

March 2005/\$4

# AIR FORCE

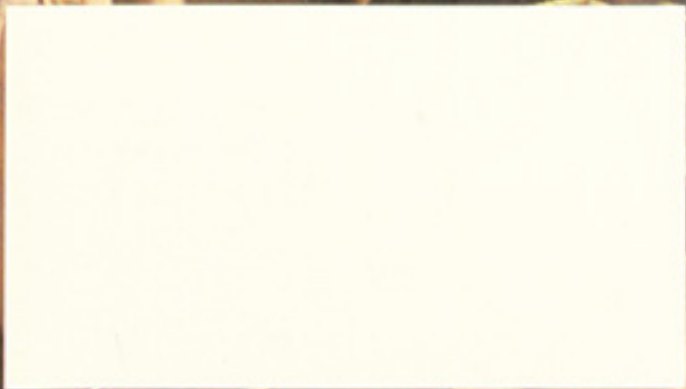
JOURNAL OF THE AIR FORCE ASSOCIATION

MAGAZINE



## The Air Commandos

The Network Way of War  
Expeditionary Fighter Aircraft  
Rolling Thunder



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COMMAND THE NETWORK

72  
20  
76  
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20  
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65  
65

The background is a dark green, textured surface with a repeating pattern of small, raised, diamond-shaped elements. A 3x3 grid of white target symbols is overlaid on the background. Each target symbol consists of a central circle with four short lines extending horizontally and vertically from its center. A dark, semi-transparent rectangular box is centered in the lower half of the image, containing the text.

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# AIR FORCE

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March 2005, Vol. 88, No. 3

[www.afa.org](http://www.afa.org)

- 4 Letters
- 12 Aerospace World
- 17 Senior Staff Changes
- 19 Index to Advertisers
- 20 Action in Congress
- 23 The Chart Page
- 24 Verbatim
- 75 Books
- 82 Field Contacts
- 83 This Is AFA
- 84 AFA/AEF National Report
- 87 Unit Reunions
- 88 Pieces of History



**About the cover:** A combat controller trains for action in Afghanistan. See "The Air Commandos," p. 32. USAF photo by Staff Sgt. Jeremy T. Lock.

**2 Editorial: Airpower and Optical Illusions**

By Robert S. Dudney  
*Many still find it easy to discount the value of airpower.*

**8 Washington Watch**

By John A. Tirpak  
*Raptor War; Congressmen Weigh In; Army Hits the Jackpot; Space Transportation Goals ....*

**26 The Network Way of War**

By John A. Tirpak  
*Data flowing to and from all Air Force elements will cause a dramatic new form of combat.*

**32 The Air Commandos**

By Adam J. Hebert  
*Air Force special operators are in heavy demand and perpetual motion around the world.*

**38 Expeditionary Fighter**

By Rebecca Grant  
*The Air Force says it wants a STOVL F-35. Is it right for today's combat environment?*

**44 The Intelligence Gamble**

by Peter Grier  
*The military's access to intelligence might depend on a few hastily inserted words.*



38



58

**48 C.B.I.—China, Burma, India**

*These rare World War II images offer a portrait of dedicated airmen in an all-but-forgotten corner of the world.*

**56 Worrying Less About "Traditional" War**

By Robert S. Dudney  
*The Rumsfeld Pentagon focuses on other dangers.*

**58 Rolling Thunder**

By John T. Correll  
*It was our best chance to knock North Vietnam out of the war, but it was doomed to failure.*

**66 DOD Photochart**

Compiled by Chequita Wood  
*Who's who in the Bush Administration's Pentagon.*

**70 Creech**

By Walter J. Boyne  
*The genius of this singular officer lives on in the modern United States Air Force.*

**76 From Air to Ground**

By Bruce D. Callander  
*In World War II, troops came on parachutes and in gliders, and the pathfinders helped them get there.*

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By Robert S. Dudley, Editor in Chief

## Airpower and Optical Illusions

**I**N a Dec. 3, 2001, column, entitled "Face the Facts: Bombing Works," *Newsweek's* Fareed Zakaria spotlighted a bizarre aspect of our recent wars.

"Over the last decade," he wrote, "every time the United States has engaged in a strategic bombing campaign, it has achieved its goals." Even so, he continued, "after each war, influential experts and journalists have emphasized that the central lesson of the operation is ... *Airpower alone doesn't work.*"

These commentators acted as if the wars were "optical illusions," not reality. "What looks to the naked eye like victories produced by airpower," quipped Zakaria, "were really—with some creative interpretation—victories from the ground."

Zakaria, unfortunately, could write the same story today. Three years have gone by, yet many still find it easy to discount the value of airpower.

Newspaper analysts—even Pentagon officials—tell us they see a limited role for "traditional" airpower, given the need to put greater emphasis on terrorism and other "non-traditional" threats.

Some claim—erroneously—that airpower hasn't played much of a role in Iraq during the insurgency there. Elsewhere, one even hears we have too much airpower—"excessive overmatch," in DOD parlance.

Not surprisingly, questions about the need to modernize USAF's combat force have multiplied. The assumption, says Loren Thompson of the Lexington Institute, is that the US can delay airpower programs, take greater risks, and divert funds elsewhere.

Indeed, DOD says it will use the \$10 billion gained in its recent drive-by shooting of the F/A-22 fighter to fund other programs.

The Theory of the Declining Utility of Airpower has been around for a while. The pattern is clear. First comes skepticism about airpower. Next, shock at its success. And last, tortured claims that airpower was not "decisive" after all.

■ The Gulf, 1991. On Aug. 2, 1990, Iraq invaded Kuwait. In a comment

typical of the time, Col. Harry Summers, the late Army strategist, decried "the fanciful notion that a war can be won quickly and decisively by the use of airpower alone." Early on Jan. 17, 1991, though, air attacks destroyed Iraq's ability to control its forces or mount a response. Forty-two days of bombing destroyed bunkers, bridges, shelters, and communications, plus huge numbers of tanks and guns. Coalition land forces, coming in at the end, pushed Iraq's battered units out of

### Many still find it easy to discount the value of airpower.

Kuwait. Secretary of Defense Dick Cheney said the decisive factor was airpower. Army backers claimed it was the 100-hour ground offensive.

■ Bosnia, 1995. As the US mulled action against Bosnian Serb forces, analysts warned that Balkan forests, mountains, and poor weather would thwart effective use of airpower. Then, a US-led NATO force conducted a three-week air campaign, hammering Serb heavy weapons, bunkers, ammo dumps, and other targets. The Serbs stopped their "ethnic cleansing" in Bosnia and sued for peace. Richard C. Holbrooke, the US point man in the Balkans, said the Serbs folded because of airpower. Others claimed the Serbs feared Croat ground forces.

■ Serbia, 1999. When Operation Allied Force began, critics warned that "airpower alone has never been decisive." That was before NATO aircraft, in a 78-day war, destroyed most Serbian military and industrial targets. As Slobodan Milosevic withdrew his forces from Kosovo, NATO ground troops still had not engaged in combat. It wasn't long, though, until the world heard a claim that Milosevic caved in because of the threat of "US Army ground forces in Albania"—24 attack helicopters, with about 5,000 support forces.

■ Afghanistan, 2001. Operation Enduring Freedom began Oct. 7, 2001.

As Zakaria noted, critics quickly claimed "airpower never works, Afghanistan is ill-suited for it," and so on. By November, the Taliban and al Qaeda were on the run, defeated by lethal, precise, and innovative USAF, Navy, and Marine Corps bombardment. Within weeks, we heard that the key to success was action by Afghan irregulars, not airpower.

■ Iraq, 2003. Land force partisans worried that planners emphasized airpower at the expense of land troops. What was surprising was the extent to which airpower supported troops on the ground. USAF averaged some 300 strike sorties per day, 80 percent in support of land forces. In a single week, airpower destroyed 1,000 Iraqi tanks and reduced the strength of Republican Guard divisions by at least 50 percent.

Airpower, in each case, proved valuable in unexpected ways. We will be glad to have such a flexible, hard-hitting weapon the next time we run into a nasty surprise, as we inevitably will. Future air wars might be more demanding than many now expect. Note that, when USAF pilots in F-15Cs recently engaged in mock combat with Indian Air Force pilots, the Indians often won. China is modernizing its military forces faster than anyone expected.

In today's dynamic world, it would be unwise to prepare only for threats that are visible now. US power must be flexible and adaptable.

In every conflict for the past 15 years, airpower has provided that kind of capability. Retired Gen. Richard E. Hawley, former head of Air Combat Command, says Pentagon officials should "have a little humility about their ability to predict what kind of a fight we may be in 15 years hence."

Hawley added: "Those who would bet the future security of the nation on their ability to predict the future are on the wrong track. None of us can know what the future holds, and only a balanced mix of forces and capabilities will allow us to face that future with full confidence that our military will not fail us when we need it most." ■



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## Taxpayer Rip-offs

Sen. John S. McCain (R-Ariz.) said, "I simply cannot believe that one person, acting alone, can rip off taxpayers out of possibly billions of dollars." [See "Washington Watch: Roche, Sambur Going, but Controversy Lingers," January, p. 8.] I simply cannot believe that one person, acting as a Senator, can tie up an approval process [for USAF promotions] for so long, effectively ripping off taxpayers and not supporting the troops in harm's way. Of all people to do this, I don't understand Senator McCain. I understand the need for ethics in the procurement process, but I don't see it his way.

Lt. Col. James E. Bradley,  
USAF (Ret.)  
Westmoreland, Kan.

## "Stories in Stripes"

The January issue of *Air Force Magazine* was a great start to my new year. The highlights of enlisted airmen throughout the magazine were wonderful and your "Stories in Stripes" article [p. 40] on the Enlisted Heritage Hall was excellent.

This outstanding exhibit holds the history of our airmen in unique and inspiring displays. Guy Aceto and Paul Kennedy captured the essence of this walk through time and have no doubt sparked readers to want to see this display firsthand. I encourage everyone with an interest in our Air Force to visit the Enlisted Heritage Hall at Maxwell AFB, Gunter Annex, Ala. Understanding our history cultivates an even better future.

The Air Force Association commitment to all our airmen remains visible, not only in your magazine, but in the great works you do daily. Thank you for supporting and protecting our great institution.

CMSAF Gerald R. Murray  
Pentagon

I would like to take the opportunity to state that the article pertaining to the Enlisted Heritage Hall was excellent. I would like to recommend that follow-up stories on such endeavors as the Senior NCO Academy and the

First Sergeants Academy be done in the future.

CMSAF Paul W. Airey,  
USAF (Ret.)  
Panama City, Fla.

As the director of our only Air Force Enlisted Heritage Hall, I wish to thank your staff for the fantastic article titled "Stories in Stripes." You truly captured what our staff strives for each and every day.

The Air Force Enlisted Heritage Hall is the only heritage center of its kind in the Air Force. As such, it reflects the rich and dramatic heritage and tradition of the enlisted corps of the US Air Force and its predecessors in the US Army. The Heritage Hall's vision is to become an essential education center where the hall and its visiting community can explore enlisted accomplishments in the development of airpower, past and present. Over the years our enlisted personnel have contributed so much to airpower and the shape of today's highly technical Air Force; thus we aim to "Preserve Yesterday, Today, for Tomorrow."

CMSgt. Malcolm McVicar,  
Dir., Enlisted Heritage Research  
Institute  
Gunter Annex, Ala.

## Point of Desperation?

Frankly, your article "The Raptor as Bomber" in the January issue [p. 28] left me wondering if Air Force planners have become totally bereft of their senses. I knew things were difficult in aircraft appropriations, but

this idea seems on the point of desperation.

The concept brings to mind the FB-111 from the late 1960s. This aircraft was also conceived as an interim bomber from a fighter program that had struggled against political opposition. To its credit, the F-111 overcame early technical problems to serve well in fighter, bomber, and electronic warfare roles. The FB-111 had the advantage of requiring fewer airframe modifications than the FB-22 will. I cannot envision an FB-22 as anything other than yet another proposed bomber replacement that will never reach production status, wasting irreplaceable development dollars in the process.

Here is a unique solution to the Air Force's bomber problem—build new B-52s. There has never been a better bomber built than the Boeing B-52. Instead of becoming enamored with expensive and untried technologies, make new variants of a tried and true aircraft. Attempts to push new bomber designs through a typically resistant Congress will leave our airmen where they are now—stuck flying ancient relics.

Many problems confronting our military today can be traced to one basic question: Are we at war, or not? As long as the appropriation of vital military hardware is left in the hands of partisan and often pork-barrel politics, our nation and our military personnel will suffer the dire consequences. America needs to realize there is a real war on and get down to the business of winning it.

Frederic H. Albrecht  
Rohnert Park, Calif.

Please tell me this isn't a serious idea. Didn't we learn anything in converting the F-111 into the FB-111? Interim bombers are a waste of resources. We have a long-range stealth bomber called the B-2; it is underused. However, its mission radius is at least three times that of an FB-22. Its weapons load is also about three times the Raptor-B.

Since military geniuses like Sen. John McCain keep screwing around with

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USAF's plans to get a new tanker, we do not need a stop-gapped aircraft that will make that situation worse. Boeing has said the B-52H is "good" out to the year 2040. Furthermore, in March 2003, the Defense Science Board recommended that the Air Force "proceed promptly with re-engining the B-52 fleet." The DSB said we can re-engine all remaining B-52Hs for around \$3.5 billion—about one-third the cost of the FB-22 program. The board stated that re-engining makes sense because the BUFF is the "most versatile and cost effective weapon system," has the "highest mission capable rate" of the three current bombers, and is the "only platform that can launch the CALCM." A B-52R program was identified as "low technical risk" and would reduce fuel burn, yield significant savings at field/depot maintenance levels, and reduce tanker tasking by two-thirds.

Since the demise of the Soviet Union, we no longer need a low-altitude, penetrating bomber (the B-1) or, for that matter, a high-cost stealthy air superiority fighter (sorry, fighter pilot mafia). Against any foreseeable enemy, we can attain air supremacy by destroying aircraft/SAM sites with cruise missiles and F-117/B-2 bombing missions. The Army canceled the Comanche helicopter for the same reasons USAF should drastically cut back on the F-22 buy—the mission/threat has changed. The F-35 program (or a new low-cost alternative, such as the Javelin Jet) could then be expanded as required to tackle a limited air-to-air role. Spending billions on a supercruise stealth fighter and even more billions on its bomber brother makes no sense to this old BUFF driver. Any USAF/DOD Secretary or general officer who recommends an FB-22 over a B-52R should be turned into a dumb bomb!

Lt. Col. Terry Van Keuren,  
USAF (Ret.)  
Castle Rock, Colo.

### Taking FTF To Task

The editorial [*"The Unified Air Force," p. 2*] in January was strongly reminiscent of an article by Col. Thomas G. Lanphier Jr. entitled "48 Air Forces Too Many" in the January 1949 issue of *Air Force Magazine*. At the time of his article, Colonel Lanphier was commander of the Idaho Air National Guard 190th Fighter Squadron. His immediate superior, Idaho Adjutant General John Walsh, subsequently published an article that differed with Colonel Lanphier's advocacy of federalization of the Air National Guard and suggested an alternative compromise plan.

In March 1949, Louis Johnson became Secretary of Defense and pre-

sided over the drastic reductions in military investment that left the US armed forces insufficiently prepared for the Korean police action. That conflict demonstrated the truth of General Walsh's assertion that Colonel Lanphier's valid criticisms should be ascribed to "a shortcoming of the Air Force, and not anything that would make the Air National Guard suspect."

The nation's defense was superbly served when Secretary of Defense Melvin Laird developed and implemented the Total Force Policy. Because the Air Force was more diligent to employ that policy than were the other branches, the Air National Guard and the Air Force Reserve became the effective partners in mission accomplishment so convincingly demonstrated in the aftermath of 9/11 and in the operation in Iraq.

Mission performance by Air National Guard units has demonstrated the operational validity of Total Force envisioned by Secretary Laird, while preserving the militia philosophy that is still enshrined in the Constitution. The legitimate concerns expressed by Colonel Lanphier have been overtaken and corrected by four decades of history. In his Future Total Force initiative, which would surely savage the sovereign role of the states and their governors, Secretary Rumsfeld has demonstrated a quality of genius last seen in Robert McNamara. The valid arguments that raise serious questions about Future Total Force are too numerous to be contained in this correspondence, but deserve thorough attention.

The Rumsfeld genius that promises to do "too much too fast" is not necessarily preferable or superior to the Laird wisdom that resulted in a superbly effective Total Force. There is no credible rationale for undercutting or distorting the proven state-based structure and function of the Air National Guard.

Brig. Gen. William A. Free,  
USAFR (Ret.)  
Caldwell, Idaho

### It's No Wonder

John Correll's piece "Disunity of Command" [*January, p. 34*] struck a chord with me. In 1968 I was working in the Office of the Secretary of Defense in a small office called Organization and Management Planning. OMP was staffed almost entirely by military officers and was essentially a special projects office for SECDEF. As Mr. Correll pointed out, the Joint Chiefs could not agree on the question of who's in charge for the air war, so they passed the problem up to SECDEF for resolution. I caught the

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## Letters

job to prepare an answer to the Chiefs. The Chiefs got their answer, and while not perfect, it pointed toward the concept of a single air commander in a combat theater—a concept that prevails today. As a "purple-suiter," I was proud to be able to contribute to idea of a single air commander.

Col. Bill Landis,  
USAF (Ret.)  
Escondido, Calif.

I now fully understand the screwups in Vietnam, during the Tet Offensive of January 1968. I served as commander, 35th Transportation Squadron, at Phan Rang Air Base. Phan Rang was approximately 45 miles south of Cam Ranh Bay. Our base commander, Col. James Crowley, ordered no vehicles to leave the confines of the base. I was contacted by 7th Air Force in Saigon to form a convoy to drive to Cam Ranh Air Base to pick up as many bombs as we could carry. This was truly a suicide mission, night or day. At the time we were on the phone, we had incoming fire from the back gate directed at my office; the tracers both inbound and outbound were quite spectacular.

We informed 7th Air Force we would have to obtain the permission of the base commander. We arrived at his trailer under enemy fire at 2 a.m. Colonel Crowley listened to the orders given us and then immediately called 7th Air Force. By the time I had returned to my office, I received another call from 7th Air Force chewing me out for going to see the base commander. You hit it right on the head with the title "Disunity of Command."

Lt. Col. Raymond T. Cwikowski,  
USAF (Ret.)  
Foley, Ala.

Reading John Correll's article sure brought back memories. In particular, I recall receiving my first briefing on our activities in Laos; the year was 1966. It was a top secret briefing, and it lasted a while. In concluding the briefing, it was again emphasized that what we were told was classified top secret. As we were walking out of that briefing room I heard someone else voice what I was thinking: "Why is this top secret? Our targets sure know who's hitting them." Of course, we all understood why our activities were classified top secret.

One other event comes to mind. It was the NVA invasion of the South in the spring of 1972. I prefer to call it Tet '72 because, I'm pretty sure, the

original intent was to launch the invasion around Tet that year. That the invasion didn't happen on Tet probably can be credited to Gen. John Lavelle. It was evident that there was a massive buildup in progress in the lower route packs as early as January of that year. At some point, in February if I recall correctly, several days' worth of strikes were ordered against that buildup. In the aftermath, General Lavelle was fired as commander of 7th Air Force. I'm still convinced, however, that he did the right thing in disrupting NVA invasion plans.

Gerald P. Hanner,  
Papillion, Neb.

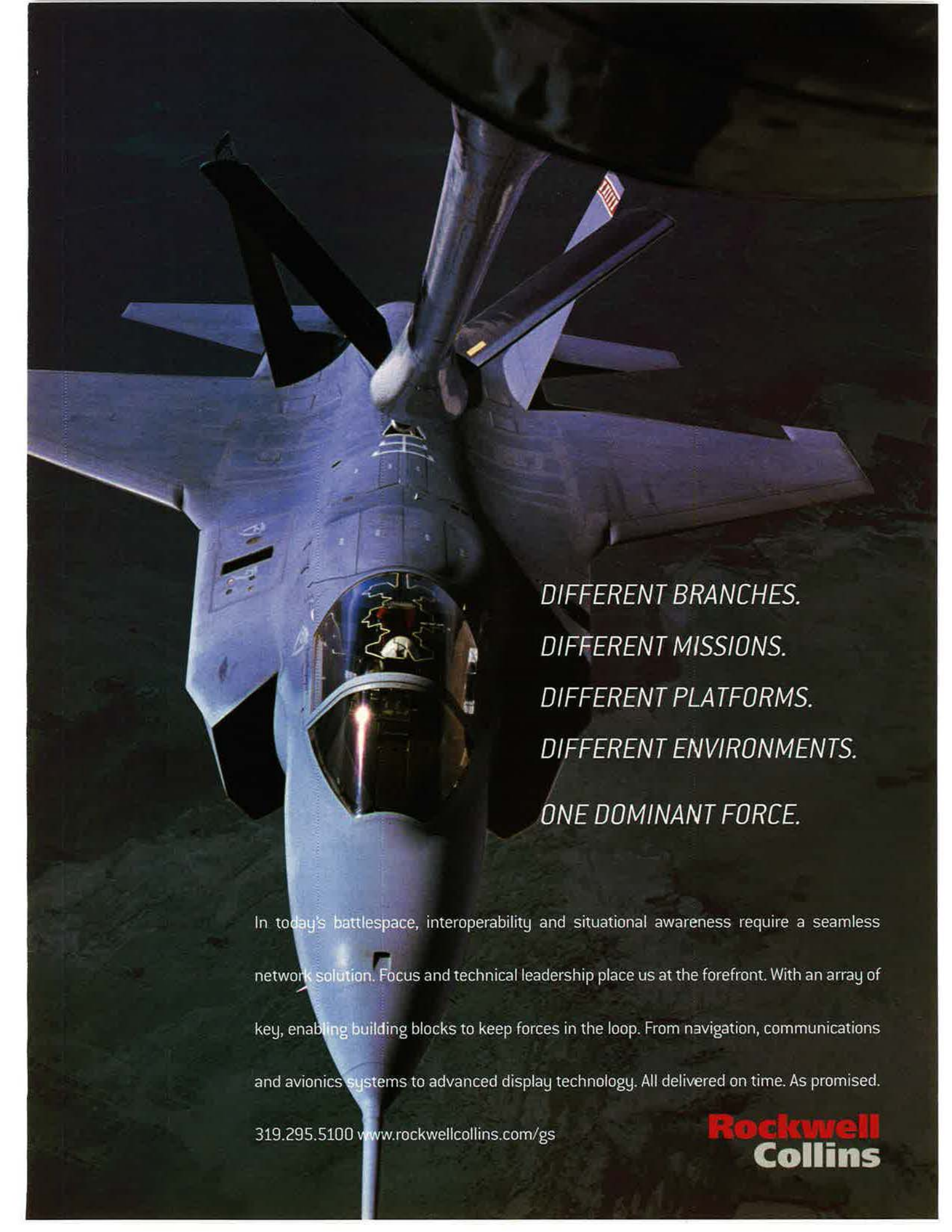
### The Navigator Saga

I found the "Combat Systems Officers" article [*January, p. 57*] a bit "deja vu-ish." I couldn't help but think, here we go again: a lot of talk and promises to the navigator world but no solid commitment.

[We made] some massive changes to the nav program in the early 1970s. [We] revised the nav training program by buying 19 Boeing 737 airplanes and 50 simulators outfitted with state-of-the-art training electronics. However, the major change was not the training equipment itself but a change of concept and a new understanding of what the nav's job was in the new jet era. We got rid of the old navigator stereotype of the guy with a sextant. The new nav was a well-trained systems officer who not only directed the aircraft to the target but dropped the bomb and launched the airborne missiles from his bomber, and intercepted and killed enemy aircraft, as a WSO, in the F-4, F-15, and F-111 aircraft. The new nav also jammed enemy radars and ferreted out enemy weapons systems as an EWO on fighter and bomber aircraft. All of these nav specialties started with the revised basic Air Force navigator course.

General Cook correctly points out [that we have] "undervalued the potential and the capability and the abilities of our navigators." The Navy has for years ushered their navs into key operational staff and command positions, providing them a career avenue to compete with their pilot counterparts—and it has worked well. Until the Air Force does the same, a huge segment of this highly trained and dedicated aviator force will continue to be lost to key operational positions in USAF. I, for one, am not holding my breath.

Col. Robert O. McCartan,  
USAF (Ret.)  
Tucson, Ariz.



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# Washington Watch

By John A. Tirpak, Executive Editor

## Raptor War; Congressmen Weigh In; Army Hits the Jackpot; Space Transportation Goals ....

### Battle for F/A-22 Heats Up

In the Quadrennial Defense Review, now under way, the Air Force will fight to get its top-priority F/A-22 fighter program restored to full strength, said Gen. John P. Jumper, Chief of Staff. The Fiscal 2006-11 defense program calls for halting production of the aircraft in 2008 at about 180 airplanes, 100 fewer than previously planned and 200 short of the service's long-term requirement.

The budget cuts, approved by Defense Secretary Donald H. Rumsfeld in December, were pure cost-cutting moves, unattended by any strategic analysis or considerations.

There has been no strategic change that would alter the analysis that the Air Force needs 381 F/A-22s, Jumper said in a Jan. 12 telephone press conference.

"This was a budget drill," he said, speaking from Tyndall AFB, Fla., where he had just qualified to pilot the F/A-22.

"I don't think there's any argument about the capability or even the need for the capability of the airplane," Jumper maintained. "I think the argument's going to be about the numbers." He promised a "fresh look and an open mind" in the QDR, but also said that the Air Force has put forward its case for the F/A-22 many times, and each time it has stood up under great scrutiny.

"We're going to just have to argue twice as vigorously" for the F/A-22 in the current QDR, Jumper said.

He noted that Air Force plans call for using only 381 F/A-22s to replace a grand total of 950 aircraft—750 F-15Cs, 150 or more F-15Es, and more than 50 F-117s.

The Air Force will not necessarily offer up something else to buy back the lost Raptors, Jumper said. In the QDR, every air dominance system will be "on the table," and the choice will focus on what should be given to each system.

Everything in the DOD inventory that has to do with air dominance "would supposedly be available to adjust



USAF photo

*F/A-22 cut—a pure budget drill.*

those balances, if that were required," Jumper asserted. After the case is made, he said, the Air Force will "live with" whatever decision is made by Rumsfeld.

Jumper disputed the argument that the F/A-22 is a Cold War relic or excessively powerful. He noted that the aircraft was meant to counter the Russian-made Sukhoi Su-27 family of fighters, which is still in production and continues to improve. He noted that not all battles of the future will be against low-tech terrorist enemies.

"As long as there are Sukhoi airplanes being delivered around the world and being flown by air forces that have airspace ... that could be contested, there's always the possibility of the dogfight," Jumper asserted. He argued that the Raptor will be able to defeat any anticipated threat for 30 years. He also said that, despite the many times in history when the days of the turning dogfight were declared over, "every time we say that, something happens to make it not come true."

Jumper pointed out that, while the F/A-22 will be more effective and do more kinds of missions than the aircraft it replaces, the issue is "no longer how many airplanes it takes to kill targets. It shifts to how many things do you think you're going to have to be doing around the world at one time." The figure of 381 Raptors would allow USAF to put one squadron in each of its 10 Air and Space Expeditionary Forces and have enough left over for training and test.

Jumper acknowledged, however, that getting the F/A-22s (and the C-130Js, which were also cut) back into the budget will be an uphill fight.

"When the budget goes in with those kinds of numbers, it's very hard to restore back to what you had before," he admitted. The "new baseline" of 180 F/A-22s may "prejudice the decision" on the final total, he said.

As for the C-130J, he said the issue has to do with "renovating old airplanes and retiring older airplanes" and the economics of doing so.

USAF photo by TSgt. Chris Steffen



*C-130J cut—world of airlift "on the table."*

In the QDR, "we are putting the airlift world on the table for the C-130J just like we're putting the air dominance world on the table for the F/A-22," said Jumper, adding, "It will be an analytical approach."

### Political Leaders Open Second Front

Lawmakers wasted no time trying to reverse the Raptor cuts and getting the similarly truncated C-130J program back to par, as separate communications from bipartisan Congressional groups and the governor of Georgia directly appealed to the White House to reconsider the moves.

Thirteen Georgia Congressmen and both Georgia Senators wrote a letter to White House Chief of Staff Andrew H. Card Jr., protesting the cuts. In the letter, dated Jan. 5, the legislators charged that the reductions to the F/A-22 and C-130J—both of which undergo final assembly in Georgia—are "ill-advised and untimely, given the operational shortfalls facing our military and the threats facing our nation."

AP photo by Ric Feld



Chambliss leads fight for F/A-22 and C-130J.

The group said the F-15C has been eclipsed as the world's top fighter, and the only aircraft that can ensure air superiority is the F/A-22. The smaller fleet of Raptors the Department of Defense is considering "will result in an F/A-22 fleet too small to achieve the global air superiority requirements that our nation's global presence requires."

The group also said the current inventory of C-130E and H model transports is aging "at an alarming rate." The members reminded Card that DOD itself put forward the C-130J program as a way to "mitigate risk" associated with the aging of the tactical airlift fleet.

Halting the acquisition of C-130Js, the group said, puts USAF's airlift roadmap "in jeopardy."

The group urged President Bush and DOD "to reconsider these ill-advised cuts that will negatively affect the future readiness and capability" of the Air Force and the US military. It also promised the cuts will receive "full debate and consideration" during the Congressional review of the Fiscal 2006 defense budget.

The letter was signed by nine Republicans—Sen. Saxby Chambliss, Sen. Johnny Isakson, Rep. Nathan Deal, Rep. Phil Gingrey, Rep. Jack Kingston, Rep. John Linder, Rep. Charles Norwood, Rep. Tom Price, and Rep. Lynn Westmoreland—and six Democratic Congressmen—John Barrow, Sanford D. Bishop Jr., John Lewis, Jim Marshall, Cynthia McKinney, and David Scott.

Writing in a Jan. 10 letter addressed to President Bush, Republican Governor Sonny Perdue, a former Air Force pilot, echoed many of the concerns raised by the Congressional group. Perdue added that, despite the cuts, "it is not clear that this proposal will generate significant cost savings to taxpayers."

He also said the reductions would break the government's multiyear contract on the C-130J, which "lowered procurement costs for new C-130Js by 10.5 percent" and would impose "added risk" for warfighters.

"As a businessman, it does not appear to me that the benefits of these cuts outweigh the costs and, together with Georgia's Congressional delegation, I request that you reconsider DOD's proposal," Perdue concluded.

A third letter, signed by 24 members of the Senate—15 Republicans and nine Democrats—argued for restoration of the C-130J.

The Senators said the cut would create termination liability costs of up to \$800 million and, consequently, would "end up costing the American taxpayer more than the cost of completing the multiyear contract for 62 aircraft and leave our military with far less capable tactical airlift."

Among the signers were several members of the Senate Armed Services Committee.

### Air Force, Navy Take Hits, Army Gets Boost

The bombshell defense budget decisions in late December would reduce or eliminate many key defense programs in an effort to offset the national budget deficit and fund the continuing war on terror and possibly to pay for a substantial increase in Army end strength.

The reductions were included in an Office of the Secretary of Defense program budget decision and presented to the services on Dec. 23, 2004. Collectively, the cuts total \$30 billion, with the brunt of the cuts falling on the Air Force.

The F/A-22 is the single largest target of reduction, losing \$10.5 billion of funding through Fiscal 2011, the end of the current future years defense program (FYDP). The next biggest loser was the C-130J program. The Air Force version of the tactical airlifter was terminated outright, while the Marine Corps version was cut by 20 aircraft overall, with a net loss of about \$755 million over the FYDP. Per the PBD, through 2011, USAF had planned to purchase 51 C-130Js, with associated costs of \$4.2 billion.

The Missile Defense Agency lost nearly \$5 billion over the FYDP.

