

July 2002/\$4

AIR FORCE

JOURNAL OF THE AIR FORCE ASSOCIATION

MAGAZINE

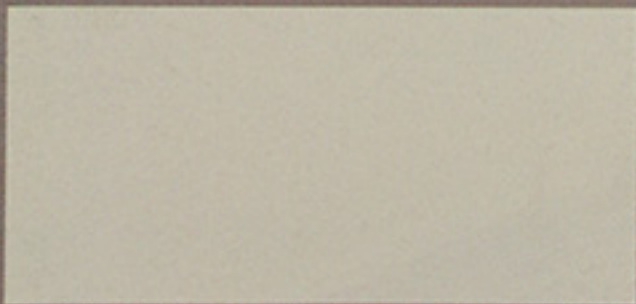


Heavyweight Contender

The EAF in Peace and War

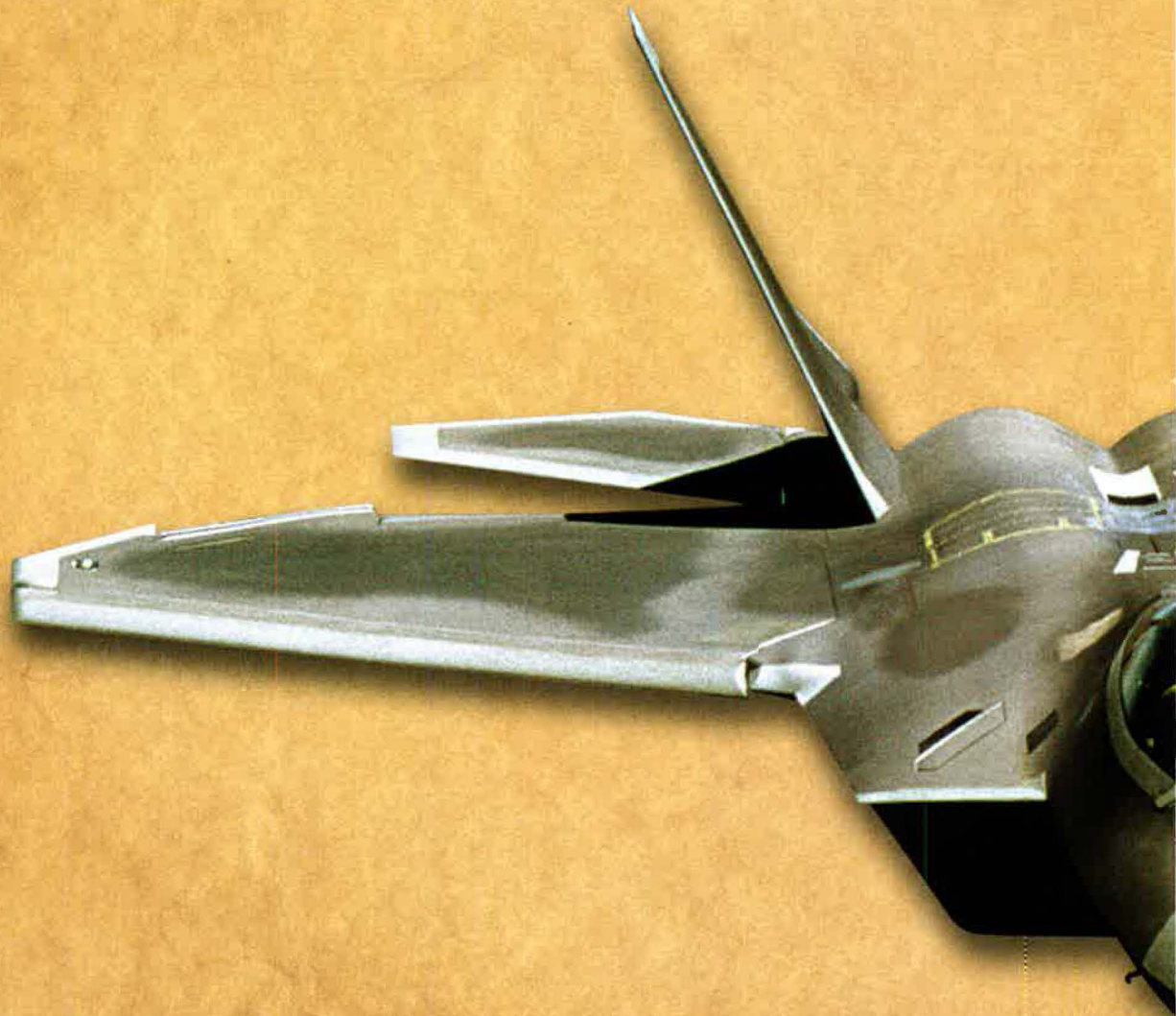
The Life and Times of Tex Hill

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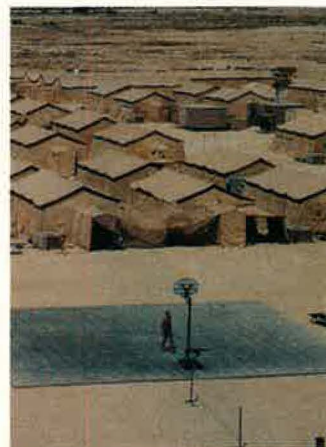
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AIR FORCE Magazine (ISSN 0790-6784) July 2002 (Vol. 85, No. 7) is published monthly by the Air Force Association, 1501 Lee Highway, Arlington, VA 22209-1198. Phone (703) 247-5800. Second-class postage paid at Arlington, Va., and additional mailing offices. **Membership Rate:** \$36 per year; \$90 for three-year membership. **Life Membership (non-refundable):** \$500 single payment, \$525 extended payments. **Subscription Rate:** \$36 per year; \$29 per year additional for postage to foreign addresses (except Canada and Mexico, which are \$10 per year additional). Regular issues \$4 each. USAF Almanac issue \$6 each. **Change of address** requires four weeks' notice. Please include mailing label. **POSTMASTER:** Send changes of address to Air Force Association, 1501 Lee Highway, Arlington, VA 22209-1198. Publisher assumes no responsibility for unsolicited material. Trademark registered by Air Force Association. Copyright 2002 by Air Force Association.



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By Robert S. Dudley, Editor in Chief

The B-2 Syndrome Rides Again

SOMETIME last spring, Secretary of Defense Donald H. Rumsfeld decided to take a closer look at the F-22 air dominance fighter and a few other weapons. He told the services on April 15 that the US could not afford all existing programs and new "transformational" systems, too.

Air Force leaders thus were not surprised when Rumsfeld on May 3 formally ordered a far-reaching review of the F-22 program.

Within days, Pentagon insiders had leaked word that production might be capped at 180 aircraft—far below USAF's requirement of 339 fighters. The sources noted that it was just an option. The fate of the Raptor would be decided only after extensive, high-level Pentagon debate this fall.

Rumsfeld has indicated he doesn't plan to kill this stealthy successor to the F-15. He approved \$5.2 billion for F-22 work in 2003. However, the final fleet size is up for grabs. As Rumsfeld has noted, "The big debate is not whether [to buy F-22s] but how many."

If the review makes Air Force leaders twitchy, they manage to hide it. Air Force Secretary James G. Roche says Rumsfeld only wants "good answers" to fair questions. Gen. John P. Jumper, Chief of Staff, welcomes the challenge. "If we can't defend [the F-22] properly, shame on us," he says.

No one doubts Roche and Jumper will make a strong case. The question is whether facts alone will be enough to keep the Raptor from getting mauled in the budget wars. The record of the past does not encourage optimism.

In the 1990s, DOD undertook F-22 evaluations on three occasions—during the Major Aircraft Review of 1990, the Bottom-Up Review of 1993, and the Quadrennial Defense Review of 1997. All three reviews soon were followed by significant cuts.

The Air Force in the 1980s had a goal of 750 F-22s. In the wake of the MAR, BUR, and QDR, revised production goals were 648, 438, and 339, respectively. In other words, well more than half of the fleet vanished.

Arguably, the first reduction was justifiable on strategic grounds; Soviet power was on the wane. However, the last two were seen, even at the time, as out-and-out budget-cut drills.

Turbulence created by these successive rounds of program reductions and stretch-outs had a long-lasting effect on the F-22 project.

Buying only 180 F-22s makes no sense.

They helped produce increases in unit costs and developmental delays.

Fred Frostic, a former DOD official and now defense consultant in private industry, suggests that these reassessments backfired. "The reviews ... brought instability and raised the cost of the very systems that lead to the military capabilities needed for the future," he said.

If the first three cuts were damaging, the next one could be fatal if it drops the goal to anything like 180 fighters. This might drive the cost of each F-22 beyond a politically sensitive threshold. At that point, it probably would fall into what Sen. Daniel K. Inouye (D-Hawaii), chairman of the Senate defense appropriations subcommittee, calls "the B-2 Syndrome."

Inouye, a staunch airpower advocate, notes DOD first wanted to buy several hundred B-2 stealth bombers but reduced the goal to 132 aircraft. Then it was cut to 75 for budget reasons and cut again to 20, again for budget reasons. Each time, the program's sunk costs were spread over fewer airplanes, and unit cost thus grew dramatically. It wasn't long before critics could assail the B-2 as a "\$2 billion bomber."

The B-2 never recovered from that

political disaster. Few believe the F-22 would fare any better under similar circumstances.

That anyone would consider stopping at 180 F-22s is puzzling in its own right, in light of its capabilities and the Air Force's mounting concerns about aging aircraft.

The fighter combines stealth with supercruise—sustained cruise at supersonic speeds—and all-seeing avionics to dominate air-to-air combat as no other aircraft. Jumper said the F-22 also would be called on to "kick down the door" in a theater of operations, clearing a path for bombers and other aircraft.

Even 339 F-22s won't be sufficient to meet USAF's needs. The Air Force would not be able to fully equip all 10 of the service's Aerospace Expeditionary Forces, according to Maj. Gen. Daniel P. Leaf, director of operational requirements. In remarks to the newsletter *Inside the Air Force*, Leaf noted that just providing a "bare bone" minimum of one squadron per AEF would take 381 F-22s. The preferred level of 1.5 squadrons would take 572 Raptors.

This nation has not fielded a new air superiority fighter since 1974, when the F-15 came into the inventory. By the time the F-22 is ready in 2005, the average F-15 will be 26 years old. The F-15 simply will not be able to operate past 2010 and survive against new air-to-air fighter and advanced surface-to-air missiles.

For the United States military, air dominance is not optional. Without it, nothing else works. Without the F-22, the Air Force will gradually lose its ability to dominate the skies.

Secretary Rumsfeld is right to take a hard look at costly programs. Let us hope that the Pentagon's F-22 review is thorough, deep, fair, and tough-minded. Such a probe would recognize that the United States has already invested \$30 billion in the F-22 project, that the payoff in large numbers of fighters is now at hand, that the Air Force needs them in sufficient numbers, and that we should get on with the job of building them. ■

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Air Mobility Critical

John Tirpak is to be commended for drawing attention to the importance of mobility forces in his interview with Gen. [John W.] Handy [*"Mobility Boom," June, p. 26*]. The United States is a global power because it has global reach. It has that reach because the United States is an air power. Nothing demonstrates this better than the ability of the US Air Force in the four weeks between Sept. 11 and Oct. 7 to pick itself up and conduct a complex and sustained military and humanitarian air campaign in Afghanistan. Achieving global reach rests on the mobility forces—the tankers, air transports, and supporting infrastructure. As the article points out, "Military operations in Afghanistan are being supported and resupplied almost exclusively by air."

The current increased investment in mobility forces and infrastructure is money well spent. It is also money that must be spent now if the United States is to remain a global power. Mobility forces and infrastructure had been allowed to age and decay to a cangerous degree. The C-141 and C-5 fleets are all but worn out and need to be replaced or, in the case of the latter, upgraded. Almost a quarter of the tanker fleet is in depot maintenance at any one time. The expeditionary nature of the modern Air Force requires more investments in mobile infrastructure.

Much progress has been made to refurbish the mobility forces, most notably the decision to buy a full 180 C-17s. Even here, however, the average age of the fleet will not start to decline until 2005. The demand on the transport fleet already suggests that at least 222 C-17s will be required. The Air Force must move forward rapidly to acquire a new tanker to replace at least the KC-135Es. It must also begin to plan now to buy enough tankers to replace the more modern KC-135Rs as they also become obsolete.

Some may object to the price that must be paid to modernize the mobility forces. Scrimping on the mobility

forces would be a major strategic blunder. Without modernization of its mobility capabilities, the United States will not remain a global power in the 21st century.

Daniel Goure
The Lexington Institute
Arlington, Va.

Nuclear Views

While I share Lt. Col. Donald E. Evett's concerns about the destructive power of nuclear weapons, his letter in the May issue contains some assertions I find puzzling. [See *"Letters: Nuclear Views," May, p. 4*.] Before continuing, let me state that I do not see anything good about nuclear war.

Colonel Evett asserts that Russia and the United States possess "enough nuclear weapons to destroy all life on this Earth many times over." I have heard this conundrum repeated often and have wondered just how one comes to this conclusion. One might as well say there are enough rounds of small-arms ammunition in the nations' arsenals to kill everyone on Earth, if one bullet were carefully delivered to the head of each person alive.

He states that "both Russia and the US have numerous warheads in the range of 20 megaton yield." While both countries tested devices with yields in the range of 20 megatons, I am not aware of any deliverable weapons this large, nor of any aircraft or missile that could deliver such a weapon if it existed.

Colonel Evett asserts that his hy-

pothetical 20 megaton weapon could disrupt communications across the US and that the fallout from such a weapon detonated at [an altitude of] "five miles or greater in the atmosphere" would be "most serious for millions of people." I can't argue the communications point because there are too many uncertainties, but I'm willing to concede the possibility. However, a 20 megaton weapon detonated at 25,000 feet or above would produce very little if any local fallout. The bomb materials themselves would provide the only transport mechanism for fallout products, and these materials would almost all be injected into the stratosphere. The fallout would be smeared around the world, would be a relatively long time coming down (giving the short half-life products time to decay), and would produce few if any concentrated areas of high radiation on the ground.

Lt. Col. Richard F. Colarco,
USAF (Ret.)
Colorado Springs, Colo.

I am surprised by the statement made by D.E. Evett: "Between the US and Russia, there exists enough nuclear weapons to destroy all life on this Earth many times over." In 1975, the National Academy of Sciences and National Research Council published a 275-page manuscript concluding that humans would survive a 10,000 megaton exchange, and most of the casualties would be in the combatant nations.

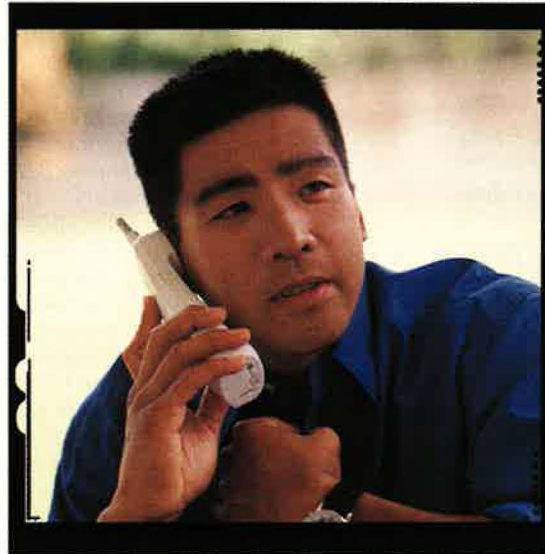
This NAS-NRC report was prepared by 54 scientists from many parts of the US, and I believe it is still valid. It was based on an exchange of weapons about twice the total weapons available today. Since 1991, we and the Russians have cut our stockpile in half, and we have been paying the Russians \$400 million annually to reduce their stockpile.

Nuclear war would be horrible, but let us not exaggerate the effects.

Maj. M.C. Bell
AFRC (Ret.)
Knoxville, Tenn.

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AIR FORCE

JOURNAL OF THE AIR FORCE ASSOCIATION

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Circulation audited by
Business Publication Audit

Letters

[Evelt] states, "Past presidents of this country have seriously considered deploying nuclear weapons in conflicts, i.e., Korea and Vietnam." I don't think so. "Seriously considered" implies that using nuclear weapons was discussed/debated and a decision made.

As to Korea, President Truman was so afraid of starting World War III that he wouldn't let MacArthur go north of the Yalu River to bomb the hordes of Chinese soldiers crossing into North Korea, to sever their weapons supply lines, and to damage their war-making capability. If Truman wouldn't use conventional weapons, he would have been terrified at the thought of using nuclear ones. Thus started our reluctance to win wars.

As to Vietnam, every time we bombed Hanoi, President Johnson listened to Hanoi Jane Fonda and Ramsey Clark, both of whom gave aid and comfort to the enemy, and the leftist protestors in the US and called the bombing off. Would he have "seriously considered" deploying nuclear weapons in Vietnam? Unthinkable!

Leslie L. Miller
Niceville, Fla.

Predating Predator

[In reference to comments by Lt. Col. Richard D. Le Doux, "Letters: Predating Predator," June, p. 8]: If memory serves, the concept of controlled unmanned flight was visited in the mid-1950s at Eglin Field in Florida. The aircraft used were B-17s controlled in flight by a so-designated QB-17 (Queen Bee). The unmanned craft were as Lieutenant Colonel Le Doux called them, drones.

William H. Vinehout
Sandwich, Ill.

Fuzzy-Heads?

About combining SPACECOM and STRATCOM—folks, we've been here before, during the Carter Administration, when STRATCOM was called Strategic Air Command (SAC). [See "Aerospace World: Pentagon Establishes New Combatant Command," June, p. 13.]

The fuzzy-headed, wooly youth of that Administration tried to combine SAC and NORAD into one command—giving SAC the "eyes, ears, trigger, and guns" to launch air fleets and missile forces.

In NORAD there is a missile-warning confidence level on system effectiveness which is a built-in check on such untoward situations. It is there and should remain there for that good reason. Hope that position is clear



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Letters

and that our national command leadership understands the fine points of such whys and wherefores.

David C. Phillips,
 AFRC
 Las Vegas

About McGuire

I enjoyed your rundown of the AAF/USAF Aces [*"Guide to Aces and Heroes,"* May, p. 67], but I was disappointed that you did not show a picture of [Maj. Thomas B. McGuire Jr.]. He died in combat during an effort to get a Zero off his wingman's tail. This happened shortly after I arrived in the Philippines. Shortly before Tommy's fateful dogfight, Gen. [George C.] Kenney stated that McGuire in two weeks would beat [Maj. Richard I.] Bong. Tommy would have done just that, but he could not let his wingman down.

Lt. Col. Tom Connors,
 USAF (Ret.)
 Phoenix

Rumsfeld's List

I found the [*"Editorial: Rumsfeld's List,"* May, p. 2] very informative—however, extremely understated. Secretary [Donald H. Rumsfeld] faces the most enormous challenge of his life. Not only must he contend with fighting a new kind of war, terrorism, with a military that has been sorely neglected, he must also endure partisan politics, which seems to favor pork-barrel spending over maintaining a well-trained, equipped, and efficient military.

During World War II, America fought a massive two-front war and won. Why? We banded together, did whatever was necessary, put politics aside, and supported our military. In all the previous wars, our enemy could be recognized and the boundaries were defined. However, in the war against terrorism, how do you know who is your enemy, and where will they strike next?

Yes, there has to be financial accountability by the military. However, does that mean that the politicians hold back funds until every penny is accounted for? What about the pork-barrel spending? Will there be anything left to put in the pork barrel if we lose the war on terrorism?

Secretary Rumsfeld has his work cut out, and it is about time for the partisan politicians to ask reasonable questions, which is their right and responsibility, but in a collaborative and cohesive manner, not for votes, but for America. President John F. Kennedy stated, "Ask not what your country can do for you, but what you can do for your country." I only hope the partisan politicians begin to reflect on our history, realize their real responsibility, and support our military.

Philip E. Giammarco
 Middle Village, N.Y.

Cold War Intercept

Good to see a mention of a great series of airplanes [F-89s] that seems to avoid all forms of notice in any type of publication. Having spent five years, 1956–60, flying the D, H, and J models out of Otis AFB on Cape Cod, Mass., I can personally attest to the reliability, safety, and mission capability of these Northrop aircraft. [See: *"Flashback: Cold War Intercept,"* May, p. 108.]

Through good weather and mostly bad weather the aircraft, crews, and maintenance personnel performed at an outstanding professional level. It was a vital mission at the time and yet one of little notice. Thanks for reviving some fond memories.

William G. Axelson,
 AFRC (Ret.)
 Scottsdale, Ariz.

Huskie Memories

The photo of the H-43 Huskie helicopter in the April 2002 issue [*"Pieces of History,"* p. 80] brought back memo-

ries. In July 1961, an H-43 helicopter similar to the one pictured made the first ever midair recovery of a parachute-borne object by a US Air Force helicopter. The pilot on this historic flight was Capt. Jack Patterson, and I was the test engineer and recovery system operator.

Midair recovery using fixed-wing aircraft was in operational use on the Corona Program at the time. All American Engineering Co. (AAE) and Sikorsky Aircraft had demonstrated the feasibility of using helicopters for midair recovery in 1959, and AAE had subsequently provided a helicopter recovery service to NASA Wallops Island for rocket nosecone recovery.

Many test packages dropped by parachute from balloons launched from Holloman AFB [N.M.] had been lost in the surrounding mountains. The H-43 system was designed to perform midair recovery of these test packages. We were eventually able to recover objects weighing up to 800 pounds with the H-43, and a number of balloon packages were successfully recovered before the H-43 was transferred away from the base.

The success of this project led eventually to the USAF CH-3 Midair Recovery Systems (MARS) that performed hundreds of midair recoveries of reconnaissance remotely piloted vehicles during the Vietnam conflict.

The MARS technique will be used to recover the Genesis space capsule, now collecting particles of the solar wind, when it returns to Earth in 2004.

G. Robert Veazey Sr.
 Wilmington, Del.

In Praise of Zemke

I'm sure all admirers of Col. [Hubert] Zemke applaud his inclusion in the Aviation Hall of Fame. [See *"Aerospace World: Aviation Hall of Fame Enshrines Four,"* April, p. 16.] You gave him a nice write-up in [*"Valor,"* April 1995, p. 72], which included an important detail. He was no longer in the 56th Fighter Group when his "Spam can" came apart. He had volunteered to take over command of the 479th Fighter Group in August 1944 to shape it up. The 56th FG retained P-47s until the end of the war for good reasons. Too bad Colonel Z wasn't in one when he encountered that turbulence. Thanks for another opportunity to praise the T-bolt.

Maj. Allen V. Mundt,
 USAF (Ret.)
 Reno, Nev.

The Chart Page

By Tamar A. Mehuron, Associate Editor

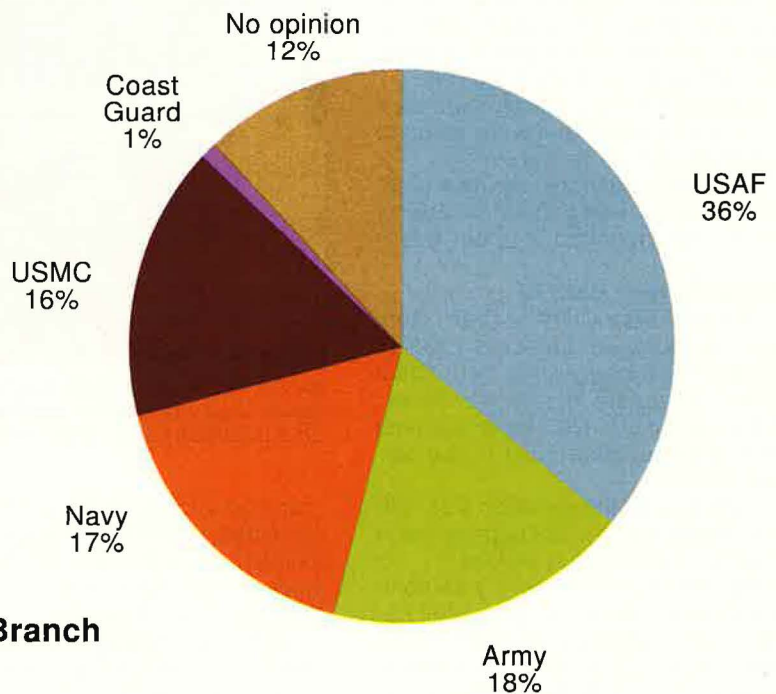
Americans Rate the Military Branches

The Gallup News Service reported May 23 that more than one-third of Americans view the Air Force as the service that is most important to national defense. No other service came close, according to the Gallup poll.

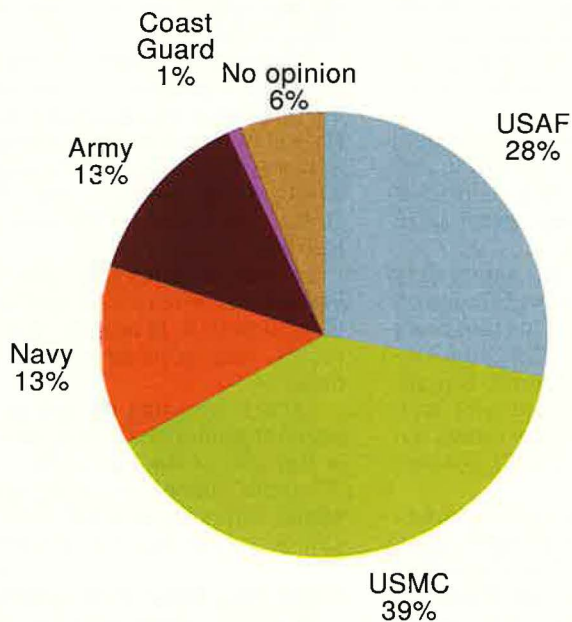
For prestige, though, Americans put the Marine Corps at the top. USAF was second. Both the Marine Corps and the Air Force far surpassed the Army and Navy.

Age made a difference. Those age 30 or older placed the Air Force far ahead of the other services in level of importance, according to the poll.

Most Important Military Branch



Most Prestigious Military Branch



Source: Gallup News Service

Aerospace World

By Suzann Chapman, Managing Editor

Three Killed in MC-130 Crash

Two airmen and one soldier were killed when an Air Force MC-130H Combat Talon II crashed upon take-off in southeast Afghanistan June 12.

The airmen were TSgt. Sean M. Corlew, 37, of Thousands Oaks, Calif., and SSgt. Anissa A. Shero, 31, of Grafton, W.Va. They were both assigned to the 16th Special Operations Wing at Hurlburt Field, Fla.

Seven other US military members on board survived and were taken to a medical facility for treatment.

Officials said there was no indication the crash was caused by enemy fire. An investigation is under way.

Murray Is New CMSAF

The Air Force Chief of Staff, Gen. John P. Jumper, selected CMSgt. Gerald R. Murray as the 14th Chief Master Sergeant of the Air Force. Plans called for Murray to assume the highest enlisted post in the service July 1.

Jumper said the decision was "difficult because the candidates were all so exceptionally qualified."

Murray, who was serving as command chief master sergeant for Pacific Air Forces, replaces CMSAF Jim Finch, who retired after 28 years of service. Finch had been USAF's top enlisted man since Aug. 2, 1999.

The new CMSAF joined the Air Force in October 1977. He served in aircraft maintenance as a crew chief, instructor, and superintendent of production and maintenance. He became a wing senior enlisted advisor and from there became command chief master sergeant for US Forces—Japan and 5th Air Force. He advanced to the PACAF position in August 2001.

"The Air Force is fortunate to have someone of Chief Murray's caliber leading our enlisted force," said Jumper.

C-17s Bound for Pacific Region

The Air Force plans to extend basing for the service's newest airlift aircraft, the C-17, to Hawaii and Alaska perhaps as early as Fiscal 2006.

Officials briefed Congress on the



DOD photo by Ario K. Abrahamson

An Air Force A-10 waits on the flight line at Bagram, Afghanistan, for a maintenance check before its next mission. A-10s recently foiled an al Qaeda attack on a coalition base. (See "A-10s Stop Attack," p. 13.)

proposal as part of the service's latest mobility roadmap. If approved and funded, the plan calls for buying or modernizing more than 700 aircraft over the next 15 years.

USAF has already contracted for 180 C-17s through 2008, but officials have stated that the service needs a minimum of 222 of the Boeing airlifters. (See "Mobility Boom," June, p. 26.)

The Air Force has yet to conduct site surveys for basing C-17s in Hawaii and Alaska, but officials project the service would need about \$425 million for construction.

The plan: Convert the active duty 517th Airlift Squadron at Elmendorf AFB, Alaska, from C-130 transports to C-17s; convert the Hawaii Air National Guard's 204th Airlift Squadron to a C-17 associate unit with both ANG and active duty crews assigned. Each base would receive eight C-17s.

Sen. Ted Stevens, ranking member of the Senate Appropriations Committee, announced in April that USAF would create a new associate Air Force Reserve Command squadron to fly C-17s out of Elmendorf. (See

"Aerospace World: Alaska Gains Airlifter Missions," June, p. 22.)

ANG Gets New Director

Maj. Gen. Daniel James III of Texas was confirmed in May by the Senate as the new director of the Air National Guard.

When he assumes the ANG's top leadership position, James will also be promoted to lieutenant general. He will be the first ANG leader to be a three-star general while serving as ANG director. (ANG Lt. Gen. Russell Davis is chief of the National Guard Bureau.)

James succeeds Maj. Gen. Paul A. Weaver Jr., who retired last fall. Brig. Gen. David A. Brubaker, deputy director, has been serving as acting director.

James, who has served as Texas adjutant general since November 1995, is the son of Air Force Gen. Daniel "Chappie" James Jr., a pioneer Tuskegee Airman and USAF's first African-American four-star general.

USAF May Defer F-22 DIOT&E

USAF's F-22 program director confirmed what officials have been hint-

ing for several months: The F-22 is unlikely to make the scheduled start date of April 2003 for the program's Dedicated Initial Operational Test and Evaluation.

However, the F-22 could still meet its Initial Operational Capability date of December 2005, even with a six-month slip in the DIOT&E schedule, said Brig. Gen. William J. Jabour.

"It's a complex development program," Jabour told reporters May 30.

Part of the problem is the tail buffet issue. (See "War and Transformation," p. 76.) Other issues range from items such as software integration to technical order verification.

Officials have stated the service has funds in reserve to cover a slip in the DIOT&E schedule.

USAF Embarks on New Review

The Air Force has dumped its acquisition review in favor of a process that will focus on the service's new task force approach. (See "Seven Pillars of Airpower," June, p. 42.)

The old Quarterly Acquisition Review Program gave way to the Capabilities Review and Risk Assessment. The CRRA, said Gen. John P. Jumper, Chief of Staff, will shift the service's focus from program review to a review of the health and risk of task force capabilities needed to achieve warfighting effects.

"The bottom-line goal for the CRRA is to give senior USAF leadership an operational, capabilities-based focus for acquisition program decision-making," said Jumper.

The first task force to undergo CRRA scrutiny is the Global Strike Task Force. Others will follow, said officials, as each task force concept of operations is defined.

Jumper said the new process will take the Air Force "in the right direction—toward using operational warfighting effects as the origin for every piece of hardware and software we buy."

A-10s Stop Attack

USAF A-10s bombed about 10 al Qaeda and Taliban fighters who were attempting to set up mortars aimed at a coalition temporary base near Khost in eastern Afghanistan on May 21.

"We have neutralized the area," said a Central Command spokesman.

The A-10s deployed to Bagram air base, near the Afghan capital of Kabul, earlier this year. They have been flown by both active duty and Air Force Reserve Command aircrews. They are supporting coalition ground forces continuing the search for isolated al Qaeda and Taliban militants.

Rumsfeld: Iraq Is Lying

Defense Secretary Donald H. Rumsfeld says Iraq's June 9 claim that it has no weapons of mass destruction and is not developing them is a blatant falsehood.

"They're lying," he said. "It's just false, not true, inaccurate, and typical."

Rumsfeld spoke with reporters June 10 as he was leaving Kuwait. He said Iraq has such weapons and continues to develop nuclear, biological, and chemical weapons.

When asked about Iraq's recent pledge of nonaggression toward Kuwait and its recognition of Kuwaiti sovereignty, the US defense leader said, "It'd be like a lion inviting a chicken into an embrace."

He asked what good past Iraqi representations of goodwill have been to its neighbors. "Should hope spring eternal?"

USAF and NASA To Pursue RLV

Air Force and NASA officials agreed in principle to combine forces to build a joint Reusable Launch Vehicle demonstrator, according to a USAF release in late May.

"We believe there is significant potential [in] a combined Air Force-

NASA RLV effort," said Air Force Undersecretary Peter B. Teets.

At least one lawmaker has said that NASA should consider getting out of the RLV development business. Rep. Curt Weldon (R-Fla.) criticized NASA's leadership role in pursuing new RLV technology.

NATO Unveils New Relationship With Russia

NATO on May 28 formally entered a partnership with Russia, giving its former foe a voice in certain alliance issues, namely the war on terrorism.

Leaders from the 19 NATO member countries and Russia signed the Rome Declaration, establishing the NATO-Russia Council, which replaces the NATO-Russia Joint Permanent Council negotiated during the Clinton Administration. The agreement for the original council only permitted Russian participation after the NATO 19 had reached a common decision.

NATO officials said creation of the new council was prompted by the need to work with Russia in combating terrorism and the proliferation of weapons of mass destruction. It will be "a mechanism for consultation, consensus-building, cooperation, joint decision, and joint action for the member states of NATO and Russia on a wide spectrum of security issues in the Euro-Atlantic region," said an official statement.

Russia will not have a veto over NATO decisions or a vote in its efforts to expand membership to nations once part of the Soviet bloc.

There are nine countries currently seeking admission to NATO: Albania, Bulgaria, Estonia, Latvia, Lithuania, Macedonia, Romania, Slovakia, and Slovenia. In 1999, during its first round of enlargement since the end of the Cold War, NATO accepted the Czech Republic, Hungary, and Poland into the alliance. A decision on the second round is expected in November.

The new NATO-Russia Council, analysts say, makes NATO expansion less threatening to Russia.

The 20-member council does not replace the North Atlantic Council, the body through which NATO usually reaches decisions. If the new council cannot reach a consensus, officials said, then NATO's 19 members may limit or restrict discussion on any given topic.

Russian President Vladimir Putin told a news conference, "We accept that the views of NATO and Russia on certain security issues may not always coincide, but what unites us is far more serious than what divides us."

Initially, the council agreed to pursue cooperative efforts in these areas:

- Anti-terrorism
- Crisis management
- Nonproliferation
- Arms control and confidence-building measures
- Theater missile defense
- Search and rescue at sea
- Military-to-military cooperation and defense reform
- Civil emergencies
- New threats and challenges

USAF photo



The first Airborne Laser aircraft, here at the Boeing facility in Wichita, Kan., is ready for airworthiness testing to see if it still flies like a 767 despite structural changes. (See "Laser-Less ABL Ready for Flight," below.)

"The Air Force has a much better track record on X vehicles," Weldon said late last year.

Both NASA and Air Force officials say combining forces will enable them to eliminate duplication and, ultimately, save money.

Air Force C-130s Fight Fires

Air National Guard and Air Force Reserve Command fire fighting C-130s joined civilian aircraft to help control wildfires raging in California and Colorado last month. USAF has three ANG and one AFRC C-130 units that fly Modular Airborne Fire Fighting System missions.

The Guard activated its 146th Airlift Wing at Channel Islands, Calif., on June 5 to fight fires in southern California.

Two ANG C-130s from the 145th AW at Charlotte, N.C., and two AFRC C-130s from the 302nd AW, at Peterson AFB, Colo., on June 14 joined civilian aircraft fighting wildfires in Colorado.

The MAFFS is a self-contained, reusable 3,000-gallon fluid dispersal system that can be quickly installed inside a C-130, which can release its entire load of fire retardant in fewer than five seconds.

The other unit that flies MAFFS missions is ANG's 146th AW at Cheyenne, Wyo.

Laser-Less ABL Ready for Flight

The Missile Defense Agency announced that Boeing moved the first Airborne Laser aircraft from the modi-

fication facility to the flight ramp at Wichita, Kans., ready for ground and flight tests this summer.

Modifications to convert a Boeing 747-400 freighter to the initial ABL platform—Aircraft 00-0001—began in January 2000 and required approximately 1.6 million employee hours, according to Boeing officials.

The aircraft's 11,500-pound two-axis nose turret, built by Lockheed Martin, was the largest piece of added structure. Another significant element was the "largest single piece of hot-formed titanium ever manufactured," now attached to its aft underside. The superstrong structure is needed for 36 exhaust ports drilled through the skin. The ports will allow laser ejector tubes to exhaust chemical gases out of the aircraft.

MDA officials said a critical challenge for the mod team was installation of a floating pressure bulk-

Bush Plans Homeland Security Department

President Bush wants to create a new federal department that he said would require the most extensive government reorganization since the 1940s.

In an address to the nation June 6, Bush urged Congress to establish a permanent Department of Homeland Security to envelope many of the agencies tasked with homeland defense responsibilities and to provide an organization that has "final accountability."

