome. ... The real answer is to take recruiting policy away from the green-eyeshade bureaucrats who want only 'lifers.' "

Lehman said such students might be lured by shorter periods of active service, followed by a reserve duty.

One thing seems clear: There won't be a draft anytime soon. A recent Gallup Poll shows Americans oppose the draft by nearly 3-to-1. Defense Secretary Donald Rumsfeld declared, "We're not going to reimplement a draft. There is no need for it at all."

The volunteer force probably will surmount this new flash of criticism as it has all others for the past 30 years. As British military historian John Keegan has written, "The Anglo–American system of small, highly trained, well-paid professionals is now accepted as the model for any military establishment which wishes to remain viable and credible." ■


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Letters

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Voices of the Ghosts

I am writing as one of the "Ghosts in the Machine." *[See "Editorial: Ghosts in the Machine," January, p. 2.]*

I have read several articles covering the same topic, and one of the points never mentioned is the fact that many of us retired from the military with 20 years or more and went right into civilian employment and as a consequence used our employer-supplied insurance coverage until retirement at age 65. During this time we were not a "load" on any of the military medical programs. This had to have saved the US government a lot of money on unused benefits. Many benefits like medical are terminated in industry when you become fully retired. That's when your military retired benefits become most valuable.

I served during the Korean War, the Vietnam War, and at age 58 volunteered and served in the Gulf War as a Merchant Marine officer. Now I discover my medical benefits are about the same as somebody who never served at all!

MSgt. W.H. Wiley,
USAF (Ret.)
Brookings, Ore.

I write as the son of a retired Air Force senior master sergeant who served 30 years in the Army and the Air Force. My dad served in World War II through Vietnam. He became a [prisoner of war] during the Battle of the Bulge. Both he and my mother are still alive, living near Dover AFB, Del. They both recall the promises made about lifetime medical care; my father made them himself when he served for a while as a recruiter.

Your call for a negotiated remedy at this time of near war with Iraq is well-sounded. While veterans don't reasonably expect their country to keep bases open just for medical care for veterans, they do deserve financial remuneration for their out-of-pocket costs both past and future.

For the Bush Administration to publicly honor the military while simultaneously turning their backs on the veterans whose sacrifices were made for our freedom is itself a dishonorable act.

Jack G. Spear
Montclair, N.J.

CAS Is Serious Work

Rebecca Grant does another great job in her article "The Clash About CAS" *[January, p. 54]*, but what this story really reveals is that it's time for the Army to get serious about [Close Air Support].

The Army does not understand airpower in general and CAS in particular. If they did, they would not have been so foolish as to plan a major operation (Anaconda) that was absolutely dependent upon air support—they did not bring their own organic fire support with them—but not bother to tell USAF about it until two days prior to the operation's start date.

This lack of understanding is reflected in the way it assigns personnel to Air Force units to serve as advisors and liaisons. For a typical fighter wing, the Army provides only one Ground Liaison Officer and one enlisted assistant. At least that's what they say they'll provide. As of this writing, the F-16/A-10 wing at Spangdahlem [AB, Germany] has only its NCO billet filled; ditto the F-16 wing at Aviano [AB, Italy]. The F-15E wing at RAF Lakenheath [UK] has its GLO but not its enlisted trooper. Three people, two of them enlisted, in all of Europe, to provide direct liaison with three Air Force fighter wings. In addition, a peacetime air operations center contains an Army detachment of only two soldiers. No wonder the Army doesn't understand how the Air Force operates!

In contrast, Air Liaison Officers and Enlisted Terminal Attack Controllers are assigned to each Army division down to the battalion level. A typical battalion will have an ALO and two to four ETACs. The tactical air control party at an Army division generally has 25 airmen assigned to it, while a corps has twice that many in its air support operations squadron. Admittedly, these billets may not always be filled to 100 percent, but an understrength squadron is better than an understrength or nonexistent detachment.

It's time for the Army to get serious about CAS. They need to establish GLOs and technicians in significant numbers at every wing and numbered air force in peacetime, similar to the emphasis the Air Force places on working closely with the Army. The soldiers filling these billets must be assured that these are important assignments that will enhance their careers—not the case today. The task of these soldiers should be to learn about airpower and how it operates so that the next time the Army plans a major operation that is dependent on airpower for its success, they remember to include airmen in the planning.

Col. Phillip S. Meilinger,
USAF (Ret.)
Sterling, Va.

As an old Vietnam–era CAS type, both as an F-100 driver and forward air controller with brigade ALO experience, I think *["The Clash About CAS"]* was well-done. I do, however, take exception to the thesis that CAS is an emergency measure and that heavy reliance on it is not a preferred battle plan. I think this is a parochial view of airpower and is what caused the problems of Anaconda.

The lesson we should take from Anaconda is that CAS must always be an integral element of any ground force's battle plan. As stated, it is indeed correct that airmen consider CAS a sacred duty. But with the advent of the lighter and more agile Army, instead of blaming them for not having more organic firepower (if we had the lift, they

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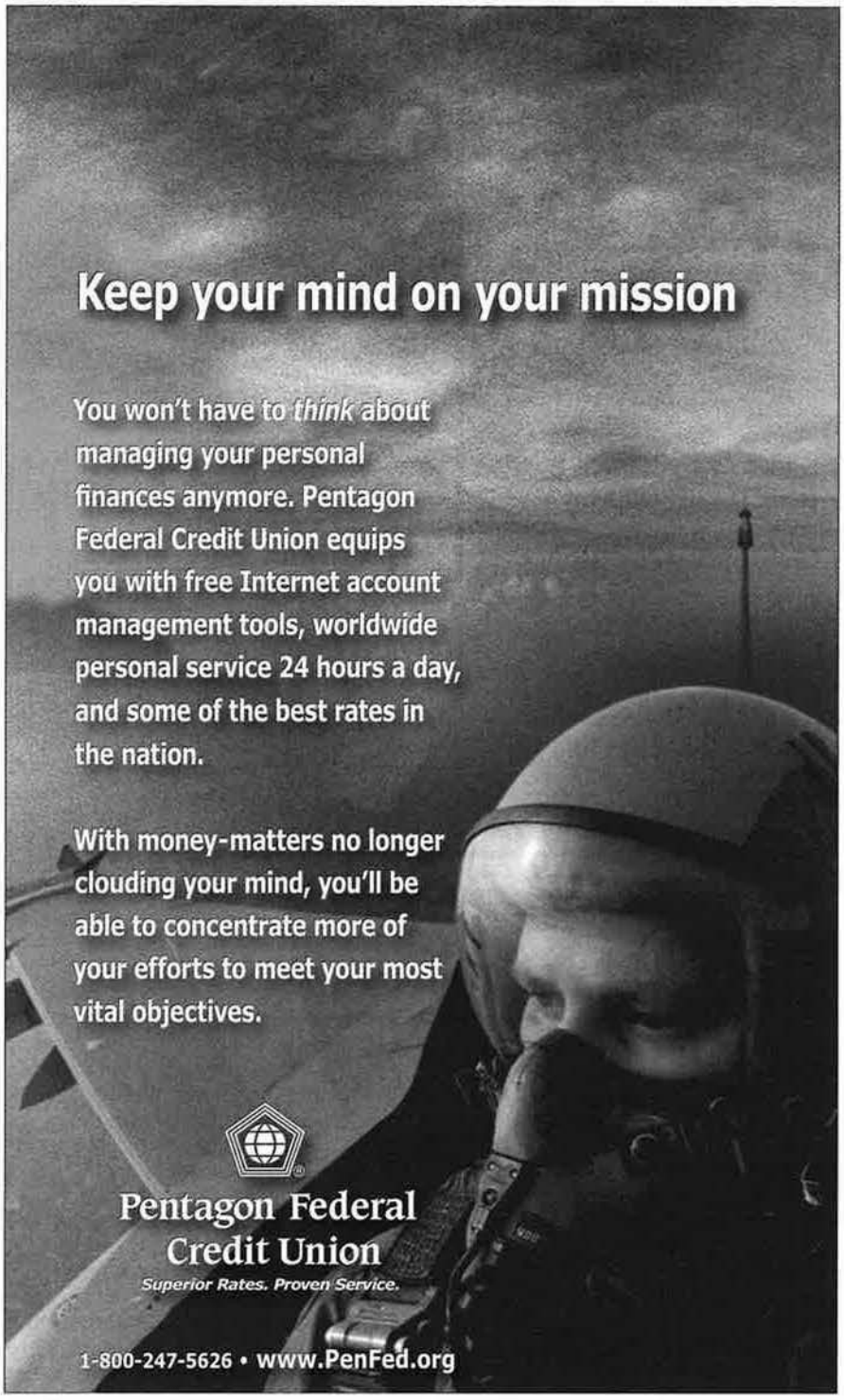
would gladly bring it), we should be equipping and organizing to provide the CAS they will need. My belief in heavy reliance on CAS stems from my combat experience.

In Vietnam we had two categories of Army battalion commanders, those who understood and appreciated airpower and those who wanted little or nothing to do with it. The former relied heavily on us and when they took any fire, they stopped and called in air. The results were objectives met, more dead enemy soldiers, and fewer American casualties. The latter would wade in, all guts and glory, and call in air only when they were in trouble and needed to be extricated—which always made CAS more difficult due to the uncertainty of friendly positions that invariably occurred in such situations. It was always frustrating to see unnecessary American losses when you knew that given just a few minutes, air could turn the enemy jungle positions into a desert. Without question the Air Force's primary mission is air superiority. But when we have it and American troops are advancing or defending under fire, our next priority must be CAS. To not do so means we accept that young men are expendable fodder.

We should not be denying or limiting CAS because of some mathematical efficiency equation that suggests we should be placing a priority on interdiction. We should always be where the fight is. The Air Force needs to set the tone for Army commanders—that air will be there whenever they need it, and it will be effective and timely because good joint [command and control] procedures have been developed and agreed to by all the players. When the confidence is there, their battle plans will include the use of CAS. If we deliver, they will use us, and fewer young American men will need to die in battle.

And speaking of munitions for CAS, I was amused by [retired] MSgt. [Mark] Young's letter in the same issue, critical of napalm. *[See "Letters: Not Missing Napalm," p. 6.]* The load for CAS in Vietnam was "snakes and naps," high-drag bombs and napalm. This load allowed for low-altitude, very accurate delivery. But when you really wanted to get down low and personal, you came in at 50 feet or less and smoked them with napalm. All the Army troops I spoke with loved napalm. Delivery accuracy was precise; you flew over the target and never flew over or into the friendlies. You may be a little short or long, but at 50 feet you were never more than inches left or right of the target. And I'm afraid someone has given Master Sergeant Young some wrong information; oxygen starvation of friendly troops is not a factor with napalm employment. If our troops call it in too close they will know by the heat and burn, not suffocation. There was more concern for the shrapnel and concussion from the 500-pounders. The only thing bad about napalm is the delivery mode. It is a dangerous job. A napalm run was where I took one of my hits in the F-100. Even small-arms fire brought down a lot of us. And, finally, using aircraft to strafe is probably the most inefficient use of airpower imaginable and not all that accurate. I enjoyed strafing, but you seldom were doing much to harm the enemy or to help our troops (the incident of the Eagle jet strafing in Afghanistan an obvious exception). The grunts will always have guns to shoot but not napalm and 500-pound bombs to plant on the bad guys. CAS does that.

Col. Michael E. Sexton,
USAF (Ret.)
Albuquerque, N.M.



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Letters

The Aging Fleet

I have flown KC-135 tankers for my entire career and just retired Jan. 1, 2003. Of course, I was interested in your January 2003 article, "When Aircraft Get Old."

You caption the picture (p. 30–31) of the Mississippi Air National Guard tanker, "a 30-year-old KC-135R." In fact, that is a 1957 model Stratotanker, which makes it more than 45 years old! Your aging tanker chart on p. 34 may also be somewhat misleading (unless it encompasses the KC-10 fleet, upon which I cannot comment). The KC-135 fleet still has 1955–model jets flying in ANG and AFRC, which makes them more than 47 years old. My unit, the 121st Air Refueling Wing (Ohio ANG at Rickenbacker Airport) possesses the "newest" KC-135 in service today, a 1964 model. Therefore, the "newest" one is more than 38 years old, making the fleet "average age" more than 42 years old at the end of 2002.

I have always been curious if anyone can top my record of flying the same airframe for more than 32 consecutive years. I began flying the KC-135A in August of 1970, right out of [undergraduate pilot training]. I flew my 100th mission in Southeast Asia in tail #58-0008. It was later modified by ANG to a KC-135E, and I flew the same tail in the Gulf War from Dubai, UAE.

I doubt many pilots have flown the same exact aircraft in two different conflicts. My entire career has also been spent at the same airdrome—Lockbourne, later renamed Rickenbacker. When I left active duty in 1974, I simply went to the other end of the runway and kept flying with the 145th Air Refueling Squadron of the Ohio Air National Guard (the first ANG unit to receive KC-135 aircraft). Maybe you ought to write an article entitled "When Pilots Get Old."

Col. Ronald L. Albers,
AFRC (Ret.)
Columbus, Ohio

Remember the Wild Weasels

A correction is required to the caption of the picture of a Spangdahlem [AB, Germany] A-10 on p. 63 of the January issue. It states that in September 1997, the 81st FS became the "first USAFE squadron to participate in Operation Southern Watch."

This is incorrect. In August 1992, the 81st FS from Spangdahlem, equipped with F-4G Wild Weasel aircraft, already deployed to Dhahran [Saudi Arabia], flew in the first Operation Southern Watch missions. I was the 81st deployed detachment operations officer at Dhahran at the time.

The F-4Gs of the 81st were continuously deployed to Southwest Asia from September 1990 until Dec. 31, 1993, and were, at the time, the only fighter squadron simultaneously deployed to two combat locations, namely Incirlik AB, Turkey, supporting Operation Provide Comfort and at Dhahran supporting post–Desert Storm operations and subsequently Southern Watch.

While I salute the efforts of the current 81st FS and am proud that they have continued the squadron's history of gallantry in combat, the 1,200–plus days the men and women of the 81st FS Wild Weasels were continuously deployed to Southwest Asia should not be overlooked or their dedication lessened.

Lt. Col. Paul C. Gregory Jr.,
USAF (Ret.)
Yorktown, Va.

Warfighting Contractors?

Why is it that George Cahlink in his article "Send in the Contractors" *[January, p. 68]*, like so many others, misses the major issue or what should be of primary concern? When will careful consideration be given to the question of the basic and distinct roles of civilians accompanying the force

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(especially contractors) and war-fighting combatants?

The international law of armed conflict, including the Geneva Conventions, is based on that distinction. Civilians may not engage in hostilities nor may they be the object of military attack. At what point does a civilian contractor's conduct become a combatant action? Failure to understand this distinction and to act accordingly not only is contrary to international law but jeopardizes the protections which that law provides for both civilians and combatants during armed conflicts.

One should remember that it is this very distinction that we rely upon to condemn terrorists. Increasing use of contractors to perform new and different roles because of military manpower shortages or for monetary reasons deserves a closer look.

Col. Richard J. Erickson,
USAF (Ret.)
Montgomery, Ala.

Cheap Shot

What a cheesy, cheap shot at President Jimmy Carter. *[See "Aerospace World: Jimmy Carter and the Axis of Danger," January, p. 17.]*

While many disagree with Carter's decisions as President, his post–Presidency has been a remarkable series of diplomatic and humanitarian achievements.

Legitimate criticism on the editorial page is fine; snide ridicule on the news pages is not. Carter served his country unselfishly as a Naval officer and deserves better than a series of one-liners out of context.

Jeff Rowe
Long Beach, Calif.

Thank you for publishing the pusillanimous observations and diatribes of Jimmy Carter, revealing the true nature of his character.

Had Jimmy Carter displayed an ounce of patriotism, a degree of allegiance, or an iota of intelligence, he would have rejected the Nobel Peace Prize out of hand. Through him, the Oslo donors were able to make a powerful anti–American statement without uttering a word. Jimmy Carter did it for them.

Col. Samuel F. Miller,
USAF (Ret.)
Tullahoma, Tenn.

Development Timeline

That was an interesting "Pieces of History" on p. 88 of the January 2003 *Air Force* Magazine.

Compare the fighter development timeline of a World War II bird with the F/A-22. Some War II fighters went from conception to serious production in months. We had to; our [tails were] on the line! Politicians were also more focused on military needs during those "grim" times we now compare to 9/11.

We had the F/A-22 on the drawing board in the early 1980s; it finally flew in 1991 and now won't be operational until 2005. Serious numbers (339 total?) won't be available as warfighters until years later. By that time the technology of this "dominating" design will be over 25 years old! The F/A-22's avionics will also be at that time [comparable] to what our eight-year-old home personal computers are now—obsolete.

What kind of cosmic fighter could we truly NOW be producing if design, development, and production were not slowed by misplaced political considerations?

CMSgt. Rob Lentini,
ANG
Tucson, Ariz.

Correction

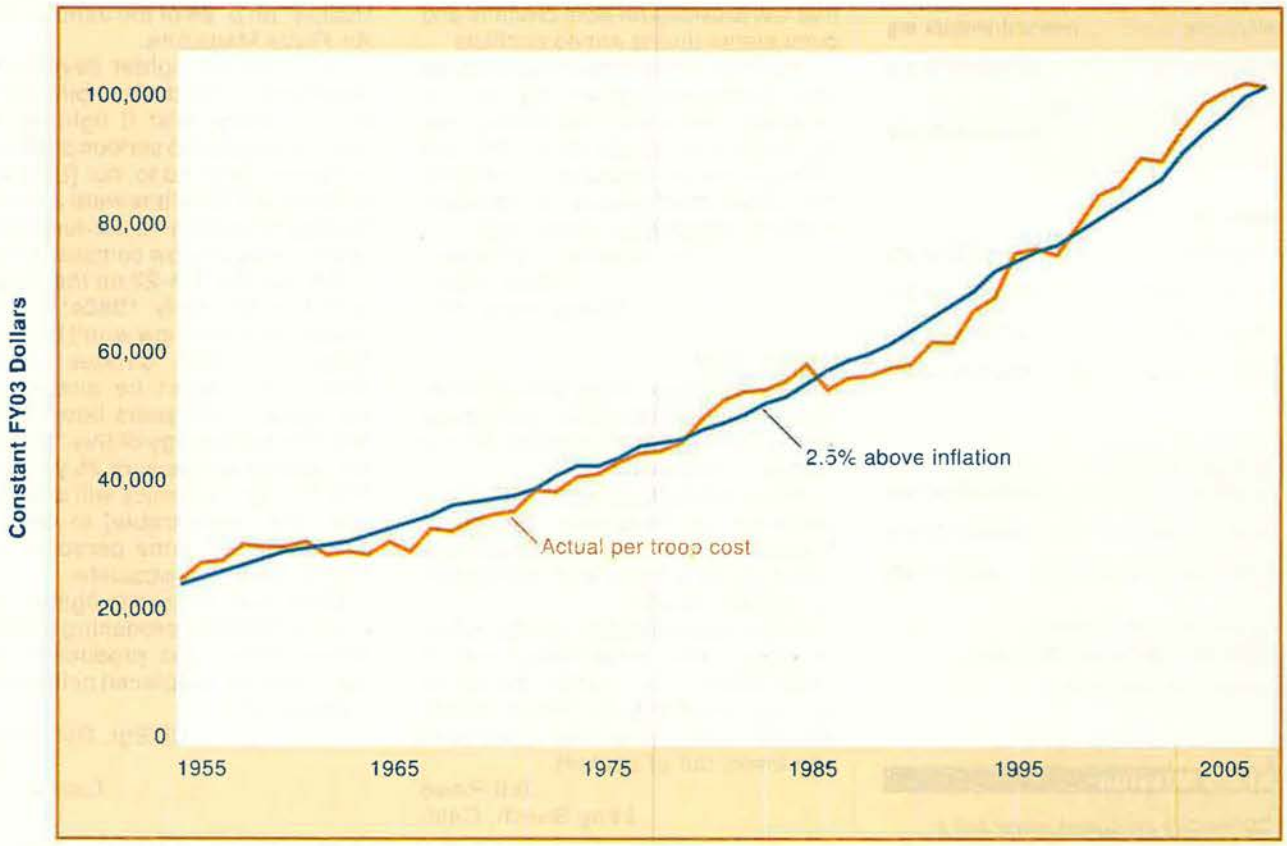
In the February issue, the caption on p.16 of "Aerospace World" incorrectly identified the airplane as an F-4. It is an F4F.

The Chart Page

By Tamar A. Mehuron, Associate Editor

The Growth in Operating Cost

Since 1955, military operation and maintenance costs have grown steadily at a rate of about 2.5 percent above inflation. The Congressional Research Service views this as a "fact of life" military requirement. Although CRS notes that the war on terror added substantial cost to the Fiscal 2003 defense budget, analysts point to this graph, showing O&M funding per active duty member, to demonstrate that the upward trend in O&M funding is not a recent phenomenon. Many factors could contribute to the steady increase. These include the infusion of high-tech weaponry, the aging of equipment, and maintenance of an oversized base structure.



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ABOVE & BEYOND

Aerospace World

By Suzann Chapman, Managing Editor

Airpower Aids OEF Forces

USAF and coalition aircraft were called in several times in the past weeks to pound enemy forces in response to repeated attacks on coalition troops as they patrol areas in eastern and southern Afghanistan for Operation Enduring Freedom.

Coalition troops, including members of the new Afghan national army, were clearing more than a hundred caves in which some 80 troops loyal to al Qaeda, the Taliban, or Afghan warlord Gulbuddin Hekmatyar now aligned with them, had been hiding and stashing weapons.

On Feb. 12, a B-52 bomber dropped a Joint Direct Attack Munition and an AC-130 gunship fired 105 mm cannon rounds at caves in an area north of Bagram Air Base.

On Jan. 28, USAF B-1 bombers and AC-130s, Norwegian F-16s, and US Army Apache helicopters attacked enemy forces in caves near Spin Boldak in southern Afghanistan. They used 20 JDAMs and a variety of other munitions.

Action continued for several days in the Spin Boldak area. Defense officials described it as the largest engagement since last spring's Operation Anaconda. However, they said, Anaconda saw the deployment of more than 3,000 coalition troops, while the recent action had only about 350.

DOD Activates CRAF Stage 1

The Pentagon on Feb. 8 announced that Defense Secretary Donald H. Rumsfeld had authorized activation of the Civil Reserve Air Fleet at Stage 1, the lowest of three levels.

At Stage 1, 22 airline companies are put on notice to make 47 passenger airliners and 31 cargo aircraft available to transport military passengers and equipment. The 47 passenger airliners were immediately pressed into service hauling troops to Southwest Asia. The cargo aircraft were to be ready if needed by US Transportation Command to augment USAF airlifters.

During Operation Desert Shield in 1990, DOD activated Stage 2. Stage 3, which has not been used, calls for the use of up to 400 civilian aircraft.

USAF photo by SSgt Chris Flahive

SrA. Don Hoff (left) and TSgt. Stan Harper of the 15th Reconnaissance Squadron, Indian Springs AFAF, Nev., read their packing lists as they work in January to ready a Predator unmanned aerial vehicle for shipment overseas. The UAV was deployed as part of the buildup of forces in Southwest Asia.

USAF Deploys F-117s

Air Force officials confirmed that they had deployed F-117 stealth fighters from Holloman AFB, N.M., to an overseas location on Feb. 3.

The fighters participated in Operation Allied Force in Serbia in 1999 and served as key strike platforms during the 1991 Gulf War. They used precision munitions to strike targets in downtown Baghdad.

Enemy Fire Strikes Bagram

Coalition forces at Bagram Air Base in Afghanistan twice came under attack on Jan. 22, reported a Central Command spokesman at the base. In the first attack, a 107 mm rocket landed outside the base. It was followed shortly by small arms fire. There were no coalition injuries.

"We're used to hearing a lot of gunfire at night, but, when that rocket went off, it was a shock," said TSgt. Mike Wilhelm, a weapons loader for A-10s with the Maryland Air National Guard's 104th Fighter Squadron. Wilhelm's unit was on a 30-day tour in Afghanistan.

Bagram hosts about 450 USAF members and some 6,000 other troops—most of whom live in tents.

Officials say the enemy's attacks are not accurate, yet each rocket has a 115-foot killing radius, so they take the threat seriously.

"It's not a question of are we going to get hit, it's a question of when," said Brig. Gen. Greg Ihde, who has been directing air operations for Combined Joint Task Force-180 in Afghanistan.

Bush Releases FY04 DOD Budget

President Bush on Feb. 3 released the Fiscal 2004 Defense Department budget, requesting $379.9 billion—$15.3 billion more than the Fiscal 2003 appropriated budget. This marked a 2.6 percent increase, excluding inflation.

The Air Force portion is $113.7 billion, while the Army would receive $93.7 billion and the Navy and Marine Corps, $114.6 billion. The re-

mainder goes to defense agencies and defense-wide operations.

The budget includes targeted military pay raises up to 6.25 percent and lowers out-of-pocket expenses for service members living off base from 7.5 percent to 3.5 percent.

Officials said the budget does not factor in costs of ongoing operations worldwide. In depth information on the new budget will appear in subsequent issues.

Iran Pursues Nuke Technology

Iranian President Mohammad Khatami on Feb. 9 said that his country had gained the knowledge to process uranium ore and would do so for use in civilian power plants. He also said Iraq had begun mining the ore near Yazd in central Iran.

Some news reports claimed that Khatami said Iran would also reprocess spent fuel.

Both revelations have heightened Administration concerns that Iran actually is pursuing the means to develop nuclear weapons.

State Department spokesman Richard Boucher, said that it is more "ambitious and costly" to develop a complete nuclear fuel cycle. Such a capability "only makes sense if it's in support of a nuclear weapons program."

Iran publicly acknowledged in 1995 that Russia was helping Iran build a nuclear power plant near Bushehr and had agreed to supply uranium fuel for the life of the plant. The agreement calls for Iran to ship the reactor's spent fuel back to Russia.

Two other nuclear facilities under construction only came to light last summer. The facilities—at Natanz and Arak—were disclosed by an Iranian opposition group, and, according to the State Department, could "produce weapons-usable fissile material."

US May Cut Troops in Europe, South Korea

The Administration is considering a dramatic change in US military presence in Europe and South Korea. The goal would be to reduce or eliminate the current system of huge Cold War–era bases and move to a system in which materiel and equipment would be stockpiled at small facilities with only skeleton forces to maintain them.

Marine Gen. James Jones, just one month into his new job as supreme allied commander, Europe, briefed several members of Congress on what they termed his "preliminary thinking" to reduce and shift US forces in Europe. Jones's plan would close large bases and pare down what's left, eliminating huge garrison forces, instead the Pentagon would rely on lighter units that can quickly jump from hot spot to hot spot. The US would use the downsized facilities that remained for rotational training. Jones also suggested the possibility of establishing such a training facility in Eastern Europe.

The US has roughly 100,000 troops in Europe, the bulk of them in Germany. Most of them are Army. Jones's proposal would require a major shift in Army thinking and likely bring much resentment.

Although Jones emphasized to lawmakers that his idea has not been formally briefed at the Pentagon, it falls in line with Defense Secretary Donald H. Rumsfeld's thinking on a lighter, more flexible military force. Rumsfeld selected Jones for his present assignment, knowing that, as Marine Commandant, Jones had advocated bare-bones bases scattered around the world—known as the "lily pad" approach.

The Administration is also moving toward reduction of the US presence in South Korea. Negotiations are already ongoing to determine how the US might cut the number of facilities by almost half over the next 10 years. The US has approximately 37,000 troops stationed in South Korea.

Administration officials say the decision to eliminate bases and potential plans to reduce the number of troops has nothing to do with what appears to be a rising anti–American sentiment in South Korea.

"We are seeking a posture that is US presence suitable to each region, coupled with the ability to take effective military action promptly," said White House spokesman Ari Fleischer on Feb. 11. "Eleven years after the end of the Cold War, there is a school of thought to rethink the numbers and types of forces we have in different locations."

G&R Home Role To Increase?

Paul McHale, confirmed Feb. 4 to fill the new position of Assistant Secretary of Defense for Homeland Defense, told Congress that the National Guard would, in the coming months, become "even more deeply engaged in homeland defense." He added that to a lesser extent the Reserve would see greater participation as well.

Speaking at his Jan. 30 confirmation hearing, McHale said, "If anything, the Guard will in some ways be coming back to its roots, to defend the nation domestically."

He added, though, that both Guard and Reserve also must retain their overseas warfighting capability.

Lawmakers commented that the Guard and Reserve are almost fully committed. McHale said that the Pentagon is in the midst of a new review of the future roles and missions of the reserves.