The Air Force's E-10 airborne battle management



Boeing artist's conception

Will the E-10 also go down?

project would lose \$600 million, while the Transformational Satellite system being developed by USAF for all the services would be cut by \$400 million.

Major increases for technology programs in the PBD included almost \$600 million for the Space Based Radar program and \$825 million for the Advanced Extremely High Frequency Satellite Communications System.

The Navy would yield \$2.6 billion that it would have used to buy two of the new DD(X) destroyers. It would also give up nearly one billion dollars and terminate procurement of LPD-17 amphibious vessels in 2008. The Navy would lose \$1.2 billion in funding due to the retirement—and nonreplacement—of the *John F. Kennedy* aircraft carrier and its air wing.

Three Virginia-class nuclear submarines and an associated \$5.3 billion were cut, but the Navy got back \$600 million to explore a new “undersea superiority system.” It likewise would give up 22 V-22 tilt-rotor aircraft for the Marine Corps, at a net reduction of \$1.3 billion through the end of the FYDP.

The Marine Corps also surrenders 253 expeditionary fighting vehicles and delays the system’s initial operational capability by two years, at a cost of \$1.5 billion.

The Army would get a boost of \$25 billion—\$5 billion a year beginning in Fiscal 2007 through the end of the FYDP—for its “modularity program” efforts, including the increase to its end strength. At the same time, the Army would see a reduction of \$2.2 billion as it converts some uniformed military billets to civilian positions.

Also terminated was the Joint Common Missile, intended to equip both the Army and Marine Corps as a replacement for the Maverick missile and other munitions. The Army would give up about 2,100 of the missiles and associated development and procurement costs of almost \$1 billion.

#### White House Sets New Space Access Goals

The White House endorsed the two-supplier approach for the Evolved Expendable Launch Vehicle and stipulated that the US would, by 2010, establish an initial capability for short-notice launch of a satellite in the US Space Transportation Policy, released in January.

The new document marks the first major update of national space policy since 1994.

In the policy, the White House took note of the “significant downturn in the market for commercial launch services.” It said the market situation hurts industry’s prospects for recouping its investment in EELV technologies and “precludes industry from sustaining a robust industrial and technology base sufficient to meet all United States government needs.” It was an anticipated boom in the demand for commercial launch services in the early 1990s that led to the competitive, two-supplier structure of the EELV program in the first place. The predicted robust market never materialized.

Sustaining the two-supplier base for EELV would continue, said the White House document, until DOD, CIA, and NASA assure the President that it would be safe and reliable to go with just one at some point in the future.

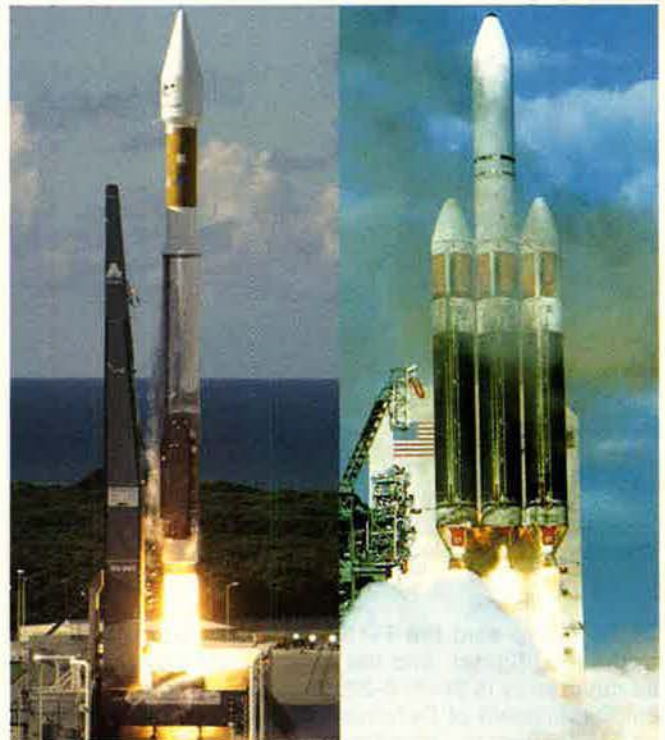
Members of Congress and some Pentagon leaders have called for eliminating either Boeing or Lockheed Martin from the EELV program, since necking down to one supplier would save the considerable overhead costs of running two production lines below capacity. The cost of the EELV program leaped by 55 percent in 2004.

However, Peter B. Teets, acting Secretary of the Air Force and the Pentagon’s space program czar, balked

at dropping one of the suppliers, worried that the US would be left with no ride to space if the sole producer ran into financial or technical problems.

Teets put retired Air Force Gen. Thomas S. Moorman Jr. to work last year on an analysis of the pros and cons of going with a single EELV company. Moorman’s report was expected to be completed this month.

The issue is to be resolved “not later than 2010,” the policy document stated. By then, the Pentagon, CIA, NASA, and other government agencies using space systems are to have coordinated a new plan for their long-term launch requirements, including manned space exploration. However, while the Pentagon currently funds most of the EELV program, NASA will have to pick up the tab if it wants to substantially modify the EELV vehicles, particularly if it needs a vehicle with “human rating.”



Atlas V and Delta IV—two better than one.

The timeline is shorter for developing “requirements, concept of operations, technology roadmaps, and investment strategy” for launch vehicles meant to get satellites to Earth orbit. The White House wants that plan in just two years.

NASA was also given a go-ahead for its space exploration mission to look into heavy-lift capabilities beyond the current capacity of the EELVs. The policy stipulated that NASA should look first at an EELV-derived system.

The White House enjoined any branch of government from barring a new domestic supplier from competing for government launch services but ruled out using any foreign launch vehicles unless it was part of an international exploration effort or in case there is no domestic alternative.

The policy also calls for NASA to start working with the Department of Energy on “space nuclear power and advanced propulsion technologies” for getting around the solar system. ■

Lockheed Martin photo/Boeing photo by Thom Baur

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Leading The Air Power Revolution

By Adam J. Hebert, Senior Editor

## Reservists Take Guam Rotation

Approximately 300 airmen with the 93rd Bomb Squadron, Barksdale AFB, La., deployed in January to Guam to fulfill an Air and Space Expeditionary Force (AEF) rotation of heavy bombers to the region. They relieved an active duty unit, also from Barksdale.

In recent months, USAF has sent bomber units to Andersen AFB, Guam, at the request of US Pacific Command, to bolster the US military presence in the Pacific. (See "Airpower for a Big Ocean," July 2004, p. 36.)

The Reservists of the 93rd BS, which is USAF's only Air Force Reserve Command B-52 unit, will serve its rotation at Andersen. The unit took six B-52s to the US territory in the Western Pacific, a 17-hour flight from Louisiana.

## Chu Claims Benefits "Hurtful"

Pentagon official David S.C. Chu set off a political firestorm recently with his comment that benefit boosts for active and retired military members and their families are "hurtful" to national defense.

The *Wall Street Journal* quoted Chu, who is the undersecretary of defense for personnel and readiness, in a Jan. 25 article on the rise in military survivor payments, pensions, medical care, and other benefits. He said, "The amounts have gotten to the point where they are hurtful. They are taking away from the nation's ability to defend itself."

Chu's comments evoked outrage from veterans service organizations, including the Air Force Association. The American Legion, responding in the Feb. 7 *Wall Street Journal*, called the remarks "a slap in the face to every veteran" and said that "caring for veterans isn't a matter of economics but a moral contract."

AFA's Chairman of the Board, Stephen P. "Pat" Condon, declared, "Our nation can and will pay for national defense and veterans care if asked—it is the responsibility of a wartime President to lead the way." He added that AFA "understands the need to balance the budget, but it must not be done on the backs of veterans."



USAF photo by SrA. Lynne Neveu

*An F-15E of the 494th Fighter Squadron, RAF Lakenheath, UK, on Jan. 7 prepares to take off on a mission to test the new Sniper targeting pod and a GBU-38 Joint Direct Attack Munition. (See "F-15E Adds Capabilities," below.)*

## Small Bomb Aces Tests

The Small Diameter Bomb, a developmental precision weapon, passed its first two live weapons tests, contractor Boeing said in January. Two Small Diameter Bombs were launched from an F-15E Strike Eagle at 15,000 feet and scored "direct hits on each target" at White Sands Missile Range, N.M.

The goal of the testing program is to "deliver the SDB capability to the warfighter in 2006, as promised," said Col. Jim McClendon, miniature munitions group commander at Eglin AFB, Fla.

Once the baseline weapon goes into production, Boeing plans to begin developing a more advanced Increment II variant for use against moving targets.

The first test, Dec. 13, struck a scoring board. The second test two days later destroyed a Russian rocket launcher.

The Small Diameter Bomb is a satellite-guided, 250-pound class weapon that promises the accuracy of the highly successful Joint Direct Attack Muni-

tion in a smaller size, reducing collateral damage concerns.

## USAF Temporarily Grounds B-1Bs

USAF's fleet of 67 B-1B heavy bombers was temporarily grounded this winter when one aircraft's nose gear collapsed after it had successfully landed and taxied to a parking spot at a forward base. The bomber, which was supporting operations in Southwest Asia, belongs to the 28th Bcwb Wing, Ellsworth AFB, S.D.

The incident prompted USAF officials to launch an immediate safety inspection of all B-1s. On Jan. 5, within six days of the grounding, the service returned the bomber fleet to flight status.

An Air Combat Command statement said, "Concerns leading to the flight suspension have been addressed."

## F-15E Adds Capabilities

An F-15E at RAF Lakenheath, UK, was recently the first Strike Eagle to fly with the 500-pound Joint Direct Attack Munition. The JDAM expands



## Raptor Program Continues To Progress

the F-15E's attack capabilities by combining near-precision targeting with a smaller weapon, which helps reduce the potential for collateral damage.

The fighter on Jan. 7 also employed the Sniper Advanced Targeting Pod. With the Sniper pod, "an F-15E weapons system officer can now independently launch satellite-guided weapons," stated a Jan. 12 Air Force news release. It added, "Previously, such launches required ground support coordinates."

The upgrade cuts the time between target identification and bombs on target, said Col. Kent Laughbaum, commander of the 48th Operations Group at Lakenheath. The pod receives the necessary coordinates by satellite and can forward the information directly to the JDAM.

Airmen from USAF's 4th Air Support Operations Group, based at Heidelberg, Germany, assisted the sortie. Joint terminal attack controllers ran air control for the mission in a simulation that "resembled weather in Southwest Asia," the release stated.

### Reservist Heads Active Unit

According to Air Force Reserve Command, an AFRC officer is now commanding a permanent active duty operational Air Force unit for the first time in history. Lt. Col. John Breeden on Dec. 17 became commander of the 11th Reconnaissance Squadron at Indian Springs AFAF, Nev.

The 11th RS trains crews to operate the Predator unmanned aerial vehicle, which has been used so successfully in Afghanistan and Iraq.

Turning leadership of the unit over to an AFRC officer features prominently in USAF's move to use Indian Springs as a test location for its Future Total Force initiative to test new ways to integrate active duty and air reserve component personnel. (See "Editorial: The Unified Air Force," January, p. 2.)

"What we're trying to do here [at Indian Springs] is integrate the Air National Guard and Reserve to put the best people in the best positions to move forward the future of the Air Force," Breeden said.

Breeden is a former A-10 pilot who returned to the Air Force as a full-time Reservist after the 9/11 terror attacks.

### DOD Picks Presidential Helo

The Navy Department in January picked a Lockheed Martin-led team to design and build the next generation Marine One Presidential helicopter.

Selection of the Lockheed Martin/

### Langley Gets Second Raptor

The 27th Fighter Squadron, Langley AFB, Va., in mid-January received a flight-worthy F/A-22 Raptor on a six-month loan from Tyndall AFB, Fla., to begin conducting operational training. The 27th is slated to reach initial operational capability with the F/A-22 later this year.

Langley already had possession of one F/A-22, but that bird has been used exclusively for maintenance training, a Langley spokesman said. In September 2003, Tyndall began receiving the first operational Raptors to develop an F/A-22 tactics and qualification training capability.

### Jumper Qualifies To Fly F/A-22 ...

The Air Force's top uniformed official completed qualification training in the service's new air dominance fighter in January. Gen. John P. Jumper, Chief of Staff, took his final qualification flight Jan. 12 at Tyndall AFB, Fla.

According to Jumper's Air Force biography, the F/A-22 is the 10th type of Air Force aircraft the Chief has flown. He began his career flying the C-7 and was an F-4 combat pilot during the Vietnam War.

At a press conference after his flight, Jumper explained that he needed to qualify in the new fighter to gain firsthand knowledge to help him better understand how to use the advanced aircraft. He said, "The Raptor does everything we had hoped it would do, plus some."

### ... And Speculates on Crash

Speaking with reporters following his qualification flight, Jumper said he believed the Dec. 20 crash of an F/A-22 at Nellis AFB, Nev., was caused by a software error.

The Air Force had not concluded its investigation into the crash, but it did return the fleet to flight status by Jan. 6, following a 17-day grounding. (See box "USAF Quickly Returns F/A-22s to Flight," February, p. 35.)



USAF photo by Lisa Norman

*Gen. John Jumper, USAF Chief of Staff, climbs out of an F/A-22 cockpit on Jan. 12 at Tyndall AFB, Fla., after completing his qualification training to fly the Air Force's newest fighter. Jumper said the training will help him understand how best to use the Raptor.*

## The Iraq Story Continues

### Casualties

By Feb. 2, a total of 1,436 Americans had died in Operation Iraqi Freedom. The fatalities include 1,433 troops and three DOD civilians. The number of Americans killed in action by enemy attack is 1,100, and 336 died in noncombat incidents.

A total of 10,769 troops have been injured. Of those, 5,150 troops returned to duty within three days and 5,619 did not.

### Surprise Kirkuk Raids Net Weapons

Airmen and soldiers at Kirkuk AB, Iraq, seized illegal weapons and stolen merchandise when they conducted surprise inspections of base quarters used by US contractor personnel and third country nationals.

The inspections, aided by Air Force Office of Special Investigations agents, broke up an Army and Air Force Exchange Service theft ring.

Recovered were complete military uniforms, firearms including an AK-47, and "about \$7,000 worth of stolen merchandise," said Maj. Robert Baird, in an Air Force news release. Baird is a force protection officer for the 506th Air Expeditionary Group. Also recovered were large quantities of clothing, electronics, CDs, and DVDs.

"We were able to take guns off the streets, 13 AAFES employees were fired, and we got the message across that we are very serious about force protection on this base," Baird said.

He said the inspections turned into a "good preventive random antiterrorism measure."

AgustaWestland team was somewhat of a surprise because Sikorsky had built every Presidential helicopter since 1957. Further, the winning "US101" helicopter, though built in the US, will feature roughly one-third foreign content. That gives the Europeans a rare victory in a US military acquisition program.

The purchase of 23 helicopters for Presidential support is one of the few large military helicopter competitions on the horizon. The next one will determine the Air Force's choice for its next generation combat search and rescue helicopter. Some defense analysts believe Lockheed Martin's win may have earned it an advantage in the USAF competition. Both Sikorsky and Lockheed have been cited as the leading competitors in the CSAR purchase, likely of 132 aircraft.

In announcing the decision, Navy acquisition executive John J. Young Jr. said Lockheed's proposal "was judged more likely to meet ... government requirements on schedule, with lesser risk, and at a lower cost."

### Bagram Expands

The Air Force is consolidating operations in Central Asia, and Bagram AB, Afghanistan, is the beneficiary. The 455th Air Expeditionary Wing at Bagram is growing, said Brig. Gen. James P. Hunt, wing commander, in a Jan. 3 news release.

Growth of the unit to more closely match the size and organizational structure of standard wings heralds

the shift of the 455th AEW from a "temporary presence to an enduring presence," stated the release. The unit's primary mission is to provide aerial cover for US and coalition ground troops in Afghanistan.

Hunt said the consolidation would continue over "the next year or so" as USAF adjusts its footprint in Southern Europe and Southwest Asia "to just a few bases to save personnel and resources."

The 455th is adding new support units and buildings, now built on concrete pads rather than gravel. Hunt predicted the wing will remain at Bagram "for a long time to come."

### Last USAF F-4s Are Deactivated

The 20th Fighter Squadron, the Air Force's last operational F-4 unit, deactivated Dec. 20 at its host base, Holloman AFB, N.M., ending a 33-year training partnership with the German Luftwaffe.

Since 1972, the "Silver Lobos" used

## Sambur Sees Long Delay in Getting Tankers

Marvin R. Sambur, recently departed Air Force acquisition executive, said in January that it will take until approximately 2018—or as late as 2024—for the service to purchase 100 new refueling tankers. Under the now-defunct leasing deal with Boeing, USAF would have acquired 100 KC-767s within the next five years.

"The goal in my mind is starting the [tanker] recapitalization process as soon as possible," Sambur told defense reporters shortly before he resigned his post in January. However, budget constraints made leasing a much faster way to field the aircraft. With a purchase, he explained, it will take two to three years to begin the process, after which the Air Force would probably be limited to six or seven aircraft per year. Under this scenario, the 100th tanker would arrive in 2024.

More optimistic assumptions of 10 tankers per year would complete the buy around 2018, so "we've lost eight years in this process," he said.

The advanced age of the 500-plus KC-135 fleet makes this worrisome. "Look at the mathematics," Sambur said. The acquisition of 100 tankers is just the beginning of the tanker recapitalization effort. From 2018, "if you start another procurement of 100, with the same time scale," the average age for the KC-135s will reach 71 years, Sambur said. That is "getting into some scary areas."

Keeping the Stratotankers is not a viable option. "The Air Force will not re-engine these planes," he said, because "you don't put good money into something that's 45 years old." Uncertainties can lead to events like the grounding of 40 percent of the fleet in 1999.

"We are tremendously dependent on these tankers," he said. "If you suddenly have a problem, it's too late. If suddenly you have this widespread issue, which causes widespread groundings, you can't fix them overnight."

Sambur asserted, "You need an insurance policy. ... You've got to start it."

Despite the urgency, Sambur is skeptical of allowing EADS to build—in Europe—a tanker for the Air Force. "This is a very important asset for this country," he noted. "We should be careful if we decide to go with a foreign entity that we make sure that a large percent of it is built in the United States."

An EADS tanker built in Europe that is common to the Airbus built in France "may give you a lower price, but in my mind this is too important as asset not to be built here in the United States," Sambur said.

Refueling capability is part of what makes the United States a global power, he said, and that capability cannot be given away.

F-4E and F model Phantom IIs to train German air crews. At the inactivation ceremony, Lt. Gen. Klaus-Peter Stieglitz, Luftwaffe Chief of Staff, lauded the "longest-lasting military project" between the two air forces. The deactivation "is not the end of our objective here at Holloman," he noted.

The Luftwaffe will continue to train aircrews in New Mexico but in the future will use the European Tornado fighter-bomber, according to a Dec. 22 USAF news release.

Most of the Vietnam-era F-4s are bound for the Air Force "boneyard" at Davis-Monthan AFB, Ariz.

### Chinese Military Power Grows

By 2020, communist China may be spending more on its military capabilities than the United Kingdom, Germany, and France combined, according to a new assessment by the CIA's National Intelligence Council (NIC). In its January "Mapping the Global Future" report, prepared to help the government identify long-term trends, the NIC found that America's European allies risk military irrelevance.

European Union member states, most of which are also NATO allies, "historically have had difficulties in coordinating and rationalizing defense spending in such a way as to boost capabilities," the report stated.

Already, EU members' military forces "have little capacity for power projection," the NIC asserted. Despite this, the report said, defense spending in the UK, France, and Germany is "likely to fall further be-

## Silver Stars Go to Five Valorous Airmen

Five Air Force battlefield airmen recently received Silver Stars for their valiant combat actions in Afghanistan and Iraq. They were cited for "particularly noteworthy acts of bravery," said James G. Roche, then-Air Force Secretary, at the December ceremony at Pope AFB, N.C.

Lt. Col. James E. Fairchild, TSgts. Eric J. Brandenburg Jr. and Jason U. Quesenberry, and SSgts. Thomas E. Case and Michael S. Shropshire earned the Silver Stars, the Air Force's third-highest award for valor. Their achievements were outlined in an Air Force news release.

During Operation Anaconda in Afghanistan, Fairchild, as an F-15E weapons system officer, worked with tactical air controllers on the ground to coordinate the drop of a laser guided bomb after his aircraft had exhausted its 20 mm ammunition in low-level strafing runs. His Strike Eagle dropped the LGB on enemy forces within 660 feet of friendly ground troops.

Brandenburg was attached to an Army ranger unit in western Iraq during a three-day firefight, when he worked his way forward amid intense fire to gain a better vantage point to direct close air support. At one point, an exploding shell blew him into the air.

Quesenberry, who was also attached to a ranger unit in western Iraq, was wounded but managed to save his team's only communications link—his radio and GPS unit—from a burning vehicle. Despite the fact that he was bleeding heavily, he refused medical treatment so he could coordinate air support for his team's evacuation.

Case, also with an Army unit in Iraq during a firefight, fought off the enemy while coordinating air strikes. He controlled up to 14 aircraft at one time, all while being hit by bits of concrete and shrapnel, some hits being strong enough to knock him down.

Shropshire's Army team in Iraq was surrounded and attacked during a fierce sandstorm. He coordinated close air support, switching from his radio to his rifle and, at times, leaving the security of an armored vehicle to confirm enemy armor locations. He directed strikes that took out 10 tanks.

Fairchild is now serving as commander of the 17th Air Support Operations Squadron, Ft. Benning, Ga. Brandenburg, Quesenberry, and Case are also part of the 17th ASOS. Shropshire serves with the 20th ASOS, Ft. Drum, N.Y.



**TSgt. Brian Morris, 506th Expeditionary Logistics Readiness Squadron, attaches bands to secure armor on a Humvee in Iraq. Morris is part of an "up armor" team sent by US Central Command Air Forces to Iraq to install armor on vehicles used by USAF security forces.**

hind China and other countries over the next 15 years."

Still, the NIC granted that the EU might serve as a strong model of "global and regional governance," providing rising powers with a "Western" alternative to reliance on the United States. The council said that an "EU-China alliance, though still unlikely, is no longer unthinkable."

### Deep Freeze Ends for AFRC

With C-17s from McChord AFB, Wash., ready to resume control of Operation Deep Freeze, Air Force Reserve Command ended its missions to Antarctica. For the past four years, AFRC C-141C Starlifters, now the last C-141s in service, flew the Deep Freeze missions.

The flights deliver crews, equipment, and researchers to McMurdo Station, on Antarctica's Ross Ice Shelf. This winter, crews from the 445th Airlift Wing, Wright-Patterson

USAF photo by SSgt. Matthew Lohr

## Cebrowski Calls for "Cost Strategy"

The Pentagon's transformation director said in a December paper that DOD must shift from a budget strategy to a cost strategy. "These are profoundly different things," said Arthur K. Cebrowski, who was director of force transformation at the time.

He said the department has "always been good at budget strategy," but something better is needed now. According to Cebrowski, a cost strategy can encompass both cuts and new initiatives.

"We have to be willing to shed some things" to free resources, he asserted shortly before Defense Secretary Donald H. Rumsfeld slashed a variety of high-profile Air Force programs to meet new budget goals.

Cebrowski said DOD must "stop paying more for decreasing returns and simply pay less" for capabilities. Obtaining small numbers of high-end assets is a risky strategy because it reduces US options, he wrote. This narrows DOD's capabilities, creating "the risk of being strategically outflanked, which is exactly what happened to us on September 11th," the day of the 2001 terrorist attacks.

A broader range of less-expensive capabilities is important because DOD also has to "impose costs on our enemies," he said. The United States must try to win the cost battle.

Cebrowski cited cruise missile defense as an example. He said that interceptor missiles cost up to \$3 million apiece, but enemies could obtain cruise missiles for about \$100,000. "We are on the wrong side of that cost technology curve," Cebrowski noted, saying DOD needs to look for other ways to perform the cruise missile defense mission, perhaps through directed energy weapons.

DOD must decrease cost, "spread it across more capabilities, create more options, and generate higher transaction rates," he said. That way, the defense industry can continually develop new systems. "If we really buy one system per career," he said in reference to the lengthy development cycle of many advanced systems, "you have a flat learning curve, [and] then you're a loser."

vides sanctuary" to attackers, the council wrote. Therefore, until defenses can catch up, "there will be great premiums associated with the ability to expand conflicts geographically in order to deny an attacker sanctuary."

Further, recent campaigns have shown that early battles "often determine the success of entire campaigns," the NIC wrote. "Under these circumstances, military experts believe pre-emption is likely to appear necessary."

### Targeting Gets R&D Emphasis

The Defense Department on Jan. 7 released its list of Fiscal 2005 Advanced Concept Technology Demonstrations (ACTDs), which feature projects intended to improve military targeting capabilities.

DOD received nearly 100 proposals from military services, combatant commanders, defense agencies, and industry. The services and warfighting commands reviewed the list and "provided their requirements for operational capabilities," stated a Pentagon news release.

Among the 15 ACTDs approved for 2005 are:

- Rapid Airborne Reporting and Exploitation for target detection, identification, and characterization.
- TACSAT-2 Roadrunner to produce responsive and affordable satellites.

AFB, Ohio, and the 452nd Air Mobility Wing, March ARB, Calif., flew the Deep Freeze missions, via American Samoa and New Zealand.

This Deep Freeze flying season ended in February. Active duty aircrews from the 62nd Airlift Wing at McChord will take over when the new airlift season begins in August.

### Will Pre-emption Spread?

The National Intelligence Council report also noted that modern military capabilities clearly favor attackers. That fact may encourage countries other than the United States to favor pre-emptive strikes.

Modern weapons, as demonstrated by the US from the 1991 Persian Gulf War on, feature long ranges, precision delivery, and highly destructive conventional warheads. This may "create circumstances encouraging the pre-emptive use of military force," the report stated.

"The increased range of new missile and aircraft delivery systems pro-



**An Air Force professional military education instructor stands before his class of Iraqi noncommissioned officers. USAF sent 28 instructors to Iraq as part of a joint service effort. The airmen thought they would be teaching standard PME fare—leadership and management—but were told to use an Army lesson plan to teach the Iraqis Army combat skills.**

USAF photo

- Viper Strike for precise targeting with minimal collateral damage.

- Weapons Data Link to demonstrate weapon retargeting in flight.

The ACTD program aims to quickly develop and field technologies that meet urgent combat needs. Previous ACTDs included the Predator and Global Hawk unmanned aerial vehicles.

### Boeing Narrows Failure Focus

An Air Force official said the investigation team looking into the failure of Boeing's Delta IV Heavy launch vehicle to place a dummy satellite into proper orbit on Dec. 21, 2004, is "making solid progress."

Col. John Insprucker, director of the evolved expendable launch vehicle (EELV) program, said he is "confident" the USAF-Boeing investigation team will "find solutions that allow us to avoid this problem on future flights."

The medium-lift version of Boeing's Delta IV family of launchers, one of the USAF-sponsored EELVs, successfully boosted a satellite into orbit in November 2002.

Officials said the primary purpose of the December Delta IV heavy launch was to test ground and flight systems in an "all-up" demonstration of an operational mission. Among the test objectives that were successful were flying three common booster cores, flying the first 16.5-foot diameter cryogenic upper stage, and flying the new upper stage through a long-duration, three-burn profile.

During the launch, sensors mistakenly indicated a cutoff of fuel to the main engine. Officials expected to complete the two-month investigation by early March.

### Environmental Study Expands

Air Combat Command officials in January announced they will prepare a supplement to a previously completed study on the Realistic Bomber Training Initiative. The proposed RBTI would expand bomber training flights over the Southwest.

ACC is issuing the supplemental environmental impact statement (EIS) in response to an October decision by a US court of appeals. (See "Aerospace World: Ranchers Win Round," December 2004, p. 18.)

The 5th Circuit Court of Appeals in New Orleans ruled that the Air Force had not addressed all the relevant environmental questions associated with the RBTI. The initiative would increase the number of low-level training flights over New Mexico and Texas.

The supplemental EIS will "address

## Iraq WMD Hunt Officially Ends

White House officials announced in January that the Iraq Survey Group, which led the search for weapons of mass destruction in Iraq, essentially shut down operations last October. It ended its work without finding the types of banned weapons that had been one of the key justifications for Operation Iraqi Freedom.

Charles A. Duelfer, chief US weapons inspector, issued a report last October saying banned weapons had not been found in Iraq. That report was "essentially the completion of his work," said White House spokesman Scott McClellan. He added that "nothing has changed" in the search for WMD since then.

When Duelfer met with the President in December, McClellan said, Bush thanked Duelfer for his work and the determination that the weapons of mass destruction "were not there."

McClellan emphasized, "Now what is important is that we need to go back and look at what was wrong with ... the intelligence that we accumulated over a 12-year period, and that our allies had accumulated over that same period of time, and correct any flaws."

## Senior Staff Changes

**RETIREMENT:** Brig. Gen. William P. Ard.

**NOMINATIONS:** To be **Brigadier General:** Kathleen D. Close.

To be **AFRC Major General:** Mark W. Anderson, John H. Bordelon Jr., Thomas L. Carter, Thomas A. Dyches, Martin M. Mazick, Howard A. McMahan, James M. Sluder III. To be **AFRC Brigadier General:** Roger A. Binder, Robert L. Chu, David L. Commons, Thomas R. Coon, Bruce E. Davis, Michael C. Dudzik, Elizabeth A. Grote, Kevin F. Henabray, James F. Jackson, Mike H. McClendon, Brian P. Meenan, James L. Melin, Michael B. Newton, Carl M. Skinner.

**CHANGES:** Maj. Gen. John T. Brennan, from Cmdr., Air Forces Europe, Ramstein AB, Germany, to US Security Coordinator, CENTCOM, Kabul, Afghanistan ... Brig. Gen. (sel.) Gary S. Connor, from Cmdr., Battle Mgmt., Sys. Wg., ESC, Hanscom AFB, Mass., to Cmdr., C3ISR Sys. Wg., ESC, AFMC, Hanscom AFB, Mass. ... Lt. Gen. (sel.) William M. Fraser III, from Spec. Asst. to Cmdr., AFC2ISR Center, DCS, Warfighting Integration, Langley AFB, Va., to Vice Cmdr., ACC, Langley AFB, Va. ... Maj. Gen. Charles B. Green, from Cmdr., 59th Medical Wg., Wilford Hall Medical Center, AETC, Lackland AFB, Tex., to Asst. Surgeon General for Health Care Ops., USAF, Bolling AFB, D.C. ... Maj. Gen. Joseph E. Kelley, from Asst. Surgeon General for Health Care Ops., USAF, Bolling AFB, D.C., to Jt. Staff Surgeon, Jt. Staff, Pentagon ... Brig. Gen. John T. Sheridan, from Dir., Rqmts., AFSPC, Peterson AFB, Colo., to PEO, Space Radar, Chantilly, Va. ... Brig. Gen. David G. Young III, from Cmdr., 81st Medical Gp., AETC, Keesler AFB, Miss., to Cmdr., 59th Medical Wg., Wilford Hall Medical Center, AETC, Lackland AFB, Tex.

**COMMAND CHIEF MASTER SERGEANT CHANGES:** CMSgt. Rodney E. Ellison, to CCMS, AETC, Randolph AFB, Tex. ... CMSgt. David W. Popp, to CCMS, ACC, Langley AFB, Va.