The plan would merge some or all of 22 federal agencies, such as the Border Patrol, Coast Guard, Customs Service, Immigration and Naturalization Service, and Secret Service—drawing in some 170,000 employees currently employed in those agencies. Its annual combined budget would be \$37.4 billion.

Bush said the new department would have four primary tasks:

- Control US borders and prevent terrorists and explosives from entering the country.
- Work with state and local authorities to respond quickly and effectively to emergencies.
- Bring together the best scientists to develop technologies that detect biological, chemical, and nuclear weapons and to discover the drugs and treatments to best protect US citizens.
- Review intelligence and law enforcement information from all government agencies to produce a single daily picture of threats against the US homeland and provide analysts to imagine the worst and plan to counter it.

If Congress approves the new department, it would also have to decide if and how to reorganize the committee structure in both houses. There are 80 or so committees and subcommittees that oversee the agencies involved. Some lawmakers are already envisioning huge turf battles.

Although Homeland Security Advisor Tom Ridge predicted June 9 on NBC's "Meet the Press" that the plan will pass Congress this year, he said, "There's still a lot of heavy lifting."

The plan is by no means a shoo-in, if comments emanating from key committees, such as intelligence and appropriations, are any indication. Republicans as well as Democrats have criticized the plan for not addressing intelligence failures. Others have said simply it will require careful consideration.

Sen. Joseph I. Lieberman (D-Conn.) introduced a bill several months ago to create a homeland security department, though on a smaller scale. He said June 9 on "Fox News Sunday" that the White House should have a separate counterterrorism coordinator to reign in intelligence activities.

Still other Congressional leaders from both parties have endorsed the plan, saying only that it should have come sooner.

The Washington Tanker Wars

Congress, the White House, and the Pentagon are locked in a furious debate about how the Air Force ought to modernize its aerial refueling fleet of aging KC-135s. The oldest 126 Stratotankers—the KC-135Es—average 43 years of age, have never been re-engined, and are spending an inordinate amount of time in the shop, mostly due to corrosion.

The issue flared last year when James G. Roche, Secretary of the Air Force, suggested the service move up by five years its plans to replace the KC-135Es. He noted that orders for a number of Boeing 767s already on the production line had been canceled due to the post-Sept. 11 downturn in the airline industry and proposed the Air Force lease the 767s as tanker platforms.

Leasing, Roche said, would spare the service an enormous up-front procurement bill and spread payments out over a more manageable period. It would allow USAF to get the airplanes sooner. It would also help out the US aerospace industry.

Boeing has successfully marketed a "militarized" version of the 767 overseas to Italy and Japan. The United Kingdom is also considering buying 767 tankers.

The lease idea was spurred by the fact that the tanker fleet was being heavily used in Operations Noble Eagle and Enduring Freedom, while between one-quarter and one-third of the KC-135 force was perpetually laid up in depot maintenance, the average duration of which had risen to about 400 days.

Roche also noted that, under similar circumstances, USAF had purchased KC-10 Extenders in the 1980s. That move had proved a lifesaver for the conflicts of the 1990s.

The Preferred Option

Roche has maintained that an outright buy is preferable to a lease. While a lease, nominally stated as 10 years long, might be better in terms of cash flow, it does not address how USAF would fill its aerial tanking needs beyond the lease period.

Congress agreed to explore the idea of leasing and gave the Air Force a green light to begin negotiations.

The Air Force talked to Boeing about the 767s and to European Aeronautic Defense and Space about its A-300 series of transports. It then ruled out an EADS aircraft because of the company's limited knowledge of tankers, but the firm was encouraged to develop capabilities it could offer for future tanker competitions.

Complicating the lease idea are legislative inputs and apples-to-oranges cost comparisons.

Sen. Ted Stevens (R-Alaska), ranking member on the Senate Appropriations Committee, inserted language into the Fiscal 2002 defense spending bill that required the Air Force to negotiate a deal that would start and end with commercial-standard airliners. That meant USAF would have to pay to convert leased commercial airliners into military tankers and then, at the end of the lease, pay to have them demilitarized by removing the refueling gear and restoring the aircraft to airliner configuration. Stevens's amendment would have the airplanes paid for from operations and maintenance funds, rather than procurement accounts.

The move was booed by Sen. John McCain (R-Ariz.) as a make-work provision for the aerospace industry. He also said it imperiled the whole lease concept because the provision added tremendous cost. McCain plans to

introduce legislation requiring any lease of more than one year to be funded through procurement accounts.

The CBO Numbers

The Congressional Budget Office, in response to a request from McCain, compared the cost of buying and leasing tankers. It said purchasing 100 767s between 2005 and 2011 would entail \$18 billion in procurement and another \$7 billion in operating costs through the year 2020—or \$25 billion overall. In today's dollars, CBO said, the 100-tanker buy would cost \$20 billion, including operating expenses.

By contrast, CBO said, leasing and operating 100 767s over roughly the same period—including the tanker conversion and deconversion costs—would be about \$24 billion in today's dollars.

However, CBO pointed out, at the end of the lease, "the Air Force would not possess any aircraft," whereas purchased airplanes would be available for perhaps 20 to 30 more years of service. At the end of 2015, USAF would have to start over—buying or leasing more aircraft. If the Air Force simply bought the aircraft at the end of the lease, it could avoid the deconversion costs, but CBO estimated the residual value of the 767s would still be about \$6 billion. Overall, CBO said the lease-to-buy arrangement would cost \$26 billion in today's dollars.

If Stevens's provision were amended to permit a leasing-purchase of airplanes already configured as tankers, CBO said, the overall cost for operations through 2020 would be \$28 billion in today's dollars.

The CBO also estimated the cost of operating the KC-135E fleet from 2005 to 2011 at \$2 billion.

The Pentagon's Cost Analysis Improvement Group pegged the cost of a lease arrangement 15 percent higher than an outright buy.

OMB's Turn

Then, the White House's Office of Management and Budget jumped into the fray, suggesting the Air Force could re-engine 126 KC-135Es (which are re-engined KC-135As), bringing them up to KC-135R status, and add other improvements for about \$3.2 billion. The move would increase the carrying capacity of the tanker fleet sooner than other alternatives. OMB acknowledged that the Air Force expects KC-135 maintenance costs to increase by \$23 million a year but said the service could still fly the KC-135s another 40 years.

OMB said a tanker lease would cost \$26 billion over 10 years and require about \$1 billion in infrastructure changes to accommodate the larger airplanes. It also warned that replacing 126 KC-135Es with only 100 767s would result in a net loss of fuel capacity of about two percent. The agency also said an outright buy of 100 767s would cost about \$18 billion, including the cost of the refueling conversion.

The Air Force responded that an upgrade of the engines would do nothing to fix the essentially unfixable problems of corrosion on the 43-year-old airplanes.

In the wake of dueling numbers, Roche has said the lease is something "we will not do ... unless it makes good business sense." Boeing has said it expects to offer an attractive deal, at less than what the government agencies are estimating. Details of the prospective lease arrangement are expected later this summer.

—John A. Tirpak

Roche: USAF Could Have Saved \$18 Billion on C-17

Secretary of the Air Force James G. Roche said the Air Force was forced to spend \$18 billion more than necessary to field the C-17 airlifter.

He said when the program began in 1997, it had a 210-airplane target. That target dropped to as few as 40 over time, then rose to its present level of 180.

"The bouncing around ... cost us \$18 billion we probably did not have to spend over that period of time," Roche said during a DFI International seminar on Capitol Hill in late May.

"Had we, as an Air Force, managed the C-17 program from the beginning in a steady, consistent manner, we would have saved close to \$18 billion."

He urged his own service's acquisition personnel and defense contractors to be both innovative and steady and business-like in future endeavors.

head to protect crew members from the laser equipment. The massive structure "floats" to conform to flexing of the aircraft structure during flight.

Once USAF officials are satisfied the aircraft can still fly, handle aerial

refueling, and land after its structural changes, it will be flown to Everett, Wash., for painting, then to Edwards AFB, Calif., where the laser system will be installed.

The ABL is scheduled for a missile-shutdown test in late 2004.

AFA Names New Executive Director



The Air Force Association Board of Directors approved Donald L. Peterson to be the next AFA executive director. Peterson on Aug. 1 will succeed John A. Shaud, who served in the post for seven years.

"We are very pleased to have someone of Don Peterson's caliber as the next executive director of our association," said AFA National Chairman of the Board Thomas J. McKee. "Don is committed to helping AFA promote public understanding of aerospace power and the pivotal role it plays in the security of the nation. We look forward to his advocacy on behalf of our members, the United States Air Force, and the Air Force family."

As top staff executive, Peterson will direct AFA's professional staff in all functional areas

and be responsible for the management and operations of the association and its educational affiliate, the Aerospace Education Foundation. He will hold the position of publisher of *Air Force Magazine*, the official journal of the 146,000-member association.

A retired lieutenant general, Peterson served as director of plans and assistant deputy chief of staff for air and space operations and later as deputy chief of staff for personnel at Headquarters US Air Force at the Pentagon.

Peterson completed pilot training in 1967 and began his career as a KC-135 pilot and later flew EC-135, F-4, F-111, and F-15 aircraft. He is a command pilot with more than 4,000 flying hours, including 597 in combat. His assignments included tours as commander of a tactical fighter squadron, tactical fighter wing, and flying training wing. He also commanded the Cheyenne Mountain Operations Center for NORAD and US Space Command.

He graduated from Texas A&M University in 1966 with a bachelor of business administration degree in finance. Peterson holds a master's degree in management from Auburn University. He attended the Executive Development Program at Carnegie Mellon University and Program for Senior Executives in National and International Security at Harvard University.

MDA Secrecy Rule Under Fire

Sen. Carl Levin (D-Mich.), chairman of the Senate Armed Services Committee, said he plans to tear down new walls of secrecy the Bush Administration has instituted for future National Missile Defense tests.

Under the new rule, the Missile Defense Agency will classify as secret the details about targets and countermeasures used in each test. The next ground-based NMD system flight test is scheduled for this summer.

Levin told reporters June 10 that although Congress will be able to get the information it needs, some information should also be made public to allow open scrutiny.

"I am going to try to do what I can to tear down the walls where the walls are not appropriate," said Levin.

Philip E. Coyle III, who was the Pentagon's top system tester from 1994 until last year, also expressed concern. Writing in the *Washington Post* June 11, Coyle said the ground-based NMD system is not at the point where revealing the kinds of targets and decoys used in tests would give an enemy an advantage.

"The current test program is not giving away any secrets; nor is there any danger of that for years to come," said Coyle, who is now a senior advisor with the Center for Defense Information, an ever-reliable defense critic.

He said that MDA has another new policy that withholds information from the Pentagon's own independent review offices, such as Coyle's old domain, the Director of Operational Test and Evaluation.

MDA officials maintain that Congress and key decision-makers at the Pentagon will have the data they need and that MDA needs the new classification policy as the tests become more sophisticated.

Twelve House Republicans and two Democrats declared faith in the current MDA head, USAF Lt. Gen. Ronald T. Kadish. In a letter to Defense Secretary Donald H. Rumsfeld, they asked him to keep the general on for three more years. Kadish has already agreed to stay one year past a normal three-year tour, according to the *Post*.

In the letter, initiated by House Armed Services Committee member James V. Hansen (R-Utah), the Congressmen said Kadish is the right man for the job, which they suggested be boosted to four-star level.

AFMC Selects Pathfinders

The Air Force has chosen several

acquisition programs, including the Space Based Radar and Unmanned Combat Air Vehicle, to pave the way for a procurement overhaul that would place weapons in the hands of warfighters more swiftly than in the past.

Calling the programs "pathfinders," Gen. Lester L. Lyles, head of Air Force Materiel Command, said the goal is to cut the acquisition cycle time by 25 percent.

That would get a system to the warfighter in two years instead of eight, he said at the National Aeronautical Systems and Technology conference in Dayton, Ohio, in mid-May.

The service plans to change the acquisition strategies for the pathfinder programs using a rapid spiral development process. It would then institutionalize the changes and apply them to other programs.

In addition to the SBR and UCAV programs, pathfinders would include:

- Global Hawk Unmanned Aerial Vehicle.
- Multimission Command-and-Control Aircraft.
- C-5 avionics replacement.
- Global Traffic Network.
- Several classified programs.

AETC Shifts Training Courses

Air Education and Training Command on June 4 announced a realignment of several technical training courses involving units in Arkansas, Mississippi, Oklahoma, and Texas.

The goal, said officials, is to align the technical expertise associated with a training discipline at one location.

Lackland AFB, Tex., will pick up undergraduate enlisted aircrew training. Sheppard AFB, Tex., becomes the center for all avionics maintenance training. Keesler AFB, Miss., will be the training center for electronic principles, education and training, and finance.

Altus AFB, Okla., and Little Rock AFB, Ark., will each have basic loadmaster training for their aircraft.

The changes will be made beginning this summer and will be completed late next year.

USAF Stumped by A-10 Crash

Air Force investigators could not determine a clear and convincing cause for the midair collision of two A-10 aircraft Jan. 17 near Douglas, Ariz., the service announced May 24.

They did determine that loss of situational awareness was a contributing factor.

They also found that the pilot who died, Lt. Col. Lance A. Donnelly, did not have his parachute harness leg straps connected. He fell from his harness when the chute opened.

This Is the Way the ABM Treaty Ends, Not With a Bang but a Whimper

Six months after President Bush announced the US plan to withdraw from the 1972 Anti-Ballistic Missile Treaty, the 30-year-old Cold War centerpiece formally expired June 13.

Unlike the elaborate ceremony at which Richard Nixon and Leonid Brezhnev signed the ABM treaty, the event raised barely an official nod from either the US or Russia.

The White House issued a four-paragraph statement. The Kremlin, which had opposed abandoning the agreement, said nothing.

"We no longer live in the Cold War world for which the ABM treaty was designed," the Presidential statement said. Russia and the US are building a new relationship, it said, that will look for ways to cooperate on missile defenses, including sharing early warning data and exploring potential joint research and development of missile defense technologies. "Over the past year, our countries have worked hard to overcome the legacy of the Cold War and to dismantle its structures."

Critics of Bush's decision to abandon the ABM treaty said the move would set off a new arms race. Instead, just two weeks earlier the US and Russia signed a new treaty, reducing the number of warheads each country has deployed. (See "Bush, Putin Sign Pledge to Reduce Nuclear Arsenals," below.)

Bush maintained that the ABM treaty hindered the US plan to proceed with a missile defense system.

A group of Democrats tried to block the treaty withdrawal, but the House voted down their legislation. On June 11, 31 members of Congress filed a lawsuit in federal court to prohibit the move.

White House spokesman Ari Fleischer said the lawsuit would probably be dismissed.

Meanwhile, the Pentagon moved June 15 to break ground at Ft. Greeley, Alaska, for facilities to house the Ground-based Midcourse Defense System test bed, including six underground silos for missile interceptors.

Bush, Putin Sign Pledge To Reduce Nuclear Arsenals

The heads of state of the United States and Russia signed the Treaty of Moscow May 24, pledging to reduce their respective nuclear warhead arsenals by nearly two-thirds.

The treaty requires each country to go down to between 1,700 and 2,200 warheads by Dec. 13, 2012. This will be the lowest level in decades.

At the signing, President Bush said the treaty "liquidates the Cold War legacy of nuclear hostility between our two countries." He went on to describe a new strategic relationship that will project the US and Russia on "a course toward greater security, political, and economic cooperation."

Bush also signaled continued cooperation in the war on terror. "I understand full well that the people of Russia have suffered at the hands of terrorists. And so have we. And I want to thank President Putin for his understanding of the nature of the new war we face together and his willingness to be determined and steadfast and patient as we pursue this war together."

Putin, in his remarks, talked about the strengthening of relations between the two countries, including the struggle against international terrorism.

Each side gets to determine the composition of its strategic nuclear force under the new treaty. The US plans to retire all 50 of its 10-warhead Peacekeeper ICBMs and convert four Trident submarines from strategic to conventional service. Officials said additional steps to reduce the US arsenal to the levels required are yet to be decided.

They also said that some of the warheads removed from deployment will become spares, some will be stored, and others will be destroyed.

Before any actions are taken, the treaty must be ratified by the Senate in the US and the two chambers of the Federal Assembly in Russia. Once this is done, the treaty can enter into force.

The treaty is not expected to reach the Senate floor until fall at the earliest.

Another pilot, Capt. Patrick Boland, was injured in the accident.

Both men were assigned to the 354th Fighter Squadron at Davis-Monthan AFB, Ariz.

DOD IDs Remains of Two Airmen

The Pentagon announced June 3 that it had identified the remains of two Air Force members killed in action during the Vietnam War. They were MSgt. Thomas E. Heideman and Capt. Craig B. Schiele.

On Oct. 24, 1970, they were crew members of a CH-3E helicopter that crashed in a dense jungle shortly after takeoff. Rescuers found only one body at the site, that of Schiele.

In 1994, a Joint Task Force-Full Accounting team discovered aircraft debris and personal artifacts but no human remains at the crash site. In 1995, another team excavated the site and recovered human remains and additional personal artifacts.

Forensic scientists at the Army Central Identification Lab in Hawaii were able to identify the remains.

VA Launches Restructure Study

Veterans Affairs announced June

6 the start of a major review of its regional medical structure. The review, expected to be complete within two years, could lead to reductions in the number of VA medical facilities.

The VA concluded a pilot study in its Chicago, Wisconsin, and Upper Michigan region last February.

The new review will look at the other 20 regions in the VA medical system. It is part of the VA process called Capital Asset Realignment for Enhanced Services.

Veterans have already begun expressing concerns that VA intends to shut down or scale back a host of facilities.

According to the VA, once the review is complete and a draft plan formed, an independent commission will review it. As it does this, the commission will hold hearings with veterans in areas affected by the proposed restructuring.

The commission will forward its recommendations to the VA "only after careful evaluation of these [veterans'] comments," said officials.

USAF: IP Caused Fatal T-37 Crash

Air Force investigators reviewing

the crash of a T-37B training aircraft near Laughlin AFB, Tex., Jan. 31 found that the Instructor Pilot caused the accident. Both the IP and student pilot were killed.

The board determined that the instructor, 1st Lt. Chad B. Carlson, was flying the trainer as it made a final turn for a touch-and-go landing. Asked by the runway supervisor if he could see an aircraft performing a straight-in approach, Carlson said no and that he would go around to try the approach again. As he maneuvered at low altitude, the T-37 went into a descending right turn with the bank increasing steadily beyond the 45-degree maximum allowable in a final turn.

The excessive bank angle combined with a final turn airspeed of 110 knots caused the aircraft to stall. It began a rapid descending roll to the right and crashed.

Officials said neither Carlson nor the student pilot, 2nd Lt. Nicholas J. Jabara, attempted to eject. Jabara was the grandson of the late Col. James Jabara, the first ace of the Korean War.

NIMA To Take New Name, Restructure

The National Imagery and Mapping Agency is in the market for a new name and, possibly, consolidation of some functions at a new location, according to the agency's director.

Retired USAF Lt. Gen. James R. Clapper Jr. told reporters June 4 one possible name would be the National Geospatial Intelligence Agency.

Clapper, who took charge of NIMA just days after the Sept. 11 terror attacks, said the current name perpetuates a division between the "endeavors of mapping, charting, geodesy on the one hand and imagery and imagery analysis on another."

NIMA's leadership has embraced the term "geospatial intelligence," Clapper said, to better describe the functional convergence of those endeavors.

The agency is also studying an initiative to consolidate East Coast operations at a single complex. He envisions a designed-for-the-purpose facility that meets force protection standards.

"Right now, we are a force protection challenge," Clapper said.

NIMA was created in 1996 as an amalgam of all or parts of eight predecessor organizations, he said.

"We are in two locations in the St. Louis area [and in] several locations around the Washington, D.C., belt-

CSAF Survey Indicates Improvement

More than 65 percent of the Air Force's active duty personnel and civilians participated in the 2002 Chief of Staff organization climate survey. That is the highest response rate so far.

Air Force officials said respondents to this survey also rated almost all areas higher than in the previous survey, conducted in 1999.

One reason for the high response rate, they said, was that anonymity of respondents was protected.

In the survey, personnel rated issues affecting their day-to-day work by responding to questions with answers ranging from strongly agree to strongly disagree.

Some of the areas covered revealed that:

- 93 percent of respondents said their unit is getting the mission done and doing it well;
- 91 percent find their job motivating, important, interesting, and challenging;
- only 72 percent, though, said their unit had adequate resources;
- 72 percent agreed they were being recognized, either formally or informally, for exceptional performance;
- 78 percent said leadership in their chain of command influenced the unit's direction, people, and culture;
- 82 percent agreed their supervisors were proficient in skills planning, organizing, leading, and providing feedback; and
- 75 percent said they receive a sense of accomplishment and personal fulfillment from their work.

Officials noted that the issue of whether there are adequate resources historically receives a low rating. They said that although some 28 percent felt they did not have enough resources to do their jobs, when looking specifically at time as a resource, the rating was higher than in past surveys. That provides an indication, they said, that work processes are improving.

There was no noticeable difference in responses from those at their home stations and those at deployed locations.

way, which in my mind, is probably the biggest single obstacle to actually converging the cultures.”

When asked where he might locate a new campus, he said the East Coast. East Coast consolidation would not affect NIMA's St. Louis operations, said Clapper.

NIMA's workload increased dramatically after Sept. 11. In fact, he said, the agency no longer has “the luxury of focusing on a single area at one time.” NIMA did initially concentrate on Afghanistan but that quickly expanded to include other areas, including work for homeland security.

Clapper said that since Sept. 11 his agency has turned out about 37 million map products, a number that is more than four times NIMA's normal annual production.

Basic Trainee Dies

Air Force officials said Stephen W. Fortune of Nesbit, Miss., died May 24 after collapsing on the obstacle course at Lackland AFB, Tex.

He was pronounced dead at 10:10 a.m. at Wilford Hall Medical Center at Lackland.

Fortune was in his fifth week of the service's 6.5-week basic military training program. The obstacle course is 1.4 miles long with 17 obstacles.

Two other recruits have died within the past four years during the last stages of training known as Warrior Week. One had concealed a history of hypertension during his military physical. The other died from heat-stroke complicated by water intoxication, a finding that prompted the Air Force to change some procedures.

Officials said a safety board would convene to investigate the most recent death.

C-17s Fly First Twelve-Some

Officials at Charleston AFB, S.C., said 12 C-17s took off from the base May 14 to fly in the largest formation to date for the service's newest airlifter.

The 12 airlifters flew in an instrument-condition formation eight miles long, said Lt. Col. William Changose, 14th Airlift Squadron commander.

C-17s are tasked with providing strategic brigade airdrop capability—the ability to go anywhere in the world and air-drop paratroopers on short notice, he said. Not since Operation Enduring Freedom began have so many C-17s been available at one time.

News Notes

■ On June 17 DOD announced the Netherlands had become the fourth country to sign on for the Joint Strike



USAF photo by TSgt Cecil Daw

Cpts. Bryce and Ryan Silver—twin brothers and both F-15E pilots from RAF Lakenheath, UK—flew a combat mission together for the first time May 30 while patrolling the no-fly zone over northern Iraq.

Fighter development and demonstration phase. It will invest \$800 million. Denmark was third on May 28 and will invest \$125 million.

■ The Marine Corps V-22 Osprey tilt-rotor aircraft had a successful return to flight test May 29 after being

grounded for 17 months following two fatal crashes in 2000.

■ The X-45A Unmanned Combat Air Vehicle technology demonstration aircraft flew for the first time May 22. The 14-minute flight took the UCAV to 7,500 feet at an airspeed of

House Prohibits Abaya Rule

By unanimous voice vote, the House approved a bill that would prohibit US servicewomen from being formally or informally forced to wear the head-to-toe covering, called an abaya. The bill would also prohibit DOD from purchasing such attire.

US Central Command had required female military members to wear the Muslim religious garment whenever they left military bases in Saudi Arabia. That rule and other restrictions, such as prohibiting military women from driving vehicles, had been in force since 1990.

The rule was relaxed somewhat in January when CENTCOM said women were strongly encouraged, but not required, to wear the abaya.

Air Force Lt. Col. Martha McSally, who last year publicly denounced the original policy, had tried unsuccessfully for six years to go through official channels to get the rule changed. She filed a lawsuit in December against DOD.

CENTCOM said the McSally lawsuit had no bearing on the January change.

Rep. John N. Hostettler (R-Ind.), sponsor of the House bill, said the CENTCOM change did not go far enough.

“I am puzzled by the fact that our female military personnel are treated like second-class citizens while stationed on soil they're defending from Iraqi aggression,” said Hostettler.

The rule is not standard for all US government female personnel. For instance, the State Department does not require its female personnel working in Saudi Arabia to wear an abaya. Hostettler also noted that Lynne Cheney wore a business suit when she accompanied her husband, Vice President Dick Cheney, on a visit there recently.

A co-sponsor of the bill, Rep. Heather A. Wilson (R-N.M.), said the policy should never have been put in place.

“The sad thing is that this bill is needed at all,” said Wilson, a seven-year Air Force veteran. When senior commanders learned about it, she added, it should have been dropped immediately “as transparently unconstitutional.”

The bill was referred to the Senate for action.

195 knots. A second vehicle will begin flight tests later this year. (See "Heavyweight Contender," p. 32.)

- Boeing selected the General Electric F404 engine to power its X-45B UCAV, currently under development. It is scheduled to fly in 2005.

- USAF officials announced May 12 that pilot error caused the Jan. 10 crash of an MH-53 helicopter in Colorado. The accident was a combination of fatigue and the pilot focusing too narrowly on the approach, ignoring the surrounding area. The aircraft's speed and altitude made it impossible for the pilot to recover when confronted with a barrier of trees. No one was injured.

- The Air Force said June 10 it had selected a site near the Ft. Belknap

Indian Reservation in Montana for a new air-to-ground combat training range. The Air National Guard's 120th Fighter Wing, located in Great Falls, Mont., will now have to fly only about 15 minutes instead of the 55 minutes each way it took to reach the nearest training range. Construction will start next spring.

- US and North Korean negotiators agreed June 9 on a new schedule of operations to recover remains of US military personnel missing in action from the Korean War. The three operations, lasting about 30 days each, will begin this month and continue into the fall.

- Boeing demonstrated its 737 airliner to the Navy as a possible replacement for the aging P-3C Orion

maritime patrol aircraft and the EP-3C intelligence-gathering airplane. The Navy was expected to select several contractors for an 18-month initial concept development program last month.

- The Advanced Extremely High Frequency system could violate the Nunn-McCurdy rule for controlling program costs if the Pentagon doesn't buy five of the satellites as it initially planned, Peter B. Teets, undersecretary of the Air Force and director of the National Reconnaissance Office, said in mid-May. A decision on the program is expected this month following a new study of military communications.

- A Saudi Arabian official reportedly said Riyadh had sentenced some

Senior Staff Changes

RETIREMENTS: Brig. Gen. Russell J. **Anarde**, Lt. Gen. Thomas R. **Case**, Maj. Gen. Michael S. **Kudlacz**, Brig. Gen. Dan L. **Locker**, Brig. Gen. Donald P. **Pettit**, Brig. Gen. Jerald D. **Stubbs**.

CHANGES: Brig. Gen. William P. **Ard**, from Dir., Staff, AETC, Randolph AFB, Tex., to Dir., Manpower & Orgn., DCS, P&P, USAF, Pentagon ... Brig. Gen. (sel.) Dana T. **Atkins**, from Dep. Dir., Operational Rqmts., DCS, Air & Space Ops., USAF, Pentagon, to Cmdr., 35th FW, PACAF, Misawa AB, Japan ... Maj. Gen. Thomas L. **Baptiste**, from Asst. C/S, Ops., Allied Air Forces Southern Europe, NATO, Naples, Italy, to Asst. C/S, Ops. Div., SHAPE, NATO, Casteau, Belgium ... Brig. Gen. Curtis M. **Bedke**, from Cmdr., 2nd BW, ACC, Barksdale AFB, La., to IG, ACC, Langley AFB, Va. ...

Brig. Gen. (sel.) Bradley W. **Butler**, from Dep. Cmdr., C² Enterprise Integration, ESC, AFMC, Hanscom AFB, Mass., to Sys. Prgm. Dir., Multimission C² Constellation, AFMC, Hanscom AFB, Mass. ... Brig. Gen. Arthur F. **Diehl III**, from Dir., Marketing, OSAF (Communications), Pentagon, to Dep. Dir., Engagement, CENTCOM, MacDill AFB, Fla. ... Maj. Gen. Robert R. **Dierker**, from Asst. C/S, Ops. Div., SHAPE, NATO, Casteau, Belgium, to Dir., C⁴ISR Integration, DCS, Warfighting Integration, USAF, Pentagon ... Maj. Gen. (sel.) Edward R. **Ellis**, from Cmdr., Combined Task Force, Operation Northern Watch, EUCOM, Incirlik AB, Turkey, to Asst. C/S, Ops., Allied Air Forces Southern Europe, NATO, Naples, Italy ... Brig. Gen. William F. **Hodgkins**, from Cmdr., 325th FW, AETC, Tyndall AFB, Fla., to Dep. Cmdr., CAOC 7, Air South, NATO, Larissa, Greece ... Brig. Gen. Gilmory M. **Hostage III**, from Cmdr., 363rd AEW, Prince Sultan AB, Saudi Arabia, to Cmdr., 552nd ACW, ACC, Tinker AFB, Okla. ...

Brig. Gen. (sel.) James P. **Hunt**, from Spec. Asst., Vice C/S, USAF, Pentagon, to Cmdr., 49th FW, ACC, Holloman AFB, N.M. ... Brig. Gen. Raymond E. **Johns Jr.**, from Dep. Dir., Strat. Plans & Policy, PACOM, Camp H.M. Smith, Hawaii, to Dep. Dir., Prgms., DCS, P&P, USAF, Pentagon ... Brig. Gen. Timothy C. **Jones**, from Dep. Dir., Prgms., DCS, P&P, USAF, Pentagon, to Cmdr., 55th Wg., ACC, Offutt AFB, Neb. ... Brig. Gen. Christopher A. **Kelly**, from Vice Cmdr., 15th AF, AMC, Travis AFB, Calif., to Cmdr., Air Mobility Warfare Ctr., AMC, Ft. Dix, N.J. ... Brig. Gen. (sel.) Stephen L. **Lanning**, from Vice Dir., Ops., SPACECOM, Peterson AFB, Colo., to Principal Dir., Network Svcs., DISA, Arlington, Va. ... Brig. Gen. (sel.) John W. **Maluda**, from Dir., Comm. & Info., USAF, Ramstein AB, Germany, to Dep. Dir., C⁴ISR Integration, DCS, Warfighting Integration, USAF, Pentagon ... Maj. Gen. Craig R. **McKinley**, from Dep. IG, OSAF, Pentagon, to Cmdr., 1st AF, ACC, Tyndall AFB, Fla. ... Maj. Gen.

Jeffrey **Musfeldt**, from Mobilization Asst., DCS, Air & Space Ops., USAF, Pentagon, to Dep. IG, OSAF, Pentagon ... Brig. Gen. (sel.) Larry D. **New**, from Dir., Rqmts., ACC, Langley AFB, Va., to Cmdr., 325th FW, AETC, Tyndall AFB, Fla. ... Brig. Gen. (sel.) Richard E. **Perraut Jr.**, from Chief, Prgm. Integration Div., DCS, P&P, USAF, Pentagon, to Vice Cmdr., 15th AF, AMC, Travis AFB, Calif. ... Brig. Gen. (sel.) Michael F. **Planert**, from Dep. Dir., Ops. & Tng., USAF, Pentagon, to Dep. Dir., Ops., Natl. Mil. Cmd. Ctr., Jt. Staff, Pentagon ... Brig. Gen. Gregory H. **Power**, from Cmdr., 55th Wg., ACC, Offutt AFB, Neb., to Vice Cmdr., 8th AF, ACC, Barksdale AFB, La. ... Brig. Gen. Marc E. **Rogers**, from Cmdr., 49th FW, ACC, Holloman AFB, N.M., to Dep. Cmdr., Jt. Warfighting Ctr., JFCOM, Ft. Monroe, Va. ...

Maj. Gen. (sel.) Ronald F. **Sams**, from IG, ACC, Langley AFB, Va., to Dir., ISR, DCS, Air & Space Ops., USAF, Pentagon ... Brig. Gen. Robin E. **Scott**, from Dep. Cmdr., CAOC 7, Air South, NATO, Larissa, Greece, to Cmd. Gen., Combined Task Force, Operation Northern Watch, EUCOM, Incirlik AB, Turkey ... Brig. Gen. Norman R. **Seip**, from Dep. Dir., Ops., Natl. Mil. Cmd. Ctr., Jt. Staff, Pentagon, to Dep. Dir., Ops. & Tng., DCS, Air & Space Ops., USAF, Pentagon ... Maj. Gen. Glen D. **Shaffer**, from Dir., ISR, DCS, Air & Space Ops., USAF, Pentagon, to Dir., Intel., Jt. Staff, DIA, Pentagon ... Maj. Gen. (sel.) Joseph P. **Stein**, from Dir., Manpower & Orgn., DCS, P&P, USAF, Pentagon, to Dir., Rqmts., ACC, Langley AFB, Va. ... Brig. Gen. Henry L. **Taylor**, from Dep. Dir., Log. Ops., AFMC, Wright-Patterson AFB, Ohio, to Vice Dir., Jt. Staff, Pentagon ... Brig. Gen. Loyd S. **Utterback**, from Cmdr., 35th FW, PACAF, Misawa AB, Japan, to Dep. Dir., Strat. Plans & Policy, PACOM, Camp H.M. Smith, Hawaii ... Maj. Gen. Michael P. **Wiedemer**, from Dir., Rqmts., AFMC, Wright-Patterson AFB, Ohio, to Dir., Defense Commissary Agency, Ft. Lee, Va. ... Brig. Gen. Ronald D. **Yaggi**, from Sr. Mil. Asst., PDUSD, Policy, Pentagon, to Dir., Asia & Pacific Affairs, USD, Policy, Pentagon.

COMMAND CHIEF MASTER SERGEANT CHANGE: CMSgt. Gerald R. **Murray**, to CMSAF.

SENIOR EXECUTIVE SERVICE RETIREMENTS: Thomas W. **Batterman**, John P. **Janecek**, Terry P. **Keithley**.

SES CHANGES: Cathlynn B. **Sparks**, to Dep. Dir., Resources, DCS, Instl. & Log., USAF, Pentagon ... Rob C. **Thomas II**, to Asst. DCS, Warfighting Integration, USAF, Pentagon ... Theodore J. **Williams**, to Asst. Auditor Gen. (Material and Systems Audits), AFAA, Wright-Patterson AFB, Ohio. ■

of the people arrested for the 1996 Khobar Towers bombing, in which 19 US service members were killed and hundreds wounded. He told *al-Jazirah* newspaper the verdicts would be announced later.

■ Army Lt. Gen. Dan K. McNeill took command of the base in Bagram, Afghanistan, and US-led forces in the country May 31 to oversee combat operations there and to coordinate training of Afghan national forces. Previously all operations there had been controlled by Army Gen. Tommy R. Franks from Central Command headquarters in Tampa, Fla. Franks told reporters the long-distance control had worked fine; it was just time for him to deal with a joint task force headquarters.

■ Israel launched a spy satellite May 28 to extend its ability to monitor military developments in the region. It launched its first spy satellite in 1988, followed by a second in 1990, and a third in 1995. A fourth in the series was to have been launched in 1998 but its booster rocket failed.

■ Iran confirmed in late May it had conducted a successful test flight of a ballistic missile, the Shahab-3, capable of reaching Israel and US troops stationed in Afghanistan, Pakistan, Saudi Arabia, and eastern Turkey.

■ An Oregon television station was on hand May 30 when a rescue operation turned upside down. Injured hikers were to be picked up by an Air Force Reserve Command HH-60 helicopter from the 939th Rescue Wing in Portland. Instead, the TV crew filmed the crash of the HH-60 as it occurred. All six crew members survived.

■ The European Union plans in 2006 to launch 30 European satellites under its \$3.2 billion Galileo program—designed to emulate the US Global Positioning System—according to the *Washington Post*. US officials call the system a waste of funds that could be better spent to modernize Europe's armed forces.

■ The Pentagon could be close to a settlement to end an 11-year legal battle over the cancellation of the Navy's A-12 fighter aircraft. Boeing and General Dynamics offered to reimburse the Navy with \$2.6 billion in goods and services over 10 years.

■ An F-16 from the 56th Fighter Wing at Luke AFB, Ariz., crashed May 29 at the Sells Military Operating Area in southwest Arizona. The pilot, Maj. David Walker, ejected safely.

■ USAF's military personnel customer help line now has finance experts on site for quicker resolution of military pay concerns. The number: DSN 665-2949 or 1-800-558-1404.



USAF photo SSGT. Ben Bloker

Graduates of the US Air Force Academy Class of 2002 toss their hats after being sworn in as second lieutenants May 29. Out of this class, officials said 545 will go to pilot training, 53 to communications and information, and 21 to intelligence; 53 will become developmental engineers and 23 scientists.