VA Suspends "Better-Off" Vets

Department of Veterans Affairs in January announced that it would suspend additional enrollments of veterans in the lowest priority group—PG-8. The category includes veterans who do not receive compensation for a military-related disability and who have relatively high incomes.

According to the VA, growth in the number of veterans seeking VA health care—primarily those in PG-8—made it impossible for the VA to provide timely access to health care services. Since 1996, the VA rolls increased from 2.9 million to 6.8 million. More than half of all new enrollments came from Priority Group 8 veterans.

Even with the suspension of PG-8 veterans, officials said they expect another 380,000 veterans to enroll this fiscal year.

Announcement of the suspension accompanied release of the President's Fiscal 2004 budget, which VA Secretary Anthony J. Principi, said provided a "record" spending increase. The budget proposes $63.7 billion for Veterans Affairs.

"With this record budget increase , I expect access to medical facilities for severely disabled veterans to improve, along with a reduction in waiting times for all veterans," Principi said.

Reserve Affairs Post To Go?

Defense Secretary Donald H. Rumsfeld may ask Congress to let him drop three senior civilian positions, including the assistant secretary for reserve affairs. The function would be folded into the office of the undersecretary of defense for personnel and readiness, according to the *Washington Times*.

Reserve groups and many lawmakers oppose such a plan. Some even suggest the reserve affairs position should be elevated to undersecretary status.

The two other positions are the assistant secretary for special operations/low intensity conflict and assistant secretary for legislative affairs. Both also have strong support among lawmakers. Last year, Rums-

Hester Expects To Field the CV-22

Special operators remain optimistic the CV-22 Osprey will pass its new test regime so that regular production of the tiltrotor aircraft can resume, but the program cannot be immediately accelerated, according to Lt. Gen. Paul V. Hester, commander of Air Force Special Operations Command.

After two fatal crashes in 2000, the V-22 was grounded, redesigned, and confronted with a rigorous new test program. At the same time, production was cut back to a minimum sustaining rate so that large numbers of tiltrotors were not being built to the old and faulty specifications.

In a meeting with defense reporters Jan. 31, Hester said the demand for the CV-22 remains high. However, the Defense Department has not yet been able to prove "conclusively" that the airplane will do "what it has been touted to do," the AFSOC chief said. He added that tests results have been good so far, and CV-22 capabilities are "very exciting to us," if the aircraft lives up to its billing.

Pentagon acquisition chief Edward C. Aldridge has been one of the V-22's most prominent skeptics. He is expected this spring to make a decision on whether to move forward with the program.

The current test regime and crimped production limit AFSOC's short-term flexibility with the CV-22, Hester said. Decisions to accelerate the buy of special operations versions of the tiltrotor or to move ahead with alternate plans have to wait until the fate of the program is determined.

Once the V-22 finishes its current test profile, "then and only then" will AFSOC make the decision on whether to boost the planned per-year production number higher to field the full complement faster than planned, Hester said.

Senior defense officials in January said the department is looking at options for accelerating the CV-22 program because of the aircraft's transformational capabilities. The CV-22 builds on the Marine Corps MV-22, adding features such as terrain-following radar needed to help commandos infiltrate and leave from combat zones.

The general said he is looking forward to fielding the CV-22, which is able to hover and land like a helicopter but can tilt its engine nacelles forward in flight to cruise with the range and speed of a prop airplane. "I'll be out of the helicopter business ... by the end of the decade," Hester predicted.

"When we bring in the CV-22 and put it on the ramp, I will retire those 1966 vintage [MH-53] Pave Low helicopters that I've got sitting on the ramp that do magnificent work," he said. "It is time for them to be retired."

In early February, Aldridge told reporters that DOD's Fiscal 2004 budget request increases V-22 funding in the out years on the assumption that the tiltrotor will be approved for a return to regular production after 2004.

Nonetheless, Hester said AFSOC is also beginning to look at contingency plans in the event the much-delayed V-22 fails its test program.

USAF has already extended by about five years the service lives of AFSOC's MH-53s, Hester said. "If in fact the CV-22 does not pass its tests, I would expect that our immediate solution ... is to go in and do an evaluation of an extended [Service Life Extension Program] on the helicopters."

Such a move would be expensive, the general said, adding, "it would buy us time to turn to industry and ask them to give us options."

—Adam J. Hebert

feld unsuccessfully tried to cut the SOLIC post and merge its functions into the new assistant secretary of homeland defense office.

Defense officials indicated the proposal is part of an overall plan to streamline the Pentagon bureaucracy. Other possible moves would merge offices within the Office of the Secretary of Defense and the Joint Chiefs of Staff.

Commando Solo Spreads Word

The Air National Guard's EC-130E Commando Solo aircraft have begun broadcasting Pentagon press briefings into Iraq. The first to be transmitted was a Jan. 22 press briefing at the Foreign Press Center by Defense Secretary Donald H. Rumsfeld and Gen. Richard B. Myers, Chairman of the Joint Chiefs of Staff.

Rumsfeld told reporters that the aircraft would broadcast via radio the weekly briefings "because the truth matters."

Rumsfeld noted that every week he and Myers stand in front of independent journalists to try to answer their questions. "Some of the questions are tough, many are insightful, and all add to the information available to the American people and the people of the world," he said. "The truth is important; it matters; it is the foundation of justice."

Commando Solo crews from ANG's 193rd Special Operations Wing in Pennsylvania have been broadcasting taped messages into Iraq for several months. They fly outside Iraqi airspace.

Reservist Gets Medal of Valor

New York City Mayor Michael Bloomberg on Jan. 17 presented Dan McNally, a USAF reservist, with the New York City Police Department's Medal of Valor for his heroic actions on 9/11 at the site of the World Trade Center terrorist attacks.

He is a detective with NYPD's bomb squad but has been on active duty with the Air Force Office of Special Investigations since January 2002.

On 9/11, McNally,at his home in Manhattan, heard the first airliner strike the World Trade Center. When he saw the second strike on TV, he immediately reported to work and met up with other bomb-squad members at the WTC just after the first tower collapsed. They were clearing debris and directing civilians away from the area as the north tower began shaking. McNally and seven others were told that the tower was going to come down, but they went into Building 6, adjacent to the tower, anyway to look for anyone who might need help. In minutes, the north tower collapsed directly onto Building 6.

McNally and four of his group were spared but were stumbling in total blackness until they came upon someone with a flashlight. McNally took the flashlight and turned back into the destruction to look for survivors. The damage was too extensive. He made his way out and kept directing fresh rescue teams to the last area he had seen his teammates.

"I was in the company of very good men that day," McNally said upon receiving the medal. He could have returned to the NYPD in January but volunteered to stay on active duty.

USAF Aids Shuttle Search

Air Force officials said that active and reserve forces were pressed into action to aid search and recovery

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Wolfowitz on Prevention of New Catastrophes

Deputy Secretary of Defense Paul D. Wolfowitz, in Jan. 23 remarks about Iraq, emphasized the difference between real and fraudulent disarmament.

Wolfowitz told the Council on Foreign Relations in New York City that the threat posed by the connection between terrorist networks and states that possess weapons of mass destruction "presents us with the danger of a catastrophe that could be orders of magnitude worse than Sept. 11th." He reminded the audience that Iraq has had 12 years to disarm, as it agreed to do at the conclusion of the Gulf War. "So far, it has treated disarmament like a game of hide and seek."

Wolfowitz argued that weapons inspectors cannot disarm Iraq. "They cannot be charged with a 'search and destroy' mission to uncover so-called smoking guns," he said, adding that the inspectors cannot verify weapons destruction if there are no credible records of their disposition. "It is quite unreasonable to expect a few hundred inspectors to search every potential hiding place in a country the size of France, even if nothing were being moved," maintained Wolfowitz.

He noted that at least one UN chief inspector has said that confirming a country's voluntary disarmament is a job that should not take months or years. Real indicators of disarmament are readily apparent.

On concealment and deception. "In the past, Iraq made determined efforts to hide its prohibited weapons and to move them if inspectors were about to find them," said Wolfowitz. In 1991, inspectors found some prohibited equipment, but only because the Iraqis were moving huge devices used to enrich uranium out the back of a military base. He said that, over the years, Iraq's ability to move and hide its weapons has become more sophisticated.

On intimidation and coercion. Wolfowitz said that multiple sources revealed to the US that Saddam ordered the death of Iraqi scientists and their families if the scientists cooperated with UN inspectors. Saddam also tries to pressure inspectors by using crude blackmail and labeling them spies.

On obstruction. Former inspectors found that Iraq officials would not hesitate simply to change numbers on documents right in front of the inspectors. Wolfowitz noted that an Iraqi official confronted with a known lie, responded that "it is not a lie when you are ordered to lie."

Pentagon Names Top Contractors for 2002

In Fiscal 2002, DOD awarded $170.8 billion in prime contracts, according to the Pentagon's annual report on its top contractors. The top 10 DOD contractors with the amount of their awards (in billions) for 2002 and 2001 were:

	2002	2001
Lockheed Martin	$17	$14.7
Boeing	$16.6	$13.3
Northrop Grumman	$8.7	$5.2
Raytheon	$7	$5.6
General Dynamics	$7	$4.9
United Technologies	$3.6	$3.8
Science Applications International Corp.	$2.1	$1.7
TRW	$2	$1.9
Health Net	$1.7	$0.9
L-3 Communications	$1.7	$0.5

For the Air Force, the total amount of prime contracts awarded was $47.4 billion. The top 10 USAF contractors were:

Lockheed Martin	$10.2	$9.5
Boeing	$8.7	$7.0
Northrop Grumman	$2.1	$1.9
Raytheon	$1.9	$1.8
United Technologies	$1.7	$1.8
TRW	$1.2	$1.1
L-3 Communications	$0.9	—
North American Airlines	$0.6	—
General Dynamics	$0.5	$0.4
Dyncorp	$0.5	$0.4

operations following the Feb. 1 loss of the space shuttle *Columbia.*

All seven astronauts were killed when the shuttle disintegrated over Texas en route to Florida. (See "Two *Columbia* Astronauts Were In Air Force," p. 21.)

Officials estimate that debris fell across a 23,000–square mile area. Recovered wreckage is being sent to Barksdale AFB, La., for storage and review.

Participating USAF forces included an Air National Guard C-130 from Fort Worth, Tex.; ANG F-15 fighters from New Orleans; Air Force Reserve Command F-16 fighters from Fort Worth; AFRC KC-135 tankers from Tinker AFB, Okla.; and a C-141 airlifter from McGuire AFB, N.J. The Civil Air Patrol, USAF's auxiliary, also provided aircraft and personnel to aid search efforts.

Coordinating military assistance were the DOD Manned Space Flight Support Office at Patrick AFB, Fla., and the Air Force Rescue Coordination Center at Langley AFB, Va.

In addition, AFRC mortuary specialists volunteered to help prepare the remains of the astronauts for burial. Eight of the reservists were from Dover AFB, Del.; three from McChord AFB, Wash.; and two from Minneapolis–St. Paul, Minn.

Bush Pushes "Best Worker" Pay

The Bush Administration's budget proposes to limit the 2004 Civil Service pay raise to two percent. However, the budget includes a provision to establish a $500 million fund to boost the basic pay of the "best workers."

Federal supervisors would be able to increase the percentage given to top performers or those who possess critical skills. This type of reward system "is preferable to the traditional practice of evenly spreading raises across the federal workforce regardless of performance or contribution," states the budget proposal.

According to Administration officials, civilian pay raises in recent years have exceeded inflation rates. The two percent increase falls short of the 2.7 percent raise dictated by federal law to try to equalize Civil Service pay with pay in the private sector. However, the White House questions the methodology behind the law and maintains that an overhaul of the Civil Service pay system is overdue.

The performance-based fund would require Congress to change federal pay laws. Several lawmakers are already at odds with the Administration over the Fiscal 2003 Civil Service pay

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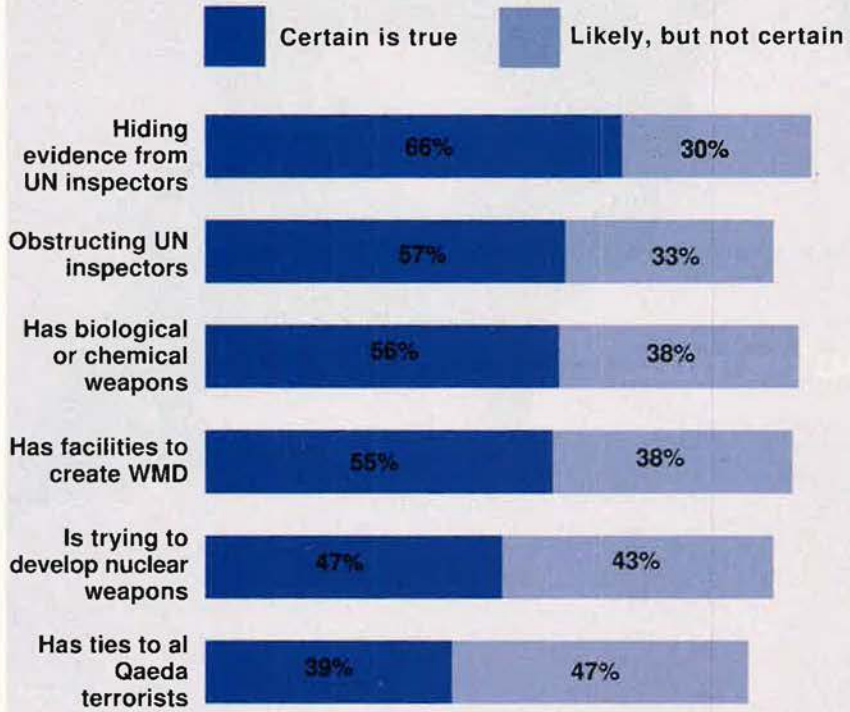
Bush, Powell Speeches Convince More Americans

Pollsters found that both President Bush's State of the Union speech on Jan. 28 and Secretary of State Colin Powell's remarks to the United Nations Security Council on Feb. 5 heightened American support for war with Iraq and clarified the issues for many Americans.

According to a CNN/USA Today/Gallup poll conducted Feb. 7–9, more than 63 percent of Americans expressed support for an invasion of Iraq compared to 52 percent before the two speeches. The level of support rose six percentage points after the Bush speech and another five points after Powell's remarks.

More than eight in 10 Americans believe all the charges against Saddam Hussein's regime in Iraq are at least likely to be true, with more than half of those convinced positively that four of the charges are true.



North Korea Is a Threat, but "Iraq Is Unique"

Why has the US taken different approaches to Iraq and North Korea? Defense Secretary Donald H. Rumsfeld said, "It is a fair question, and the answer is that the two cases are in fact quite different. Iraq and North Korea both pose serious threats, but Iraq is unique."

He explained, "Saddam Hussein possesses chemical and biological weapons, he has used chemical weapons against foreign forces and his own people, in one case killing some 5,000 innocent civilians in a single day. ... No living dictator has shown the deadly combination of capability and intent. ... In both word and deed, Iraq has demonstrated that it is seeking the means to strike the US, our friends, and allies with weapons of mass destruction for a reason: so that it can acquire the territory of its neighbors.

"North Korea by contrast, is a country teetering on the verge of collapse. Its history has been one of using its weapons to blackmail the West into helping stave off economic disaster. North Korea is a threat, to be sure, but it is a different kind of threat."

increase of 3.1 percent. They want to restore pay parity between Civil Service and military pay increases. (See "Aerospace World: Bill To Link Fed Civ/Military Pay," February, p. 14.)

Pay-for-performance systems have been proposed in the past but were dropped out of concern that favoritism would rule.

Close Excess Weapons Plants?

The Defense Department plans to push defense contractors to close excess production facilities. As an incentive, DOD wants to allow the contractors to retain money saved by closing unneeded plants.

Michael Wynne, principle deputy undersecretary of defense for acquisition, technology, and logistics, said Feb. 4 that there is no need to keep unneeded facilities running in anticipation of possible future requirements.

"We can shut down facilities and bring them up quickly if we need," said Wynne.

Speaking at a conference sponsored by the American Institute of Aeronautics and Astronautics, Wynne also said that the Pentagon wants large defense contractors to help expand the military industrial base by sharing research and development efforts with smaller companies. The Pentagon plans to rate its contractors on how well they share R&D funding and how well they develop competition among smaller firms.

At the same conference, Northrop Grumman head Kent Kresa said that smaller firms are reluctant to do business with the federal government because of current labyrinthine requirements.

"We in the defense industry have to become more proactive working with smaller and more nontraditional suppliers, domestic and foreign," said Kresa. In doing so, he added, industry will broaden its technology pool and be better able to meet future defense needs concerning biological, chemical, and cyberwar threats.

New B-52 Avionics Begin Tests

The B-52 bomber's upgraded offensive avionics system began undergoing tests late last year at Edwards AFB, Calif. The upgrade calls for replacing processors equivalent to old Commodore 64 computers with ones at a Pentium II level.

"It is the biggest improvement to the B-52 in 12 [to] 15 years," said Maj. Ed Bellem, B-52 flight commander and project pilot at Edwards.

The test period encompasses 80

sorties averaging eight hours each, plus several global missions that will last more than 24 hours. The extensive test program is a result of the 30 different weapons employed on the B-52.

The upgrade includes a new inertial navigation system, avionics control unit, data transfer system, and all associated hardware and software. The Air Force increasingly has had problems finding parts to repair and replace the B-52's existing avionics systems since original vendors either went out of business or switched to producing newer equipment.

Bonuses Go To Five Officer Fields

The Air Force on Jan. 31 announced that more than 6,000 officers in five critical-skill career fields can receive a retention bonus of up to $40,000. The payments would be made in four annual installments of $10,000.

The eligible categories are scientists, developmental engineers, acquisition program managers, civil engineers, and communications and information officers. To be eligible, an officer must have four to 13 years of commissioned service. Those who accept the bonus must commit to serve up to four more years.

USAF officials said the impetus for the bonus program stemmed from the Science and Engineering Summit held in December 2001. Over the past few years, these five career fields have had the lowest retention rate in the service, said Lt. Col. Dean Vande Hey with the Air Force Personnel Center, Randolph AFB, Tex.

Those officers who become eligible for the bonus before Sept. 30 must enter into an agreement with the Air Force by Aug. 31. For more information, call toll free at 866-229-7074.

DOD Changes Health Tracking

The Pentagon has developed a new method to track and assess the health of deployed troops. The object is to avoid a repeat of problems experienced after the 1991 Gulf War, according to Michael Kilpatrick, DOD's deputy director of deployment health support.

The new strategy, he said, will track an individual's health care before, during, and after a deployment.

DOD will issue medical questionnaires that help assess an individual's physical and mental health immediately before and after deployment. Physicians will check the questionnaires to see if there are any changes in an individual's health that may require medical attention. After that, the forms are to be sent to Walter Reed Army Medical Center in Washington, D.C., where they will be retained for analysis.

USAF photo by SSgt. Shane Cuomo

Aircrew members of the 64th Air Expeditionary Wing unload their bags in January after completing a combat mission for Operation Enduring Freedom. Their C-130 airlifter, from Little Rock AFB, Ark., reached 30,000 flying hours during the mission. Nicknamed "Bob," the airlifter was built in 1963 and served in the Vietnam War and Gulf War. The crew attributed Bob's durability to the aircraft itself and, more importantly, to the maintenance force.

DOD has also created three deployment health centers. Two of them covering health surveillance and health care are located at Walter Reed. The third, for health research, is located at the Naval Health Research Center in San Diego.

Kilpatrick said DOD is working on other efforts to enhance health protection for deployed forces. One would send preventive medicine and environmental surveillance teams to de-

USAF Develops Playbook

Air Force officials said the service is working up a "playbook" to help combatant commanders better manage air assets. In particular, it will help them set up forward operating locations—bare bases—for air assets.

The key will be to assemble "force modules" of the appropriate people and equipment to be used in a logical sequence, according to Maj. Gen. Timothy A. Peppe, special assistant for air and space expeditionary forces (AEF).

USAF's plan calls for five modules:

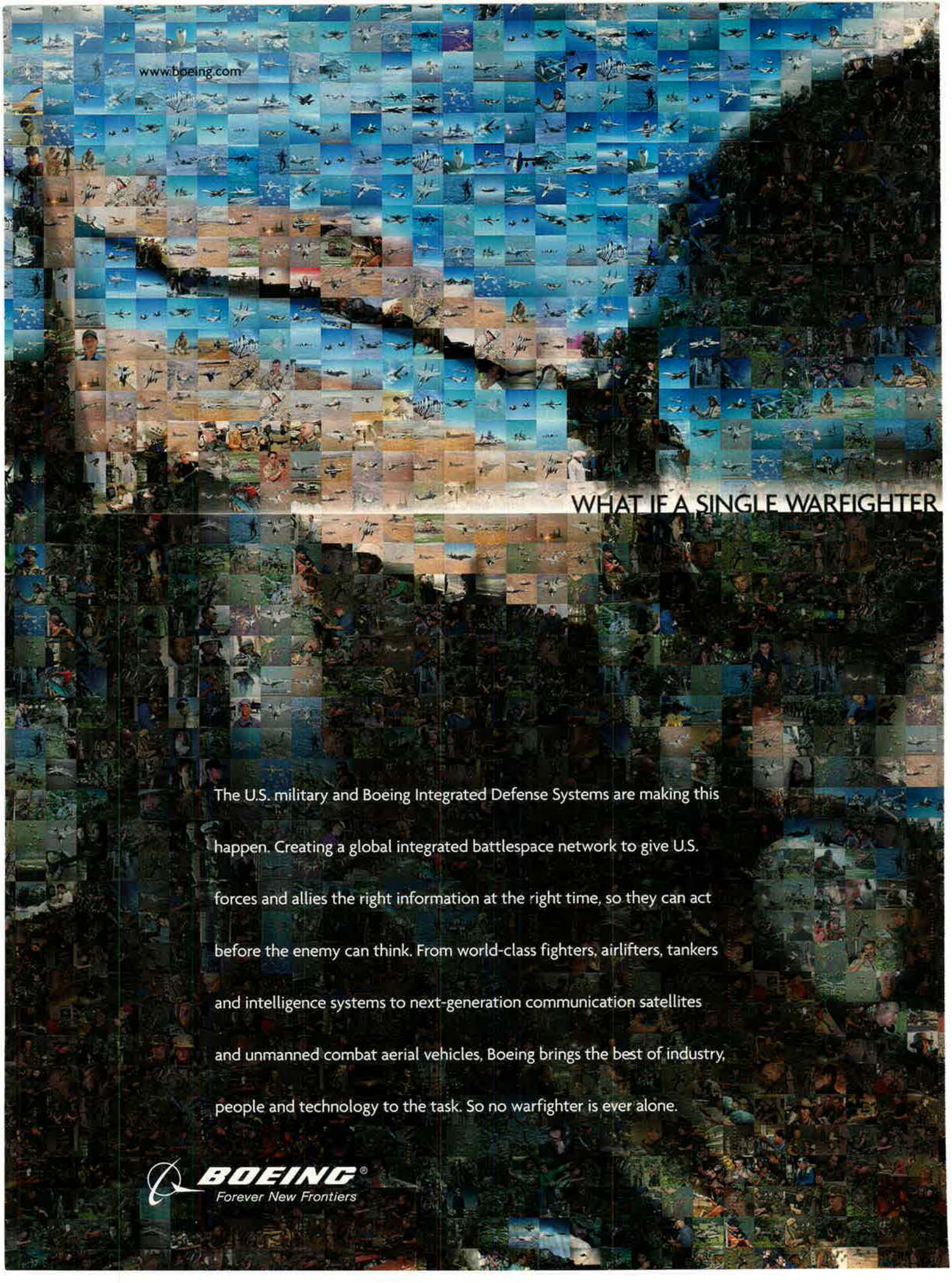
- Opening the base (airmen on the ground to assess and establish airfield operations).
- Providing command and control (the air expeditionary wing leadership).
- Establishing the base (expeditionary combat support).
- Generating the mission (the flying mission).
- Operating the base (the "rounding out" of base support).

Each module will contain the minimum number of troops needed to handle the required tasks, said Peppe. "If you bring in 800 people instead of 700, then you have to bring more people to cook meals, more tents, more power generators, or whatever," he said.

Peppe noted that the concept is not really new and was first suggested in 1989. In fact, the first module capability has been in use far longer.

"Air Mobility Command has been opening air bases with their tanker airlift control elements for over 30 years," said Peppe. Contingency response units in both US Air Forces in Europe and Pacific Air Forces have the capability to open and secure bases in their theaters, and Air Combat Command has developed the capability to secure forward locations with its 820th Security Forces Group out of Moody AFB, Ga.

Peppe said AMC will take the lead in testing the entire concept. USAF leaders expect to have all force module plans finalized by Nov. 1 and start establishing the necessary new unit type codes (the mix of personnel and equipment) for AEF 5 on Sept. 1, 2004.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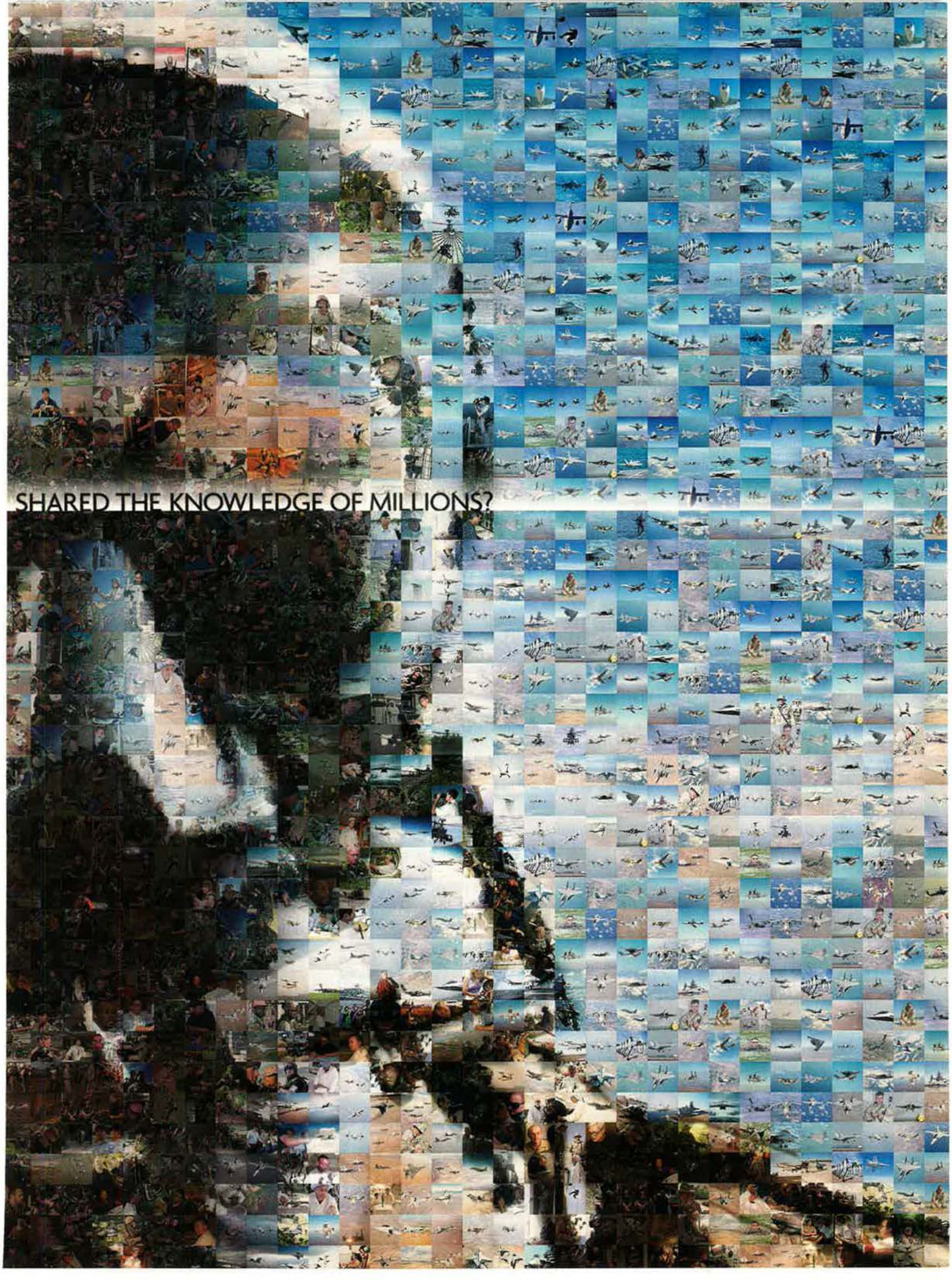
SHARED THE KNOWLEDGE OF MILLIONS?

Doolittle Raider McCool

Retired Lt. Col. Harry C. McCool, a crew member of aircraft #4 in the World War II Doolittle Raiders, died Feb. 1 in San Antonio. He was 84.