**SENIOR EXECUTIVE SERVICE RETIREMENTS:** William R. Swart, Gary K. Waggoner.

**SES CHANGES:** James A. Cunningham, to Dep. for Acq., ESC, AFMC, Hanscom AFB, Mass. ... Karen Sue Dunn, to Signals Intel. Systems Acq. Financial Mgmt. & Comptroller, Under SECAF, NRO, Chantilly, Va. ... James B. Engle, to Dep. Dir., Capabilities Integration, AFMC, Wright-Patterson AFB, Ohio ... Gerald L. Freisthler, to Dir., Engineering, Air Armament Center, AFMC, Eglin AFB, Fla. ... Kathryn M. Halvorson, to Dir., AF Real Property Agency, Asst. SECAF, Instl., Env., & Log., Arlington, Va. ... Donald W. Hanson, to Dir., Info., AFRL, AFMC, Rome, N.Y. ... Beth M. McCormick, to Dep. Dir., Defense Tech. Security Administration Office, Under SECDEF, Tech. Security Policy & Counterproliferation, Pentagon ... Ann-Cecile M. McDermott, to Dir., Financial Mgmt. & Comptroller, ASC, AFMC, Wright-Patterson AFB, Ohio ... Jon S. Ogg, to Dir., Info. Tech., AFMC, Wright-Patterson AFB, Ohio ... Kenneth I. Percell, to Dir., Maintenance, Warner Robins ALC, AFMC, Robins AFB, Ga. ... Thomas J. Robillard, to Prgm. Dir., Lethal Strike JPO, Air Armament Center, AFMC, Eglin AFB, Fla. ... Joe Sciabica, to Dir., Sensors, AFRL, AFMC, Wright-Patterson AFB, Ohio ... Patricia M. Young, to Dep., Mil. Surface Deployment & Distribution Command, TRANSCOM, Alexandria, Va.

## The Many Jobs of Peter B. Teets

Air Force Undersecretary Peter B. Teets recently found himself holding two additional critical leadership positions. As undersecretary, Teets already holds the positions of Pentagon executive agent for space and director of the National Reconnaissance Office.

When James G. Roche, Air Force Secretary, and Marvin R. Sambur, service acquisition executive, resigned at the end of President Bush's first term, Teets began filling both of those posts, as well.

"It is expected that Mr. Teets will continue in his new roles until the President appoints a new Air Force Secretary and assistant secretary for acquisition," according to a Jan. 12 Air Force announcement. By mid-January, no formal nominations had been presented to the Senate, which must confirm the President's selections for these two offices.

"Mr. Teets will continue to fulfill his responsibilities as undersecretary of the Air Force while performing his new duties," the announcement read.

Some acquisition responsibilities will be deferred to Lt. Gen. John D. W. Corley, the Air Force's top uniformed acquisition official. Corley will assist Teets by "overseeing the day-to-day operations of the service's acquisition community," stated the announcement.

the effects of wake vortices on ground structures associated with RBTI aircraft training," according to a Jan. 12 ACC news release. It added that the EIS would "also address the effects of RBTI on civil and commercial aviation as specified in the court's ruling."

The earlier ruling did not reject RBTI training flights; it simply ordered the Air Force to study the issue further before proceeding.

### Kerry Seeks More Troops

In January, 21 Democratic Senators sent a letter to President Bush calling for the Administration to fund more soldiers and marines in the Fiscal 2006 budget. The letter, initiated by Sen. John Kerry (D-Mass.), noted that more than 40 percent of the troops in Iraq are Guardsmen or Reservists.

Democrats are not the only ones

## News Notes

By Tamar A. Mehuron, Associate Editor

- Beginning in January 2006, airmen serving in Guam will be assigned there for longer tours, according to a Jan. 14 USAF news release. Accompanied tours will run 36 months, instead of 24 months. Unaccompanied tours will increase to 24 months from 15 months. Tours of Air Force personnel are being extended because a DOD directive now mandates the 36/24 lengths for all US military personnel assigned to Guam. The Navy has employed 36/24 tours to Guam for several years. USAF will change credit for Guam assignments from short tours to long tours on Dec. 31, 2005.

- USAF has selected 35 officers for test pilot training. Most will undergo training at the Air Force Test Pilot School at Edwards AFB, Calif., but two are bound for Navy Test Pilot School at NAS Patuxent River, Md., and one will go to British Test Pilot School at Bascombe Down, England. Three others will attend the Air Force Institute of Technology at Wright-Patterson AFB, Ohio, to obtain master's degrees in aeronautical or electrical engineering before heading to test pilot school.

- As part of its force development initiative, USAF has assigned its civilians to specific career fields, much like it does for military personnel.

Each civilian position, regardless of series, grade, or pay plan, has been placed within a career field. For those positions that do not follow the standard matrix, said officials in a Jan. 5 news release, Air Force Personnel Center will make a career field determination.

- Members of small teams that win awards such as missile crew of the year, or score top honors in competitions such as Air Combat Command's William Tell or Air Mobility Command's Rodeo, can now wear the Air Force Recognition Ribbon. Previously, the Air Force stipulated that the ribbon could be worn only by "named individuals who received Air Force-level special trophies and awards," stated a Dec. 30 news release. Gen. T. Michael Moseley, vice chief of staff, said, "These warfighters have shown superior skills and abilities ... and deserve this recognition, which says they and their team are the 'best in the Air Force.'"

- The June 18, 2004, crash of an F-15 north of Nellis AFB, Nev., resulted from a fuel shutoff that led to the flameout of its two engines, concluded an Air Force investigation report released Dec. 29, 2004. The pilot, from the 57th Wing at Nellis, suffered minor injuries after ejecting from the aircraft, which was destroyed

on impact. The accident investigation board president found that the loss of fuel probably occurred because the pilot accidentally pressed the left and right fire warning buttons, which cut off the fuel flow and also prevented any reignition of the engines. Gen. Hal M. Hornburg, then ACC commander, approved the report since it met investigation requirements but noted that he was not convinced tripping the pushbuttons caused the fuel loss.

- A USAF accident investigation report released Dec. 29 concluded that fire aboard an MQ-1 Predator unmanned aerial vehicle caused it to crash while it was supporting operations near Balad AB, Iraq, on Aug. 17. The report said leaking oil from a misrouted oil line spilled onto the engine bay and sparked a fire, which spread throughout the aircraft, making it uncontrollable. The Predator belonged to the 15th Reconnaissance Squadron at Nellis AFB, Nev.

- USAF officials have instituted a standard core curriculum for enlisted professional development programs to be implemented at every base. The move was made to maximize professional and on-the-job training for the service's enlisted force.

- The military W-2 tax forms will

saying additional ground forces may be needed. On Jan. 9, two Republican Senators—Bill Frist (Tenn.) and John Sununu (N.H.)—said operations in Afghanistan and Iraq were straining Guard and Reserve personnel.

The Administration has resisted increasing military end strength, saying that would create a long-term expense to fix what they believe is a temporary manpower shortage.

Lawmakers authorized an increase of 20,000 active duty soldiers and 3,000 marines in the Fiscal 2005 defense budget. They did not increase USAF end strength, and Kerry's letter makes no mention of increases in airmen or sailors.

Both the Air Force and Navy are in the midst of reducing their force levels. USAF leaders say the service must shed about 20,000 personnel to meet its authorized end strength. (See "Aerospace World: Jumper Says No Forced Cuts," November 2004, p. 15.) ■



USAF photo

*The 40th Flight Test Squadron, Eglin AFB, Fla., on Jan. 20 conducted the first flight of the newly designated A-10C. The modified Warthog has precision engagement technology, enabling it to use smart weapons such as the Joint Direct Attack Munition.*

now report pay earned while serving in a combat zone tax exclusion area to indicate eligibility for the child tax credit and the earned income tax credit. The combat pay will be listed in a separate section below the taxable wage information in Block 1 of the 2004 tax forms. For more information, go to the Armed Forces' Tax Guide at [www.irs.gov/pub/irs-pdf/p3.pdf](http://www.irs.gov/pub/irs-pdf/p3.pdf).

■ USAF has named four airmen as the 2004 recipients of the Lance P. Sijan Air Force Leadership Award. They are: Lt. Col. Mark Moore, Ramstein AB, Germany; Maj. Joseph Michalek, Hurlburt Field, Fla.; MSgt. John Spillane, Little Rock AFB, Ark.; and TSgt. Matthew Fader, Hurlburt. The award is named for the first Air Force Academy graduate to receive the Medal of Honor.

■ Some 1,000 airmen joined 4,600 other military service personnel in a week-long series of inaugural festivities with the theme "Celebrating Freedom and Honoring Service," to mark the beginning of President Bush's second term. SrA. Anthony Plyler, a broadcaster with the American Forces Network, served as a narrator for the Jan. 20 inaugural parade, which also featured the USAF Honor Guard and the Air Force Band.

## Tsunami Recovery Support Winds Down

The Pentagon began winding down Operation Unified Assistance, the Asian tsunami relief effort, in late January when host nations and international organizations became capable of meeting the recovery needs.

By Jan. 20, the military effort was "pretty much past the immediate relief phase, and we are rapidly moving toward ... rehabilitation and reconstruction," said Adm. Thomas B. Fargo, US Pacific Command chief, while visiting the devastated areas. "We will start right now transferring functions to the appropriate host nation and international organizations."

Air Force operations began shutting down in Thailand and Sri Lanka when the situation in those countries stabilized. "The focus is on Indonesia," Maj. Gen. David A. Deptula, operations director for Pacific Air Forces, said Jan. 21 to *Stars and Stripes*.

Fargo said the military role was especially important in Indonesia because many tsunami survivors "were isolated by damaged roads and bridges that ... simply vanished."

By any measure, the relief effort was a massive undertaking. According to PACAF, by Jan. 25, more than 14 million pounds of food, supplies, and equipment had been transported to the region by Air Force aircraft. This required 1,115 sorties.

Deptula noted that although the tonnage of materiel delivered was more during the Berlin Airlift, "that was over 400 days." Operation Unified Assistance was less than a month old; the earthquake and resulting tsunami struck the region Dec. 26.

A fact sheet showed that by Jan. 25, 960 airmen remained on the ground, and 23 Air Force aircraft were in theater supporting the relief effort. This included two Air Mobility Command C-5s for heavy lift.

## Index to Advertisers

AgustaWestland .....	Cover III
Boeing .....	Cover II (gatefold)
General Atomics .....	11
General Dynamics .....	Cover IV
Lockheed Martin .....	43
Northrop Grumman .....	25
Rockwell Collins .....	7
TEAC Aerospace Technologies .....	3
<hr/>	
AEF Fellows .....	81
AFA Member Benefits .....	22
AFA Resume .....	87
New at AFA .....	86

# Action in Congress

By Tom Philpott, Contributing Editor

## Enter the New Chairmen; Increasing Death Benefits; Tackling DIC Inequity Again ....

### New VA Committee Chairmen

Lawmakers in both the House and Senate changed Veterans' Affairs Committee chairmen for the 109th Congress, leaving veterans groups nervous about prospects for legislative gains in 2005 and even worried about a possible rollback in benefits for some categories of veterans.

Sen. Larry Craig (R-Idaho), a former National Guard member serving his third term in the Senate, replaced five-term Arlen Specter (R-Pa.) atop the Senate Veterans' Affairs Committee.

Of greater concern to veterans groups was the loss of Rep. Christopher Smith (R-N.J.) as chairman of the House committee. He was replaced by fiscal conservative Steve Buyer (R-Ind.), who is a colonel in the Army Reserve and a Gulf War I veteran.

Republican leaders not only ousted Smith as chairman but kicked him off the committee entirely. Smith had defied his party leaders by not slowing the growth of spending on veterans. They also criticized him for being too close to veterans advocacy groups.

Veterans groups quickly condemned the change and lauded Smith for helping to enact legislation that expanded health care and other services, improved the Montgomery GI Bill, and strengthened other VA programs. Smith had resisted Administration proposals to impose some medical user fees and higher co-payments on VA-filled prescriptions.

Buyer wants the VA to refocus on its "core constituency"—the disabled and the indigent.

He does not blame the clogged VA health care system on funding shortfalls but on the "mistake" he and committee colleagues made in 1996 when they voted for open enrollment for all veterans.

Lawmakers adopted the measure as a means to keep new VA clinics full, amid rosy predictions by former committee leaders and veterans groups that the move would be "budget neutral." In other words, system efficiencies, co-payments collected from nondisabled veteran enrollees,

and reimbursement from employer health insurance plans for VA-provided care would fund the increase in VA health care enrollees. The predictions were flat wrong, Buyer said in 2003.

President Bush's choice to head the VA, Jim Nicholson, was asked during his confirmation hearing Jan. 24 if he supported current Administration policy that blocks VA health care enrollment for those veterans with adequate incomes and no disabilities—the Priority 8 group. Nicholson avoided answering the question directly but said both Congress and VA need "to find that balance in a world of not infinite, but finite, resources."

### Death Benefits

The new Congress appears ready to raise military death benefits sharply this year and to provide some of the increase retroactively to the next of kin of any service members killed in Iraq and Afghanistan. The Pentagon also wants to raise benefits.

Several death benefit initiatives were introduced or reintroduced in the first days of the 109th Congress. Differences surfaced immediately, however, even among prominent Republicans. The contentious issues were the size of the proposed benefit hikes, whether all increases should be effective back to the invasion of Afghanistan, and whether a substantial increase in the lump-sum death gratuity should go only to next of kin of persons killed in war zones.

Sen. Jeff Sessions (R-Ala.), a member of the Senate Armed Services Committee, was first to champion higher death benefits with a mid-January unveiling of an initiative he said he negotiated with David S.C. Chu, undersecretary of defense for personnel and readiness. Sen. Joseph Lieberman (D-Conn.) joined Sessions in sponsoring the bill.

The Honoring Every Requirement of Exemplary Service (HEROES) Act (S. 77) would boost total death benefits by \$238,000 for survivors of service members killed in Iraq and Afghanistan.

First, the military death gratuity

would be raised from the current \$12,400 up to \$100,000, but this change would apply only to deaths in a combat area. Second, maximum coverage under the Servicemembers' Group Life Insurance (SGLI) program would be raised from \$250,000 up to \$400,000. Any service member could buy the additional \$150,000 in coverage by paying higher premiums of \$9.75 a month. Premiums would be waived when a member deploys to a combat area. Indeed, even members who declined SGLI would be covered for the first \$150,000 while in a combat area to ensure that, in event of their death, families would receive some additional financial help.

Senate Majority Leader Bill Frist (Tenn.) on Jan. 21 unveiled a Republican leadership initiative on death benefits which, he said, would be a legislative priority this year.

Frist said the leadership plan was prepared in a working group that included the chairmen of the Armed Services and Veterans' Affairs Committees and four other leading Republicans, including Sessions.

But Sessions, through a spokesman, said he would continue to press for his more generous HEROES package. Sessions said he also wants SGLI to include a "no surprises" feature, as used with the military's Survivor Benefit Plan. Members who opt out of maximum coverage would need to show that their spouse or other next of kin knew of the decision.

### Other Approaches

Sen. Carl Levin (D-Mich.) on Jan. 24 introduced legislation that would raise the death gratuity to \$100,000. Although the maximum SGLI coverage would rise only to \$300,000, there would be no additional cost to members and no automatic war zone coverage. Only the higher death gratuity, not the higher SGLI, would be applied retroactively to war deaths since the fall of 2001. Levin's bill is called the Standing With Our Troops Act of 2005 (S. 11).

Another bill, Military Death Benefit Improvement Act of 2005 (S. 44), introduced on Jan. 24 by Sen. Chuck



Hagel (R-Neb.), is similar to his 2004 legislation and also would raise the death benefit to \$100,000. It would apply to all service members on active duty who have died since Sept. 11, 2001.

In the House, Reps. Spencer Bachus (R-Ala.) and Dennis Moore (D-Kan.) introduced H.R. 292 to increase the military death benefit to \$100,000. It quickly attracted more than 50 co-sponsors. It too would make the death gratuity increase retroactive but to Sept. 10, 2001. Bachus said a similar bill he introduced in the last Congress had 219 sponsors.

### The Pentagon Plan

The Pentagon unveiled its plan to increase the one-time death gratuity to \$100,000 but only for those killed in certain areas. In responding to questions about the plan during Senate testimony on Feb. 1, Chu said that the "premier objective here is to provide for [the families of] those who have fallen in Iraq and Afghanistan."

At the same Senate hearing, top military leaders criticized the distinction raised by the plan. Gen. T. Michael Moseley, USAF vice chief of staff, said, "We have people in advanced composite force training preparing for combat, which in some cases is as lethal as actual combat."

Moseley went on to say that the services have "mechanisms" to determine whether deaths are actual line-of-duty deaths. He said, "We would welcome the opportunity to work with the department to finesse those details, but I believe a death is a death."

### Ending DIC Offset

Advocates for military widows are urging Congress this year to address the widows' concurrent receipt issue: the reduction in Survivor Benefit Plan payments that occurs when widows begin drawing Dependency and Indemnity Compensation (DIC) from Veterans Affairs.

The DIC offset lowers or eliminates SBP for nearly 50,000 widows. The Gold Star Wives of America, joined by most service associations, says it's time to help survivors of duty-related deaths keep their SBP benefits. The Military Coalition, an umbrella group of three dozen service associations including the Air Force Association, lists elimination of the DIC offset as a top priority for the legislative year.

The issue was scheduled to get its first airing this year before the Senate Veterans' Affairs Committee in February.

Current law requires the Defense Department to reduce SBP payments by the amount VA pays eligible widows in tax-free DIC. Widows argue that reducing SBP is particularly unfair because the decision to participate was voluntary and members bought coverage through monthly premiums. Although a prorated amount of the premiums is returned when SBP payments are stopped, widows don't receive the income protection planned.

Lawmakers included a measure in the Veterans Benefits Act of 2003 that they believed would not only restore DIC payments to a retiree's spouse who remarried at age 57 or later, but also would eliminate the dollar-for-dollar offset. However, DOD lawyers interpreted the measure as simply restoring DIC payments.

Sen. Bill Nelson (D-Fla.) introduced a bill that would end the DIC-SBP offset and move up, from 2008 to 2005, the effective date of the SBP "paid-up" law. Rep. Henry Brown (R-S.C.) was to introduce a similar measure in the House.

Congress voted several years ago to end collection of SBP premiums for covered retirees when they turn age 70 or hit 30 years of SBP coverage, whichever came later. But to save money, the effective date of paid-up SBP was delayed until 2008. As a result, those who enrolled in SBP in the early years will have to pay up to 36 years of premiums versus only 30 years for those who signed up after 1978.

Sen. Jon Corzine (D-N.J.) and Rep. Jim Saxton (R-N.J.), who have pressed colleagues to accelerate implementation of paid-up SBP, will join Nelson and Brown as primary co-sponsors.

### High-3 Impact

Congress fell short of its goal to raise retroactively the disability benefits for National Guard and Reserve personnel injured while on active duty on or after Sept. 10, 2001. The culprit was imprecise legislative language. The result is that there will still be a disturbing disparity in retired pay between active and some reserve personnel disabled by service in Afghanistan and Iraq.

The law only permits recalculation of pay for reservists awarded disability retirement on or after Oct. 28, 2004. It failed to make the revised pay retroactive for those injured since the war on terrorism began.

Defense lawyers and policy-makers, who reviewed the language care-

fully over two months, found no way to interpret it more broadly. So in late December, officials issued guidance to military finance centers to apply the more favorable High-3 formula only to disability retirements from Oct. 28, 2004, when the law was signed.

The High-3 retirement formula affects any member who first entered service on or after Sept. 8, 1980. Those who joined earlier, and who serve 20 years, have annuities based on a percentage of final basic pay. Retirees under High-3, however, receive annuities based on average basic pay over their highest-three earning years, usually their last three years of active service, when basic pay was much lower. At DOD's urging, Congress stipulated in the 2005 defense authorization that disability retirements be computed for High-3 Guard or Reserve members as though their most recent three years had been served on active duty. (See "Action in Congress: Reserve Disability, SBP Awards," December 2004, p. 22.)

### Military Coalition Priorities

In addition to the DIC offset issue discussed above, the Military Coalition lists several other legislative priorities for 2005. They include:

- Giving members and families of the Selected Guard and Reserve full access to Tricare, on a cost-share basis, when members are not on active duty.

- Reducing from 60 down to 55 the retirement age for Guard and Reserve personnel.

- Full funding of the military health system to meet all readiness needs, including graduate medical education and continuing education, to provide both direct care and purchased care to all beneficiaries, regardless of age, status, or location.

- Continued expansion of concurrent receipt legislation—both Combat-Related Special Compensation and Concurrent Retirement and Disability Payments—to more disabled retirees not eligible under the current statute.

- Elimination of perceived inequities in the Uniformed Services Former Spouses Protection Act, to include basing award amounts to former spouses on members' pay grade and years in service at the time of divorce, not retirement.

- Offering tax credits for employers of Guard and Reserve members who pay activated members a reduced amount to make up any drop in pay from time on active duty. ■

# To our loyal members,



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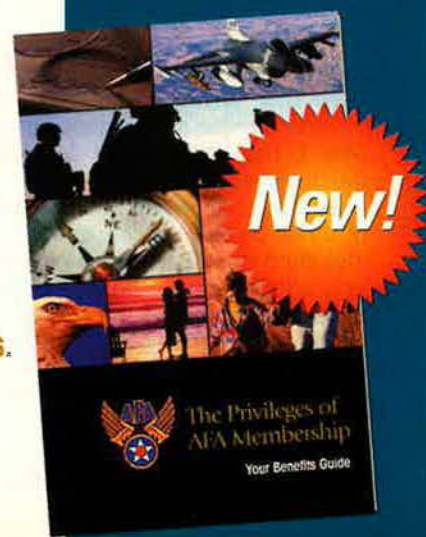
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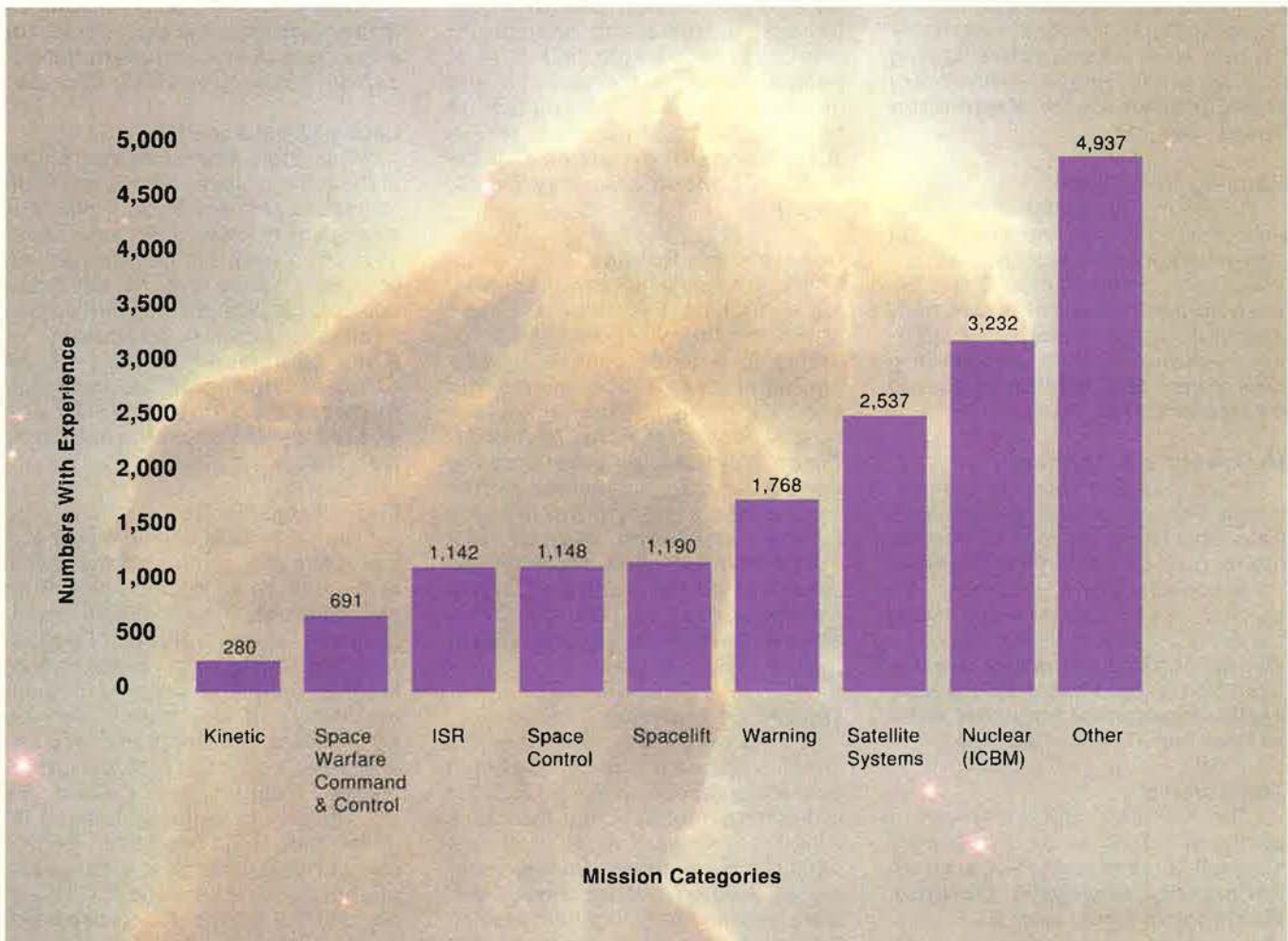
# The Chart Page

By Tamar A. Mehuron, Associate Editor

## Building the Space Cadre

The Pentagon has focused much attention on building a "space cadre" in the services. For its part, USAF mounted a major effort to develop such a professional group, whose members have not only the education but also the experience to develop US space power and apply it to combat, intelligence, and other national security missions. Air Force Space Command says that, as of Dec. 1, 2004, it had 7,449 "credentialed" space professionals—5,982 officers and 1,467 enlisted members

with "cadre"-level experience. (Totals for each mission area refer to airmen having "experience" in that area—not the actual number of airmen working in that area. Some have experience in two or more mission areas.) Space Command is struggling to break down the large "other" category into new mission areas.



# Verbatim

By John T. Correll, Contributing Editor

## Part of History

"In five years or 10 years or 20 years when you're talking to your children or your grandchildren, you're going to be able to look back on your service here and what's been accomplished in this country with great pride and know that you have been a part of history."—**Secretary of Defense Donald H. Rumsfeld to US troops in Tikrit, Iraq, Dec. 24.**

## Not in Ground Combat

"There's no change of policy as far as I'm concerned. ... No women in combat. ... Having said that, let me say, we've got to make sure we define combat properly. We've got women flying choppers and women flying fighters, which I'm perfectly content with. I think you're talking about ground [combat]."—**President Bush, interview with Washington Times, Jan. 11.**

## Causing Non-Peace

"If Taiwan independence elements unilaterally change the status quo and intentionally divide the nation, under such circumstances China will have no alternative but to use non-peaceful means to solve the problem."—**Hong Kong's pro-Beijing newspaper, Wen Wei Po, as quoted by Reuters, Dec. 26.**

## McGovern's Reasoning

"I'm for keeping Donald H. Rumsfeld as Secretary of Defense because he is against increasing the number of American soldiers in Iraq. Sending more soldiers only means more targets for those Iraqis who don't want our Army occupying their country."—**George McGovern, former Senator from South Dakota and 1972 Democratic Presidential nominee, letter to New York Times, Dec. 25.**

## Transfusion

"The Air Force and the Navy are paying the bills to fix the Army's shortfall in resources."—**Loren B. Thompson, Lexington Institute, Washington Post, Jan. 5.**

## Abe Rumsfeld

"Rumsfeld needs to take a cue

from Abraham Lincoln, Winston Churchill, and other great military leaders of democracies. By all means, he should challenge, cajole, probe, and question his uniformed military—and then challenge them again. But he should also encourage true dialogue, in the hope of achieving a dynamic, creative tension within the Pentagon on everything from warfighting to transformation. This is the path to healthy civil-military relations—and to true civilian control of the military."—**Mackubin Thomas Owens, Naval War College, National Review Online, Jan. 5.**

## Why Catch Osama?

"You can make the argument that we're better off with him [at large]. Because if something happens to Bin Laden, you might find a lot of people vying for his position and demonstrating how macho they are by unleashing a stream of terror."—**A.B. Krongard, departing CIA executive, London's Sunday Times, Jan. 9.**

## Generals and Politics

"I don't know of any precedent for something like this. A retired group of military officers bands together to virtually oppose a Cabinet nominee? And a nonmilitary one? It's highly unusual, to say the least."—**Richard H. Kohn, former Air Force historian, on a letter to the Senate Judiciary Committee signed by a dozen high-ranking military officers (including retired Air Force Gen. Merrill A. McPeak) expressing "deep concern" about the nomination of Alberto R. Gonzales to be attorney general, Washington Post, Jan. 4.**

## Wasted on Retirees

"To the extent that added pay and benefits ensure the nation does right by the men and women who fight for it, these [personnel cost] increases would seem worthwhile. Unfortunately, a large share of new spending is devoted not to helping soldiers serving today, but to improving the benefits for military retirees—that is, the small minority of veterans who stay in the military for 20 years or

more and are eligible for immediate benefits upon retirement. ... These deferred entitlements do nothing to help men and women now in uniform."—**Cindy Williams, Massachusetts Institute of Technology Security Studies Program, New York Times, Jan. 11.**

## Al Qaeda and WMD

"I would say that from the perspective of terrorism, the overwhelming bulk of the evidence we have is that their efforts are focused on biological and chemical [weapons]. Not to say there aren't any dealings with radiological materials, but the technology for bio and chem is comparatively so much easier that that's where their efforts are concentrating."—**John R. Bolton, undersecretary of state for arms control and international security, Washington Post, Dec. 29.**

## Lack of Postwar Plan

"While there may have been 'plans' at the national level, and even within various agencies within the war zone, none of these 'plans' operationalized the problem beyond regime collapse. There was no adequate operational plan for stability operations and support operations."—**Army Maj. Isaiah Wilson III, an official historian of the campaign in Iraq, in a study obtained and quoted by the Washington Post, Dec. 25.**

## Four Things To Do

"The US should consider four collaborative steps with both traditional and potential allies, including Russia and China. First, it should broaden joint experimentation. Second, a collaborative 'spiral' development program should be adopted for similar classes of information technology. Spiral development involves the early use of prototype equipment by troops to test it. Third, the US should dramatically expand its multinational R&D efforts. Finally, personnel exchanges within each of the three areas should be expanded."—**Arthur K. Cebrowski, then Pentagon director of force transformation, London's Financial Times, Jan. 5.**



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# The Network Way of War

By John A. Tirpak, Executive Editor

**W**ITH gathering momentum, the Air Force is moving to implement its vision of “network-centric warfare” (NCW), working hard to extract as much information as possible from existing sources of data and streamline the means by which airmen can use the information in combat.

In December, the service consolidated three of its information and communications organizations into a single entity with primary responsibility for NCW.

It also has accepted from the Air Force Scientific Advisory Board a new blueprint on how to better integrate allies into the network to improve combined-force operations.

Finally, the Air Force is following a “flight plan” that calls for USAF to realize even its most visionary NCW aims before 2014, potentially revolutionizing the way the service fights in less than a decade.

The Air Force vision anticipates a future in which each force element, no matter how small, is constantly collecting data and “publishing” it over the military Internet. Information would flow in from every corner, from big intelligence-surveil-

*The future US military information network will draw from virtually every platform and sensor—such as the targeting pod on the F-16, above right—even without the pilot knowing it. Information will be piped to combat centers such as the Joint Warfighting Center, below right, but with increasingly automatic processing to steer the data where it needs to go.*





USAF photo by SSgt. Aaron D. Allmon II



Northrop Grumman photo



**Marines at an ops center at U Tapao, Thailand, CAOC set up an information network. Future network systems will anticipate the kind of data users need and pipe it to them without being asked.**

lance-reconnaissance collectors, such as the E-3 AWACS and E-8 Joint STARS, all the way down to airmen on the ground.

Automatically applied rules will channel information to those who need it and in the detail they require. The information will be secure, and it will have been properly analyzed so that commanders and operators can use it for decision purposes.