■ Boeing won a \$1 billion order from Turkey to provide four radar-equipped 737s for the Turkish military.

■ The Navy cleared some F-14s last month after it prohibited its fleet from flying off aircraft carriers while it checked out a possible problem with the nose wheel assembly. About 31 of its 156 Tomcats will have the assembly replaced.

■ USAF's Office of Special Investigations is on the trail of a shipment of aircraft communications parts that sat in a commercial storage facility for 12 years, then wound up on eBay, an Internet auction site. *Newsweek* magazine said it notified the Air Force about the items.

■ Air Force Space Command has opened the ICBM Center of Excel-

lence at F.E. Warren AFB, Wyo. The \$1.6 million project will consolidate training and evaluation methods for the Air Force's three ICBM wings. AFSPC officials said the center should have about 546 students each year.

■ Col. (sel.) Dennis M. Layendecker will take command of the United States Air Force Band in Washington, D.C., this month. He began his USAF career with "America's Band" nearly 20 years ago.

■ The VA said its hospitals scored slightly higher than their non-VA counterparts in surveys conducted by the Joint Commission on Accreditation of Healthcare Organizations. About one-third of VA's 163 hospitals are surveyed each year.

■ Northrop Grumman received additional contracts from the Defense

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Advanced Research Projects Agency to continue work on the Quiet Supersonic Platform, a program designed to lay the foundation for an efficient long-range supersonic aircraft that will operate with a less intense sonic boom.

- The first production standard Eurofighter completed five further flights in May following its maiden flight, said BAE Systems. On the last flight, RAF test pilots flew the aircraft and reported it was a joy to fly.

- Lockheed Martin's Atlas V expendable launch vehicle successfully completed in mid-May the second practice countdown for actual launch. The Atlas V is slated for its debut launch this summer.

- The Navy's prototype Fire Scout Vertical Takeoff and Landing Tactical Unmanned Aerial Vehicle, developed by Northrop Grumman, began its flight test program May 19 at the Navy's Western Test Range Complex in California.

- Air Force Maj. Gen. Michael P. Wiedemer was named director of the Defense Commissary Agency, headquartered at Ft. Lee, Va., to replace USAF Maj. Gen. Robert J. Courter Jr., scheduled to retire Aug. 1.

- The Air Force Academy women's rugby team earned the national champions title, defeating Pennsylvania State University May 5.

- An MC-130P Combat Shadow crew from the 67th Special Operations Squadron at RAF Mildenhall, UK, and an HH-60 helicopter crew of the 56th Rescue Squadron stationed in Iceland helped rescue an injured crewman aboard a Spanish fishing boat in the north Atlantic. The distance was so great for the helicopter that it needed four aerial refuelings from the MC-130P.

- The Air Force women's soccer team beat Army 4-1 in May at Ft. Eustis, Va., to win its second straight Armed Forces Women's Soccer championship.

- South Korea agreed in late May to buy 40 F-15K fighters from Boeing, which will supply the aircraft by 2008.

- MSgt. Rob Wright, the base historian at Malmstrom AFB, Mont., took the title for the 165-pound class at the 11th Annual Rocky Mountain States Powerlifting Championships in Pocatello, Idaho.

- The F-22 flight test program reached the 2,000-hour mark June 7 as Raptor 4006 and 4003 flew test missions above Edwards AFB, Calif. Col. Chris Seat, F-22 Combined Test Force director, said the hours "are a real indicator of just how well the Raptor is performing and maturing." ■

Helicopter Crew Garners Mackay Trophy

The National Aeronautic Association announced June 5 award of the 2001 Mackay Trophy to an MH-53M Pave Low helicopter crew for actions last November during Operation Enduring Freedom in Afghanistan. The crew, flying under the code name Knife 04, is from the 20th Special Operations Squadron at Hurlburt Field, Fla.

"This is an incredible story of courage, dedication, skill, and teamwork that demonstrates the difficult circumstances faced by our military personnel in Afghanistan," said Don Koranda, NAA president.

Knife 04 was flying on a rescue mission with another MH-53M, when weather conditions began rapidly to deteriorate. The two helicopters were barely visible to each other as heavy snow closed in and were forced to fly at about 200 feet above the ground to navigate through mountain passes. They lost visual contact after a few miles. Knife 04 circled, trying to regain sight of the second helicopter, Knife 03, which had a malfunctioning radar.

Knife 03 managed a brief radio transmission, then nothing. It had crashed in the mountains at an altitude of about 10,000 feet. The crew escaped but were in danger from the cold and injuries.

An airborne command post located the crash site, but Knife 04, which was running low on fuel, could not get through the severe weather. It had to leave the area for aerial refueling. The weather was clearing as Knife 04 returned to the crash site. Then the Knife 04 crew realized they would have to dump most of the fuel they had just taken on to be able to fly out at that high altitude with the crew from Knife 03. They calculated they would have just a few minutes to rescue the other crew.

After Knife 04 picked up the other crew, new problems arose. Even at full power, Knife 04 could barely clear the ground with the extra weight. Rotor speed dropped and the aircraft began to shake. Inching the helicopter forward, the pilot found a break in the terrain to take the MH-53 to a lower altitude where the air was denser. Trading altitude for airspeed, he took the Pave Low up for another in-flight refueling only to realize he could not maintain altitude if he continued to take on fuel. The helicopter flew in formation with the C-130 tanker aircraft to a lower altitude to complete the refueling.

After dropping the Knife 03 crew at medical facilities, Knife 04 air refueled once again and flew back to its staging base, arriving at daybreak some 10 hours after starting the mission. The actual landing at the facility, shrouded in fog and smoke and susceptible to small-arms fire, took another half-hour while Knife 04 climbed above the weather to assess the situation.

The Air Force has withheld last names of the Knife 04 crew for security reasons.

Congress To See Pentagon's Strategic Personnel Plan Next Year

The Defense Department needs to take a strategic view of its human resources—both civil and military, said David S.C. Chu, undersecretary of defense for personnel and readiness.

The first outlines of a plan to do just that should go to Congress next year, he told reporters May 30.

Chu said DOD is in the process of creating a set of strategic human resource plans—"one for the military, a different one for the civilians."

However, he emphasized that on the civil side, "quite candidly, we are starting at a much lower level of knowledge." Civilian personnel management in the federal government, as a whole, he said, has been very reactive in character and largely decentralized.

Where the Pentagon has conducted numerous studies of military personnel issues for 30 years, Chu said, no similar material exists for the civilian workforce. DOD officials can estimate the impact on military pay policy if they do X rather than Y. They cannot do the same for civilians.

The situation is not satisfactory, he said, especially since within five years half the DOD workforce is eligible to retire. "We have a very imbalanced age structure in our civil workforce, so we need to get our arms around that problem."

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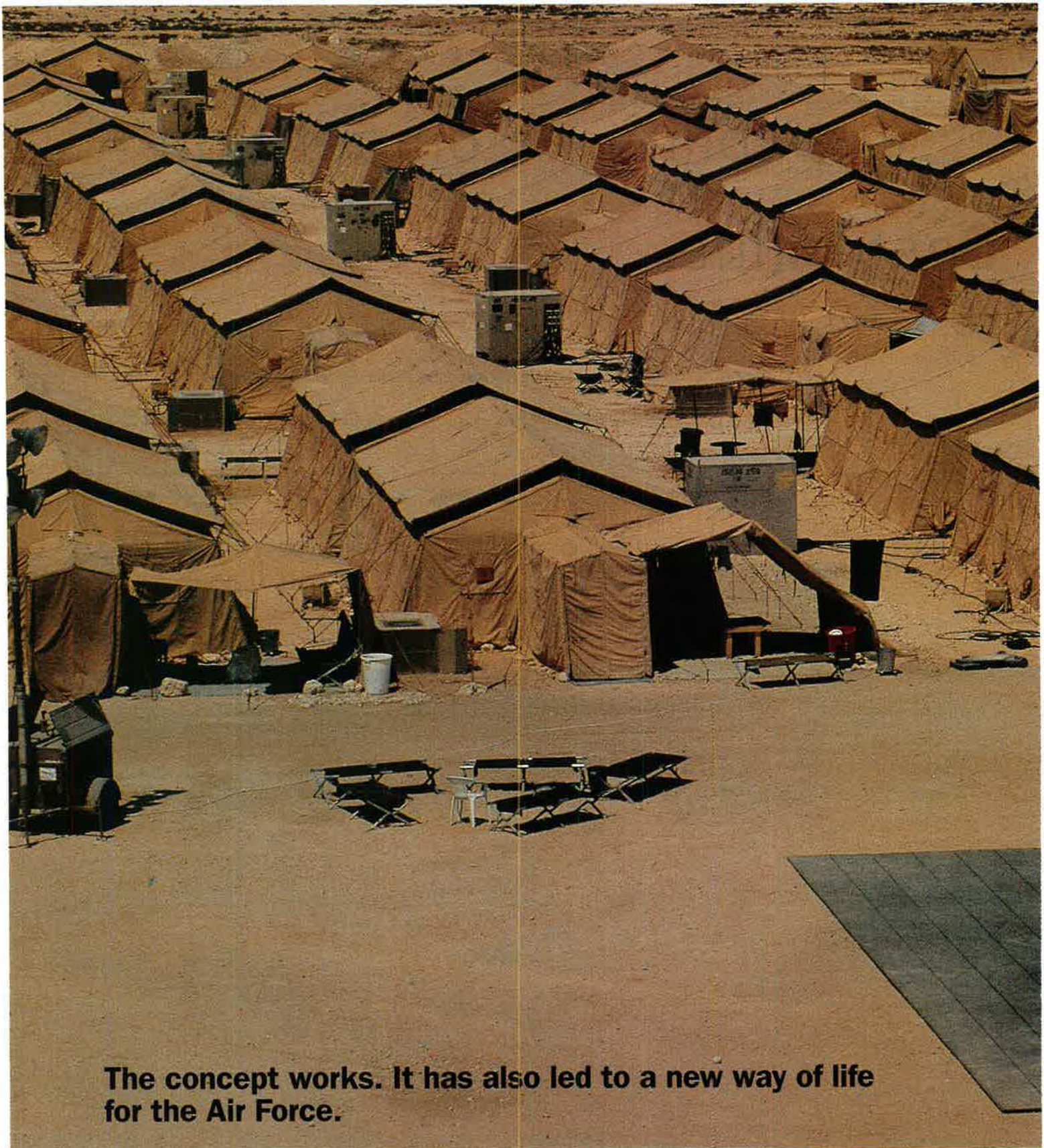


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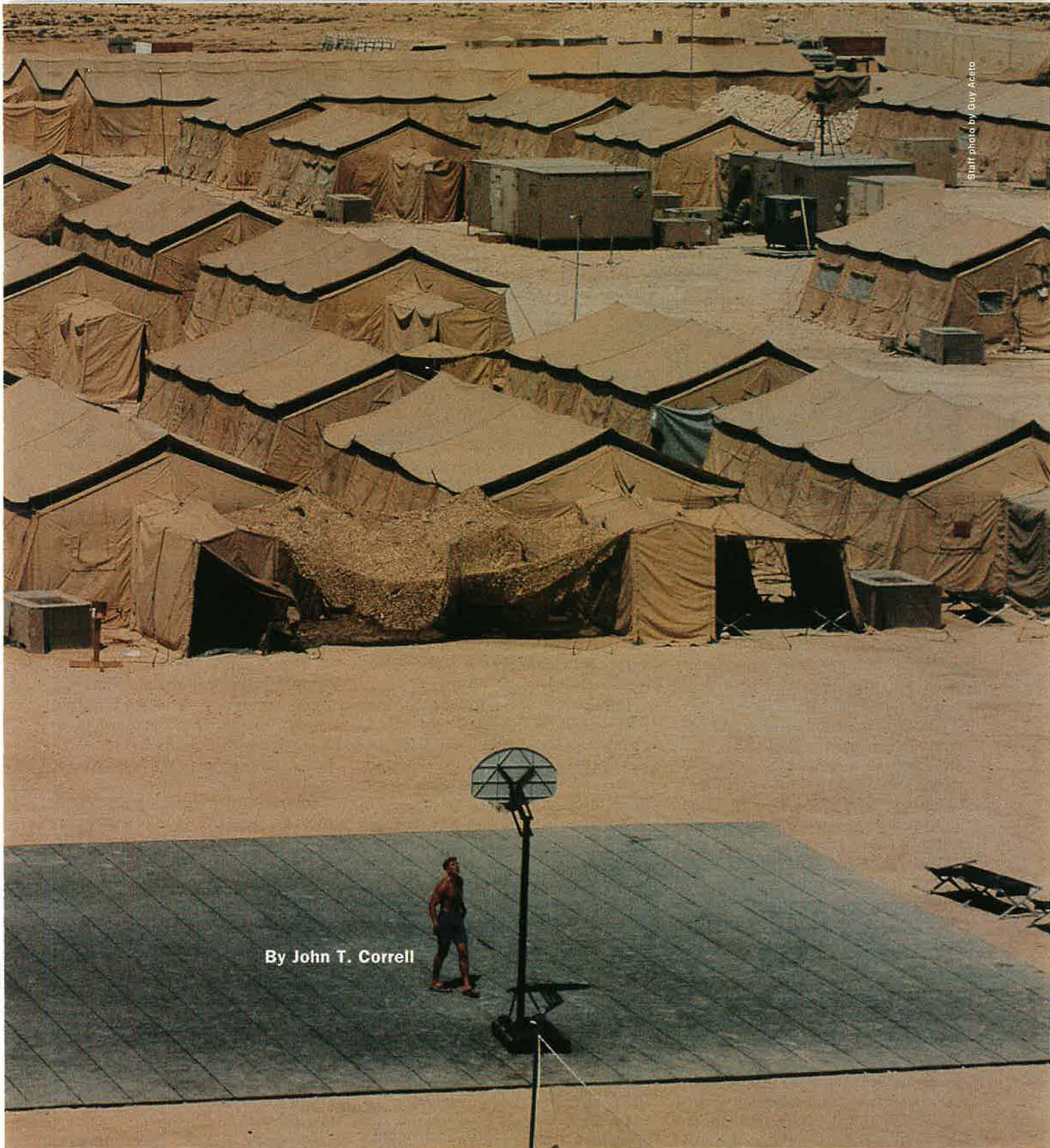
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The concept works. It has also led to a new way of life for the Air Force.

The EAF in Peace



Staff photo by Guy Aceto

By John T. Correll

and War

AEROSPACE Expeditionary Forces were invented in the 1990s to solve chronic deployment problems. More than anything else, the Air Force hoped to provide a measure of stability and predictability for its airmen, who were constantly being dispatched overseas on one short-notice contingency assignment after another.

It was not apparent at the time what a big difference this



Way of Life. About half of USAF's active duty troops are in an Aerospace Expeditionary Force, and the number is rising. A deployed airman still must find time for the necessities, such as this one taking his re-enlistment oath.

change was going to make. The AEFs have become a new way of life for the Air Force.

Airmen are still assigned to their regular units at their home stations. But most likely they also belong to an AEF, and for three months out of every 15, that governs where they will be and what they will do.

About half of the airmen and officers in the active duty force are already in an AEF, and the number is rising. Guard and Reserve participation is so high that a fourth of the deployed forces come from the Air Reserve Components.

The Air Force has grouped its power projection forces and the forces that support them into 10 "buckets of capability," each called an AEF. (The other abbreviation, "EAF"—for Expeditionary Air and Space Force—refers to the concept and organization.)

Secretary of the Air Force James G. Roche told Congress in February that "a nominal AEF has about 12,600 people supporting 90 multirole combat aircraft, 31 intratheater airlift and air refueling aircraft, and 13 critical enablers. The enablers provide command, control, communications, intelligence, surveillance, and reconnaissance, as well as combat search and rescue."

Increasingly, the Air Force describes itself operationally in terms of AEFs rather than wings or wing equivalents.

A full AEF rotation cycle is 15

months. It is divided into five three-month periods, and during each of these, two of the AEFs are vulnerable to deployment. Those two AEFs should be more than enough to handle steady-state deployments, such as enforcing the no-fly zones in Southwest Asia.

In the event of a pop-up crisis the AEFs can't handle, they are backed up by two designated Air Expeditionary Wings, which can be on the scene and begin combat operations in 48 hours.

An airman may or may not be tapped to deploy during the three-month period when his or her AEF is in the barrel. Either way, after that window of vulnerability closes, the airman is not normally vulnerable for deployment again until the AEF comes up for its next rotation in the cycle, 12 months later.

The Call to War

The AEF concept, which had been working well in peacetime, shifted suddenly to a wartime footing after the terror attacks last September.

In his February presentation to Congress, Roche said the Air Force had deployed about 14,000 airmen to Southwest Asia for Operation Enduring Freedom and that Air Force crews had flown about 8,300 of the sorties to that point.

These requirements were on top of regular deployments, which included continuing enforcement of the no-fly zones in northern and south-

ern Iraq and in what used to be Yugoslavia.

AEFs 7 and 8 were in the window of vulnerability when the war began.

"In the case of Operation Enduring Freedom, we drew upon forces from the vulnerable AEFs to fill our requirements," said Maj. Gen. Timothy A. Peppe, special assistant to the vice chief of staff for Air Expeditionary Forces. "There were forces in the AEF 7/8 that were in the vulnerability period but had not been deployed. These forces were the first ones we turned to—as advertised.

"When we ran out of available forces in select specialties in AEF 7/8 we turned first to the forces in the on-call AEF. We then reached forward into AEF 9/10 and rolled them forward.

"The most significant impacts were the requirement to open an unprecedented number of austere bases and at the same time step up security measures to Force Protection Condition Charlie at all our bases worldwide.

"This put stress on a small number of career fields. We had to modify the AEF rotations for approximately 1,600 personnel—who are required to stay longer than the normal 90 days. Some are staying for 135 days and a small percent will need to remain for up to 179 days."

Roche said that in career fields such as security forces, engineers, communications and information, and medical, "we have reached into future AEFs to source enough people to meet the current requirement. Low-density, high-demand assets such as Airborne Warning and Control System aircraft and special operations aircraft have deployed almost their entire inventory to meet the war effort."

Brig. Gen. Allen G. Peck arrived at Langley AFB, Va., to take command of the Aerospace Expeditionary Force Center the week before the terror attacks.

"Nobody on Sept. 10 would have thought that within a week, we'd have a large part of our Air Force on the road, but that is where we were," Peck said. "And that is what we use the AEF construct for. If it is your period in which you go and if you are tapped on the shoulder, it is time to go."

To meet the sudden demands, Peck



Time To Go. Reservists, such as this Air Force Reserve Command A-10 pilot at Bagram in Afghanistan, carry a substantial share of the USAF deployment workload.

said, “we used the [AEF] construct as the mechanism, rather than random sourcing or going out in some scattershot fashion.” Although it was designed for peacetime, “I think we have demonstrated that, in fact, the AEF is a construct the Air Force can use to present forces from steady-state crisis on up to Major Theater War.”

Beginning With Pancho Villa

In a sense, the Air Force has always been expeditionary. In 1916, Capt. Benjamin D. Foulois and a squadron of Curtiss JN-3s helped Gen. John J. Pershing chase Pancho Villa through the Mexican countryside.

There are other expeditionary examples in the Air Force’s history, notably the Composite Air Strike Forces that Tactical Air Command sent to contingencies abroad in the 1950s and 1960s.

During the Cold War, Stateside units stood ready to deploy as reinforcements in case of war in Europe or the Far East, but for the most part, an airman’s duty was at the home base, whether in the United States or overseas.

Through the 1980s, the Air Force was large. Its primary mission was containment of the Soviet Union. It had numerous bases abroad, with forward bases and an extensive supporting infrastructure in place.

Today, the mission is engagement. The Air Force has a third

fewer people and two-thirds fewer overseas bases, yet it conducts four times more deployments and often must take its own infrastructure along.

In the 1990s, the Air Force found itself responding to one contingency after another. These deployments, distributed unevenly across the force and often coming on short notice, were a chronic source of hardship for airmen.

“We had been dealing with these things, treating them as unique events,” said retired Gen. Michael E. Ryan, former Air Force Chief of Staff. “Ex-

cept that they never seemed to go away.”

The straw that broke the camel’s back was in October 1994, when Iraq made some threatening moves toward Kuwait. The Air Force had aircraft on the scene quickly, but the deployment was ragged.

This accumulation of problems prompted the Air Force to explore the idea of expeditionary task forces. The goals were to make the deployment workload fairer and more predictable for Air Force people, to smooth out the raggedy deployments, and—as opportunities presented themselves—to demonstrate the Air Force’s power-projection capabilities.

The officer chosen to lead the effort was Lt. Gen. John P. Jumper, then commander of 9th Air Force. Jumper, the present Chief of Staff of the Air Force, is generally regarded as the father of the EAF concept.

Between 1995 and 1997, four experimental Air Expeditionary Task Forces deployed to Bahrain, Jordan, and Qatar.

The EAF concept was developed between May 1998 and August 1998. This effort restructured the entire Air Force force structure into 10 AEFs. This was a significant step beyond the earlier AEF work. On Aug. 4, 1998, the Air Force announced the move to the EAF/AEF concept.

However, the first regular AEF



Long History. The Air Force’s expeditionary roots date back to 1916, when Jennys such as these helped the Army chase Pancho Villa through the Mexican countryside.

AEF Rotation Cycle 3

	March 1, 2002 – May 31, 2002		June 1, 2002 – Aug. 31, 2002	
	AEF 1	AEF 2	AEF 3	AEF 4
Lead Combat Wing	388th FW	7th BW	366th Wing	48th FW
Lead Mobility Wing	92nd ARW/ 60th AMW	92nd ARW/ 60th AMW	60th AMW/ 305th AMW	60th AMW/ 305th AMW
On-Call AEW	4th FW/ 366th Wing	4th FW/ 366th Wing	3rd Wing/ 4th FW	3rd Wing/ 4th FW

1st FW, Langley AFB, Va.; 2nd BW, Barksdale AFB, La.; 3rd Wing, Elmendorf AFB, Alaska; 4th FW, Seymour Johnson AFB, N.C.; 7th BW, Dyess AFB, Tex.; 20th FW, Shaw AFB, S.C.; 27th FW, Cannon AFB, N.M.; 28th BW, Ellsworth AFB, S.D.; 48th FW, RAF Lakenheath, UK; 60th AMW, Travis AFB, Calif.; 92nd ARW, Fairchild AFB, Wash.; 305th AMW, McGuire AFB, N.J.; 355th Wing, Davis-Monthan AFB, Ariz.; 366th Wing, Mountain Home AFB, Idaho; 388th FW, Hill AFB, Utah.

Staff photo by Guy Aceto



Standing Deployments. Certain “contingency” missions for each AEF cycle are virtually certain. Here, an F-15 returns from a patrol in one of two no-fly zones over Iraq—a mission that has continued since the Gulf War in 1991.

cycle did not begin until October 1999. A few months previously, the air war over Serbia had taken the equivalent of five AEFs, a level of effort that did not go unnoticed by Air Force planners.

“We will be able to deploy an AEF in 48 hours,” Ryan said in the service’s vision statement, published the following summer. If need be, he said, “We will be able to rapidly deploy additional AEFs—up to five AEFs in 15 days.”

The EAF was nearing the end of its second 15-month rotation cycle when the terrorist attacks occurred last September.

The nerve center of the EAF is the

Aerospace Expeditionary Force Center at Langley. It is there that requests from theater commands are matched up with assets available in the current AEF buckets of capability.

The center is headquartered in a converted warehouse that looks nothing like major operations centers used to look. Much of the work is done quietly and efficiently on desktop computers in strings of cubicles.

It is staffed by about 140 military people and civilians, including Guard and Reserve, and 53 civilian contractors.

The theater commander’s requirements for deploying air forces are loaded by the air component—for

example, Central Air Forces in case of Central Command—into the Joint Operational Planning Execution System, which is monitored by the AEF Center at Langley.

In an emergency, the process can move fast. People at the center say that in a matter of hours they can nominate sourcing for a war plan, build the TPFDD (Time-Phased Force Deployment Data), and set up the necessary requirements for transportation to move the forces.

The UTCs

Once everything is verified and coordinated, “we flow the levy down to the unit, and that is what Personnel uses to generate orders that tell Senior Airman Snuffy he is going someplace,” Peck said.

The most basic building block of an AEF is the Unit Type Code, which “consists of people and equipment tied together with a mission capabilities statement,” Peck said. It might, for example, identify a 13-person security force squad, with stated capabilities and with specified weapons and equipment. There are more than 50,000 UTCs.

If a theater component needs to guard a base, officials might ask for the appropriate number of QFEB2s, putting it in UTC building blocks rather than listing numbers of people and kinds of equipment, Peck said.

In bygone days, he said, UTCs were designed to pick up 24 aircraft and send them to, say, Spangdahlem, Germany. “What we are finding is, we don’t fight like that. We fight in sixes and twelves in many cases.

Sept. 1, 2002 – Nov. 30, 2002		Dec. 1, 2002 – Feb. 28, 2003		March 1, 2003 – May 31, 2003	
AEF 5	AEF 6	AEF 7	AEF 8	AEF 9	AEF 10
355th Wing	20th FW	27th FW	28th BW	2nd BW	1st FW
305th AMW	305th AMW	60th AMW	60th AMW	60th AMW/ 305th AMW	60th AMW/ 305th AMW
4th FW	4th FW	366th Wing	366th Wing	366th Wing/ 4th FW	366th Wing/ 4th FW

We've had to deconstruct the Cold War UTC module into more bite size things that reflect the way we are going to build the blocks today."

The AEF "Library"

The database of positions identified as deployable to an AEF is called "the Library." As of April, 173,000 positions—in an active duty force of about 355,000—were in the Library.

Some positions, such as those of missile launch crews, are not regarded as deployable. There are various exceptions, such as forces in Korea, who are exempt from AEF duty. Still, the expectation is that the Library will eventually take in at least 250,000 positions.

Aircrews and support people from line units were tabbed early for the AEFs. Enrollment now extends to other organizations as well.

"We have an ongoing effort to capture the higher headquarters, the people above wing level, into associate UTCs that would make them available for deployment," Peck said.

Before his present assignment, Peppe was the Air Force chief of safety. "I basically said that all military people in the Air Force Safety Center at Kirtland [AFB, N.M.] are eligible to deploy," Peppe said. "That is another 120 people. What we have to do now is align them in a UTC so that, if they are needed, we know what capabilities they can bring to the fight."

Setting the ultimate example, Gen. Robert H. Foglesong, the Air Force vice chief of staff, put his executive officer's position in the Library and made do without the exec when he deployed.

The EAF represents more of a cultural change for some than it does for others.

"It all depends on where you grew up," Peppe said. "I think the biggest change is probably in the combat support arena. As a guy who flew RF-4s at Bergstrom [AFB, Tex.], we were tied to Aviano, Italy, under an operations plan. We were also tied to Korea."

Thirty-day deployments to Italy or Korea were routine for the aircrews, but "the civil engineers didn't have to go and do any runway repair or build a tent city or anything. And the security forces didn't have to go because we had some people already in place over there," Peppe said.

"I think the biggest change has been the need for us to determine

what combat support capabilities need to be ready to move quickly. And in some cases, quite frankly, those capabilities will have to move before the iron moves, because you have to get the airfields ready to receive."

Peck has seen the AEFs from both sides. Before he came to Langley last September, he was commander of the 363rd Air Expeditionary Wing at Prince Sultan AB, Saudi Arabia, running Operation Southern Watch with rotational forces and crews. In time, Peck believes expeditionary duty in the Air Force may become what sea duty is in the Navy.

"If you don't go do sea duty, you are dead in the Navy," he said. "Maybe there ought to be something similar in the Air Force. If



USAF photo by Scott H. Spitzer

Fair Share. As USAF responded to one contingency after another in the 1990s, deployments were unevenly spread across the force. The EAF concept was devised to help distribute the load more fairly and instill some predictability.



A Key Factor. Airlift and aerial refueling forces are central to each of the 10 AEF buckets of capability. Each rotation cycle can call upon designated lead mobility wings as well as lead combat wings. Here, airmen load a C-5B.

you stay at home and do a great job of doing e-mails at your desk all your life, sorry, that ain't what we're all about. You need to be part of this Expeditionary Air and Space Force."

The Iron List

From June through August, AEFs 3 and 4 and the forces associated with them will be in the rotational bucket. Some deployments are virtually certain.

For that three-month period, AEF 3 will have responsibility for covering the no-fly zones in Operation Southern Watch. AEF 4 is responsible for Northern Watch, counter-drug operations, and missions in the Balkans and Iceland.

The "Iron List" for this cycle alerts 32 different units that their aircraft are vulnerable for the AEF 3/4 rotation.

The lead wings are the 366th Wing from Mountain Home AFB, Idaho, and the 48th Fighter Wing from RAF Lakenheath in the United Kingdom. Lead wings provide leadership on deployments where there is no pre-existing structure. They also provide the bulk of expeditionary combat support.

The on-call Aerospace Expeditionary Wings, providing backup for surprise requirements, are the 3rd Wing from Elmendorf AFB, Alaska, and the 4th Fighter Wing from Seymour Johnson AFB, N.C.

"Normally, Mountain Home and

Seymour Johnson are the alternating Air Expeditionary Wings," Peck said. "For a variety of reasons, Elmendorf and Mountain Home have swapped positions. So, Mountain Home will be the lead wing for AEF 3, and the 3rd Wing at Elmendorf will be the on-call AEW."

Fighters in the assigned combat force for AEF 3 are drawn from Elmendorf, Hill AFB, Utah, Shaw AFB, S.C., and Pope AFB, N.C. Its bombers are B-52s from Barksdale AFB, La. AEF 4's fighters are from Lakenheath, Eglin AFB, Fla., and the South Carolina Air National

Guard. Its bombers will be B-1Bs from Dyess AFB, Tex.

Both of the AEFs will be supported, if required, by such assets as B-2 bombers.

A Total Force

Over the course of the deployment cycle, a substantial share of the workload, including some 25 percent of the aviation requirement, will be handled by the Air National Guard and Air Force Reserve Command. Peppe said the Air Reserve Components provided about 10 percent of the combat support in Cycle 2 and signed up for 13 percent in Cycle 3.

"We just got into Cycle 3 on the first of March," Peppe said. "Instead of filling 13 percent of the expeditionary combat support tasking, they are actually filling 29 percent. So double what they originally signed up for."

There has been some speculation that the Guard and Reserve are over-tasked at these levels, but Peppe said that "the air reserve component folks that we've talked to have indicated that they are able to handle the task at hand."

The Guard and Reserve presence is much in evidence at the AEF Center at Langley, where officers from those components handle some of the most responsible jobs. This is further indication of the cultural change that is under way in the Air Force.



USAF photo by TSgt. Jack Braden

Low Density, High Demand. Some systems and their crews, such as these AWACS technicians monitoring air activity over Iraq, are in extremely short supply and therefore are always going somewhere doing something.

The Air Force would like for the AEFs to be interchangeable, but at present, they are not.

AEFs Not Equal

"Currently, our 10 AEFs are not the same," Roche told Congress. "For example, only three of the AEFs have precision, standoff strike capability, and only nine have an F-16CJ squadron for suppression of enemy air defenses. Until the disparity is rectified, the EAF construct will have limits—many low-density, high-demand and stealth systems remaining tasked at maximum levels."

Secretary of Defense Donald H. Rumsfeld has said that low density, high demand means "we didn't buy enough." The term refers mainly to Air Force capabilities, ranging from B-2 bombers to AWACS and Joint STARS surveillance and command-and-control aircraft.

A recurring nightmare is that the F-22 fighter will be added to the list. The production run was originally set at 750 aircraft, but was reduced by stages to 339 in the Clinton Administration. The budget cutters would like nothing better than to cut it some more.

The Air Force plans to begin integrating the F-22 into the AEFs as soon as the second squadron is operational.

"Our goal is to eventually have 10 fully capable AEFs with organic F-22s," an Air Staff officer said. "The current buy of 339 aircraft will not be enough to give us 24 aircraft in each of the 10 AEFs. We will need to move the number to 399 to have enough F-22s to provide equal capability across the AEF structure."

The Teaming Concept

The Air Force continues to make adjustments to the AEF concept to balance the complexity of considerations involved.

One of the challenges all along has been to avoid stripping home bases to man and equip the AEFs. In Cycles 1 and 2, the solution was to spread the home base's tasking out over the 15-month rotation.

The result for a wing commander,



USAF photo by SSgt. Greg L. Davis

Satisfied Customer. USAF predicted theater CINCs would like AEF because they meet their needs more precisely. "The AEF has proved its worth to me," said Army Gen. Tommy Franks, head of CENTCOM.

Peck said, was "people coming and going all the time. When am I going to do my exercises? When am I going to do my inspections? When do I do leave? When do I plan my big functions?"

A second drawback was that the rotational forces abroad were a mixture from many different wings and organizations. Judging from their performance, they overcame that problem, but the teamwork would have been easier had they been more accustomed to each other.

Cycle 3 introduced a "teaming concept," in which a wing's deployment taskings will be concentrated into one or two periods. Typically, Peck said, a wing's contributions will be "one big hit, one slightly lesser hit, then maybe a few some other times, but for the most part, they will be untouched for the rest of the time."

A wing commander will know, Peck said, that "during those two periods of the AEF cycle, I am going to have airplanes gone and people gone. Things are going to be kind of short. I am going to have extra augmentees on the gates. We've got to manage a little tighter. But I can see people go off to war and welcome them back as a group. They've got a shared experience. And the rest of the year we can plan exer-

cises, training, inspections, and so forth."

Still more changes may be coming up in Cycle 4, which begins in June 2003. Foglesong has been meeting with the vice commanders of the major commands to develop recommendations. This venture will be a major focus for Peppe's group in the Pentagon over the next year.

Back when AEFs were being invented, one of the predictions was that theater CINCs would find it to their liking, since it would allow them to draw on buckets of capability to meet their needs precisely.

One satisfied customer is the biggest one, Army Gen. Tommy R. Franks, Commander in Chief of CENTCOM, the No. 1 user of deployed rotational forces.

"The Aerospace Expeditionary Force concept has proved valuable to United States Central Command because it has provided us with the ability to maintain airpower throughout the region," Franks said.

"The Air Force has used the AEF to continuously support Operation Southern Watch while maintaining the ability to react to additional contingencies such as Operation Enduring Freedom. I know that I can count on the men and women of the AEF for their support and professionalism, and because of this, I've had the air forces I need when and where I needed them. The AEF has proved its worth to me and Central Command." ■

John T. Correll was editor in chief of Air Force Magazine for 18 years. This is his first article as a contributing editor.

The X-45, which began as a simple, short-range UCAV, is now starting to look like an unmanned bomber.

HEAVYWEIGHT

By John A. Tirpak, Executive Editor

THE Air Force has been adding missions, range, and new capabilities to the list of requirements for its Unmanned Combat Air Vehicle, increasing the size of the operational version by one-third, while increasing its sophistication, complexity, and cost. The project's expanded scope has



CONTENDER

The X-45A over Edwards AFB, Calif., on its May 22 first flight.

altered the concept of operations for its combat use and raised questions about whether it will continue to be the cheap drone the service originally had in mind.

The changes also potentially pit the aircraft against the F-35 Joint Strike Fighter for a sizable share of USAF's future strike force structure.

"It is all a balance," said Gen. John P. Jumper, USAF Chief of Staff. "We are trying to find where those curves intersect between affordability, range, and payload and also to get the concept of operations right."

The UCAV is an Advanced Concept Technology Demonstration, undertaken jointly by the Air Force





The UCAV flares for landing, after a 14-minute first flight. Handling qualities were judged to be good, and the no-tail airplane was stable throughout the flight. Testing will focus on mission, rather than violent maneuvering.

and Defense Advanced Research Projects Agency. An ACTD is a fast-track development program intended to explore a new capability and rapidly yield a product that could actually be used in the field. The Predator and Global Hawk Unmanned Aerial Vehicles followed this pattern. Both were used in combat while still in test.

Defense Secretary Donald H. Rumsfeld has identified unmanned vehicles as one of the key types of systems in his campaign to transform the American military for wars of the future.

The success of both Predator and Global Hawk in wartime operations has given the Air Force confidence that the UCAV will be able to make good on its promise of being a highly stealthy and reusable autonomous aircraft, able to deliver precision weapons against the very toughest targets, yet cheap enough that the service could bear to lose some in combat.

As recently as last fall, the Air Force concept of operations called for the UCAV to be a relatively short-ranged aircraft. It would be kept in storage until needed, then shipped in "smart" containers to forward areas, there to be unboxed, assembled, and then flown against enemy air defenses. (See "Send in the UCAVs," August 2001, p. 58.)

Unmanned Bomber

Now, however, the UCAV is seen more as an unmanned bomber—

larger, with expanded range, capacity for aerial refueling, and a weapons bay almost the same shape and size as that of the F-35. It could deploy from US bases, proceed directly to its targets, and recover at a forward location to quickly rearm and refuel for another mission.

The original concept said "we are going to put these things in cases and put them on C-17s or C-5s and deploy them," Jumper explained. "But then, when you get to the other end, you have to have teams of people that assemble them [and] test fly them before you can load them and fight with them. That just took the 'rapid' out of airpower."