McCool, who was born in La Junta, Colo., in 1918, joined the Army Air Corps in March 1940. He attended navigator school and, after receiving his commission, served with the 17th Bomb Group.

He went to South Carolina to train as a member of then Col. Jimmy Doolittle's all-volunteer team. The Raiders were the first group to bomb Japan during World War II. Following that historic April 1942 action, McCool remained in the China–Burma–India Theater and flew 13 more combat missions. After participating in bond drives in the US, he served in Ninth Air Force in England, planning and flying combat missions over France and Germany.

McCool retired from the Air Force in 1968, then worked in Civil Service until 1988.

ployment areas to evaluate health threats on the battlefield.

Newsnotes
by Tamar A. Mehuron, Associate Editor

■ Defense Secretary Donald H. Rumsfeld on Feb. 7 announced that Hansford T. Johnson, undersecretary of the Navy for installations and environment, would serve as acting Secretary of the Navy while continuing his normal responsibilities. Susan Morrisey Livingstone, undersecretary of the Navy, asked to step down as acting Secretary, a position she assumed on Jan. 24, when former Secretary Gordon England resigned to work in the new Department of Homeland Security. Livingstone had previously asked not to be considered to succeed England.

■ USAF on Feb. 4 announced selection of 12 of 28 biomedical sciences corps lieutenant colonels for in-the-zone promotion to colonel. A board selected 1,265 of 1,765 line majors for promotion to lieutenant colonel. Other boards selected 178 out of 313 officers from judge advocate generals, chaplains, biomedical sciences, and nurses for in-the-zone promotion to lieutenant colonel.

■ Jordan on Jan. 29 received six out of 16 US F-16 fighters, as part of an ongoing bilateral military assistance program.

■ US military personnel and DOD civilians can now view, save, and print their W-2 wage and tax statements from myPay at https://mypay.dfas.mil. Military retirees and annuitants have the same access to their tax form 1099s. This secure online service permits individuals to make changes to pay account information, 24 hours a day, year round, eliminating the need to visit a finance office.

■ A new Web–based emergency data card service, scheduled to kick-off Jan. 27, launched early so that it could be used by 1,000 airmen deploying from Eielson AFB, Alaska. In its first week of operation, said USAF officials, another 20,000 personnel logged on to update their emergency contact information. For more information, go to the AFPC Web page at www. afpc.randolph.af.mil, and select the vMPF (virtual Military Personnel Flight) logo at the top of the page.

■ An Air Force pilot ejected safely from his U-2 aircraft before it crashed Jan. 26 near Hwa Song, south of Seoul, South Korea. The pilot, who suffered a back injury but is expected to recover fully, is assigned to the 5th Reconnaissance Squadron at Osan AB, South Korea. USAF officials said four civilians on the ground were injured by the crash but gave no further details on their status. An Air Force board is investigating the cause of the crash.

■ A Boeing 767 fuselage now provides realistic on-site medical training to students at the Air Force School of Aerospace Medicine, Brooks AFB, Tex. The training device, configured as a patient-transport aircraft, joins C-130 and C-9 mock-ups already at the school. Currently, USAF uses the 767 only as a civilian airliner and cargo hauler, but it could be configured for aeromedical evacuation. The Air Force plans to retire its C-9 aircraft. In a medical configuration, the 767 can carry 111 litter-bound patients plus electric generators and oxygen tanks.

■ Pilot error caused the Oct. 25, 2002, collision of two F-16Cs about 82 miles southwest of Hill AFB, Utah, according to USAF investigators. One pilot, 1st Lt. Jorma D. Huhtala, was killed, while the other, Capt. David Roszmann, ejected safely. Both pi-

Senior Staff Changes

PROMOTION: To **ANG Major General:** William J. **Lutz.**

CHANGES: Brig. Gen. (sel.) Paul F. **Capasso,** from Dir., Comm. & Info., AETC, Randolph AFB, Tex., to Dir., C4 Sys., TRANSCOM, Scott AFB, Ill. ... Brig. Gen. John H. **Folkerts,** from Cmdr., 347th Rescue Wg., ACC, Moody AFB, Ga., to Vice Cmdr., AFSOC, Hurlburt Field, Fla. ... Brig. Gen. Gilbert R. **Hawk,** from Dir., C4 Sys., TRANSCOM, Scott AFB, Ill., to Spec. Asst. to Cmdr., Tanker Airlift Control Center, AMC, Scott AFB, Ill.

SENIOR EXECUTIVE SERVICE CHANGE: Michael A. **Aimone,** to Dep. Asst. Secy., Basing & Infrastructure Analysis, OSAF (Instl. & Env.), Pentagon. ■

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lots failed to properly coordinate their flight paths during a tactical turn on a training mission. Results of the investigation into a second fatal F-16 accident, which occurred Nov. 13, out of Hill were still pending.

■ Defense transportation officials will conduct a one-year test to expand space-available travel privileges to family members traveling within the continental United States. The test begins April 1 and runs through March 31, 2004. Dependents of active duty and retired military personnel will be able to travel space-A aboard military flights when accompanied by their sponsors. To register for space-A travel, active duty sponsors must be on leave or a pass and remain in that status while awaiting travel and through the entire travel period.

■ Three airmen helped rescue a Japanese woman Jan. 15 following an auto accident near Kadena AB, Japan. The three 353rd Special Operations Group airmen were stopped at a traffic light, when a car fishtailed through the intersection, then smashed into a guard rail, pinning the woman passenger inside. Capt. Christian Lichter and SSgt. Michael Maroney cut away a heavy parka twisted around the woman's neck, choking her. TSgt. Frank Hill directed traffic around the scene. Japanese paramedics arrived about 15 minutes later. The airmen were later told the woman had a chance for full recovery.

■ Members of a USAF and US Army military medical team in Honduras saved the life of a newborn boy on Jan. 19. The personnel, from Wilford Hall Medical Center and Brooke Army Medical Center, both in San Antonio, were pressed into service by the Honduran hospital staff, who had just performed an emergency Cesarean birth, to help with the newborn, who was not breathing. Two of the team members already had left the hospital but were called back to assist. The US medical team inserted a breathing tube into the baby's airway and an IV in his umbilical cord to provide fluids to raise his blood pressure. Two hours later, the baby was stable. The US team working on the infant were Lt. Cols. James McLane, August Pasquale, and Robert Smith, Maj. Kathy Weesner, and SSgt. Sergio Norat.

■ Civil Air Patrol has streamlined its purchase of aircraft to make CAP more responsive to homeland security missions. The Air Force auxiliary has signed contracts with Cessna Aircraft Co., Maule Air, Inc., Gippsland Aeronautics, and Luccombe Aircraft Corp to purchase various types of CAP aircraft as they are needed, bypassing traditional contractual negotiations lasting several months.

■ DOD awarded its Chief Information Officer Award team honors for 2002 to the US Air Forces in Europe Network Operations and Security Center, Ramstein AB, Germany, for developing information technology solutions to improve information assurance for more than 40,000 customers across 10 European and Asian countries. USAFE's Col. John M. Maluda received the second place individual award for a computer security initiative that established a common standard for computer security operations.

■ The National Board of Medical Examiners notified officials at USAF's Wilford Hall Medical Center, Lackland AFB, Tex., that their medical residents are in the top one percent of residents. Out of 398 resident programs nationwide, the Wilford Hall residents placed third on their medical-resident-in-training examinations.

■ Depending on rank, military members who served or are serving in combat zones for the war on terror can exclude from federal income tax either all or some of their active duty pay and certain other pays. Current combat zones are Afghanistan, specified parts of Kosovo, and the Persian Gulf. Members in other areas specified as qualified hazardous-duty areas are eligible for the same tax breaks. The Armed Forces' Tax Guide for 2002 is available for download at www.irs.gov/pub/irs-pdf/p3.pdf. The Air Force said personnel with specific questions should contact unit personnel or pay officials or a unit tax assistance officer. ■

Russell Rourke, 15th Air Force Secretary

Russell A. Rourke, Secretary of the Air Force from December 1985 to April 1986, died of cancer Jan. 19. He was 71.

Rourke only served five months as the Air Force's top civilian, retiring early for personal reasons. He had served in several administrative and liaison positions in Congress and the White House before being named Assistant Secretary of Defense for Legislative Affairs in 1981 during the Reagan Administration.

He was born in New York City in 1931 and graduated with honors from the University of Maryland. He earned a law degree from Georgetown University in 1959.

Rourke joined the Marine Corps in 1953, serving in Korea as a first lieutenant. Following his active duty tour, Rourke joined the Marine Corps Reserve, from which he retired in July 1985 as a colonel.

After resigning as Air Force Secretary, Rourke became president of Orion Group, an Arlington, Va.–based aerospace consulting business. He retired in the early 1990s.

Two *Columbia* Astronauts Were in Air Force

Two of the seven astronauts killed in the Feb. 1 *Columbia* space shuttle disaster were serving US Air Force officers.

■ Col. Rick D. Husband, 45, mission commander. He received his commission in 1980 and attended pilot training at Vance AFB, Okla., then flew F-4 Phantoms. He entered the USAF Test Pilot School at Edwards AFB, Calif., in 1987. As a test pilot, he flew the F-4 and all models of the F-15. He served as an exchange pilot with the RAF. NASA selected him to be an astronaut in December 1994, and he flew as pilot in 1999 on STS-96 when the shuttle first docked with the International Space Station. Husband had been a member of the Air Force Association since 1982.

■ Lt. Col. Michael P. Anderson, 43, payload commander. After receiving his commission in 1981, Anderson was assigned as the chief of communication maintenance at Randolph AFB, Tex. He was selected in 1986 for pilot training at Vance, after which he was assigned to Offutt AFB, Neb., as an EC-135 pilot. NASA also selected Anderson in December 1994 to train as an astronaut. He flew on STS-89 in 1998.

USAF shook up the Raptor program to better meet cost and performance goals and avoid further turbulence.

The F/A-22 Gets

By **John A. Tirpak**, Executive Editor

Lockheed Martin photo by Kevin Robertson

THE Air Force last December restructured its top-priority F/A-22 fighter program, attempting to stabilize the project after months of contracting, testing, and funding turbulence. The move will slow the pace at which the Raptor will replace the F-15, and it will have significant impact on the size of the overall fighter fleet in the next two decades.

Specifically, the changes could cause a fighter shortage to arrive six years early—in 2011, not 2017, as expected.

That will happen if the Air Force approves a three-year postponement in purchases of the F-35 Joint Strike Fighter, which are now set to begin in 2008. That step is being considered. The service wants to avoid having to buy large quantities of F/A-22s and F-35s at the same time. Delays in F/A-22 production have made this collision inevitable, unless something changes.

Back on Track

An F/A-22 fires an AIM-9 missile in a supersonic test launch over White Sands Missile Range, N.M. The stealth fighter program has been restructured to get costs under control and speed testing.

Shoving F-35 production forward would also give the Navy and Marine Corps an opportunity to take more of the initial batches.

Whether the Air Force will suffer a fighter shortage, and for how long, isn't known to a certainty. The service is still calculating how small it responsibly can make the fighter fleet, given the advent of more-sophisticated aircraft armed with smaller yet more-precise munitions.

The increase in effectiveness will push down size of the inventory's numerical requirement, but the Air Force still needs to maintain an adequate rotational base to fulfill the needs of overseas deployments and requirements for homeland defense, training, maintenance, and test. This will tend to push the numbers back upward.

Final resolution of the matter may not come for years, until the new airplanes see some operational service.

In the restructuring, the Air Force reduced its notional production of F/A-22 Raptors from 339 to 276 airplanes. (This figure is expected to change almost annually for a while.) Plans call for producing a maximum of 36 Raptors per year, though it is not clear when that rate will be achieved.

$43 Billion Pot

Moreover, the production program is to be completed within the current $43 billion budget. Congress imposed that cost cap in an effort to exert fiscal control. USAF senior leadership has pledged not to raid any other programs either to fix or improve the F/A-22 program.

For all that, the Air Force maintains it eventually will acquire all of the F/A-22 fighters it needs and do so with DOD's blessing. The Raptors now in test are meeting or exceeding key performance requirements, and service officials believe

Lockheed Martin photo by John Rossino

the F/A-22 will become less costly as the production line begins churning out fighters at a steady pace.

"What we want to do is get to a stable [production] rate," Air Force Secretary James G. Roche told *Air Force* Magazine. Once production stabilizes at a predictable rate, he said, "that's when you start going in and honing costs and doing different things" to reduce the unit cost of the airplane.

Plans once called for building the F/A-22 in quantities as great as 56 a year, but achieving that figure would have required a tremendous additional investment in tooling and the hiring and certification of many more workers, Roche said. These factors, he thought, would have added risk, cost, and delay to the program.

Even going to 38 per year required adding night and weekend shifts and significantly increased costs, he said.

"We don't see the numbers of employees able to go much higher, [and] we don't see the subcontractors being able to go much higher" than 36 Raptors per year, Roche said. The Secretary said that, when he made this determination, prime contractor Lockheed Martin was relieved.

"They were grateful," said Roche. "They were in a panic about the 56 [per year] number."

Roche expects the F/A-22 to recover from its current difficulties. He thinks the forthcoming turnaround could mirror that of the C-17 transport program, which, in the 1990s, went from dire quality and schedule problems and a cost of $400 million per airplane to steady delivery of top-quality aircraft at a unit cost of about $200 million. Planned C-17 production has shot up from 40 to 180 aircraft, with more in store. And, noted Roche, the Raptor's problems are far less severe than were those of the C-17.

Photo by Erik Simonsen

At top, the 11th Raptor in the fleet—the fifth F/A-22 to be devoted to Initial Operational Test and Evaluation—departs the factory at Marietta, Ga. Here, Raptor No. 2 prepares for yet another test sortie at Edwards AFB, Calif. The Raptors now in test are meeting or exceeding key performance requirements.

New Requirement: 381 Raptors

The service's new stated requirement is 381 F/A-22s, a number that would provide one squadron for each of USAF's 10 Air and Space Expeditionary Forces (AEFs), plus backup, test, and attrition reserve. A Defense Planning Guidance study conducted by the Pentagon last year agreed with the Air Force that 381 F/A-22s was the right number. The F/A-22's ability to penetrate modern air defenses and best any projected fighter in combat was touted as a crucial enabling capability for the 21st century US military.

That new figure has not yet received explicit endorsement from the Office of the Secretary of Defense. However, DOD leaders will allow the service quite a bit of latitude on the pacing of production and the freedom to implement management changes to get the program back on track, Roche reported.

Roche also expects that, once the F/A-22 production line stabilizes, unit costs decline, and the aircraft proves itself in service, the new fighter will "sell itself," and the nation will produce many more than the 339 that the service has been using as a target since the 1997 Quadrennial Defense Review.

According to Roche, the F/A-22 also represents "the best chance we have to deal with cruise missiles" in a homeland defense role but did not include cruise missile defense in the calculation leading to 381 airplanes. He wanted to avoid the appearance of "special pleading" and relied instead on the 10–AEF model, which needed no special justification.

Secretary of Defense Donald H.

Rumsfeld was impressed with the case the Air Force made for the F/A-22, Roche reported, but he did not formally adjust the production target. "Everyone agreed that there was no reason to have to make that final decision" just now, Roche said.

The Air Force case for buying more F/A-22s "was sufficiently compelling," Roche said, to convince Rumsfeld to stick with earlier plans "and to give us a chance." He was referring to an August 2001 decision of the Defense Acquisition Board to let the Air Force buy as many F/A-22s as it could with $43 billion in production funds.

At that time, the Air Force said it could produce 331 Raptors with that amount. (USAF had already bought eight Raptors, so the true Air Force figure is 339.) However, the Pentagon's Cost Analysis Improvement Group thought USAF could produce no more than 295 (or 303, counting the first eight airplanes).

Thus, the difference in estimates was 36 airplanes.

Undersecretary of Defense Edward C. Aldridge, the Pentagon acquisition, technology, and logistics chief, agreed to let USAF try for the higher number, permitting the service to make investments in produceability that would lower unit costs down the road.

Roche is optimistic the 339-fighter fleet is attainable in the long run. His optimism is based on the fact that early lots of F/A-22s will be more expensive because of larger-than-expected up-front expenses. Those costs largely will be amortized by the time the production line gears up and begins producing at a steady rate, he pointed out.

USAF photo by SSgt. Jeremy T. Lock

The F-15 recently has been saddled with speed restrictions to prevent in-flight catastrophic failures. Here, F-15s from the 159th Fighter Wing, Louisiana ANG, fly on a training mission.

Current airplanes are coming in at a unit cost of $121 million—$10 million more than expected just last summer, but the next batches will carry lower price tags, Roche asserted. "We see that, at about 100 planes, the marginal cost is going to be $75 million to $80 million" per Raptor, Roche said.

Part of the reduction will stem from the falling cost of avionics. Roche brokered a deal on F/A-22 radars, cutting the unit cost from $8.9 million to $4.6 million. How did he do this? In his previous job as a top executive of Northrop Grumman, Roche led the team that developed the Raptor's radar and knows what the company can charge and still turn a handsome profit.

"I built it," Roche said, grinning. "My team. They can't lie."

Looking for Efficiencies

Roche explained that the program will benefit from Moore's Law. This axiom—formulated by legendary Intel executive Gordon E. Moore—suggested that computing power doubles and its cost declines by half every 18 months. This should improve the Raptor's bottom line, as its processor components become easier to produce and cheaper to make.

Air Force Chief of Staff Gen. John P. Jumper, speaking with *Air Force* Magazine, noted these initiatives and said more are coming.

Jumper said, "We want the same chance to go work with the other subcontractors, on the engine and avionics and the like, to be able to get those same efficiencies, which you can only get if you have a stable program."

Rumsfeld has supported that line of thinking, said Jumper. He claimed, "Our [production] estimate will be much higher [than the currently stated

USAF photo by MSgt. Thomas J. Meneguin

Note the H-shaped reinforcers, helping to hold this F-16 together. The Air Force does not want to undertake a costly service life extension on its F-15s and F-16s, but delays in modernization may force the issue.

USAF has removed obstacles to getting the F/A-22 through flight test. The test program has been streamlined of unnecessary tasks, and USAF leaders are confident that Initial Operational Capability will be achieved in late 2005.

276 aircraft] once we get to go out and work on these efficiencies." There will also be improvements in cost once the production line settles into a rhythm and "the learning curve takes us down rapidly," Jumper said.

Several factors got the F/A-22 project into trouble last year, Roche explained. One problem stemmed from the DPG summer study itself. The team analyzing the need for the Raptor had been directed to consider buying as few as 180 aircraft. Contractors were aghast that DOD was even considering such a move. As a result, vendor costs soared.

"When the suppliers saw the 180 number—or less—they got hyper, and they started upping their prices because they have to be able to get their money back," said Roche.

The Secretary went on to say that these were mostly start-up costs, which will now be amortized early in the program, making later aircraft that much less expensive.

The summer study coincided with discovery of new problems within the F/A-22 development program.

Unlike production, development does not labor under a cost cap. Air Force auditors noted that spending on development was starting to soar. By fall, USAF officials estimated development to be over plan by perhaps $690 million. By December, the figure had ballooned to $1 billion. Air Force acquisition executive Marvin R. Sambur said he would cut six Raptors to cover the amount. (See "Aerospace World: F/A-22 Development Cost Issue Grows," January, p. 9.)

Some of the development cost increase was standard for a test program. The F/A-22 had an acoustic problem, "canopy howl," which had to be fixed. There were problems with overheating brakes and with "fin buffet," an aerodynamic battering of tail surfaces.

However, much of the cost increase was simply the result of the program having been shortchanged during the long "procurement holiday" in the 1990s. Many corners had been cut, and the Air Force was starting to see the effects.

"Horrible" Budget Actions

There were "horrible budget constraints" on the Raptor program in the last 10 years, Roche said. Things that should have been budgeted for—but weren't—included "spare parts, ... backup for software integration, ... budgeting for the 'unknown unknowns' that come about with integration and test."

When something broke on one of the precious few F/A-22 test aircraft, the part had to be cannibalized from another airframe or made to order. Why? Previous Air Force leaders never bought spare parts to account for this test period, Roche said.

In one case, the entire test team—Roche described it as a "standing army" of engineers, technicians, software specialists, managers, and support personnel—was left waiting while a single 18-inch piece of specialized hydraulic line was fabricated. The cost to maintain this team was $30 million a month.

In addition, Lockheed Martin was hit with a seven-week strike that delayed the test program because test aircraft were not being finished and sent to Edwards AFB, Calif. At times, the avionics operating system crashed.

Some problems stemmed from the way in which officials had arranged the test program. Jumper noted that the test team was taking an overly

Lockheed Martin photo by Kevin Robertson

USAF leaders are anxious to get the F-35 to replace the F-16 and A-10 fleets but might be willing to wait for it a little longer if delay would promote stability in the F/A-22 production effort. Of the two, the F/A-22 takes priority.

meticulous approach to verifying those test points which everyone knew the airplane could achieve. Jumper directed the team to focus on fewer and more representative test points, with concentration on those areas where confidence "was only at the 50 percent level."

Jumper was shocked to discover that the Raptor flight-test program was developing F/A-22 tactics—a function usually, and wisely, left for operators to work out at a later time.

"The test guys are way too involved in the tactics," said Jumper. "They had for themselves there a couple months' worth of sorties that we don't want test pilots doing. We don't want the test pilots out fighting the airplane. We want them to tell us if it tracks stable."

Roche said, "We found the test program, the [System Program Office], everybody intent to just have this go on, to check every I and cross every T, with no sense of urgency." At such a pace, the test effort could have gone on almost indefinitely.

Secretary Roche and General Jumper think Congress will respect USAF's effort to get the F/A-22 back on track within its cost cap. Given the freedom to manage the program, they believe they can afford at least 339 Raptors.

Three Raptors sit on the ramp at Edwards AFB, Calif. The new flight-test director at Edwards has been given the tools to remove minor stumbling blocks, and, since the program restructuring, the pace of testing has picked up considerably.

The revelations, coming at the time when the Air Force was pitching the requirement for 381 aircraft to Rumsfeld, "put us in a very awkward position to have to explain," Jumper observed with notable understatement.

Adding Discipline

Rumsfeld allowed Roche and Jumper to take steps to "put some discipline back in the system," Jumper said. The service bought spare parts for the Raptor test birds, though it may take as long as a year to fill the bins. The flight-test program was streamlined, and the program manager and flight-test director were reassigned. Lockheed Martin's program manager was replaced, also.

"What we wanted was for the whole program [workforce] to realize how serious we were," Roche noted. These officers were reassigned without prejudice because, in Roche's view, they were doing things the way they had always been done—a way that had become inappropriate, given the priority of the program and the resources available to make it perform.

The new flight-test director at Edwards is also commander of the test center and so can "shift his resources back and forth" to remove simple stumbling blocks like the availability of a tanker or other seemingly minor issues. He reports directly to Roche and Jumper on a weekly basis on progress achieved.

Since the changes, the pace of testing has picked up considerably, Jumper said. He noted that, despite the delays of recent years, the Air Force still expects the F/A-22 to achieve Initial Operational Capability on schedule in late 2005.

Rumsfeld has long worried about an impending "bow wave" of funding commitments in which bills for many production programs come due all at once in the years 2008 and beyond. To avoid just such a problem, the Air Force always planned to stagger its buys of F/A-22s and F-35s, and the recent changes introduce some peril. Still, stretching out the Raptor production may not pose as much budgetary risk as would seem, Roche said.

"I may, as a guy from industry, believe that the F-35 estimates today are optimistic," he asserted. Should there be a delay in the program—as there has been in almost every other

Photo illustration by Erik Simonsen

The F/A-22 has unprecedented fighter and attack capabilities. Among its transformational qualities are a balanced design, including stealth, supercruise speed, advanced integrated avionics, and low-observable control surface edges.

fighter program since the 1960s—there would be a window into which the F/A-22 production could be extended.

Additionally, the bulk of USAF's F-35 buys are not at the front end, Roche noted. The Navy and Marine Corps could "take the heavy dose of the early ones, and they need them more. ... It helps us to come in a little later."

Raptor Over F-35

Roche also suggested that the F-35 might be sacrificed to salvage the F/A-22.

He declared, "The F/A-22 is more important than the F-35, operationally." The F-16, he went on, "is still a remarkable system, which is evolving more and more because of electronics, conformal fuel tanks, and other things. So we have ways to cope with a difficult future."

The key thing, Roche summed up, is for the Air Force to deploy the F/A-22 in the needed numbers. With that, said Roche, "if we had to, we could fall back on something less than the F-35" to provide the necessary mass of fighters.

The Air Force bought its F-16s in large lots; the buys ran to more than 200 a year in the 1980s. These aircraft will begin to age out of the inventory in similarly large blocks beginning in 2007, when the first wave exhausts an 8,000-hour airframe life. Meanwhile, new F-16s are still entering the inventory and will not reach retirement age until about 2025.

The timing of the F/A-22 and F-35 entries into the fighter inventory is far from trivial. The F-15C fleet has been hard used over its lifetime and is showing its age. Several have experienced in-flight catastrophic failures. Last April, noted Roche, an F-15 flying a high-speed missile test mission out of Eglin AFB, Fla., disintegrated over the Gulf of Mexico. The F-15 has been saddled since then with speed restrictions to prevent a repeat of that accident.

Moreover, the F-15s have "a tremendous increase in recurring inspections," Jumper said. Inspections every 10 to 20 hours are required for those items "that have become common failure parts." The rate at which engines must be thoroughly inspected is also up, and depot maintenance is taking longer for the F-15.

Desperate Effort

Roche, noting that the F-15 is rapidly approaching retirement, said, "We're trying desperately to avoid a situation where we're trying to build the F/A-22 and SLEP [perform a service life extension program on] the F-15s." As he put it, "We can't do that."

Current estimates peg the cost of a 10-year service life extension at upward of $5 billion.

The F-16 fleet will see a rapid numerical decline in the period 2010–18 when the F-35 is supposed to fill in behind it. Contemplating possible delay in F-35 production, Air Force planners have shaped an F-16 modification package that would extend the fighter's service life by another 4,000 hours, to 12,000 hours. Roche would like to avoid that, since it would be costly—$8 billion, by some estimates—and only keep the fleet in action for another 10 years. USAF could be facing yet another bow wave in 2017, this time with no cushion.

To head off such a problem, the Air Force is putting more money into F-15 and F-16 spare parts, and it is paying off in higher readiness rates, Roche and Jumper said. Maintainers "are holding those airplanes together very, very well."

They need to. Even with a buy of 381 F/A-22s, the Air Force will have to keep at least a handful of the lowest-mileage F-15s in the fleet through the early 2020s—at a point where they will be nearing 40 years old.

The problem might be aggravated by early retirement of USAF's A-10 fleet. Under existing plans, the A-10s would stay in action until 2021. However, a proposal now working its way through the Air Force calls for phasing out the Warthogs by 2018 as a cost-cutting measure.

Likewise, USAF expects to hang onto its 1980s–vintage F-117 stealth fighters until about 2020. However, the Air Force would like to replace F-117s with F/A-22s, adding speed and agility to the quality of stealth, which the F-117 was first to exploit in battle.

Roche pledged that the Air Force will play no tricks to bring the F/A-22 into the fighting force. The service, he said, will never deploy airplanes that can't fly as advertised or that lack the spare parts to operate. Such games were played with F-15s in the "hollow force" days of the 1970s. "We're not going to have a Potemkin Village fleet of F/A-22s," he insisted, adding, "I'll take the heat" if the F/A-22 misses its IOC date.

Roche and Jumper hope that honesty in explaining and tackling the F/A-22's teething pains—without requesting more money to fix them—will go a long way on Capitol Hill.

"My guess is that when we say, 'We kept our word to you,' they'll accept that," Roche said, pointing out that he and Jumper have staked their professional reputations on the outcome. ■

Verbatim

By John T. Correll, Contributing Editor

Osama Sets Example

"We've got to ask, why is this man [Osama bin Laden] so popular around the world? Why are people so supportive of him in many countries ... that are riddled with poverty? ... He's been out in these countries for decades, building roads, building schools, building infrastructure, building day care facilities, building health care facilities, and the people are extremely grateful. ... We have not done that. ... How would they look at us today if we had been there helping them with some of that rather than just being the people who are going to bomb in Iraq and go to Afghanistan?"—***US Sen. Patty Murray (D–Wash.) to students at Columbia River High School, Vancouver, Wash. Dec. 18.***

One World

"In an interdependent world, America can lead but not dominate. ... What is America's responsibility at this moment of its dominance? I believe it is to build a world that moves beyond interdependence to an integrated global community of shared responsibilities, shared benefits, and shared values. America must support the institutions of global community, beginning with the United Nations. ... [The UN] must have our full support in building an integrated global community."—***Former President Bill Clinton,* International Herald Tribune *column (subtitled "One World"), Dec. 19.***

Notice to the Neighborhood

"In these circumstances, we also cannot fulfill the Non-Proliferation Treaty, the basic clause of which is the obligation of nuclear states not to use the nuclear weapon against states which do not possess it."—***Pak Ui Chun, North Korea's ambassador to Russia, quoted in the* Washington Post, *Jan. 1.***

And That Solved the Problem?