### Speed and Quality

"We certainly want speed of transmission, but we also want to transmit quality information," said Lt. Gen. William T. Hobbins, the Air Force's deputy chief of staff for warfighting integration. The objective, he added, will be Gen. John P. Jumper's oft-stated goal: to get a cursor over a target.

In December, Secretary of the Air Force James G. Roche ordered the consolidation of Hobbins' group with that of the USAF chief information officer and directorate of communications operations. The result is a single organization for developing policy on information and communications and carrying out programs associated with that policy.

Hobbins is directing the transition. The Air Force has not yet named a leader for the new organization, which will be called the directorate for networks and warfighting integration. The service was expected to appoint a three-

star officer with a civilian senior executive service deputy. The director will report to the Secretary of the Air Force.

In a joint memo directing the change, Jumper and Roche provided a basic rationale: The Air Force "has long recognized the growing dependence of warfighters and decision-makers on information generated and shared across worldwide networks. Successful provision of warfighting integration requires an enterprise approach of total information cycle activities including people, processes, and technology."

An "enterprise" approach simply means that all elements of the network are coordinated and working toward the same goals, Hobbins explained.

There is no single major program on which NCW is focused. Rather, it will be the sum of many programs—some involving hardware, but many involving procedures—that will seek to make the vast amount of data already collected by the Air Force and the other services available to commanders and shooters. The concept of NCW will also exploit previously unused methods for collecting information and work to fuse all data into a format that can be readily accessed and understood.

Hobbins describes the big ISR platforms, such as Joint STARS and AWACS, as "haystack gatherers" that collect vast amounts of data at a single gulp. Meanwhile, fighters

and unmanned aerial vehicles, which he calls "needles," more narrowly gather targeted data.

The big platforms will create a grand view of the battlespace for a joint force air component commander (JFACC), Hobbins said, but these systems will feed an even larger picture of the area of operations showing the location of all US or coalition aircraft. That will help the system tap some sensors when more detail is needed.

For example, Hobbins said, a fighter equipped with the Low-Altitude Navigation and Targeting Infrared for Night targeting pod heading back from a mission might be tasked to provide battle damage assessment of a target struck minutes earlier and within five miles of the fighter's flight path.

"We can anticipate that he would be in a position to take a picture of that target" using the pod, Hobbins said.

### Tip-Offs

He also said that work is being done now to create an awareness within the network of new sources of information as they arise and alert those who might benefit from that data.

The military is approaching NCW with many ideas borrowed from commercial use, he said. Just as companies monitor an Internet user's activities to better target him or her for ads addressing his interests, the Air Force will employ a similar notion to steer relevant information to military operators.

"It anticipates," Hobbins said. The system as envisioned will predict "what the warfighter needs before he needs it, just by virtue of knowing historical approaches and data."

The network will keep track of the kinds of information requested by users at particular Internet addresses and will alert those users when "a new domain with that kind of information" becomes available, Hobbins explained, noting the example of the fighter aircraft passing near a target area. He added, "I think that is the future."

On the military Internet, one already finds "communities of interest" that either produce complementary data or have a need for a particular kind of data. They will be in close contact with each other and work to fuse their data collections.



Along with the products of other communities of interest, information will be passed to combined air operations centers, or CAOCs. There, raw or processed data will be further fused together to produce an easy-to-understand master battle picture.

Jumper has for years promoted the development of what he calls the “data wall.” The image is of a large wall covered with a map showing the territory of interest. On this virtual wall, a JFAAC would simply run a cursor over a particular target and say, in effect, “Tell me about this,” and get all available information from many parts of the electronic spectrum.

The data wall is “still a few years away,” Hobbins said, “but I think we’re marching fast toward [Jumper’s] vision.”

The initial version of the data wall, soon to be in place, will show a list of assets capable of watching a point of interest, Hobbins said. The system would tell the commander “you have the Global Hawk here, you have the U-2 here, we recommend you move this asset over ... [or] notify these special operations forces on the ground 48 miles away,” said Hobbins.

The commander would be able to decide—with help from analysts looking at the data from all over the world—whether to attack or shadow the target.

“The data wall would instantly fuse information from not only DOD sources but also from national sources,” Hobbins explained. It would show when a satel-



*The future network will be “self-forming and self-healing,” cuing commands on how to deploy sensor aircraft for maximum effectiveness. Big frame aircraft such as this Joint STARS will continue to be in demand.*

USAF photo by SSgt. Aaron D. Allmon II

lite might become available or when a reconnaissance aircraft could be diverted to examine a pop-up point of interest.

The network will speed the identification of a target, assess what it’s up to, and decide whether it needs to be struck. It will also work to prevent fratricide by keeping an up-to-date catalog of the location of friendly forces.

US and coalition forces will be able to report positions in an automatic and secure way. The aforementioned fighter with the targeting pod might be tasked to take a picture and

send it to the CAOC without the pilot knowing it had happened.

### Smart Tankers

To bolster the network, the Air Force is also following Jumper’s proposal to use aerial tankers as Internet relays that can automatically move data around in the combat area.

A number of USAF’s KC-135 tankers have been equipped with a system called ROBE, which stands for Roll-on, Beyond Line-of-Sight Enhancement. These Internet relays literally can be rolled onto tankers modified with the right external antennas to provide more bandwidth (a measure of the rate at which data moves from one electronic device to another) and more “pipes” for information flow.

Fighters with the targeting pods and the tankers with the Internet relays are but two examples of aircraft accomplishing more than one mission at once. Jumper has repeatedly said that the days of “single mission” aircraft are over.

The F/A-22 Raptor, for example is the Air Force’s next generation air superiority and deep strike stealth fighter, but it also has the most formidable array of sensors ever deployed on a combat aircraft and will be a gold mine of data, Jumper said.

Speaking at a Capitol Hill symposium on fighter aircraft in late January, Jumper said, “You put a four-ship of F/A-22s out there, spread them about 40 miles apart, and you

Photo via Lockheed Martin



*Above is a view through a Sniper targeting pod. Most platforms have sensors that can contribute to the shared battle database through networking. Pods such as Sniper will be used for bomb damage assessment as well as targeting.*



**The Air Force, Navy, and German forces will operate Global Hawk, shown here. Building coalition networks that trade and distribute combat data without compromising sources will be tricky.**

have an unbelievable ISR collection platform" gathering data on air defenses, threat radars, the disposition of enemy forces, ground moving targets, and enemy communications.

However, Jumper said, the information collected would ordinarily be considered "so secret that only four people flying the airplanes can look at the data." He added, "That's ridiculous."

The Air Force, he went on, is investigating ways "to get that sort of information out there in the network [and] divorce it from its source." Tapping into such sources yields huge amounts of high-quality information, the Chief said, and the Air Force is determined to break the bureaucratic constraints on using it.

"What we've got to do is stop dealing with it in stovepipes and in terms of ownership," said Jumper. "We can do a lot better, and we've got a long way to go."

At present, USAF moves information around its aircraft fleets via the Link 16/Joint Tactical Information Distribution System. The Link 16 system is already in use on many platforms. Plans call for it to be installed on all Air Force aircraft by 2010.

Link 16 allows various aircraft to share text information describing target coordinates, fuel situations, and so forth, all without use of voice communications. However, it lacks the power and bandwidth to send more sophisticated information, such as images.

Already in the works is the new

Joint Tactical Radio System, which can move Link 16-type information, but it will be able to move more data, and more kinds of data, at greater speed and at greater distances than is the case with Link 16.

For now, much of the information moves through the ground-based Global Information Grid.

The new JTRS has been embraced by all of the services. "We will get ourselves an airborne network that is self-forming and self-healing, over the top of this ground GIG," Hobbins said. "Then we'll launch satellites over the years, and that will, in ef-

fect, connect to the airborne net as well."

USAF's plan, Hobbins went on, is to build on that worldwide information grid with its C4ISR flight plan. The plan has laid out various air, space, and terrestrial steps and set out a vision for how it will develop in years to come.

However, the services' appetite for information is voracious, and there simply aren't enough pipes to supply every user with all of the data he wants, all the time, Hobbins said.

The big challenge will be in deciding how to set priorities, select which users should be favored, and optimize the system for the proper degree of detail and depth. Fighters closing on a target at 600 mph, he said, need target updates faster than an Army unit advancing at 20 mph.

Plans call for the Advanced Extremely High Frequency Satellite Communications System, which will be launched within a few years, to dramatically increase the throughput of data for the airborne network, but steps are already being put in place to limit the claims levied on it. The services, say officials, must be forced to rein in their demands for information.

### Work-Arounds

There are work-arounds, however. Jumper has urged going with a "John Madden" feature in which a ground controller could make marks on an image already in the files of an aircraft above a target, pointing out



USAF photo by SSgt. Cohen A. Young

**Bandwidth—the transmission capacity on any given channel—is in perpetually short supply. Predator operations (shown here at Balad AB, Iraq) require lots of bandwidth to send real-time imagery.**

landmarks and indicating where the pilot should put his ordnance. Sending an image might take up too much bandwidth, but digital “grease pencil” lines on an image that both the ground and air elements already have would consume far less bandwidth.

At present, the Air Force maintains five CAOCs, located at military facilities in Qatar, Germany, South Korea, Arizona, and Hawaii. Hobbins said the Air Force plans to make the five capable of duplicating each others’ functions. That would mean, if one goes down or becomes “stressed” by the weight of effort, the others can pick up the slack without missing a beat, he said.

The CAOCs have a theater battle management core operating system that can run 37 applications, Hobbins said. The idea is to get all those disparate applications to feed a common database that can tap a variety of sources and present information in a consolidated fashion.

The Air Force is moving out on a program called Theater Battle Operations Network Environment. It will have one database which allows instant sharing of information not only at the operational (or CAOC) level but also at the wing level and then all the way up to the joint force commander level.

Combat personnel will be able to participate in planning as that planning is actually happening, said Hobbins, “and be able to change input [and] help the planners.” This capability will be in place in April 2006. Noted Hobbins, “That will be a huge improvement for us, because we are ... going to one database, and that database will be aligned with the US message text format, which all our coalition allies already align their data elements to.”

The Air Force is not developing its network-centric warfare systems in isolation. In the past few years, the Pentagon has put heavy emphasis on NCW as a hallmark of transformation. Pentagon leaders believe that a strong and flexible network will not only speed up the pace of warfare and prevent fratricide but also provide the means for getting more combat power out of a smaller force.

“All four services have kind of gotten together and we’ve laid out our individual needs that kind of match what it is we’re trying to do in these



USAF photo by SSGT Samuel Rogers

*More than just a fighter and attack platform, the F/A-22 will have a wide array of sensors onboard, making it a valuable ISR platform well behind enemy lines. Automatic control of who gets the data poses a challenge.*

areas,” Hobbins said, “and we all agree that there are key critical enablers that we have to worry about and have to [protect] through our respective service budgeting processes.”

### Matching Up

The separate branches, he said, are working to make sure their architectures match so that all of the services can take advantage of each other’s programs. That will greatly assist each service in deciding what it really needs to buy.

Likewise, the Air Force can’t operate in isolation from its allies. Sharing of data has become critically important in successfully managing air operations with the disparate air forces of other countries.

In the fall, the Air Force Scientific Advisory Board released a major report called “Networking To Enable Coalition Operations.” It warned that both policy and hardware must adapt to make sure the US doesn’t freeze out the collaboration of allies in future air campaigns.

The panel warned that the US has been “risk averse” in sharing battle data with its allies. It recommended a change to a new culture which values sharing as much as possible, as frequently as possible, especially since some allies have data that would be valuable to the US in wartime. It suggested creating “streamlined approval processes” to improve coalition air operations.

The board said the Air Force and

its allies should regularly train, sharing data as they would in wartime. It advocated a system where “metadata”—information about information—can rapidly identify what’s releasable to an ally and what isn’t. Digital “tags” can be applied to all types of information, accelerating the process of determining which allies can open and use it and which ones can’t.

The board also suggested that the Air Force designate the combined AOC as a weapon system and set as one of its key performance parameters—the benchmarks by which a weapon system is judged—how well it can coordinate coalition air warfare. This designation would make improved, faster data sharing with allies a priority and work to beat down resistance to sharing, the SAB said.

The Air Force should also take the lead in making sure allied efforts in networking can coordinate with and complement what the US systems do and should encourage allies to adopt systems that can plug into the US network, the SAB recommended.

Hobbins said USAF is going ahead with the implementation of many of the SAB suggestions.

“We’re taking off with this data strategy that clearly marks the information with its releasability levels—first mark and tagged information—and that’s a system that reads those tags and passes them along, allows ‘push’ and ‘pull’ of information to the right user.” ■

**Air Force special operators are in heavy demand and perpetual motion around the world.**

# The Air Commandos

**By Adam J. Hebert, Senior Editor**

**I**n the Global War on Terror, the nation's lethal and secretive special operations forces have been giving the Pentagon what it desperately wants and needs—the power to find, track, and destroy small units of bad guys, and even a lone terrorist, and do it without a ripple of publicity.

The war on terror, in fact, shapes up as a campaign for which the Air Force's SOF commandos are "particularly valuable," said Lt. Gen. Michael W. Wooley, the commander of Air Force Special Operations Command, headquartered at Hurlburt Field, Fla.

As a result, AFSOC will soon see increases in manpower, responsibilities, and equipment.

SOF airmen work in unusual ways, performing missions that differ greatly from those of conventional military forces. Combat controllers work on the ground, sometimes with Army forces, to coordinate air attacks against small or mobile targets. AC-130 gunship crews can devastate enemy forces even if they are close to friendly units. Pararescue jumpers (PJs) recover troops trapped in enemy territory. SOF helicopter and airlift crews secretly insert commandos and supplies into hostile areas and extract them after they have done their work.

Wooley noted that these air commandos also have the ability to pinpoint and track individuals, capture them alive, and search for critical intelligence. These capabilities are of paramount importance

in a murky war against small, elusive groups of enemies who move back and forth over undefended borders.

Because of its value to the war on terror—a conflict that is not expected to end anytime soon—AFSOC is expanding. From a Total Force end strength of 12,466 SOF airmen in 2002, the command will grow to 21,580 in Fiscal 2006. (The expansion includes the addition of the combat search and rescue mission in 2003.)

The air commandos are "Ph.D.s in the ability to manage chaos," said Col. O.G. Mannon, commander of the 16th Special Operations Wing at Hurlburt. Details of SOF operations are almost always held secret. How-

*Air commandos, including special operations forces aircrews, pararescue jumpers, combat weathermen, and the pictured combat controller, are well-suited for the war on terror's small targets and constantly shifting demands.*







*Air commandos constantly work and train with other services, creating relationships that pay off in wartime. Here, HH-60 gunners prepare to pick up PJs and survivors during a rescue exercise at Biggs Army Airfield, Tex.*

ever, a few aggregate numbers suggest the pace of activity in the Air Force community.

### Heavy Usage

From September 2001 through November 2004, an average of more than 8,500 of AFSOC's 20,000 air commandos were deployed to operating locations around the world for the war on terror. In that same period, SOF aircrews flew more than 11,000 combat sorties, performed more than 200 paratroop drops, and destroyed well more than 100 buildings and 100 vehicles, most of which were high-value or fleeting targets.

Capt. Paul Pendleton, an MC-130 Combat Talon navigator, pointed out that SOF are valuable because they "take higher risks to accomplish higher gain."

The war on terror has unfolded amid numerous political sensitivities. Some nations supporting the US must do so covertly because their populations oppose cooperation with Washington. In the case of AFSOC, however, the problem is not so large. AFSOC is capable of working with coalition partners clandestinely.

"Often our AFSOC folks are working, ... and no one even knows we're in the country," Wooley said.

Teams of air commandos over the years have built up highly advantageous overseas relationships, a fact that paid off in a big way after 9/11. At the time of the New York, Pennsylvania, and Washington, D.C., at-

tacks, members of AFSOC's 6th Special Operations Squadron were in Uzbekistan undergoing language training. Their presence in that nation, and familiarity with key military officials, helped pave the way for use of Uzbek facilities for Operation Enduring Freedom in nearby Afghanistan.

The existing relationship allowed the US to set up—in four weeks—basing and overflight agreements with Uzbekistan that otherwise would have taken six months to finalize. This return on investment prompted Army Gen. Bryan D. Brown, US Special Operations Command chief, to ask AFSOC to look into increasing the size of the 6th SOS. Wooley said that move may pay "huge dividends."

AFSOC has been unable to reach its authorized manpower levels in recent years. Some of the battlefield airman career fields suffer from severe shortages. In early 2005, for example, AFSOC lacked 36 of its 300 authorized combat controllers. The command had only 54 percent of its 241 allotted positions for pararescuemen.

High wash-out rates among prospective commandos kept staffing low because it is "hard to get the right people," according to CMSgt. Howard J. Mowry, AFSOC's command chief master sergeant.

The staffing equation is improving. Mowry noted that training regimes have been adjusted so fewer prospective commandos are elimi-

nated "right out of the chute." In a break from past "sink or swim" training, AFSOC is working to ensure qualified candidates get through at least the first phase.

Some high-demand fields are expanding. Officials cite a projected gain of 101 pararescue jumper positions by 2010, and, with the training improvements, AFSOC anticipates adding 40 PJs a year until full staffing is reached.

### Standards Stay High

Mowry said it is critical that AFSOC keep its standards high and that it avoid any push to arbitrarily increase the size of the command. "I don't want a huge squadron of pararescuemen," he noted. Wooley echoed that view. "The standards are the standards," he said. "We have not lowered anything" to meet manpower goals.

Most battlefield airman career groups don't need more "seats," said Capt. Bo Birdwell of the AFSOC Commander's Action Group. They need full staffing, something that should happen soon—for the first time in at least 20 years—Birdwell said.

In a small, highly trained community, retention is critical. Several officials said the close-knit nature of the SOF community is a major reason so many airmen stay with the command.

Airmen with the 16th SOW tell the story best.

Capt. Eric Nimke of the 16th Equipment Maintenance Squadron said his unit "always" has several aircraft deployed, and the low-level, high-speed mission profiles are hard on the aircraft. One of Nimke's crew chiefs, A1C Joseph Massey, noted that when the helicopters break, they must be fixed immediately. This leads to long, unpredictable hours.

Capt. Kurt Dittrich, an AFSOC flight surgeon, has deployed seven times since 9/11. In a "bad year," that added up to 225 days deployed. And Capt. Chris Goodyear, MH-53 pilot, was deployed 12 of the first 18 months he was based at Hurlburt.

Yet none of the operators interviewed expressed misgivings about the optempo. They say it is what they signed up for.

The 6th SOS, a combat aviation advisory unit, was recently in Co-

## Now a Warfighting Command

Special operations forces now sometimes take the lead in organizing, planning, and executing a combat operation, venturing far from its traditional role in support of the main force.

Secretary of Defense Donald H. Rumsfeld in 2002 decreed that US Special Operations Command would at times become a warfighting command. The shift means SOF units are no longer always "supporting" other commands.

In the early days of Operation Iraqi Freedom, some conventional forces operating in the north of Iraq were put under the command of SOF units, said Col. O.G. Mannon, commander of the 16th Special Operations Wing at Hurlburt Field, Fla.

Mannon, who served as the deputy commander of Operation Iraqi Freedom's joint special operations force, said an airborne unit and other "conventional" troops worked "for SOF on the SOF campaign plan."

The Special Forces-led "economy of force" action in the north tied down 13 Iraqi divisions, preventing those units from heading south to battle the primary coalition force.

Army Gen. Bryan D. Brown, USSOCOM commander, has asked Air Force Special Operations Command to prepare to lead more missions in the future. The AFSOC commander must be ready to lead a joint task force, Wooley explained. He added that, in the future, an AFSOC commander may even be called on to be a joint force air component commander, or "air boss."

lombia, training that nation's air force in search and rescue and gunship operations. The squadron may soon head to Iraq to assist the nascent Iraqi Air Force.

Squadron members fly foreign nation aircraft, including the Soviet-built Mi-8 helicopter and older US aircraft such as the C-47 transport still in use by some countries. Until recently, even an An-2 Colt biplane was kept at Hurlburt, noted Capt. Thomas Knowles, squadron spokesman.

Mowry said AFSOC has "a different breed" of people, who are able to maintain a high level of morale even if deployed eight months a year. However, the Air Force has undertaken to smooth out SOF deployment schedules. The concern was that morale—and the force—would eventually "break" if a sustainable rhythm was not established.

### Battle Rhythm

Mannon said the 16th "jumped from target to target to target" for three years after Sept. 11, 2001. The command worked to create focused training and a battle rhythm of rotations.

One aspect of AFSOC training provides an "outstanding" basis for what the commandos will encounter overseas, said Goodyear, the MH-53 pilot. AFSOC introduces stress. Stress can be generated, for example, by preparing for a mission and having it changed at the last minute. About the

only thing that can't be simulated at Hurlburt, he said, is the "brownout" visibility conditions that occur when a helicopter lands in Middle Eastern sand.

Because the air commandos are generally exempt from the standard Air and Space Expeditionary Force

*AFSOC recently inherited the combat search and rescue mission. Pictured are pararescue jumpers being extracted by an HH-60G from the rooftop of an abandoned housing site in Baghdad.*



USAF photo by SSgt. Shane A. Cuomo

rotations, predictability has been a challenge. However, in 2004, new training and rotational policies finally kicked in and created a deployment rhythm that could be sustained.

Wooley said relief also has come by finding larger pools of special operations forces to perform some missions. One example involves the MC-130E Combat Talon I aircraft being used in Afghanistan. Wooley said other aircraft and crews have begun to take on some of the infiltration and refueling tasks previously handled by MC-130s. That permits some of the SOF aircraft to return home.

Strengthening the corps of battlefield airmen—those who operate on the ground and fight alongside land forces—is an Air Force priority. The war in Afghanistan led directly to AFSOC's battlefield airman initiatives.

First is the need to lighten the combat load the SOF airmen take into battle. Commandos supporting Operation Anaconda in March 2002 took 143 pounds of gear with them to altitudes above 10,000 feet, said TSgt. James Hotaling, a combat controller.

Speaking at the Air Force Asso-

## Building Rescue and Recovery

During Operation Allied Force, the NATO air war in the Balkans, two USAF fighters were shot down. Their pilots were rescued not by dedicated combat search and rescue (CSAR) forces, but by special operations forces that performed rescues as a side mission. Primary rescue responsibility shifted from Air Combat Command to Air Force Special Operations Command in October 2003. (See "CSAR, Under New Management," August 2003, p. 84.)

The primary Air Force CSAR helicopter is the HH-60 Pave Hawk, rapidly nearing the end of its service life. Along with responsibility for the CSAR mission, AFSOC also inherited the means—the 347th Rescue Wing at Moody AFB, Ga., and the fleet of Pave Hawks and HC-130s used for CSAR refueling.

AFSOC chief Lt. Gen. Michael W. Wooley calls rescue a "perfect fit" for the command. In one example, ACC rescue forces worked with AFSOC in June 2002, when an MC-130 crashed in Afghanistan.

Two HH-60s headed out to rescue survivors. En route, "aircrews received reports of 30 to 40 Taliban ... operating in the area," Wooley recounted last year. At the crash site, an AC-130 "provided overhead cover while the two helicopters landed," he said.

In brownout conditions, with "the flaming wreckage of the airplane" wreaking havoc on night vision goggles, the HH-60s set down and recovered the seven survivors. AFSOC's TSgt. Sean M. Corlew and SSgt. Anissa A. Shero and Army Green Beret Sgt. 1st Class Peter Tycz II died in the MC-130 crash.

While CSAR still belonged to ACC, an analysis determined the 105 HH-60s should be replaced by 132 larger helicopters, fielded around 2011.

AFSOC needs to field the next generation capability sooner, said Col. Tracey Goetz, the command's requirements chief. There have been "enough significant changes" in strategy to justify another look at the requirement, he told *Air Force Magazine*.

Some of the HH-60s already surpass their 7,000-hour service lives.

Priority No. 1 is avoiding another service life extension for the HH-60s, which have "pretty significant capability shortfalls we need to fix," Goetz said.

Wooley said AFSOC is "constantly looking for ways" to accelerate the next generation Personnel Recovery Vehicle program, to achieve initial operational capability as soon as 2009.

A system could be fielded quickly because, unlike the ground-up development of the CV-22, the new PRV will be an off-the-shelf purchase, modified for SOF use.

Tracey Goetz, AFSOC requirements director. In addition to cutting weight, a new Battlefield Airman Operations Kit is being developed to increase capabilities. It includes a laptop computer able to quickly communicate with distant forces, receive intelligence, and coordinate attacks.

On the upside, Hotaling praised the work of the Predator unmanned aerial vehicle in Afghanistan. "The Predator was actually my point man" during Anaconda, he said.

AFSOC is now the lead agency for developing small UAVs (defined as anything smaller than the Predator). Last year, about 150 small surveillance UAVs were in service, and the goal is to eventually get a tactical UAV to every battlefield airman. Wooley noted the miniature UAVs now used by combat controllers provide intelligence up to three miles ahead. That allows targets to be tracked or targeted "before a firefight has the opportunity to break out."

## Scarce Systems

AFSOC owns a handful of each of its aircraft types. With such small numbers of aircraft, in numerous configurations, the Air Force special operators don't have much equipment depth. The equipment is often essentially hand-built for a mission. For example, the primary helicopter for pickup and delivery of commandos is the MH-53. AFSOC owns only 32 of them.

ciation National Convention in September 2002, Hotaling called the load "completely unacceptable." Battlefield airmen frequently carry more than 160 pounds of gear, with heavy batteries adding the most weight.

This problem is hard to solve. Wooley said AFSOC has "stated corporately" that it must cut in half the weight battlefield airmen take into combat—and double the capability of that gear.

AFSOC seeks lighter weights, longer-lasting power, and interchangeable batteries to reduce "distinct components" with unique power requirements. Battery technology is "a huge limiting factor," said Wooley, but AFSOC is confident it can field a kit that meets the weight requirement.

For the battlefield airmen, "the human is the platform," said Col.



Modernization programs will replace AFSOC's aging helicopters, which are still effective but increasingly difficult to keep combat ready. The MH-53 Pave Low, pictured here, will pass its commando delivery mission to the CV-22 Osprey.

USAF photo by MSgt. Dave Nolan



The EC-130 Commando Solo operated by the Air National Guard to conduct psychological operations is heavily tasked every time a new operation kicks off. Eight aircraft will be in the inventory—once a conversion to new EC-130Js is complete.

The AC-130U, AFSOC's advanced gunship, is a fearsome weapon based on converted Hercules transports. The command owns just 13 of them, though.

Since the high demand for SOF capabilities is not expected to let up, DOD plans call for an overall expansion. Modernization will replace many aging systems with larger numbers of advanced replacements.

The highest-profile acquisition is the CV-22 Osprey tilt-rotor, replacing the Vietnam-era MH-53 for com-



USAF photo



USAF photo by MSgt. Robert R. Hargreaves Jr.

*AFSOC's airmen remain ready to fight in the air and on the ground. At top is an AC-130 gunship, a perpetual favorite of ground forces needing air support. Pictured above, a PJ trains at Baghdad Airport in Iraq.*

mando infiltration and pickup missions. Officials say that, though the Pave Lows are still effective, it is increasingly difficult to keep them ready for use.

Plans call for 32 MH-53s to be completely retired by 2012, replaced by CV-22s. AFSOC will retire its MH-53s faster than it can bring the CV-22s on line. That will create a rotorcraft shortage from 2011 through 2014—assuming the CV-22's acquisition remains on schedule. That is a big "if."

On the plus side, the CV-22 offers "a real cross [mission] capability," Goetz said. The ability to take off and land like a helicopter but fly with the speed and range of a prop-

aircraft promises an entirely new set of operational concepts and will greatly increase the number of missions that can be performed in a single night.

The CV-22 may assume some missions now performed by both the MH-53 and MC-130 Combat Talon, Goetz said. AFSOC "looks to that to take some of the load off" the overburdened MC-130 fleet. Also in the works is an upgrade to AFSOC's MC-130H aircraft, adding the aerial refueling capability available on other Combat Talon variants. Currently, USAF also has 10 additional MC-130Hs on order.

"We need more air refueling ca-

pability right now," one official said.

Gunships are also getting some improvements. Walking around an AC-130U, one sees a collection of technology ranging from World War II-era guns to the modern video monitors for UAV feeds. The ability to receive live video feeds from Predator, however, has been an operational bonanza. The gunships continue to get rave reviews from ground forces for their ability to safely perform "danger-close CAS"—close air support against targets so close to friendlies that fratricide is a concern.

The command's 21 existing gunships (both AC-130H and U models) will grow to 25 aircraft by Fiscal 2006. Four new AC-130Us will have an updated gun configuration. In addition to the massive 105 mm howitzer, they will feature twin 30 mm guns, instead of the 25 mm and 40 mm weapons currently employed. Obtaining parts for the ancient 40 mm Bofors cannon has simply become a logistical nightmare.

AFSOC also seeks a next generation gunship. The command is worried that a C-130-based platform cannot work forever. Gunships are slow and difficult to protect. Goetz noted that they primarily fly at night, at a set altitude, and attack with a series of left turns. Therefore, they are generally restricted to low-threat environments.

AFSOC would like a future system to be stealthy and armed with missiles or perhaps lasers. It could be 2030 before such a system is on the ramp. ■

The Air Force says it wants a STOVL F-35. Is it right for today's combat environment?

# EXPEDITIONARY FIGHTER

By Rebecca Grant

**A**NYONE who has ever watched the Marine Corps AV-8B Harrier “bow to the audience” at an air show grasps the potential of short takeoff and vertical landing (STOVL) technology. Combine that potential with the Air Force’s recent experiences at expeditionary airfields and it’s easy to see why the service wants a “jump jet” variant of the F-35 Joint Strike Fighter.

“The STOVL version of the aircraft will give us an opportunity to have a dedicated close air support aircraft in the future,” said Gen. John P. Jumper, Air Force Chief of Staff. In mid-December remarks, Jumper said he believed the service would procure “250 or so” STOVL F-35s in the 2010-20 period.

During the 50 years since the appearance of the first experimental aircraft, the Air Force has at times taken a serious look at jump jet technology. However, the F-35 decision marks the first time the service has announced plans to buy a STOVL-type aircraft and give it a major role—support of ground troops.

From a technology standpoint, short takeoff and vertical landing aircraft have come a long way. The JSF model offers a combination of

*The Air Force wants an F-35 “jump jet” for its CAS role. At right, the STOVL variant of the X-35 comes down for a landing during testing at Edwards AFB, Calif.*



Lockheed Martin photo

power and performance never before seen in a jump jet. The question is whether the kinds of operational advantages provided by STOVL are essential for meeting 21st century Air Force missions.

Experiments with vertical/short takeoff and landing (V/STOL) technology began during the 1950s and 1960s. Test programs gave rise to a strange-looking zoo of aircraft, nearly all of which were plagued with flaws in power or control. Configurations ranged from the Navy XFY-1 "tail sitter" and USAF-funded Vertijet to tilt-wing turboprops.

Britain's Hawker-Siddeley Kestrel was the first combat system to master deflected jet thrust and to place vertical lift technology into a fighter-style airframe. The first Kestrel flew in 1964. The US joined Britain and West Germany in acquiring a small test group of aircraft.

Kestrel later grew into the world's first true V/STOL fighter—the Harrier—which began service with the RAF in 1969. Two years later, the US Marine Corps started buying its own Harriers.

### False Starts

By then, though, USAF already had considered and abandoned the idea of acquiring STOVL aircraft. In 1958, an early requirements definition for what became the F-111 fighter-bomber included a V/STOL feature. However, technical problems led the Air Force to abandon the effort in the early 1960s. In 1963, Gen. Curtis E. LeMay, the Chief of Staff, launched Project Forecast, a major system and technology review, which advocated development of new materials and propulsion for VTOL—vertical takeoff and landing. Still, nothing really came of it.