To quicken the pace at which UCAVs can get into the fight, the Air Force is adding aerial refueling capability and additional internal tanks, which will increase the size of the UCAV, Jumper acknowledged. The two provisions will allow flexibility to deploy with or without tanker support, depending on the theater involved, he said.

Adding size and complexity adds cost, however, and Jumper allowed that the current vision of the UCAV is "not a razor blade anymore" and has the potential to become "quite expensive."

"So, it is a balance," Jumper summed up. "Do we have it right? I hope so, but that is what development and ACTDs are all about, and that is what we want to explore. As this technology demonstration goes

on, we hope that it will give us the answers to those very questions."

The Air Force-DARPA project right now is focused on the X-45A, a Y-shaped experimental craft that will prove out flying qualities and flight-control software. First flight of the craft, designed and built by Boeing, took place in late May, and flight tests with the two initial aircraft are expected to continue over the next two years or so.

The X-45B aircraft will be larger, with a two-thirds increase in area and a one-third increase in weight. It will have the ability to carry weapons and demonstrate various kinds of attacks—singly and in groups—as well as conduct operations in concert with manned aircraft.

Fighter-Size

The new version will be about the same size as an F-16, with an empty weight of 10,000 pounds and a gross weight of about 19,000 pounds. It will have a payload of 3,600 pounds.

The first operational version—referred to now as simply the Block 10 UCAV—would be dedicated to attacking heavily defended surface-to-air targets. Officials refer to this as "pre-emptive" Suppression of Enemy Air Defenses. The Block 10 will have the capacity to carry 12 250-pound Small Diameter Bombs, the same load envisioned for the F-35. It will also be able to carry extra fuel tanks both internally—in the weapons bay—and on external plumbed hardpoints. It will also be stealthier than the X-45A.

The Block 20 model will add reactive-SEAD capabilities. As it orbits the battlefield, it will be able to detect new air defense threats and autonomously attack them.

The Block 30 model will go a step further, able to carry high-powered microwaves or other kinds of directed-energy weapons with which it could destroy enemy radar sets, sensors, and battlefield electronics.

None of the versions will be "flown" by a remote pilot. There will be a supervising operator who will work at a remote, specially configured workstation, but that operator probably won't be a pilot and won't have a joystick with which to control the aircraft.

The operator will initiate missions,

monitor the health of UCAVs—probably three to five vehicles at once—en route to target, and give consent for weapons release, but the vehicle itself will do everything else, from takeoff to landing, target identification, and attack.

In keeping with Rumsfeld's vision, the Fiscal 2003 budget accelerated the UCAV program by about two years—aiming to field the first 14 Block 10s in 2008 with the goal of acquiring as many as 60 Block 10s in total.

George K. Muellner, president of Boeing's Phantom Works advanced development unit, which is building the X-45, said he's pleased to see the user—in this case, Air Combat Command—involved so early in the process of developing a new system.

"One of the problems you always have early on with programs is that the users don't really pay as much attention to them as you would like," because in-service dates are "a long ways off," and the users are more occupied with current operations, said Muellner, a retired three-star USAF general with long experience in acquisition and development projects.

"But as UCAVs started to become more of a reality, then they started to come in and say, 'Jeez, if we had a little bit more here, a little bit more there.' So, the positive aspect is, you have a lot more user involvement. The negative aspect is ... if you're not careful, you put yourself on the



Boeing photo

The second X-45A is readied for flight. UCAVs will be developed and fielded in a "spiral" fashion; refinements will be added as lessons are learned from early deployment and combat use. Block 30 will have energy weapons.

slippery slope of producing an expensive platform."

Muellner described this tendency as "mission creep" and told a symposium of the American Institute of Aeronautics and Astronautics in April that it "threatens the affordability" of UCAVs.

Muellner explained that mission creep "is generally productive; it adds ... warfighting capability." He went on to say, "If you don't do it in a proper manner, it will add ... development time, and you want this transformational capability out there as soon as possible."

Muellner cheered the government's approach to UCAVs. That approach, called "spiral development," adds new features incrementally, building capabilities into the system as real-world experience is acquired.

"My personal view is, the path that's been executed with the Predator and the Global Hawk is really the way we ought to be doing things. ... We fielded what we had, we learned a lot, we changed it, we upgraded it, improved it."

Don't Wait for Perfection

What's to be avoided, Muellner said, is "to sit around and wait until you know what the perfect solution is. ... If you keep changing requirements, you're never going to get the vehicle."

The original targets were for the UCAV to cost half as much to buy and only 25 percent as much to operate as an F-16 over its service life. Those targets have been thrown into flux as the program has expanded.

However, Muellner said that the increase of a third in size will not necessarily correspond to a one-third increase in cost. He noted that weight and cost have traditionally been "directly related," but that's no longer the case.

"What we and Lockheed Martin demonstrated on JSF is that we've come a long way in decoupling those," he explained. New, lean design and manufacturing techniques,

NASA photo

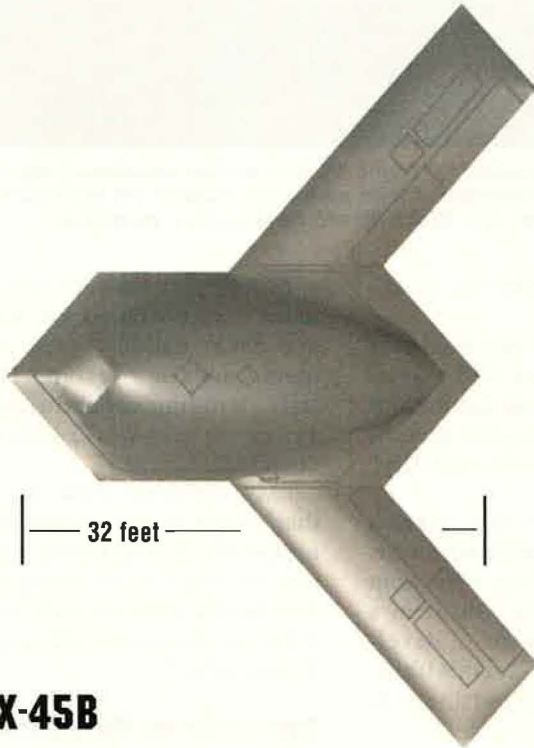
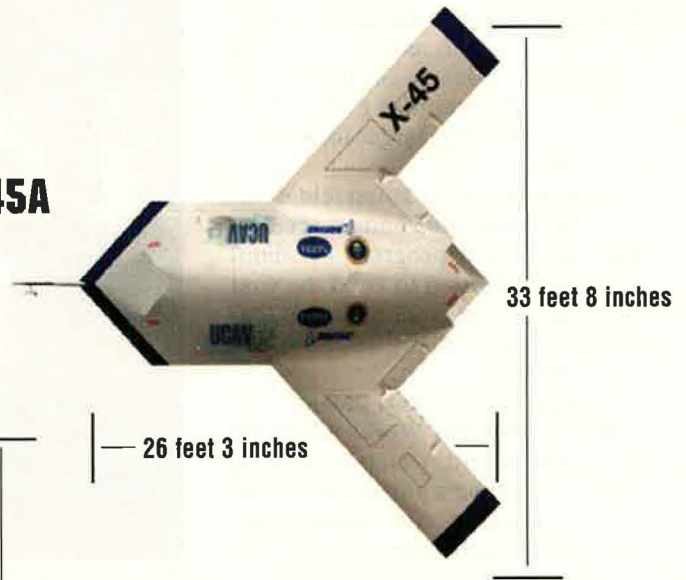


Gear was not retracted on the first flight, which is typical for a prototype. In combat, UCAVs may fly formation with manned aircraft, peeling off to strike pop-up air defense threats, or on their own, flying pre-emptive SEAD.

Lose the idea of a “reusable missile.” The UCAV is a large airframe, comparable in size to the F-35 illustrated here. The operational UCAV and F-35 will have weapons bays of the same size and be capable of carrying the same kinds of weapons. The UCAV will be stealthy, air refuelable, and self-deployable.

Inevitably, the JSF and the UCAV will compete for certain missions.

X-45A



X-45B



F-35

new materials, and new processing power have made it possible to size up a design without a concomitant spike in cost.

Muellner acknowledged that the new, one-third larger version of the UCAV now wanted by the Air Force will cost more than the original version, “but it certainly won’t go up by a third.” The software that makes the stealthy X-45 shape fly “scales really well. Increasing it by a third, the way the software is designed, does not really require very significant changes in the software. Increasing it by a factor of two, three, or 10—to build a very large vehicle—would not require a great deal [of software change] either.”

An ACC official said he’s not concerned about the possibility of mission creep destroying the affordability of the UCAV.

“I want them to do these excursions,” he said. “This is the time for them to think about what’s possible, instead of later, when it’s either too late or too expensive to add these things, and it might not cost too much more if you design it in at the outset.”

Air Force Secretary James G. Roche has suggested that a very large UCAV—bomber-size—might be a good idea, since bombers typically go after fixed targets, which can easily be programmed into a UCAV’s flight plan. Moreover, bombers in Afghanistan orbited the battlefield, waiting to be called on to precisely

deliver ordnance. Such a long, dull mission—punctuated by an easily calculated attack—might be well-suited to an air refuelable, large-scale unmanned vehicle, Roche suggested.

Compelling Logic

Muellner acknowledged that Roche has brought up the idea of the bomber UCAV in a number of venues, as a possible bridge from the current aging fleet of bombers to a future system.

“And ... there are other folks like Secretary Roche, who say maybe this is our next-generation long-range strike airplane until we get to hypersonics or whatever. ... To be honest with you, I find that logic to be pretty compelling,” Muellner said.

He said he’s convinced that Boeing can begin producing Block 10 UCAVs in 2006. The only real challenge to doing so is completing the software for the control laws, he said. The Block 20 timetable, though, depends on success in another DARPA program, called the AT3 project, which he described as an “advanced technology emitter location program.”

The AT3 would replicate what human crews used to do on the F-4G “Wild Weasel” SEAD aircraft: identify the type of an enemy air defense system and precisely locate its position for attack. It would do so with far more precision, however.

“It’s an ideal solution for the



NASA photo by Jim Ross

Although there is great promise for the attack mission, UCAVs are not viewed as a replacement for the air-to-air combat role. For that, bandwidth and processing demands still favor having an actual fighter pilot on board.

UCAV,” Muellner said. With multiple UCAVs in the threat area, they will be able to triangulate the position of an enemy emitter, such as a search or tracking radar, decide among themselves which is best positioned to attack it, and swiftly swoop down for the kill.

Because the UCAV will be so stealthy, “you can now go attack that emitter with a Small Diameter Bomb, instead of just shooting a HARM” at it. High-speed Anti-Radiation Missiles tend simply to discourage enemy radar operators from turning on their equipment; they typically don’t

score a total destruction of the enemy radar.

If the AT3 is not available in time for the Block 20, more conventional threat identification and location gear will be fitted, Muellner said.

While the Predator and Global Hawk have served as models for the UCAV project, they also pointed up things to avoid, said USAF’s X-45 program director, Col. Michael Leahy.

Predator’s project managers didn’t originally expect to send their UAV demonstrator into combat, and the program was not initially set up with the spares and support capabilities needed for operational fielding, Leahy said.

“Predator is the anti-analogy,” he said. “We will be supportable and maintainable in the field ... from the beginning. ... We have learned from Predator and Global Hawk.”

Technology Pioneer

Like those aircraft, the UCAV was also envisioned more as a technology pioneer than as a prototype for a full-up weapon system and has apparently slid past the stage where there will be competition for the program.

Typically, major systems are competed at the concept definition stage, where two production-worthy aircraft types are tested and evaluated and the best one selected for development. Leahy said Boeing could conceivably face competition from another company. Lockheed Martin

US Navy photo by Jennifer A. Smith



Global Hawk was considered for a UCAV role, but now will not be armed. The Bush Administration has identified unmanned vehicles as one of the “transformational” technologies of this decade, for all the military services.



In this artist's view, a pair of Block 10 UCAVs drop JDAMs. A remote operator will approve weapons release. Otherwise, UCAVs fly and fight on their own. If the design proves out, this scene could become reality in just six years.

might offer a UCAV concept. Northrop Grumman is already working with DARPA and the Navy on its Pegasus UCAV, which is of comparable size and capability.

However, "the Air Force has to decide the acquisition strategy at Spiral 2," now slated for next year, said Leahy.

"We could reopen competition" at that point, he said, "but there is no firm commitment to do that. It doesn't make much sense to have a competition for 14 vehicles."

He added that the whole purpose of an ACTD "is to learn. After we learn, we will decide how many ... and then decide the force structure. ... At this point, we think it's in the best interest of the Air Force to continue" with Boeing.

The X-45 will progress rapidly through a series of operational evaluations, the results of which will feed back into the software and design of the vehicle "as we learn things about what the X-45 can and cannot do" that might not have been apparent before, Leahy said.

The Air Force's new term for spiral development is "effects-based development," Leahy said. Jumper coined the term to better define what the service is trying to do: obtain specific effects, regardless of the platform, system, or weapon that achieves them. In the case of the X-45, Leahy noted, it will be acceptable in early iterations to achieve "the 60-percent ... or 80-percent so-

lution," especially if it provides a new capability that directly speeds the prosecution of the war.

The X-45's graduation exercise—now expected in about 2004—will involve multiple vehicles, working with manned aircraft in a Red Flag-type scenario, Leahy explained. The UCAV will have to demonstrate its ability to work alongside manned aircraft, serving as an escort SEAD platform.

Because they will be on an air tasking order as well as the airspace coordination order, UCAVs will fly at prescribed altitudes and in known geographic areas. However, they will also have interactive capabilities, said Mueller, and be smart enough to get out of the way of a manned airplane. Other options for deconfliction of UCAVs with manned aircraft might include adding terrain collision avoidance systems.

"We're assuming we're going to have to build a more flexible design," Mueller said, that will go beyond simply observing restricted air corridors and altitudes. UCAVs will be capable of flying up to 45,000 feet, and USAF wants it able to be compliant with US and international air traffic control conventions.

Smart Containers

Leahy said the Air Force has not abandoned the idea of the smart-container system, in which UCAVs could be stored for 10 years or more in a box that monitors its health and

can be used to move it by cargo airplane. Rather than six per C-17, however, four or fewer of the new, larger UCAV containers will fit.

Mueller said USAF was also interested in the self-deployment feature because "they want the lift for other things."

The UCAV development program is "fully funded," Leahy said. Next year, the Air Force will begin assuming more of the responsibility for the development of the operational version. The demonstration effort will be completed with three X-45B aircraft, Leahy said, and 14 is now seen as "a reasonable number" for a limited initial operational capability with the Block 10. Notionally, a follow-on order for 16 aircraft is seen beyond that. At 30 vehicles, this would make UCAVs "about one-third of [USAF's] deep-strike force," he said. This would match the prediction by Sen. John Warner (R-Va.) who said in Fiscal 2001 budget language that UCAVs would, within 10 years, comprise a third of the deep strike force.

It could go considerably higher than that.

"UCAV is starting to be talked about as a real significant portion of the force," said a senior Air Combat Command official.

"The range is about the same as the JSF [about 650 miles combat radius]. The payload is identical. So then, for certain missions, these become interchangeable aircraft. And UCAV will be a heck of a lot cheaper. How many we buy and for what purposes will be an important element of how we plan our post-2010 force structure."

The official added that Boeing's involvement with the UCAV—and the possibility of its being a large-scale procurement project—cooled the Pentagon on any effort to insist on Lockheed Martin giving a share of its JSF work to Boeing as an industrial base issue.

"There will be plenty of work to go around," he said. "I really think you may see these two programs competing, so there's your work share."

Jumper cautioned against trading JSFs off against UCAVs for now.

"That is an answer that will come after the thing has proved itself," Jumper asserted. "It is much too early to be going there, I think." ■

Try keeping your eyes
open for 30 hours
without blinking.



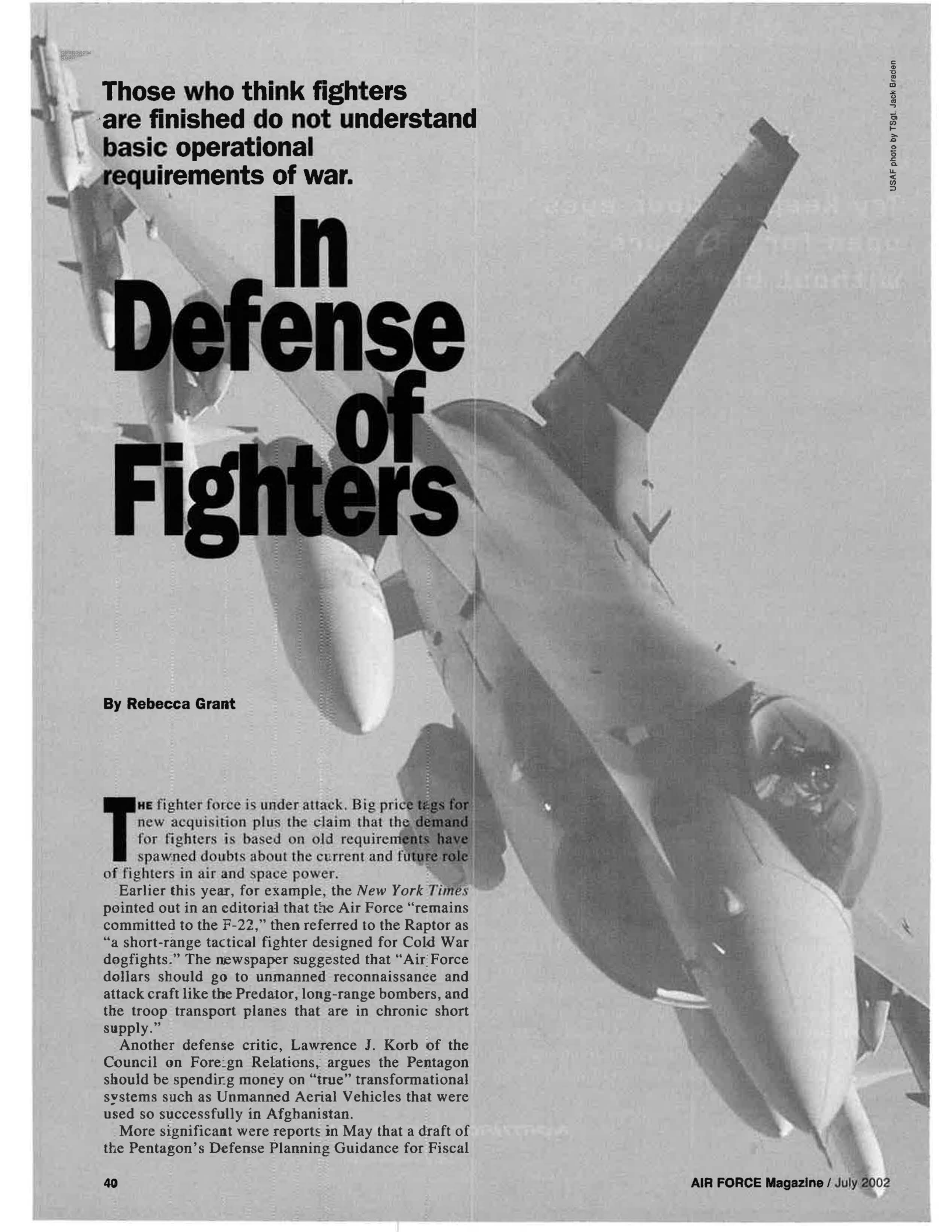
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Those who think fighters
are finished do not understand
basic operational
requirements of war.

In Defense of Fighters

By Rebecca Grant

THE fighter force is under attack. Big price tags for new acquisition plus the claim that the demand for fighters is based on old requirements have spawned doubts about the current and future role of fighters in air and space power.

Earlier this year, for example, the *New York Times* pointed out in an editorial that the Air Force “remains committed to the F-22,” then referred to the Raptor as “a short-range tactical fighter designed for Cold War dogfights.” The newspaper suggested that “Air Force dollars should go to unmanned reconnaissance and attack craft like the Predator, long-range bombers, and the troop transport planes that are in chronic short supply.”

Another defense critic, Lawrence J. Korb of the Council on Foreign Relations, argues the Pentagon should be spending money on “true” transformational systems such as Unmanned Aerial Vehicles that were used so successfully in Afghanistan.

More significant were reports in May that a draft of the Pentagon’s Defense Planning Guidance for Fiscal

USAF photo by TSgt. Jack Braden

2004 and beyond called for re-evaluating the F-22 program. Specifically, it called for a study of the impact of buying only 180 new F-22 air dominance fighters, rather than the planned fleet of 339. The other future Air Force air combat system, the F-35 strike fighter, faces a similar review.

The idea that the fighter is on its way out reflects a misunderstanding of the basic operational requirements of joint warfare—and of the fighter’s long history of carrying forward innovative new developments in air warfare.

Magnets for Criticism

Fighters and bombers have been magnets for criticism and controversy all through the history of war in the air and never more so than when the bill for enhanced capability comes due. A few months before Pearl Harbor, Gen. Henry H. “Hap” Arnold famously confessed, “Frankly, fighters have been allowed to drift into the doldrums.” As a result, the US entered World War II with second-rate fighters on the front lines.

In Vietnam, US airmen paid the price for lack of emphasis on fighter development, as powerful but unwieldy F-105s and F-4s were shot down by surface-to-air missiles and agile MiG-21s flown by experienced North Vietnamese pilots.

It hasn’t been all that long since the United States was forced to learn these stark lessons about military airpower. Even so, the issue of whether to buy first-rate fighters is back.

Today, the case against the fighters bounces from budget worries to technology debates. Among the numerous allegations are claims that fighters lack key performance requirements, such as range; that they are overbuilt to Soviet threat standards that no longer matter; or that other air vehicle systems will soon be able to take over the work of air dominance.

Running through it all is the charge that fighter modernization plans favor gold-plated aircraft built to meet the kinds of specifications that thrill fighter pilots and aerospace engineers but exceed joint requirements.

Most damaging are doubts about whether so-called “short-range fighters” truly qualify as prospects for the transformation team. With transformation atop the list of defense priorities, most attention focuses on

precision weapons, the potential of UAVs, long-range bombers, and future space systems.

Scratch the surface of the fighter debate and one of the first problems to arise is the widespread perception that a mafia of fighter pilots is willing to sacrifice other systems and even transformational capabilities to preserve their single-seat cockpits and silk scarves. According to this line of thinking, the passion for afterburners and nine-G turns biases Air Force generals in favor of funding for fighters and against systems that threaten to do some of the work of fighters.

In the Air Force, pilots—especially fighter pilots—dominate the ranks of three- and four-star generals. Since 1982, all Air Force Chiefs of Staff have been fighter pilots. Fighter pilots of Tactical Air Command appeared to win the battle of the Air Force’s post-Cold War reorganization when Strategic Air Command was disbanded in 1992 and the new Air Combat Command, emblazoned with the old TAC patch and commanded by a senior fighter pilot, Gen. John Michael Loh, was stood up at TAC’s headquarters at Langley AFB, Va. Through the defense drawdown of the 1990s, USAF’s force structure was expressed in terms of “fighter wing equivalents.”

The Fighter Surge

In truth, fighter pilots started to dominate Air Force leadership when

fighters came to dominate the force structure. In the 1970s, technology development feeding on the lessons of Vietnam produced the F-15 as a true air superiority fighter. A competition to build an innovative, lightweight fighter led to the design of the F-16. Fresh emphasis on conventional warfare and cooperation with the Army through AirLand Battle helped push a major buildup in fighters in the 1980s.

Brig. Gen. R. Michael Worden, author of the book *The Rise of the Fighter Generals*, notes that Secretary of Defense Melvin R. Laird in the early 1970s pushed for “youth” in the military leadership ranks. The Air Force responded in part by giving early promotions to younger fighter wing commanders, with the result being that they “were young enough to compete in greater proportion for the higher flag officer ranks before reaching mandatory retirement at 35 years of service.” Later, disproportionate growth in numbers of fighters put more and more fighter pilots in the rated pipeline for senior jobs.

The cliché of fighter pilots protecting their interests got new life when UAVs began to make serious strides in capability and usefulness.

“Not long ago, an Air Force F-15 pilot had to be persuaded to forgo a rated pilot’s job to fly—I guess that’s still the correct word—an unmanned Predator aircraft from a location far from the field of battle,” said Paul



Staff photo by Guy Acello

Some critics claim that fighter aircraft are not suited to transformation, but US fighters have often been the first to take breakthrough technology into combat.



The F-15, here launching an AIM-7 missile, was designed to outgun anything else in the air. The F-22, with stealth, supercruise, and triple the F-15's range, represents a new generation of air dominance.

Wolfowitz, the deputy secretary of defense in recent congressional testimony. He went on to praise the Air Force leadership for “working hard to encourage this pilot and others to think of piloting UAVs as a major mission and to become trailblazers in defining new concepts of operations.”

The implication was that neither fighters nor fighter pilots were naturally well-suited to transformation. Yet the history of air operations attests to the place of fighters in the front rank of innovation and transformation.

Technological superiority is the fighter's first and foremost contribution. In air warfare, the ability to survive, complete the mission, and control the airspace determines the success of the air campaign. Spads, P-51s, F-4s, F-15s, and F-22s have all had the same goal: Combine performance and tactics to outgun anything else in the air and then pivot off that dominance to conduct devastating ground attack operations.

Fighters past and present share basic aerodynamic attributes that explain why fighters remain on the front lines, generation after generation. While individual specifications vary, every fighter is designed with power and maneuverability in mind. These and other physical attributes shared by all fighters represent the attempt to achieve state-of-the-art aerodynamics and deliver the maximum in air combat capability.

Consequently, fighters have often been the first to take breakthrough technology into combat. Cockpit radar, jet engines, and pods for self-designated laser-guided bombs all went to war first on fighters. The term “fighter” is decades old, but today's fighters bear no more resemblance to the World War II era than a Ferrari does to a Model T.

Precision and Stealth

Fighters were at the core of the precision and stealth revolutions of the 1990s. The wave of transformation that led to the stunning results of the Gulf War depended on fighters and fighter-bombers as the engines of change. In the Gulf War, for the first time, American forces won air superiority quickly and efficiently. The F-15 led the dogfight results and suffered no losses. The F-117 stealth fighter dissected the difficult Iraqi defenses while the F-111 fighter-bomber turned its precision capabilities to the unforeseen task of destroying Iraqi tanks half-buried in sand.

Fighters succeeded in the Gulf War because their greater survivability—whether in the form of air combat maneuvering or stealth—gave them the widest range of potential action in the battlespace and because they had the latest technology for precision attack. Aircraft originally designed for more limited missions—for example, the F-4G “Wild Weasels”—proved capable of employing new weapons

and tactics. Versatility, sheer numbers, and the higher chances of mission success made fighters the tool with which air commanders accomplished the broadest and deepest range of tasks.

Following the Gulf War, the fighter force as a whole received targeting and weapons upgrades that extended the benefit of precision throughout the Air Force, Navy, and Marine Corps. The Navy made its F-14 Tomcat into a precision-capable “Bombcat.” In 1995, just four years after the Gulf War, fighters carried out Operation Deliberate Force, the two-week air campaign against Bosnian Serb targets. By 1999, it was the fighters that drew most of the assignment for time-critical targeting in Operation Allied Force. A case in point was the F-15E, modified in the mid-1990s so the pilot could receive video images of a target while he is en route. The B-2 stealth bomber was the only aircraft able to drop the all-weather Joint Direct Attack Munition in 1999. By the start of Operation Enduring Freedom in October 2001, however, Navy F/A-18s and F-14s and other Air Force aircraft all employed JDAM to great effect.

In keeping with the transformation tradition of the fighter, the F-22 incorporates all-aspect stealth and advanced avionics in an advanced fighter design. The combination makes the F-22 the most survivable aircraft ever to fly and will give it superior ability to conduct air-to-air or ground-attack missions.

Still, the chorus of doubt about the future of the fighter has grown stronger since the mid-1990s. Critics point to several shortcomings thought to inhibit the utility of fighters.

The Range Issue

Heading the list is range—or the supposed lack of it. Geographic access to the battlespace in major regional conflicts emerged as a possible Achilles' heel for the fighter force. The worry has been that either military attacks by the enemy or political constraints from friends could deprive US fighters of bases from which to launch operations. A 1993 RAND study observed that the “greater the combat range of an aircraft, the more likely it is to find a suitable beddown base in any theater.”

As the US drifted away from Saudi Arabia and some other Gulf allies, the question of access loomed even larger. Raids such as Operation Desert Strike in 1996 and Operation Desert Fox in 1998 raised new dilemmas with allies reluctant to grant use of in-theater bases for new offensive strikes. USAF heavy bombers, Navy aircraft carriers, and long land-based fighter missions helped take up the slack.

Critical claims about fighter range deserve far closer scrutiny than they have so far received. It is axiomatic that no combat aircraft can ever have too much range. The new fighter designs make this abundantly clear. The Navy F/A-18E/F multirole Super Hornet was designed with about 25 percent more range than extant Navy fighters. The F-35 Joint Strike Fighter will more than double the unrefueled combat radius of the fighters that it replaces. The F-22 will triple the combat radius of current fighters.

However, actual combat radius depends on a whole host of variables, ranging from altitude to the amount of ordnance carried and the attack profile.

Today, virtually no combat missions take place without air refueling. In Operation Allied Force, the crowding of in-theater bases compelled Air Force F-15Es to fly seven-hour missions from RAF Lakenheath in England to targets in the former Yugoslavia, but their missions were

successful. Moreover, even bombers need prestrike and poststrike refueling. B-2s leaving the target area over Serbia were thirsty for fuel until they met their tankers in the Mediterranean.

The debate about the combat utility of fighters boils down to a narrow band of scenarios where basing concerns and extreme inland ranges stretch out the combat radius and relatively light air defenses take attrition out of the equation. Afghanistan after the first few days was just such a scenario.

Operation Enduring Freedom presented a serious access challenge. In-theater bases were few and not particularly close to the action. Land-based and carrier-based strike fighters had to use multiple air refuelings from Air Force tankers to get enough range. The extreme distance to the target area limited the fighters' time on station.

Bombers operating from Diego Garcia faced no such constraints, loitering for hours at a stretch to provide on-call air strikes. The success of the bombers—which accounted for more than 70 percent of all of the ordnance dropped during the war—led some to question whether fighters would ever be needed again. “Restart the B-52 assembly line,” sneered Ralph Peters, a retired Army lieutenant colonel and pundit. “We don’t need extravagantly priced dogfighting machines.”

The focus on range left out the other side of the coin of anti-access scenarios: air defenses.

Fighter Territory

Hostile airspace is fighter territory. With the exception of the stealthy B-2, bombers require significant standoff ranges to strike targets in heavily defended airspace. In Enduring Freedom, the air defenses—rudimentary as they were—had to be defanged first or even the Vietnam-era MiG-21s possessed by the Taliban could have been a lethal threat to the bombers. The B-1s and B-52s loitered safely over Afghanistan only after it was cleared of air defense threats by carrier-based fighter and B-2 strikes. Even so, fighters were always in the area when bombers operated.

In the Balkans in 1999, long-endurance on-call air support operations with the bombers would not have been possible with the roving Serbian SA-6s on the loose. In those situations, it falls to fighters such as the F-16CJ to perform hunt-and-kill missions of lethal suppression of enemy air defenses. Many potential hotspots in the war on terrorism include stiff air defenses. It will be up to the fighters, perhaps assisted by the B-2 and Tomahawk cruise missiles, to take them down.

As recent operations attest, fighters do much more than engage in dogfights. New platforms such as the F-22 and F-35 are designed to play multiple roles and streamline the fighter inventory.

Still, the primary mission of the fighter boils down to air dominance.

Regional air dominance counts. US fighters have flown more than 100,000 sorties for combat air patrols over northern and southern Iraq. When the Iraqi air force started violating the northern no-fly zone, the operation needed more fighters to keep control of the airspace.

A senior defense official said: “I talked to the Turkish general staff; they said they understood, and within a couple of days, it was approved, and we put the fighters in there.” For these regional air dominance missions, only fighters will do. “If Saddam can’t fly up here [north Iraq] and can’t fly down here [south Iraq], that really puts great constraints on his air force as far as



The F-117 was the leading edge of the revolution in precision and stealth in the 1980s and 1990s. US fighter forces quickly established air superiority in the 1991 Gulf War and every war since.

USAF photo by SSgt. Andy Dunaway



Putting the brakes on US fighter modernization is false economy. The F-22, shown here, and the F-35 are designed to maintain the US advantage far into the 21st century.

their training,” the senior defense official explained. “They can’t operate with the army in the south; they can’t operate with the army in the north.”

Even in low-intensity conflict, air commanders cannot run the campaign without important battlespace management platforms such as the E-3 AWACS and E-8 Joint STARS, but fighters need to be available to defend them. “The first thing I want to know is where the F-15s are going to be in case we have to go hide behind them,” said one officer explaining mission planning for an electronic attack aircraft. In every air operation from Desert Storm to Allied Force, fighters manned combat air patrol stations to protect other assets from the threat of attack by even a handful of enemy aircraft.

How Many and How Much

For those who concede fighters have some utility, a second pernicious line of argument is that today’s roster of fighters provide all the air dominance needed—and that stealth is a waste of money. Naval analyst Norman Friedman wrote in the Naval Institute’s *Proceedings* in May that ongoing technology improvements might make stealth irrelevant and that “the sheer cost of building F-22s might make it impossible to begin a new program.” He went on to say that “after all, the current threat is such that aircraft already in

production seem to be quite effective against it.”

Even since the heyday of the Military Reform Caucus in the 1980s, there has been a widespread view that adequate defense of the nation could be had by buying cheaper, less-capable fighters. The myth of the cheap fighter was a staple of the Reforms. The “cheap hawk” school of defense policy carries on that tradition, supporting a strong defense and a robust military, but disdaining any effort to differentiate among so-called “advanced jet aircraft” or to evaluate operational arguments for their joint warfighting roles. By failing to look at these factors, the cheap hawks gloss over the real debate about how fighters contrast or complement each other in joint operations.

Also lost in the price tag argument is the fact that, when war breaks out, the best systems are sent in first. Plans for the coalition air campaign of Desert Storm centered deliberately on the stealthy F-117. The mainstay F-16s, which lacked precision targeting in 1991, filled in the gaps, with missions suited to their more limited capabilities. The one

attempt to send F-16s in a large package against a heavily defended target near Baghdad resulted in loss of life and a decision that no target in Iraq was worth the risk—because, of course, the more advanced and survivable F-117 was around to do the job.

Putting the brakes on US fighter modernization is false economy and discards the nation’s key asymmetric advantage. The fighters strengthen US air and space power; new ones are needed to help the US stay ahead of emerging capabilities. Already, advanced Russian SAMs can be found in many countries. They are being marketed to many others.

Ensuring that US aircraft can get into a target area and perform their missions—now and in the future—ultimately comes down to whether the fighters can be tasked to take on the total threat of adversary aircraft and surface-to-air missiles. The F-22 Raptor and the F-35 Joint Strike Fighter are specifically designed to unravel integrated air defenses. Standoff cruise missiles such as the Tomahawk Land Attack Missile augment air dominance—but TLAMs, too, are vulnerable. One TLAM flying a preplanned route was shot down by anti-aircraft fire during the Gulf War.

It is interesting to note that the fighter debate seems to be taking place only in the United States. Worldwide, the market for fighters remains strong and competitive, with many nations choosing to spend their defense dollars on fighters.

In every air campaign, opening the skies for friendly operations is the foundation of all that comes after. Fighters also remain the cornerstone of sovereign air defense. Operation Noble Eagle put fighter patrols over many parts of the United States after Sept. 11. No other type of aircraft could have done that job.

Whether at home or abroad, winning air superiority is the reason fighters will continue to be the aces of air warfare. ■

Rebecca Grant is a contributing editor of Air Force Magazine. She is president of IRIS Independent Research, Inc., 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, “The Bekaa Valley War,” appeared in the June 2002 issue.