"It's amazing that Bush's defenders continue to accuse the Clinton Administration of causing this problem through cowardly appeasement in 1994. Amazing, because in 1994 Clinton gave the North Koreans to understand that its pursuit of nuclear weapons at its Yongbyon facility was unacceptable, and if they didn't halt it, the facility would be attacked and destroyed. (Sure, fuel oil shipments and new power plants became an important carrot, but we mustn't forget the stick that was part of the deal that defused the 1994 crisis.)"—**Honolulu Advertiser *editorial, Jan. 3.***

Carrots and Sticks

"In 1994, faced with a similar challenge, the United States agreed to provide North Korea half a million tons of fuel oil annually and construct two civilian nuclear reactors in return for a freeze on Pyongyang's nuclear weapons program. ... The agreement was front-loaded with benefits for North Korea, even allowing it to retain material to develop more nuclear weapons and advanced missiles that will soon be capable of striking the continental United States. In exchange, North Korea—a regime infamous for its deceit, hostility to the United States and its allies, and the megalomania of its ruler—provided a mere promise of future good faith. Regrettably, the Clinton Administration pursued a policy that was all carrot and no stick. ... We clearly enjoyed a false peace from 1994 to 2002."—***Sen. John McCain (R–Ariz.),* Weekly Standard, *Jan. 20.***

Carter Solution, One More Time

"The announced nuclear policies of North Korea and the American rejection of direct talks are both contrary to regional and global interests. Unfortunately, both sides must save face, even as the situation deteriorates dangerously. To resolve this impasse, some forum—perhaps convened by Russia or China—must be found within which these troubling differences can be resolved. The principles of the Agreed Framework of 1994 can be reconfirmed, combined with North Korea's full and verifiable compliance with the nuclear Non-Proliferation Treaty and a firm US declaration of nonaggression against North Korea, so long as all agreements are honored."—***Former President Jimmy Carter, intermediary in negotiating the 1994 agreement,* Washington Post, *Jan. 14.***

Some Underpaid, Some Not

"Our analysis will reveal that, in some cases, we are now paying folks more than their contemporaries in the private sector, and so it may be time to re-look whether or not [wage-growth-plus-a-half-percent] needs to continue for all pay grades all the time. ... [Basic pay for] our most junior enlisted and our most junior officers is significantly better than the pay of [civilian] counterparts, based on age and experience and education levels on the outside."—***Charles S. Abell, principal deputy undersecretary of defense for personnel and readiness, DOD briefing, Dec. 23.***

All Week Long

"Many see the Air National Guard as a reserve force, a Cold War force, but no longer. The average pilot flies six to eight sorties a month. There's no more weekend warrior stuff."—***Lt. Gen. Daniel James III, director of the Air National Guard, quoted by Associated Press, Jan. 7.***

Franklin Delano Rumsfeld

"He is running the war on terrorism the way FDR ran World War II."—***Historian Eliot Cohen on Rumsfeld,* Los Angeles Times, *Jan. 4.***

Don't Cut F/A-22

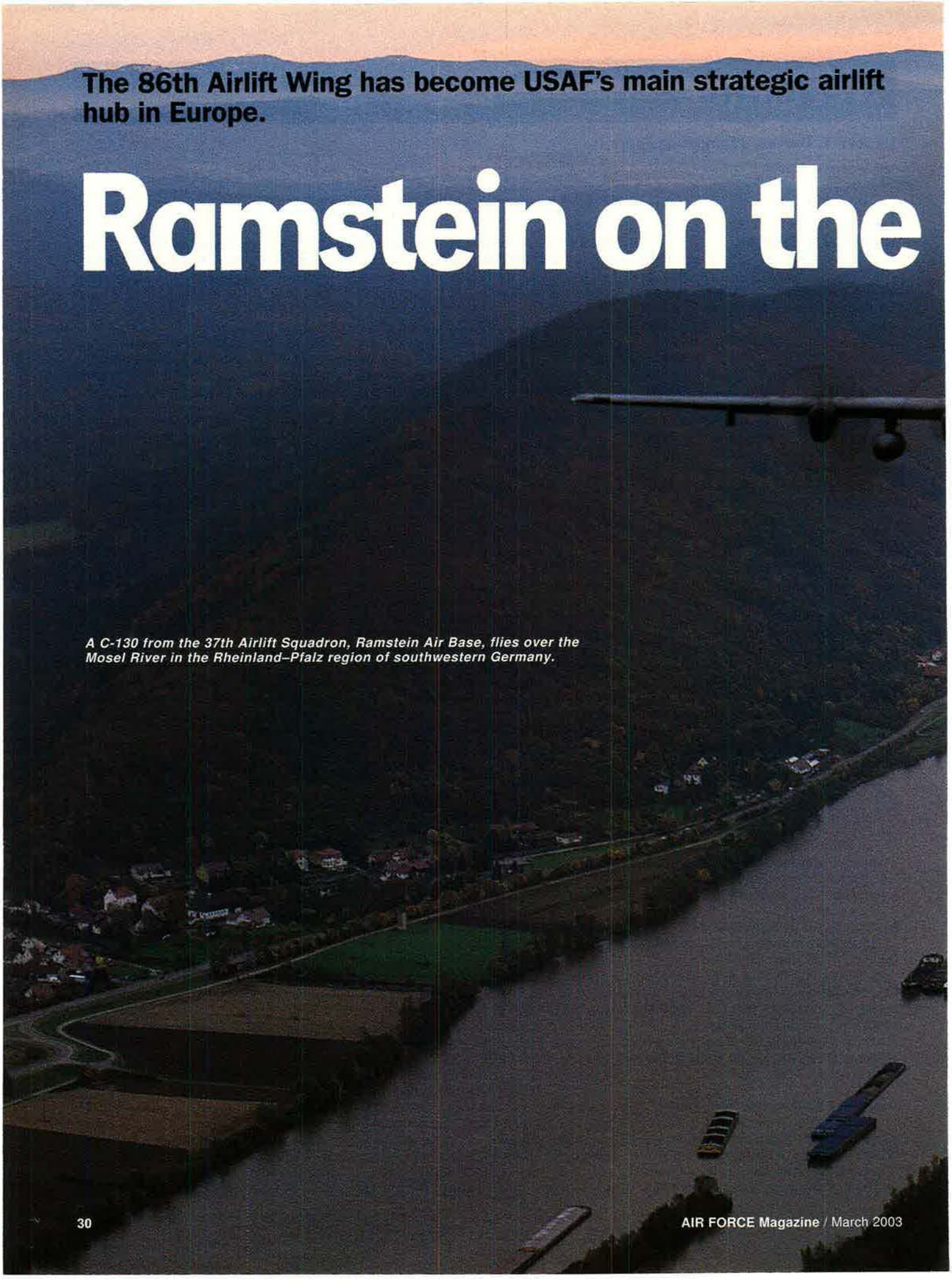
"I'm opposed to reducing the number of F-22s. If missile defense, the President's pet project, keeps taking money away from programs like the F-22 that the nation needs desperately, I'll vote against missile defense."—***Rep. Randy Cunningham (R–Calif.), Navy ace in Vietnam, on Air Force's F/A-22 Raptor, quoted in* Aerospace Daily, *Jan. 10.***

Drag Factor

"The People of Russia: Asset or Liability?"—***Chapter title in "Assessing Russia's Decline: Trends and Implications for the United States and the US Air Force," Rand, 2002.***

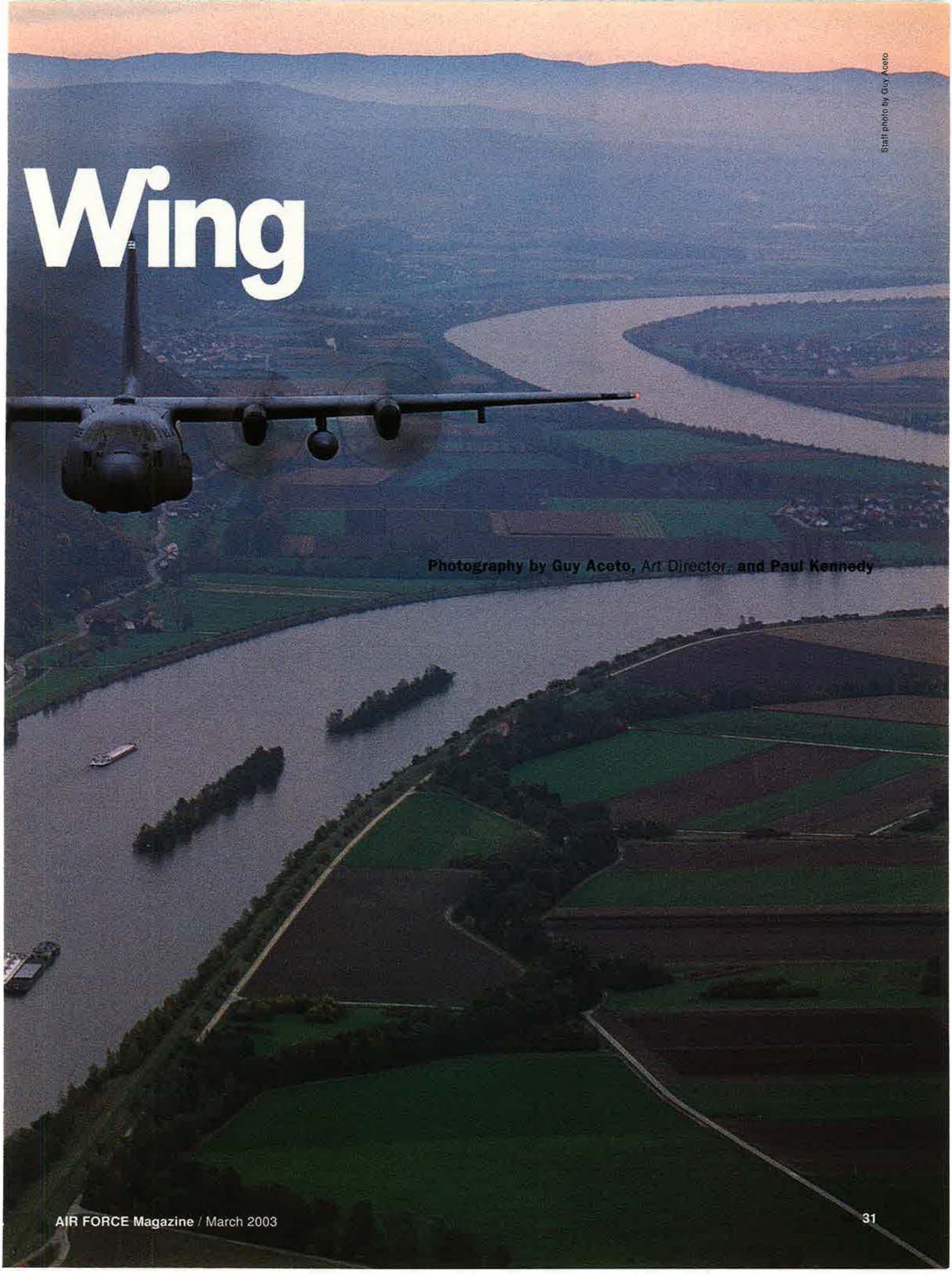
The 86th Airlift Wing has become USAF's main strategic airlift hub in Europe.

Ramstein on the



A C-130 from the 37th Airlift Squadron, Ramstein Air Base, flies over the Mosel River in the Rheinland–Pfalz region of southwestern Germany.

Wing



Staff photo by Guy Aceto

Photography by Guy Aceto, Art Director, **and Paul Kennedy**

Built in the 1950s, Ramstein AB, Germany, served as a US Air Force fighter base during the Cold War. It switched to the airlift mission in 1994. The 86th Airlift Wing is Ramstein's host unit, operating a transport hub for points in Europe, the Middle East, and Africa. The base is located about 90 miles southwest of Frankfurt and is one of three major USAF installations in Germany. (The others are Spangdahlem Air Base and Rhein–Main Air Base.) United States Air Forces in Europe has been headquartered at Ramstein since 1973. It is also the largest NATO air base on the Continent, with elements of several European military forces on site.

At right, transient aircraft fill the flight line at this 10,261-acre base.

Staff photos by Guy Aceto

At left, some of the aircraft that call Ramstein home. The wing's 37th Airlift Squadron and 38th AS (Provisional) fly C-130 Hercules transports. The 75th AS and 86th Aeromedical Evacuation Squadron combine forces to provide medevac capability with C-9 Nightingales. The 76th AS uses C-20s and C-21s for VIP airlift within Europe. (Another airlift squadron, the 309th, is located at Chievres AB, Belgium.) The wing supports coalition forces in Operations Enduring Freedom, Northern Watch, and Southern Watch and regularly resupplies troops in the Balkans and Turkey.

Aircrews keep busy training. Above and at right, a C-130 carries out touch and go landings.

Staff photos by Guy Aceto

Above, a C-130 flies past the terra cotta–tiled roofs and half-timbered houses of a German village. Ramstein is about eight miles west of the town of Kaiserslautern and is part of the largest American community outside the continental US, the Kaiserslautern Military Community. It encompasses 38,000 military and US civilian personnel, a host of Army installations, and several air stations. The 86th AW commander, Brig. Gen. Erwin F. Lessel III, serves as commander of the K-Town community, too.

At right, 37th AS pilot Capt. Daniel J. Begin prepares for evening practice runs.

Chaff and flares (far left) are standard equipment for these aircraft. Here, loadmaster A1C Vincent White readies a parachute for an air-dropped bundle. Each bundle is a sample load, rigged to fall as an "average size" delivery.

Photos by Paul Kennedy

The maintainers at left ensure the airworthiness of these aircraft. The oldest C-130 transports at Ramstein were built in the 1960s, and base flying hours tripled during Enduring Freedom. In the war, the 37th AS was key to delivery of humanitarian daily rations over Afghanistan. The adverse weather aerial delivery system radar on these C-130s improves their capability to carry out such airdrops.

The 76th AS operates a small fleet of C-20 Gulfstream and C-21 Gates Learjet aircraft (at right and below). They transport top distinguished visitors and provide time-sensitive operational support airlift.

The wing's transition from fighters to airlifters began with the arrival of executive-fleet aircraft such as the one at left. In June 1992, the wing merged C-12s, C-20s, and C-21s into its ranks. About a year later, aeromedical evacuation and aeromedical airlift squadrons from Rhein–Main Air Base brought in C-9s. C-130 personnel began arriving in March 1994, and the unit officially became the 86th AW in October 1994.

At the 75th AS, 1st Lt. Tobias Ensele checks a schedule, at right. Below, Capt. Charlotte Meusel goes over maps. The squadron operates C-9As, most configured for aeromedical evacuation.

Photos by Paul Kennedy

Staff photo by Guy Aceto

While the 75th AS provides the aircrew members for medevac missions, the medical personnel come from the 86th AES. Ramstein's aeromedical evacuation missions cover a huge area, ranging from Scandinavia to the Azores to Bahrain and beyond. The 75th has flown missions as far east as Moscow. In 2002, it transported more than 4,800 patients during routine missions and more than 100 needing priority or urgent medical evacuation. Many patients were headed for Landstuhl Regional Medical Center, the largest US military hospital in Europe, located a few miles from Ramstein.

At left SSgt. Sean R. Morris and SSgt. Susan F. Clawson check over medical equipment.

TSgt. Greg Flood and SSgt. Reverdy Winfree go through maintenance procedures. USAF's twin-engine, swept-wing C-9s all began service between 1968 and 1975.

Lt. Col. Anthony C. Piso takes his walk around a C-9 in preparation for a mission to Incirlik AB, Turkey. Below, in the C-9's cockpit, 1st Lt. Abigail G. Albert goes through a preflight checklist as Capt. Grant C. Miller looks on. The air ambulance usually has a crew of three. The five medical personnel normally on board are two flight nurses and three medical technicians.

Photo by Paul Kennedy

Staff photo by Guy Aceto

When a C-9 carried out an aeromedical evacuation of special forces troops injured during Operation Anaconda last March, the medical personnel numbered 11, including three flight surgeons. Even a seemingly routine mission can hold challenges. In 1998, a Navy family member gave birth about 45 minutes after boarding a regularly scheduled flight from Sardinia to Naples. It was the first baby delivered in flight by the 86th AES.

Several patients board a C-9. The Nightingale is USAF's only aircraft specifically designed for litter and ambulatory patients. It can carry 40 patients. It has vacuum and therapeutic oxygen outlets and a special care area with a separate ventilation system.

Photo by Paul Kennedy

Staff photos by Guy Aceto

The 86th AW's list of missions continues to grow. About a year ago, the wing stood up its 28th unit, the 309th AS at Chievres. It uses C-9s and C-37s to transport NATO leaders. Ramstein inherits an additional strategic airlift mission when Rhein–Main Air Base closes in December 2005. In preparation, Ramstein opened a new passenger terminal in January 2002. The $13 million facility and its annex are expected to handle 35,000 passengers a month.

USAF last year directed the removal of the familiar red cross emblem from the C-9 fleet, so the aircraft can be used for nonmedical missions.

Since the fall of the Berlin Wall in 1989, the number of USAFE main operating bases has shrunk by 67 percent, and units such as the 86th AW have been challenged to handle new roles with an increased operations tempo. Brig. Gen. Mark A. Volcheff, wing commander until May last year, put it this way: The 86th now must "fly in all directions, all the time." ■

In the Gulf War's final hours, Iraq's Republican Guard slipped the noose and lived to fight another day.

The Great Escape

Iraqi armed forces parade through Victory Square, Baghdad, in December 2000.

By Rebecca Grant

It was on Feb. 28, 1991, at exactly 8 a.m. local time, that the Gulf War was brought to an abrupt end. Army Gen. H. Norman Schwarzkopf had led a masterful 43-day air campaign. With Iraqi forces badly battered by airpower, coalition land forces needed only 100 hours to push the occupiers out of Kuwait and take thousands of prisoners.

The public thought the coalition had completed its job. In reality, it had not yet neutralized Iraq's Republican Guard, and, so, in Schwarzkopf's words, "Our job was only half done."

As things turned out, of course, coalition forces never completed the job. Saddam Hussein's Republican Guard escaped the clutches of their adversaries, fled to Baghdad, regrouped, and lived to fight another day—soon.

How did this happen? On the war's last full day, Feb. 27, Schwarzkopf allowed his judgment to be clouded by confusion about the position of his forces and the nature of the Republican Guard escape plan. He announced "the gate is closed" on the Guard, stoking pressure for a cease-fire. President Bush acceded, the shooting stopped, and the Iraqis slipped the noose.

Col. Douglas A. MacGregor, who fought with the US Army's 2nd Ar-

© Corbis photo/Karim Sahib

mored Cavalry Regiment and wrote an influential book, *Breaking the Phalanx,* compared the result of the Gulf battle to that of the 1863 Confederate maneuver victory at Chancellorsville. Both, he said, "bore no abiding fruits."

The land offensive began on Feb. 24. It was Phase 4 of Schwarzkopf's war plan. Phase 4 called for two US–led land corps to drive north through breached Iraqi infantry positions, turn east, and trap the Republican Guard.

The Republican Guard Forces Command fielded six full divisions. There were three of armor—the Tawakalna, Medina, and Hammurabi—and three of motorized infantry—the Nebuchadnezzar, al Faw, and Adnan. Three of the divisions had spearheaded the invasion of Kuwait on Aug. 2, 1990, but they had redeployed to interior positions and were replaced at the front by infantry.

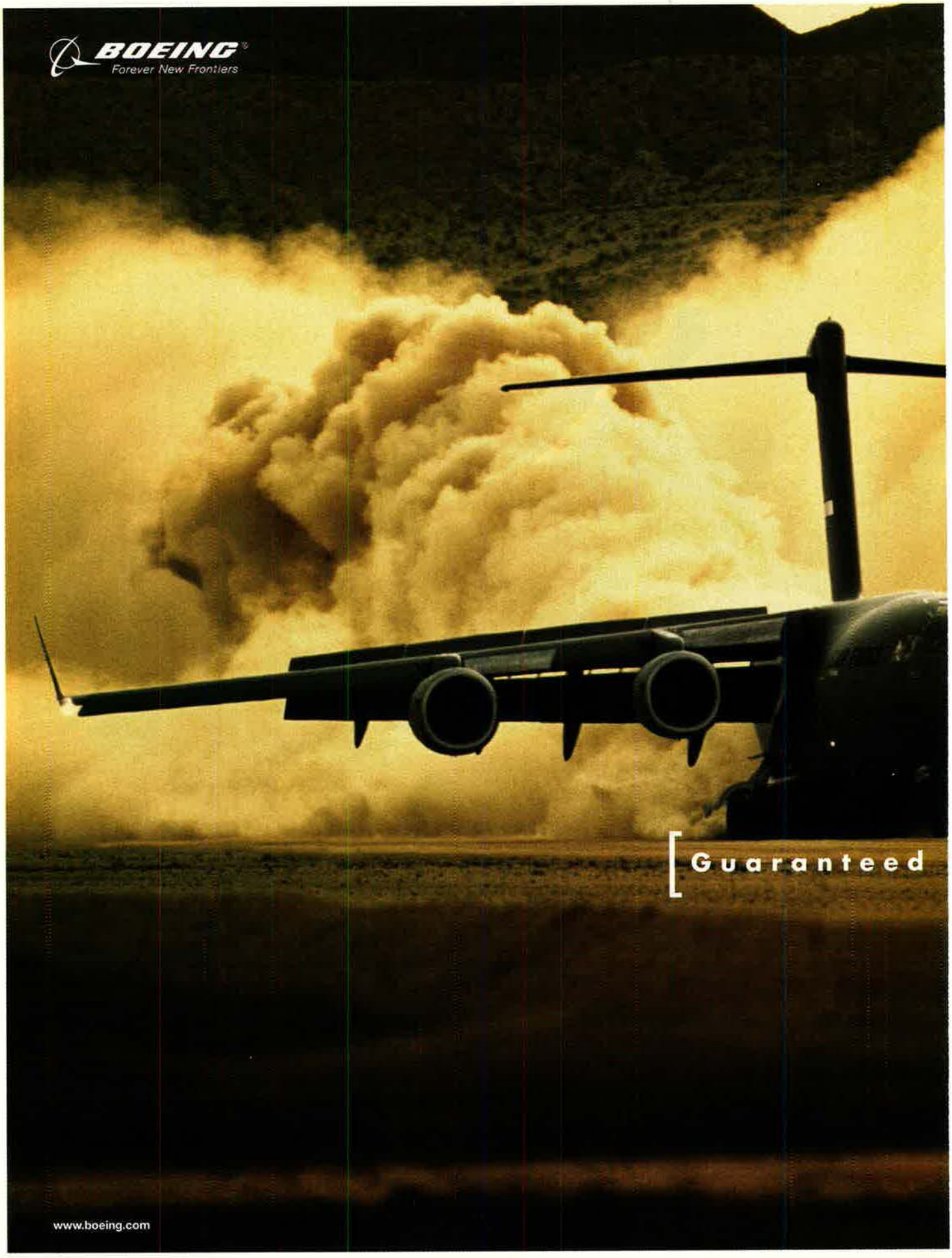
The replacement divisions, inferior in quality, had been arrayed along the Saudi border with Kuwait and Iraq.

In the war's first 38 days (the airpower-only phase), coalition air attacks reduced Iraqi front-line units to one-half of prewar strength. Air strikes had also weakened the Republican Guard but not to the same extent.

Coalition air forces focused first on hitting the three armored divisions. By the time Schwarzkopf launched the ground offensive, the Tawakalna was judged to be at 58 percent of prewar strength, the Medina at 54 percent, and the Hammurabi at 77 percent. The Guard motorized infantry divisions did not suffer such heavy attacks. Coalition planners estimated the Nebuchadnezzar at 88 percent of prewar strength, al Faw at 100 percent, and Adnan at 83 percent.

The Nebuchadnezzar and al Faw divisions were positioned along Highway 8, an east–west artery running along the Euphrates River. The Adnan

Continued on p. 42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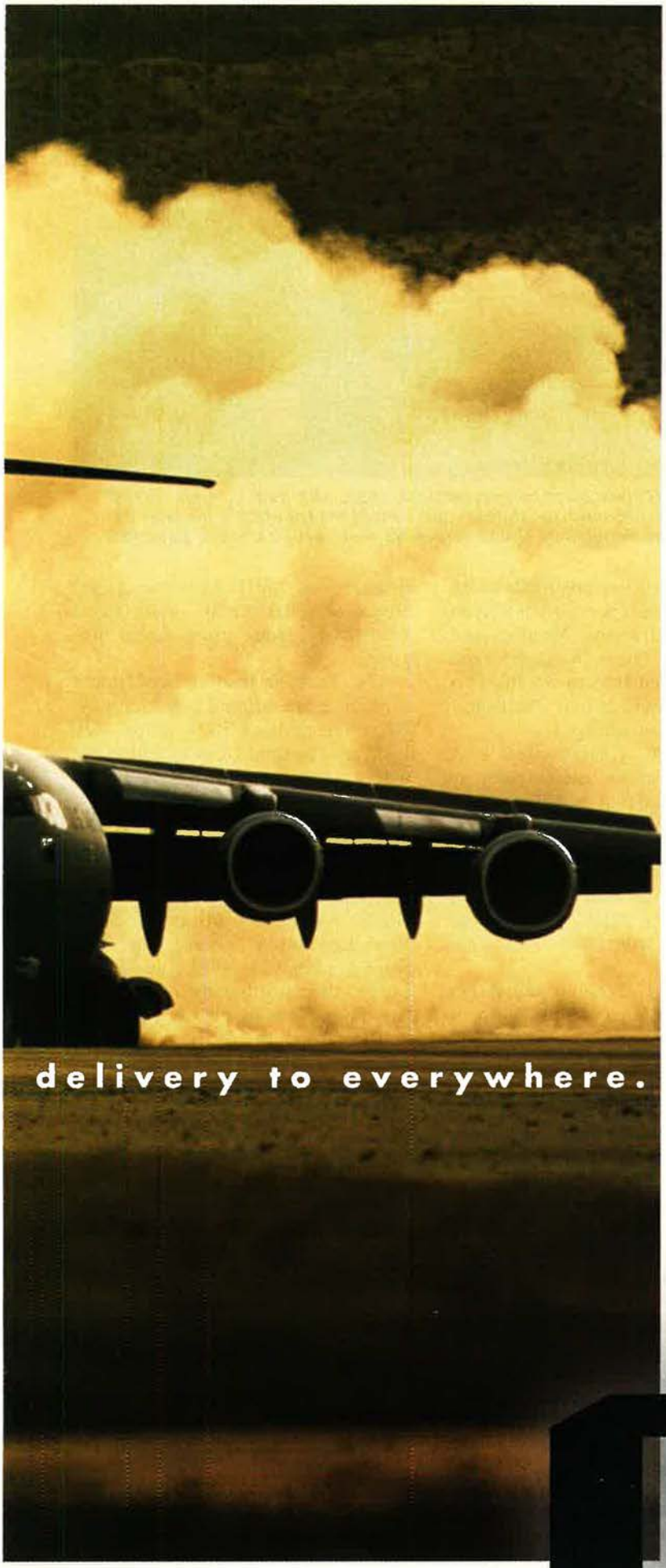

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Continued from p. 39

was positioned east of the junction of that road and Highway 6, another artery running north–south between Kuwait and Basra.

Against this Iraqi force, the coalition deployed two corps, each well-suited to its task.

In the east, VII Corps, commanded by Lt. Gen. Frederick M. Franks Jr., was formed of heavy forces. Its powerful spearhead comprised the 1st Armored Division, 3rd Armored Division, and 2nd Armored Cavalry Regiment. Plans called for it to charge north and destroy the three Republican Guard armored divisions.

In the west, XVIII Airborne Corps, commanded by Lt. Gen. Gary E. Luck, blended medium and heavy forces, giving it speed and agility. The spearhead of its northward charge would be the 24th Mechanized Infantry, 101st Air Assault, and 82nd Airborne Divisions, working with France's 6th Light Armored Division. The XVIII Airborne Corps was to drive north as fast as possible, then wheel east along Highway 8 and capture Basra. By doing this, it would cut off the retreat of the three Guard infantry divisions.

With VII Corps and XVIII Airborne Corps closing with the enemy, US Marines and other forces would move to liberate Kuwait.