The issue arose again with the advent of the Harrier, but airframe limitations and technology compromises robbed the aircraft of any appeal for Air Force leaders. USAF went ahead with the F-15, F-16, and A-10 fighters, all optimized for different roles.

Meanwhile, the RAF and US Marine Corps pressed ahead with Harrier acquisition. The RAF wanted the aircraft to provide support for the Army's I Corps in Germany. They were to operate from hidden forward sites with aluminum planking runways or any available roadway. The US Marine Corps wanted the Harrier to operate off smaller ships with no



**A Sea Harrier takes off from its "ski jump" on a Royal Navy carrier during the 1982 war with Argentina over the Falklands. Both the RAF Harrier and Royal Navy Sea Harriers proved their worth during the conflict.**

need for catapult configurations. In 1972, the Royal Navy also began pursuing the Harrier, flying the first Sea Harrier variant in 1978, to fly off command cruisers fitted with "ski jumps."

The gamble paid off for Britain in the 1982 South Atlantic war with Argentina over the Falkland Islands. Sea Harriers based on the Royal Navy carriers *Hermes* and *Invincible* fended off attacks on British ships by ground-based Argentine fighters and scored 20 air-to-air victories with no air losses. RAF Harriers also joined the fight, launching off naval platforms to attack ground targets. Only four Harriers—two Royal Navy and two RAF—were shot down by ground fire. (A third RAF aircraft was struck by ground fire but made it nearly back to its ship before it ran out of fuel.)

The next combat test—the 1991 Gulf War—did not provide a ringing endorsement of STOVL capabilities.

Ashore and afloat, 84 Marine Corps Harriers joined the coalition air campaign against Iraq. They carried out about 3,400 sorties, divided almost evenly between air interdiction and close air support.

While pilot heroics abounded, the overall combat record was mixed. Five Harriers were lost, primarily on low-altitude ground-attack missions.

The Harriers were based close to Kuwait and flew short-duration ground-attack missions. For those reasons, they managed to turn in high

sortie rates. However, critics pointed out that the force required an enormous transport and supply operation. A postwar article by the *Los Angeles Times* reported that support took 2,000 marines at King Abdul Aziz AB, Saudi Arabia.

The Harriers contributed little to strategic battlefield-shaping operations, and the lack of advanced targeting systems was apparent. USAF's *Gulf War Air Power Survey* credited the AV-8 with just three precision guided missile strikes for the entire war.

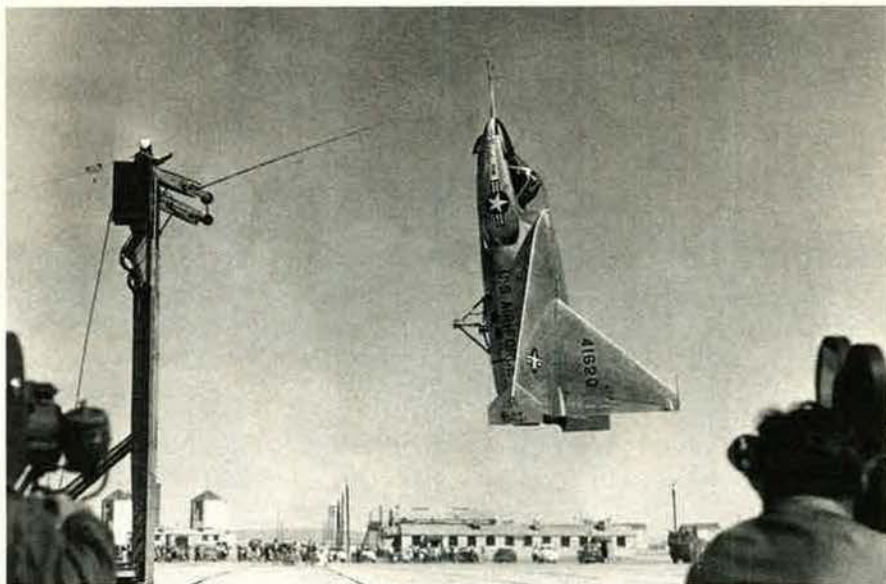
### Afghan Air War

Ten years later came the Afghanistan air war, which might have been a true test of the Marine Corps concept of bare-field basing. However, Harriers again played a minor role.

Harriers in small numbers joined in the air war in Afghanistan only after it was well under way. Two Harriers made a one-night deployment to Kandahar in November 2001, but the main contribution came from three groups of six Harriers embarked on three amphibious ships in the north Arabian Sea.

The AV-8Bs lacked laser targeting pods and could fly combat missions only when other aircraft did the "lasing" for them.

In October 2002, a six-airplane detachment of Harriers from Marine Attack Squadron (VMA)-513 set up shop at Bagram, near Kabul, where A-10s had been operating since March



**The early USAF venture into vertical takeoff and landing was the Ryan X-13 Vertijet, shown here on its first flight demonstration. Technical problems with this V/TOL concept led the Air Force to abandon subsequent efforts.**

of that year. They have helped meet the need to provide on-call air support from a local base.

At Bagram, however, poor runway stability and thin air at 5,000-foot altitude caused the Corps to nix vertical takeoffs. The main benefit to the Harrier deployment was that basing at Bagram improved on-station times.

The addition of Litening pods has made Harrier pilots valuable players in operations, but the benefits of the aircraft do not stem primarily from its STOVL capability. "I think the reason the AV-8s were used at all in Afghanistan was a tendency by the US military to give everybody their turn, whether you needed them or not," Anthony H. Cordesman, an analyst with the Center for Strategic and International Studies, told the *Los Angeles Times*.

In Operation Iraqi Freedom in 2003, sea basing was the preferred mode for Harrier operations. Sixty of the 76 Harriers in the theater were embarked on amphibious ships. USS *Bataan* and USS *Bonhomme Richard* each became a "Harrier carrier." Other AV-8Bs were with the Air Force in Kuwait. According to the Marine Corps, the Harriers logged some 3,000 flight hours and 2,000 short-duration sorties.

Many Harriers made some use of a forward arming and refueling point at An Numaniyah, 60 miles south of Baghdad, after coalition forces took the area. However, as one Harrier squadron commander pointed out, it was a major task keeping such aircraft supplied with jet fuel at that site.

"The Harrier wasn't used to its full potential out there," said Marine Corps Lt. Col. Paul K. Rupp, commanding officer of VMA-211, in remarks to the *Marine Corps Times*. "It takes a lot of support and logistics, ... so we chose to use other platforms."

### Big Questions

The Harrier's mixed combat record has raised major questions about whether the US military services actually need a new jump jet. Still, the Marine Corps has stuck with the basic operational concepts that led it

to buy the Harrier and keep improving it over the years.

Its desire for STOVL F-35s stems from a perceived need to have Marine Air-Ground Task Force (MAGTF)-owned aircraft based close to marines engaged in combat, whether it is on a beach, in a city, or far inland. Marines also want to keep these STOVL aircraft under Marine control, if at all possible.

The new jump jet incorporates technology far superior to that of the Harrier. By any measure, the performance of the X-35B STOVL demonstrator was strong enough to silence criticism of the safety and technical performance of a STOVL aircraft. Pairing a lift fan with the main engine generated nearly 40,000 pounds of thrust—an immense improvement over the Kestrel's 15,200 pounds or the first Harrier's 21,000 pounds. (Today's Harrier II has 23,400 pounds.)

The JSF jump jet also produces much less exhaust, which adds to the safety of flight deck operations at sea.

These promising improvements sparked new ideas about how to exploit STOVL. In 2002, Edward C. Aldridge, then undersecretary of defense for acquisition, went so far as to speculate that the STOVL JSF could supplant the Navy's planned F-35 carrier variant and lead to new aircraft carrier configurations.

"Maybe the future carrier doesn't have a wire," Aldridge told *Inside*



**A Marine Corps AV-8 Harrier prepares for takeoff from USS Kearsarge. Officials believe the new F-35 STOVL variant, with significant advances over the AV-8, will prove highly valuable in new roles.**

US Navy photo by PHAmm Dexter Roberts

the Navy, a defense newsletter, referring to the big arresting cable used to "trap" aircraft landing on carriers.

Marines also liked the possibility of operating STOVL squadrons from Navy big-deck carriers under the new tactical air integration plan. However, then-Vice Adm. John B. Nathman rebuffed the idea on operational grounds.

The biggest surprise was the Air Force's expression of renewed interest in acquiring a STOVL JSF. The concept was first mentioned in the mid-1990s, when Gen. Ronald R. Fogleman, Air Force Chief of Staff, suggested that the service might buy up to four wings of jump jets. When Fogleman retired in 1997, however, the concept seemed to leave with him. The current Air Force leadership revived the idea publicly in February 2004 at the Air Force Association's Air Warfare Symposium.

"We're in places like Afghanistan," Jumper said. "Do we want to have a little more flexibility in some of these airfields that are not as well-maintained or developed as we would require for F-16s? ... This is a very practical exercise as part of our capabilities process. What are we going to do for long-term close air support? Perhaps we need to take a look at how that mix goes."

### Is STOVL Needed?

The classic Cold War case for vertical or short takeoff clearly no longer applies. It was based on runway vulnerability to massive nuclear or conventional attack. STOVL aircraft could land on roads or other hard surfaces serving as impromptu forward arming and refueling points. In a desperate fight to slow down the lead echelons of a Warsaw Pact assault, every tactical aircraft could make a difference. Dispersal would ensure that a preemptive strike would not strip NATO of tactical airpower.

Nor is mission flexibility as important to the Air Force as it is to the RAF. Britain's interest in STOVL JSF depends on sea basing, since the aircraft will be both a land- and a sea-based fighter and will influence the design of future British aircraft carriers.

### Different Case

The Air Force case today is different. As Jumper has explained, STOVL



Lockheed Martin photo

**The STOVL X-35 flies a demonstration sortie. USAF surprised the defense community with its renewed interest in STOVL technology. The service plans to use the aircraft at expeditionary airfields to provide deep fire support.**

JSF could be part of an overall long-term close air support strategy. "Our requirement is somewhat different than [that of] the Marine Corps," he said. "We do not plan to deploy into austere, nonprepared locations. What we want to be able to do is take advantage of the many short airfields that are out there in expeditionary operations."

The Chief of Staff, in remarks to reporters last December, added that evolving Army concepts of operations—which envision a "discontinuous battlefield"—would make it necessary to "keep corridors of access available" and provide deep fire support.

The Air Force's case rests on three primary needs: to make use of expeditionary airfields, to generate large numbers of combat sorties, and to conduct persistent operations in the battlespace.

USAF's recent experience employing its airpower from expeditionary airfields, particularly Bagram Air Base in Afghanistan, taught many lessons.

Soon after coalition forces seized the field from Taliban forces in 2001, Bagram was described by a visiting aviator as "the scariest place on the planet." It was filled with bearded special operations forces troops, unexploded ordnance, and two hangars full of abandoned former Soviet equipment.

Improving bare bases, however, is a necessity for efficient, long-term com-

bat operations. By the time A-10s arrived at Bagram, efforts were already under way to change the place from an austere site to an expeditionary base. The arrival of an Army headquarters and XVIII Airborne Corps coincided with improved living conditions at Bagram.

US and coalition forces were also committed to improve the Bagram facility as part of an access agreement. The agreement was that, whenever an expeditionary force occupied a building, it would repair it as well as one additional building. The Harrier pilots and maintainers who arrived in October 2002 were pleasantly surprised with what had already been accomplished.

It's one thing to provide hot chow and plumbing. It's quite another to pour the acres of concrete needed to greatly improve an airfield. The Bagram case suggests that, at some airfields, improvements will be needed. Otherwise, an expeditionary force will encounter problems that cannot be solved even with an aircraft that needs only 1,000 feet of takeoff roll. Airfields with crumbling ramp space, or that lack power, fuel, water, and ordnance, have no combat utility.

Global USAF deployments for relief operations and peacekeeping, as well as combat, have already proved that airfield quality is a major variable in expeditionary operations. Operating from short runways that are in poor condition is a potential con-



**Some analysts question whether the Air Force needs a STOVL F-35. The new conventional version F-35, shown above in an artist illustration, would provide both high sortie generation capability and persistence.**

straint on airlift as well as fighter basing.

### Three Variables

A second point often cited in favor of STOVL is sortie generation. The Marine Corps saw that as a major Harrier plus in Operations Desert Storm and Iraqi Freedom. The metric for sortie generation is a complex one, however. High sortie generation depends on three variables: basing in proximity to the fight, sortie duration, and aircraft reliability. Capitalizing on those factors does not necessarily require STOVL capabilities, say experts.

In Desert Storm, for example, F-16s no less than Harriers made use of forward bases for quick-turn rearming and refueling. In Iraqi Freedom, A-10s quickly deployed forward to capture Tallil Air Base in Iraq. The most important metric was the flow of aircraft into land component sectors or to the CAS stacks over Baghdad. The Harriers enjoyed no particular edge over conventional aircraft.

Stability operations in Iraq and Afghanistan have seen persistence eclipse sortie generation as a metric. Ground controllers treasure advanced targeting pods and like to keep aircraft on station long enough to build their situation awareness. Attacks on insurgent leadership targets often require time to execute—either to get updated reconnaissance data, strike permission, or to conform with rules of engagement.

New demands for persistence contrast with the concept of using STOVL aircraft to generate high sorties in strikes and restrikes on massed enemy forces or fixed targets. While the STOVL JSF endurance trade-off is far less than that for the Harrier, opting for STOVL still shortens the fighter's legs. That means a cut in persistence.

A third benefit attributed to STOVL is its possible future flexibility. In theory, this is the one aircraft that could make landing on carrier decks, amphibious ships, or austere airfields a common occurrence. Air Force, Marine Corps, and Navy pilots could all be part of the blended squadron deployed and employed anywhere and everywhere—at least as long as their maintainers were not too far out of reach. Marine Corps Lt. Gen. Michael A. Hough, the deputy commandant for aviation, proposed an even more radical role for Air Force jump jets. "Why can't you put them on carriers?" Hough asked at an October 2004 conference. "It hasn't been done before in America, but it can be done."

Configuring a STOVL JSF for Air Force use faces problems.

Until 2002, plans called for all

three JSF variants to have a common weapons bay, but that proved unworkable. Now, DOD wants to shift back to equip the STOVL variant with a smaller bay, designed to hold two 1,000-pound Joint Direct Attack Munitions (JDAM) and two AIM-120 Advanced Medium-Range Air-to-Air Missiles.

Moving to a smaller weapons bay is not necessarily a black mark on the STOVL JSF. Experience in Afghanistan and in Iraq has shown that 500-pound laser guided bombs, unguided 500-pound Mk 82s with airburst, and the new 500-pound JDAM are the preferred weapons. Smaller bombs with variable fuse settings reduce collateral damage and can be easier to employ in CAS situations, with friendly troops in close proximity.

For the future, the advance of technology is leading to weapons with smaller bodies, notably the 250-pound Small Diameter Bomb. If properly configured, even the smaller STOVL weapons bay will be able to carry up to six Small Diameter Bombs, plus air-to-air missiles, making it a flexible asset for air component tasking.

Incorporating a gun will be another matter. Jumper called the gun a "necessity" and said, "We're going to want the gun on the plane." Rear Adm. Steven L. Enewold, the JSF program executive officer, told *Defense Daily*, "It looks possible but not easy. It would add weight and drag to the airplane, we think."

The promise of STOVL first came into view a half-century ago. It now appears that JSF can actually deliver on that promise with superior combat performance. Advanced technology puts the STOVL JSF into a competitive league.

Yet to be seen is how changes in the operating environment itself will affect the actual utility of STOVL, at least for the Air Force. The payoff that would flow from even a sophisticated STOVL aircraft is just one variable among many—and probably won't be the decisive one. ■

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



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The military's access to intelligence might depend on a few hastily inserted words.



# The Intelligence Gamble



By Peter Grier



**L**AST December, President Bush signed into law the most sweeping reorganization of the nation's Intelligence Community in more than 50 years. The legislation's most significant provision was the creation of a new spy czar to oversee 15 intelligence agencies.

Moreover, it established a national counterterrorism center and included provisions meant to strengthen border and aviation security. It set up a Privacy and Civil Liberties Oversight Board to serve as a guarantor of constitutional rights.

Proponents hailed the bill's passage as a hard-won triumph for reason and professionalism. At many points, intelligence reform had seemed dead, only to be revived by unforeseen twists in the political process.

"A key lesson of September the 11th, 2001, is that America's intelligence agencies must work together as a single, unified enterprise," President Bush declared at the bill's signing ceremony. "The many reforms in this act have a single goal: to ensure that the people in government responsible for defending

America have the best possible information to make the best possible decisions."

Having a goal is not the same as reaching it. The reform effort's critics—and they are legion—have long contended it was a classic example of a Washington tradition: When confronted with a complex problem, pass a bill, any bill, and then insist that by dint of legislative process the problem has been solved.

## Military Hostility

The Pentagon was openly hostile. The military Chiefs, for their part, warned about a negative effect on the quality of intelligence relayed to combat forces.

At best, the new director of national intelligence (DNI) will need to be a powerful personality, with strong Presidential support, to be able to operate effectively. At worst, the position may simply become a new layer of congealed bureaucratic fat, further distancing policy-makers from those who gather and analyze the nation's secrets.

The number of new high-level



posts created by the bill may in fact work against its stated aim of streamlining intelligence, complicating the DNI's job. And the military's access to strategic intelligence assets in times of war might depend on a few words inserted in the act at the last moment.

In Washington, there are times when acting in haste is worse than doing nothing. That was the point made by a bipartisan group of 11 former top government officials who united in their opposition to the intelligence reform bill last fall, at a time when it was caught in the vortex of the Presidential election. The group included former Secretaries of State Henry A. Kissinger and George P. Shultz and former Director of Central Intelligence Robert M. Gates.


"Intelligence reform is too complex and too important to undertake at a campaign's breakneck speed," they said. "Rushing in with solutions before we understand all the problems is a recipe for failure."

The national commission that investigated the 9/11 terror attacks produced a compelling report detailing one of the darkest events in American history. During the course of its work, this panel—headed by five Republican and five Democratic appointed members—reviewed millions of pages of documents, conducted more than a thousand interviews, and took public testimony from 160 witnesses. Their resultant book offers a thorough narration about how the 9/11 strikes were organized, what happened as they occurred, and how foreknowledge of al Qaeda's plans eluded the nation's top officials.

As many see it, however, the section of policy recommendations appended to the end of the volume seemed an odd addition in such a just-the-facts work. Making this point last August in a *New York Times* book review of the commission report, US circuit court judge Richard A. Posner wrote that combining an investigation of the attacks with proposals to prevent future such calamities is the same mistake as combining intelligence with policy.

"The way a problem is described is bound to influence the choice of how to solve it," Posner wrote.

Yet the panel's policy prescription quickly became a legislative cause celebre, effectively promoted



**"There will be battles over authority. You can't avoid those."**

**—Former US Rep. Lee Hamilton**



by commission co-chairs Thomas H. Kean, a Republican former New Jersey governor, and Lee H. Hamilton, a Democratic former Indiana Congressman.

The intelligence reform bill eventually won support from both candidates before November's election.

The last effective obstacle to enactment was Rep. Duncan Hunter (R-Calif.), chairman of the House Armed Services Committee. Hunter believed that the centralization of budget authority and other powers in a director of national intelligence might threaten the ability of combat troops to get the satellite-provided intelligence they need.

Hunter finally relented when the bill's backers inserted in the final version a denial of sorts—a requirement that the executive branch write guidelines to ensure that commanders do not have to go outside the chain of command for intelligence.

#### **"Shame on Us"**

In the Senate, meanwhile, the final vote was 89-to-2 for passage.

One of the "nay" votes was cast by Sen. Robert C. Byrd (D-W.Va.), who thundered at his colleagues, "Shame on us for not taking the time to better assess this legislation."

Was Byrd on to something? As the US government moves to implement the sweeping reform bill, critics say it is still not self-evident that its bureaucratic shuffling and renewed focus on centralization will improve the nation's intelligence—or, indeed, whether it might not actually be harmful.

Consider its centerpiece, the new Office of the DNI.

By law, this position now has budget authority over the nation's intelligence establishment—which, in Washington, amounts to real power.

However, the DNI and his staff will be a relatively small entity attempting to harness and control 15 different entrenched bureaucracies. (See box, "The Many Faces of US Intelligence," p. 46.) While the new intelligence czar may not exactly be a flea on the back of an elephant, pretending to steer the pachyderm,

the director will need to have a forceful personality to work his or her will on this system.

The intent was to make the DNI the single, accountable official responsible for US intelligence, yet the director will not directly control operational aspects of the nation's intelligence effort. The legislation is a bit vague, in fact, on exactly how much authority over the disparate agencies a DNI will have, saying only that the director should "monitor the implementation and execution" of espionage operations.

Even supporters noted this shortcoming in the wake of the bill's passage. For example, Hamilton said the success of reform now may "depend on implementation and Presi-

dential leadership. ... There will be battles over authority. You can't avoid those."

This distance from the agents and analysts on the ground could also compromise the ability of the DNI to carry out another main mandated task: advising the President. If the DNI's knowledge of operations is limited to oversight, he may serve as just another layer of personnel between the Oval Office and intelligence producers, according to former CIA Director George J. Tenet.

"I don't think you should separate the leader of this country's intelligence from a line agency," Tenet said at a homeland security and technology conference in December. "This person has to be leading men

and women every day and taking risks."

### Competitors?

This problem may be compounded by the fact that the DNI will not be the only intelligence official with Presidential access. The director of the new National Counterterrorism Center also is a Presidential appointee who reports directly to the White House on counterterror matters.

Under the original House version of the intelligence bill, the counterterror chief was to be picked by the DNI. In acceding to the Senate and raising the job's profile, the House may have inadvertently helped set up a contest for the President's time and attention on the central issue of combatting al Qaeda and other Islamic terror groups.

And a small point: President Bush had already created his own counterterror center.

Overall the new law created four new senior intelligence posts for Presidential appointees: the DNI and the DNI's principal deputy (at least one of whom should be a serving or retired military officer, per sense of the Congress); the counterterror chief; and a DNI general counsel. This focus on the top levels of the bureaucracy may, in the end, turn out to be a harmless game of musical chairs—or it could produce a new filter that further homogenizes the intelligence the President receives. At a time when US intelligence has been criticized as cautious and prone to groupthink, such a move could be dangerous.

"The key here is not moving organizational boxes around but getting the right policy decisions made and getting Congressional funding and support for them," wrote former CIA chief R. James Woolsey in an analysis of the reform bill. "This might or might not have happened under the old organization and might or might not under the new one."

It is no secret that the Pentagon did not greet the intelligence reform effort with open arms. The uniformed services were particularly unhappy. Their primary concern was that a DNI might have the power to divert precious spy satellites or other intelligence assets away from military-oriented missions and aim them at targets nominated by the CIA or other nonmilitary intelligence agencies.

The line between strategic and tacti-

## The Many Faces of US Intelligence

The US Intelligence Community is defined within the National Security Act and its various amendments. It currently comprises the following 15 federal entities:

### Specialized Intelligence Agencies

- Central Intelligence Agency
- Defense Intelligence Agency
- National Geospatial-Intelligence Agency
- National Reconnaissance Office
- National Security Agency

### Sub-departmental Intelligence Units

- Air Force—Air Force Intelligence Office
- Army—Army Intelligence Office
- Coast Guard—Coast Guard Intelligence Office
- Energy—Office of Intelligence
- Homeland Security—Director of Information Analysis and Infrastructure Protection
- Justice—FBI National Security Division
- Marine Corps—Marine Intelligence Office
- Navy—Naval Intelligence Office
- State—Bureau of Intelligence and Research
- Treasury—Office of Intelligence Support

All activities of the CIA, DIA, NGA, NRO, and NSA are focused on intelligence collection and analysis. These government organizations, in their entirety, are deemed to be members of the official Intelligence Community.

The other 10 IC members shown here provide vital intelligence functions within organizations that otherwise are not involved in intelligence work. Only these specific units—not the parent department—belong to the Intelligence Community.

cal intelligence is a blurry one. Without help from the National Security Agency, it is difficult to route Global Hawk reconnaissance UAVs in such a way that they avoid surface-to-air missile sites while patrolling hostile territory, noted Stephen A. Cambone, undersecretary of defense for intelligence, at a Congressional hearing last summer.

The Navy depends on strategic-level imagery and signals intelligence for operations in littoral areas, said Cambone, and no single military mission is more dependent on national imagery than combat search and rescue.

"Think back to the shooting down of the aircraft in the Balkans [in 1995] and how we had to move all of those people so very rapidly," said Cambone. "The national agencies—so-called—operating in their combat support mode were very much a part of the endeavor to rescue that pilot."

The military over the past 20 years has expended a great deal of energy building interconnections between tactical and strategic intelligence operations. Understandably, the armed services were loath to see them pulled apart for the sake of "reform."

### The Myers Letter

While the Joint Chiefs of Staff did not openly oppose the legislation, the JCS Chairman, Air Force Gen. Richard B. Myers, detailed their concerns in an Oct. 21 letter to Hunter, the head of the House Armed Services Committee. The letter urged passage of the more military-friendly House version of the bill, which protected the services' intelligence equities.

By December, Hunter, who had been one of the last barriers to the legislation, gave way under intense pressure from both sides of the political spectrum. He accepted a compromise: the addition of language to the intelligence bill saying that guidelines issued pursuant to the legislation "shall respect and not abrogate the statutory responsibilities of the heads of the departments of the United States government."

This tweak—at first glance, both

minor and opaque—in fact requires the DNI to respect the military chain of command, said Hunter, when announcing his agreement on Dec. 6. This chain of command runs from the President to the Secretary of Defense to the combatant commanders. It emphatically does not pass through the office of any intelligence czar.

The result, according to Hunter, is greater protection for America's troops in the field. "It's important for the combatant commanders and their subordinates, whether it's a platoon leader in Fallujah or a Special Forces team leader, to be able to access that intelligence very quickly," Hunter told reporters.

Before the reform measure was enacted, the system for determining the allocation of national-level assets entailed close consultation between the military and intelligence agencies. The needs of the combat forces were seldom, if ever, short-

changed. In practice it may seem unlikely that US troops under fire would be denied intelligence, no matter how the national security bureaucracy is organized.

However, in situations short of concerted combat, conflicts over these scarce assets might yet occur. For instance, India in 1998 conducted a nuclear test that the US Intelligence Community did not detect. In part, this was because the satellite best suited for the task was aimed at Iraq, where the US military was enforcing no-fly zones against the Saddam Hussein regime.

"Supporting the no-fly zone wasn't that critical"—at least not so critical that it had to be done 24 hours a day, seven days a week, said retired Adm. Stansfield Turner, who served a highly controversial and much criticized tour as director of central intelligence under President Jimmy Carter.

Whether or not the bill actually leads to higher-quality intelligence, it is certain to keep large parts of the nation's security bureaucracy in upheaval for years to come. ■



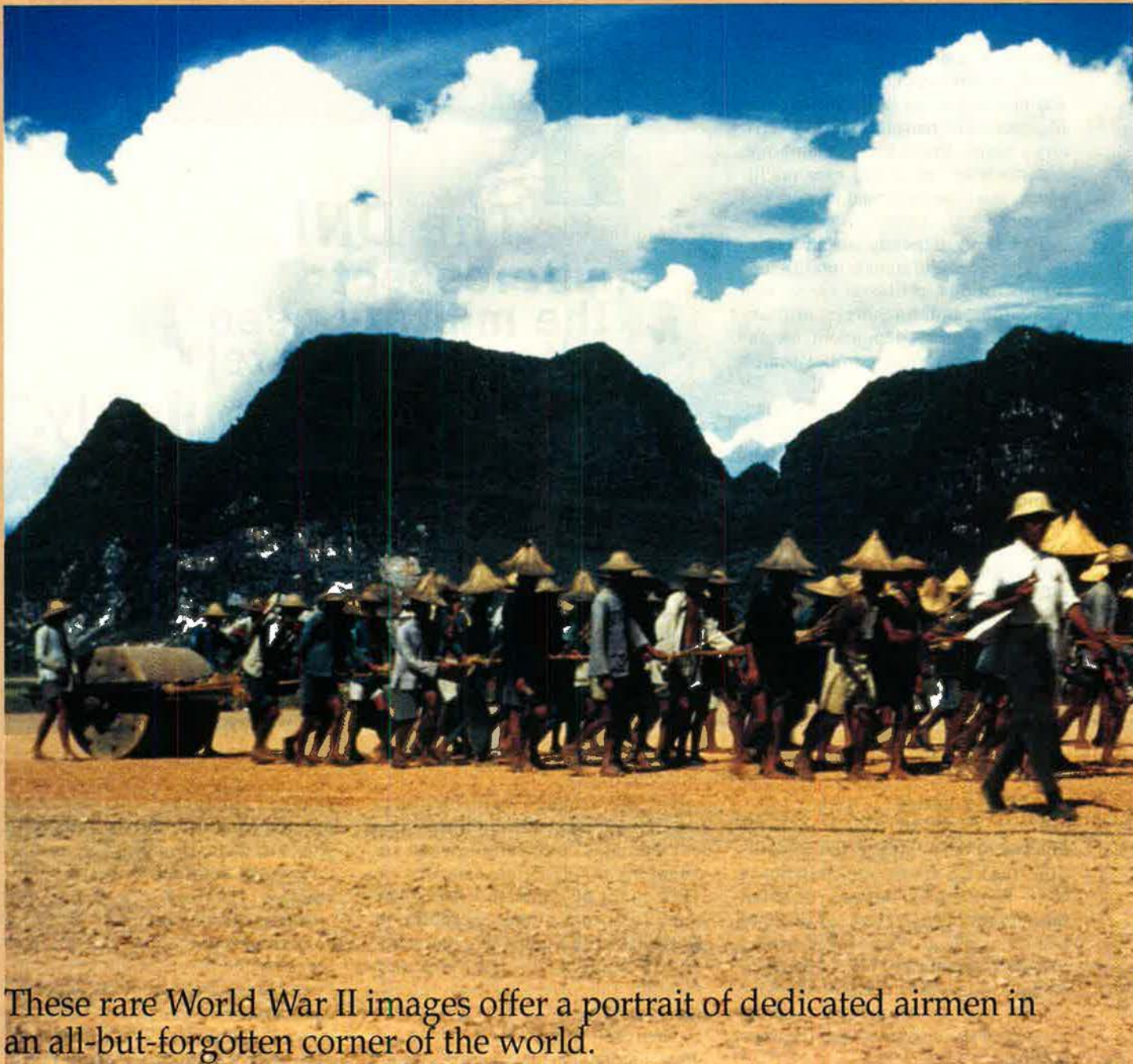
**The DNI  
must respect  
the military need  
to access intel  
"very quickly."**

—Rep. Duncan Hunter



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*Peter Grier, a Washington editor for the Christian Science Monitor, is a longtime defense correspondent and a contributing editor to Air Force Magazine. His most recent article, "Space—The Next 50 Years," appeared in the February issue.*



These rare World War II images offer a portrait of dedicated airmen in an all-but-forgotten corner of the world.