Verbatim

By John T. Correll, Contributing Editor

Noam Is Out Again

"The atrocities of Sept. 11 are quite new in world affairs, not in scale and character, but in target. The United States exterminated its indigenous population, conquered half of Mexico, and carried out depredations all over. Now, for the first time since the British burned the White House in 1812, the guns have been directed the other way."—**Noam Chomsky, noted linguist, author, and social critic, Washington Post, May 5.**

Psychiatric Advice 5c

"One explanation for Bush's fixation on ousting Saddam Hussein is that he wants to avenge his father, who was victorious against Iraq in the Persian Gulf War in 1991 but failed to unseat its ruler."—**Helen Thomas, Seattle Post-Intelligencer, May 8.**

Strung Out

"The entire force is facing the adverse results of the high-paced optempo and perstempo. ... We are past the point where the department can, without an unbelievably compelling reason, make any additional commitments. ... It is time [to] begin to aggressively reduce our current commitments."—**Secretary of Defense Donald H. Rumsfeld, March 13 memo, obtained and quoted by Newsweek, May 6.**

Pushed From Behind

"Sept. 11 proved one thing above all others: Our enemies are transforming. Will we?"—**Rumsfeld, writing in Washington Post, May 16.**

Great Moments in Journalism

"We went to help out the Americans with their war—and they used us for target practice."—**Columnist Margaret Wente on accidental bombing of Canadian troops in Afghanistan, in Toronto's The Globe and Mail, April 19.**

Where the Troops Live

"Last August, I and 20 of my colleagues took a tour of 24 military bases. Any American who saw what we saw on that trip would be ashamed

that we allow our fighting men and women to live in such conditions. If these problems existed in a public housing authority the Housing and Urban Development department would order immediate improvements."—**Rep. Curt Weldon (R-Pa.), writing in Federal Times, April 22.**

Wisdom of the East

"We consider the United States and its current Administration a first-class sponsor of international terrorism, and it along with Israel form an axis of terrorism and evil in the world."—**Letter from 126 Saudi scholars and writers, Washington Post, April 24.**

Realpolitik

"First, let's get this straight. No nation enjoys a 'right to exist.' Countries are created by people killing other people who used to live in a place; countries continue to exist as long as their citizens are willing to kill their people to keep them the hell out."—**Ted Rall, online columnist, "It's Time to Cut Israel Loose," Yahoo.com, April 29.**

Muslims Targeted, Too

"We need to recognize that the terrorists target not only us but their fellow Muslims, upon whom they aim to impose a medieval, intolerant, and tyrannical way of life."—**Deputy Secretary of Defense Paul Wolfowitz, in speech to World Affairs Council, May 3.**

Blood and Gigabytes

"You don't win a war by making PowerPoint slides. You win a war by making the other poor son of a bitch make PowerPoint slides."—**Lt. Gen. Ronald E. Keys, USAF, commander of Allied Air Forces Southern Europe and 16th Air Force, Inside the Pentagon, April 25.**

Saddam Jones, Maybe

"Please quote me. Saddam is a symbol of pure happiness."—**Nihat Mohammed, geography teacher in Baghdad, Wall Street Journal, April 26.**

Remembered in His Prayers

"I pray ... for the destruction of the Jewish people and state and the liberation of Palestine. ... I pray to Allah the powerful for the return of the Islamic emirates of Afghanistan and the destruction of the United States."—**Zacarias Moussaoui, indicted in 9/11 terrorism plotting, speaking in a federal courtroom, quoted in the Washington Post, April 23.**

New Face of War

"The percentage of civilians killed and wounded as a result of hostilities has risen from five percent of all casualties at the turn of the last century, to 65 percent during World War II, to 90 percent in more recent conflicts."—**Annual "State of the World's Mothers" report, Save the Children, May 2002.**

Air Force From the Sea

"We will fully integrate the Marine air with Navy air so we will have one integrated air force within the Department of the Navy. One integrated air force consisting of both Navy and Marines."—**Secretary of the Navy Gordon R. England, Defense Writers Group, May 9.**

It Could Be Worse

"Dangerous as he is, Osama bin Laden is still trivial compared to a great powers race, in which the strategic balance is extremely delicate because of the possibility of a catastrophic war with nuclear weapons. We are living in a blessed period of history when there is no great enemy to thrust all other threats out of the limelight."—**Strategic analyst Edward N. Luttwak, Aviation Week & Space Technology, April 22.**

Good Point

"The country would be better off if military professionals were making military decisions, not [White House budget director] Mitch Daniels."—**David Sirota, spokesman for Democrats on the House Appropriations Committee, Reuters, April 30.**

In shaping the nuclear arsenal, the US seeks reductions and
“reversibility.”

the Responsive FORCE

By Adam J. Hebert

THE past decade hasn't exactly been a thriller for the nation's nuclear weapons designers, physicists, and engineers. The US nuclear weapons complex, after its Cold War exploits, has been bogged down in force reductions and stockpile maintenance. It hasn't built a new-design nuke since the 1980s. It hasn't

carried out a nuclear test since 1992. Game over, it seemed.

Yet things have begun to change again. The Energy and Defense Departments have embarked on a new campaign to strengthen the US ability to design, fabricate, refurbish, and test a range of nuclear weapons.

The change stems from the Bush Administration's Nuclear Posture Review, made public Jan. 9. The move is part of a larger effort to ensure that planners have maximum flexibility as the number of deployed nuclear weapons declines.

President Bush announced the United States will cut its nuclear forces from 6,000 deployed weapons today to 3,800 by 2007 and between 1,700 and 2,200 by 2012. Officials say improved post-Cold War relations with Moscow make these reductions possible. However, they caution that such plans must be reversible.

This desire to keep options open has spurred decisions to expand DOE's power to manufacture and test nuclear components, if necessary. Officials said in recent years that DOE's Science-Based Stockpile Stewardship program has improved the monitoring of weapons and has allowed the United States to adhere to an unofficial test moratorium. However, it is not enough.

"Within the weapons program itself, there are two or three things that are really on top of the list of what we are trying to do," said Gen. John A. Gordon, USAF (Ret.), who heads DOE's National Nuclear Security Administration. NNSA is responsible for the oversight of the US nuclear weapons complex.

The first of these priorities, he said, was simply to maintain the safety, reliability, and security of the weapons the US fields today. "That is job No. 1," he said. Unfortunately, he added, the ability to create new components and weapons has begun to atrophy, and thus rehabilitation of the health of the nuclear infrastructure has now become a major priority.

Responsive Force

The need to respond to an uncertain future and unknown threat condition is also causing the Pentagon to hedge its bets while reducing nuclear forces. The defense leadership has announced that, as nuclear

weapons are taken out of service, they will not necessarily be dismantled. Many will instead be sent into long-term storage, creating a "responsive force" of weapons that could be returned to use much quicker than is possible if new weap-



**Reaching the
desired level of
responsiveness will
pose a major
challenge.**

ons must be manufactured from scratch.

Nuclear planners see a healthy weapons infrastructure and a force of responsive warheads in storage to be important hedges against changing threat environments and technical surprises. For example, today's relations with Russia are good, but that nation continues to experience unrest and could become a danger. China could emerge as a more aggressive nuclear competitor. Unforeseen problems could emerge in one of the nuclear weapons systems.

Gordon staked out this position in detail in testimony in February to the Senate Armed Services Committee. With a healthy infrastruc-

ture, he testified, "A future competitor seeking to gain some nuclear advantage would be forced to conclude that its buildup could not occur more quickly than the US could respond."

He added that deterrence comes "not only [from] in-being forces, but the demonstrable capabilities of the defense scientific, technical, and manufacturing infrastructure, of which a responsive nuclear weapons infrastructure is a key part—including its ability to sustain and adapt—that provides the United States with the means to respond to new, unexpected, or emerging threats in a timely manner."

Reaching the desired level of responsiveness will pose a major challenge, Gordon said.

"What I worry about most for the long term is maintaining that infrastructure," he told reporters last spring. "The decisions made 10 or so years ago, when the [Berlin] Wall came down, were undoubtedly right at the time, but the budget was cut nominally in half, ... so the decision was made at the time to throw almost all the money into the science front end of the program," he said.

The nuclear weapons complex's physical infrastructure was therefore allowed to decay, said Gordon, "and that problem has come home to roost now with aging facilities, deferred maintenance." This is becoming more critical as NNSA adds responsiveness to its list of top priorities, he said.

"No advanced warhead concept development is under way," Gordon reported to the Senate panel, and underinvestment "has increased risks and will limit future options. Currently, we cannot build and certify plutonium 'pits' [nuclear weapon cores] and certain secondary components, much less complete warheads."

He said the goal is to have the wherewithal to fix a "relatively major" problem in the stockpile within a year and to begin initial production of new weapon components within about three years.

Three-Year Wait?

DOE has a similar time goal for responding to a possible future call from the President to resume nuclear

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testing. The lag time today is 24 to 36 months, which DOE officials consider too long. If something were to lower DOE's confidence in reliability of the W76 warhead—the warhead deployed on Trident submarines—the ability to conduct a test more quickly might be critically important, Gordon testified.

The Energy Department will work to reduce the preparation time needed to resume tests, dropping it to perhaps 18 months, and has allocated \$15 million to begin moving to a more responsive test posture in Fiscal 2003.

Development of complete new warheads takes longer—about five years, Gordon said. “Our goal is to maintain sufficient [Research and Development] and production capability to be able to design, develop, and begin production on the order of five years from a decision to enter full-scale development of a new warhead,” he said. This is consistent with past efforts that created warheads the US has available now.

Gordon also testified that the Nuclear Posture Review validated existing DOE–DOD weapons refurbishment plans, but new demands were being placed on the Energy Department. Creating a “New Triad” of offensive strike capabilities, defenses against missile attack, and responsive infrastructure means the DOE workload will not get any lighter, he said.

J.D. Crouch II, the Pentagon's assistant secretary of defense for international security policy who announced the findings of the nuclear review in January, said a responsive infrastructure creates long-term flexibility. “When I use that term,” Crouch said, “I'm not strictly talking about the nuclear infrastructure. I'm talking about a responsive defensive infrastructure that can respond in time frames that are not in the sort of 15- to 20-year time frame that we are used to thinking about the development of new systems.”

John Harvey, another senior Energy Department official, asserted that DOE must step up its efforts to meet weapon demands and upgrade some Air Force weapons over the next decade. DOE must be able to act faster to support defense requirements, said the director of policy planning at NNSA.

Harvey said DOE has “a long ways to go to restore some of the capabilities we need later this decade.” This includes refurbishing “elements of our air-delivered systems [and] our cruise missile systems,” he said, including the W80 warhead for the Air Launched Cruise Missile and Advanced Cruise Missile and “some of our air-dropped bombs—the B61 in particular.”

The B61 is a gravity bomb that can be dropped from an F-15, F-16, or F-117 fighter as well as the B-2 bomber. “We will need to establish and recover production capabilities in order to be able to refurbish that element of the stockpile later on this decade,” Harvey said.

Gordon said NNSA seeks to ensure that DOE's warhead transportation, tritium support, and other requirements are not the “long poles in the tent” when it comes time to convert nuclear warheads to the responsive force on DOD timelines.

Eight Weapons

Several factors would determine the nature, size, and scope of warheads, Gordon testified. These include progress in re-establishing lost production facilities, response times, and a desire to retain a “subpopulation of nonrefurbished warheads” as a hedge against weapon failures. Meanwhile, officials say, all eight warhead types currently in the active stockpile will be refurbished even as the total number of warheads comes down.

“Perhaps more so than in any previous defense review,” Gordon said, “this concept of a New Triad reflects a broad recognition of the importance of a robust and responsive defense R&D and industrial base in achieving our overall defense strategy.”

Crouch said that repairing the infrastructure “is critical to being able to reduce risk as we bring the operational force down to lower and lower levels of nuclear forces.” The other key step is to increase the number of warheads that could be returned to active service if needed.

“The responsive capability would be able to augment that [active] force,” Crouch explained, “and it essentially will be additional warheads that could be uploaded back onto that force if necessary and, obviously, if the president were to

make a decision to do that. And that would take weeks, months, even years to do that, depending upon the system and the character of the threat.”

Such decisions would not be made lightly, he added. “What we're talking about is a responsive capability that would take, at the very least, weeks—but likely months and even years—to be able to regenerate.” He added that the US would not take such a step except in response to “a major change in the security environment.”

Pentagon officials emphasize that almost all major issues remain undecided.

Maj. Gen. Franklin J. Blaisdell, who was Air Force director of nuclear and counterproliferation operations until late May, said the responsive force would add to the flexibility of the US triad because the military will be able to draw weapons out of storage if the security environment changes.

If Washington decided to embark on a major expansion of the nuclear arsenal, bombers would likely be the quickest vehicle for doing so. Different times would be needed to increase weapons available to bombers, submarines, and ICBMs, but “it takes little time to bring responsive weapons to the bomber force,” Blaisdell said, noting that new weapons could be available for bomber use in a matter of days.

He went on, “It would take some more time—maybe ... months”—to increase the warheads available to the submarine force, while it would probably take “a year or so” to alter the ICBM force.

Arms Control Complaints

This aspect of the nation's nuclear planning has drawn fire from arms control advocates who claim putting warheads in storage instead of destroying them will simply encourage Russia, with its questionable security controls, to do the same. This does not enhance US security, they argue.

The future size and composition of the responsive force will depend mostly on evaluations of US nuclear requirements. Also undetermined is exactly how to count warheads removed from active service and sent to storage. This will be the subject of negotiations with Russia, officials

say. Although the Administration has stated a desire to stay away from formal, negotiated arms control agreements with the Russians in the future, the US will likely seek access to verify the status of Russian nuclear stockpiles. Russia will want reciprocal access to US facilities.

Blaisdell said it makes sense for DOD to make conservative decisions when changing the configuration of US Intercontinental Ballistic Missile forces. It can take more than a year to reverse ICBM changes once they are done, and USAF is already committed to fully retire its 50 Peacekeeper ICBMs that can carry 10 warheads apiece.

Most Minuteman IIIs carry three warheads while others already have been downloaded to one warhead to meet arms control requirements. It is widely believed the majority of the fleet will eventually move to a single warhead, but officials say not before 2007.

Decisions to download ICBM warheads and either dismantle or store them may be among the last the Pentagon makes during the current round of force reductions.

Because of all the equipment that must go to the field and return to the base for each ICBM, "the rule of thumb [to upload a warhead] is about one a week, about 50 a year, [and] we've been doing that for a long time," Blaisdell said. "It's just a lot of equipment involved" along with safety and security considerations that make ICBM warhead changes a lengthy process.

Some have speculated that President Bush is preparing to order development of new nuclear weapons, probably beginning with an earth-penetrating warhead. Such a development could be accomplished through modification of an existing weapon, which would not necessarily require a nuclear test explosion. But to ensure viability, US nuclear testing could be sought for the first time in a decade.

Moratorium Stays—For Now

Officials are adamant that, for the time being at least, no one is planning to abandon the test moratorium and no requirement for a new weapon has been stated at all. Officials emphasized that Bush remains committed to the moratorium but

wants freedom to resume testing if circumstances change.

Asked how confident he was that the stockpile stewardship program would allow Washington to avoid a resumption of nuclear testing, Gordon said, "That is the open question



**We will always
need nuclear
systems as long as
there [are]
nuclear weapons
in the world.**

to be decided." He went on, "Certainly I would tell you today the weapons are safe. They are reliable and there is nothing that we see in the weapons today that would drive us to a test in the near future. But you asked me to look into the crystal ball. ... [T]o say that we would never have to do a test? I can't do that. On the other hand, I can say, I don't have a need to test now."

Crouch also said the Nuclear Posture Review resulted in no change to the Administration's policy of adhering to a testing moratorium.

Another factor complicating future plans is the role of conventional weapons in traditionally nu-

clear missions. The Bush Nuclear Posture Review lumps nuclear and certain non-nuclear strike weapons into the same leg of the New Triad.

"As advanced conventional weapons are fielded—along with the intelligence and command-and-control systems to support them—the Air Force will be able to bring down our nuclear forces because we are balancing the full spectrum" of capabilities, Blaisdell said. The United States "will use conventional every opportunity," he added, and "as we get better and better at conventional strike, we may be able to take down some of the nuclear systems."

This does not signify a lack of commitment to nuclear capabilities, however. "We will always need nuclear systems as long as there [are] nuclear weapons in the world [because] you never want to be held hostage; that's part of the deterrence," he said.

Some are not pleased with this strategy, arguing that placing conventional weapons in the same category as nuclear weapons blurs the distinction between the two and increases the likelihood that nuclear weapons will be used for the first time since World War II. For example, DOD is studying the possibility of creating a "new" nuclear weapon usable against hardened and deeply buried targets, the same mission that significant conventional research is attempting to tackle.

"There is no work ... that is focused on an output," Gordon said. The research that is occurring, he said, is to "find a way to let people explore advanced ideas. It is no more and no less than that. ... We have not been given a requirement for design of any kind from the military. We are not going to build any and we are not going to test any. We are very aware of what the congressional requirements are." ■

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The war on terror keeps thousands in the Air Force involuntarily.

STOP-LOSS

IN APRIL 2001, the Air Force approved Maj. Don Tyler's request to retire. His terminal leave was set to begin Nov. 1, 2001. But three months later, on Feb. 12, 2002, Tyler was still on active duty. In fact, he was being pulled, injured, from the wreckage of a special mission aircraft on a snowy mountainside in Afghanistan.

Tyler's brush with death is an exceptional example of how lives



By Tom Philpott

are being changed by an Air Force Stop-Loss program that is keeping thousands of personnel in service involuntarily. Few will be exposed to the dangers Tyler faced in special operations but Stop-Loss indeed is affecting many lives, some profoundly.

Ten months old this month, the USAF Stop-Loss effort is the most ambitious of any service today and the biggest for the Air Force since

the all-volunteer force began 30 years ago.

DOD authorized each of the services to implement Stop-Loss programs following the Sept. 11 terrorist attacks. The authority allows each service to retain individuals beyond established dates of separation or retirement. The services generally focus the programs on service members with critical skills.

However, the Air Force initiated its program with a blanket Stop-Loss—halting the loss of any active or reserve member in any skill.

Out of the Public Eye

Americans have seen reports of US forces fighting in Afghanistan. Many have friends or relatives among 80,000-plus Guard and Reserve members mobilized since Sept. 11. But the effect of Stop-Loss on service families largely has escaped public notice. So far it's a big story only inside the military.

Blocked retirements and separations are causing personal turbulence and angst. Members and their families are torn between a sense of duty and a sense that they've done their duty and should be allowed to move on. Frustrations grow for persons in job skills still under Stop-Loss as the country recovers from Sept. 11.

Air Force statistics tell part of the Stop-Loss story. Roughly 31,000 personnel who expected in Fiscal 2002 to face a decision—to separate, to retire, or to extend—are being denied the choice for now. Because many of those 31,000 would have elected to stay anyway, Air Force leaders prefer to use a different statistic: Stop-Loss is keeping just under 8,000 personnel in the Air Force this year involuntarily.

Officials acknowledge the burden, but they also say they had no choice moving to a blanket Stop-Loss in the wake of Sept. 11.

"We have affected people's lives—people who had plans, who had job opportunities, who served their commitment and were ready to move on with the rest of their lives. ... We recognize that," said Maj. Gen. John M. Speigel, Air Force director of personnel force management. "But also, our senior leadership recognized the attack we were under and the sacrifice our people are willing to give in defense of America."

Air Force officials believe the appalling events of Sept. 11 have deepened the resolve, patience, and sense of service among military people, active and reserve. "The American people are so galvanized in their effort and resolve on this war ... that everybody recognizes we have to have sacrifices," said Speigel. This could help soften any long-term negative effect from Stop-Loss.

Still, the depth and breadth of Air Force Stop-Loss is raising questions for policy-makers. Is the Air Force undermanned? When will Stop-Loss end? Can it end before damaging morale or in time to avoid a stampede by talented people who don't like being locked into jobs?

Officials know Stop-Loss can last too long, particularly as the sense of national crisis fades. Air Force leaders are sensitive to concerns already raised that Stop-Loss must be based on real war requirements and not be used to solve retention problems that existed before Sept. 11.

Returning to Steady State

Because this war will be long, said Speigel, "the sooner we can get back to a steady-state rhythm, even if at a higher tempo, the better off we will be."

The Stop-Loss programs the service used in the Persian Gulf War and for the air campaign over Kosovo were less extensive. However, unlike those conflicts, the Sept. 11 attacks came as a stunning surprise and triggered a massive homeland defense effort, even as forces began to fight overseas.

Given "the uncertainty we faced at the time, the commitment expected of our airmen across the board—active, Guard, Reserve, civilians—[blanket] Stop-Loss was the right decision," said Speigel.

After Sept. 11, Air Force leaders formed a crisis action team to determine what resources were needed for the new missions at home and abroad. (See "Airpower for the Long Haul," March 2002, p. 54.) Those included protecting US cities from further terrorism from the air and building an air bridge with tankers and airlifters as the service moved fighters, bombers, ground forces, and equipment to the Afghan theater.

The team decided blanket Stop-Loss was prudent until the full scope

NO SMALL DEAL

Lives have been upended as a result of USAF's implementation of a servicewide Stop-Loss. Air Force leaders say they recognize the burden that decision has placed on members, and they want to return USAF to a more equitable footing as quickly as possible.

That is no small deal to those caught in Stop-Loss.

One officer whose frustration is rising is Maj. Don Tyler. A navigator on an MC-130P Combat Shadow aircraft with the 9th Special Operations Squadron at Eglin AFB, Fla., Tyler was scheduled to retire in November 2001 but was injured in Afghanistan in February while in Stop-Loss status. He was still on active duty in June.

Because his ill-fated mission in Afghanistan was classified, Air Force officials declined to allow Tyler to be interviewed.

However, his wife, Barbara, said her husband had expected to begin work for a defense contractor in Florida immediately after his retirement. The couple also planned to begin building their "dream house," she said.

After Tyler's retirement plan fell victim to Stop-Loss, his unit deployed to Afghanistan. On Feb. 12, his aircraft crashed in eastern Afghanistan. According to a sketchy press release from military authorities, it was not shot down.

"Only through the grace of God, a thick blanket of snow, [and] some skilled piloting did he survive Stop-Loss," explained a friend of Tyler's. Of the eight crewmen, all of whom survived, only Tyler was aboard that day because of Stop-Loss.

The crash separated his shoulder, tore his rotator cuff, and caused nerve damage. After surgery, he faced six to nine months of physical therapy with no guarantee he'll recover full use of his arm. "My husband has been permanently affected," said Barbara Tyler.

Tyler asked for a Stop-Loss waiver so he could retire. However, Barbara said, his squadron commander recommended denial, saying Tyler is still valuable. In May, his wing commander also disapproved the waiver. The final decision was made by the commander of Air Force Special Operations Command—no waiver.

Meanwhile the family, including two teenage children, had been awash in uncertainty—over the waiver request, whether to begin to build their home, over Don's job, over whether Don will recover from his injury.

"Those of us caught in Stop-Loss understand you can't call up your reserves and let your active people go," said Barbara Tyler. "We understand these people have lives, too. But there comes a point where you are not benefitting morale by holding people who obviously [aren't able to perform in their specialty]."

of the war and homeland defense missions, and the strain on people and aircraft, became clearer.

"To ensure availability of those assets, the decision was made to put everybody on Stop-Loss," said Speigel. "That was a big sacrifice for our people. That was not a decision made lightly."

When USAF's Stop-Loss order took effect, Maj. Jonathan Holdaway, a 40-year-old F-15 pilot with the 94th Fighter Squadron at Langley AFB, Va., pulled his separation papers. On Sept. 11, Holdaway had been within days of the start of training with American Airlines. His decision to pull his papers was made easier by Sept. 11's impact on commercial aviation. Airlines furloughed pilots and suspended hiring.

For a few weeks after the attacks,

though, Holdaway said he just didn't want to leave his squadron. "I spent 15 years serving my country," he said. "It's a little tough to take yourself out of the game when you are under attack."

Last December, Holdaway was selected for promotion to lieutenant colonel. He also soon had orders to Saudi Arabia for a year's unaccompanied tour.

Other pilots pulled their paperwork, too, but many more remain in service because of Stop-Loss. For them and for all personnel and families who thought futures were set, it's a difficult time. Plans to move to new towns, to begin new jobs, to enroll children in new schools, are delayed indefinitely.

After the first month of blanket Stop-Loss, Air Force officials reviewed the

policy and left it unchanged. Wartime missions were still expanding, and the focus of US forces remained "on moving our assets into place to fight the fight, to drop our precision munitions when needed. ... It took a total commitment," Speigel said.

For four months, the Air Force froze all separations and retirements except for hardship cases.

No Rush to the Door

By late January, they took another look. This time they allowed release of 24 officer and 40 enlisted job specialties, which affected 5,500 personnel, about a fifth of the 31,000 Stop-Loss population.

"We turned all the lights on and now we're going through the process of turning some off—the lights we don't need," Speigel explained.

The first batch of skills released had only marginal involvement with war operations or homeland security. "The closer you are to being a sortie generator or a trigger-puller, the less chance of being exempted," explained Lt. Col. Richard Binger, chief of separations at the Air Force Personnel Center in San Antonio.

When the first door was opened, 55 percent of enlisted personnel with expired contracts decided to go ahead with separation or retirement plans. That meant 45 percent elected to stay—a very high percentage, said Air Force officials. For officers, the number of those who decided to withdraw their separation or retirement papers was also high, at about 15 percent, as opposed to a norm of about 2.3 percent. Neither group produced the swarm of departures Air Force leaders had feared.

"We're trying to do this in a graduated fashion so there isn't a panic, so there isn't a rush to the door," Speigel said.

Since the Air Force did not include the weather observer skill on the first release list, SrA. Joseph Casey, 25, remained with the 1st Operational Support Squadron at Langley in March, five months past his enlistment contract. Casey said he wasn't upset about losing a bartending job he had lined up. But he remained worried that he would have to scrap plans to return to college this fall in Providence, R.I.

However, Casey said, married colleagues, particularly those with children, were having the toughest time.

Some had to turn down high-paying civilian job offers. Some had already sent their families to new cities and homes believing they were about to get out "when all of a sudden, here they are."

In early April, the Air Force released another 37 officer specialties and 59 enlisted skills, opening the door for 4,400 more personnel. That still left in service about two-thirds of the 31,000 affected by Stop-Loss.

"Our hope is to continue on this glide slope" with more specialties released every two months, said Spiegel. "We're a ways away from landing, but we're on a glide slope to wean ourselves from Stop-Loss."

Other Approaches

Stop-Loss authority flows from the President's mobilization of reservists. When mobilization ends, so must Stop-Loss. Meanwhile, each of the services has used it as necessary.

The Army issued its first Stop-Loss order Nov. 30, 2001, placing a hold on only 994 active duty personnel in Special Forces and aviation fields beginning in January 2002. Since then, Army officials, who elected to freeze war-critical skills by increments, have issued two more Stop-Loss orders. The second order affected reservists as well as active duty personnel and included additional specialties such as civil affairs, psychological operations, and mortuary affairs. The third and, to date, largest increment raised the total personnel affected to 12,540 and included fields such as intelligence, military police, and communications interceptor. By using the incremental approach, the Army's goal is "to minimize Stop-Loss as much as we can," said Army Lt. Col. Bob Ortiz, chief of the enlisted professional development branch.

The Navy first implemented Stop-Loss on Oct. 10, 2001, identifying almost 10,000 personnel in some 11 skills, including special operations, security, cryptology, and linguistics. In early March, the Navy revised its Stop-Loss order down to about 4,000 personnel in just four skills: cryptology, security, law enforcement, and certain linguists. The Navy said it expected actually to apply Stop-Loss to only 300 sailors in 2002. "We are looking at this very judiciously," said Capt. Steve Conn, head of the Navy's enlisted plans and policy branch at the Pentagon.

Marine Corps officials said 700 Marines will serve an extra six months under Stop-Loss this year. USMC implemented its program Nov. 20, 2001, making it effective in January. Officials said no Marine will be held longer than six months and no retirement plans will be impacted.

The Coast Guard didn't use Stop-Loss, choosing to handle an expanded port security mission with reservists, retirees voluntarily recalled, and former personnel enticed back into service.

So why did the Air Force need such broad policy?

The Air Force has had a bigger role in Operations Enduring Freedom, the war overseas, and Noble Eagle, the protection flights at home, said Spiegel.

"The multitude of bases we stood up, in and around the area of operations, the support tail that goes along with the iron—we had a huge commitment from the beginning, putting bombs on target and [establishing] the air bridge to move iron into place, people in the support tail into place, and eventually Marines or Army personnel into place," Spiegel said. "On balance we just had a heavier commitment from the very beginning."

Needed: 32,000 Airmen

A general officer steering group looked at the stresses on Air Force personnel post-Sept. 11 and concluded the service needs 32,000 more personnel—28,000 active duty and 4,000 reservists—over six years. They should be trained in communications, law enforcement, and intelligence. The Air Force sought Bush Administration support for this plan, including adding 5,000 more active duty members and 2,000 reservists in Fiscal 2003.

"We feel like this is the price of war," said Spiegel. "We also think this reflects the new steady state, [the number needed] to live in an environment of heightened security awareness."

The Administration declined to support the request, though, and did not send it to Congress. Defense Secretary Donald H. Rumsfeld first wants to see more effort from the service to eliminate marginal support billets and shift personnel into critical skills.

Would a bigger Air Force before

Sept. 11 have made current Stop-Loss unnecessary? Spiegel doesn't think so.

"We still probably would have done Stop-Loss until we knew what the [war] campaign was," he said. But a bigger force "might have allowed us to turn off those lights a little bit faster."

The Air Force has taken some steps to grant waivers for personnel who have demonstrated personal needs and who are not in actual war-critical skills. One difference with this Stop-Loss program is that the service gave major commands the authority to approve those waivers. Through May 22, about 82 percent of 3,722 requests had been approved.

Air Force officials can't predict when Stop-Loss might end.

President Bush and his Cabinet have talked publicly about expanding the war on terrorism, specifically citing Iraq and Saddam Hussein's efforts to develop weapons of mass destruction. All of that keeps the Stop-Loss situation "fluid," Spiegel said.

"We have always said, on Stop-Loss and the release of [job skills], that this is predicated on what we know. If the world situation changes dramatically, then we will have to go back and reassess." But, he added, "our leadership is committed to try to get us out of the Stop-Loss business as quickly as they can, ... understanding the risks associated with that."

Meanwhile, Stop-Loss is not cheap. Delayed separations and retirements will cost the Air Force up to \$500 million, money that will have to be added to a cost-of-war supplemental budget for Fiscal 2002.

Still unclear is the cost, over time, of lower service retention numbers. Retention rates have bounced back within a year after previous Stop-Loss programs, but those were limited to fewer skills and were of shorter duration.

The threat to retention rates is "another reason for us to be on this glide slope," Spiegel said, "to get us out of Stop-Loss and return to some sense of normalcy." ■

Tom Philpott, the editor of "Military Update," lives in the Washington, D.C., area. His most recent article for Air Force Magazine, "Tricare for Life Hits and Misses," appeared in the April 2002 issue.

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American forces now are using a base that didn't exist in a country that, until recently, didn't exist.

Beddown in Bishkek

By John Hendren

BISHKEK, the capital of Kyrgyzstan, now improbably boasts an elaborate temporary air base built by US military engineers atop a boneyard for Soviet-era aircraft. It's not just the base that is new. The country itself didn't exist until a decade ago.

It's an unlikely posting in the US war on terrorists. The base lies adjacent to a commercial airport in the shadow of vaulting, snowcapped mountains. Kazakhstan lies 20 miles away in one direction, China about 200 miles away in another. The region was once part of the Soviet Union, the most dangerous adversary ever faced by the United States.

"For half my career, this was the enemy," mused Lt. Col. Kevin Rumsey, who commanded the Air Force civil engineering squadron that constructed the base earlier this year.

The first planeload of Air Force personnel arrived at Bishkek last December, not long after the rout of Taliban forces in neighboring Afghanistan. Members of the 86th Expeditionary Contingency Response Group, primarily from Ramstein AB, Germany, worked together at the Manas airport to build a tent city and set up an



USAF photo by MSgt. Jerry A. King

A decade ago, Kyrgyzstan was still part of the Soviet Union. Nobody imagined the US one day would establish an air base named after a New York City fire chief there—much less with the enthusiastic approval of the locals.



C-5 cargo aircraft were among the first to arrive at Manas. Within months, US and coalition forces created a comfortable base boasting cafeterias, a hospital, recreation center, gym, and hundreds of temporary structures.

airfield for coalition forces supporting Operation Enduring Freedom.

Work soon began, and it now has become one of the more prominent of the dozen or so expeditionary airfield sites that the Pentagon has established in nine Middle Eastern and Central Asian countries in the Afghan neighborhood.

Defense officials have not publicly acknowledged the existence of bases in Muslim nations where a US military presence would set off a local political storm. Kyrgyzstan, however, has welcomed the economic and diplomatic advantages of an association with the United States. All signs are that US forces will settle in for a long stay.

Two Selling Points

The base at Manas holds two main attractions for the anti-terror coalition. It is relatively close to the war in Afghanistan, and it has an unusually long—13,800 feet—runway built to accommodate Soviet heavy bombers. The base carries the name of Ganci Air Base in honor of Peter J. Ganci Jr., the New York City fire chief who perished in the World Trade Center collapse on Sept. 11.

Bishkek lies more than 1,000 miles from Kandahar, Afghanistan, a three-hour flight for transport aircraft. If the United States engages Iraq in the continuing war on terror, as the Bush Administration appeared poised to do, the base could play a supporting role there, too.

Manas has some limitations. Commercial aircraft use the site, and customs agents in Soviet-style olive uniforms engage in lengthy scrutiny of each visitor's identification papers. There is only enough ramp space to park four C-17 or C-5 transports, so crews are discouraged from staying overnight. As with some other allies in the anti-terrorism coalition, Kyrgyzstan has internal political problems. Human rights are sometimes regarded as optional; American diplomats are pleading with their Kyrgyz hosts to free a jailed opposition member of parliament.

Nevertheless, the Bush Administration negotiated a one-year status of forces agreement, establishing the Bishkek facility as a key coalition base for attack operations, refueling, and search-and-rescue work. The arrangement could continue after this year unless one of the two signatory nations pulls out.

Military aircraft continue to arrive, with some due in late this year. That suggests a lingering American presence amid a war on terrorism that defense officials estimate could last more than five years.

"After what we've done here, we're not going to want to tear it down after a year and bulldoze it," said Col. Billy Montgomery, who commanded the 86th ECRG. "I think we'll stay here as long as the relationship is good."

Some analysts say the United States is unlikely to station forces

permanently at Manas but would establish a presence there that could be reactivated periodically for training and operations. The American military can be expected to leave behind a great deal of equipment useful in later operations.

The base exemplifies the cooperation between coalition nations. At last count, US forces had been joined by elements from seven other countries. Six French Mirage 2000s were the first coalition fighters assigned to the base. French pilots flew from Kyrgyzstan to bomb suspected al Qaeda terrorists in Afghanistan's mountainous Shahi Kot Valley. Next to the Mirages stood six US Marine Corps F/A-18 Hornet fighters. Also at the base were Australian KB-707 and French C-135FR tankers and C-130 cargo aircraft from Denmark, Netherlands, Norway, and Spain.

These countries and South Korea provided support personnel as well. In late May, coalition forces at Manas numbered some 2,000—about half were US troops. Italy plans to deploy aircraft and personnel there later this year.

Manas has also been crowded with C-5, C-17, and C-141 cargo aircraft, Turkish refueling tankers, commercial 747 liners, and Russian-built Antonov 225s. The facility is a regular stop for airplanes coming to and from Kandahar, Bagram, and Mazar-e Sharif—all Afghan cities.

Kyrgyzstan and the United States cooperated for at least two years before Sept. 11, with US Army Special Forces soldiers training local soldiers. That cooperation has been enhanced with new training of border guards, carried out through the State Department. The relationship between the two governments remains cordial, despite misgivings about the American presence among Kyrgyzstan's Chinese and Russian neighbors.

The Money Pit

The US military is expected to pump more than \$40 million annually into the weak local economy. That doesn't include money brought in during troop visits to Bishkek, where \$30 buys dinner and caviar for four at one of the capital's classiest bistros. Most of the money comes through purchases of local aircraft fuel, but an unusual arrangement also calls for the US-led coalition to pay



Most—but not all—locals are happy with the US presence. Security forces have to stay alert for signs of trouble while making routine patrols through neighboring villages. Here, a USAF staff sergeant greets local children.

landing fees of \$5,000 to \$10,000 per transport.

Kyrgyzstan has moved more enthusiastically than other ex-Soviet states toward free-market economics. It appears to have stabilized. Inflation went from 88 percent in 1994 to 15 percent in 1997. Nevertheless, about half of its 4.7 million citizens live below the poverty line.

When Brig. Gen. Christopher A. Kelly, the first 376th Air Expeditionary Wing commander, and a vanguard of 26 Air Force personnel arrived the day after Christmas, every major city in Afghanistan had already fallen to anti-Taliban forces, leaving US and coalition forces searching for them in the caves and bunkers that line the mountainous border with Pakistan.

At Manas there was no cargo yard, no US or allied aircraft, and none of the hundreds of temporary structures that today make up the coalition's tent city. It took 100 dump truck loads each day for a month to unload \$300,000 worth of gravel needed to construct a 420,000-square-foot compacted gravel aircraft maintenance area.

Airmen on the base said they never expected to be there. Senior personnel marveled at the prospect of operating out of a former Soviet republic. Shortly after arriving at the base, Kelly met several times a week with his Kyrgyz liaison, Gen. Boris Poluto, who served as a Soviet soldier during the Cold War. Back then he

was poised to do battle with the man who now calls him a good friend.

"I grew up in an age where this was indeed the big bear," said Kelly. "And to have imagined even 10 years ago that I would be in a former Soviet republic starting up an airbase and doing military operations was just inconceivable."

Some airmen were less than enthusiastic. "My recruiter left this part off the video," said A1C Ben Frankenberg, a 19-year-old from Seattle, diverted to Manas from an expected posting in palm-lined Guam.

No one at the base had ever been to Kyrgyzstan, said Lt. Col. Bertrand Bon, a French military spokesman.