As planned, the ground operation opened on Feb. 24, at precisely 4 a.m. The breaching operations went so well that the main attack began several hours ahead of schedule. The battered Iraqi front-line divisions collapsed soon after the coalition attack had pierced the defensive line.

Fighting swirled during the period Feb. 24–26. The two coalition corps surged forward and met resistance, which led to some tactical victories such as the Battle of 73 Easting (against Tawakalna units) and Battle of Medina Ridge (against Medina units).

The Republican Guard in contact with coalition forces weren't fighting to hold ground but merely to buy time and cover a withdrawal. The Guard heavy forces were no match for US forces. The skirmishes pitted brigade-size Guard units against American divisions with far superior soldiers, training, and weapons.

In these skirmishes, however, VII Corps won only tactical successes. It had not yet closed the road leading north, which thus remained open to the Guard. Coalition tank battles with Tawakalna forces served as a screen for the withdrawing Medina and Hammurabi. These brigade-sized actions allowed Iraq to organize "a classic battlefield retreat," Schwarzkopf later acknowledged.

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Gen. Norman Schwarzkopf met on March 3, 1991, with Iraqi Lt. Gen. Khalid Sultan Ahmed (second from right) to set conditions for ending the war. By that time, many Republican Guard forces were streaming back to Baghdad.

According to a declassified CIA study, Iraqi forces had as early as Feb. 25 detected that coalition movements were far more rapid than anticipated. While coalition dominance of the air and the stranglehold on communications obscured much of the offensive's intent, the collapse of the Iraqi front line was clear enough.

High-flying U-2s detected that Iraq had built a defensive line south of the Hawr al Hammar causeway that crossed the Euphrates River marshlands. From this position 29 miles east of Basra, the Nebuchadnezzar, Adnan, and al Faw divisions had a chance to protect Highway 8 and the causeway escape route.

In the XVIII Airborne Corps operating area to the west, Iraqi moves also were well-staged. "Apparently calculating that the coalition planned to cut Highway 8 and drive toward Al-Basra," the CIA report noted, "the Iraqis began a major redeployment of Guard forces to block the coalition's advance."

On Feb. 26, the 24th Mechanized Infantry took Talil Airfield and seized Al Jalibah Air Base. Meanwhile, elements of Republican Guard infantry moved west, toward a defensive line crossing XVIII Airborne Corps' advance. What's more, two Guard armored brigades moved up in support.

The coalition leaders knew that a screening operation was under way. However, at this critical point, they lost track of the extent to which the Guard and other Iraqi forces were jammed up south of Basra.

Coalition leaders thought the Guard had redeployed north of the Euphrates. They had not. They were, in fact, herded together in a 1,700-square-mile area south of the river. Five Republican Guard divisions were hemmed in, with river crossings to their north and east and coalition forces advancing from the west.

They'd set themselves up to be destroyed in detail by either air or ground forces.

Franks's spearhead had achieved 109 miles of advance just before midnight on Feb. 26. Luck's forces had plunged northward and wheeled to the east in a giant enveloping move. To the south, Marines and other forces had taken major objectives around Kuwait City.

Speedy success caused two twists in the tactical situation.

First, very early on Feb. 27 (1:35 a.m.), a Radio Baghdad broadcast ordered Iraqi forces to withdraw from Kuwait. They fled along Highway 6, bringing more Iraqis into the congested area south of the city of Basra. Second, the two US–led corps began to outrun their supply lines and wear

out their troops, who had been in action 48 hours. Soon, they would need to pause.

The first hours of Feb. 27 saw a resumption of rapid combat operations. In the west, XVIII Airborne Corps launched a fresh series of attacks and pushed within 62 miles of Basra and Highway 6. In the east, VII Corps pressed northward until early evening.

No one knew it at the time, but Feb. 27 was a day in which the coalition missed a golden opportunity to destroy the Guard.

At 1 a.m. that day, Franks and Luck each activated a Fire Support Coordination Line that effectively gave the Iraqi forces a sanctuary from air interdiction and blocked coalition air from bringing its full weight to bear.

The FSCL was a vital safety measure marking off a special protected area (inside the FSCL, where Close Air Support strikes were to be carried out under the control of forward observers) from regular areas (beyond the FSCL, where interdiction could take place).

The Joint Force Air Component Commander, USAF Lt. Gen. Charles A. Horner, allocated 1,200 sorties a day for what he called "push CAS," in which two-ship and four-ship formations would cross the battlefield every few minutes. Strikes inside the FSCL had to be controlled by a Forward Air Controller.

However, if the flight got no immediate tasking from a FAC, it could fly beyond the FSCL and strike targets under direction of an F-16 or A-10 "Killer Scout." If the Killer Scout had no targets, the flight continued to predesignated bomb dump sites.

The effect was to increase the number of strikes beyond the FSCL, and, so, those targets were the ones where airpower had its best shot at the Republican Guard forces.

In the early phase of the land offensive—that is, in the period Feb. 24–26—the air and ground components placed FSCLs in locations that had been worked out before the war.

Then, on Feb. 27, things changed. The leaders of VII Corps and XVIII Airborne Corps, perhaps anticipating rapid and dramatic maneuvering on that day, set the FSCLs in their corps areas well beyond the actual lines of advance achieved that day.

Poor placement of the FSCLs carried a high cost. Two Guard divisions, the Nebuchadnezzar and Adnan, were completely inside the XVIII Airborne Corps FSCL. Likewise, the VII Corps FSCL sheltered the Medina and the main body of the Hammurabi. Only the al Faw division was completely outside any FSCL on Feb. 27.

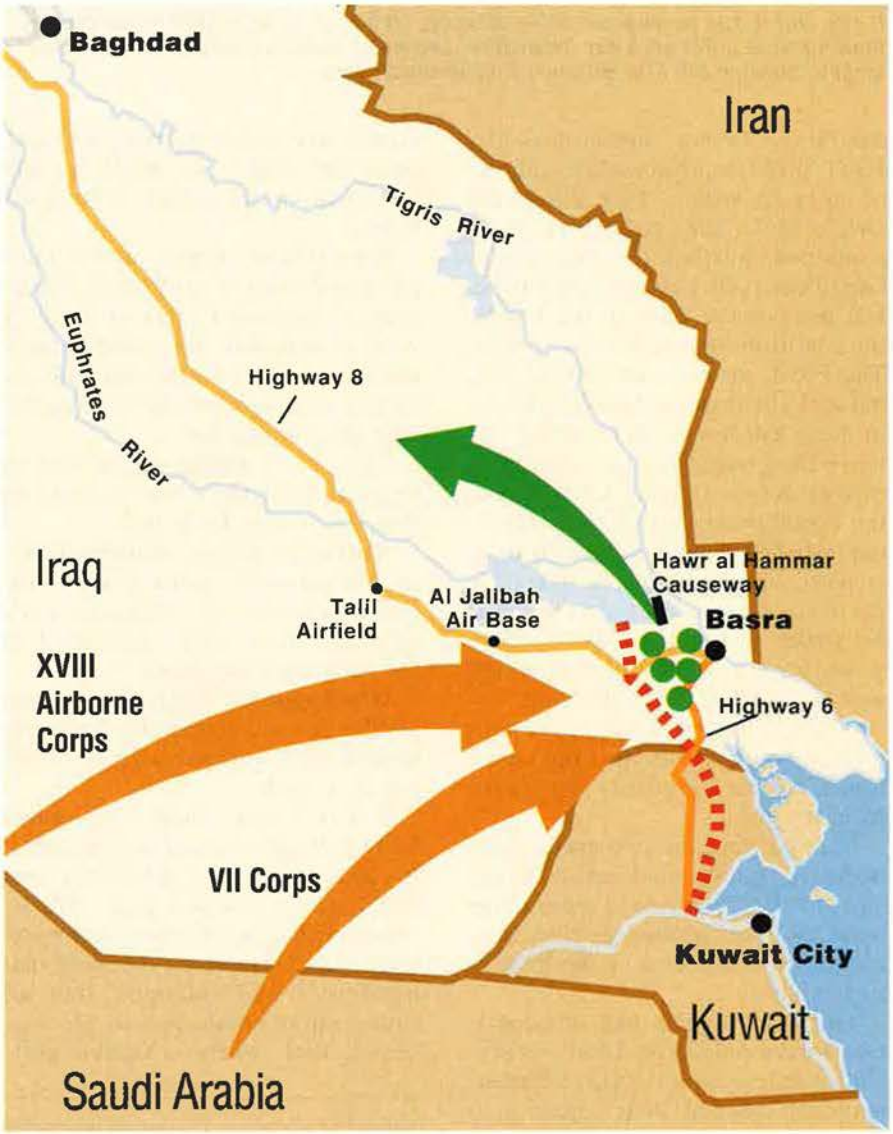
The overextended FSCL boundaries meant airpower could only attack under the guidance of a Forward Air Controller. The catch was that FACs operating with Army units were not in contact with the main body of the escaping Republican Guard units. The ground forces were moving fast but still not fast enough to cover all of the ground they'd staked out.

When XVIII Airborne Corps began its Feb. 27 operations, its FSCL for that day was 54 miles to the east. At the end of the day, it was still 30 miles from its fire-control line.

Late in the day, Horner got the Army commanders to move back the FSCLs. Still, the new "Horner line" only opened up the area north of the Euphrates, an area known to be target-poor.

Data from the postwar *Gulf War*

The Situation at the Time of the Feb. 28 Cease-Fire



USAF photo

F-16s and A-10s served as "Killer Scouts." If a two- or four-ship flight got no tasking from a Forward Air Controller, the Killer Scouts could direct them to targets outside the Fire Support Coordination Line.

Air Power Survey showed how the FSCL problem affected the volume of daily air strikes. Five kill boxes (AE7, AF7, AF8, AG7, and AG8) contained most of the Republican Guard units. On Feb. 25, while these kill boxes were outside the FSCL, the coalition flew 161 strike sorties. The FSCL moved east on Feb. 26, but still 111 strike sorties were flown in those kill boxes. But on Feb. 27, when the ground advance and their own maneuver scheme had boxed in the Republican Guard, the overextended FSCL kept coalition air from striking with its full force. The tally for the five prime kill boxes was just 54 strike sorties, and 28 of those were flown in AG7, much of which was beyond the FSCL that day.

Clearly, the mishandling of air–ground coordination cost the coalition a chance to destroy the Guard from the air.

In any event, the two corps commanders, Luck and Franks, at the end of Feb. 27, paused to regroup for what they envisioned as the final, concerted land attack on the Republican Guard.

The day's events had left coalition forces poised for total victory. Under orders from Franks, US commanders stopped their forces at 6 p.m., fixed positions, and prepared for resumption of the offensive. Luck's XVIII Airborne Corps was set to roll through the rest of the Nebuchadnezzar and Adnan's western defenses and cut them off. He moved his command post forward, gave the 24th extra artillery, and approved an air assault to seal off Basra.

Schwarzkopf spoke on the telephone with Gen. Colin Powell, Chairman of the Joint Chiefs of Staff. "I want to continue the ground attack tomorrow, drive to the sea, and totally destroy everything in our path," said the commander.

This war-winning attack was to begin within hours—that is, early on Feb. 28. It was not to be.

"Instead of a final, climactic battle on 28 February," wrote Army historian Richard Swain, "offensive military operations came unraveled in the early morning hours."

What happened? The plans of Franks and Luck were done in by Schwarzkopf himself at an unusual press briefing in Riyadh.

It was 9 p.m., local time, when Schwarzkopf opened his briefing. It was televised live in Washington, D.C., where it was 1 p.m. "We've accomplished our mission," Schwarzkopf said. He assured listeners that his forces had slammed shut all routes out of southern Iraq. He suggested that, while scattered units might be getting away, the bulk of the Republican Guard was trapped.

Powell, watching the performance in Washington, seized the opportunity to tell Bush the coalition was "within the window of success" and that he should stop the attack, which now would be perceived as "killing for the sake of killing."

Evidently, Bush agreed. He soon announced that a cease-fire would take effect at 5 a.m. local time on Feb. 28. Informed of this move, Schwarzkopf said, "I don't have any problem with it."

It was now 11 p.m., local time. With the cease-fire six hours away, US commanders concentrated on disengaging their troops from the enemy. However, around midnight, Schwarzkopf appeared to waver and took a last stab at the Republican Guard. The cease-fire slipped to 8 a.m. With the time left, Schwarzkopf said, Luck and Franks should destroy as much of the enemy as possible.

At 6 a.m., Franks launched a last-gasp VII Corps attack. The 1st Armored Division destroyed 100 tanks and armored personnel carriers, according to Army historians. Meanwhile, XVIII Airborne Corps wasn't able to engage before the cease-fire took effect.

At 8 a.m., the coalition halted offensive operations.

The cease-fire didn't affect the Republican Guard at all. They kept going north. On March 1, Guard armored and mechanized forces were 60 miles north of Basra. On March 2, some were 124 miles north. On that day, the 24th Mechanized Infantry Division spotted Iraqi tanks and vehicles moving north. It attacked and destroyed 185 of them, but it was too late.

Most of the Republican Guard units made it back safely to Baghdad. Within weeks, these forces had brutally suppressed Kurd and Shiite rebellions against Saddam. They continue to support his grip on power today.

Such was the price of the rush decision to halt the Gulf War offensives. ■

Rebecca Grant is a contributing editor of Air Force *Magazine. She is president of IRIS Independent Research in Washington, D.C., and has worked for* RAND, *the Secretary of the Air Force, and the Chief of Staff of the Air Force. Grant is a fellow of the Eaker Institute for Aerospace Concepts, the public policy and research arm of the Air Force Association's Aerospace Education Foundation. Her most recent article, "In Search of Lawful Targets," appeared in the February issue.*

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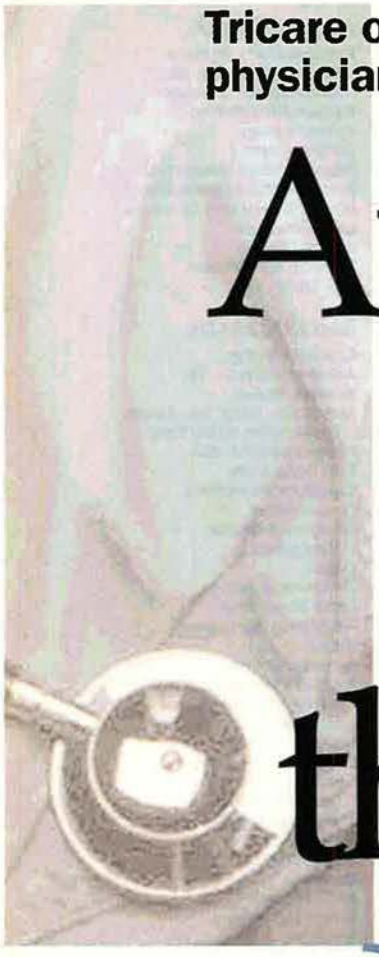


By Tom Philpott

LAST April, a dozen family practice physicians near Little Rock AFB, Ark., were ready to drop out of Tricare Prime, the military's managed care network. Dr. Alan R. Storeygard, the group's chairman, told a Congressional panel that Tricare reimbursements were too low and hassles too great.

For example, he noted, Tricare required a primary care doctor to get Tricare's permission before referring a patient to a specialist. This not only slowed down the doctor's work but also added $25,000 a year to administrative costs.

Today, Storeygard and his colleagues remain in the Tricare network but only because Health Net Federal Services, one of the Tricare support contractors, made extraordinary concessions.

After Storeygard testified, Health Net's executives agreed not only to raise reimbursements but to suspend preauthorization screens—for these doctors alone—in 2003. Health Net officials called it a pilot program seeking to find out whether Tricare can be more efficient by trusting the judgment of doctors with histories of responsible referrals.

Maybe, but the special handling of Storeygard's doctors underscores what has become a high priority for Tricare: keeping physicians satisfied. Members of Congress, Tricare leaders, and managed care contractors agree it's a more important task now, for several reasons:

- Medicare reimbursements, to which Tricare physician fees are tied, fell 5.5 percent in January 2002. The rate was set to fall another 4.4 percent this month, but

Congress instead was scrambling to raise reimbursements as part of last minute negotiations for add-ons to a Fiscal 2003 spending measure. If passed, the increase would ease Tricare officials worries that more doctors could leave the network or freeze the number of Tricare patients they agree to see.

- Tricare plans to reorganize on the basis of new managed care support contracts. Today's setup has 12 regions under seven contracts and four contractors. It will shrink to three regions, three contracts, and three contractors. Keeping provider networks robust during the transition is key to sustaining quality care and beneficiary satisfaction.
- The new contracts set tougher standards for providers. Some current contractors say these new standards are unreasonable and will force more physicians to leave the Prime networks.
- Roughly 1.9 million Tricare beneficiaries under age 65 rely not on Prime but Tricare Standard, the fee-for-service plan formerly called CHAMPUS. A grassroots beneficiary group claims that the Tricare Standard benefit has diminished because of higher out-of-pocket costs and lack of physicians willing to accept Standard. Tricare leaders have agreed to take a closer look.

Now, Congress has asked the General Accounting Office to study physician "stability" under Tricare and present its report sometime this month.

Tricare already has authority to raise physician reimbursements to ensure access, said Steve Lillie, director of program development for the Tricare Management Activity in Falls Church, Va. However, the tactic has been used sparingly. In February 2000, Tricare bumped fees 28 percent above Medicare levels for physicians in rural Alaska. The special rates remain in effect today.

Moreover, when Medicare several years ago cut fees for surgery services by 10 percent, Tricare declined to apply the cut to obstetrician fees, given that the military beneficiary population tends to be younger.

Tricare also has authority to raise fees as much as 15 percent above the Tricare maximum allowable charge to bring a doctor with specific skills into a network. That authority has not yet been used at all.

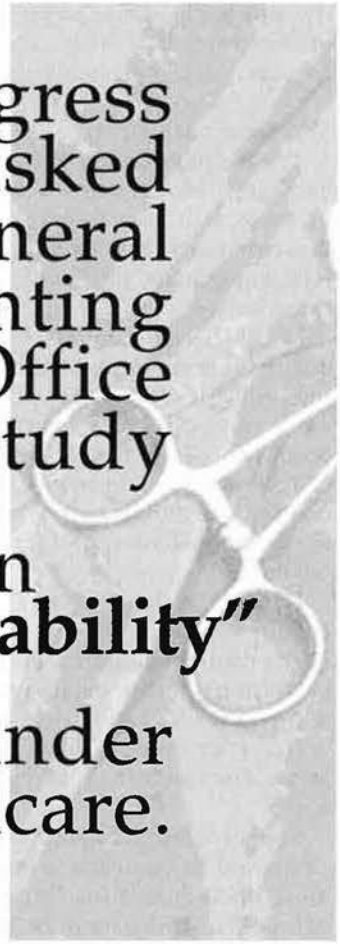
Finally, a support contractor can at any time refer a patient to a physician outside of the network if his specialty is required. This does happen on occasion.

High "Noise Factor"

Support contractors say annual network physician turnover ranges from two to five percent, a rate better than what is found in most managed care programs. On the surface, these numbers seem to suggest overall satisfaction with fees, but it's an example of statistics hiding the real story, according to physicians, patient advocates, and even some network executives.

"I can tell you the noise factor in the provider community has grown more intense," said Paul Gilbertson, Health Net's chief operating officer. His boss, Health Net president James E. Woys, told Congress last year, "We may not have many providers who are turning over in our network [but] we're having more and more providers who are unwilling to accept new patients because of [reimbursement] rates."

That concerns Tricare's Lillie. Doctors in the network need to be willing to accept new patients, he said. Otherwise, some beneficiaries—for example, members and families transferring into an area—will not have the access to the care that network enrollment should guarantee.



Health Net is one of four companies in the business of building and managing networks of civilian hospitals and doctors to treat military beneficiaries. The others are Humana Military Healthcare Services, Sierra Military Health Services Inc., and TriWest Healthcare Alliance.

Last year, the cost of the private Tricare contracts hit $7.2 billion, a figure that eclipsed the $4 billion spent on the military's direct care system of base hospitals, clinics, and combat medical units.

Lawmakers say that they still get far too many complaints about civilian-provided health care, given the amount of money spent on the Tricare system. The complaints come not only from beneficiaries who can't find physicians willing to accept Tricare but also from physicians concerned about low fees and needless administrative hassles.

"Physician participation is generally adequate," said Rep. John McHugh (R–N.Y.) during hearings last year. "But my dad used to say, 'If you put one foot in a bucket of ice water, and another foot in a bucket of boiling water, on average, you're comfortable.' "

Such concern has also crept into the thinking of Health Net's Woys. "Our network is fairly stable now," he observed. "I am concerned about the future." The incidence of network doctors clamping strict limits on numbers of Tricare patients continues to rise, he said.

In the view of Woys, doctors need "a certain level of

revenue to pay office expenses [and] continue to provide quality care. If it means they have to adjust the mix of [payers], that's probably good business practice."

The Medicare Drag

Tricare physician and hospital fees are tied to Medicare rates, which, unless Congress passes the last-minute increase, will have fallen a combined 10 percent over the last two years. The trouble is that physician costs—for rent, equipment, staff, and malpractice insurance—continue to rise.

In 2002, news outlets began publishing accounts of doctors turning away Medicare patients. Aggravating the fee problem for Tricare, in particular, is that many network physicians are paid less than the Medicare fees because of discount deals signed with Tricare contractors.

Tolerance for discounts is disappearing, say support contractors, as Tricare physician fees, already among the lowest in the nation, fall farther because of the Medicare connection.

David R. Nelson serves as president of Sierra Military Health Services, the Tricare support contractor for the northeast United States. He said every contractor has to perform a delicate balancing act, maximizing discounts while ensuring full patient access to health care.

However, noted Nelson, providers "are less inclined to give a discount off a rate they find unacceptable to begin with."

Support contractors have seen the physician discounts evaporate as contracts come up for renewal. More and more doctors such as Storeygard find reimbursements below Medicare rate to be unacceptable.

"When we went out in '97, '98 to build a system, providers were willing to grant, say, 10 to 15 percent discounts off of the Tricare reimbursements," Nelson said. Since then, many network physicians have renegotiated deals with smaller or no discounts.

With Tricare, physicians worry not only about low fees but also greater administrative headaches tied to tough credentialing standards or the preauthorization requirements.

"With Medicare," said Storeygard, "if you need to refer someone, you just refer them. They see the specialist, they get the test." It keeps administrative costs low and speeds care.

Moreover, it reduces malpractice exposure. "If you have to slow down the process of getting somebody treated, and they have an adverse outcome, you're the doctor involved," said Storeygard. "So the quicker you can get somebody seen, the better."

Fortunately, the troubling fall in doctor fees has been accompanied by alleviation of other major Tricare headaches. One of these was the speed at which Tricare processes claims. This was a big deal only a few years ago. Now, said Storeygard, doctors in his group see Tricare payments arrive almost as quickly as it takes to get reimbursed by Medicare.

"Tricare has made tremendous strides in the past couple of years in speed and accuracy of payment," said David J. Baker, president of Humana Military Healthcare Services.

Tricare and support contractors say they have worked to become less intrusive but that Tricare is inherently more complex than other managed care networks. The reason for this is the "parallel delivery system"—the outside network for managed care supports a sophisticated military direct care system.

More Hassles?

Next-generation Tricare contracts will provide no relief from current fee structures, said Woys. More troubling, however, are "additional requirements we think increase the hassle factor for providers and probably will decrease participation in the Tricare program," he said.

The new features would require:

- Network physicians and providers to file all of their claims electronically.
- Specialists to promptly give referring physicians legible copies of discharge summaries or postoperative reports within 24 hours for urgent care cases and for routine cases, 10 working days.

Both are admirable goals, said Woys, but Tricare leaders are wrong to make them "absolute requirements." If these features are enforced, he warned, a lot of doctors will leave or decline to join Tricare networks.

"Tricare is less than five percent of patients for many physicians in our networks," said Gilbertson of Health Net. "We don't have the clout [to dictate such terms to doctors that] the government believes we have."

Electronic claims are cheaper than paper, said Woys, and the government is right to try to drive costs down and perhaps to make outside record keeping compatible with the department's new computer-based medical records system.

"Unfortunately, we don't control providers' practices enough to dictate how they submit their claims," he said.

Mike Carroll, a Tricare policy official who helped to shape the new contracts, said he's heard the arguments and is unimpressed. He said providers can make the transition with ease and begin saving money quickly. Moreover, the major support contractors will have authority to "demonstrate some real initiative" and buy their reluctant physicians the hardware and training needed to file claims electronically.

Woys retorted that Medicare for seven years has pressed for 100 percent electronic filing but has only reached 83 percent. He asked, How can Tricare expect to move to 100 percent immediately?

However, Carroll said proposed deadlines for reports to providers who refer patients "really comes down to protecting patients." The longer it takes to get a report, the longer care is delayed.

Unprecedented Demand

One support contractor, however, called the proposed 10-working-days standard "absolutely without precedent in American health care delivery." He said he took an informal poll of network providers and learned that, if the deadline is rigorously enforced, the "business decision" will be to leave the network.

Failure to meet the 10-day deadline would bring the offending specialist a $100 fine from Tricare. Because support contractors would be responsible for those penalties, they will try to pass them on or will become more intrusive with specialty providers to avoid the fine.

"That's when the provider will say, 'This is enough. This program isn't for me,' " claimed Woys.

Nelson, at Sierra, agreed that Tricare contract officials need a reality check. "We are not the 800-pound gorilla

that Medicare is," Nelson said. "Tricare may represent less than two percent of a hospital's admissions for an entire year, so for us to go into Johns Hopkins [Hospital in Baltimore] and say we have to have all postop reports back to our preferring providers within 10 days—that's just not an industry norm, nor is Johns Hopkins ever going to comply."

Humana's Baker said he doesn't believe an exodus of physicians is at hand, particularly among the network's primary care providers. If fees stay low, he said, most of the turnover will be among specialists. However, he said, "if a specialist leaves, and a Prime member had a long-standing relationship for some sort of chronic condition, ... well, if it happens once I'm concerned."

The complaint about limited access to doctors has become more common among Tricare Standard users. With Medicare rates on the decline, physicians operating outside a network become less willing to accept Tricare fees. Networks can lure providers with the promise of patient volume, Woys said. For Tricare Standard beneficiaries, he said, "there's no one in the middle" fighting for them.

By design, out-of-pocket costs under Standard are higher. Prime patients (retirees, not active duty) pay a $230 annual enrollment fee for individual coverage or $460 for a family. Retirees and their dependents also have co-payments for physician visits or lab tests.

Standard users (including active duty family members) pay a $300 annual deductible and then 20 or 25 percent of the Tricare rate, for, respectively, active duty dependents or retirees. The annual deductible is less for lower ranks. They also can face an additional 15 percent charge if doctors or hospitals refuse to accept Tricare maximum allowable charges.

Yet almost two million beneficiaries use Standard. Reasons vary. Many live too far from a base or Tricare network to enroll in Prime. Others want the freedom to choose their doctors. Many retirees have other health insurance and use Standard only as backup insurance.

White Paper Charges

Last year's "white paper," written by Standard users who call themselves the Military Retiree Grass Roots Group, said there has been a steady decline in doctors who will accept Standard patients. So, in effect, the one big advantage of Standard—physician choice—is disappearing.

"We have tens of thousands of people who agree with us," said retired Army Col. John M. Vann, a principal author of the white paper. It was hand delivered to every member of Congress last summer. Tricare officials disagreed with much of the report but said it spurred debate about the decline of the Standard benefit.

One physician group that won't accept Tricare assignments is Wayne Family Practice Associates of Jesup, Ga., 25 miles from Ft. Stewart. Gwenell Lightsey, office manager for the five physicians, said the group will treat military beneficiaries but only if they pay for care themselves. Then the practice will help patients file claims with Tricare Standard.

By law, no provider can charge Tricare beneficiaries more than 115 percent of the Tricare maximum allowable charge rate. Still, that extra 15 percent on top of a 25 percent cost share for retirees or 20 percent for active duty family members can leave significant out-of-pocket costs. Tricare beneficiaries can pay up to $3,000 out of pocket.

Even charging 15 percent above the Tricare maximum allowable charge, Lightsey said, "ends up costing us financially to see Tricare patients."

Tricare officials concede that, while they focused on establishing Prime networks, they paid too little attention to problems facing Standard users. Disparity in out-of-pocket costs became more obvious after Tricare Prime improved and service elderly gained Tricare for Life and Tricare Senior Pharmacy benefits in 2001.

Doctors accepted Tricare rates for 98 percent of Standard claims filed last year, said Lillie. "That doesn't measure whether a patient can find a doctor or not," he conceded.

Tricare is committed to doing a better job tracking Prime and Standard access problems. It will gather more information routinely from support contractors and regional management teams. Officials will talk more often with physician groups.