# C. B. I. China

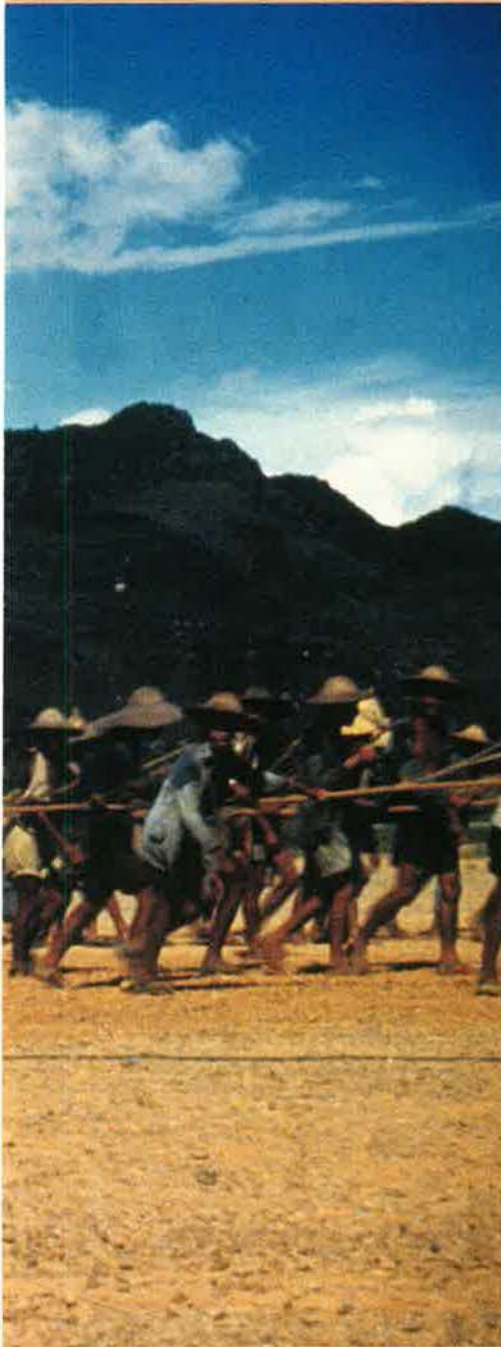


Photo National Archives via Warren Thompson

*Members of the 51st Fighter Group share a lighter moment somewhere in China circa 1943, posing on the wing of a P-40. Not every P-40 was adorned with the famous shark mouth insignia.*

*With the support of the locals, airfields in the China-Burma-India Theater were built out of nearly nothing. At left, a team rolls a "paving" stone to crush gravel and tamp down a runway surface. Such austere airfields saw extensive use by aircraft such as the C-47, below, which flew over the "Hump" of the Himalayas.*

*These color photos provide a glimpse of life and work in this unique theater of operations.*

# Burma India



Photo George McKay via Warren Thompson

*In World War II, the China-Burma-India Theater was literally at the far end of the world for US troops. They had to adapt not only to an exotic place and local customs but also to being on the tail end of a very long supply line. Nearly everything used—parts, ammunition, fuel, medicine—had to come by air over the Himalayas from India. Since supplies were tight, improvising with what was at hand became an art form.*



Photos Col Bannan via Warren Thompson



*The CBI offered many cases of airpower meeting the world of low-tech. Once off-loaded, supplies often made the trip to their final destination on four legs. Above, Chinese load up a trio of mules.*

*At left, troops board a C-47 on their way to the "front." Flights over the Hump were often white-knuckle experiences. Some passengers swore they could have grabbed a handful of snow as the aircraft barely cleared the mountaintops.*

*The P-51 which crash-landed (at right) probably would have been a write-off in Europe, but, in the CBI, a ground crew works to restore the precious airframe to service. This airfield, like most in the CBI, had no hangars.*

*Japanese soldiers working in the background are POWs.*



Photo George McKay via Warren Thompson



Photo George McKay via Warren Thompson

*At top, one sees an impressive lineup of C-46 Commandos, which, along with the C-47 Skytrain and the later C-54 Skymaster, at right, comprised the lifeline of airborne supply from Allied bases in India to American outposts in western China.*

*The C-46 and C-47 operated at the very edge of their altitude specs as they traversed the "Roof of the World" to keep the Chinese front supplied. The arrival of the four-engined C-54 brought bigger loads and improved safety margins, as well as increased chances of aircrew survival.*



Photo Fred Poats via Warren Thompson



Photos Cal Bannan via Warren Thompson



*At far left, a gleaming new C-54 bounces over the gravel of an improvised airstrip.*

*At left, a C-47 flight crew briefs the next mission under the wing as cargo is loaded onto a truck.*

The great icon of the CBI was the shark mouthed P-40 of the Flying Tigers. Originally called the American Volunteer Group—and comprised of civilians flying against the Japanese before Pearl Harbor—the outfit was absorbed by the Army Air Forces in July 1942. The shark-mouth art was retained as a tradition. Here, 76th Fighter Squadron pilot Lt. Ben Thompson poses proudly with his airplane. The external wing tanks, installed backwards, may have been used as napalm-like ordnance.



Photo Ben Thompson via Warren Thompson

Photo National Archives via Warren Thompson



As CBI units inherited more modern equipment, early P-51s started showing up bearing the shark mouth design. Pilots often flew combat in the “newer” aircraft with only a few hours of instruction or after a short ferry ride from an Indian base. Present-day A-10s of the 23rd Fighter Group, to which this P-51 was assigned, continue the Flying Tigers tradition of a painted shark mouth on the aircraft fuselage.

Toward the end of the war, CBI units began getting top-of-the-line gear, such as these “black tail” P-51D Mustangs of the 75th Fighter Squadron, lined up for their next mission in Hangchow, China.



Photo George McKay via Warren Thompson



Seen at right is some of the scenery that greeted CBI troops. It was easy to run afoul of local customs, but the Americans and the Chinese worked well together fighting off the Japanese forces.

Although last in line for supplies, CBI boasted many "firsts." The first B-29 combat missions were flown from India to targets in Indonesia and Thailand. Below, Blood 'n Guts, a P-61 Black Widow night fighter, seems to have had some success wrecking Japanese ground movements; note the truck silhouettes under the canopy rail.



Photo Duane E. Bileman via Robert F. Dorr

Photo Fred Johnson via Warren Thompson



via Robert F. Dorr

Another aviation innovation adapted for the CBI was the helicopter. Above is one of a handful of YR-4 helicopters deployed in the theater. A YR-4 in Burma participated in the first-ever AAF helicopter rescue operation.

Flying over enemy-held territory on a regular basis meant that proficiency with a sidearm could quickly become the difference between life and death.

At right, two pilots keep sharp with their .45s, while a third practices with an M-1 carbine. Some pilots carried rifles in their aircraft in case of close encounters with the enemy.



Photo Cal Bannen via Warren Thompson

*Captured Japanese aircraft were pressed into service. This Ki-55 "Ida," repainted with the roundel of the Chinese Nationalist forces, is shown at a base in Hangchow in October 1945. Below, captured and repainted Ki-48 "Lilys" line an airstrip in Nanking. Such captured aircraft formed the backbone of the new Chinese Air Force.*



Photos: George McKay via Warren Thompson



*US aircraft joined the fledgling Chinese Air Force, as well. Above, a Republic P-43—precursor to the famed P-47 Thunderbolt—awaits a mission. Chinese P-43s shared airstrips with American aircraft throughout the war; this version was used as a trainer.*

*In April 1945—100 days before the close of the war in the Pacific—this P-47 from the 91st Fighter Squadron sits at Hsian, China, ready for action.*





Photo Carroll Barnwell via Warren Thompson

At top, Chinese nationals tour past a B-25 of the 491st Bomb Squadron.

The CBI air war featured more than fighters and transports. Just as the C-46 and C-47 were the workhorse transports, the B-25 Mitchell and the B-24 Liberator were the workhorse bombers. Relatively small and able to operate from short, austere strips, B-25s took on many missions.



Photo Edward Branning via Warren Thompson

Photo Alex Adair via Warren Thompson



Above, an uncommon aerial shot of B-25s over Burma. Above right, a bellied-in B-25 of the 490th Bomb Squadron brought its crew back from an obviously rough mission over Burma. This one is a special "gunship" version with a 75 mm howitzer in the nose.

Photo George McKay via Warren Thompson



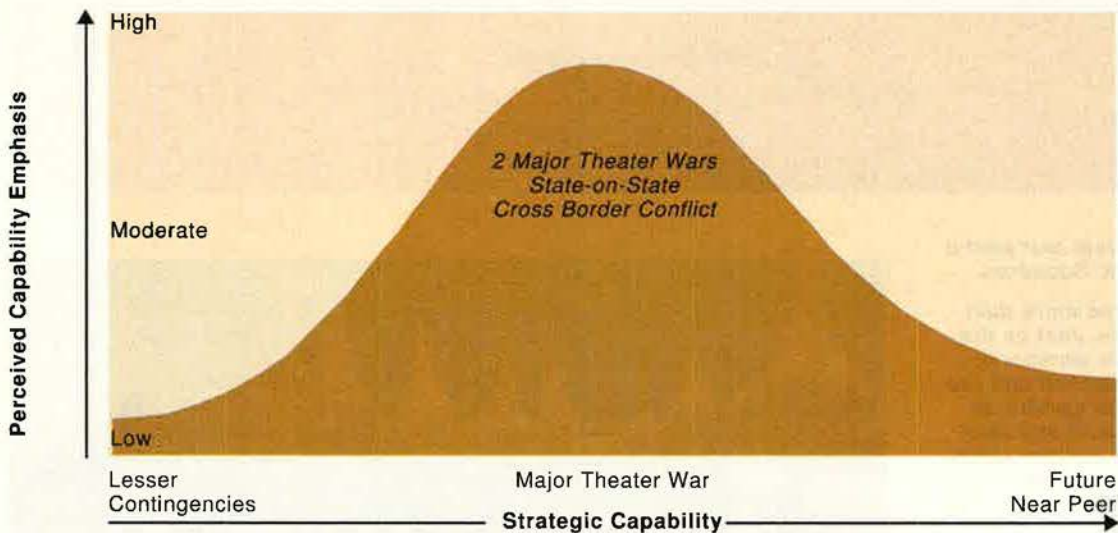
These B-25s show the wear from more than their share of flying. ■

The Rumsfeld Pentagon focuses on other dangers.

# Worrying Less About “Traditional” War

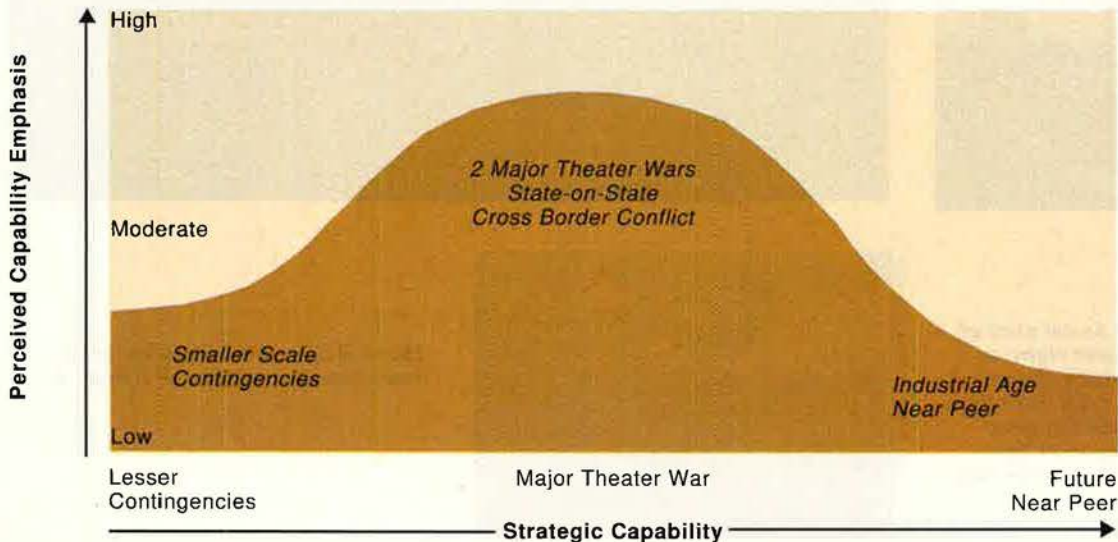
By Robert S. Dudley, Editor in Chief

## 1993 Bottom-Up Review



*After the collapse of Soviet power and the US victory in the Gulf War, the Clinton Administration focused almost exclusively on the need to fight two major conventional wars at the same time.*

## 1997 Quadrennial Defense Review



*US military actions in Bosnia, Somalia, and other “failed” states brought more attention to the low end of the spectrum, but conventional war still dominated DOD thinking.*

**T**HE four charts on these pages are derived from "A Framework for Strategic Thinking," a briefing written by top Pentagon officials in preparation for the 2005 Quadrennial Defense Review, or QDR. They show a dramatic change, over time, in DOD's perception of threats to US security.

The charts are pegged to four major data points—the 1993 Bottom-Up Review, 1997 QDR, 2001 QDR, and a 2004 strategic planning review. Taken together, they show a

major downgrading of "traditional" conventional war in the hierarchy of Pentagon concerns.

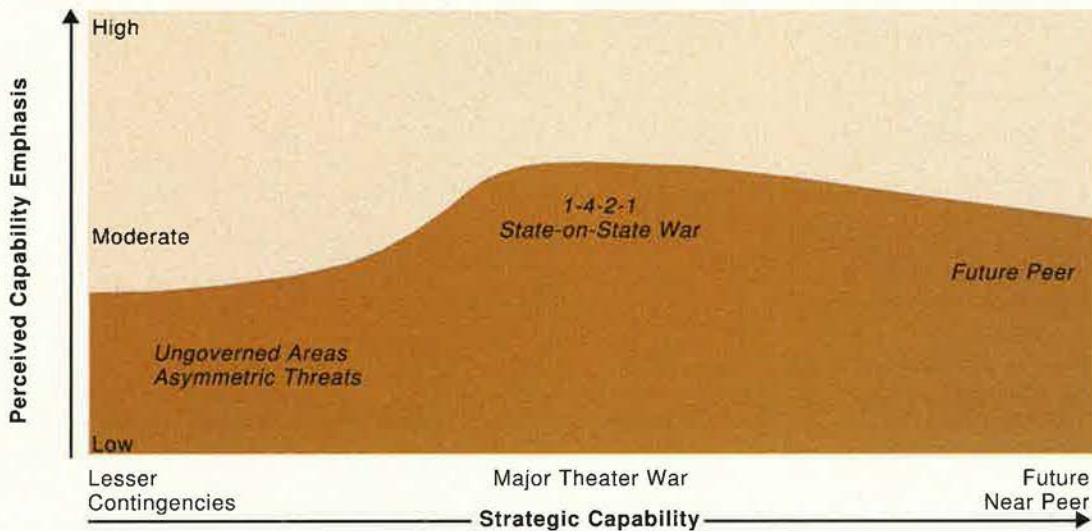
DOD acknowledges it is shaping a new long-term strategy, one which observers say will shift resources away from forces needed for conventional wars—fighters, warships, tanks—toward smaller and more specialized forces optimized for guerrilla war, counterterror operations, and the like.

The briefing describes "traditional" war as "states employing legacy and advanced military capa-

bilities and recognizable military forces in long-established, well-known forms of military competition and conflict." These wars entail clashes of air, sea, land forces, and nuclear forces of established nuclear powers.

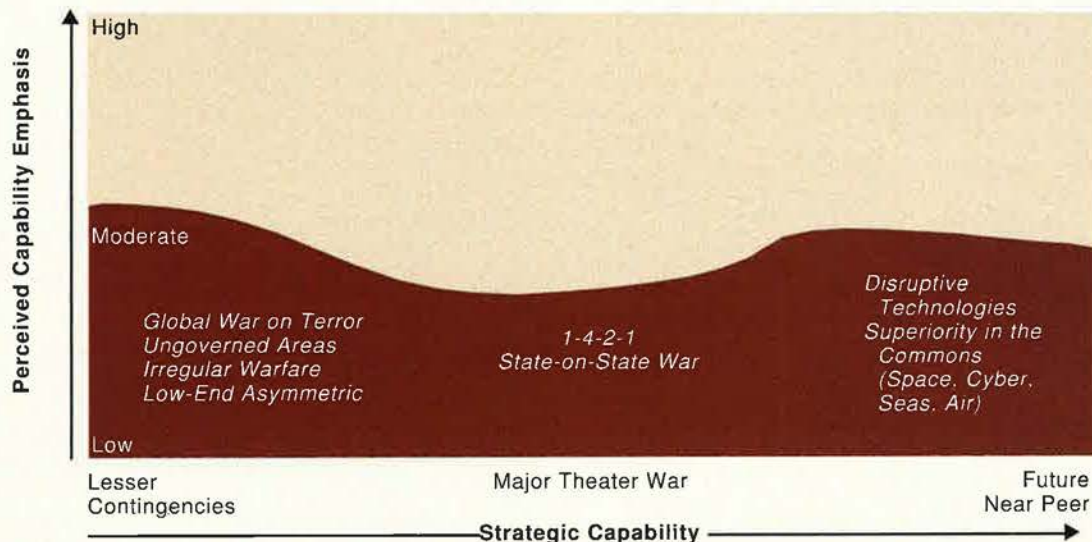
Getting higher priority are so-called "disruptive," "irregular," and "catastrophic" types of threats, at the low or high ends of the threat spectrum. The assumption seems to be that the US faces no serious conventional threat from major nations.

## 2001 Quadrennial Defense Review



*In its first year, the Bush Administration still emphasized major theater war, but put strong new emphasis on high-end threats. (The term "1-4-2-1" refers to homeland defense, deterring aggression in 4 theaters, winning 2 wars simultaneously, and changing a regime in 1 nation.)*

## 2004 Defense Strategy Review



*DOD thinking now reflects a preoccupation with terror and insurgency at the low end of the threat spectrum and weapons of mass destruction and disruptive technologies at the high end, not major theater war.*

It was our best chance to knock North Vietnam out of the war, but it was doomed to failure.

# Rolling Thunder

**R**OLLING Thunder, the air war against North Vietnam, began on March 2, 1965. The first mission was an indication of things to come.

The targets, timing of the attack, and other details of the operation were all decided in Washington, D.C. There were only two targets. Both were relatively minor, located just north of the Demilitarized Zone separating North and South Vietnam. The enemy's real strength around Hanoi and Haiphong was not touched, not even threatened. It was a strange way to begin a war.

Air Force F-105s, F-100s, and B-57s struck an ammunition depot at Xom Bang, 10 miles north of the DMZ. Meanwhile, Navy and South Vietnamese aircraft bombed a naval base at Quang Khe, 65 miles from the DMZ.

It would be almost two weeks before the next Rolling Thunder missions took place, again against minor targets not far above the DMZ.

Maxwell D. Taylor, the ambassador to South Vietnam (and former Chairman of the Joint Chiefs of Staff), doubted that the enemy was impressed. "I fear that to date Rolling Thunder in their eyes has merely been a few isolated thunderclaps," Taylor said.

"The North Vietnamese probably didn't even know the planes were

By John T. Correll

there," said Adm. U.S. Grant Sharp, commander in chief of US Pacific Command.

Rolling Thunder would last for more than three years, making it the longest air campaign in US history to that point. More bombs would be dropped on Vietnam than were dropped on all of Europe in World War II.

The campaign ended in 1968 without achieving any strategic results. It did not persuade the North Vietnamese to quit the war, nor did it stop





**Thud and Thunder.** The F-105—Thunderchief, Lead Sled, Thud—flew 75 percent of Rolling Thunder strikes and took more losses over North Vietnam than any other kind of aircraft. Here, an F-105D gasses up at a KC-135 tanker.



**Tight Leash.** Gen. William Momyer, 7th Air Force commander, meets President Johnson. LBJ was heard to boast, "I won't let those Air Force generals bomb the smallest outhouse without checking with me."

Hanoi's infiltration of troops and equipment into South Vietnam.

From beginning to end, Rolling Thunder was hampered by a policy of gradual escalation, which robbed air strikes of their impact and gave North Vietnam time to recover and adjust. For various reasons—including fear of provoking a confrontation with North Vietnam's Russian and Chinese allies—all sorts of restrictions and constraints were imposed.

US airmen could not attack a surface-to-air missile site unless it fired a missile at them. For the first two years, airmen were forbidden to strike the MiG bases from which enemy fighters were flying. Every so often, Washington would stop the bombing to see if Hanoi's leaders were ready to make peace.

"In Rolling Thunder, the Johnson Administration devised an air campaign that did a lot of bombing in a way calculated *not* to threaten the enemy regime's survival," Air Force historian Wayne Thompson said in *To Hanoi and Back*. "President Johnson repeatedly assured the communist rulers of North Vietnam that his forces would not hurt them, and he clearly meant it. Government buildings in downtown Hanoi were never targeted."

### Drift to War

Rolling Thunder was not the first combat for USAF airmen in Vietnam. Air Force crews deployed there in 1961 to train and support the South Vietnamese Air Force. By

1962, they were flying combat missions in response to emergency requests. However, Gen. William W. Momyer said in *Airpower in Three Wars*, they were "not authorized to conduct combat missions without a Vietnamese crew member. Even then, the missions were training missions although combat weapons were delivered."

The conflict became overt in August 1964 when communist patrol boats attacked US Navy vessels in the Gulf of Tonkin. In response, Congress passed a resolution authorizing the President "to take all necessary steps, including the use of armed force" to repel any attack, prevent further aggression, and assist allies.

The Navy promptly launched reprisal strikes, dubbed Pierce Arrow, against North Vietnamese PT boat bases, and the Air Force moved into Southeast Asia in force. B-57s, F-100s, and F-105s deployed to bases in South Vietnam and Thailand. The presence of the newly arrived aircrews was soon challenged.

In November, a Viet Cong mortar attack at Bien Hoa killed four Americans, wounded 72, and destroyed five B-57s. In February 1965, eight Americans were killed and more than 100 wounded in a sapper attack on Pleiku. Navy and Air Force aircraft flew reprisal strikes, called Operation Flaming Dart, against North Vietnam Feb. 7-11.

The Johnson Administration decided that these reprisal missions

were not sufficient. A Presidential directive on Feb. 13 called for "a program of measured and limited air action" against "selected military targets" in North Vietnam. It stipulated that "until further notice" the strikes would remain south of the 19th parallel, confining the action to the North Vietnamese panhandle.

In his memoir, *The Vantage Point*, Lyndon B. Johnson said the decision for sustained strikes was made "because it had become clear, gradually but unmistakably, that Hanoi was moving in for the kill." The Vietnam Advisory Campaign (Nov. 15, 1961, to March 1, 1965) was over. The Vietnam Defensive Campaign was about to begin. The first Rolling Thunder mission was readied.

### Doubts and Redirection

The conventional wisdom, often repeated at the time, was that the United States must not get bogged down in a land war in Asia. Nevertheless, that was exactly what was about to happen.

On March 8, 1965, marines deployed to Da Nang to defend the air base there. They were the first US ground combat forces in Vietnam. "President Johnson's authorization of Operation Rolling Thunder not only started the air war but unexpectedly triggered the introduction of US troops into ground combat as well," McNamara said.

By the middle of March, Rolling Thunder consisted of one mission a week in the southern part of North Vietnam. Apparently, the White House expected this to produce fast results and was disappointed when it did not.

"After a month of bombing with no response from the North Vietnamese, optimism began to wane," said the *Pentagon Papers*, a secret history of the war written in the Office of the Secretary of Defense and leaked to the *New York Times* in 1971.

Although President Johnson had decided to use ground troops in Vietnam, there was no public announcement. The decision was embodied in an April 6 National Security Action Memorandum. The President ordered that "premature publicity be avoided by all possible precautions."

The fighting forces were told of the change in strategy at an April 20 Honolulu conference, when McNamara



announced that US emphasis from then on would be the ground war in the south. Targets in the south would take precedence over those in the north, and sorties would be diverted from the north to fill the requirement.

"This fateful decision contributed to our ultimate loss of South Vietnam as much as any other single action we took during our involvement," Sharp later charged in his book, *Strategy for Defeat*.

The President on May 12 called a weeklong halt to the bombing—the first of many such halts—to see if North Vietnam was ready to negotiate. It wasn't.

Micromanagement of the air war continued. "I was never allowed in the early days to send a single airplane north [without being] told how many bombs I would have on it, how many airplanes were in the flight, and what time it would be over the target," said Lt. Gen. Joseph H. Moore, commander of the 2nd Air Division and its successor organization, 7th Air Force. "And if we couldn't get there at that time for some reason (weather or what not) we couldn't put the strike on later. We had to ... cancel it and start over again."

### Thuds, Phantoms, and Others

In Rolling Thunder, the US attacked the North with all sorts of aircraft, but the worst of the fighting was borne by the F-105s and the F-4s.

The F-105—Thunderchief, Lead Sled, Thud—flew 75 percent of the strikes and took more losses over North Vietnam than any other kind of aircraft. When Rolling Thunder ended, more than half of the Air Force's F-105s were gone.

The F-4 Phantom, better able to handle North Vietnam's MiGs, flew both strike missions and air cover for the F-105s. As the war churned on, the F-4 became the dominant USAF fighter-bomber. The F-4 also accounted for 107 of the 137 MiGs shot down by the Air Force.

Pilots were credited with a full combat tour after 100 missions over North Vietnam. That was not an easy mark to reach. "By your 66th mission, you'll have been shot down twice and picked up once," F-105 pilots said. A report from the Office of the Secretary of Defense in May 1967 said, "The air campaign against heavily defended areas costs us one pilot in every 40 sorties."

F-105s and F-4s flew mostly from bases in Thailand and worked the northern and western "route packs" in North Vietnam. Navy pilots from carriers at Yankee Station in the Tonkin Gulf flew mainly against targets nearer the coastline.

Notable among the Navy aircraft was the A-6 Intruder, an excellent all-weather medium bomber. The Air Force did not have an all-weather capability in the theater except on its B-52 bombers, which were not permitted to operate more than a few miles north of the DMZ.

Among those flying north or supporting the operation were tankers, escort jammers, defense suppression airplanes, rescue aircraft, and reconnaissance systems, as well as command and control airplanes.

One of the big operational changes in the Vietnam War was the everyday refueling of combat aircraft. Fighters on their way into North Vietnam topped up their tanks from KC-135 tankers, which flew orbits above Thailand, Laos, and the Gulf of Tonkin, then met the tankers again on the way out to get enough fuel to make it home. Aerial refueling more than doubled the range of the combat aircraft.

USAF fighters flying from Thailand bases were part of a strange organization called 7th/13th Air Force. It was created for several reasons, one of which was to let US Pacific Command keep control of the air war in the north rather than turning it over

to the Army-dominated Military Assistance Command Vietnam.

When the aircraft and pilots were on the ground, they were in 13th Air Force, with headquarters in the Philippines. When they were in the air, they were controlled by 7th Air Force in Saigon—which, for these missions, reported to Pacific Air Forces and US Pacific Command, not to MACV.

### MiGs, SAMs, and AAA

When Rolling Thunder began, North Vietnam's air defense system did not amount to much and could have been destroyed easily. US policy, however, gave the North Vietnamese the time, free from attack, to build a formidable air defense.

The system consisted of anti-aircraft artillery, SA-2 surface-to-air missiles, MiG fighters, and radars, all of Soviet design, some supplied by the Soviet Union and some by China.

Although the SAM and MiG threats got more attention, about 68 percent of the aircraft losses were to anti-aircraft fire. By 1968, North Vietnam had 1,158 AAA sites in operation, with a total of 5,795 guns deployed.

The first SAM site in North Vietnam was detected April 5, 1965, but US airmen were not permitted to strike it.

In a memo to McNamara, John T. McNaughton, assistant secretary of defense for international security affairs, said, "We won't bomb the sites, and that will be a signal to



Photo Bob Pielin via Warren Thompson

**First In.** In late 1964, USAF moved in force into Southeast Asia, and the F-105s (such as this "bombed-up" Thud) were among the first into Vietnam and Thailand. By war's end, more than half the F-105 force was gone.

North Vietnam not to use them." On a visit to Vietnam, McNaughton told Moore at 2nd Air Division, "You don't think the North Vietnamese are going to use them! Putting them in is just a political ploy by the Russians to appease Hanoi."

McNaughton must have been surprised on July 24 when a SAM, fired by a Soviet missile crew, shot down an Air Force F-4C.

Almost 5,000 SAMs were fired during Rolling Thunder, bringing down 101 US aircraft. The fighters could avoid the SAMs by dropping to lower altitude, but that put them into the lethal shooting gallery of the guns.

By the rules of engagement, US airmen could attack a SAM site only if it was actually shooting at them. In one instance, Navy pilots discovered 111 SAMs loaded on railcars near Hanoi, but were denied permission to bomb them. "We had to fight all 111 of them one at a time," one of the pilots said.

The Air Force had two ways of dealing with the SAMs: jammers and "Wild Weasels."

EB-66 jamming aircraft accompanied Air Force strike flights. Eventually, fighters got their own jamming pods to disrupt the radars that guided the SAMs and the AAA.

A more direct solution was the fielding of the Wild Weasels, fighter aircraft especially equipped to find and destroy the Fan Song radars that directed the SAMs. The original Wea-



#### Restricted and Prohibited Zones

*On US maps, Hanoi and Haiphong were surrounded by large, doughnut-shaped areas. The doughnut "rings" (green stripes) were restricted zones; strikes there required permission from Washington. The doughnut "holes" (red) were prohibited zones. There, limitations on air strikes were even more severe. Also, a buffer zone was established to prevent violations of the Chinese airspace. US aircraft could use it only to maneuver when positioning themselves to attack targets outside the buffer zone. They could not attack within this zone.*

sels, which demolished their first SAM site in December 1965, were F-100Fs. Subsequently, they were

replaced by two-seat F-105Gs in the Weasel role.

The enemy fighters that operated over North Vietnam were MiG-17s and MiG-21s. There were some obsolete MiG-15s around, but they were used mostly for training. The MiG-19, imported from China, did not make its appearance in Vietnam until Rolling Thunder had ended.

The MiG-17 was no longer top of the line, but it performed well as an interceptor, especially effective at lower altitudes where it used its guns to good advantage. Three of North Vietnam's 16 aces flew MiG-17s.

The MiG-21 was North Vietnam's best fighter and a close match in capability with the F-4. It was equipped with a gun but relied primarily on its Atoll missiles.

"The North Vietnamese were able to expand and develop new airfields without any counteraction on our part until April 1967 when we hit



**Safe Harbor.** LBJ shied away from bombing Haiphong, and, for most of the war, it remained open to shipments of Soviet war materiel used to fight US forces. This photo shows merchant ships at anchor in Haiphong harbor.

Hoa Loc in the western part of the country and followed with attacks against Kep,” Momyer said. “The main fighter base, Phuc Yen, was not struck until October of the same year. Gia Lam remained free from attack throughout the war because US officials decided to permit transport aircraft from China, the Soviet Union, and the International Control Commission to have safe access to North Vietnam. The North Vietnamese, of course, used Gia Lam as an active MiG base.”

The best known air battle of the war was Jan. 2, 1967, when pilots of the 8th Tactical Fighter Wing from Ubon, Thailand, led by Col. Robin Olds in the famous MiG Sweep, shot down seven MiG-21s over the Red River Valley in North Vietnam.

“MiG killing was not our objective,” said Maj. Gen. Alton D. Slay, deputy chief of staff for operations at 7th Air Force. “The objective was to protect the strike force. Any MiG kills obtained were considered as a bonus. A shootdown of a strike aircraft was considered ... a mission failure, regardless of the number of MiGs killed.”