Their First Time

"For almost all the military people, it's the first time they've come to Kyrgyzstan," Bon said. "Of course, for us, the people didn't have much info about Kyrgyzstan before coming here so they were quite surprised by the welcome of the local population."

Compared with the spartan base in Kandahar, established by the Marines and operated by the Army's 101st Airborne Division, the tent city next to Manas is palatial. Inside one of the two cement-floored tents on base is a cafeteria. Troops in Afghanistan still dine on boxed meals, ready to eat.

French troops erected a second cafeteria to accommodate their tastes. There is a hospital, recreation center, and gym. The difference in comfort doesn't stem totally from Kyrgyzstan's distance from the war zone. The same airplanes that deliver to Kandahar also deliver the equipment to Manas. While Army troops pride themselves on their ability to withstand austere conditions, one Air Force official quipped, "We can too—but we realize we don't have to."

Pallets of rations are ferried in on 10,000-pound forklifts. There is a post office and laundry. Local shopkeepers are setting up booths. Un-



Civil engineers use a grader and other heavy machinery to move tons of rock, gravel, and dirt. These members from the 376th AEW are preparing an area for placement of an aircraft hangar.

like Kandahar or Bagram, where jacket-clad 101st Airborne soldiers crowd the portable heaters at night in the handful of tents that have them, every tent at Manas has a vented heating system that evenly distributes warmth. Comparing the American base with the permanent facilities in which all Kyrgyz men are required to serve for two years of mandatory service, a headline in a local Kyrgyz paper dubbed the Americans "The Ideal Military."

Lt. Col. Rich Houston, who headed the 376th AEW's services squadron, managed to find a local restaurant to deliver 300 pizzas in the middle of the night for a Superbowl party. The frills have little to do with recruiting, Houston said.

"Really, it's mission capability," Houston said. "If you're here for 120 days and you're cold and haven't done your laundry in 120 days, you're not going to be as effective."

Not all of the base's conditions are equally praised. Kelly's first order—Command Rule No. 1—barred the airmen from drinking alcohol in a city where Soviet-era drinking customs have resulted in numerous roadside liquor stands and downtown taverns. Since mid-February soldiers have been allowed to doff their battle dress uniforms and enter a very limited area of downtown Bishkek for up to 12 hours a day, escorted in groups by a superior officer.

"I need these young men and women to stay extremely focused on what they're doing," Kelly said. Besides, "we talk to the young folks ... about being good ambassadors. We're in somebody else's house."

Opposition Forces

That house is not entirely hospitable. The presence of the militant Islamic Movement of Uzbekistan, or IMU, whose goal is to carve out a Muslim republic in the Fergana Valley (with parts in Kyrgyzstan, Tajikistan, and Uzbekistan), largely explains the presence at Manas of a group of well-armed Air Force troops that routinely patrol rural hamlets around the base.

"We understand that not everybody likes us here," said Lt. Col. Donald Derry, the soft-spoken com-



Support facilities—such as aircraft and vehicle maintenance areas—were also constructed from scratch. Here, a USAF technical sergeant and Australian corporal check an engine head assembly for a truck.

mander of the 376th Security Forces Squadron.

The security forces at Manas want to avert a repeat of the terrorist bombing of the Khobar Towers housing complex that killed 19 US service members in Saudi Arabia in 1996. Yet their nonthreatening style is more akin to that of British commandos in Northern Ireland and NATO forces in Yugoslavia.

"We're doing things a little differently, in my opinion, than we've done in the past," said Derry, whose cross-training earned him Army Ranger and paratrooper badges.

To develop intelligence and scour the rural hamlets within about four miles of the US base, airmen from the 820th Security Forces Group, Moody AFB, Ga., performed routine patrols.

As more than a dozen troops in desert camouflage rolled through an agricultural village called Vostuchny that consists of little more than a dirt road lined with ramshackle houses, they encountered watchful scrutiny, handshakes, and children who stretched to touch the airmen's rifles. Most people were friendly.

"They should have come long ago," Alec Kurbanov said in Russian through a translator. He served in the Soviet army from 1972 to 1974. "We don't hold anything against them, as long as they have peace in mind."

Others were more skeptical. One who identified himself only as Sergei, dressed in a black leather cap, brown leather jacket, and Adidas sweatpants, expressed concern about the Americans.

"You carry guns as you are surrounded by all these kids," he said. "I believe you could have talked to the villagers without your weapons."

The troops no doubt realize US forces will be there awhile. The first question Defense Secretary Donald H. Rumsfeld fielded when he visited troops at the base came from an Air Force staff sergeant who wanted to know how long they'd be staying at Manas. "As long as necessary," Rumsfeld replied. The crowd cheered loudly.

Military analysts suggest US forces are likely to stay in the country for at least another winter, in which temperatures dipped this year to minus 17 degrees Fahrenheit. The cold caused the fuel mixture to gel, shutting down the base's heating system.

The cold marked a dramatic change of life for airmen such as A1C Jassid Marwan, a 23-year-old firefighter from New Mexico, who said he was still trying to get used to the weather. Across the tent, Frankenberry was on the phone, using one of his two weekly 15-minute telephone calls to pine for the assignment from which he was diverted.

"I've got to get to Guam," he said. ■

John Hendren is a Washington, D.C.-based defense correspondent for the Los Angeles Times. This is his first article for Air Force Magazine.

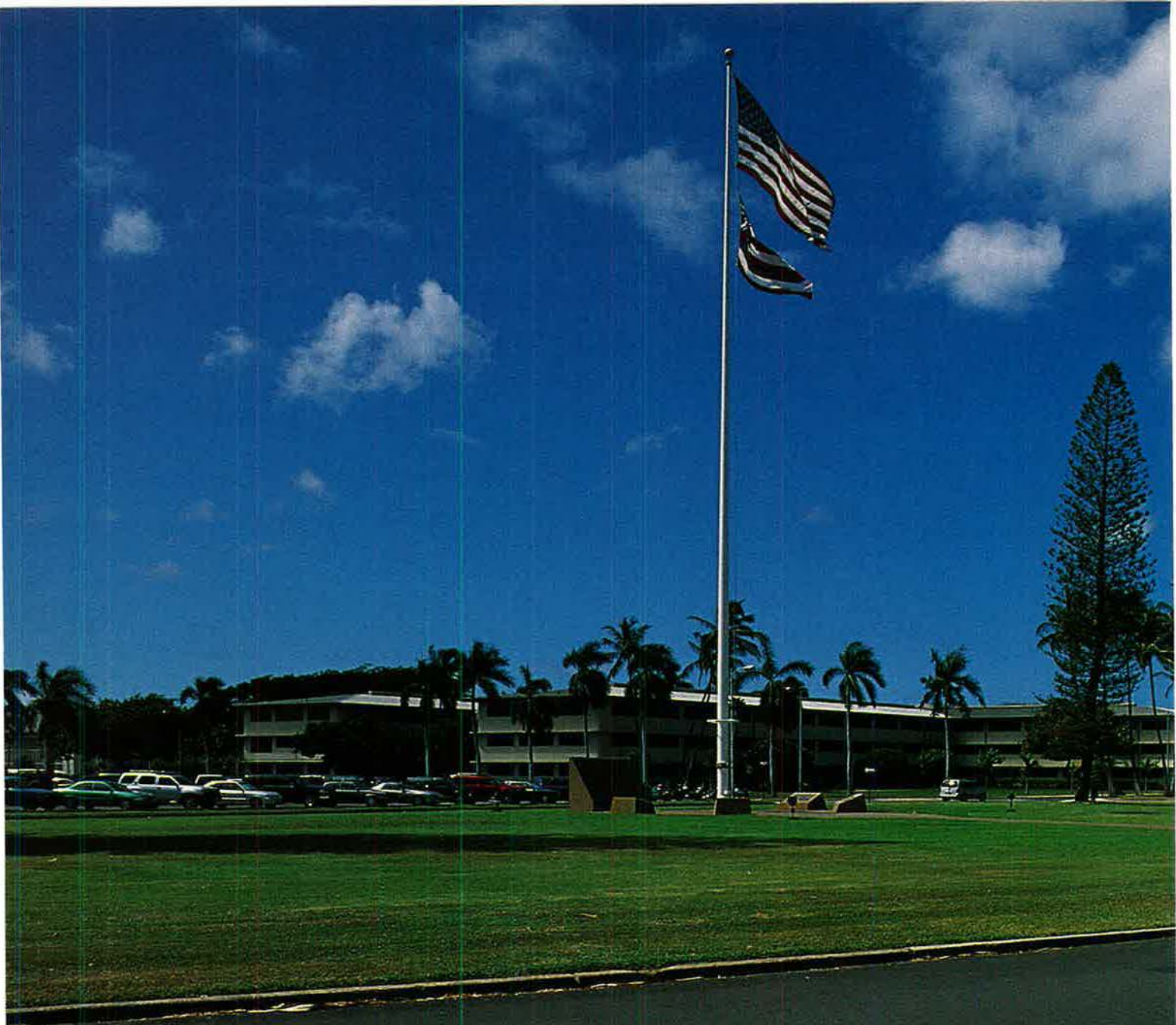
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In History's Shadow

Buildings at Hickam AFB, Hawaii, still reveal scars from that devastating day, more than 60 years ago.

Photography by Guy Aceto, Art Director



Many photographs taken during the Dec. 7, 1941, Japanese attack on Pearl Harbor and other military installations in Hawaii are almost icons—instantly recognized even today. One is this photo (inset) of the American flag, still flying as the main barracks at Hickam Field burns behind it.

Today, bronze plaques surround the original flagpole. They list the names of those killed at Hickam during the attack. The barracks has become headquarters for Pacific Air Forces. And the flag—which later flew over the Big Three Conference at Potsdam, over the White House on the day Japan agreed to surrender, and at the charter meeting of the United Nations—is preserved in a display at PACAF headquarters.

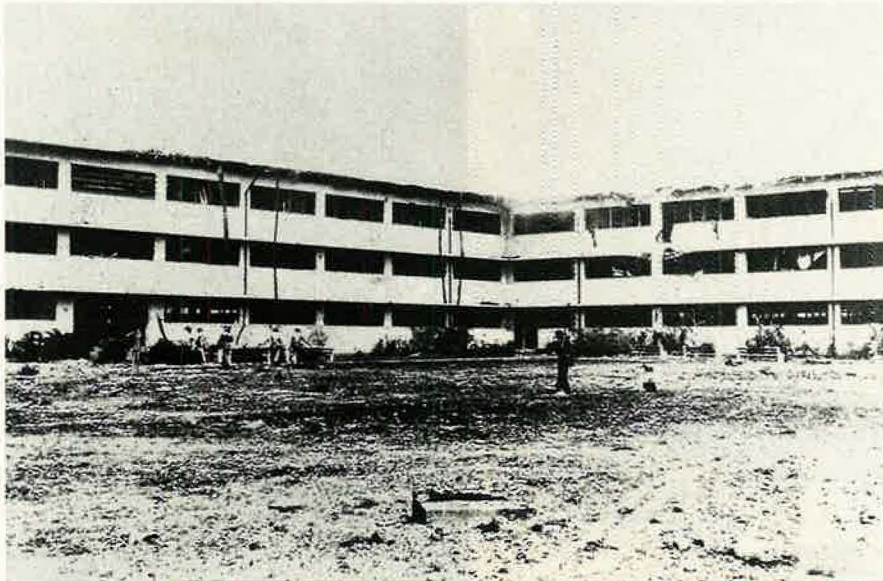
Visitors to Hickam Air Force Base feel these ties to history. Everywhere on base, the black-and-white images of photos from that day come to life.

Hickam was constructed to serve both as a home base for a bomb wing and as an air depot to handle major overhaul work. It had been officially activated for just over three years when the Pearl Harbor attack took place. Army Air Forces units at Hickam that day included Hawaiian Air Force, 18th Bomb Wing, and 17th Air Base Group.

PACAF headquarters, at right, was back then a barracks housing more than 3,000 men. It also contained a huge mess hall, dayrooms for every squadron in the barracks, two barber shops, a branch of the post exchange, a medical dispensary, and tailor and laundry shops.



Staff photos by Guy Aceto

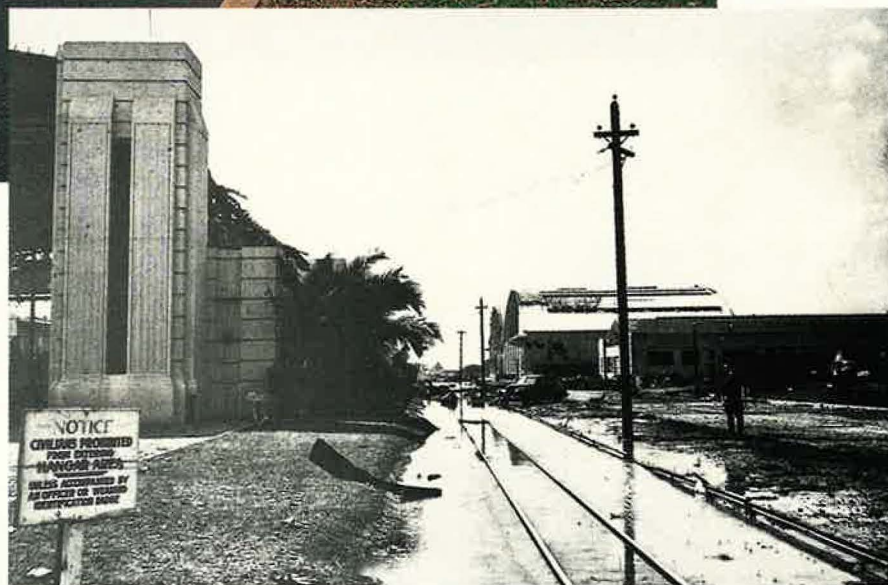


At Hickam, located adjacent to Pearl Harbor, the initial targets were the hangars and flight line areas. When the assault turned to the barracks complex, bombs blasted through the roof. In the mess hall, which took a direct hit, 35 men died instantly. The inset photo suggests the extent of the damage. The building's exterior

today still carries the pock marks from strafing by enemy aircraft.



Hickam's unique and historic role in the opening hours of World War II led the Secretary of the Interior to designate the base as a national historic landmark in 1985. The base had already done much to preserve many reminders of the deadly attack. These photos contrast Hangar Ave., then and now.



In 1941, the aircraft at Hickam—as at other airfields on the island of Oahu—had been parked close together to guard against sabotage on the ground. They made easy targets for the Japanese attack. Out of 146 aircraft in commission for the Hawaiian Air Force, 76 were destroyed that morning. Despite this and other losses, airmen at various island airfields scrambled to fight back. These troops pulled together a makeshift gun emplacement in front of Hangar 5, using a burned aircraft engine, sandbags, a table, and other debris.

KC-135s (shown here), C-130s, and F-15s of the 154th Wing, Hawaii Air National Guard, share the flight line at Hickam today. The base uses the adjacent runways of Honolulu International Airport. When Pearl Harbor was attacked, the aircraft on hand at Hickam were B-17s, B-18s, and A-20s; a handful of P-26s and A-12s; and one B-24.



On Dec. 7, B-17s from the continental US were en route to Hickam, as part of the buildup of American forces in the Pacific. Approaching Hawaii at about 8 a.m., the 12 bombers got caught in the Japanese attack. Capt. Raymond T. Swenson, 38th Reconnaissance Squadron, Albuquerque, N.M., was among those who managed to land his B-17 at Hickam. A Japanese Zero then strafed the aircraft, causing flares to ignite and the bomber to burn, as shown here.



Except for a crew member killed by a strafing Zero, everyone on Swenson's B-17 reached safety. The front half of the bomber was towed to this spot on the edge of the flight line, between two wings of the barracks complex. Maintenance crews later salvaged all four engines.

Japanese aircraft used Freedom Tower, a landmark at Hickam, as a reference point. The Moorish-style tower had been built in 1938 and held an emergency supply of half a million gallons of water. Seedlings for trees and shrubs were being propagated around its base. The 171-foot tower was strafed but miraculously escaped destruction.



Staff photos by Gary Acelo



Not so lucky was the B-18 at left. At the time, B-18 bombers were considered old and too short-ranged to be of much combat value.

Today at Hickam, the F-15 below is part of ANG's 154th Wing. The wing has a mix of fighters, tankers, and transports to handle its diverse missions. It has sole responsibility for air defense of the island state.





At right, an already bombed out Hangar 11—with a wrecked B-18 in the foreground—came under attack again seconds after this photo was taken. Today, cars fill the parking lot next to the hangars.

Preserving Hickam's historic feel has led to some creative solutions: Some World War II-era hangars have been converted into offices by building a separate structure within the restored exterior.



At left, a pilot completes postflight paperwork as an F-15 is prepared for its next mission.

From the "Day of Infamy" in Hawaii to today, Air Force missions have continued at Hickam. The historic sites, the strafing marks, the artifacts coupled with current activities—all bring to mind the Air Force's important role in the war then and the war now. ■

Twenty years ago, the Air Force activated its first Ground Launched Cruise Missile wing in Europe.

The Short, Happy Life of the Glick-Em

By Peter Grier



The Ground Launched Cruise Missile, with its combined transport and launch vehicle shown here, had a short operational life but proved to be an effective counter to Soviet SS-20 intermediate-range missiles.

ON JULY 1, 1982, USAF's 501st Tactical Missile Wing was activated at RAF Greenham Common in Great Britain. That step—taken 20 years ago this month—marked the start of what would prove to be a major political upheaval in Europe. Noisy protesters came early for the arrival of the wing's first batch of Ground Launched Cruise Missiles. However, US troops brought them in late at night, as the protesters slept.

Flash forward 18 months, to Dec. 12, 1983. Greenham Common on that day was besieged by thousands of women anti-nuclear activists. They were chanting, singing, and blowing trumpets in protest of the presence

of the nuclear-tipped cruise missiles. These anti-nuclear zealots even briefly penetrated a perimeter fence protecting the base against intruders.

A makeshift "peace camp" had been established outside the main gate. Resident activists vowed to live there indefinitely in an attempt to force NATO to abandon its planned deployment of several hundred BGM-109G GLCM (pronounced "glick-em") weapons and the US Army's nuclear-tipped Pershing II ballistic missiles.

The burgeoning Western anti-nuclear movement did not regard these new weapons as a much-needed counter to the Soviet Union's SS-20 intermediate-range missiles. For the protesters, they were a terrifying sign

of the Western alliance's determination to be able to fight and win a nuclear war, if necessary. In short they were, by definition, bad.

"They don't add to our security, but [they] increase our insecurity," asserted Bruce Kent, who was at the time the head of Britain's Campaign for Nuclear Disarmament.

Now They're Gone

Today, all of the GLCMs are gone, withdrawn from Greenham Common and every other NATO base in Europe and dismantled. The huge M.A.N. (Maschinenfabrik Augsburg-Nuernberg) diesel tractors no longer haul the GLCM canisters around the surrounding Salisbury Plain on mid-

night deployment exercises, as they once did. The protests are no more.

However, the demonstrations had nothing to do with the removal of the weapons. Contrary to the protesters' beliefs, the GLCMs (and their strategic cousins, the Pershing IIs) did not destabilize the West. In fact, NATO's deployment of the weapons in the face of popular unrest had a destabilizing effect in the other direction. The West's ability to stand firm and carry out the deployments in the face of nerve-wracking Soviet threats convinced the Kremlin that NATO could not be intimidated.

It was this realization that led to the opening of the more serious Intermediate-range Nuclear Forces (INF) talks and an INF treaty that eventually removed an entire class of nuclear arms from the superpower arsenals—a major step in the weakening and ultimate dissolution of the Soviet Union itself.

The GLCM existed for less than a decade. Because the weapon system had such a short operational life, some Air Force members had the unusual experience of being on hand at both the beginning and the end. The happy circumstances of its demise also gave many GLCM personnel the feeling that they had helped shape world events for the better.

"We thought GLCM held a very important place in history," said retired Col. Doug Livingston, former commander of the 868th Tactical Missile Training Group. "It was one of the key elements that helped win the Cold War."

Throughout the tumultuous years of US-Soviet INF negotiations, the Army's Pershing II tended to get the most media attention. It was big, powerful, accurate, and fast-flying. It would have been the weapon of choice to strike time-sensitive Soviet targets in the event of all-out war.

In some ways, however, the GLCM was the system most feared by the Soviets. For one thing, they were to be more numerous than the Pershings. Plans called for deployment of 464 cruise missiles in Belgium, Britain, Italy, Netherlands, and West Germany. By contrast, NATO forces were to receive only 108 Pershing IIs, and they would be based only in West Germany.

The GLCMs also represented an area of NATO technological superiority. At the time, Soviet weapons-



USAF photo by SSgt. James Pearson

Anti-nuclear protesters feared GLCMs would destabilize the West. By 1981 they established a permanent "peace camp" outside the main gate of Greenham Common.

makers were unable to duplicate the sophisticated guidance systems of US GLCMs.

The GLCM deployment of the 1980s had roots in political events of the 1970s. By the middle of that decade, it had become clear to NATO planners that the Soviet Union intended to undertake a concerted effort to modernize its Intermediate-range Nuclear Force targeted on NATO Europe.

The SS-20 Threat

Until that time, the most threatening weapons aimed at Western Europe were the single-warhead SS-4 and SS-5 theater missiles, based at vulnerable fixed sites. In 1977, however, Soviet forces began to field the new SS-20, a missile fitted with three accurate, independently retargetable warheads. Worse, its launcher was highly mobile, allowing their dispersal at times of tension. Each launcher was equipped with refire missiles. This signified an increase in Soviet firepower on a tremendous scale.

By 1979, Soviet forces had fielded SS-20s in significant numbers. In that year, NATO political leaders agreed on a historic "dual track" approach to solving the problem. One track was political: The West would attempt to engage the Soviets in serious talks aimed at curbing the INF forces of both sides. The other track was military: NATO would deploy in Europe hundreds of GLCMs and Pershing IIs unless Moscow agreed

to stop and then reduce its SS-20 deployments.

For the Western alliance, the matter went far beyond the need to have equivalent forces. NATO's worry was that, in nuclear parlance of the time, the Soviet buildup would "decouple" the defense of Europe from the US strategic nuclear arsenal. In other words, Moscow might believe it could threaten Western Europe's high-value targets—ports, rear-echelon areas, and the like—with SS-20 nuclear attack and not provoke US retaliation because it was not threatening US strategic weapons or US soil.

Deployment of NATO INF forces was an attempt to make the West's nuclear deterrent more credible, by providing commanders nuclear options short of all-out retaliatory war. Western Europe's leaders, in particular, were eager to show that the continent was still shielded by the US strategic nuclear umbrella despite the existence of the SS-20 threat.

Harold Brown, the Secretary of Defense, told Congress in a 1980 message: "We do not plan to match the Soviet program system by system or warhead by warhead, which might be construed as an attempt to create a European nuclear balance separate from the overall strategic relationship. ... Instead, we seek to strengthen the linkage of US strategic forces to the defense of Europe."

NATO planners chose to deploy a pair of weapons to counter the So-

viet SS-20 because the GLCM and the Pershing II had distinctive, complementary characteristics.

The new Pershing was a follow-on to the existing, shorter range Pershing IA. As a ballistic missile, it offered a high assurance of penetrating any Soviet defenses. Its speed enabled it to threaten time-sensitive targets. It was designed to take advantage of the existing Pershing IA infrastructure in Europe.

The smaller GLCMs were projected to have lower life-cycle costs. Their longer range—1,550 miles—allowed them to be based farther from the front lines. This increased their survivability and—not incidentally—allowed more allied nations to accept deployments on their territory.

As Brown put it: “The deployment of a mixed ballistic/cruise missile force hedges against the failure of one type of system, provides the flexibility to select the best weapon for a given mission, and greatly complicates enemy planning.”

Naval Origins

The Air Force’s BGM-109G GLCM, nicknamed Gryphon, did not begin life as an Air Force system. It was a modified version of the Navy’s Tomahawk sea launched cruise missile. Development began in 1977.

Because of the political need for the system, the GLCM passed rapidly from concept through development, but its progress was not al-

ways smooth. Engineers found that they needed to do much more than simply slap a Tomahawk on a trailer and hand the driver a portable radio.

Development of the Transporter Erector Launcher and associated infrastructure such as the launch control center was a task that proved to be far more complicated than first imagined. Crashes of test vehicles also caused the Joint Cruise Missiles Project Office to decertify the missile on two occasions.

The finished production missile was almost 21 feet long, with its stubby wings stretching out to about nine feet. Top speed was just under Mach 1. The Convair Division of General Dynamics was the prime

contractor. McDonnell Douglas made the guidance system, and Williams International/Teledyne provided the small F107 turbofan power plant

GLCMs were stored in protective aluminum canisters with their wings, control fins, and engine inlets retracted. In a crisis, the canisters would be loaded onto Transporter Erector Launchers—giant 78,000-pound tractor trailers. The TELs and their support vehicles would be deployed to secret, presurveyed launch sites in remote areas of the host country. Coordinates for the launch location, along with weather information, were then to be entered in the missile’s flight computer. Two launch officers would have taken 20 minutes to en-



USAF photo by TSgt. Bill Thompson



In a crisis, the GLCM system would be deployed to secret, presurveyed launch sites. At top, a camouflaged GLCM unit was hard to spot. Here, a GLCM was fired during a test launch in the US.

ter launch codes received by satellite. Once authorized, the officers would have simultaneously pressed “execute” buttons.

GLCMs were blasted out of their launch tubes by a solid-fuel rocket booster. Once clear of the canister, the booster was jettisoned and the missile’s wings, control fins, and engine inlet would snap into place. The turbofan engine then took over and powered the missile on a precise, preprogrammed route to a target hundreds of miles away.

The GLCM was intended to overfly friendly nations at high altitudes to save fuel. Approaching hostile territory, it would then drop to an altitude of about 50 feet above ground level and its terrain-following guidance system would steer it toward its target. On final approach it would swoop upward to avoid any physical

barriers and then plunge down onto the designated impact point.

Likely targets would have been second-echelon fixed sites such as the Kronstadt naval base or the Severomorsk headquarters of the Soviet Northern Fleet.

Source of Crews

On July 1, 1981, the 868th Tactical Missile Training Squadron, Davis-Monthan AFB, Ariz., became operational. The 868th was the only US-based GLCM unit and the source of the crews that staffed the forward deployed wings a year later.

Many GLCM personnel were missileers who switched over from ICBM duty. Coming from an environment that focused on fixed-site systems, many found the mobility of their new weapon, and all the bouncing about the countryside that training entailed, both strange and exhilarating.

"It was new to everybody," said Livingston. "That's what made it so exciting." Livingston served as a GLCM test official and then training group commander. He can claim to have been involved with the launch of the first Gryphon as well as the destruction of the last one under the INF accord.

The six overseas NATO units, in order of their deployment, were as follows:

- July 1982, 501st Tactical Missile Wing, RAF Greenham Common, UK
- June 1983, 487th TMW, Comiso AB, Italy
- August 1984, 485th TMW, Florennes AB, Belgium
- April 1985, 38th TMW, Wieschheim AB, West Germany
- December 1986, 303rd TMW, RAF Molesworth, UK
- August 1987, 486th TMW, Woensdrecht AB, Netherlands

Comiso Air Base, located on Sicily, was far removed from Italy's large population centers and thus was somewhat insulated from the anti-nuclear movement then sweeping Europe. All of the other GLCM bases were, to some extent, subjected to political protests—sometimes intense ones.

The permanent Greenham Common peace camp was probably the most famous concentration of protesters. The peace camp, a semiorganized band of squatters who lived outside the facility's gates for years, was a con-



USAF photo by Sgt. David Jablonski

Formal talks began between the US and USSR in 1981, but the INF treaty wasn't signed until 1987. The US then began removing GLCM systems from Europe. Here, a unit is loaded aboard a C-5A for the trip back to the US.

stant irritant to base officials. Anti-nuclear protesters occasionally would breach exterior defenses and reach logistics buildings. They always seemed to know when GLCM units would be leaving the base to practice launch deployments on Salisbury Plain.

Not that such convoys were easy to hide. A full deployment consisted of more than 20 vehicles, most of which were filled with security guards and logistics support for the TEL and the mobile launch centers.

"It was tough," recalled Livingston, then the GLCM wing's deputy commander for logistics at Greenham Common. "We had to 'protester proof' the vehicles."

That meant, for instance, installing safety wiring over the gas caps to prevent the insertion of foreign material or protecting parts of the vehicles against the ever-present paint bombs thrown by protesters.

"They may have slowed us down a bit, but there were never any serious accidents," said Livingston.

Fringe and Freeze

Greenham Common residents were the colorful fringe of the anti-nuke movement. Protests were often scheduled to coincide with solstices, equinoxes, and other astrologically significant events and took on overtly pagan characteristics. The camp survived for years following the withdrawal of the last GLCM. It was maintained as a permanent protest against nuclear weapons everywhere.

At one point, its residents petitioned the local council to have the camp declared a historic national site.

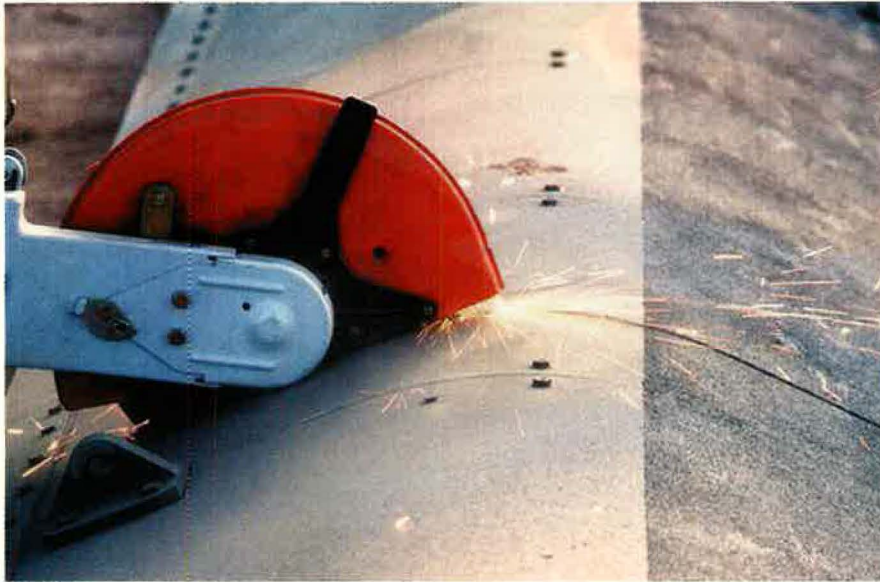
The Greenham Common protesters were part of a larger Western movement that gathered considerable force in the 1980s. In some European nations, the anti-nuclear sentiment grew so large that political leaders weren't sure they could fulfill commitments to host the weapons. In the US, anti-nuke sentiment surfaced in a widespread nuclear freeze movement.

In many ways, the opposition to NATO's new INF forces reflected the old split between what might be called "nuclear minimalists" and "nuclear warfighters."

The former group included those who believed that a small, survivable force of nuclear weapons was adequate for deterrence. The godfather of this view was Robert S. McNamara, the Secretary of Defense who, in his years at the Pentagon (1961–68), moved to limit the nuclear weapons budget as much as possible.

The latter group believed that a more elaborate, flexible arsenal produced sounder deterrence. Those who held this view—including most of the senior leadership of the Air Force and the other military services—thought that an adversary would be less likely to launch a nuclear strike if it believed a US president had retaliatory options short of all-out nuclear response.

To minimalists, the GLCMs and



The INF treaty called for destruction of all but eight display articles. Here, at Davis-Monthan AFB, Ariz., a circular saw cuts through the door of a GLCM transport-launch vehicle.

Pershing IIs were at best redundant and at worst provocative. They rejected the whole idea of “linking” US and Western Europe together via placement of new INF systems on European soil.

The leading proponent of this view was Paul Warnke, the dovish director of the Arms Control and Disarmament Agency in the Carter Administration. “There is no military justification” for cruise missile deployment, Warnke wrote in an op-ed article in the *Washington Post*. “The potential targets for these missiles are already covered by ballistic missiles.”

Warnke was enthusiastic about depriving the US of nuclear weapons. He urged the Reagan Administration to quickly strike an arms deal that would halt the deployment of the American GLCMs and Pershing IIs in return only for a reduction—not the elimination—of the Soviet SS-20 force. Warnke opined that, without progress on arms control, “The United States will face a further deterioration in its relations with the Soviet Union, and Western Europe’s confidence in American leadership will decline.”

In the end, of course, Reagan declined to take Warnke’s advice. Formal INF talks between the US and the USSR began in 1981 but didn’t really get serious until the major deployments began. The US position was a simple one: “zero-zero”—elimination of the new longer-range INF systems in Europe by both sides.

Moscow, for its part, proposed a limit of 300 missiles and nuclear-capable aircraft, with British and French nuclear systems counting toward NATO’s quota.

Soviet Walkout

At the time, GLCM deployments had not yet begun, and with the power of the anti-nuclear movement still building, the Soviets must have thought time was on their side. But NATO hung together. After additional US systems began arriving in Europe in late 1983, the USSR walked out of the talks. No negotiations took place in 1984.

Eventually, Moscow blinked and agreed to come back to the negotiating table. In January 1985, Secretary of State George P. Shultz and Soviet Foreign Minister Andrei Gromyko agreed to parallel talks on INF, strategic forces, and defense and space issues. That fall, Moscow hinted that it wanted an INF treaty separate from the other negotiating tracks. Soviet negotiators offered a proposal that would have allowed NATO to keep some GLCMs—but which still would have permitted SS-20 warheads equal to GLCM and British and French forces combined. This was clearly unacceptable to the West.

Then the pace of events began to

accelerate. High-level discussions took place in 1986, capped by the confusion caused by the October 1986 summit between Reagan and Soviet leader Mikhail Gorbachev in Reykjavik, Iceland.

In February 1987, the Soviet Union announced that it was ready to work an INF deal detached from all other nuclear issues. That July, Gorbachev agreed to the original US zero-zero position. He also agreed to then unprecedented verification protocols, including on-site monitoring of INF production facilities.

The political context of the INF accords will be a subject of historical inquiry for years to come. Deteriorating internal conditions in the USSR clearly played a part in Soviet decisions. Perhaps Reagan’s determination to pump billions into strategic defense technology contributed, too.

The agreement also validated NATO’s original two-track response to the advent of the SS-20. The deployment of GLCMs and Pershing IIs demonstrated in a convincing manner the depth of the US commitment to European security and the strength of alliance solidarity.

The two sides signed the INF treaty in 1987, and soon thereafter the Air Force began withdrawing its GLCMs from Europe. By May 1991, all were gone, sawed up into expensive scrap. All, that is, except for the eight display articles permitted under terms of the treaty. The US Air Force Museum at Wright-Patterson AFB, Ohio, has the first of the Gryphons that went on alert at Greenham Common. The Ground Launched Cruise Missile Historical Foundation dedicated a second display article this spring at the Pima Air and Space Museum in Tucson, Ariz.

Eventually the GLCM foundation hopes to have a full display reflecting all the capabilities of a squadron, including launch facilities and security forces.

“We knew all along we were political pawns,” said Livingston, who serves as president of the foundation. “Everybody knew the importance of what we were doing. That pride has carried over to today.” ■

Peter Grier, a Washington, D.C., editor for the Christian Science Monitor, is a longtime defense correspondent and a contributing editor to Air Force Magazine. His most recent article, “Meltdown of the Nuclear Critics,” appeared in the June 2002 issue.

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For Gen. John P. Jumper, USAF's Chief of Staff, the goal is a balance between today and tomorrow.

War and Transformation

Air Force Chief of Staff Gen. John P. Jumper started his new job the week before the Sept. 11 attacks. Ever since, he has been working to balance the immediate needs of fighting a global war on terrorism with the long-term investments required to keep the Air Force at the forefront of military power. On May 2, he met with the Defense Writers Group in Washington, D.C. Following are excerpts:

By John A. Tirpak, Executive Editor

Gulf War II

Though the Air Force is about 40 percent smaller than it was in 1991, it is a far more capable force now and would make a more effective showing if the US had to fight Iraq a second time, even without the basing support of Saudi Arabia, Jumper said.

"The capability that we have has ... advanced greatly since 1990-91. We saw our airplanes come out of [RAF] Fairford in England and [RAF] Lakenheath in England—both bombers and fighters—transiting thousands of miles or so to targets in Kosovo. We have the capacity to deal with these things ... from significant ranges. ... We can stand off from great ranges and do our job."

Asked to describe the difference between USAF capability in 1991 and 11 years later, Jumper said, "The biggest changes that we have seen are in the area we call time-critical targeting. It is the ability to take the intelligence assets—which for years went on a cycle of collect, analyze,

report—and to actually put them in the kill cycle so that now they are part of find, fix, track, target, engage, and assess. And we are doing this in minutes, not hours or days.

"In the Gulf War, we were working away at this, but the information technology was not there. Now the information technology has improved."

Noting the success in Afghanistan of Predator drones and special forces on the ground, designating targets with lasers and calling in air strikes on precise coordinates, Jumper said, "Now we have varieties of ways to put eyeballs on or unmanned sensors on targets and stare at [the targets]—gather information about trends and habits [and] pick the time and place of our choosing to attack in ways we never had before."