"The clear desire on the part of leadership," said Lillie, "is to try to find out what's going on."

That is the intent of Congress, too. Congressional staffers recently promised to address this year two critical issues: provider reimbursement fees and access to doctors for Standard patients.

Tom Philpott, the editor of "Military Update," lives in the Washington, D.C., area. His most recent article for Air Force *Magazine, "Principi's Honor," appeared in the October 2002 issue.*

The goal is to put weapons on time sensitive targets in "single-digit" minutes.

Compressing the Kill Chain

By Adam J. Hebert, Senior Editor

USAF photos by MSgt. Dave Nolan

THE Air Force wants to be able to strike mobile and emerging targets in fewer than 10 minutes so that such targets will have no sanctuary from US airpower.

Cutting the time needed to strike such targets, known as time critical or time sensitive targets, has been one of Chief of Staff Gen. John P. Jumper's top priorities. It factored into the decisions to arm Predator unmanned aerial vehicles with Army Hellfire missiles and to establish a high-level warfighting integration office at the Pentagon. Three years ago, while still commander of Air Combat Command, Jumper raised the bar for destruction of emerging targets when he said, "I would challenge us to do it in single-digit minutes."

The need to act quickly is proven and may be growing.

In the Persian Gulf War, Air Force and Navy pilots were frustrated in attempts to destroy mobile Scud launchers before the vehicles fired

USAF crews check an F-15E (here and at left) armed with precision weapons before it launches for a mission during Operation Enduring Freedom in Afghanistan.

their missiles. US aircraft had an extremely small window of opportunity to destroy the missiles on the ground, and allied aircraft were unable to take advantage of that limited opening. The time it took to locate the launchers simply exceeded the time it took for the Iraqis to "shoot and scoot." This failure stood in stark contrast to the success US aircraft had in destroying fixed targets with new precision weapons.

In the years since, the Air Force's arsenal of laser- and satellite-guided weapons has expanded, making fixed targets highly vulnerable. Consequently, adversaries have taken a page from Saddam Hussein's Gulf War playbook and attempted to conceal targets or keep them on the move, under the assumption that anything in the open is vulnerable. When not in action, Serb tanks hid under trees during Operation Allied Force in Serbia, and al Qaeda and Taliban forces hid in caves during Operation Enduring Freedom in Afghanistan.

Because enemies have learned to limit the amount of time they and their weapons are in sight and thus vulnerable, these mobile targets require a different approach. The Air Force must compress its six-stage target cycle of Find, Fix, Track, Target, Engage, and Assess, also known as F2T2EA, or, more simply, the "kill chain." The service has been working to field systems and techniques that yield a vast improvement in effectiveness.

Time can be cut from each of the six stages in the kill chain, as well as from the "seams" between stages.

Gains in Precision Engagement

Through recent operations, USAF has gained experience in this area. Officials say there have been many successful attacks on time sensitive targets during Operations Northern and Southern Watch over Iraq, Allied Force over Serbia and Kosovo, and Enduring Freedom in Afghanistan.

Though attacking such targets is not easy, those who claim it's impossible "would be pretty shortsighted," said Maj. Gen. Daniel P. Leaf, USAF director of operational capability requirements.

He acknowledged that emerging targets are "a challenge at night—and ... even more of a challenge when there is significant weather between you and the target." However, the proliferation of satellite-guided Joint Direct Attack Munitions and other all-weather precision munitions means such targets are no longer vulnerable only in daylight.

Precision weapons are much more common today than they were in 1991, allowing a greater number of aircraft to hit targets that require exact placement. JDAM, the Air Force's current weapon of choice, did not exist during the Gulf War and could be used only with the B-2 stealth bomber during Operation Allied Force in 1999. Today, JDAMs are available to a wider range of combat aircraft and have been shown in experiments to be capable of destroying targets on the move.

Officials report that USAF needs to improve JDAMs and other coordinate-seeking weapons that use Global Positioning System satellites for guidance. Because GPS–guided weapons need precise aim points for accuracy, the processing times can be too long for the bombs to be of use against fleeting targets.

Can GPS–aided weapons hit time critical targets in fewer than 10 minutes? "Absolutely," Leaf said. "What's

USAF photo by TSgt. Michael Ammons

Joint Direct Attack Munitions, such as on this F-16, and other new precision weapons increasingly are being used to attack fleeting targets and helping to reduce time in the target cycle, or kill chain.

key to that is eliminating time that is administrative in nature."

Machine to Machine

Leaf noted, "All that administrative data that we can [transmit from] machine to machine leaves the human in the loop free to do much more important things that the machines can't do—like not get shot." He called a high-quality data link "an exquisite efficiency." It is a central feature in compression of the kill chain.

USAF has had a long-term plan to equip all its combat aircraft with a secure data link system that provides command and control information via a data communications network. Officials say it's expensive to install and integrate the systems, but it will produce dramatic operational benefits:

- Increased target processing speed.
- Improved accuracy.
- Greater situational awareness.
- Reduced voice communications.

Even the rudimentary data link currently aboard Block 40 F-16s at Aviano AB, Italy, shows the marked advantages that such systems can offer, said Leaf, who commanded the 31st Fighter Wing at Aviano during Allied Force.

Shortly after Allied Force, Leaf participated in two training flights—one with RAF Harriers and the other with F-16s bearing an early data link system—that highlight the difference. The RAF pilots were qualified, combat-experienced pilots in a capable weapons system, explained Leaf. However, he said, the training scenario, which called for putting bombs on an emerging target, was a "laborious process."

Surveillance systems, such as this Global Hawk unmanned aerial vehicle, that can loiter over target areas and could be armed with weapons offer obvious benefits in striking pop-up targets.

Directing the pilots to the target required step-by-step communication. Leaf said the directions went like this: "Do you see this bridge or this building? Now move so many meters south." It took the RAF pilots about 10 minutes just to acquire the target.

The F-16 training flight featured a similar scenario, but it had a very different result. Leaf said the F-16s had a rudimentary data link that provided the needed basics to engage the target, including heading and distance, elevation, description, and location. It took the F-16 pilots "less than a minute" to put "eyes on target" and attack, said Leaf.

The RAF pilots had to work down from "big to little," while the F-16 pilots knew the exact information needed to begin their attack, he explained

That difference—10 minutes vs. one minute—was a huge improvement, observed Leaf.

The Air Force already has equipped most of its F-15s with the Link-16 data link and F-16 Block 30 aircraft with the situation awareness data link. Officials said they expect to complete installation of the Link-16 system on all F-15s by the end of this year and then will proceed with F-16 Block 40 and Block 50 aircraft. Next up will be the service's bombers, a few of which already have Link-16. Production versions of both the F/A-22 stealth fighter and the F-35 strike fighter will include Link-16 systems.

USAF's long-range tactical data link roadmap calls for completing the upgrades, including those for special operations aircraft and some airlift and aerial refueling aircraft, by 2010. Currently the service has Link-16 as well as other data links on its large intelligence, surveillance, and reconnaissance aircraft—E-3 AWACS, E-8C Joint STARS, and RC-135 Rivet Joint.

USAF photo by SrA. Chris Fiahive

During the Gulf War, Iraq fired Scud missiles from its mobile launchers and moved them to a new location before US aircraft could respond. Improvements in US weapons and tactics are limiting the ability to freely "shoot and scoot."

Under current Pentagon plans, the other services also will upgrade their tactical aircraft with the Link-16 system.

That and seven other "precision engagement/time sensitive targeting" initiatives were recommended in a precision engagement study by the Defense Science Board. Last spring, Pentagon acquisition chief Edward C. Aldridge designated the Air Force as the executive agent to implement the eight initiatives. (See box "USAF Leads Precision Engagement Initiatives," below.)

A key factor, though, is the target approval process itself, which the Air Force has been working to speed up.

"That continues to be an area we have to emphasize as much as the technical solution," said Leaf. Allied Force, which had more than a dozen nations voting on possible targets, was a nightmare in that regard. It took an average of 14 days for each target to be approved.

In a big war, Leaf said, the Air Force is "going to have to have as much as possible laid out ... before you head out the door" so that assets are properly assigned to a long list of possible targets.

If an aircraft is available for a quick attack, and pilots are authorized to strike, timelines can be cut to near zero and tracking requirements kept to a minimum. "You can do it, but what's key there?" Leaf asked. The answer, he said, is for the Air Force to have a "process in place to clear the targets [and] rules of engagement that say when we can employ."

Working the Seams

Another avenue that will lead to compression of the kill chain entails eliminating what Jumper calls cultural "stovepipes" within the F2T2EA cycle. Stovepipes refers to specialized career fields, such as space, intelligence, surveillance, reconnaissance, and communications, that contribute data to the warfighter. Each career field has its own systems and methods of presenting the data.

Jumper has said the service must remove the barriers between "tribal representatives" to get the "cursor over the target."

Having seams that data cannot flow freely across adds great amounts of time to the kill chain.

At its Joint Expeditionary Force Experiment last year, USAF tested a new program, called ISR manager, intended to collect and combine data from the various systems such as AWACS, Joint STARS, Rivet Joint, U-2 reconnaissance aircraft, unmanned aerial vehicles, the Navy's EP-3, and national sensors. The ISR manager is a Web–based software program that creates for the joint forces commander a consolidated picture of the battlespace, based on inputs from all those systems. However, service officials said the program needed more work before it could be fielded.

The Air Force believes another system tested at JEFX—the experimental MC2A-X aircraft—will lead to a single-platform replacement for three of its present-day ISR aircraft: AWACS for air battle control, Joint STARS for ground target surveillance, and, possibly, Rivet Joint for signals intelligence. Air Force officials call the multisensor command and control aircraft a "critical enabler" in efforts to compress the kill chain. (See "Seeking a Triple Threat Sensor," November 2002, p. 38.)

The single multimission platform, coupled with Air Force plans to install sensors aboard aerial refueling aircraft, would alleviate the now

USAF Leads Precision Engagement Initiatives

DOD appointed the Air Force as executive agent to oversee implementation of eight precision engagement initiatives proposed by the Defense Science Board. They are:

Small weapon with data link. Incorporate a data link into USAF's 250-pound Small Diameter Bomb. Current plans call for a GPS variant, followed by a seeker variant. DSB recommends in Fiscal 2003 an assessment of a data link variant before initiating either variant.

GPS accuracy improvement. Advance implementation of USAF's accuracy improvement initiative, which includes six additional ground segments plus a software change. Although GPS already performs better than its operational requirements specify, the initiative would provide more frequent satellite updates and could improve precision targeting by 20 to 30 percent.

Gridlock. Immediately develop the Gridlock system, which employs a common grid and automatic geo-registration process to speed and simplify precision targeting. Demonstrate the concept on the Predator UAV for motion and still imagery first, then transition to other sensor platforms, followed by strike platforms. The National Imagery and Mapping Agency has already started work on the system.

Digital point positioning database. Make a threefold increase in production rate of this NIMA product to get remaining cells to theater commanders within 1.5 years and maintain a three-year update cycle for the database. The image product provides warfighters the capability to discern latitude, longitude, and elevation quickly and accurately on digital workstations.

Tasking, processing, exploitation, and dissemination. Establish an integrated system for shared exploitation and fusion of target information by 2006. Each service plans to field distributed common ground stations that will serve as the foundation for this system. DSB recommends accelerating the pace of fielding for the Air Force by three years and for the Marine Corps by one year to meet the 2006 deadline.

Foliage penetration radar. Develop a sensor package for USAF's Block 10 Global Hawk that would enable the UAV to find targets under cover and in trees. Dedicate funding to begin integration in 2004, with expected completion by 2007.

Ground moving target indication. Integrate a radar on USAF's Block 10 Global Hawk that would enable the UAV to maintain a track on moving vehicles. Fund the program to accelerate it by at least two years, from 2009 to 2007. DSB noted a three-year advance might be possible.

Link-16. Deploy the secure Link-16 communications data link on all tactical platforms by 2010.

chronic shortage of airborne ISR platforms brought on by a sustained high operations tempo.

Last year, the Air Force created a new office to manage the efforts under way to provide seamless, integrated command, control, communications, computers, and ISR. The service established the position of deputy chief of staff for warfighting integration (XI), headed by Lt. Gen. Leslie F. Kenne.

When the office was announced, Jumper said, "I have explicitly charged the new AF/XI to close the seams in this kill chain by integrating manned, unmanned, and space systems, thereby enabling commanders to create desired effects in the battlespace."

The service also instituted a task-force approach to develop requirements. (See "Seven Pillars of Airpower," June 2002, p. 42.) The aim is to find the best way to achieve warfighting results, instead of focusing on specific systems in isolation.

Jumper believes the service is "well on [its] way" toward breaking down the cultural niches.

In fact, the service already has demonstrated that eliminating the seams between platforms can produce big dividends. During Enduring Freedom in Afghanistan, the service put live feeds of intelligence data from Predator UAVs directly into AC-130 gunships. The gunship aircrews were able to gain situational awareness of the areas they were going to strike as they flew to the target. They were able to start firing immediately instead of making a couple of preparatory passes. In the past, the intelligence data would have been filtered through analysts at an air operations center or even Stateside before being sent to the field.

Through their ability to loiter over target areas for long periods, persistent surveillance platforms such as the Global Hawk and Predator UAVs have proved beneficial in the drive to shorten the kill chain. With mobile targets that can hide, "having a surveillance platform that can park overhead and stare until [the target] emerges again is of great value in maintaining that track until you have assets available that can kill it," said Leaf.

Surveillance is of little value, however, without a shooter on hand to attack the fleeting target.

"If an airplane is 20 minutes away from a target, all the data links in the world are not going to make the kill chain nine minutes," Leaf observed. "I'm sorry. That's physics. There are laws that you can't repeal in that case."

That is one reason Jumper advocated putting weapons on UAVs in early 2001. The service successfully proved Predators could fire Hellfire missiles. Air Force officials are now able to match up images from a Predator with coordinates in less than a minute. Operators now can fire a Hellfire missile in near real time. In Afghanistan, the US used armed Predators in several successful attacks.

The Air Force is pursuing hunter–killer UAVs and, in the future, larger unmanned combat air vehicles with greater weapons load capability to strike pop-up targets.

Ultimately, as Air Force Secretary James G. Roche has said, it will be networking the range of new systems from precision weapons to ISR platforms that will enable the service to reduce the F2T2EA kill chain to "timelines unimaginable just a few years ago." ■

USAF photo by SSgt. Guadalupe Hernandez

During Enduring Freedom in Afghanistan, USAF used a Predator UAV (top photo) to provide live feeds of intelligence data directly to an AC-130 gunship, enabling the crew to strike immediately. That type of time reduction in the targeting cycle improves the ability of US forces to strike fleeting targets, such as this SA-6 missile launcher destroyed in the Gulf War.

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Senior Leadership

Compiled by Chequita Wood, Editorial Associate

KEY:

ADUSD	Assistant Deputy Undersecretary of Defense
ASD	Assistant Secretary of Defense
ATSD	Assistant to the Secretary of Defense
DASD	Deputy Assistant Secretary of Defense
DATSD	Deputy Assistant to the Secretary of Defense
DUSD	Deputy Undersecretary of Defense
PDASD	Principal Deputy Assistant Secretary of Defense
PDUSD	Principal Deputy Undersecretary of Defense
USD	Undersecretary of Defense

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Donald H. Rumsfeld

Deputy Secretary of Defense
Paul D. Wolfowitz

ASD, Legislative Affairs
Powell A. Moore

PDASD, Legislative Affairs
Daniel Stanley

DASD, Senate Affairs
Steven Moffitt

Dir., House Affairs
Col. Noreen Holthaus, USA

ASD, Public Affairs
Victoria Clarke

PDASD, Public Affairs
Vacant

DASD, Public Affairs (Media)
Bryan Whitman

ATSD, Intelligence Oversight
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Thomas P. Christie

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Stephen A. Cambone*

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William J. Haynes II

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* The President nominated on Feb. 4 Stephen A. Cambone to be the new Undersecretary of Defense, Intelligence.

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USD, Comptroller & Chief Financial Officer
Dov S. Zakheim

PDUSD, Comptroller
Lawrence J. Lanzillotta

DUSD, Management Reform
Lawrence J. Lanzillotta

DUSD, Resource Planning & Management
Wayne A. Schroeder

DUSD, Financial Management
Vacant

Deputy Chief Financial Officer
JoAnn R. Boutelle

Deputy Comptroller, Program & Budget
John P. Roth

Acquisition, Technology, & Logistics

USD, Acquisition, Technology, & Logistics
Edward C. Aldridge Jr.

PDUSD, Aquisition, Technology, & Logistics
Michael W. Wynne

DUSD, Installations & Environment
Raymond F. DuBois Jr.

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Nancy L. Spruill

Director, International Cooperation
Alfred G. Volkman

Director, Special Programs
Rear Adm. Richard P. Terpstra, USN

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Brian Hughes

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Dale E. Klein

DATSD, Chemical & Biological Defense
Anna Johnson-Winegar

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PDASD, C^{3}I
Linton Wells II

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Guardsmen, Reservists, employers, and family members have stepped up to a bigger mission, but it has not been easy.

The Guard and Reserve Stand Fast

By James Kitfield

As the United States military prepared late last year for the confrontation with Iraq, thousands of members of the National Guard and Reserve began a holiday season routine that had grown familiar with repetition.

Activation orders rippled through the force of 1.3 million reservists in the largest call-up since the Sept. 11 terrorist attacks. Around the nation, reservists rushed to get married, informed employers of long absences to come, struggled to shape up finances and paperwork, and bid tearful good-byes to worried family members and friends.

More than 10,000 Guardsmen and Reservists were activated during the call-up in December, joining another 53,000 already on active duty.

More activations took place in January and February, when the number activated hit more than 100,000. The number could top 200,000, depending on how the face-off with Iraq plays out. That would rival the Gulf War buildup of 263,000 reservists 12 years ago.

An F-16A (right in photo) from the 148th Fighter Wing, Minnesota ANG, escorts home one of many F-16C models the wing will receive. Seven of the Air Force's 20 fighter wing equivalents are in the Air National Guard and Air Force Reserve Command.

In spite of the obvious hardships, there were no protests from reservists whose lives were, again, disrupted. There was no outcry from employers left shorthanded again as employees put on the uniform and left for deployments. There were no commanders grumbling about being shackled with "weekend warriors."

"The primary motivator [of the reservists] is to answer the call when the nation needs them," said retired Maj. Gen. Richard C. Alexander, president of the National Guard Association of the United States. "It's why they want to be in uniform in the first place, and their families support them because they feel the same way."

It's getting harder, though, continued Alexander.

"What's changed," he said, "is that the US military can no longer predict where it will be fighting next or what kind of host nation support it might receive. That has put increased pressure on the Guard and Reserve to step up and respond more rapidly to these unanticipated crises."

The burden placed on the reserve components has grown dramatically in the past decade, and it spiked even higher after the 9/11 attacks. During the Cold War's four decades, Presidents rarely needed to approve major activations of the Guard and Reserve. Within the past 12 years, the reserves have been activated for six major contingencies:

- Desert Storm in Iraq and Kuwait, 1990–91.
- Northern Watch over Iraq, 1991 to the present.
- Southern Watch over Iraq, 1992 to the present.
- Deliberate Force in Bosnia, 1995.
- Allied Force over Serbia, 1999.
- Enduring Freedom in Afghanistan, 2001 to the present.

It is not unusual to find reservists who have been called up four or even five times in the past decade.

The contribution of Guard and Reserve forces to ongoing contingency operations has grown from an average of roughly one million man-days of duty per year in the

USAF photo by MSgt. Dean V. Kuhlman

1980s to 13 million man-days at present.

As a result, the Guard and Reserve have undergone a dramatic transformation from organizations designed for mass mobilization in the unlikely event of a major war to active members of a Total Force engaged in constant peacekeeping, peace enforcement, and combat operations around the world.

Handle With Care

Craig W. Duehring, principal deputy assistant secretary of defense for reserve affairs, said expanded reliance on the reserve components should be handled with utmost care.

"Everyone realizes we are no longer using the Guard and Reserves as we did during the Cold War," said Duehring. "However, while the Guard and Reserves have proven conclusively that we can count on them in places like Bosnia, Kosovo, Afghanistan, and the Middle East—and the active component is much more willing to count on them now that they know what to expect from the Guard and Reserve—we can't abuse them. These are people who have outside jobs and careers, and we may be approaching a limit, in terms of how much we ask of them."

In recruiting and retention, officials had expected problems. However, the Guard and Reserve have met or exceeded their goals during the last hectic year of operations.

Nor have officials encountered the expected spike in complaints from hard-pressed employers upset at losing their most valued employees. "I've been holding my breath and watching closely for warning signs that we've reached some kind of saturation point in use of the Guard and Reserve," said Duehring. "So far I haven't seen any."

Bob G. Hollingsworth is executive director of the Pentagon's National Committee for Employer Support of the Guard and Reserve. He attributes the national outpouring of support to the shock and anger caused by the first direct attack on the United States since Pearl Harbor in 1941.

"I haven't seen this galvanization of support from employers in my lifetime," he said. "The great preponderance of calls I have received from employers after 9/11 have not concerned what they had to do by law but rather what employers could do extra for their employees who were reservists."

Hollingsworth cites the example of a Virginia reservist who was mobilized for duty in Bosnia. He had a wife and two children and stood to lose about half of his annual $50,000 income, which he earned driving trucks for the Serta Mattress Co.

"The financial burden eventually became such a problem," said Hollingsworth, "that he called us, and we made a visit to Serta to explain the situation. The company not only made up the salary differential while he was on active duty but also extended his health insurance."

Hollingsworth added that there are "hundreds" of companies doing the same thing.

Sense of Honor

The same sense of patriotism is evident in the reservists who call the National Committee for Employer Support of the Guard and Reserve. Many from infrequently activated units inquired how to volunteer for active duty. Hollingsworth cites the case of Sgt. Layne Morris, a member of a Special Forces unit in the Army National Guard from Salt Lake City. Morris was wounded in a firefight in Afghanistan, losing an eye. Moreover, one of his friends was killed. Now, said Hollingsworth, Morris wants to go back to Afghanistan to complete "unfinished business" there.

Hollingsworth says he is "ecstatic" about the response of reservists and employers.

Today, the spotlight is on actual deployments, but the Pentagon has been studying ways to further transform the Guard and Reserve components to make them more relevant to an era of short-notice contingencies and new missions such as homeland defense and regular peacekeeping rotations.

As part of an ongoing Reserve Component Comprehensive Review, Secretary of Defense Donald H. Rumsfeld asked the services and reserve components to consider changes in the entire active–reserve relationship. His goal: smoother cooperation in peacetime and times of crisis.

Along the way, Rumsfeld and his top aides have made some controversial proposals. One calls for giving back to the active force a number of missions now performed by reservists. Rumsfeld was annoyed when he learned that he couldn't swiftly execute some missions because they required reserve activation.

However, any major change in that situation would strike at the heart of the Total Force concept. Any actual proposal to move missions from the Guard and Reserve on a wholesale basis is sure to cause consternation and anger in the reserve ranks.

"Certainly, Secretary Rumsfeld's suggestion that it might make sense to move certain missions back to the

USAF photo by TSgt. Ricky A. Bloom

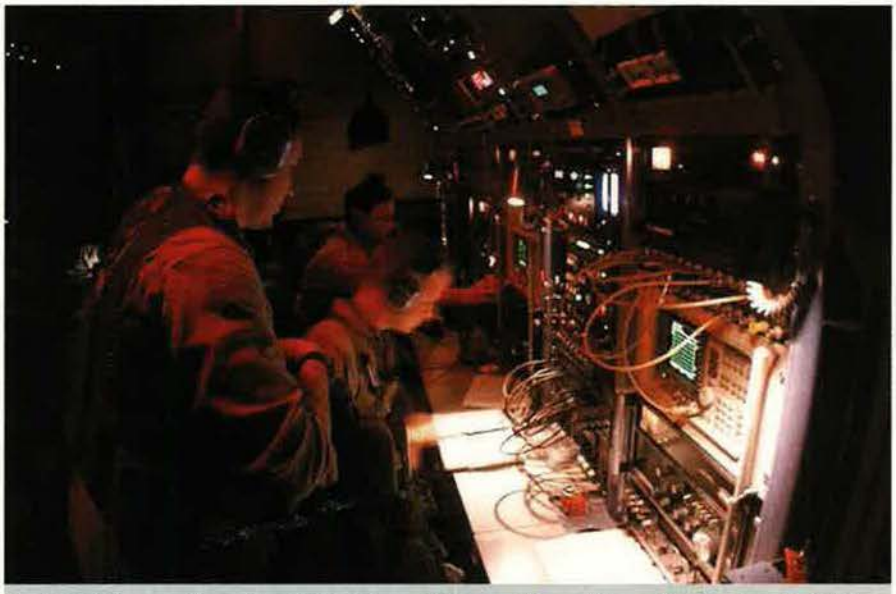
Majs. Mike Lankford and Brian Borg, AFRC A-10 Thunderbolt II pilots, go over flight plans. They were preparing for a close air support mission from Bagram Airfield, Afghanistan, in support of Operation Enduring Freedom.

active component got our attention," said Army Maj. Gen. Raymond F. Rees, acting chief of the National Guard Bureau.

Rees went on to say, however, "We think he just wants to make sure we use the Guard in wise and prudent ways. Certainly if we need to make adjustments we'll respond, just as we've responded to the current vision. Our strong feeling, however, is that citizen soldiers should be fully involved in all aspects of the Total Force, and what we hear Rumsfeld saying doesn't contradict that idea."

The Total Force was born in 1973 and was directly tied in principle to the all-volunteer force created the same year in the backwash of Vietnam. President Johnson had resisted a major reserve call-up throughout the Vietnam years so as not to disturb his Great Society legislative effort.

USAF photos by TSgt. Jack Braden



An EC-130 crew from the 193rd Special Operations Wing, Pennsylvania ANG, monitors a radio broadcast. Above, a Commando Solo aircraft on the ramp. The 193rd SOW has a particularly high deployment rate.

US military leaders have never forgotten that the Johnson Administration, for reasons of political expediency, refused to put the nation on a war footing, leaving the uniformed services to fight the Vietnam War on their own, with little up-front public support.

Done for a Reason

In the wake of Vietnam, postwar military leaders, led by Army Chief of Staff Gen. Creighton W. Abrams Jr., decided to make a wholesale transfer of combat support functions to the reserves. The result was a military force structure purposely configured to require a Presidential reserve call-up in the event of a major mobilization.

In the Air Force, reserve component forces account for 64 percent of tactical airlift, 55 percent of aerial refueling and strategic tankers, 38 percent of tactical air support, and 27 percent of strategic airlift. Seven of the Air Force's 20 fighter wing equivalents (the term used to describe combat fighter aircraft force structure) are in the Air National Guard and Air Force Reserve Command. The AFRC forces also fly B-52 bombers.

In the Army, 70 percent of combat service support resides in the reserve component. The reserves are also home to 97 percent of the Army's civil affairs forces, and 82 percent of its public affairs officers. Likewise, 81 percent of Army public affairs forces are in the reserves; 81 percent of psychological operations forces; 85 percent of medical brigades; and 66 percent of military police battalions.

The Department of Defense has discovered—or relearned—this pivotal fact: The President needs to call up the reserves even for such small-scale contingencies as Bosnia, Kosovo, and the Gulf no-fly zone operations.

Under the pressures of real-world operations during the past decade, the reserve components have learned a new flexibility.

A real-world example came late last year. The Air Force badly wanted to send home thousands of Air National Guard and Air Force Reserve Command troops. They had been on security duty at US and overseas bases for more than a year, and they legally could have been held on active duty for another 12 months.

However, the Air Force did not have sufficient personnel to replace them. In the end, the Army National Guard stepped in, activating and re-

USAF photo by TSgt. Cecil D. Daw Jr.

SrA. Charles Schilling, a crew chief from the 159th Fighter Wing, New Orleans ANG, directs an F-15 out to the taxiway. Members of the 159th were at Incirlik AB, Turkey, for Operation Northern Watch.

training 9,000 combat troops for security duty and offering them as replacements.

"I think the Army Guard's willingness to mobilize 9,000 of their troops to fill that shortfall was a monumental event," said Duehring. "It showed the willingness of the reserves after 9/11 to relax some of these entrenched philosophies and territorial jealousies."

There is widespread wariness, however, that the reserve review could make it easier to deploy military forces without a call-up of reserves, and that would undermine a fundamental principle of the Total Force.

"I understand that the Secretary of Defense is trying to [move] missions from the reserve into the active-duty component in order to shrink the amount of time it takes them to respond to a contingency, but I fear making it possible to deploy our military without the reserve component," said Alexander. "That makes it more likely that a particular Administration will take us to war, rather than the United States going to war as a whole nation. ... I also believe the Guard and Reserve would become less relevant."