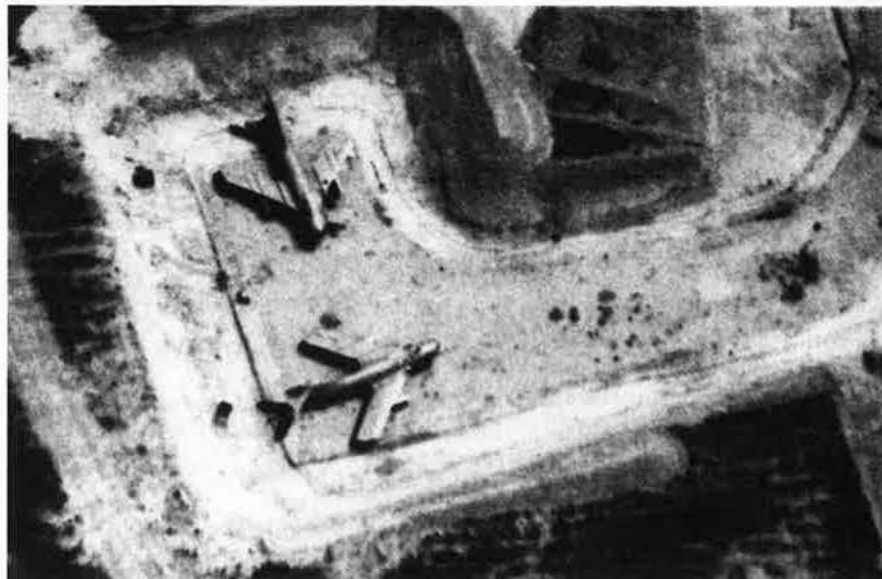
### Lines on the Map

Key parts of North Vietnam were off limits to US air strikes. For the first month of Rolling Thunder, the operations were confined to a stretch of the panhandle south of the 19th parallel, which runs just below Vinh. The first targets around Hanoi and Haiphong were not approved until October and November.

The boundary line for “armed reconnaissance”—the area in which such targets as trucks and trains could be hit when they were found—gradually crept north but very slowly.

“This east-west bomb line was joined by a north-south line at 105 degrees 20 minutes east that permitted armed reconnaissance in northwestern North Vietnam (so long as the bombs stayed at least 30 nautical miles south of the Chinese border),” said Air Force historian Thompson. “The two lines fenced off Route Package 6 (the ‘northeast quadrant’ containing the major cities of Hanoi and Haiphong) from armed reconnaissance until the spring of 1966, when rail and road segments were targeted there.”

Even after that, Hanoi and Haiphong



**Don't Fly, Don't Die.** Washington decreed that US fighters could not attack Vietnamese aircraft until they were airborne. Communist airfields were also put off limits. Pictured here are two MiG-17s at Phuc Yen, an airfield near Hanoi.

were surrounded by large doughnut-shaped areas on the map which were protected from air strikes by US policy. The outer sections—the “doughnuts” themselves—were restricted zones, in which strikes required special permission (which was seldom given) from Washington. The “holes” in the doughnuts were prohibited zones, in which the limitations were more severe.

At Hanoi, the restricted zone was 60 miles wide, encircling a 20-mile prohibited zone. The restricted zone at Haiphong was 20 miles wide and the prohibited zone, eight miles.

“Knowing that US rules of engagement prevented us from striking certain kinds of targets, the North Vietnamese placed their SAM sites within these protected zones whenever possible to give their SAMs immunity from attack,” Momyer said. “Within 10 miles of Hanoi, a densely populated area that was safe from attack except for specific targets from time to time, numerous SAM sites were located. These protected SAMs, with an effective firing range of 17 nautical miles, could engage targets out to 27 miles from Hanoi. And most of the targets related to the transportation and supply system that supported the North Vietnamese troops fighting in South Vietnam were within 30 miles of Hanoi.”

The White House held firm control of the targeting.

“The final decision on what tar-

gets were to be authorized, the number of sorties allowed, and in many instances even the tactics to be used by our pilots was made at a Tuesday luncheon in the White House, attended by the President, the Secretary of State, the Secretary of Defense, Presidential Assistant Walt Rostow, and the Presidential Press Secretary (first Bill Moyers, later George Christian),” Sharp said. “The significant point is that no professional military man, not even the Chairman of the JCS, was present at these luncheons until late in 1967.”

Taking obvious pride in the process, LBJ said, “I won’t let those Air Force generals bomb the smallest outhouse ... without checking with me.” On another occasion, he said that “I spent 10 hours a day worrying about all this, picking the targets one by one, making sure we didn’t go over the limits.”

The President and his advisors were reluctant to bomb the ports and supply centers around Hanoi and Haiphong, preferring to target the infiltration routes farther south. That was the hard way to do it.

“To reduce the flow through an enemy’s supply line to zero is virtually impossible, so long as he is willing and able to pay an extravagant price in lost men and supplies,” Momyer said.

“To wait until he has disseminated his supplies among thousands of trucks, sampans, rafts, and bicycles

and then to send our multimillion-dollar aircraft after those individual vehicles—this is how to maximize our cost, not his,” he said.

### The POL Strikes

McNamara’s growing unhappiness with Rolling Thunder was hardened by the results of the POL (petroleum, oil, and lubricants) strikes in the summer of 1966.

North Vietnam had no oil fields or refineries. All of its petroleum products were imported, mostly from the Soviet Union, and arrived through the port at Haiphong. From there, they were taken by road, rail, and waterways to large tank farms, only a few of which had been bombed.

On June 29, 1966, US aircraft attacked the Hanoi and Haiphong POL complexes for the first time. The Air Force struck at Hanoi, the Navy at Haiphong. More than 80 percent of the storage facilities were destroyed.

It was a strong operation, but it had come too late. North Vietnam, anticipating that the POL facilities would eventually be struck, had dispersed some of its supplies and had developed underground storage facilities.

“It became clear as the summer wore on that, although we had destroyed a goodly portion of the North Vietnamese major fuel-storage capacity, they could still meet requirements through their residual dispersed capacity, supplemented by



- 1 March 1965
- 2 April 1965
- 3 June 18, 1965
- 4 June 25, 1965
- 5 July 2, 1965
- 6 July 9, 1965
- 7 Aug. 11, 1965
- 8 Sept. 3, 1965
- 9 July 9, 1966

### Rolling North, Gradually

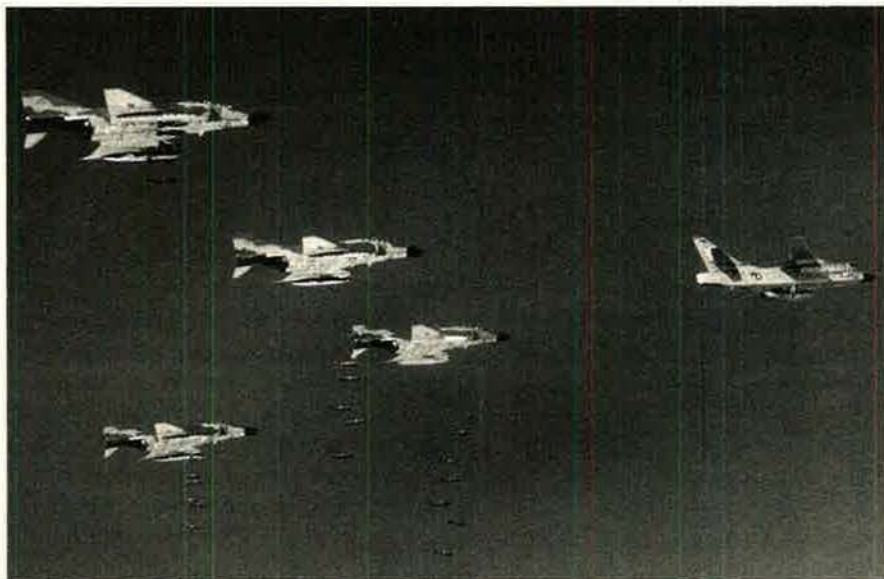
*By White House order, initial Rolling Thunder operations were confined to the North Vietnamese “panhandle” south of the 19th parallel. The boundary line for “armed reconnaissance” moved gradually north to North Vietnam’s heartland.*

continued imports that we were not permitted to stop,” Sharp said. “The fact that they could disperse POL stores in drums in populated areas was a great advantage to the enemy.

We actually had photos of urban streets lined with oil drums, but were not allowed to hit them.”

According to the *Pentagon Papers*, “Bulk imports via oceangoing tanker continued at Haiphong despite the great damage to POL docks and storage there. Tankers merely stood offshore and unloaded into barges and other shallow-draft boats, usually at night, and the POL was transported to hundreds of concealed locations along internal waterways. More POL was also brought in already drummed, convenient for dispersed storage and handling and virtually immune from interdiction.”

“The bombing of the POL system was carried out with as much skill, effort, and attention as we could devote to it, starting on June 29, and we haven’t been able to dry up those supplies,” McNamara later told the Senate Armed Services and Appropriations Committees, adding that “I don’t believe that the bombing up to the present has significantly reduced, nor any bombing that I



**MiG Killer.** The F-4 Phantom flew air-to-air and strike missions. As the war went on, it became the dominant USAF fighter, accounting for 107 of USAF’s 137 MiG kills. Here, an RB-66 leads a flight of F-4Cs releasing bombs.

could contemplate in the future would significantly reduce, the actual flow of men and materiel to the South."

### Hanoi Hangs On

One of many snide observations in the *Pentagon Papers*—written at the behest of Assistant Secretary McNaughton, the official who had seen no threat in the SAMs—was that "1967 would be the year in which many of the previous restrictions were progressively lifted and the vaunting boosters of airpower would be once again proven wrong. It would be the year in which we relearned the negative lessons of previous wars on the ineffectiveness of strategic bombing."

A number of important targets were struck for the first time in 1967. Among them were the Thai Nguyen steel complex (in March), key MiG bases (in April and October), the Doumer Bridge, over which the railroad entered Hanoi (in August and December), and several other targets inside the Hanoi and Haiphong restricted areas (in July).

As always, though, political considerations were trumps. An approved strike on Phuc Yen air base was called off in September because the State Department had promised a visiting European dignitary that he could land there without fear of bombing.

"In 1967, we were allowed better targets than in '66 and were allowed to use more strike sorties, so that the air war progressed quite well," Sharp said later. "Of course, ships were still allowed to come into Haiphong, and we weren't allowed to hit close to the docks. We were able to cut the lines of communication between Haiphong and Hanoi so that it was difficult for them to get materiel through. If we had continued the campaign and eased the restrictions in 1968, I believe we could have brought the war to a successful conclusion."

For his part, McNamara had already given up on the air war, and in cooperation with McNaughton and a group of civilian consultants, was pursuing plans—later abandoned—to build a 160-mile barrier of minefields, barbed wire, ditches, and military strong points across Vietnam and Laos.



**Failure.** Secretary of Defense Robert McNamara (right, with Sen. John Stennis, D-Miss.) told the Senate the bombing campaign had not produced results. Its failure, however, stemmed from McNamara's own policies.

Disheartened, McNamara left office Feb. 29, 1968. In his memoir, *In Retrospect*, he said, "I do not know to this day whether I quit or was fired."

### End of the Thunder

President Johnson visited the war zone in December 1967, spent a night at Korat, Thailand, where he met with aircrews and commanders, and seemed buoyed by the contact.

In January, however, North Vietnam launched its Tet Offensive, the biggest attack of the war, striking bases and cities all over the South. The offensive was not a military success, but it jolted the American public. Support for the war fell severely.

Challenged by fellow Democrats in the Presidential primaries and losing ground in the opinion polls, Johnson at last decided that he had had enough. On March 31, he announced that he would neither seek nor accept his party's nomination for another term as President.

He also announced a partial bombing halt, which ended Rolling Thunder operations north of the 19th parallel. The partial halt merged into an overall halt of bombing in North Vietnam on Nov. 1.

Rolling Thunder was over. During

its course—over three years and eight months—the Air Force and the other services had flown 304,000 fighter sorties and 2,380 B-52 sorties.

Earl H. Tilford Jr., writing in *The Encyclopedia of the Vietnam War*, stated one view of the campaign, saying that: "Rolling Thunder stands as the classic example of airpower failure."

A Senate Armed Services subcommittee, which held hearings on Rolling Thunder in August 1967, reached a different conclusion.

"That the air campaign has not achieved its objectives to a greater extent cannot be attributed to inability or impotence of airpower," the panel said. "It attests, rather, to the fragmentation of our air might by overly restrictive controls, limitations, and the doctrine of 'gradualism' placed on our aviation forces, which prevented them from waging the air campaign in the manner and according to the timetable which was best calculated to achieve maximum results."

The campaign's failure is beyond dispute, but laying the fault to airpower is questionable. There is no way to know what an all-out bombing effort in 1965 might have achieved. Perhaps no amount of bombing would have done the job, but when Rolling Thunder ended, our best chance of knocking North Vietnam out of the war was gone. Rolling Thunder had not been built to succeed, and it didn't. ■

*John T. Correll was editor in chief of Air Force Magazine for 18 years and is now a contributing editor. His most recent article, "The Strategic World of Russell E. Dougherty," appeared in the February issue.*

# DOD

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Compiled by Chequita Wood, Editorial Associate



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Deputy Secretary of Defense  
**Paul D. Wolfowitz**

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



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The genius of this singular officer lives on  
in the modern United States Air Force.

# Creech

By Walter J. Boyne

**G**EN. W.L. "Bill" Creech was among the most influential generals in Air Force history. Rising from the rank of private to that of four-star general in a brilliant 36-year career, Creech might well be said to be the personification of the Air Force's core values.

Another integral Air Force attribute—valor—is implicit in his 280 combat missions, 39 decorations (22 awards for bravery in combat), and Silver Star.

Admired by many, disliked by some for his mannerisms and strict adherence to principles, Creech's manifold contributions are denied by almost no one—not even by those who don't cherish his memory. Creech died Aug. 26, 2003.

Creech came to power at a time when fundamental changes were occurring within the service. The Air Force was adapting to the hard lessons learned in Vietnam with an unprecedented shift in leadership style.

Most Air Force leaders had been schooled in the centralized methods of Strategic Air Command, an orientation that was reinforced by the policies of Robert S. McNamara, who was Secretary of Defense in the period 1961-68.

By contrast, Creech espoused a philosophy of decentralized authority. He came to the fore just as a new generation of Air Force "fighter generals" was rising and President Reagan was rejuvenating the military with huge spending boosts.

These changes were congenial with



*Gen. W.L. Creech rose from Army private to four-star commander of Tactical Air Command over a 36-year career. Many of his policies and leadership principles continue to guide the modern Air Force.*

Creech's personal leadership style, which, in brief, was to decentralize, marry up the operators, maintainers, and supply personnel into individual squadron-level teams, and provide personal incentives to create a sense of responsibility at every level.

### Focus on the Product

He organized units in peacetime as they would fight in war, and he saw to it that each of the smaller teams was focused on a high-quality "product," whether it was aircraft sorties, engine buildups, or meals in the dining hall.

Those long familiar with SAC's centralized command system complained that Creech was wasting resources. Critics particularly derided his awarding days off to teams that met their goals ahead of schedule.

Creech maintained that by fostering pride, he was creating performance, and he always insisted that those individuals at the operating level were the ones who could make the hands-on decisions to improve performance.

He combined leadership and managerial skills in a way that amplified those individual values. Further, he recognized that any improvements made in the Air Force were soon discarded unless they were "institutionalized."

Thus it was that his combination of leadership and management skills had immediate effect when he assumed control of Tactical Air Command on May 1, 1978. His success at TAC led to widespread adoption of his techniques and influenced the character of today's Air Force.

Creech is most renowned for the dramatic steps taken at TAC, which he headed for six-and-a-half years—an unusually long time for a commander of a major command.

Despite his remarkable accomplishments at TAC, those closest to Creech value two other achievements even more highly.

The first of these was his call for weapons and tactics to suppress enemy integrated air defenses and take away from the enemy the "sanctuary of the night."

The second achievement—his teaching—was less war-related but of even greater lasting significance.

Creech's program for leader development involved careful selection of officers for promotion, mentoring



*In the Korean War, Creech served as a ground-based forward air controller and F-80 pilot. He was among the first to engage in jet-to-jet combat, when his F-80, like those pictured here, tangled with communist MiG-15s.*

groups of them, and then grooming small numbers for specific assignments.

Retired USAF Gen. Ronald R. Fogleman, Chief of Staff in the period 1994-97, commented that "Creech educated the next two generations of four-stars, people who came to lead the USAF in the late 1980s, 1990s, and in the opening decade of the 21st century."

Included in those generations were such names as Joseph W. Ashy, Michael J. Dugan, Jack I. Gregory, Hal M. Hornburg, Charles A. Horner, John P. Jumper, John Michael Loh, Merrill A. McPeak, Richard B. Myers, John L. Piotrowski, Joseph W. Ralston, Robert D. Russ, Michael E. Ryan, Henry Viccellio Jr., and Larry D. Welch. All acknowledge Creech as much more than a mentor.

These future commanders were taught and tested by Creech in a Darwinian process that let the most able reach the highest positions of command. These men embraced his teachings and his methods, refined them, and institutionalized them so that they are now part of the fabric of the Air Force.

There is a consensus today that the effectiveness of the Air Force can be attributed in large part to Creech's foresight in procurement and tactics and to his thoughtful selection of aggressive young commanders to follow in his footsteps.

### Life at the Bottom

Bill Creech was born in Argyle, Mo., on March 30, 1927. At 17, he

enlisted in the Army as a private. He often said later in life that his enlisted service made him a better officer by giving him a greater understanding of the service as a whole. Said Creech: "I've never forgotten what it's like on that bottom rung."

The future general entered the aviation cadet program in 1948, graduating with distinction and winning his wings and commission in September 1949. Creech was among the first in his class to solo in the North American T-6 trainer of the time.

His first operational assignment was with the 51st Fighter-Interceptor Wing at Naha, Okinawa, flying Lockheed F-80Cs.

In October 1950, the 51st went to Kimpo, South Korea, which was then at war with the North and about to be invaded by Chinese forces. Creech learned combat the hard way. He was on the ground, serving as a forward air controller with the Army's 25th Infantry Division, defending the Seoul-Pusan highway. Creech and his airman driver were cut off by marauding communist forces. They evaded capture, reaching friendly territory after three days. The 23-year-old lieutenant was badly frostbitten but soon returned to flying.

Creech became one of the first airmen to do battle with the formidable Soviet-made MiG-15 when the jet fighter made its debut in Korea. On Nov. 8, 1950, Boeing B-29s raided



*After proving his flying skill in Korea and as a flight commander in the US, Creech began flying F-84s with USAF's Air Demonstration Squadron, the Thunderbirds, in 1953. He later commanded USAF's Skyblazers team.*

Sinuiju airfield, and Creech's squadron strafed the flak installations. On his third pass, his F-80 took a 37 mm flak hit that jammed his throttle at an 83 percent setting.

He jettisoned his fuel tanks and flew down the Yalu River to the China Sea. Just as he reached the water's edge, he was jumped by another flight of MiGs, and these in turn were intercepted by F-80s from another squadron. Lt. Russell J. Brown led this attack and was credited with the first MiG-15 kill.

On his return to the United States, Creech was assigned as a flight commander at Luke AFB, Ariz., where for the next 28 months he taught advanced gunnery to students from 14 nations. It was at Luke that Creech developed some of the mannerisms that would later characterize him—and be used to caricature him.

Even in the sizzling heat of an Arizona summer, he was always immaculately groomed in a clean, freshly starched flying suit, with every hair combed carefully in place. This annoyed some who preferred more casual—i.e., sweaty—flying suits, but Creech backed up his sartorial elegance. His flying skill led him to the Air Force Air Demonstration Squadron, the Thunderbirds, in November 1953.

Creech flew 125 aerial demonstrations, first in the F-84G, and then, beginning in 1955, in the F-84F. He later became known as "the father of the Thunderbirds" when he waged a

successful campaign to prevent Congress from abolishing the team after the 1982 multi-aircraft crash that killed four Thunderbird pilots.

### **Skyblazer**

In January 1956, Creech became the commander of the Skyblazers, the US Air Forces in Europe aerial demonstration team. The Skyblazers flew the supersonic (but less maneuverable) F-100C. In the next four years, Creech flew 399 aerial demonstrations with this team, appearing in Europe, North Africa, and the Mideast. Creech also served as a

spokesman for the Skyblazers, mingling easily with foreign leaders.

With his combat experience, gunnery skills, and aerobatic expertise, Creech was a natural pick for the USAF Fighter Weapons School at Nellis AFB, Nev. He became its director of operations in June 1960. After that, in February 1962, he began a six-month assignment as special advisor to the commander of the Argentine Air Force. Soon, he was moving to a position that would open new vistas for him, serving as executive and aide to Gen. Walter C. Sweeney Jr., TAC commander.

Retired USAF Gen. David C. Jones, a former Chief of Staff and Joint Chiefs of Staff Chairman, recalls being at a TAC meeting in which Sweeney pointed to then-Major Creech, across the room, and stated, "He is the most competent young officer I have ever known." Jones took note.

As Sweeney's aide-de-camp, Creech often conducted business as if he wore his boss's four stars instead of his gold oak leaves. He was nonetheless effective in carrying out Sweeney's directives, which were handed down in the centralized SAC style.

In August 1965, Creech entered the National War College and on graduation was selected to work in the Office of the Secretary of Defense.

November 1968 brought his assignment as deputy commander for operations of the 37th Tactical Fighter



*In 1968-69, Creech flew 177 combat missions in Vietnam, flying F-100s like this one. In Vietnam he decided missiles and electronics were needed to better suppress enemy air defenses.*

Wing, located at Phu Cat Air Base in South Vietnam. In the next six months, he flew 177 combat missions in F-100s. On one of them, Creech led an attack against a heavily defended position in Laos. Recognizing the danger, he waved off the rest of his formation and proceeded to make a perfect solo attack on the target.

In Vietnam, Creech came to the conclusion that flying low to avoid surface-to-air missiles—and in consequence accepting the hazard of anti-aircraft and small-arms fire—was absurd. He began to form views on using missiles and electronic weapons to suppress enemy air defenses. He was also determined to “take back the night” with new equipment.

Creech now came into his own, going to USAFE in November 1969 to command the 86th Tactical Fighter Wing at Zweibrücken, Germany. He did so well at the 86th that he was then assigned to the 401st Tactical Fighter Wing, located at Torrejon Air Base in Spain, a unit that had failed two consecutive operational readiness inspections (ORIs).

Using his rapidly growing array of leadership and managerial skills, he transformed the wing. In its very next ORI, the wing achieved USAFE’s highest score on record.

### Rising Star

Creech’s star was rising, but when Jones picked him—at the time, a brigadier general select—for a two-star assignment in Europe, it took a special dispensation from Gen. John D. Ryan, Chief of Staff, to seal the deal. It was then easy for Jones to assign him to further challenging and important positions.

Creech became vice commander of the Aeronautical Systems Division of Air Force Systems Command at Wright-Patterson AFB, Ohio, in September 1974. A month later, he was assigned as commander of the Electronic Systems Division at Hanscom AFB, Mass. It was in this critical position that Creech learned much that would shape the development of electronic warfare.

Yet the pressures of the work triggered a heart attack that ordinarily meant the end of the career trail for officers. Jones intervened so Creech could recover and remain on active duty.

Creech then served in the Pentagon



*Creech took over TAC in 1978. He created measurable goals and rewards so all airman would take pride in their work. Creech began the practice of having names of enlisted crew chiefs painted on their aircraft, as the pilots had.*

until May 1, 1978, when he received his fourth star and was assigned to lead Tactical Air Command. His tour would leave an indelible imprint on TAC and move the entire Air Force toward his ideas.

He brought to TAC definite ideas about what he wanted to do and how to organize the command. TAC was a huge organization, comprising two numbered air forces, three centers, and seven air divisions. More than 111,300 military and civilian personnel were assigned to some 32 installations around the world. TAC had some 3,800 aircraft, many of them supersonic and nuclear capable.

Creech believed the command could improve its operations by moving past the era of bureaucratic centralism. He implemented his concept of decentralized, team-based systems, focused on a quality product, and transferred responsibility and authority to the lowest possible levels.

He sought out the views of subordinates and asked that his staff sections assign captains and lieutenants to brief him. He empowered his personnel with a sense of ownership and, in his words, “a stake in the outcome.”

Senior sergeants were brought back to the flight line, and senior officers were expected to fly a full schedule. Crew chiefs were given the privilege of having their names painted on the fuselage of “their” aircraft, just as the pilots were.

Much has been written about his institution of a “Proud Look” campaign that took large amounts of operations and maintenance money.

“Creech brown” became the term for buildings painted in the certain shade of earth-tone brown he favored, and it became virtually universal throughout TAC. Shop interiors went from greasy to glistening, and personnel took pride in their workplace and improved performance. Creech continually preached “quality in everything you do.”

The post-Vietnam drawdown in the Ford Administration and inadequate defense budgeting in the Carter Administration had put a serious crimp in TAC’s readiness. The most obvious result of Creech’s methods was a turnaround in readiness indicators. The TAC accident rate dropped from one every 13,000 hours to one every 50,000 hours.

Sortie rate was perhaps the most important of Creech’s basic metrics. TAC’s average per-aircraft sorties rose from 11 to 21 per month. In effect, he had doubled the number of available aircraft.

The number of aircraft out of commission for maintenance declined by 75 percent.

### The Four Nos

He told his wing commanders that there were only four things that would result in an immediate dismissal. First was any lapse in personal integrity; second was ruling through fear; third



**Creech is renowned for his influence on both equipment and leadership. Shown here in 1998 with then-Lt. Col. Brian Bishop, at Nellis AFB, Nev., Creech has been called the Thunderbirds' savior.**

was losing one's temper in public; and fourth was abuse of office.

Somewhat plaintively, he would add that he preferred that they pass their ORIs, but failing was not an automatic cause for dismissal.

In the view of some officers who served under Creech, the general's performance at TAC and the subsequent spread of his methods was not as important as his effect upon weapons system procurement and tactics. It was his particular forte to bring developments from the laboratory to the battlefield.

Part of that process was the support he lent to the realistic training of Red Flag operations (which were initiated in 1975 during Gen. Robert J. Dixon's tour at TAC) and his expansion of the concept to include other disciplines such as electronic warfare (Green Flag), air defense (Copper Flag), and others.

Creech combined his experience in Vietnam and at the Electronic Systems Division to create requirements for a whole series of weapons that still are employed.

His requirements director was Loh, a fighter pilot with a master's degree in aeronautical engineering. Their combined efforts facilitated acquisition of the Low-Altitude Navigation and Targeting Infrared for Night (LANTIRN) targeting pod and other night-fighting equipment.

Having experienced the intense radar defenses of North Vietnam, and knowing that the Soviet integrated

defense system depended on its vast radar network, Creech sought to roll enemy defenses back with radar jamming, standoff missiles, and low observable "stealth" technology.

He believed the F-117A stealth fighter could penetrate the enemy's SAM ring radars and suppress defenses with laser guided bombs. His support for stealth continued through the early days of the Advanced Tactical Fighter program, which led ultimately to the F/A-22 Raptor.

Creech himself told the story of how he sold the concept of the F-15E Strike Eagle not only to the Air Force but also to McDonnell Douglas President George S. Graff. Creech outlined the need for a stretched fuselage, conformal fuel tanks, two-person crew, APG-70 radar, and LANTIRN targeting pods—all with no diminution of the F-15's stellar air combat performance.

Part of his argument was that the Air Force needed multirole aircraft and the service would not continue to buy single-role, air superiority F-15Cs.

### Force Subtractors

Defense against jamming was another of Creech's major interests.

His goal was to ensure effective communications, while denying the same to the enemy. Knowing that the Soviet Union had spent huge sums developing jamming equipment, Creech called for antidotes based on means such as frequency hopping. He also advocated development of airborne jamming systems, including the EF-111 and EC-130H Compass Call aircraft, which he regarded as enemy "force subtractors."

Creech was revered for his ability as a teacher. He personally attended most of the conferences he established at Langley AFB, Va. These were often designed specifically for a certain category of commander—wing, base, squadron, maintenance, and so on.

The general had a vision. He communicated it to the troops time and time again; his people believed it and perpetuated it. Creech often spent a day or more at his conferences, inculcating staff with his ideas about decentralization, empowerment, excellence at every level—the leadership aspects that would ultimately be contained in his Total Quality Management theory.

He spent much time with company- and field-grade officers, trying to imbue them personally with his ideas and goals. The result was a cadre of future leaders who helped institutionalize his ideas throughout the Air Force.

Creech retired in 1984 and went on to have a successful career in industry, even writing a best-selling book, *The Five Pillars of TQM*.

At the time of Creech's death, Jumper said, "No single officer has had greater influence on the Air Force in recent times than Gen. Bill Creech. He transformed the way the Air Force conducts warfare. ... He was a war hero of Korea and Vietnam who improved the tactics that have led to our successes in the Persian Gulf, Afghanistan, Kosovo, and Iraq. Through his efforts, we have made great strides in electronic warfare and, in battle, we have won back the night."

It was some tribute. And it was deserved. ■

*Walter J. Boyne, former director of the National Air and Space Museum, is a retired Air Force colonel and author. He has written more than 600 articles about aviation topics and published 40 books. The most recent of these is The Influence of Air Power on History. His most recent article for Air Force Magazine, "Moscow's Fatal Military Adventure," appeared in the December 2004 issue.*

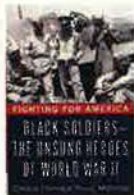
# Books

Compiled by Chequita Wood, Editorial Associate

**The All-Volunteer Force: Thirty Years of Service.** Barbara A. Bicksler, Curtis L. Gilroy, and John T. Warner, eds. Potomac Books, Inc., Herndon, VA (800-775-2518). 384 pages. \$27.00.



**Fighting For America: Black Soldiers-The Unsung Heroes of World War II.** Christopher Paul Moore. Ballantine Books, New York (800-726-0600). 367 pages. \$27.95.



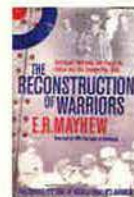
**A Pilgrim in Unholy Places: Stories of a Mustang Colonel.** Thomas D. Phillips. Heritage Books, Inc., Westminster, MD (800-876-6103). 228 pages. \$19.95.



**Attack of the Drones: A History of Unmanned Aerial Combat.** Bill Yenne. Zenith Press, St. Paul, MN (800-766-2388). 127 pages. \$19.95.



**A History of No. 10 Squadron Royal Naval Air Service in World War I.** Mike Westrop. Schiffer Publishing Ltd., Atglen, PA (610-593-1777). 194 pages. \$59.95.



**The Reconstruction of Warriors: Archibald McIndoe, the Royal Air Force and the Guinea Pig Club.** E.R. Mayhew. Stackpole Books, Mechanicsburg, PA (800-732-3669). 239 pages. \$34.95.

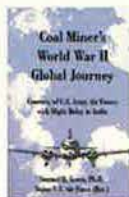
**Battle of the Bulge: Hitler's Alternate Scenarios.** Peter Tsouras, ed. Stackpole Books, Mechanicsburg, PA (800-732-3669). 256 pages. \$34.95.



**Looking for a Hero: Staff Sergeant Joe Ronnie Hooper and the Vietnam War.** Peter Maslowski and Don Winslow. University of Nebraska Press, Lincoln, NE (800-755-1105). 618 pages. \$29.95.



**Safely Rest.** David P. Colley. Berkley Caliber, New York (800-788-6262). 306 pages. \$23.95.



**Coal Miner's World War II Global Journey: Courtesy of US Army Air Forces With Slight Delay in India.** Maj. Samuel D. Greco, USAF (Ret.). Vantage Press, New York (212-736-1767). 222 pages. \$12.95.



**MiG-21 Fishbed: Walk Around No. 37 (Part 1).** Hans-Heiri Stapfer. Squadron/Signal Publications, Carrollton, TX (800-527-7427). 79 pages. \$14.95.



**SAS and Elite Forces: The Elite Military Units of the World.** Bruce Quarrie. The Lyons Press, Guilford, CT (800-962-0973). 128 pages. \$24.95.

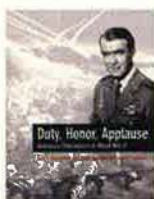
**Cold War Clashes: Confronting Communism, 1945-1991.** Richard K. Kolb, ed. VFW Publications, Kansas City, MO (816-968-1167). 172 pages. \$18.00.



**Modern Battlefield Warplanes.** David Donald, ed. Specialty Press Publishers and Wholesalers, North Branch, MN (800-895-4585). 320 pages. \$34.95.