These trends "make us more deadly," Jumper asserted.

Asked how confident he is that USAF would fare better now than in 1991 in the hunt for mobile Scud missiles, Jumper simply replied, "Very."

Next Sensor-to-Shooter Links

USAF is already working on next-generation concepts that will directly and digitally feed coordinates from sensors to shooters without the need for some person to “fat-finger” numbers onto a keypad, Jumper observed.

“This next generation ... will really make the difference, where we learn to make our platforms—space, manned, and unmanned—perform at the digital level with digital-level conversations that resolve these ambiguities of target location and target identification.” Fond of describing the various intelligence, surveillance, and reconnaissance communities within the Air Force as “tribes” that use their own hieroglyphs to communicate with each other, Jumper said the next generation of sensor-to-shooter technology will do away with the “tribal interpretations that now have to happen when humans get in the loop.”

F-22 and Access

Faced with yet another Pentagon review of the need for the F-22, Jumper said he’s confident the program will stand up to the scrutiny intact, especially since it has taken on new missions.

“The air-to-air piece [of the F-22 mission] is probably less than half of what we are going to count on the F-22 to do. Fifty-one percent, at least, is going to be to take care of this most dangerous part of what I call the anti-access mission.” The F-22 will swoop in at “greater than 1.5 Mach in military power” to swiftly eliminate modern, advanced surface-to-air threats that would keep unstealthy, slower aircraft away from the theater of operations. It will carry the precision guided 250-pound Small Diameter Bomb.

“It will be carried internally on the F-22—probably eight of [the SDBs], depending on the design. And [the F-22] will glide out there in the 40- to 50-mile range and take care of these most difficult threats that challenge our ability to get weapons onto targets and, as part of the Global Strike Task Force, will team with the other stealth and standoff assets of the Air Force and the other services to create the conditions for access in those places where access might otherwise be denied.

“It is this combination of air-to-



USAF photo by TSgt. Mark Bucher

USAF Chief of Staff John Jumper addresses members of the 319th Air Expeditionary Group deployed for Enduring Freedom.

air and air-to-ground in the F-22—which is an airplane that does things no other airplane will be able to do—that we think is important, and we will continue to make that case.”

He added, “We get taken to task because we continue to do very well in the wars that we have fought in the past [with currently fielded technology], but that is no guarantee for success in the future.” The Air Force, he said, believes it can buy 339 aircraft with the funding it’s being given for the program.

“That is the number that we agreed on” with the Pentagon leadership.

“I am confident we have a strong case for the F-22, as we have in the past. I am going to continue to make it. ... It is necessary to the concepts that we have put forward for the future of the Air Force.”

Next-Generation Bomber?

“Depending on what we do for the next generation of long-range strike ... and how quickly we need to do it, we have certain variations of the F-22 we could use to give us longer-range strike capability. All of that is a possibility; no formal proposals of that are out there yet.”

Jumper said he would not even call the next-generation long-range strike platform a “next-generation bomber. ... I am not sure if the thing needs to be an orbital thing, a manned thing, or an unmanned thing.”

F-22 Testing

Mathematical projections indicate

that the F-22 might be prone to “tip-flow separation” and “vortex impingement,” two aerodynamic problems that buffet the tail fins and force the rudder actuator to work hard to keep the rudder in place, Jumper reported. A similar problem manifested itself on the F/A-18 Super Hornet.

“When I asked, ‘What is the probability that this would result in a catastrophic failure of the tail?’ The answer was, ‘One times 10 to the minus six over the eight-thousand-hour life of an airplane,’” he said.

“And we’ve never actually experienced one of these test points yet, but the mathematics tell us that when you extrapolate, this phenomenon has this remote possibility of taking place.”

Jumper said there are several possible solutions—including a stealthy wing fence or a change to the rudder or actuator—but they are still being developed.

“I am not going to trivialize this problem, but I think that we have enough experience with this type of problem that we will be able to pivot off of what we learned from the F-18. Actually, the F-15 went through some of this, too. We’ll be able to deal with this and hopefully save ourselves problems on the Joint Strike Fighter.”

Jumper said he believes the problem can be solved “without ... an adverse impact on the testing program, but I am going to withhold

that judgment until I see what those fixes are and I hear what the engineers tell me.”

War on Terror

“It is a marathon, not a sprint. The Air Force, along with everyone else, the other services, are gearing up for having to deal with pursuit of terrorists over the long term. ... We have to configure ourselves ... to be able to respond to these threats as they emerge. ...

“For lift, for tankers, for personnel, for optempo, rotational forces, we have to set ourselves up so that we can respond to these things on a continuous basis.”

Leasing New Tankers

USAF has “flown about 15,000 tanker sorties since the 11th of September on airplanes that generally came in about the Eisenhower Administration.” Jumper said most of these airplanes, the KC-135Es and KC-135Rs, “are facing extended periods of time in the repair cycle. These repairs that used to take six or eight months are now taking more than 400 days to complete, and it is costing us a whole lot of money. We are trying to avoid that, if we possibly can.”

The Air Force is looking into acquiring new Boeing 767s to replace the oldest KC-135s, either through a procurement or lease. Jumper was asked whether a lease would be paid for out of procurement or operating funds.

“We don’t have a lease deal yet. ... We’ve been authorized to go pursue a deal. ... We are still negotiating,” he said.

“The common misperception is that these O&M [Operation and Maintenance] funds are entirely at the discretion of people like me, and somehow in the dark of night, we can go broker a deal that passes nobody’s scrutiny but our own. In this day and age that is a ridiculous notion. We have to go back to the [Congressional] committees. We have to make sure that I carry out my responsibility to the taxpayer to make sure we are doing the right thing with the taxpayers’ money.” Jumper said the Air Force will not go “around” Congress to do business.

The Air Force doesn’t have a solid plan yet in part because the possibil-

ity of getting new tankers “came up earlier than we had anticipated it would.”

“We didn’t just wake up in the morning and say we need some tankers. ... We are about to spend a lot of money on this last group of very old tankers. We are trying to avoid that, and that is why this potential for a lease was so attractive, in getting something on the ramp quickly.”

Electronic Warfare Options

Since an analysis of alternatives on replacing the joint Air Force–Navy EA-6B escort jammer fleet was completed in December, “the whole notion of electronic warfare has, in my mind, changed” and can be accomplished in “a variety of ways,” Jumper said.

“One of them is certainly the sort of standoff jamming that the EA-6 provides. But there are other elements of network warfare—of expendable jammers, of towed decoys, and other things—that go into helping you solve this problem. ...

“Our position has been—and nobody disagrees with this—that we ought to back off and take a look at the whole chain before we decide that the single-point solution to this problem is to replace the EA-6B.”

Jumper said the Air Force and Navy are examining “a variety of solutions that go at this in a different way.” In a situation that is “less permissive” than Afghanistan, for example, “you are looking at something that has to persist for a long period of time, be able to stand off at longer ranges, have more power, etc.” ...

“What we have to work on ... between us [the Air Force and the Navy] is this notion of being able to run with the pack and to be able to persist. It is hard to get one airplane to do both things. ... We are working with the Navy on how we can split up the areas of responsibility.”

A so-called EA-22, or an electronic attack version of the F-22, is probably not in the cards, Jumper said.

“That was a thing that was looked at as part of this [analysis of a] replacement for the EA-6B, but I for one don’t think that is the right solution. I think we need something that can sit and loiter and stand off and have the power to bash electrons harder from longer standoff ranges.”

The EA-22 is “a possibility, but not one that I favor, at least right now, from what I know.”

Stepping Up Precision Munitions

“We all know that precision munitions are a very big part of what we all do today. Everyone agrees that we have to have adequate inventories of both laser-guided and GPS-aided munitions.”

Noting that GPS-aided bombs such as the Joint Direct Attack Munition “bomb locations and not targets,” since they fly to coordinates and do not seek specific objects, Jumper said the Air Force is “working on the kind of weapons that will give us precision in and under the weather.” So far, “the laser spot is the only way we have ... to put a spot on a target and make sure that the weapon will hit the target.”

The Air Force and Navy are stepping up production “of both laser and GPS-guided munitions so that we will ensure that we have adequate stocks of these things. This buildup of capacity is going to take place between now and the summer of ’03, to work our way up to the levels we need to be able to surge in situations like we had in Kosovo and Afghanistan. ... We have decided that the capacity has to be up around 2,500 to 3,000 a month ... of JDAM kits.”

War Room of the Future

The Combined Air Operations Center has proved itself in war and work is being done to make the concept into a weapon system, Jumper said. He has said previously that CAOCs will be standardized, and those in them will have to pass check rides in their areas of operations.

Asked whether the US would be hamstrung by not being allowed to use the CAOC at Prince Sultan Air Base in Saudi Arabia, Jumper said the CAOC is a mobile thing.

“We can put the joint force air component commander both at sea or on shore. We practice that, and we have gained this flexibility, in cooperation with the Navy, to be able to combine a forward presence, either ashore or afloat, with reachback capability. ... You put the databases and the computational stuff back on the shore so you don’t have to carry all that on the ship. You put a few

people on the ship and a lot of people in the background.”

For the future, Jumper envisions a “virtual” CAOC.

“I don’t want to imply we have this yet, but this is what we are developing in our advanced AOC model. Essentially, you have a picture of the AOC floor the way it would look if you were all in one place and you’re establishing hotline, intercom-type communications with somebody on the other side of the room, but that person may really be in a reachback position, thousands of miles away.”

The CAOC at Prince Sultan could be “replicated elsewhere,” Jumper said. It could be “backed up by another CAOC right there in the area somewhere.”

On Transformation

“What is transformational and revolutionary is the fact that our [troops] can take the open-ended information technology that is out there and put the chess pieces together in ways that were never combined before to create new types of effects.”

Jumper noted that B-52s were never intended to perform close air support but have done just that in Afghanistan, dropping JDAMs on request by troops in the field.

“Close air support is now profoundly different than the [old] image that you have to have an A-10, [which] has got to be close to the ground [and] being shot at, and the pilot had better be at great risk before it counts.”

Similarly, the F-22 was designed to sweep the skies of enemy fighters, said Jumper, as “a replacement for the F-15, ... white-scarf-in-the-breeze fighter pilot stuff.” However, “we are going to put bombs on it, and it is going to be a more accurate bomber than any current-generation bomber that we have, with increases in capability.”

The F-22 will have “information technology that vacuums up information from 360 degrees and displays on your cockpit an integrated picture of things that don’t just depend on the radar but other sensors that are on the airplane and other airplanes ... data-linked to it to give you a very comprehensive picture of what your threat is.”

How different that is, he said, from the F-117s over Baghdad in 1991, with no protection other than stealth.



USAF photo by TSgt. Jim Varhegyi

Jumper and Secretary of the Air Force James G. Roche testify before a congressional panel.

That F-117 pilot had “no indication in the cockpit of what is looking at him and how much danger he is in, but he sees missiles lifting off rails ... coming his way, and all he can do is sit there and be as small a dot as he can possibly be. That is courage.”

The coming integration and digital fusing of “manned and unmanned platforms will give us a degree of situational awareness that you can’t even imagine.”

Stresses on the Force

The Air Force’s intelligence, surveillance, and reconnaissance assets “were purchased in size for the ... peacetime routine and when we step up our pace of activity ... then these assets become what we call high-demand, low-density.” He named the U-2, Rivet Joint, Joint STARS, AWACS, and Predator UAV among the most highly taxed systems.

“None of this is new news, and we would be stressed no matter what scenario we had to respond to.”

Nevertheless, “our effectiveness is well up over what it was in 1990. I think we could do what the nation asks us to do, and it is just going to be a matter of how much more we ask the forces—that are already heavily engaged—to do, on top of what they are doing now and how long we ask them to do it. That part is the risk.”

Old Fighters, Skillfully Employed

Jumper acknowledged there will be a longer gap than expected in

transitioning from the 1980s generation of fighters—F-15s and F-16s—to the next generation of F-22s and F-35s. How will the Air Force bridge the gap?

“What we’ve done is upgrade the technology in the radars and the missiles and the electronics, and in certain cases, like in the F-16, do things to mitigate the bulkhead cracks and the other fatigue-related issues that come up over time.”

He later told *Air Force Magazine* that the service will “have to accept a higher degree of risk. The time is coming very soon when we will have to decide whether to SLEP [perform a Service Life Extension Program] our fighters or forego that and wait for the new aircraft. My gut tells me we will tough it out, but it all depends on these new aircraft coming in at the time we expect them.”

Jumper said there are “two differences between us and the bad guys” that will enable the Air Force to wait a little longer for the next fighters. “One is the continuing improvements in electronics we’ve been able to sustain. And the second is our training. And as a matter of fact, I would put training first. The people that we have flying these airplanes are beyond doubt the very best in the world because one of the things we have not compromised on is the quality of our training. ...

“We are trying to make sure with the F-22 that we keep up with the technological lead the same way we’ve kept up with the training.” ■



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Sixty years ago,
Flying Tiger David
Hill was a hero. He
still is.



Tex

By **Walter J. Boyne**

LAST December, retired Brig. Gen. David L. “Tex” Hill was awarded the Distinguished Service Cross for a heroic action he carried out some 60 years earlier, back in the dark early years of World War II in the Pacific. Due to political considerations having nothing to do with Tex personally, his exploits were not properly recognized at the time.

No fewer than four of Tex’s proposed nominations for the Distinguished Service Cross were disapproved because of a long-standing dispute between, on the one hand, Brig. Gen. Clayton L. Bissell and Gen. Joseph W. Stilwell, and, on the other hand, Tex’s beloved boss, the great warrior Claire L. Chennault. Bissell and Stilwell felt that Chennault was a maverick who used his connection with Generalissimo Chiang

Kai-shek to get his way with President Franklin D. Roosevelt. Tex got caught in the middle as Bissell and Stilwell were turning down Chennault's recommendations. No awards came his way.

Tex accepted the belated decoration with his characteristic modesty, very grateful to his longtime friend O.R. Crawford, who had labored on his behalf for its award. Crawford, an Air Force Association national director emeritus, flies a Curtiss P-40 decorated in Tex's markings at air shows. He enlisted the help of Tex's friends, including Congressman Randy Cunningham (R-Calif.). On May 25, Tex formally received his DSC at a ceremony in San Antonio. Retired Gen. Henry Viscellio Jr., who presented the award, told a crowd of nearly 300 that good guys do win in the end.

In approving the award, the Air Force records correction board cited an action on Oct. 25, 1942, when Tex, desperately ill with malaria, led nine P-40 Warhawks of the 23rd Fighter Group as escort for 12 B-24 bombers in a raid on Japanese-held Hong Kong. After spotting 24 Japanese fighters poised to attack the bombers, Hill rolled his P-40—No. 48—on its back and dived to shoot down one of the enemy fighters closest to the bombers. Then he and his squadron mates repeatedly attacked the remaining Japanese fighters, driving them off with heavy losses. All the bombers returned, with only one suffering any damage.

At 87, Tex retains the characteris-



Life magazine ran several photos of Hill—including this one—as part of a March 1942 feature on the American Volunteer Group in Burma.

tics that made him a leading ace and brilliant unit commander for Chennault's immortal American Volunteer Group, the original Flying Tigers. He is still as tall and lean as a Texas cowboy, with a quick wit and an upbeat remark for everything. His memory is phenomenal—he can whip through a foot-high stack of photographs from 60 years of flying and call off where and when the photo was taken, along with the name of everyone shown.

Ready To Go

With every photo comes an anecdote or two. In listening to his sharp

recounting of events, you get the very real sense that if his country needed him to climb back into a P-40 and go into combat once again, he would do it and do it well.

As Tex approaches his ninth decade, he conveys a profound sense of well being, one that he attributes to his beloved wife, Mazie. Tex also gives credit for much of his success to the teachings of his parents, who were missionaries in Korea. Tex was born at Kwangju, Korea, on July 13, 1915, the youngest of four children. The family returned to the United States when Tex was 15 months old, spending time in Virginia and Kentucky before moving on to San Antonio in 1921.

It was in that Texas city that his father, Pierre Bernard Hill, combined two unlikely careers. As a minister, he succeeded in building up the First Presbyterian Church so rapidly that he had to establish five satellite churches around San Antonio to handle the congregation. He then began a weekly radio program that he conducted for 37 years, one of the longest running radio shows in history. And from 1925 on, the elder Hill also functioned as chaplain to the Texas Rangers. Photos show him to be truly tall in the saddle, the very picture of a gun-slinging captain in the fabled mounted law enforcement unit. As a special favor, Tex will proudly bring out the engraved Colt .45 revolver Reverend Hill carried for 25 years.

"P.B." Hill spent lots of time with



A 1991 reunion of the 23rd Fighter Group—which traces its roots to the Flying Tigers—included, from left, Joe Brown, Robert Scott, and Tex Hill (in blue shirt).

Tex and his two brothers, Sam and John, taking them camping and teaching them to hunt. Tex's sister, Martha, was spared the long hunting trips where Tex learned to shoot, a skill that helped him to win 18 victories in aerial combat. His father gave him his basic moral outlook and the sense of independence that has served him well in war and peace, and it was from P.B. Hill that Tex acquired the singleness of purpose that permitted him to carry on in combat despite being ill with dysentery and malaria.

Tex found that his rigorous but loving upbringing had given him a natural affinity for service life, and he enjoyed attending a series of military schools. He graduated from the San Antonio Academy in 1928 and the McCallie School in Chattanooga, Tenn., in 1934. There, he picked up the nickname "Tex" as he won letters in football and basketball and became middleweight boxing champion of Tennessee. Hill went to Texas A&M and Austin College, from which he graduated in 1938, determined to have a career in military aviation.

Turned Down by Army

For reasons he never learned, Tex was turned down for flying training with the Army Air Corps, so he entered the US Navy and won his wings of gold in 1939.

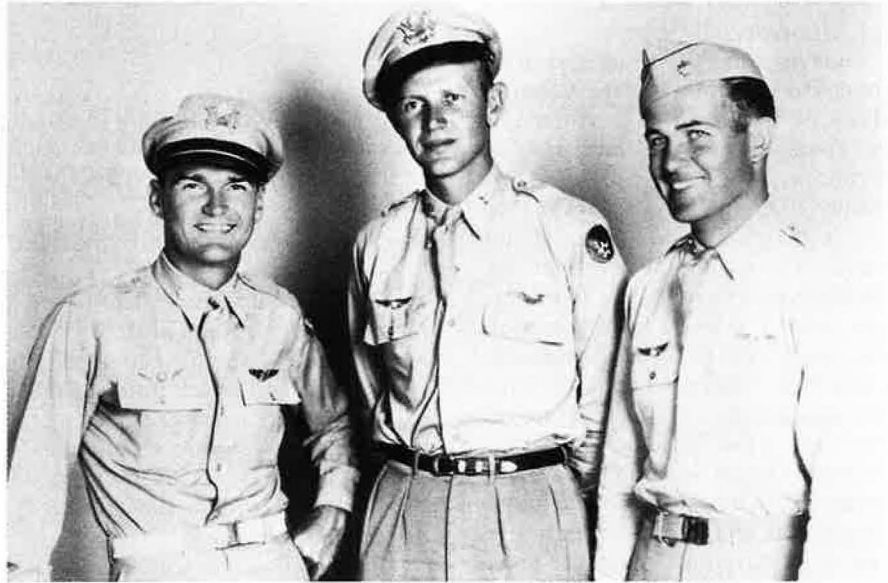
While in the Navy at Pensacola,

Fla., Tex started out well in Class 121-C with a good-natured instructor, Lt. Don Frasier. Then Frasier went on extended leave, and Tex was given a grouchy instructor who disliked his manner. After a few miserable hours at cross-purposes, he put Tex up for a check ride. Tex failed the check and the one that followed it. Tex Hill was on his way out of the Navy, and the United States was about to lose a great ace. However, Frasier heard of the situation and returned from leave to intervene. A few hours with Frasier gave

Tex the confidence he needed, and he never had another problem.

Upon graduation, he was sent to USS *Saratoga* to fly the TBD-1 Devastator torpedo airplane, and then later, he went to USS *Ranger* to fly SB2U Vindicator dive-bombers. Ironically, the dive-bombing training he received would prove invaluable with the Flying Tigers; it enabled him to halt, almost single-handedly, a Japanese ground offensive.

Tex actually "went to war" with the Navy, flying neutrality patrol missions from both the *Ranger* and



Hill is flanked by Charles Bond and Edward Rector. Bond was vice squadron leader in the Flying Tigers' No. 1 Squadron. Rector was vice squadron leader in Hill's No. 2 Squadron and had flown with him from Ranger and Yorktown.



The Flying Tigers endured austere conditions. The caption for this photo of a P-40 at an airfield in China said these Warhawks "climbed off the muddy fields at 100 roaring, bumpy miles per hour."

USS *Yorktown*. The young aviator loved the Navy but could not resist the siren call of retired Navy Cmdr. Rutledge Irvine who was recruiting pilots to join a new and mysterious organization—the American Volunteer Group. The AVG had the covert backing of President Roosevelt, and its mission was to defend the Burma Road from the threat of Japanese aircraft. In a single package, Irvine offered to Tex some adventure, fighters to fly, a long-sought return to the Far East, and unbelievably high pay (\$600 a month for wingmen, more for flight and squadron leaders—about three times his Navy pay). Unofficially, a \$500 bonus was promised for every Japanese aircraft shot down.

The deal was irresistible, even when the downside was revealed. If you are shot down and captured,

he was told, you are on your own, for the United States would deny all knowledge of the AVG's existence.

Much against their CO's wishes, Hill and six *Ranger* shipmates signed. At the time, the *Ranger* was the only US carrier really ready to go to war. Of this group, two would be killed in early action. John Armstrong died in a midair accident. Bert Christman, an artist who drew the popular "Scorchy Smith" cartoon strip, was murdered in his parachute harness after bailing out Jan. 23, 1942. The remaining five enrollees from the *Ranger* together would account for at least 36 aerial victories.

The trip from the *Ranger* to Rangoon, Burma, took several months. Many of the new AVG volunteers had grown almost mutinous from the boredom, but Tex enjoyed every minute of the trip, keeping up morale with his infectious smile and practical jokes. All the boredom vanished when the group reached Toungoo, some 170 miles from Rangoon, and met for the first time the charismatic Col. Claire Chennault, their new commander. It was clear to Tex that they were in luck; Chennault obviously knew what he was talking about. That certainty would never change for the rest of Tex's life. Today, his belief in Chennault's wisdom and tactical genius is as strong as ever.

The story of Chennault and the AVG is well-known (see, for example, "Flying Tiger, Hidden Dragon," March 2002, p. 70), but it is difficult to understand the profound effect of Chennault's personality until you hear Tex Hill describe the man and his methods.

Outnumbered

Chennault drilled his ideas about combat into the heads of his volunteers with 60 hours of extemporaneous lectures that kept them on the edge of their seats—even in the hot Burmese fall of 1941. Unsmiling, his craggy face totally intent on the class, Chennault laid it on the line. They were outnumbered, the Curtiss P-40B was not a particularly good fighter, and they were short on parts.

In contrast, Japanese airmen had much more maneuverable fighters, plenty of bombers, and a well-organized supply train. Japanese pilots,



After the Flying Tigers were deactivated, Hill stayed on with Claire Chennault and accepted a commission as a major. When this photo was taken, circa 1943–44, Hill was commanding the 23rd FG at Kweilin, China.

moreover, were nothing like the Stateside stereotype of eyeglass-wearing incompetents. They were, in fact, highly trained professionals, already tested in combat against both China and the Soviet Union. Chennault did observe, however, that while the Japanese were superb in executing a preplanned mission, they lacked initiative when someone seriously disrupted their plans.

The good news was that, with Chennault's tactics, the AVG had the combat edge. Under his tutelage the AVG would use the P-40's strong points against the weak points of the enemy; this was asymmetric warfare, 1941 style.

The P-40s were to fight in two-ship formations, a clear forerunner of the more famous Thach Weave developed by the Navy. Chennault pointed out that the P-40 was fast, rugged, and had good firepower. The AVG would use these advantages and minimize the P-40's weaknesses by *never* engaging in a turning dogfight with the enemy. Instead, the P-40 would attack from above, dive toward the enemy formation, open fire, then dive on through the formation, using the speed gained to climb back to altitude for another attack.

Chennault's description: "Dive, squirt, pass, run."

In those cases in which the P-40 did wind up in a head-on pass at the enemy, the P-40 still had the advantage, for its Allison engine and ar-

mor protected the AVG pilot to a far greater degree than the engines and almost nonexistent armor of the Japanese fighters protected Japan's airmen.

These tactics might have lacked the glamour that always has been imputed to World War I dogfights, but the AVG used them to run up a 15-to-1 favorable kill ratio.

In his lectures, Chennault emphasized that the 99 aircraft on hand were precious, because they were not going to be replaced anytime soon. The 99 aircraft were soon reduced via attrition, and there grew in the young Tex Hill an admiration for the ground crews who serviced the remaining airplanes and kept them going without tools, making parts when no replacements were available and always having just enough aircraft on the line to meet the threat. Tex recalls that sometimes there were only four aircraft available to fly and that the AVG never put more than 16 in the air at a time.

Heart and Soul

To this day, Tex Hill will argue forcefully that the heart and soul of the Flying Tiger organization was its complement of crew chiefs, mechanics, armament personnel, radio men, and others who never received the fame of the pilots but without whom the operation would have failed in its first weeks. With a big laugh he asks, "How would you like to have Gerhard Neumann for a crew

chief?" Known as "Herman the German" in the AVG, Neumann went on to become a famous designer of jet engines, including the J79, one of the first engines with fully interchangeable modules. The crew chiefs were also undeniably brave. Tex recalls that when the P-40s were moved to auxiliary airfields, the crew chiefs often went with them—in the baggage compartment.

Chennault divided the AVG into three squadrons. No. 1 Squadron became the "Adam and Eves," a play on the idea of the "first pursuit." No. 2 Squadron was the "Panda Bears," while No. 3 became the "Hell's Angels" after Howard Hughes's epic World War I aviation film. With about 800 hours of flying time, Tex had the flying skills necessary to start out as a flight leader in the Panda Bears. Converting to the long-nosed P-40 had not been difficult. Tex compared it to the Devastator and the Vindicator and found that it was wonderfully maneuverable.

Japan Advances

With the attack on Pearl Harbor, Imperial Japan began its military rampage across the Pacific. Members of the AVG, like the rest of the world, were startled by its ferocity. Chennault realized immediately that the AVG was likely to be a Japanese target, and he initiated protective patrols. Ten days later, the 1st and 2nd squadrons were sent to Kunming, China, while the 3rd squadron was

detached to Rangoon to assist British forces there. Great mobility would prove to be an AVG strength as the forces moved from one auxiliary base to the next.

The AVG pilots found the facilities at Kunming to be considerably more comfortable than those they had left behind in Burma. More importantly, Chennault's foresight had provided the AVG with another advantage, primitive in the extreme, but almost as effective as radar. Most of the Chinese villages, even the smallest, had access to either a telegraph or a telephone. Observers in these villages would report the sight or sounds of aircraft. They would call in to the field where a squadron was located, noting "loud noises" (usually meaning bombers) or just "noise" (usually fighters). If they actually saw aircraft, they would report numbers and direction. At the squadron, there would be a map of the area with the field in the center of a series of concentric rings, each 31 miles apart and extending out to 186 miles. As the calls came in, flags would be placed on the map. Three or four calls would clearly indicate the direction and airspeed of the attacking force. When the enemy reached the 93-mile ring, the P-40s would launch with time to climb to their best altitude—18,000 feet.

The system had other uses, including reporting of the weather. If a pilot became lost, he could call Chennault and describe the terrain

over which he was flying. Chennault could usually tell him where he was. Alternatively, if he found a village, he would fire his guns; there would be a prompt report from the local Chinese ground station, and the pilot would then get a heading for home.

First Blood

Well-drilled on Chennault's concepts of air combat, the AVG went into air-to-air combat for the first time Dec. 20, 1941. An incoming Japanese raid was handled roughly by the AVG, which shot down four out of 10 of the attacking Kawasaki Ki-48 "Lily" bombers. Some sources claim another five crashed on their return flight.

It is impossible to convey today just how good this news sounded to the people of the United States, which was still reeling from a succession of defeats after Pearl Harbor. Here, at last, was an arena in which the Americans were defeating the seemingly unbeatable Japanese. An account of the battle in the Dec. 29, 1941, issue of *Time* magazine bestowed the immortal name "Flying Tigers" on Chennault's fighters.

Tex's reactions to the victory were thoroughly mixed. He was delighted for the unit but miserable that he had not been able to take part, and he was absolutely desolate at the news that his close friend Ed Rector was missing. Fortunately, Rector had been able to make a precautionary landing at an auxiliary field and soon reported back for duty.

Tex scored his first aerial victories on his first combat mission, which took place Jan. 3, 1942. Led by No. 2 Squadron leader Jack Newkirk and flying on Jim Howard's wing, Tex strafed Tak airfield at Raheng, Thailand. It is fascinating to watch him recall the incident, eyes flashing, neck swiveling as if to make sure no one's on his tail, hands constantly moving, pushing the throttle forward or "flying formation," one hand behind the other, swooping in for the kill.

"We went in string," Tex said. "The first thing I knew was that there were more than three of us in that pattern. Then this guy came in between me and Jim Howard and got on his tail. I pulled up behind him; I was so damn excited I didn't even



Hill climbs into the cockpit of a well-used P-51. Though beaten up, the Mustangs had the range lacking in the P-40s. They bore the distinctive shark teeth markings of the Flying Tigers.

think about looking at those damn gun sights. Just flew right up on his tail and hosed the tracers on to him. He just flat blew up.”

As he spoke the word “hosed,” Tex made a circle with his two big hands and extended it forward, clearly recalling the line of fire smashing into the enemy aircraft.

“This all happened in less than a minute,” he continued, “because, simultaneously, this guy came down in an overhead pass on me. I pulled up, and there was another guy coming head on. I shot him down, but his bullets stuck in my prop, and I had to throttle back to keep the engine from jumping out of the airframe.”

Dodging 33 Bullets

When he landed, Tex counted a total of 33 bullet holes in his aircraft. In both of his kills, he had been up against nimble Type 97 fighters. Later in the war, Hill had the opportunity to cram himself into the undersized cockpit of a captured Japanese aircraft and fly it. He still marvels at its simple systems, from its throttle that worked in reverse to American practice to its almost unbelievable maneuverability. Later in his career, he also got to fly a Ki-43 “Oscar,” making a dead-stick landing with it at Bakersfield, Calif.

On Jan. 23, 1942, Tex got into another fight. He and Frank “Whitey” Lawlor were all that stood between a formation of 24 Japanese attackers



Hill led this low-level strike on the airfield at Shinchiku, Formosa, on Thanksgiving 1943. Note the bombers lined up, many of them on fire. The raid left 43 enemy airplanes burning on the ground, 15 shot down in the air.

and Burma’s Mingaladon airfield, where AVG and Royal Air Force aircraft were being serviced. With repeated dive and zoom attacks, Hill and Lawlor broke up the Japanese formation, Tex scoring two kills and getting a series of 20 mm hits in his right wing in the process. Lawlor also got two kills.

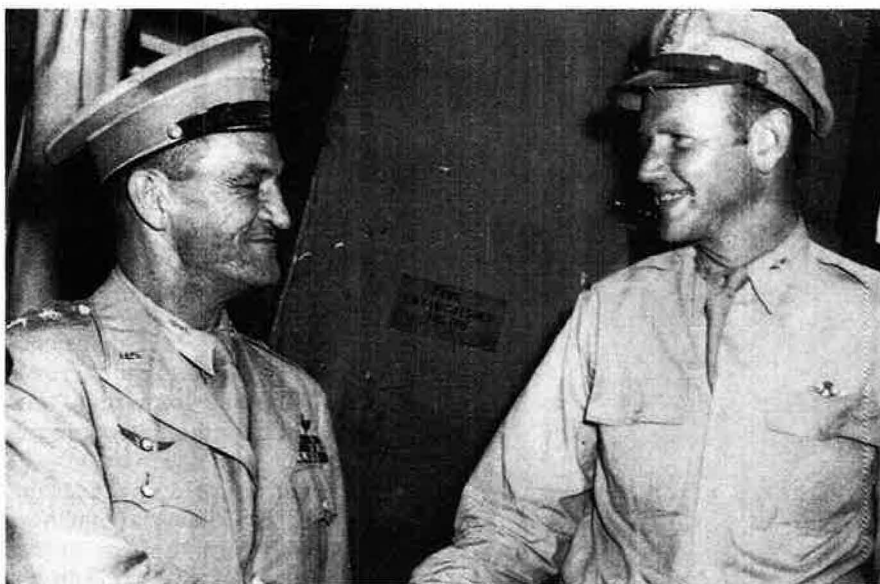
Just three weeks after he had entered combat, Tex Hill was an ace, with victories over five fighters and one bomber.

Meantime, Newkirk had a premonition that he would not survive the war. He wrote a letter recommend-

ing to Chennault that, in the event of his death, he should name Tex Hill to succeed him. When Newkirk was killed on a strafing attack March 24, 1942, Tex took over leadership of the squadron. He was a natural at command.

He had already convincingly demonstrated his leadership skills, in the air and on the ground, and was as popular with the troops on the line as he was with his squadron mates. Tex’s natural affability made things easier for people operating under the tough conditions of combat, for he exuded the same easygoing informality that had irritated the Navy instructor in Pensacola. Perhaps more important, everyone knew that his genial exterior concealed a tough interior, a fighter devoted to the destruction of the enemy. His pilots knew that Tex Hill would never assign to them a mission that he himself could not do, just as his ground crews knew that he would never ask them to work harder or longer hours than he did. Most of all, they knew he never lied. If Tex said it, it was so.

Tex Hill notched seven more victories before the Flying Tigers were officially deactivated July 4, 1942, but some of his air-to-ground activity was even more remarkable than his air-to-air work. On May 7, 1942, Tex led four former Navy shipmates in newly arrived P-40Es in a dive-bombing attack to block a Japanese advance along the Burma Road into China. Carrying 570-pound Russian



Chennault and Hill exchange greetings in New Orleans. Hill retains his respect for Chennault, who trained the American volunteer pilots well in tactics that capitalized on the strengths of their aircraft.



Former AFA Board Chairman and National President O.R. Crawford flies this P-40N painted in the markings of Tex Hill's Flying Tiger Warhawk. One of the few P-40s still flying, it wows the crowds, as does Tex himself.

bombs provided by China, Tex's flight dive-bombed the route from the Salween gorge all the way to the bridge across the Salween River. The big Russian bombs caused the road to collapse, trapping the Japanese armor and troops. Then, over the next four days, the AVG continuously strafed the bottled-up force. It was a unique airpower victory, one described by Claire Chennault as "staving off China's collapse on the Salween."

Finest Hour

Tex Hill's finest hour was yet to come. Despite his long service in the heat of battle, and disregarding the fact that he was ill with malaria, Tex was among the five officers who elected to stay on with Chennault when the AVG was deactivated. He could have returned to the United States without prejudice, regained his health, and then returned to combat in another theater. Instead, Tex accepted a commission as a major and was given command of the 75th Fighter Squadron, part of the 23rd Fighter Group.

Tex trained the 75th as he led it on one difficult mission after another. These included long-range raids on Hankow, China, and Hong Kong. His knowledge of the territory allowed him to carry out night missions, flying underneath the overcast, just skimming the surface of the rivers as they led him directly to Japanese targets.

Tex Hill finally returned to the United States on Dec. 5, 1942, after 18 months in combat. He was given command of the Proving Ground Group at Eglin Field, Fla., where his combat experience was used to evaluate fighters. He fully recovered from his health problems, and soon he answered Chennault's call to duty once again, returning to China in October 1943 to command the 23rd Fighter Group.

Tex would run up six more victories with the 23rd and lead bombing forays in which he sank two and perhaps three Japanese ships. He is proudest of the raid he led on Formosa, striking at Japanese territory for the first time since the Doolittle raid of April 18, 1942. Tex commanded the mission on Thanksgiving Day, Nov. 25, 1943, in one of the "new" P-51As that the 23rd had acquired. Actually the badly beaten-up Mustangs were almost worn out, but they had the range the P-40s lacked.

In this mission, Tex led a formation of eight Mustangs, eight P-38s, and 14 B-25s low across the strait of Formosa. Hill recalls it as a mission in which life or death depended totally on surprise. If they got to the airfield at Shinchiku without being

detected, they would succeed; if the Japanese were warned by radar or picket ship, the chances were great that no aircraft would make it back to China.

After a long flight—the final 100 miles of it flown no more than 100 feet off the deck—the raiders did achieve surprise, in part because Tex had diverted one P-38 to dispatch an intruding Japanese transport aircraft. Once they reached the target airfield, Tex sent the remaining P-38s against a group of landing bombers while the B-25s pulled up to 1,000 feet to drop their parafrags. He led the Mustangs down to strafe, whipping up at the end of a pass to shoot down a Japanese Zero.