The reserve components aren't averse to change. In fact, officials say they are experimenting with new ways to make the reserves more flexible and responsive—and reserve duty less onerous once a unit or individual is activated.

For many Army officials, the best model is the Air National Guard. "I've said for years that the Air Guard model makes a lot of sense for the new operational environment we're confronting," said Rees of the National Guard Bureau.

Rees went on, "Just look at Air Guard units, attached to the 1st Air Force, that are ready to fly air defense missions over the United States with only minutes of warning. The Air Guard has proven for a long time that the Guard can support rapid-reaction missions. You just have to make the appropriate investment in resources and training."

The Rainbow Effect

In a concept called "rainbowing," Air Guard units meet the requirements of a three-month Northern Watch or Southern Watch deployment by bringing in fresh units every two weeks. The units fall in on forward deployed equipment. This avoids burdening a single unit with an entire 90-day deployment, as is customary for the active duty Air Force.

All of this is part and parcel of USAF's 10 Air and Space Expeditionary Forces, or AEFs.

"The AEF construct is clear evidence that the Air Force and Air Guard have tried to come to grips with the expeditionary requirements and the types of deployment issues we're increasingly confronting," said Rees. "We're not at that level of sophistication yet with the Army Guard."

There are other lessons from the Air National Guard model, say officials. They note many Air Guardsmen are pilots or aircraft maintainers in civilian life, and, as a result, they can often transition to their military roles more quickly and with less training. The lesson is that all service reserve components should take care to match civilian careers with reserve force occupations.

The Air Guard also defies the old one-weekend-a-month, two-weeks-a-year scheme of reserve duty. Because some Air Guard units are known to have high deployment rates and operations tempo—the Air Guard's Commando Solo 193rd Special Operations Wing in Pennsylvania is a noted example—they tend to attract reservists with flexible careers and a thirst for adventure.

"People realize when they join those units that they have a high rate of tasking, and if that doesn't fit the realities of their civilian careers or family situations, they better look to join another unit," said Duehring. "Frequently, Air Guard pilots are on reserve duty for much longer than the traditional two weeks each summer, but their jobs allow for that."

In applying that concept across the board, the Office of Reserve Affairs is looking to adjust the old model. If an Army Guard armor unit takes a week to deploy its equipment to the field for training and a week to return it, for instance, it may need to train for a full three weeks while dropping the requirement to show up one weekend per month.

The point is that the threats to US security and national interests around the world are changing more rapidly than any time in memory, Guard and Reserve officials say, and their forces are ready to adapt to the new challenges.

As Duehring puts it, "The idea is to be flexible." ■

James Kitfield is the defense correspondent for National Journal *in Washington, D.C. His most recent article for* Air Force *Magazine, "The Highs and Lows of Northern Watch," appeared in the August 2002 issue.*

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The week-long flight in 1929 provided object lessons in vision, planning, flying skill, logistics, and public relations.

Question Mark

Walter J. Boyne

It was near the end of the Roaring Twenties, and, even though the stock market was soaring, the US military was still on a tight budgetary leash. Nowhere was this more evident than in the undermanned and underpaid United States Army Air Corps.

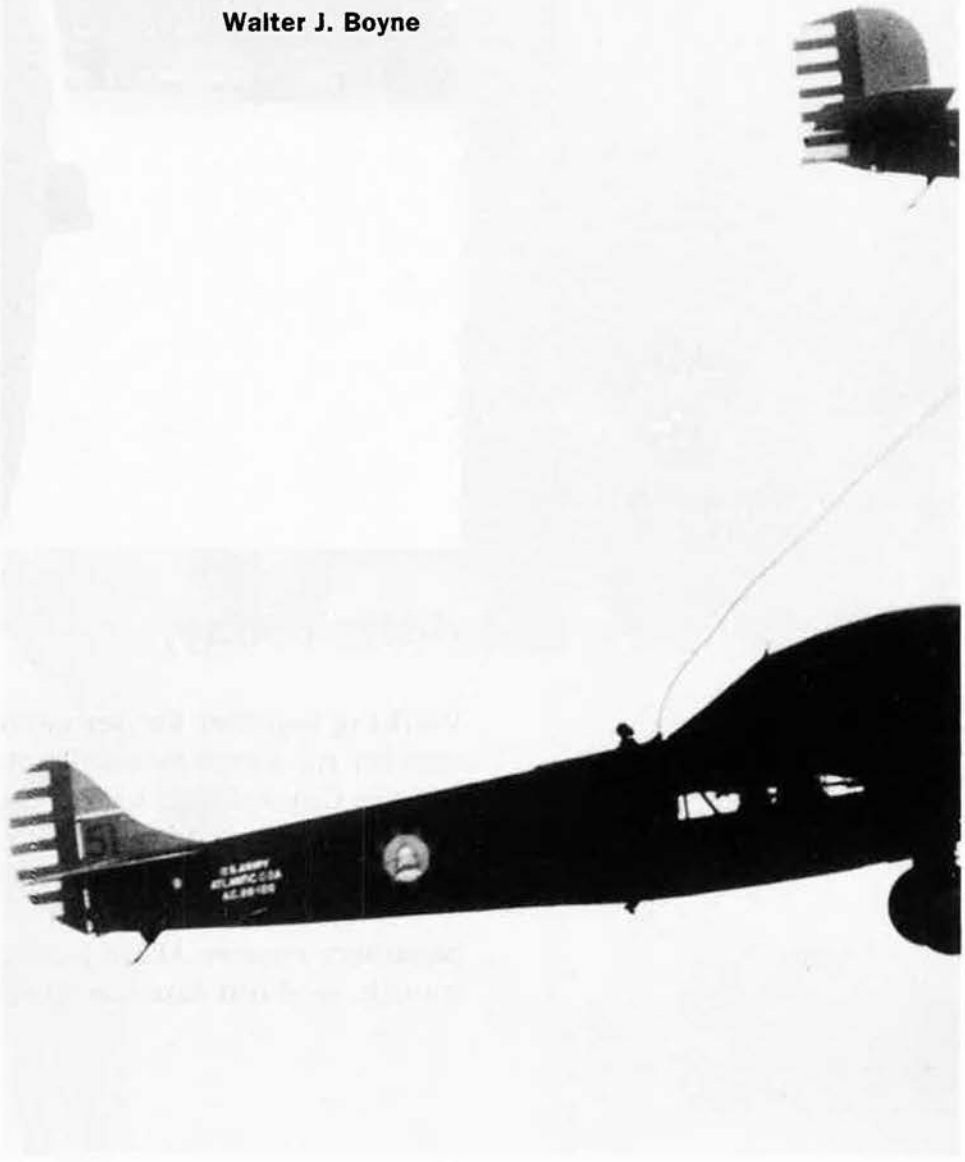
Even so, the hopes of the Air Corps ran high on Jan. 1, 1929, particularly in the cockpit of *Question Mark,* a Fokker trimotor, as it prepared to make history. It lifted off, and neither the airplane nor crew members would touch the ground again for 150 hours, 40 minutes, and 14 seconds.

This was a remarkably long flight for an aircraft with wooden wings and steel-tube fuselage. In addition to its length, the flight had two other distinguishing characteristics.

First, the flight of *Question Mark* foreshadowed an era of routine aerial refueling, the sine qua non of modern airpower.

Second, it helped propel its five crew members to greater achievements. The crew contained future generals Carl A. Spaatz, Ira C. Eaker, and Elwood R. Quesada; Harry A. Halverson, who led a key bomb raid in World War II; and a future hall of fame master sergeant, Roy W. Hooe. The flight of *Question Mark* touched many others, including ground personnel and crews of the refueling airplanes.

The week-long saga was a demon-



A photo taken from a chase airplane shows **Question Mark** *and the Douglas C-1C refueler joined by a slender hose. The device allowed fuel to flow at a rate of 75 gallons per minute.*

stration of Air Corps vision, planning, flying skill, logistics, and public relations.

It was not chance that those factors also matched the individual personalities of the participants. The flight would never have happened if this particular group of officers had not planned, politicked, and performed in their own special way.

De Seversky's Patented Idea

The basic idea of refueling in flight dated at least to 1917, when it was advocated by an officer in the Imperial Russian Navy air service, Alexander P. de Seversky. De Seversky came to the United States after World War I and took out many patents, including one in 1921 that covered aerial refueling. (The patent expired before the concept became commonplace.)

The concept of extending flight duration was attractive to many, and the first demonstration was the workman-like approach of Wesley May, who was flying over Long Beach, Calif., on Nov. 12, 1921, in a Lincoln Standard biplane. He climbed from his airplane to a Curtiss JN-4 with a five-gallon can of gasoline strapped to his back. When he poured the gasoline from the can into the tank, aerial refueling was born.

On May 2 and May 3, 1923, Lt. Oakley G. Kelly and Lt. John A. Macready set a new endurance record of 26 hours and 50 minutes in a transcontinental flight.

The desirability of aerial refueling for military aircraft was obvious. Maj. Henry H. "Hap" Arnold, then commanding Rockwell Field at San Diego, authorized two DH-4Bs to practice in-flight hook-ups with a hose. The experience was put to the test June 27 when 1st Lt. Lowell H. Smith and 1st Lt. John P. Richter attempted an endurance flight but were forced to land after two refuelings. The flight lasted six hours and 38 minutes.

The same two tried again on Aug. 27, determined to set the world record. There were two refueling aircraft this time. Smith and Richter set an endurance record of 37 hours and 15 minutes and a world distance record of 3,286 miles.

Meantime, three strong personalities were coming together at Air Corps headquarters.

- Spaatz, then a major, was assistant G-3 for training and operations, working closely with Maj. Gen. James E. Fechet, Chief of the Air Corps. Spaatz was a respected airman who had scored three aerial victories in World War I and had loyally supported Brig. Gen. William Mitchell at his court-martial.
- Eaker, then a captain, had been a pilot for three of the Air Service's top leaders—Maj. Gen. Mason M. Patrick, the Chief; Fechet; and F. Trubee Davison, assistant secretary of war for air. Eaker was an articulate speaker and excellent writer, with a deceptively modest, self-effacing personality.
- Quesada, then a second lieutenant, had a golden first assignment: engineering officer at Bolling Field, D.C. Personable and competent, he had responsibility for maintaining the aircraft of Fechet, Spaatz, Eaker, and others.

Somebody (exactly who is a matter of debate) came up with the idea of putting together an in-flight refueling operation to allow an Air Corps aircraft to set an endurance record. It took all of Spaatz's reputation for competence, Quesada's charm, and Eaker's diplomacy to sell the idea. Davison at first opposed the project but changed his mind. Once he approved the idea, he gave it his wholehearted support.

Spaatz was given overall command and put in charge of planning. Eaker was to serve as chief pilot. Quesada was to back Eaker and relieve him as needed. The team then recruited a fourth, highly promising pilot, Halverson.

The Name Game

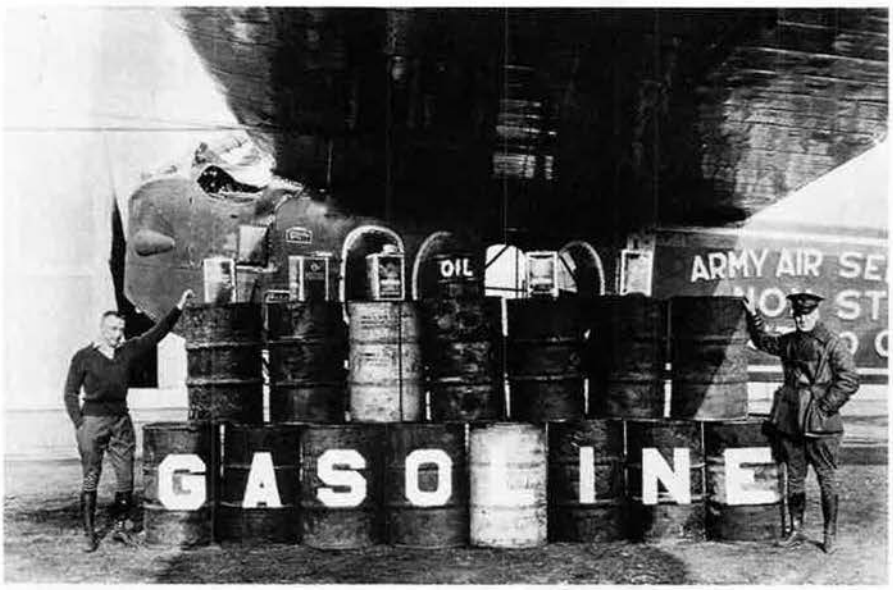
As they made their preparations, the four were often asked how long they planned to stay airborne. Their never-changing response: "That is the question." They planned to fly as long as they could keep the aircraft aloft. Such was the source of the aircraft's strange name, *Question Mark*.

For Spaatz, the first step in planning was to select the actual aircraft. He settled on a specially modified Fokker C-2A, built by the company's US branch, the Atlantic Aircraft Corp. Before modification, it had an empty weight of 6,507 pounds, a top speed of 112.8 mph, and a range of 296 miles.

The most impressive part of the airplane was its power. It sported three 220-hp radial engines. Reliable and fuel-efficient, these engines turned out to be the keys to success.

The addition of two 150-gallon tanks raised total fuel capacity to 580 gallons.

Hooe, selected to be part of the crew, oversaw the installation of the Fokker's refueling system. The receptacle was a rectangular bucket that had a sloping bottom with two



Lts. John Macready and Oakley Kelly pose with their Fokker T-2 aircraft and the barrels of fuel and oil they used in their record-setting 1923 transcontinental flight of 26 hours and 50 minutes.

outlets and was connected by hoses to the fuselage tanks. Hooe used a pump to transfer fuel from the fuselage tanks to the wing tanks.

He also installed an elaborate system that allowed him to change oil while airborne. The system would drain oil from the engine then refill it from an oil tank in the fuselage. Hooe also devised a system of long copper tubes that ran from the fuselage to key points on the engines; this allowed him to grease the rocker arms from a distance, using a standard grease gun. Finally, he built catwalks and platforms that allowed him to do minor midair maintenance while wearing a parachute and a lineman's belt.

Access to the airplane's fuel receptacle was gained through a trapdoor placed behind the wing, the

***A ground crew prepares preheated oil in five-gallon cans that the refueling aircraft will lower through the hatch of* Question Mark.**

Question Mark *was a specially modified Fokker C-2A sporting three powerful and fuel efficient 220-hp radial engines. Modifications included the addition of two 150-gallon fuel tanks as part of the new refueling system.*

better to keep the hose far away from the propellers. Supplies—from food to a portable bathtub—came in through the same trapdoor, via rope.

For the tanker airplane, the team chose a Douglas C-1C single-engine transport. It had a top speed of 121 mph. The pilot and copilot sat side by side in an open cockpit just forward of the upper wing. The metal-floored passenger cabin normally had seats for six but could carry cargo as large as a Liberty engine.

For this flight, the airplane carried a reel fitted with a 50-foot-long, 2.5-inch-thick fire hose. The nozzle was tightly wrapped with copper wire, some of which extended down and was grounded to a copper plate on *Question Mark* before refueling began. The hose had only one shut-off valve—at the upper end. It caused some problems in flight.

To save weight, the crew installed no radio equipment. Spaatz instead relied on messages that the crew would drop to the ground.

The flight used two C-1C refuelers. One, stationed at Rockwell Field, was flown by Capt. Ross G. Hoyt. The second, stationed at Los Angeles Metropolitan Airport in Van Nuys, Calif., was flown by 1st. Lt. Odas Moon.

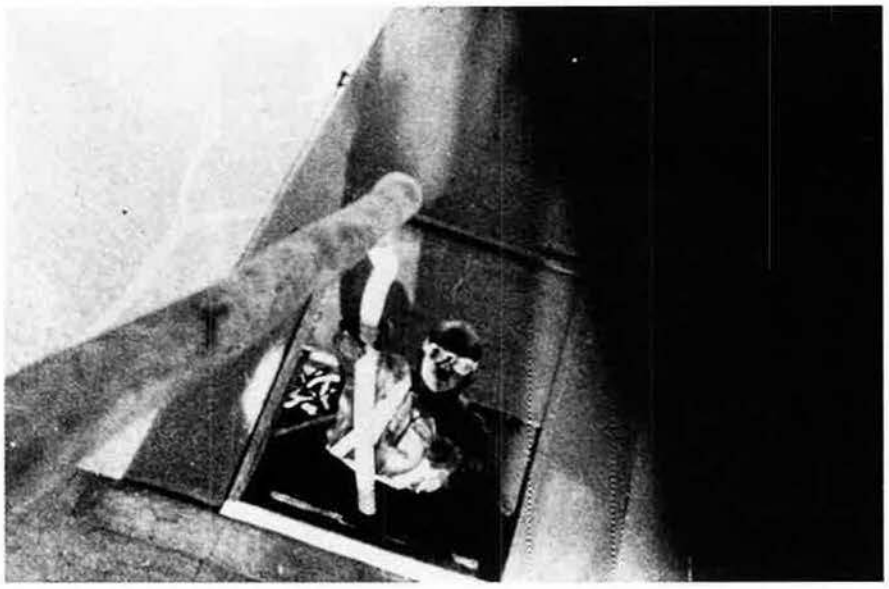
Capt. Hugh M. Elmendorf (whose name was bestowed on a major Air Force base in Alaska) was in charge of ground operations and logistics, which became quite complicated as the week passed.

Eaker was at the airplane's controls as *Question Mark* took off from the Los Angeles airport at 7:26 a.m. on New Year's Day 1929. Because of the large amount of installed equipment, the airplane was heavy, and it took off with only 100 gallons of fuel on board. Moon's tanker provided the first refueling at 8:15 a.m.

The Technique

The technique called for the refueling airplane to approach from the rear, then fly slightly ahead of *Question Mark,* maintaining vertical separation of about 30 feet. Both aircraft flew a straight course at a speed of 80 mph. The C-1C extended the hose, to Spaatz, the future Air Force Chief of Staff. Spaatz, dressed in a raincoat, face mask, goggles, and gloves, would grasp the hose, ground the copper wire against the copper plate, and then insert the hose into the receptacle. On his signal, the tanker crew would open the valve that allowed fuel to flow through the hose at the rate of 75 gallons per minute.

On that first day, Hoyt made three



Maj. Carl Spaatz stretches through the trapdoor at the top of* Question Mark *to grasp the refueling hose for a fuel transfer. The transfer was messy—Spaatz was sprayed by fuel on several occasions.

contacts, transferring 600 gallons. The process became more difficult as the tanker off-loaded fuel to *Question Mark,* which had to go into a slight descent to stay well above the stall speed.

At noon, over Van Nuys, officials sent their first message to *Question Mark*. It was chalked onto the black side of a PW-9D pursuit aircraft, and it read, "Don't Forget Rose Bowl." It was a reference to the classic football matchup then being played in Pasadena between Georgia Tech and California.

No one needed a reminder, least of all Eaker, who was well aware of the flight's public relations value. In 1929, the Rose Bowl was the equivalent of today's Super Bowl, a publicity gold mine not to be missed. In fact, Eaker spent much of his time each day writing pointed letters and telegrams to influential people, extolling the value of refueling and the Air Corps generally.

Shortly after midnight of that first day, on Jan. 2, Spaatz was drenched with fuel when the hose was jerked out of his hands by a bit of turbulence. Concerned that the 72 octane fuel that soaked his clothing might burn his skin so badly that he would have to leave, he ordered Eaker to carry on with the flight even if he, Spaatz, had to bail out for medical treatment.

On the next refueling attempt, Spaatz appeared in the hatch stark naked, except for a parachute harness. During the entirety of the flight, Spaatz was sprayed with fuel on three occasions. After the first time, he just applied oil to his skin and zinc oxide to his eyes, with no ill effects.

Question Mark's *left engine died Jan. 7 when a pushrod failed, so the crew decided to land. All told,* Question Mark's *crew had hooked up with a refueling aircraft 43 times.* Question Mark *took on 5,660 gallons of fuel and 245 gallons of oil.*

"No Grouches Aboard"

To ease the strain on *Question Mark's* engines, the crew maintained a low cruise speed, placidly traveling from San Diego to Los Angeles and back, hour after hour, day after day. The flight soon settled into a routine reflected in the official log. They kept careful track of who was flying and the nature of the weather conditions.

In one notation, Spaatz wrote: "All is serene on the *Question Mark*. Eaker is relaxing prior to refueling in about 20 minutes. Halverson is piloting, Hooe pumping, Quesada writing letters to his sweethearts, and I, needless to say, am writing in the log. Everyone is taking it easy as possible today after last night's long vigil. Hope to pass a normal night tonight to enable the crew to get a much needed rest."

A little later he noted in the log: "This is a good bunch up here. All pleasant and willing. No grouches aboard."

There were maintenance problems. A window blew out, and it took days to get a replacement. A gas leak occurred, which the indomitable Hooe fixed with the traditional red lead, soap, and shellac.

The engines gradually developed problems, and Eaker began keeping *Question Mark* within gliding distance of the Los Angeles airport. The Fédération Aéronautique Internationale had declared that, for a record to be valid, the airplane had to take off from and land at the same airport.

On Jan. 7, the left engine shuddered and died. The crew applied more power to the other two en-

gines while Hooe went out on a catwalk to attempt repairs. However, the strain on the other two engines, after so many hours of lazy cruising, was too great. It was time to descend.

They landed safely, and a post-flight analysis of the left engine showed that a pushrod had failed and that the rocker arms were badly worn.

Eaker had predicted a flood of good publicity for the Air Corps, and he was right. Newspapers and newsreels were filled with admiring commentary, none of which was lost on Congress. Each member of *Question Mark's* crew received the Distinguished Flying Cross. Eaker, having already received a DFC in 1927, got an oak leaf cluster. (Tanker crews were not similarly rewarded at the time; they received only letters of commendation.)

Sgt. Roy Hooe, 2nd Lt. Elwood Quesada, 1st Lt. Harry Halverson, Capt. Ira Eaker, and Maj. Carl Spaatz pose with their aircraft after a week in the air. All were awarded the Distinguished Flying Cross.

Both the publicity and the decorations were well-deserved. *Question Mark* had flown 11,000 miles and set numerous records in the process. It had hooked up with the tankers 43 times, 12 of these occurring at night.

The hardworking tankers had delivered 5,660 gallons of aviation fuel and 245 gallons of oil, not to mention comfort items such as turkey and chicken dinners, ice cream, and mail.

Spaatz was understandably upbeat in his report to Fechet. He stated: "The flight of the *Question Mark* demonstrates conclusively that one transport plane can safely refuel another transport in the air."

He extended the possibilities of aerial refueling to bombers, pursuit aircraft, attack aircraft, and observation airplanes, noting that it would extend their radius of action and improve safety. Spaatz believed that commercial aircraft could benefit from the technique as well, making transcontinental and transoceanic flight practical.

Question Mark inspired many imitators, and, by year's end, they had made more than 40 attempts to break its record. Nine of them succeeded. These were all relatively low powered private aircraft, however, kept in the air by the guts and the drive of young pilots seeking to make a name for themselves.

Given the success of *Question Mark,* there arises the question of why aerial refueling did not come into practical use well before World War II. Eaker was often asked about this, and his usual response was that it was a matter of engine development. Engines had become larger and more reliable so that it was possible to solve the most pressing problems of range with larger airplanes.

For the most part, US aircraft during World War II had sufficient forward bases so that in-flight refueling was not an absolute necessity.

Return of Air Refueling

After World War II, the distant Soviet Union loomed as a potential enemy, and, once again, aerial refueling was seen to be a necessary part of airpower, all the more so with the introduction of fuel-guzzling jet-powered bombers. Spaatz, as Chief of Staff, approved development of aerial refueling as a top priority.

All major participants in the *Question Mark* project went on to successful careers before, during, and after World War II.

Spaatz commanded US Strategic Air Forces in Europe. Gen. Dwight D. Eisenhower, the supreme allied commander, said Spaatz and Gen. Omar N. Bradley were the two officers most responsible for the Allied victory in Europe.

Eaker commanded Eighth Air Force, winning the hearts of the British people with his famous short speech: "We won't do much talking until we've done more fighting. After we've gone, we hope you'll be glad we came."

Quesada became commanding general of 9th Tactical Air Command. Bradley, asked to list the most important US generals, placed Quesada fourth, behind Walter Bedell Smith, Spaatz, and Courtney H. Hodges, and ahead of George S. Patton Jr., who was sixth.

Halverson gained fame leading aircraft in the first raid on the Ploesti, Romania, oil fields in World War II.

Hooe went on to become a master sergeant and was inducted into the Airlift Tanker Association Hall of Fame.

As Spaatz had noted in the log, they were "a good bunch," "pleasant and willing," and they were able, despite the many stresses of their service careers, to remain friends. ■

Walter J. Boyne, former director of the National Air and Space Museum in Washington, D.C., is a retired Air Force colonel and author. He has written more than 400 articles about aviation topics and 29 books, the most recent of which is The Two O'Clock War: The 1973 Yom Kippur Conflict and the Airlift That Saved Israel. *His most recent article for Air Force Magazine, "Foulois," appeared in the February issue.*

Gen. Richard Meyers, head of the Joint Chiefs of Staff, talks about key issues facing the force.

A Few Words From the Chairman

Gen. Richard B. Myers, USAF, is the Chairman of the Joint Chiefs of Staff and is the top military advisor to the President. On Jan. 22, he met with members of the Defense Writers Group in Washington, D.C. What follows are excerpts from that discussion.

Shift Guard and Reserve Missions Back to Active Force?

"I think it is fair to look at [that]. You are always going to need the reserve component for a major conflict. It is just a fact of life. There are some specialties and we need to look at that mix very carefully and see if we put, in some cases, 100 percent of our capability in the reserve component, and so you can't even do some of the things you need to do, day to day, without going into the reserves. That mix is being looked at right now. As you know, there is a study going on to see if we have got the mix about right."

Equipping and Training the Guard and Reserve

"In terms of Total Force policy, in terms of making sure the reserves are trained and equipped as the active duty force is, that goal needs to stay pre-eminent in this whole thing. Our reserves need to be as good as our active duty [force]. ... Maybe some of the units don't need to be as ready as other units and so forth, but, no, ... in terms of having very competent forces in the reserve component, [that] needs to stay at the forefront."

Overuse of the Guard and Reserve?

"For those called up inside CONUS for ... Operation Noble Eagle, which is defense of continental United States, there [are] somewhere in the area of 56,000 called up. [The size went to] close to 80,000 and went as low as below 50,000. It is back up to about 56,000. [Now] we are building up forces in the Gulf, clearly, and there are reserves as pieces of that. That continues. The facts are that there is a lot of our combat capability [and] combat support and service support capability in the reserve components that, you know, if you want to have a credible force, you've got to call up the reserves along with it. So that is continuing."

The Question of Service End Strength

"The [Defense] Department has said that there are a couple hundred thousand positions that could be converted to civilian or contractor positions, freeing up military to do [other tasks]. And I think [Defense Secretary Donald H. Rumsfeld] is just trying to put discipline into the system, rather than considering manpower a free good and all we need is to have more and more of it. He is trying to say, 'OK, what do we really need in terms of those who need to wear the uniform and those ... [who] can be either DOD civilians or contracted out.'

"In my view, he is right. There are career fields that are chronically short in every service; all the services have their career fields that are short, and there are issues there, but the other thing you have to realize is ... it probably wouldn't be until '05 or '06 before you actually see people being recruited, trained, and online. There have to be some internal realignments within the services to meet some of those gaps."

Most Serious Personnel Gaps

"In the Army, I think of military police, given force protection needs around the world and here in the continental United States. [For example,] we have totally changed the force protection situation at Ft. Myer [Va.], where I live.

And it requires a lot of military police. Over time, they have changed that composition, and probably even total numbers to make it a little bit more efficient, but those sorts of things are going to have to be worked—probably internally—in some of these positions that can be converted, then they can convert some of the people to the shortages."

The Problem of Fratricide

"I don't think you can ever be satisfied that we've solved that dilemma, that fratricide issue fully. Clearly, in the last decade and a half, two decades, where we've been engaged, fratricide is a lot less than it has been in previous major conflicts. We know that. ... In Afghanistan, of course, we unfortunately had some fratricide incidents. ... There have been some organizations, some doctrine, some tactics, techniques and procedures, some technological changes. ...

"Are we there yet? No. We are going to have to continue to work that because war is not a science. It is an art. It is very inefficient. Things on a battlefield get very confusing and we need to try to, as best we can, erase that confusion so we have good situational understanding and awareness by all the players in the battlespace."

Improvements in Fighting Fratricide

"I think we will be much better in the next ... conflict than we were in Afghanistan. We've gone to school on that. And I think if you look at the command and control and communications that we have, it is all part of helping avoid fratricide, that we are much better postured today in terms of those capabilities than we were in Afghanistan. In fact, we are better postured today in Afghanistan than when we started in Afghanistan. I don't think you can ever be satisfied. I think this is an area that needs to be continuously worked, because it is an outcome that is so tragic. We just don't want it."