After another attack, the American fighters followed the B-25s back to China. Behind them they left the smoking ruins of an airfield, with 43 Japanese bombers burned on the ground and another 15 enemy aircraft shot out of the air. This was warfare the way Tex liked to fight it—hurting the enemy badly and not losing any of his own troops.

Tex returned to the United States again in November 1944, to command the 412th Fighter Group, the US Army Air Forces' first jet group. He left active duty in 1946 and returned home to his family and to ranching. Soon, however, he was appointed to be the youngest one-star general in the history of the Texas National Guard, commanding the 58th Fighter Wing.

In recent years he has spent a great deal of time at air shows, where he draws crowds that admire him and the beautiful P-40N painted in his AVG colors. He spends much of his effort in educating the young and, of course, is in demand at every gathering of aces. Still as sharp as an 18-victory ace had to be, Tex has retained his affable manner but is still more than able to render sharp opinions on the past and the future. Beneath that friendly exterior beats the heart of a warrior, still vitally concerned about his country and still serving it to the very best of his considerable ability. ■

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 Best of Wings. His latest article for Air Force Magazine, "Fifty Years of the B-52," appeared in the December 2001 issue.

Industrial Associates



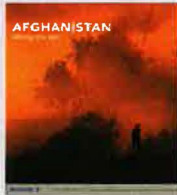
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Books

Compiled by Chequita Wood, Editorial Associate

Afghanistan: Lifting the Veil. Jim Boyd, ed. Reuters and Prentice Hall PTR, Upper Saddle River, NJ (800-282-0693). 260 pages. \$29.00.



Enhancing Dynamic Command and Control of Air Operations Against Time Critical Targets. Myron Hura, et al. RAND, Santa Monica, CA (877-584-8642). 51 pages. \$20.00 (also available at www.rand.org/publications).



Once Upon a Town: The Miracle of the North Platte Canteen. Bob Greene. William Morrow, New York (212-207-7000). 264 pages. \$24.95.



AH-1 Cobra: Walk Around No. 29. Wayne Mutza. Squadron/Signal Publications, Carrollton, TX (800-527-7427). 79 pages. \$14.95.



The French Air Service War Chronology, 1914–1918: Day-to-Day Claims and Losses by French Fighter, Bomber, and Two-Seat Pilots on the Western Front. Frank W. Bailey and Christophe Cony. Seven Hills Book Distributors, Cincinnati (800-545-2005). 327 pages. \$49.95.



Space Weapons, Earth Wars. Bob Preston, et al. RAND, Santa Monica, CA (877-584-8642). 201 pages. \$25.00 (also available at www.rand.org/publications).

Air Power for Patton's Army: The XIX Tactical Air Command in the Second World War. David N. Spires. Supt. of Documents, Pittsburgh (866-512-1800). 377 pages. \$39.00.



General Chennault's Replacement Crews: The 373rd Bomb Squadron (LAB) From China to Okinawa. Bruce S. Sholl. Xlibris, Philadelphia (888-795-4274). 305 pages. \$29.69.



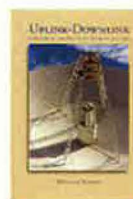
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Australia's Vietnam War. Jeff Doyle, Jeffrey Grey, and Peter Pierce. Texas A&M University Press, College Station, TX (800-826-8911). 218 pages. \$39.95.



Grumman A-6 Intruder: WarbirdTech Series Vol. 33. Dennis R. Jenkins. Specialty Press Publishers and Wholesalers, North Branch, MN (800-895-4585). 104 pages. \$16.95.

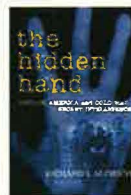


Uplink-Downlink: A History of the Deep Space Network, 1957–1997. Douglas J. Mudgway. Supt. of Documents, Pittsburgh (866-512-1800). 674 pages. \$82.00.

Defending America: The Case for Limited National Missile Defense. James M. Lindsay and Michael E. O'Hanlon. Brookings Institution Press, Washington, DC (800-275-1447). 258 pages. \$24.95.



The Hidden Hand: Britain, America, and Cold War Secret Intelligence. Richard J. Aldrich. The Overlook Press, New York (800-473-1312). 733 pages. \$40.00.



US Heavy Cruisers in Action, Part 2: Warships No. 15. Al Adcock. Squadron/Signal Publications, Carrollton, TX (800-527-7427). 49 pages. \$9.95.



Eisenhower: A Soldier's Life. Carlo D'Este. Henry Holt & Co., New York (888-330-8477). 848 pages. \$35.00.



Me 163: Rocket Interceptor, Vol. 1. Stephen Ransom and Hans-Hermann Cammann. Specialty Press Publishers and Wholesalers, North Branch, MN (800-895-4585). 224 pages. \$49.95.



Vietnam Air Losses: United States Air Force, Navy, and Marine Corps Fixed-Wing Aircraft Losses in Southeast Asia 1961–1973. Chris Hobson. Specialty Press Publishers and Wholesalers, North Branch, MN (800-895-4585). 288 pages. \$29.95.

AFA State Contacts



Following each state name are the names of the communities in which AFA chapters are located. Information regarding chapters or any of AFA's activities within the state may be obtained from the appropriate contact.

ALABAMA (Birmingham, Huntsville, Montgomery): **Greg Schumann**, 4603 Colewood Cir., Huntsville, AL 35802 (phone 256-337-7185).

ALASKA (Anchorage, Fairbanks): **Bart LeBon**, P.O. Box 73880, Fairbanks, AK 99707 (phone 907-452-1751).

ARIZONA (Green Valley, Luke AFB, Phoenix, Prescott, Sedona, Sierra Vista, Tucson): **Arthur W. Gigax**, 3325 S. Elm St., Tempe, AZ 85282-5765 (phone 480-838-2278).

ARKANSAS (Fayetteville, Hot Springs, Little Rock): **Jerry Reichenbach**, 501 Brewer St., Jacksonville, AR 72076-4172 (phone 501-988-3602).

CALIFORNIA (Apple Valley, Bakersfield, Edwards AFB, Fairfield, Fresno, Los Angeles, Merced, Monterey, Orange County, Palm Springs, Pasadena, Riverside, Sacramento, San Diego, San Francisco, Sunnyvale, Vandenberg AFB, Yuba City): **John F. Wickman**, 1541 Martingale Ct., Carlsbad, CA 92009 (phone 760-476-9807).

COLORADO (Colorado Springs, Denver, Fort Collins, Grand Junction, Pueblo): **Chuck Zimkas**, 729 Crew Dr., Colorado Springs, CO 80911 (phone 719-576-8000).

CONNECTICUT (Brookfield, East Hartford, Waterbury, Westport, Windsor Locks): **Wayne Ferris**, P.O. Box 523, East Granby, CT 06026 (phone 860-292-2560).

DELAWARE (Dover, New Castle County): **Ronald H. Love**, 8 Ringed Neck Ln., Camden Wyoming, DE 19934-9510 (phone 302-739-4696).

DISTRICT OF COLUMBIA (Washington): **Rosemary Pacenta**, 1501 Lee Hwy., Arlington, VA 22209-1198 (phone 703-247-5820).

FLORIDA (Avon Park, Broward County, Daytona Beach, Fort Walton Beach, Gainesville, Homestead, Hurlburt Field, Jacksonville, Miami, New Port Richey, Orlando, Palm Harbor, Panama City, Patrick AFB, Pensacola, Tallahassee, Tampa, Vero Beach, West Palm Beach): **Bruce E. Marshall**, 9 Bayshore Dr., Shalimar, FL 32579-2116 (phone 850-651-8155).

GEORGIA (Atlanta, Augusta, Savannah, Valdosta, Warner Robins): **Mike Bolton**, 1521 Whitfield Park Cir., Savannah, GA 31406 (phone 912-966-8295).

HAWAII (Honolulu, Maui): **Michael E. Solomon**, 98-1217 Lupea St., Aiea, HI 96701-3432 (phone 808-292-2089).

IDAHO (Mountain Home): **Donald Walbrecht**, 1915 Bel Air Ct., Mountain Home, ID 83647 (phone 208-587-2266).

ILLINOIS (Belleville, Chicago, Galesburg, Moline, Springfield-Decatur): **Frank Gustine**, 988 Northwood Dr., Galesburg, IL 61401 (phone 309-343-7349).

INDIANA (Bloomington, Columbus, Fort Wayne, Grissom ARB, Indianapolis, Lafayette, Marion, Mentone, Terre Haute): **William Howard Jr.**, 202 NW Passage Trail, Fort Wayne, IN 46825-2082 (phone 260-489-7660).

IOWA (Des Moines, Sioux City, Waterloo): **Norman J. Beu**, 903 Blackhawk St., Reinbeck, IA 50669-1413 (phone 319-345-6600).

KANSAS (Garden City, Topeka, Wichita): **Samuel M. Gardner**, 1708 Prairie Park Ln., Garden City, KS 67846-4732 (phone 620-275-4555).

KENTUCKY (Lexington, Louisville): **Edward W. Tonini**, 12 Eastover Ct., Louisville, KY 40206-2705 (phone 502-897-0596).

LOUISIANA (Baton Rouge, Shreveport): **Peyton Cole**, 2513 N. Waverly Dr., Bossier City, LA 71111-5933 (phone 318-742-8071).

MARYLAND (Andrews AFB, Baltimore, College Park, Rockville): **Andrew Veronis**, 119 Bond Dr., Annapolis, MD 21403-4905 (phone 410-455-3549).

MASSACHUSETTS (Bedford, Boston, East Longmeadow, Falmouth, Taunton, Westfield, Worcester): **Donald B. Warmuth**, 136 Rice Ave., Northborough, MA 01532 (phone 508-393-2193).

MICHIGAN (Alpena, Battle Creek, East Lansing, Kalamazoo, Marquette, Mount Clemens, Traverse City, Southfield): **James W. Rau**, 466 Marywood Dr., Alpena, MI 49707 (phone 989-354-2175).

MINNESOTA (Duluth, Minneapolis-St. Paul): **Richard Giesler**, 16046 Farm to Market Rd., Sturgeon Lake, MN 55783-9725 (phone 218-658-4507).

MISSISSIPPI (Biloxi, Columbus, Jackson): **Leonard R. Vernamonti**, 1860 McRaven Rd., Clinton, MS 39056-9311 (phone 601-925-5532).

MISSOURI (Kansas City, St. Louis, Springfield, Whiteman AFB): **John D. Miller**, HCR 77, Box 241-5, Sunrise Beach, MO 65079-9205 (phone 573-374-6977).

MONTANA (Bozeman, Great Falls): **Al Garver**, 203 Tam O'Shanter Rd., Billings, MT 59105 (phone 520-749-9864).

NEBRASKA (Lincoln, Omaha): **Richard Gaddie**, 7240 41st St., Lincoln, NE 68516-3063 (phone 402-472-3605).

NEVADA (Las Vegas, Reno): **Kathleen Clemence**, 35 Austrian Pine Cir., Reno, NV 89511-5707 (phone 775-849-3665).

NEW HAMPSHIRE (Manchester, Portsmouth): **Eric P. Taylor**, 17 Foxglove Ct., Nashua, NH 03062 (phone 603-883-6573).

NEW JERSEY (Andover, Atlantic City, Camden, Chatham, Forked River, Ft. Monmouth, Jersey City, McGuire AFB, Newark, Old Bridge, Trenton): **Ethel Mattson**, 27 Maple Ave., New Egypt, NJ 08533-1005 (phone 609-758-2885).

NEW MEXICO (Alamogordo, Albuquerque, Clovis): **Peter D. Robinson**, 1804 Liano Ct. N.W., Albuquerque, NM 87107 (phone 505-343-0526).

NEW YORK (Albany, Binghamton, Buffalo, Jamestown, Nassau County, New York, Queens, Rochester, Staten Island, Syracuse, Westhampton Beach, White Plains): **Timothy G. Vaughan**, 7198 Woodmore Ct., Lockport, NY 14094 (phone 716-236-2429).

NORTH CAROLINA (Asheville, Charlotte, Fayetteville, Goldsboro, Kitty Hawk, Raleigh, Wilmington): **Gerald V. West**, 4002 E. Bishop Ct., Wilmington, NC 28412-7434 (phone 910-791-8204).

NORTH DAKOTA (Fargo, Grand Forks, Minot): **James M. Crawford**, 1720 9th St. S.W., Minot, ND 58701-6219 (phone 701-839-7268).

OHIO (Cincinnati, Cleveland, Columbus, Dayton, Mansfield, Youngstown): **Fred Kubli**, 823 Nancy St., Niles, OH 44446-2729 (phone 330-652-4440).

OKLAHOMA (Altus, Enid, Oklahoma City, Tulsa): **Don Johnson**, 309 Camino Norte, Altus OK 73521-1183 (phone 580-482-1387).

OREGON (Eugene, Klamath Falls, Portland): **John Lee**, P.O. Box 3759, Salem, OR 97302 (phone 503-581-3682).

PENNSYLVANIA (Allentown, Altoona, Coraopolis, Drexel Hill, Harrisburg, Johnstown, Lewistown, Monessen, Philadelphia, Pittsburgh, Scranton, Shiremanstown, York): **Bob Rutledge**, 295 Cinema Dr., Johnstown, PA 15905-1216 (phone 724-235-4609).

RHODE ISLAND (Newport, Warwick): **Wayne Mrozinski**, 90 Scenic Dr., West Warwick, RI 02893-2369 (phone 401-841-6432).

SOUTH CAROLINA (Charleston, Clemson, Columbia, Myrtle Beach, Sumter): **Roger Rucker**, 112 Mallard Pt., Lexington, SC 29072-9784 (phone 803-359-1171).

SOUTH DAKOTA (Rapid City, Sioux Falls): **Ronald W. Mielke**, 4833 Sunflower Trail, Sioux Falls, SD 57108 (phone 605-339-1023).

TENNESSEE (Chattanooga, Knoxville, Memphis, Nashville, Tullahoma): **Joseph E. Sutter**, 5413 Shenandoah Dr., Knoxville, TN 37909-1822 (phone 423-588-4013).

TEXAS (Abilene, Amarillo, Austin, Big Spring, College Station, Commerce, Dallas, Del Rio, Denton, Fort Worth, Harlingen, Houston, Kerrville, San Angelo, San Antonio, Wichita Falls): **Dennis Mathis**, P.O. Box 8244, Greenville, TX 75404-8244 (phone 903-455-8170).

UTAH (Clearfield, Ogden, Salt Lake City): **Brad Sutton**, 5221 West Rendezvous Rd., Mountain Green, UT 84050-9741 (phone 801-721-7225).

VERMONT (Burlington): **Dick Strifert**, 4099 McDowell Rd., Danville, VT 05828 (phone 802-338-3127).

VIRGINIA (Alexandria, Charlottesville, Danville, Langley AFB, McLean, Norfolk, Petersburg, Richmond, Roanoke, Winchester): **Bill Anderson**, 3500 Monacan Dr., Charlottesville, VA 22901-1030 (phone 804-295-9011).

WASHINGTON (Seattle, Spokane, Tacoma): **Tom Hansen**, 8117 75th St. S.W., Lakewood, WA 98498-4819 (phone 253-984-0437).

WEST VIRGINIA (Charleston, Fairmont): **Jack G. Richman**, 13 Park Dr., Fairmont, WV 26554 (304-367-1699).

WISCONSIN (Madison, Milwaukee, General Mitchell IAP/ARS): **Chuck Marotske**, 5406 Somerset Ln. S., Greenfield, WI 53221-3247 (phone 414-325-9272).

WYOMING (Cheyenne): **Stephan Pappas**, 2617 E. Lincolnway, Ste. A, Cheyenne, WY 82001 (phone 307-637-5227).

By Frances McKenney, Assistant Managing Editor

Close up at AFSOC

At the invitation of Lt. Gen. Paul V. Hester, commander of Air Force Special Operations Command, the Air Force Association's top leaders spent two days in May at Hurlburt Field, Fla., receiving an orientation on the AFSOC mission.

Thomas J. McKee, AFA National Chairman of the Board, and John J. Politi, AFA National President, were greeted at the airport by Emil M. Friedauer, **Hurlburt Chapter** president.

McKee and Politi began their visit by having breakfast with a group of enlisted troops, followed by AFSOC and issues briefings. They met with junior officers and senior NCOs and visited several special ops units. They capped the day by flying on a live fire exercise in an MH-53 Pave Low and in an AC-130U gunship.

The 16th Special Operations Wing was the focus of their second day at Hurlburt. Activities included visits to the Commando Pride Airman Center and to the airman leadership school, a tour of family housing and dormitories, and demonstrations of weapons and special operations scenarios.

McKee and Politi completed their visit to Hurlburt by having dinner with several local AFA officials, including Bruce E. Marshall, Florida region president; Raymond Turczynski Jr., state secretary; David M. Loar, chapter vice president; Richard Schaller, chapter secretary; and Sherill Donaldson, chapter treasurer.

C²ISR Summit

Air Force Chief of Staff Gen. John P. Jumper headed the list of speakers at the first Command and Control, Intelligence, Surveillance, and Reconnaissance Summit. It was sponsored by the **Paul Revere (Mass.) Chapter**.

More than 800 participants—including almost all of USAF's four-stars—attended the four days of events in April in Danvers, Mass. The turnout was several hundred more than the chapter expected, and chapter member Charles F. Paone said organizers scrambled to accommodate those on a waiting list.



AFA National Chairman of the Board Thomas McKee (left) and AFA National President John Politi (center), with their wives, Trisha McKee and Terri Politi, get a briefing on contingency operations from Maj. Kurt Buller (at right) and Maj. James Johnson during an AFSOC orientation tour.

"We saw both an opportunity and a need" for such a summit, said Joe B. Bisognano, chapter president, commenting on why the chapter organized the event. "Along with our counterparts at the Electronic Systems Center [Hanscom AFB, Mass.], we decided that it made a lot of sense to bring Air Force and industry leaders together to carry on a constructive dialogue about C²ISR integration."

The summit included speeches, panel outbriefings, and about 50 industry exhibits of C²ISR products and services.

Air Armament Summit

Secretary of the Air Force James G. Roche was the keynote speaker for the gala dinner held as a culmination of the fourth annual Air Armament Summit, co-sponsored by the **Eglin (Fla.) Chapter** and the Air Armament Center of Eglin AFB, Fla.

Roche spoke about Air Force resources committed to Operations Enduring Freedom and Noble Eagle, as well as to the ongoing Operations Northern and Southern Watch.

The three-day summit was held in March in Sandestin, Fla. Other speakers who addressed this year's theme of "Strengthening the Sword" included Gen. Ralph E. Eberhart, commander in chief of NORAD and US Space Command, Gen. Hal M. Hornburg, Air Combat Command commander, Gen. Lester L. Lyles, commander of Air Force Materiel Command, and Gen. Gregory S. Martin, commander of US Air Forces in Europe.

As co-sponsor, the chapter set up a Web page for the symposium, helped with registration and protocol, handled the funds, and arranged for venues and catering.

Among the approximately 400 guests from the military, industry, and academic sectors was Eglin Chapter member Norman S. Drake, who wrote to say the presentations reminded him of his days as division chief and deputy in the Air Force Armaments Laboratory in the 1970s. "Conventional weapon priorities were well down the scale behind strategic systems, nukes, space, and others," he recalled. "Only the determination and fortitude of visionaries at China Lake

[Calif.], Wright-Patterson [Ohio], and Eglin kept the programs moving.”

Big Thanks

The **Carl Vinson Memorial (Ga.) Chapter** called attention to its Community Partners in a highly visible way, recently, with two billboards in the Warner Robins, Ga., area.

The huge ads thanked the chapter's more than 100 Community Partners for their support of both USAF and Robins Air Force Base. According to Jack H. Steed, an AFA national director and chapter member, the first billboard was located on a heavily traveled road in the nearby town of Centerville. The other was on the four-lane Highway 247—named for chapter member Robert L. Scott Jr.—running between Warner Robins and the base. He said about 30,000 vehicles travel this road daily.

The chapter also placed ads in two newspapers, listing their partners, which range from Acoustical Floors Inc., to radio station WNNG.

On top of these high-profile thank-you messages, the chapter hosted a Community Partner Recognition Night. The more than 100 guests included Maj. Gen. Donald J. Wetekam, commander of the Warner Robins Air Logistics Center; John Politi, AFA National President; and Richard B. Goetze Jr., Aerospace Education Foundation President.

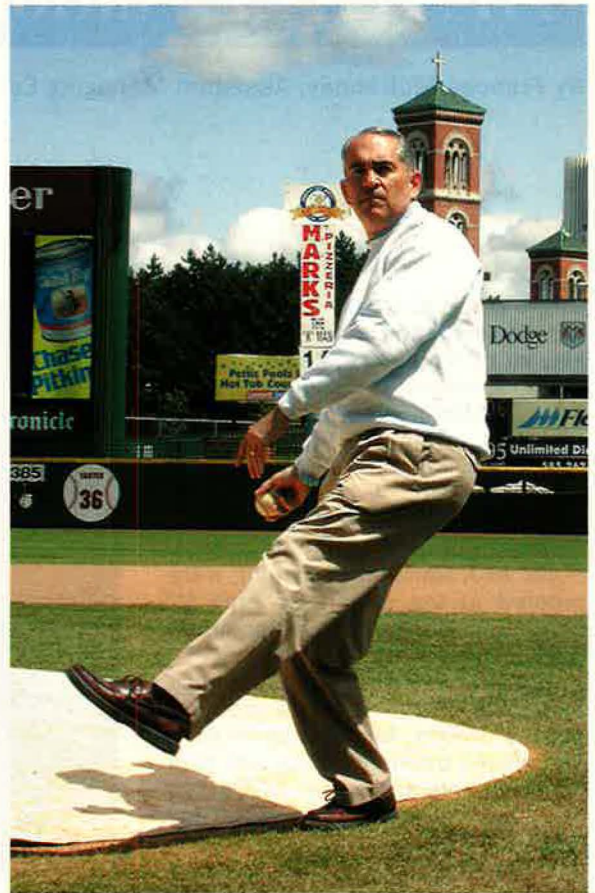
Steed reported that the chapter gives its partner businesses additional publicity by displaying at every chapter activity a portable board listing their names and includes links to these businesses on the chapter's Web site.

In other recent activities, the chapter held an awards luncheon in April. Among the honors was the Logistics Achievement Award. Wetekam, the ALC commander, presented it to the Joint STARS Integrated Sustainment Team from Robins, in recognition of the group's drive for efficiency and improvements in business practices. According to Capt. John Bryan, the chapter's communications vice president, the team improved the Joint STARS mission capable rate to an all-time high of 83.2 percent, more than eight percent above the Air Combat Command standard.

Career Training

The **Central Maryland Chapter** has joined forces with a Community Partner, the Congressional Flying Club, at the Gaithersburg (Md.) Airpark to sponsor basic aircraft maintenance classes for area middle school and high school students.

Thomas McKee warms up at Frontier Field, Rochester, N.Y. He later threw out the first pitch—fastball, straight down the middle—for the Rochester Red Wings, the triple A farm team for the Baltimore Orioles. The Genesee Valley Chapter arranged for McKee's pitching debut as part of the baseball team's annual Military Day.



The baseball team's mascot hams it up with Air Force recruits who were sworn in as part of the Military Day ceremony at the game. "Events like this have shown the active duty recruiters how AFA can serve as a force multiplier," said Joe Pow, Genesee Valley Chapter president.

The idea originated with chapter member Robert Hawkins, who is head instructor for the classes. They began in May and run on Saturdays.

Chapter President Bruce Drury said the youngsters learn general small-aircraft maintenance procedures, such

as pulling and gapping spark plugs and changing the oil and brakes. He said the course aims to give students a chance to learn about aircraft maintenance as a career. Drury added that the class is limited to six and has 20 on a waiting list.

A chapter matching grant from AEF and donations from the Maryland state AFA, the **Thomas W. Anthony (Md.) Chapter**, and the **Baltimore Chapter** helped get this project started. The funds were used to buy tools, supplies, t-shirts, coveralls, and caps for the maintainers-in-training.

From a Block of Aluminum

Tennessee Valley (Ala.) Chapter members toured Boeing's Delta IV rocket plant in Decatur, Ala., observing how sheets and blocks of aluminum are made into rocket boosters in what John T. Wigington III, chapter president, calls "ready-to-shoot configuration."

The machining, bending, cleaning, painting, welding, and assembling take place in a building with more than 1.3 million square feet of factory space, Wigington reported.

Other AFA officials who made the 30-mile trip from the chapter's home area of Huntsville included Greg Schumann, state president, and Terry L. Roop, chapter vice president for aerospace education.

According to a Boeing press release, the first launch of the Delta IV rocket is scheduled for next month from Cape Canaveral AFS, Fla. Its mission is to orbit a telecommunications satellite for Eutelsat S.A. of France.

"There will be lots of people in the Tennessee Valley holding their breath for a successful launch," noted Wigington.

Awards Night at McChord

From the active duty and civilian ranks, AFJROTC, and Civil Air Patrol, 11 outstanding performers were honored at the **McChord (Wash.) Chapter's** annual awards ceremony in April.

Among the 70 guests who gathered for the event at the base's all-ranks club were Col. James Fellows, new vice commander of McChord's 62nd Airlift Wing, and Col. John Cromwell, commander of the Western Air Defense Sector.

The active duty award recipients were 1st Lt. Kenneth J. Daniels, 22nd Special Tactics Squadron, and SSgt. Lisa J. Kaseman, 1st Air Support Operations Group, who were both on hand to receive their awards; SMSgt. James S. Caron, 446th Operations Group; SMSgt. Richard E. Jette, 62nd AW; and SrA. Matthew L. Ginger, 62nd AW.

More AFA/AEF News

■ The **Gen. Russell E. Dougherty (Ky.) Chapter** hosted a dinner for the state's veterans in February. Guest

AFA Conventions

July 19-21
July 19-21
July 19-21
July 19-21
July 20
July 26-27
Aug. 2-3
Aug. 2-3
Aug. 3
Aug. 9-10
Aug. 16-17
Aug. 17
Aug. 23-24
Aug. 30-31
Sept. 7
Sept. 15-18
Sept. 21

Arkansas State Convention, Little Rock, Ark.
Florida State Convention, Cape Canaveral, Fla.
Pennsylvania State Convention, Allentown, Pa.
Virginia State Convention, Alexandria, Va.
Kansas State Convention, McConnell AFB, Kan.
Texas State Convention, San Antonio
California State Convention, Vandenberg AFB, Calif.
Illinois State Convention, Galesburg, Ill.
Massachusetts State Convention, Northborough, Mass.
Michigan State Convention, Clare, Mich.
Utah State Convention, Ogden, Utah
Georgia State Convention, Savannah, Ga.
Colorado State Convention, Denver
Iowa State Convention, Waterloo, Iowa
Delaware State Convention, Dover, Del.
AFA National Convention, Washington, D.C.
New Hampshire State Convention, Manchester, N.H.

speaker Robert S. Pandis, from Northrop Grumman, delivered a 30-minute multimedia presentation on the B-2. Thomas N. Millican, the chapter's outgoing president, reported that Pandis provided insight into the stealth bomber's operations, including the combat operations concept used in Afghanistan. Joining the chapter for this dinner were representatives from the Air Force Sergeants Association, Joint Executive Council of Veterans

Organizations of Kentucky, and American Legion.

■ In April, the **Chuck Yeager (W.Va.) Chapter** helped sponsor an annual statewide AFJROTC drill competition. Seven high schools participated in the meet, held at Nitro High School in Nitro, W.Va. Local Air Force and Army recruiters served as judges. Samuel Rich, chapter president, and Herman N. Nicely II, chapter treasurer, were

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on hand to present the trophies, donated by the chapter. Nitro High School, whose aerospace science instructor is chapter member David F. Slaughter, took home the AFA State Grand Champion trophy.

■ **The Robert H. Goddard (Calif.) Chapter** hosted its annual awards luncheon in March at Vandenberg AFB, Calif. Dennis A. Laws, chapter president, reported that 62 awards were presented to chapter members

and active duty and civilian personnel from the base and community. Lt. Gen. William R. Looney III, who was then 14th Air Force commander, was guest speaker. Laws said the general gave such a moving speech about the contributions of Team Vandenberg to the nation's warfighters that "we all had goose bumps and wanted to know where we could sign up to serve."

■ On a visit to an assisted living

facility in Shreveport, La., **Ark-La-Tex (La.) Chapter** members noticed that the building's American flag was too small for the size of its flagpole. The chapter donated a new flag of the right size to the community. Bernice J. Harrison, former state and chapter secretary, accepted the donation from chapter executive council members William F. Cocke and Ivan L. McKinney. Harrison is there recuperating from a stroke. ■

Unit Reunions

reunions@afa.org

13th AF Veterans Assn (WWII). Oct. 16–20 in King of Prussia, PA. **Contact:** Phil Dyer, 7049 W. Illinois Rd., Ludington, MI 49431 (phone: 231-843-9597 or fax: 231-843-8637).

14th Tactical Recon Sq, Udorn AB, Thailand (1967–75). Nov. 6–11 in Branson, MO. **Contact:** G. Engel, 5817 Northgap, Windcrest, TX 78239 (210-656-1165) (ghengel@aaahawk.com).

15th Troop Carrier Sq. Sept. 30–Oct. 4 at the Lodge of the Ozarks Hotel in Branson, MO. **Contact:** Lloyd Johnson (402-423-2304).

23rd FG. Sept. 11–15 at the Wyndham Hotel in Colorado Springs, CO. **Contact:** Lt. Col. Russ Smith (phone: 910-394-8385 or fax: 910-394-8098).

27th Air Transport Gp, including the 310th, 311th, and 312th Ferrying Sqs; 86th, 87th, 320th, and 321st Transport Sqs; and 519th and 520th Service Sqs. Sept. 12–15 in Kansas City, MO. **Contact:** Fred Garcia, 6533 W. Altadena Ave., Glendale, AZ 85304 (623-878-7007).

36th TFS. Oct. 25–27 at the Holiday Inn & Suites in Burbank, CA. **Contact:** Arnie Wilenken (661-572-3864) (arnie.wilenken@lmco.com).

37th FS (WWII). Sept. 16–18 at the Drury Inn in St. Louis Station, MO. **Contact:** Leslie Knapp, 9819 Gemini Dr., San Antonio, TX 78217 (210-655-0908) (lesknapp@juno.com).

40th BG, Twentieth AF. Sept. 4–8 at the Marriott Hotel in New Orleans. **Contact:** Jean Suitt, 802 Harness Trl., Granbury, TX 76049 (888-417-1491) (jsuitt@cei-crescent.com).

42nd BW, Loring AFB, ME (1960s). Oct. 4–8 in Savannah, GA. **Contact:** Paul Maul, 4605 Bobolink Dr., Castle Rock, CO 80104 (303-688-0967) (Pablomaul@aol.com).

48th TFW, all former members. Sept. 30–Oct. 2 at the Golden Nugget Hotel in Las Vegas. **Contact:** Bob Herculson (702-458-3173) (herk@lvcm.com).

59th FS. April 22–27, 2003, in Las Vegas. **Contact:** (800-672-0456) (nationalplanners@hotmail.com).

64th TCS, Thirteenth AF (WWII), Sept. 25–28 in Salt Lake City. **Contact:** Herb Holdener, 8401 S. Kolb Rd., #85, Tucson, AZ 85706 (520-663-5913).

87th/512th FIS Assn. Sept. 12–15 at the Sheraton Uptown in Albuquerque, NM. **Contact:** Dick Desing, 1120 Marigold Dr., Albuquerque, NM 87122 (505-856-0606).

93rd TCS, 439th TCG. Sept. 17–22 at the Holiday Inn KCI in Kansas City, MO. **Contact:** Tom Morris, 456 St. George's Ct., Satellite Beach, FL

32937-3840 (321-773-6960) (tomruth3@aol.com).

94th BG. Oct. 10–14 in Omaha, NE. **Contact:** (800-672-0456) (nationalplanners@hotmail.com).

305th BG Memorial Assn. Oct. 1–6 at the Adams Mark Hotel in Memphis, TN. **Contact:** John Butler, 858 Donna Dr., Orange, CT 06477 (203-795-3020).

309th Sq, 31st Gp (WWII). Sept. 25–29 at the Radisson Hotel Branson in Branson, MO. **Contact:** Dalton Smith, 374 Pine Ln., Haworth, NJ 07641 (201-385-4950).

323rd FIS. Sept. 12–15 at the Nugget in Reno, NV. **Contact:** Pat Carnevale, PO Box 1230, Sonoita, AZ 85637-1230 (phone: 800-659-8808 or fax: 520-455-5866) (carne@dakotacom.net).

339th FG, Eighth AF. Oct. 9–13 in Charleston, SC. **Contact:** Larry Powell, 17270 Devonshire Rd., Northridge, CA 91325 (818-363-3950).

363rd Mustang Gp and 161st Tactical Recon Gp (WWII). Oct. 21–24 at the Gold Coast Hotel & Casino in Las Vegas. **Contact:** Art Mimler, 3086 Hwy I-40, Cathays Valley, CA 95306 (209-966-2713).

435th TCG, including Hqs., 75th, 76th, 77th, and 78th TCS (WWII). Sept. 19–22 at the Wyndham Hotel Airport in Richmond, VA. **Contact:** Al Forbes, 1614-B Berwick Ct., Palm Harbor, FL 34684 (727-785-6075) (for76tcs@aol.com).

452nd BG, Eighth AF, UK. Oct. 24–27 at the Town and Country Resort Hotel in San Diego. **Contact:** Hank North, 901 Poling Dr., Columbus, OH 43224 (800-452-9099).

508th Air Refueling Sq. Sept. 26–28 at the Rocky Point Days Inn in Tampa, FL. **Contact:** Ken White (813-996-3022).

509th BW. Sept. 11–15 in St. Louis. **Contact:** Ron Henderson (407-963-1147) (ronald.f.henderson@boeing.com).

1254th Air Transport Gp (SM). Oct. 25–26 in Alexandria, VA. **Contact:** Joseph Kuchinsky, 106 Ridge Point Pl., Gaithersburg, MD 20878 (301-948-8835) (joekuchinsky@rcn.com).

ABCCC, 7th and 42nd ACCS. Aug. 25–28 at the Beau Rivage Resort Hotel in Biloxi, MS. **Contact:** Francis Mitchell (757-225-4253) (francis.mitchell@langley.af.mil) (www.hopesanddreams.com/ABCCC).

Assn of Former OSI Special Agents. Sept. 5–9 at the Seattle Marriott Airport in Seattle. **Contact:** Dick Law, AFOSISA, PO Box 523135, Springfield, VA 22152-5135 (703-978-6198) (elcid61r@aol.com) (http://osi.webzebra.com).

B-66 Destroyer Assn, including all models, squadrons, and personnel. Oct. 25–27 at the Embassy Suites Nashville/Airport in Nashville, TN. **Contacts:** Jim Milam, 3600 Willomet Ct., Bedford, TX 76021 (817-545-3554) (jimmilam@aol.com) or Bill Starnes (865-966-8060) (starnes@tds.net).

China–Burma–India Hump Pilots Assn. Sept. 18–24 at the Albuquerque Marriott Hotel in Albuquerque, NM. **Contact:** Jan Thies, 808 Lester, Poplar Bluff, MO 63901 (573-785-2420) (jancbi@ims-1.com).

Class 51-F. Sept. 13–15 at the St. Anthony Hotel in San Antonio. **Contact:** G.C. Crocker (830-896-8269) (davy@personalcomputer.net).

Madrid and Torrejon High Schools, Spain, alumni. July 18–21 in Irving, TX. **Contact:** Sherry McCullough, 1012 Fairfax Ct., Arlington, TX 76015 (817-419-3338).

National WWII Glider Pilots Assn. Oct. 18–19 in Lubbock, TX. **Contact:** Virginia Randolph, 21 Phyllis Rd., Freehold, NJ 07728-1605 (tip14@juno.com).

Norton AFB, CA, military and civilian alumni. Oct. 11–13 at the former Norton AFB NCO Club in San Bernardino, CA. **Contact:** Paul Pfeifer, PO Box 1533, Highland, CA 92346 (909-862-5228) (Paul.Pfeifer@march.af.mil) (www.theprof.net/NAFBReunion).

PACAF Aerovac (1960–70), including the 6485th and 20th Ops. Sq; 901st and 902nd AES; and 9th AE Gp. Oct. 2–6 in Scottsdale, AZ. **Contact:** Dusty Rhodes, 14040 N. 63rd St., Scottsdale, AZ 85254 (Aerovac2002@aol.com).

Pilot Tng Class 58-J. Nov. 3–6 at the Golden Nugget in Las Vegas. **Contact:** George Peterson, 3828 Cavalry St., Las Vegas, NV 89121 (702-451-3992) (wgffp@troamail.org).

USAF OCS Class 60-C. Sept. 19–21 at the Sheraton Four Points Riverwalk North in San Antonio. **Contact:** Dan Kilburn, 5006 Useppa Ct., Punta Gorda, FL 33950-8566 (941-639-2432) (dbkilburn@comcast.net).

Seeking members of the **5th AF/AAF and 53th FS,** Itazuke and Miho ABs, Japan (1946–49) for a reunion. **Contact:** Earl Barker (352-873-2774) (ebsbpar72@aol.com). ■

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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