Reshaping the Military to Fight Terrorists

"We are trying to shape ourselves to be better prepared to take that kind of action. Some of the things we've done with [US] Special Operations Command, which you've seen, some of the [changes at US Strategic Command were] all meant to give us a [global] perspective. If you think about Strategic Command for a minute, from their perspective, we want to be global, so we gave them missions that might be global in scope. Clearly, their old mission of nuclear war planning tended to have a global nature. But then you go into global strike, which is not necessarily nuclear, but [there could be other] ways to have an effect on the battlefield—information operations, the C^4ISR piece. [DOD is] trying to posture us to be able to deal with a threat that is global and not a threat that is regional, as we've been organized in the past."

Blending Ops and Intelligence

"If you want to be as quick and agile as you need to be against an enemy that is adaptive—for instance, al Qaeda—you can't have an intel part, [then] throw it over a transom to an operator and say, 'Here's what we know.' This has got to be [a] continuous, 24/7 sort of relationship and synergistic to the point where operations helps with intel and vice versa. I think the new undersecretary [of defense for intelligence] can help with that piece of it. I think they'll have a huge impact on rationalizing the resources that go into the intelligence business, and that is something that has [been] needed, in my view. [We need] some better coordination than we've had in the past. And this office ought to help do that. I think [Director of Central Intelligence] George Tenet out at CIA believes that as well."

Dealing With States That Sponsor Terrorism

"There will be times when military action will be required. If you asked me to be specific, I probably couldn't be very specific right now. But I think as a general case, there is going to be a requirement for military action. ... Sure, I think the military instrument will be used in the future on this war on terrorism. There is no question in my mind. But I also think [that], to be effective, it has got to be across an entire front of instruments of national power."

US Joint Forces Command and System Development

"I don't think there is any intention to make Joint Forces Command an acquisition agency. If you look at how we fight, as we bring the service capabilities together, the glue that holds this together—the glue that enables us to fight well—is the command, control, communications, [and] ISR piece. That is the glue. And the problem is, there is no one entity that is responsible for developing that glue. You can't say, 'Well, *they* are the ones that do that.'

"A unified command like Joint Forces Command, that works the experimentation and the training and so forth, [needs] to have the oversight responsibility to ensure that, as the services bring systems on board and as we fund systems in the C^4ISR business that are essentially 'born joint,' ... that those are appropriately resourced and that they carry through to the end. ... The attempt here is to ensure [that] somebody who is linked very closely to the Joint Staff and to the Secretary—as the unified commander —[is] going to watch over this and ensure it is executed in a way that gets through to the warfighter."

North Korean Threat

"We know pretty clearly what capabilities North Korea has. With regard to nuclear weapons, there is speculation that they have a couple. If they start reprocessing their plutonium, they could have more fairly quickly. We also know—and what they've shown in the last 50 years—they haven't attacked their neighbor. There have been some small incidents on the DMZ and some of those things, but they have not attacked their neighbor. They have been accused of proliferating missile technology but not the chemical, biological, or nuclear pieces of that.

"If you look at Iraq, we know they have chemical and biological [weapons] and intent for nuclear capabilities. They also have shown the intent to use them. So they not only have the capability, but I think you could say, they have the intent to use them and have in the past. That intent ... piece, is missing in North Korea right now."

US Deterred by One or Two Nuclear Weapons?

"That is a dangerous assumption. ... I think it is a very bad assumption—to assume that a [nation] power, by having one nuke or two nukes, [can make the United States take] force off the table. Nothing, in my mind, could be further from the truth." ■

AFA / AEF National Report

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By Frances McKenney, Assistant Managing Editor

AEF On the Radio

The Aerospace Education Foundation has produced a series of public service announcements for radio stations to use in connection with celebrations of the 100th anniversary of the Wright brothers' flight.

The series is called "Up From Kitty Hawk—This Week in Aviation History." Each announcement describes a milestone in aerospace or aviation history that took place during a given week over the past 100 years. These announcements are formatted for one-minute or 30-second time slots, and AEF and the Air Force Association both receive mention as sponsors.

In December, AEF mailed out about 500 CDs containing these short history lessons—covering 26 weeks from January to June—to radio stations. A second CD covering milestones for the rest of the year will be mailed out later.

The first 26 segments can be downloaded from the AEF Web site: http://www.aef.org/KittyHawk/default.asp. The Web site lists the radio stations that received the initial CD mailing.

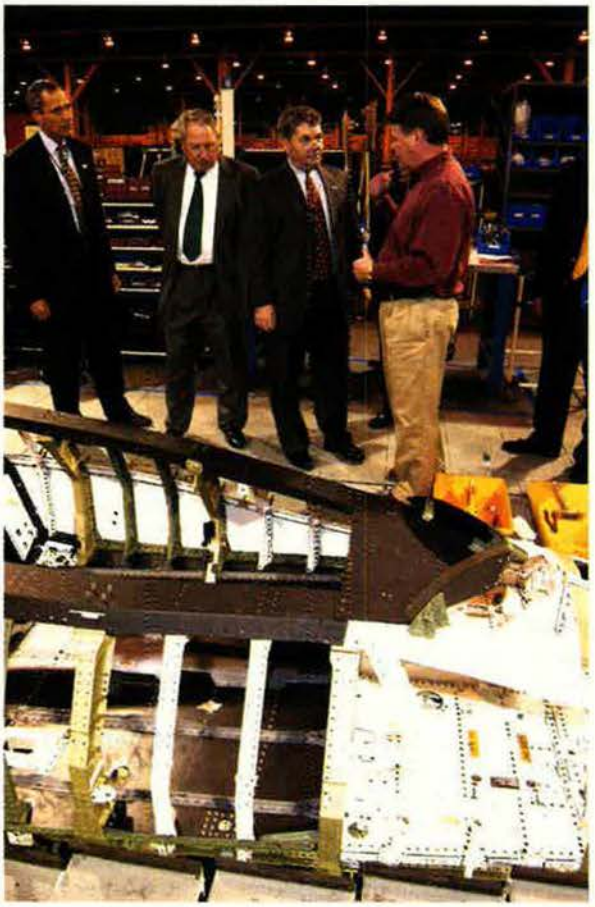
AFA On Your Car

An initiative of the **Gen. Charles A. Gabriel (Va.) Chapter** may soon result in AFA license plates for association members in Virginia.

The project began two years ago when Gabriel Chapter Treasurer James M. Holt, a recently retired USAF colonel, decided he wanted a license plate with an Air Force theme. On the Virginia state Department of Transportation's Web site, he found USAF–oriented plates for the Air Force Reserve and recipients of the Air Force Cross. Holt discussed this with Chapter President Jeffrey R. Barnett, and they decided to create an AFA license plate, since it would represent both USAF and the association.

First, they received the go-ahead to represent the association on the state level for this endeavor, and Barnett then began rounding up support. State Sen. Janet D. Howell, a democrat representing part of northern Virginia, sponsored the enabling legislation, which Barnett said they expected to pass early this year. Af-

Lockheed Martin photos by Robert Jacob



AFA Board Chairman John Politi toured Lockheed Martin's Marietta, Ga., facilities in January for briefings on several aircraft programs. Above, in the cockpit of a C-5, Politi (left) listens to test pilot Stephen Knoblock describe modifications being carried out for the Galaxy under the Air Force's Avionics Modernization Program. At left, Jim Bailey, F/A-22 major assembly director, explains manufacturing processes for the Raptor, as Lockheed's Ed Tenoso and Bob Elrod listen in.

ter the governor signs the bill, the chapter will contact members of AFA in the state, notifying them of the plate's availability. Holt said they need a minimum of 350 prepaid applications to begin an initial plate run.

The basic license plate for Virginia has a white background with blue letters and numbers. The chapter's proposed design features a small "Wee Wings" AFA logo on the far left of the plate, with "Air Force Association" in blue letters centered at the bottom. Holt said they will work with the transportation department on the final design.

"I'm hoping that by late this year or early next, we will have AFA plates on our cars," said Holt, who has four family vehicles on which to display his AFA affinity.

Calendar Art

The **Lincoln (Neb.) Chapter** joined forces with the Nebraska Department of Aeronautics and several other aviation-oriented organizations in the state to produce a Centennial of Flight calendar.

The calendar lists important dates in aviation history, as well as events specific to Nebraska. It notes, for example, when Strategic Air Command at Bellevue, Neb., took delivery of its first B-52 (June 29, 1955); when the Nebraska Air National Guard's 173rd Fighter Squadron—now the 155th Air Refueling Wing—stood up (July 26, 1946); and when the 155th, from Lincoln Airport, began supporting Enduring Freedom at Moron AB, Spain (Sept. 20, 2001).

The calendar is illustrated by art work collected from an annual aviation art contest, also cosponsored by the Lincoln Chapter. The contest is open to students age six to 17, and selected winners go on to compete at the national and international level.

Robert Hurst, chapter communications Vice President, said 1,500 calendars were printed and distributed mostly to schoolchildren. For this project, he and Diane R. Bartels, chapter aerospace education VP, joined a committee—including representatives from the FAA, Nebraska Department of Aeronautics, and the University of Nebraska Omaha Aviation Institute—that researched the calendar entries, wrote the background material, and gathered the art. The Lincoln Chapter served as the lead for raising funds, and Bartels literally took the calendar to press—working with a local Kinko's.

The calendar is the first in a series of monthly projects the chapter has planned, at the request of NASA, for Centennial of Flight activities in Nebraska. Upcoming events include unit reunions; a flight day camp during spring break for fourth- and fifth-graders; Native American Aviation Aerospace Day, aimed at schoolchildren from the fourth grade through high school; and a program honoring Evelyn Sharp of Ord, Neb., one of the original World War II Women's Auxiliary Ferrying Squadron pilots.

At the Head of the Class

The **Portland (Ore.) Chapter** not only sponsored the participation of five classrooms in the Visions of Exploration program, Chapter President Maj. Bryon R. Fessler has taught two of them.

Fessler attributes this to John Moore, former chapter president, who was determined to start up the program again in the Portland area last fall. Moore donated funds to sponsor classrooms, inspiring Fessler and the other elected state and chapter officers to do the same.

USA Today, AEF, and AFA chapters sponsor the Visions program, which provides elementary and middle school classrooms with the newspaper for 18 weeks, along with lesson plans focusing on math, science, and technology.

Fessler zeroed in on his son's classroom at Felida Elementary School in Vancouver, Wash., showing fourth-grade teacher Karen Owen how to fit the program into her curriculum. Then in December, he taught a session on solids and gases (along with liquids, the three states of matter the children are required to learn about). He led two classes of 50 fourth-graders through hands-on demonstrations of the properties of air and solids and showed a video on Air Force aircraft and missions. He followed this group session with a visit to each classroom, where the kids asked him questions about the Air Force and his own career.

As a follow-on activity, Fessler organized a field trip in late December to the Pearson Air Museum at Vancouver's Pearson Field, where airplane operations date back to 1911. Joining Fessler in acting as docents for the two classes were AFA volunteers from the chapter and state level: Gregor J. Leist, state president; Tom Stevenson, state VP; John Lee, an AFA national director; Phillip A. Szymkowicz, chapter VP; Robert W. Menestrina; and Morris E. Giesler.

The students toured the museum's main display hangar to see a Curtiss Jenny and the largest surviving piece of the Hindenberg. At a hands-on center, they learned about such science-of-flight principles as air flow, resistance, and propeller design. They then visited the museum's wooden hangar, built by the Army in 1918 and now serving as a restoration facility.

Fessler said his stint as a fourth-grade teacher was so successful that he's going back to teach more classes this year.

Second Lieutenant Starter Kit

When AFROTC cadets at the University of Central Florida in Orlando

Every Saturday in October, the Hawaii Chapter cleans the Korean–Vietnam Veterans Memorial on the grounds of the state capitol in Honolulu. Here, chapter member Michael Hutcheson supervises a cleanup by (l–r) A1C Jason Casebolt, A1C Rondale Chapman, SSgt. Rictavius Green, and A1C Tasha Lorthridge, all volunteers from Hickam AFB, Hawaii.

received their commissions in December, the **Central Florida Chapter** helped them mark the occasion with a gift—a second lieutenant's starter kit consisting of a pair of gold bars, the USAF training ribbon, and a USAF hat insignia.

Kathy Shuman, chapter VP, also presented the new officers with three-year AFA memberships.

Several other chapter members participated in the commissioning ceremony. Capt. Mike Liquori, Det. 159's commandant of cadets and a chapter member, served as master of ceremonies for the event, held at the student union. Chapter member Lt. Col. Timothy D. Wieck, detachment commander, introduced guest speaker Thomas G. Walters, mayor of Oviedo, Fla. Walters, who is a chapter member and retired Air Force colonel, spoke about core values and how they affected his more than 28 years on active duty. Richard A. Ortega, chapter aerospace education VP, gave the invocation and conducted the Pledge of Allegiance.

The seven new lieutenants are: John A. Alden, Michael A.R. Castro, Walter W. Miller II, Edwin Rodriguez Jr., Abbillyn M. Schwartz, James A. Stinger, and William F. White.

From left, Max Harner, Anthony LaPorte, and Edgar Kynaston received awards from the Billy Mitchell Chapter, recognizing their more than 50 years each as AFA members. LaPorte's membership card is signed by AFA founder Jimmy Doolittle.

50-Plus

At a December gathering, three members of the **Billy Mitchell (Wis.) Chapter** received chapter Outstanding AFA Service Awards as a tribute to their more than 50 years—each—of AFA membership.

According to the association's membership database, Edgar W. Kynaston joined in May 1946, three months after AFA was incorporated in Washington, D.C. Anthony J. LaPorte joined that December. Max R. Harner has the distinction of having become a member in the same month and year that the US Air Force became a separate service.

At this meeting, Chapter President Victor L. Johnson Jr. and State President Henry C. Syring presented awards to the 128th Air Refueling Wing, General Mitchell Airport, Wis.; the 440th Airlift Wing (AFRC), also from General Mitchell Airport; and restaurant owner Lori Adamczyk.

A C-17 for Strom Thurmond

The **Thomas W. Anthony (Md.) Chapter** hosted the ceremony for Sen. Strom Thurmond when he attended the christening of a C-17 Globemaster III in his name at Andrews AFB, Md., on Dec. 12.

A large banner in Hangar Three at Andrews proclaimed the chapter's salute to Thurmond on his 100th birthday, which the senator had celebrated the week before. The transport aircraft, too, was 100—the 100th C-17 to roll off the assembly line.

Seated in the VIP section at this ceremony were Andrew Veronis, Maryland state president; Charles X. Suraci Jr., chapter president; Sam O'Dennis, VP; Natalie L. Desmond, secretary;

Thomas Bass Jr., treasurer; and William H. Thomas, chapter communications VP.

The chapter hosted a luncheon in the hangar after the christening.

Thurmond served in the Army in World War II and was a member of the Senate Armed Services and Veterans' Affairs committees until his retirement. The C-17 is assigned to his home state, to the 437th Airlift Wing, Charleston AFB, S.C.

More AFA/AEF News

■ Democratic Sen. Harry Reid of Nevada, the Senate minority whip, was guest speaker at the **Thunderbird (Nev.) Chapter's** Pearl Harbor Remembrance luncheon held at Nellis AFB, Nev. Reid, who serves on the Senate Appropriations Committee, paid tribute to the men and women in the military. Among the more than 100 guests at the event were 10 survivors of the attack on Pearl Harbor, as well as several AFA leaders: Emory S. Wetzel, an AFA national director; Robert J. Herculson Jr., state president; and Col. Wilhelm F. Percival, Thunderbird Chapter president.

■ Richard W. Hoerle of the **Capt. Eddie Rickenbacker Memorial (Ohio) Chapter** led the annual commemorative ceremony to honor the chapter's namesake in his hometown on Dec. 7. Rickenbacker, a World War I ace with 26 victories, is buried in Columbus, Ohio, at Greenlawn Cemetery, where the AFA chapter members and AFJROTC cadets from Westland High School conducted the ceremony. The chapter has been hosting this commemoration for 27 years, Hoerle told the local newspaper covering the event. Chapter member Melvin H. Gerhold, who retired from the Air Force and became a AFJROTC instructor at Westland High, organized the first commemoration in 1975 to educate youngsters about Rickenbacker's accomplishments.

■ The **Portland (Ore.) Chapter** recently presented a painting to the 142nd Fighter Wing "Redhawks" in recognition of the mission it assumed after the 9/11 terrorist attacks. The Air National Guard unit is based at Portland Airport and has been responsible for Operation Noble Eagle combat air patrols in the Pacific Northwest. Entitled "Redhawks 2 Go," the artwork depicts the unit's F-15s in flight near a snow-capped Mt. Hood. Artist Jerry Moore, who is a chapter member, painted the original oil for the US Air Force Art Collection. He painted and donated a copy of that piece to the Redhawks. Moore joined State President Gregor J. Leist and Chapter President Maj. Bryon R. Fessler in presenting the artwork to Col. Garry Dean, wing commander, at a commander's call for wing maintainers in December.

■ Beverly Liberty from Milton Bradley Elementary School in Springfield, Mass., was honored as New England Region Teacher of the Year at a ceremony at Westover ARB, Mass., in December. David T. Buckwalter, region president of the New England Region, presented the award, with Michael J. Owczarzak, president of the **Pioneer Valley (Mass.) Chapter,** and Winston S. Gaskins, chapter aerospace education VP. Owczarzak said Liberty was selected because she developed a space club at her school and a district-wide program for teachers to travel to the Kennedy Space Center for educational programs.

■ The Air Force Memorial Foundation recently received $500,000 in pledges from Lockheed Martin and from Northrop Grumman. This donation brings Lockheed Martin's total contribution for the memorial to more than $4 million and Northrop Grumman's total to more than $1.5 million. The memorial is to be located on a promontory point of land overlooking the side of the Pentagon that was reconstructed after 9/11. The Navy Annex now occupies the site.

■ More than 200 guests turned out at Hanscom AFB, Mass., for a holiday party sponsored by the **Paul Revere (Mass.) Chapter** in December. Joe Bisognano, chapter president, said each table at the party had a miniature tree on it. The trees were hung with tags listing a gift requested by a veteran from the Lowell, Mass., area. Bisognano said the chapter eventually collected more than 20 gifts and more than $1,600 to buy presents. Each veteran got at least two gifts, he said. "The response from the Hanscom community was unbelievable."

■ Retired Lt. Col. Ralph J. Tosti, senior aerospace science instructor at Bellevue West High School and a member of the **Ak–Sar–Ben (Neb.) Chapter,** discovered an unusual number of family ties among his 220 AFJROTC cadets: Thirty-six students in the school's "Thunderbird Wing" are related. Among the 36 are a trio of sisters—Ester, Naomi, and Anna Knope—and the Goswicks, Jeana, Brandon, and Donald. Tosti said he and the other JROTC instructors looked through several years of class records and found that this is the highest number of siblings in their program at one time. ■

Unit Reunions

reunions@afa.org

5th AF, Hq and Hq Sq, 314th Composite Wg (WWII and Korea), and Hq, 5th Bomb Command (WWII). Sept. 17–21 in Branson, MO. **Contacts:** Louis Buddo or Bob Kendall, Box 270362, St. Louis, MO 63127 (314-487-8128).

5th BG, Thirteenth AF (WWII). April 10–13 at the Holiday Inn in Savannah, GA. **Contact:** Lee Benbrook (909-677-3853) (lbenbrook@earthlink.net).

5th/108th Station Hospital (WWII), Fifth AF. Sept. 17–21 in Branson, MO. **Contact:** Jeff Seabock, PO Box 3635, Hickory, NC 28603 (828-324-6464).

7th SOS/ACS, UK and Germany. Oct. 11–26 in Europe. **Contact:** Omar Bradley, 1448 Bahia Dr., Navarre Beach, FL 32566 (850-939-8628) (bradtnt@aol.com).

27th/474th TFW and 832nd AD. Oct. 2–4 in Clovis, NM. **Contacts:** Virginia Murphy (505-763-3356) or Mike Connolly (mikec@plateautel.net).

33rd Photo Recon Sq, 363rd Tactical Recon Gp, Ninth AF (WWII). Oct. 10–13 at Wright–Patterson AFB, OH. **Contact:** Leonard Gold, 3265 Perry Ave., Oceanside, NY 11572 (516-766-0452) (captgold88@aol.com).

56th FG. June 5–8 at Bradley Field, CT. **Contact:** Ron Brubaker, PO Box 57, Red Creek, WV 26289 (304-866-4415).

62nd Troop Carrier/Airlift Wg Assn. Aug. 13–16 at the Tacoma Best Western Inn in Tacoma, WA. **Contact:** George Phillips, 62nd TC/AW Assn, PO Box 4220, McChord AFB, WA 98438-0220 (253-582-6059) (gphildc8@aol.com).

80th Service Gp (WWII), Fifth AF. Sept. 17–21 in Branson, MO. **Contact:** Virgil Staples, 725 16th St., West Des Moines, IA 50265 (515-225-8454).

320th ARS, March AFB, CA. April 28–May 2 in San Diego. **Contact:** Jack Templeton, Box 270443, San Diego, CA 92198 (858-613-0218) (jackinrb@san.rr.com).

331st Tactical Control Sq. May 23–24 at the Nashville Marriott in Nashville, TN. **Contact:** Jarv Adams, PO Box 213, Greenfield, NH 03047.

354th TFW. May 6–9 in Myrtle Beach, SC. **Contact:** George Branch, 9404 Cove Dr., Myrtle Beach, SC 29572 (843-449-7371) (agbranch@aol.com).

405th Signal Co., Fifth AF. Sept. 17–21 in Branson, MO. **Contact:** Phil Treacy, 2230 Petersburg Ave., Eastpointe, MI 48021-2682 (810-775-5238).

481st Tactical Fighter Sq, Cannon AFB, NM. May 15–17 at the Lodge of the Ozarks in Branson, MO. **Contact:** Bob Finley, 6618 E. Valle di Cadore, Tucson, AZ 85750 (520-577-1006).

487th BG Assn, Eighth AF (WWII). May 29–31 in Savannah, GA. **Contact:** Henry Hughey, 1529 Delia Dr., Decatur, GA 30033 (770-939-2462).

494th BG (H), WWII. June 4–8 at the Hyatt Regency Hotel in Dearborn, MI. **Contacts:** Bill Goodman (313-886-0736) or Marshall Keller, 7412A Vassar Dr. East, West Bloomfield, MI 48322 (248-626-3684).

502nd Tactical Control Gp, 5th AF, Korea. Sept. 17–21 in Branson, MO. **Contact:** Fred Gorsek Jr., 445 S. State, Greenview, IL 62642 (217-968-5411).

1198th OE&T Sq. Oct. 5–7 in Las Vegas. **Contact:** Jerry Baird, 24 S. Groveland Ave., Medford, OR 97504 (541-779-4875) (orajerry@aol.com).

7330th FTW (MAP) Furstenfeldbruck, Kaufburen, and Landsberg ABs, Germany (1953–60). Aug. 20–24 in Furstenfeldbruck, Germany. **Contact:** Mike Cale, 14017 Fortunes Ridge Ct., Midlothian, VA 23112-4658 (804-744-2117) (jwctwig@aol.com).

AACS Alumni Assn, all eras. Sept. 25–28 at the Fairview Park Marriott Hotel in Falls Church, VA. **Contact:** Mac Maginnis (253-474-8128) (cmagin4375@aol.com).

Air Forces Escape & Evasion Society. May 1–4 in Wichita Falls, TX. **Contacts:** Clayton David, 19 Oak Ridge Pond, Hannibal, MO 63401 (573-221-0441) (davidafe@packetx.net) or Larry Grauerholz, PO Box 2501, Wichita Falls, TX 76307 (940-692-6700).

BAD 2 Assn (Warton, UK). Sept. 4–6 in Salt Lake City. **Contact:** Dick McClune, 527 Quarterfield Rd., Newport News, VA 23602 (757-877-3826) (bad2trsr@msn.com).

Bolling AFB, DC, B-25 Bunch. May 18–22 in Biloxi, MS. **Contact:** C.J. Smith, 5249 Old A&P Rd., Ripley, OH 45167 (937-375-4671).

Flying Tigers of the Fourteenth AF Assn (WWII), veterans of the American Volunteer Gp (1941–42), China Air Task Force (1942–43), and Fourteenth AF (1943–45). May 22–25. **Contact:** Robert Lee, 717 19th St. S., Arlington, VA 22202-2704 (703-920-8384).

Inflight Refueling Assn. Oct. 23–26 at the Ramada Plaza Hotel & Inn in Kissimmee, FL. **Contacts:** John Realmoto, 243 Harbor Ct., Winter Garden, FL 34787 (407-656-9724) (kc135qibo@cfl.rr.com) or Jim Threet, 8144 Larch Pl., Newburgh, IN 47630 (812-490-3288) (jl3t3733@sigecom.net).

OCS Class 53-A, Delta Flight. May 7–10 in Hilton Head, SC. **Contacts:** Ray Ballew, PO Box 4038, Greenville, SC 29608 (864-233-4147) (rayballew@yahoo.com) or Adrian Flakoll, 650 Toyon Pl., Palo Alto, CA 94306 (650-493-8106) (flavik650@aol.com).

OCS 63-D. June 18–22 at the Blue Moon Hotel in Miami. **Contacts:** Ray and Ceil Oliver, 261 S. Monterey St., Mobile AL 36604 (251-476-8737 or 678-427-2172).

Pilot Tng Class 47-C. October in San Diego. **Contact:** Maj. Keith Smith, 14417 Colorado Pl., Canyon Country, CA 91387 (661-298-0625) (keithramsey2@socal.rr.com).

Pilot Tng Class 53-D, Bartow, FL. April 29–30 in Hope, AR. **Contact:** Dave Gueldner, 17200 Newhope 101A, Fountain Valley, CA 92708 (714-549-3283) (chilidave@hotmail.com).

Pilot Tng Class 69-B, Webb AFB, TX. Aug. 21–24 in Cashiers, NC. **Contact:** Clint Price, 4228 West Creek Dr., Dallas, TX 75287 (972-250-4937) (marclint@iwon.com).

Portland Rescue Units (1957–2003). April 25–27 at Portland Airport, OR. **Contact:** Dottie Johnson, 939th RQW, 6801 NE Cornfoot Rd., Portland Airport, OR 97218 (503-335-4683) (airforcerescuereunion@yahoo.com). ■

AFA Conventions

April 25–26	Tennessee State Convention, Nashville, Tenn.
May 2–3	South Carolina State Convention, Charleston, S.C.
May 2–4	New Jersey State Convention, Cape May, N.J.
May 10	Kansas State Convention, Topeka, Kan.
June 6–8	Arizona–New Mexico–Nevada State Convention, Albuquerque, N.M.
June 7	Alabama State Convention, Montgomery, Ala.
June 13–16	New York State Convention, Fredonia, N.Y.
June 25–28	Alaska State Convention, Fairbanks and Anchorage, Alaska
June 25–29	California State Convention, March ARB, Calif.
July 12	Washington State Convention, McChord AFB, Wash.
July 18–20	Florida State Convention, Tyndall AFB, Fla.
July 18–20	Pennsylvania State Convention, Washington, Pa.
July 18–20	Texas State Convention, Austin, Tex.
July 25–27	Virginia State Convention, Hampton, Va.
July 26	Iowa State Convention, Sioux City, Iowa
Aug. 15–16	Utah State Convention, Ogden, Utah
Aug. 16	Georgia State Convention, Robins AFB, Ga.
Aug. 22	Missouri State Convention, Lake of the Ozarks, Mo.
Aug. 22–23	Colorado State Convention, Colorado Springs, Colo.
Sept. 15–17	AFA National Convention, Washington, D.C.
Sept. 28	New Hampshire State Convention, Manchester, N.H.
Oct. 24–25	Michigan State Convention, Alpena, Mich.

Mail unit reunion notices four months ahead 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. We reserve the right to condense notices.

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Pieces of History

Photography by Paul Kennedy

Fly Like an Eagle

As the war in Vietnam escalated, the Air Force sought to build a successor to its principal fighter aircraft, the F-4 Phantom. McDonnell Douglas came up with the winning design for what would be called the F-15 Eagle—an early example of which is shown here at the US Air Force Museum, Wright–Patterson AFB, Ohio. Among the F-15's characteristics were superior maneuverability and unprecedented acceleration, achieved by means of low wing-loading and high thrust-to-weight ratio. These factors gave it the ability to rapidly turn, accelerate, or climb for tactical advantage. First flight for the advanced fighter took place in 1972. The first production version rolled out two years later. President Gerald Ford attended the arrival ceremony.

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