**Transforming for Stabilization and Reconstruction Operations.** Hans Binnendijk and Stuart E. Johnson, eds. NDU Press, Washington, DC (202-685-4700). 134 pages. (Available online at [www.ndu.edu/ctnsp/S&R.htm](http://www.ndu.edu/ctnsp/S&R.htm)).



**Duty, Honor, Applause: America's Entertainers in World War II.** Gary L. Bloomfield and Stacie L. Shain, with Arlen C. Davidson. The Lyons Press, Guilford, CT (800-962-0973). 497 pages. \$29.95.



**Never Give Up: A Biography of Thomas L. Thomas.** Cheryl Price. iUniverse, Lincoln, NE (800-288-4677). 204 pages. \$17.95.



**US Air Power: Modern Bombers: Aircraft, Weapons and Their Battlefield Might.** Anil R. Pustam. Stackpole Books, Mechanicsburg, PA (800-732-3669). 72 pages. \$14.95.

In World War II, troops came on parachutes and in gliders, and the pathfinders helped them get there.

# From Air to Ground

By Bruce D. Callander

**I**n the July 1943 invasion of Axis-held Sicily, the Allies made their first large-scale use of airborne forces—paratroopers and glider-delivered soldiers. It also was nearly the last use of such forces. Everything that could go wrong did go wrong.

High winds on the first attempt made the flight from North Africa difficult. Many units missed their drop and landing sites. On other attempts, anti-aircraft gunners mistook friendly aircraft loaded with paratroops for the enemy and shot them down.

Afterward, Army officials in Washington, D.C., wanted to scrap the idea of mass airborne assaults and only use such troops in small engagements. Gen. Dwight D. Eisenhower, Supreme Allied Commander Europe, ordered an investigation. It concluded that the airborne concept was sound, but it called for more training of the units, better communications, and improved systems for identifying drop and landing zones.

Airborne troops got their second chance in the September 1943 Allied assault on mainland Italy. For this, the Army created small units of

paratroopers called “pathfinders.” It was their job to jump in ahead of the main force and mark landing and drop zones with colored lights, flares, panels, and smoke.

These pathfinders were equipped with a new type of radar unit, called “Eureka,” which sent signals to a new receiver type, called “Rebecca,” which was located in the lead aircraft of a troop carrier armada. Eureka acted like a beacon and guided the aircraft to the proper landing area.

The success of the Italian operations helped save the entire airborne approach from oblivion.

## Pathfinders Pave the Way

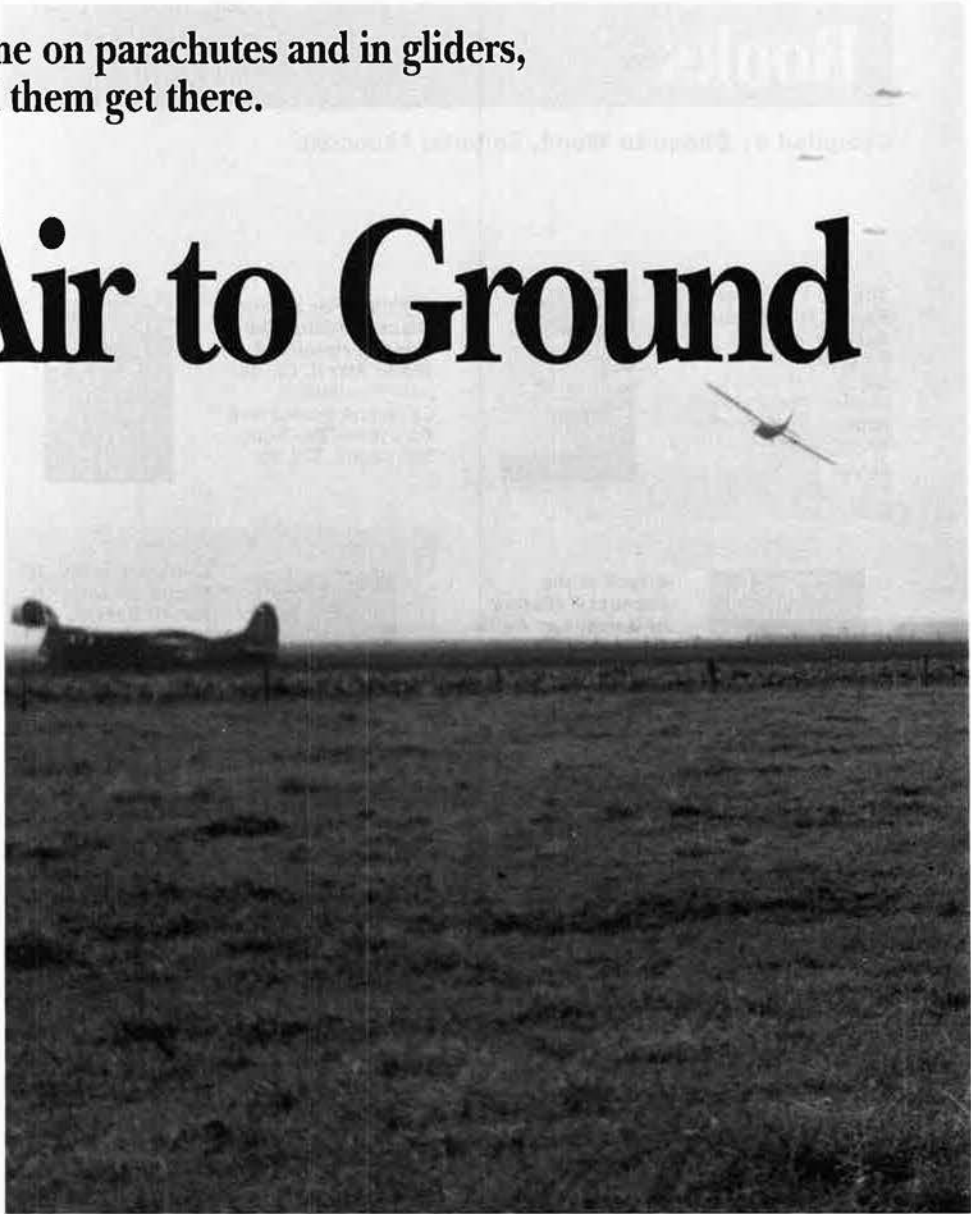
The use of these pathfinders continued throughout the war. They made it possible for the gliders and

paratroopers to operate successfully.

On D-Day, the Allies’ vast June 6, 1944, invasion of Nazi-held France, airborne elements went in before the main force hit the beaches in landing craft. Pathfinders preceded the other airborne forces by 30 minutes to direct the jumps and glider landings.

The airborne forces were routed around the Allied naval forces in the English Channel to avoid losses to friendly fire. On the ground, the troopers wore small US flags on their uniforms and carried small clickers or “crickets” to identify themselves to each other. Other efforts were made to improve communications between the individual aircraft carrying troops and towing gliders.

However, weather was marginal







*Above, gliders land with loads of troops and equipment behind enemy lines in Holland during Operation Market Garden in World War II. At right, soldiers survey a glider that cracked up during the operation, which was the largest airborne assault in history. Pathfinders preceded these troops into the area, fighting off German assaults, to aid the glider landings.*





**Members of the 1st Air Commando Group in India gather for a photo before taking off on a glider mission in Burma. Among well-known commandos was actor Jackie Coogan, kneeling at right with a gun on his left arm.**

and visibility was poor. Pathfinder teams from the 82nd and 101st Airborne Divisions that tried to drop into France were hampered by cloud cover and heavy anti-aircraft fire. In addition, many of the transport pilots were inexperienced. Several pathfinder groups were dropped in the wrong places and some of their equipment didn't work.

The result was that many of the paratroopers in the main force landed miles from their intended zones, and many of those delivered in gliders also turned up in the wrong places. Those who survived, however, formed into small groups, did what damage they could, and eventually worked their way back to their units.

Three months after Normandy, troopers of the 82nd Airborne Division and the 101st Airborne Division jumped into Holland as part of Operation Market Garden, the largest Allied airborne assault in history. Again, the main forces were preceded by pathfinders. US paratroopers made it to their targets, but British and Polish forces ran into trouble, as did the overall operation.

Later that winter, airborne troopers went to relieve the American troops pinned down by German forces in the Battle of the Bulge. Though short of cold-weather gear and other equipment, they managed to stop the German attack.

In the China-Burma-India Theater,

paratroopers and gliders were used less for large invasion operations and more for smaller strikes, organized into newly formed air commando units. In Burma, for example, Lt. Col. Philip G. Cochran helped form the 1st Air Commando Group, which eventually had more than 300 aircraft, ranging from P-51s to B-25 and from C-47s to CG-4 gliders.

In March 1944, Allied troop carrier units and an Army Air Forces air commando group landed gliders behind enemy lines in central Burma. They brought in 9,000 British raiders, 1,300 pack animals, and 254

tons of supplies and airfield construction equipment.

If the early use of airborne forces had been largely experimental and replete with mistakes, by 1944, it had become well defined. That year, *AAF: The Official Guide to the Army Air Forces* was able to describe how such operations were conducted or, at least, how they should be.

### Jointness

The World War II airborne warfare operations provided an early example of close "joint" cooperation between air and ground forces. Troop carrier and glider pilots belonged to the Army Air Forces. Their customers, the troops who jumped or glided into combat, were the Army ground forces or, in some cases, members of the British or other Allied forces. The components cooperated toward a common end.

As the operations became more clearly defined, the training of airborne forces also became standardized. Such was the case with glider pilots.

Unlike those who trained to be fighter and bomber pilots, those destined to fly gliders trained as enlisted men. They had to be males between the ages of 18 and 26. The other main requirement listed in *The Official Guide to the Army Air Forces* was for "125 hours flying either in a glider or power aircraft."

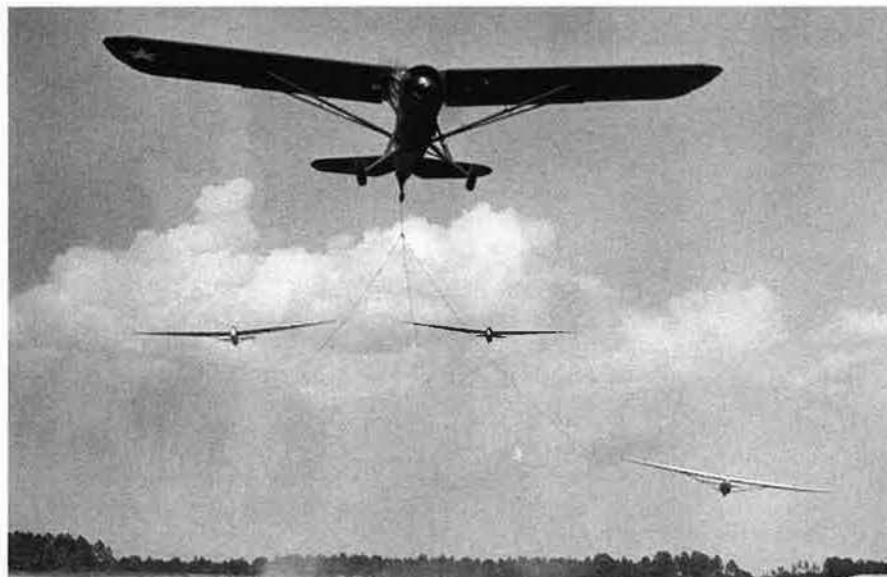
The flying-time requirement was not as stringent as it sounds today.



**During World War II, troops at Ft. Benning, Ga., load a 155 mm howitzer in the back of a CG-14, the Army Air Forces' largest glider. Pathfinders and gliders, carrying equipment, supplies, or troops, became key Allied tools in the war.**

Many young men had time in recreational gliders and private airplanes or even in pilot training. The six-month-long glider course began with ground training. This phase began with a month of commando-type schooling in personal combat and weapons. If the trainees were not already aware of it, this should have alerted them to the fact that, once landed, they were expected to fight.

Another month covered glider repair and maintenance. Then followed a month devoted to flying light powered aircraft, including instruction in making power-off dead-stick landings. It was not until the fourth month that students began to fly actual training gliders. At the same time, they studied meteorology, navigation, and selected academic subjects. The final month covered advanced glider



**An L-1A tows three gliders at once during training. Glider pilots underwent the same training as other transport and bomber pilots, then picked up their glider skills with their units.**



**During the Vietnam War, a Combat Control Team member directs air traffic from his jeep at an isolated strip. CCTs were among the first US troops sent in, performing as either ground or airborne forward air controllers.**

flying, the trainees building proficiency in tactical uses of the aircraft.

Early in the war, enlisted men with no flying experience at all had been trained in whatever rank they held at the time and graduated as staff sergeants. Later, newly minted glider pilots were appointed flight officers or commissioned second lieutenants and sent to troop carrier units for training as team members.

At first, the AAF was critically short of training gliders. To fill the gap, aircraft builders removed the engines from light, two-seat powered airplanes called "Grasshop-

pers" and converted them into three-place gliders. The Aeronca L-3, for example, acquired a bulbous nose and became the TG-5 trainer. The Taylor-Craft L-2 and the Piper L-4 underwent similar surgery and emerged as the TG-6 and TG-8, respectively.

With time, the Army acquired some Frankfort and Schweizer models purpose-built as gliders. It experimented with a number of other models but bought only a few copies.

Typical of the paratroop-glider forces, the 101st Airborne Division was made up of three major ele-

ments: the 502nd Parachute Infantry Regiment and the 327th and 401st Glider Infantry Regiments. Some months after its founding, the division gained a second parachute infantry regiment, the 506th. It also had three artillery battalions, the 377th Parachute Field Artillery and the 321st and 907th Glider Field Artillery.

### Land and Fight

In October 1942, the 101st Airborne Division, known as the "Screaming Eagles," reported for training in how to jump out of airplanes and fight a war when you land. The soldiers first had to learn basic infantry skills and then the techniques of getting into battle by unconventional means.

For a time, parachute troops and glider troops trained separately, but, by early 1943, they were training as a division. By September 1943, they were on their way to England.

The 82nd Airborne Division went through a similar training process. In April 1943, the 82nd went to North Africa as the first US airborne division to go overseas.

In addition to training basic airborne troops, the 82nd picked and trained the pathfinders, who needed not only parachuting and infantry skills but the added communications and operational skills to be the first troops to reach the battle.

Early on, the Army was able to recruit airline pilots already familiar with the C-47 as a transport, but,



**Combat controllers set up operations after a jump during an exercise near Hurlburt Field, Fla. Today's CCTs continue the World War II pathfinder tradition of being "first there."**

as the war wore on, it had to train its own.

The pilots who carried paratroopers and towed gliders underwent the same undergraduate training as other transport and bomber pilots. Typically, such men trained as aviation cadets, going through 10 weeks of preflight, taking another 10 weeks of primary flight training in a contract civilian school and 10 weeks of basic flight training under a military instructor. In advanced training, another 10 weeks, some students went to single-engine (fighter) schools and others to twin-engine (bomber-transport) training.

After graduation, pilots went through a month of transition training in combat type aircraft and then to units, where they learned skills such as low-altitude flying, glider towing, and parachute landings of both men and equipment.

Glider pilots wore wings like those of fixed-wing pilots but overlaid with the letter G. Parachutists also had a distinctive badge and, like glider pilots, received hazardous duty pay.

### Hazardous

Troops that rode gliders had a badge similar to that of the paratroopers but, early in the war, were not paid extra for it. After a few operations, however, it became apparent that riding in gliders was often more hazardous than jumping from aircraft because of their fragile

nature and lack of control in bad weather. Glider troops began to receive additional money, although it was less than the paratroopers received.

In 1941, the Army let contracts for two types of experimental troop-carrying gliders. The first called for an eight- or nine-seat transport. The second was a larger, 15-seat aircraft. Four companies were to make prototypes.

In the end, Waco Aircraft Co., of Troy, Ohio, won both competitions. It went into production first with the nine-seat CG-3. Relatively few were made and these were used largely as a trainer.

Waco's larger model, the CG-4, became a workhorse for combat operations. It was made of wood and metal with fabric covering. It had a high wing and a hinged nose section that swung upward to allow direct loading of jeeps, small trucks, or howitzers. The gross weight was as much as 9,000 pounds.

More than 12,000 CG-4s were produced by more than a dozen companies. Because of its relatively simple construction, it could be assembled by a variety of plants. Among the builders were Cessna, Ford, Gibson Refrigerator, and Ward Furniture Co. Waco refined the glider as the CG-

15 and delivered more than 400 of these.

Late in the war, one CG-15 was fitted with two radial engines and tested for use as a low-cost troop or cargo carrier, but it did not go into production. This was the reverse of an earlier experiment in which the engines were removed from a C-47 and it was tested as a glider. It had the flattest glide of any glider that had been tested at the time, but it, too, did not go into production.

The airplanes that delivered paratroopers and towed gliders most often were the durable C-47, derived from the DC-3 commercial airliner. A second troop carrier, the C-46, was added later, a few going to Europe but most to the Pacific.

### Modern Pathfinders

After World War II, the Army faced a severe drawdown and decided to disband most of its own pathfinder units. That was OK with the Air Force, which wanted only airmen to serve as forward air traffic controllers. With the establishment of an independent Air Force in 1947, USAF decided to build its own version of these specialized forces. However, it would be October 1952 before USAF sent its first 10 pathfinders to jump school. In 1953, the Air Force officially designated a Combat Control Team, or CCT.

Initially, CCTs received formal training only for the technical aspects of their work—air traffic control and radio maintenance—and attended jump school. Their specialized combat-related skills were picked up on the job or from experienced controllers.

Combat controllers have fought in conflicts from the Korean War to Operation Iraqi Freedom. Today, they work in what are called Special Tactics Teams with other Air Force special operations elements—pararescue jumpers and combat weathermen.

While the glider and glider pilot are long gone from today's combat force, the spirit of the pathfinders lives on. ■

*Bruce D. Callander is a contributing editor of Air Force Magazine. He served tours of active duty during World War II and the Korean War and was editor of Air Force Times from 1972 to 1986. His most recent article for Air Force Magazine, "Suicide in the Ranks," appeared in the January issue.*



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By Frances McKenney, Assistant Managing Editor

## Headline News

The **Frank Luke Chapter (Ariz.)** received nearly a full page of coverage in the *Arizona Republic* newspaper in December. The article highlighted the chapter's support of airmen at Luke AFB, Ariz.

The feature story singled out five chapter initiatives: pizza parties to boost the morale of units on base; donations to a Luke program helping families of deployed airmen; sponsorship of 80 airmen to attend the Luke Air Force Ball; funds for a base chapel program that provides refreshments on the flight line; and refurbishing of computers given to airmen who are selected each month as "Luke's Finest."

The article mentioned other ideas that Harry Bailey, chapter president, is developing in support of Guard, Reserve, ROTC, and Army National Guard units in the area.

Giving prominent credit to AFA, the newspaper featured the association's "wee wings" logo in its layout and included information on AFA's purpose, history, and ties to Billy Mitchell and Hap Arnold.

According to its Web site, the *Arizona Republic* ranks 11th among US daily newspapers, is the largest in the state, and has a daily circulation of half a million.

## Music, Magnets, and a Homebuilt

In January, the Aerospace Education Foundation selected 129 teachers to receive Educator Grants. The grants to elementary or secondary classroom teachers provide up to \$250 per academic year, to be used for aerospace education programs and activities when no other support is available.

Here is a sample of programs supported:

■ Music teacher Janet Duguay Kirsten, from Claude Pepper Elementary School in Miami, proposed a cross-curriculum project for her 36 fourth-graders. They will learn about the solar system and study "The Planets," an orchestral suite by British composer Gustav Holst.

"My school does not provide an



**AFA Board Chairman Pat Condon—wearing a Hawaiian lei—chats with Jack DeTour, Hawaii state president, and CMSgt. Michael Franklin from the Hawaii Chapter. Condon met with chapter leaders in January at Hickam AFB, Hawaii.**

annual budget to cover music supplies, materials, activities, or field trips," Kirsten wrote in her application, endorsed by James E. Callahan of the **Central Florida Chapter**. Kirsten's AEF Educator Grant will buy a CD of "The Planets" and handbells that the students will use to accompany the piece. Kirsten said handbells are easy to play and allow for tonal and rhythmic accompaniment to music.

■ In Georgia, **Dobbins Chapter** President Gregory A. Bricker endorsed the grant application for "Magnificent Magnetism and Groovy Gyroscopes," a project to help students in Paulding County improve their scores in the science section of a standardized state test.

"Forces and motion and magnetism are some of the most difficult concepts to teach the elementary-aged child," wrote K-12 science specialist Dawn Hudson from Dallas, Ga. "Younger students do not understand things they cannot see or feel." She applied for a grant to buy magnets and magnetic-driven anti-gravity tops. The magnets will demonstrate the

concepts of attraction and repulsion and help students understand gravity and how the Earth rotates, she said. The tops will give students an idea of how objects behave without the force of gravity.

Hudson travels from classroom to classroom and noted that the AEF grant will buy equipment that could reach nearly 22,000 students in her school district.

■ The **Greater Seattle Chapter**, led by I. Fred Rosenfelder, supported the grant application of Michael Criner, a manufacturing technology teacher at Concrete High School in Concrete, Wash.

Criner's students, age 15 to 19 years, are building a two-seat parasol-wing homebuilt aircraft called a Pietenpol Aircamper. The project will take three to five years and teaches aircraft engineering, aerodynamics, and computer-aided design, Criner said. He pointed out that it also teaches problem-solving, teamwork, work ethic, and even promotes careers in aviation.

AEF received 171 applications for this round of Educator Grants.



## Happy Anniversary

Some of its founding fathers helped blow out the candles when the **Richard D. Kisling Chapter** in Sioux City, Iowa, celebrated its 20th anniversary last November.

James M. McCoy, former AFA national president and chairman of the board (1992-96), was the evening's guest speaker. He described how Charles H. Church Jr., who was then Midwest region president (later AFA national treasurer), rounded him up, along with Ted Crouchley, to travel to Sioux City two decades ago. McCoy was at the time chairman of AFA's Membership Committee. Crouchley belonged to the **Ak-Sar-Ben Chapter** in Omaha, Neb., about 90 miles from Sioux City.

In Iowa, the trio met with John T. Hines, Roger A. Stolen, and Petrina Merritt to organize the chapter. McCoy said Stolen, who was a chief master sergeant assigned to the Air National Guard unit in Sioux City and a personal friend of Kisling, was one of the "movers and shakers" behind getting the chapter chartered.

Hines, Stolen, and Merritt went on to serve as the chapter's first, second, and third presidents, respectively.

At the 20th anniversary celebration, Donald Persinger, Iowa state president, counted seven chapter presidents on hand. Hines died in the 1990s, but Stolen and Merritt were there, along with Judy K. Church, the late Charles Church's spouse and now the Midwest region president.

The Kisling Chapter was named for the third Chief Master Sergeant of the Air Force, who was born in Mapleton, Iowa, and who was USAF's top enlisted leader from 1971 to 1973. Persinger noted that two other Chief Master Sergeants of the Air Force were natives of the Hawkeye State: Robert D. Gaylor, born in Bellevue and head of the enlisted force in 1977-79, and McCoy, who hails from Creston and was chief from 1979 to 1981.

## Tuskegee Airmen at Kitty Hawk

At the 101st anniversary celebration of the Wright brothers' historic flight in Kitty Hawk, N.C., the **Kitty Hawk Chapter** co-sponsored a ceremony honoring the Tuskegee Airmen, the African American combat pilots of World War II.

A painting of Gen. Benjamin O. Davis Jr. and retired Col. George S. Roberts was unveiled in the Dec. 17 induction ceremony at the Paul E. Garber First Flight Shrine at the Wright Brothers National Memorial. The painting joins portraits of aviation pioneers

such as Billy Mitchell, Jimmy Doolittle, and Chuck Yeager. It hangs in a gallery that surrounds the replica Wright Flyer at the national park's visitor center.

Davis and Roberts were among the first five Tuskegee Airmen to receive their wings in 1942. Davis, then Roberts, commanded the 99th Pursuit Squadron, and Davis went on to become the Air Force's first African American general.

Other 101st anniversary events included an address by Brian R. Smith, Tuskegee Airmen Association national president; remarks from retired USAF Gen. Ralph E. Eberhart, former commander of NORAD and US Northern Command; a military and civilian aircraft flyover; and a re-enactment of the Berlin Airlift's "candy bombing" by a C-54.

At a luncheon in nearby Nags Head, James E. Smith, an AFA national director emeritus and **Scott Berkeley Chapter (N.C.)** member, introduced the guest of honor, USAF Capt. Christina L. Hopper. An F-16 pilot, Hopper flew missions for Operations Noble Eagle and Southern Watch before taking part in Iraqi Freedom, beginning on the day the Iraqi war started.

The Kitty Hawk Chapter, led by Joseph M. Hardman, joined the Na-

tional Park Service and the First Flight Society of Kitty Hawk in sponsoring these events. Hardman said he and other chapter members helped plan and organize the day. They also had a hands-on role, doing everything from arranging for the First Flight painting to be painted and inviting the high school band and AFJROTC color guard to the ceremony to hanging decorative banners and setting up chairs.

## In the City's Spotlight

When the **Mel Harmon Chapter** received the AFA national award last September as Outstanding Small Chapter of the Year, its hometown of Pueblo, Colo., took notice.

The city council, which includes chapter member Jeff Chostner, presented a plaque to chapter representatives at an evening council meeting televised on a local cable channel.

R.J. Schultz, chapter treasurer; Warren D. Barter, veterans affairs VP; and chapter member Ruth D. Steele accepted the honor. Chapter President Teresa Tafoya missed the presentation because she was toting the awards—including a Community Partner Achievement Award and an AEF citation—home to Colorado from the AFA convention in D.C.

## AFA In Action

**The Air Force Association works closely with lawmakers on Capitol Hill, bringing to their attention issues of importance to the Air Force and its people.**

### AFA Hosts Senate and House Staff Forums

Acting quickly after the late December revelation that Defense Secretary Donald H. Rumsfeld had decided to cut the number of F/A-22 fighters, Air Force Association staff members joined Wendy Gnehm, legislative assistant for Sen. Mike **Enzi** (R-Wyo.), in hosting a forum on the issue for Senate professional staff.

After the inauguration, Lana Jo Breeden, from the office of Rep. Cliff **Stearns** (R-Fla.), and AFA held a similar forum for professional staff members in the House.

The Air Force hopes to restore cuts to the F/A-22, its No. 1 modernization priority, during deliberations for the Quadrennial Defense Review. (See February, "Editorial: The Fighter Force You Have," p. 2, and "The F/A-22, in Fire and Flak," p. 30.)

If Congress implements the DOD budget, with the cuts outlined in Program Budget Decision 753, the F/A-22 program would lose \$10 billion and nearly 100 aircraft that had been previously approved and budgeted. Other programs targeted by PBD 753 included USAF's new C-130Js, which Rumsfeld terminated.

The forums opened a dialogue with staffers for Senators and Representatives who belong to the Air Force Caucus and from those states that might be affected adversely by the decision.

Among the materials presented were performance statistics, basing plans, short- and long-term operational cost savings, comparisons with foreign aircraft, and state-by-state economic impact. Each staff member received a comprehensive set of briefing materials.

AFA also set up an E-mail network to distribute additional information as it is developed.

## AFA/AEF National Report

The local newspaper, the *Pueblo Chieftain*, took note of the AFA award by publishing an article on the chapter's achievement and its role in the community. It included comments from Russell K. Darr, chapter VP, and David Thomson, Colorado state president, about why AFA is important to them on a personal level.

### New Name

The Diamond State Chapter (Del.) was renamed the **Brig. Gen. Bill Spruance Chapter**, in honor of the Delaware native who now lives in Las Vegas.

William W. Spruance was born in 1916 in Wilmington and was commissioned in 1939 from Princeton University's ROTC program. He was a field artillery observer, later transferring to the Army Air Corps, and flew missions in the China-Burma-India Theater. In his civilian career, he became chief clerk for the Delaware state legislature and a county executive. He helped found the Delaware Air National Guard in 1946. After the 1961 crash of a T-33 in which he was a passenger, he began giving presentations on flying safety and crash survival. Spruance is a national director emeritus of AFA.



Retired CMSgt. Richard Ortega of the Central Florida Chapter presents a Civil Air Patrol Cadet of the Year award to Tyler Hiatt in Daytona Beach, Fla. Ortega spoke about AEF grants available to CAP units, instructors, and cadets.

Chapter President Harry Van Den Heuvel announced the renaming at a December meeting hosted by ANG Col. Ernest G. Talbert, chapter VP and commander of the 166th Airlift Wing, New Castle County Arpt. Guest speaker was Brig. Gen. S. Taco Gil-

bert III, deputy director for strategic planning in the Office of the Deputy Chief of Staff, Plans and Programs. Gilbert commanded the 436th Airlift Wing, Dover AFB, Del., from 1999 to 2001. On this return to Delaware, he spoke about the Future Total Force.

### More AFA/AEF News

■ With members of the **Everett R. Cook Chapter (Tenn.)** in the audience, Rep. John S. Tanner (D-Tenn.) cut the ribbon at a dedication ceremony for a building addition to the Dyersburg Army Air Base Museum in Halls, Tenn. Tanner was born on Dyersburg, which served as B-17 training base in World War II. Chapter leaders taking part in the celebration included James Kasperbauer, state president; George M. Livers, state VP; James Van Eynde, state treasurer; Winston J. Daws, chapter president; and Glenn Fuller, chapter treasurer. Van Eynde, who is also chapter VP, said several chapter

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### Have AFA/AEF News?

Contributions to "AFA/AEF National Report" should be sent to *Air Force Magazine*, 1501 Lee Highway, Arlington, VA 22209-1198. Phone: (703) 247-5828. Fax: (703) 247-5855. E-mail: [afa-aef@afa.org](mailto:afa-aef@afa.org). Digital images submitted for consideration should have a minimum pixel count of 900 by 1,500 pixels.

members have contributed military memorabilia to the museum.

■ The **Donald W. Steele Sr. Memorial Chapter (Va.)** held a Salute to SAF/AQ in November, honoring Marvin R. Sambur, the outgoing assistant secretary of the Air Force for acquisition, and members of USAF's acquisition community. Chapter President George DeFilippi reported that more than 100 guests got together for an evening at the Ft. Myer Officers' Club to congratulate 14 active duty and civilian personnel who received Action Officer of the Year awards from the chapter.

■ John Timothy Brock, **Central Florida Chapter** president, and Richard A. Ortega, aerospace education VP, attended the December commissioning ceremony for nine AFROTC cadets at the University of Central Florida in Orlando. Brock gave the new officers a three-year membership to AFA and a second lieutenant's "starter kit"—a set of gold bars, a hat insignia, and a USAF training ribbon. The Central Florida Chapter also provided refreshments for an AFJROTC drill competition in Orlando in December. Ortega presented the Battered Boot first-place trophy to cadets from Osceola High School in Kissimmee, Fla. ■

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## Reunions

[reunions@afa.org](mailto:reunions@afa.org)

**1st Computations Technical Sq.** May 1-5 in Orlando, FL. **Contact:** Alva Stone, 5729 Doris Dr., Brook Park, OH 44142 ([nanstone@mindspring.com](mailto:nanstone@mindspring.com)).

**7th Air Commando Society**, including past and present 7th SOS members. April 21-24 in Fort Walton Beach, FL. **Contact:** Robert Underwood, 17 Bayshore Pt., Valparaiso, FL 32580 (850-678-6222) ([bob.eileen.fl@valp.net](mailto:bob.eileen.fl@valp.net)).

**12th Missile Sq.** March 2-5 at Great Falls and Malmstrom AFB, MT. **Contact:** 1st Lt. Todd Young (406-761-2784) ([todd.young@malmstrom.af.mil](mailto:todd.young@malmstrom.af.mil)).

**33rd Troop Carrier Sq, 374th Troop Carrier Gp, Fifth AF (WWII).** April 22-24 at the Gaylord-Texan Hotel in Grapevine, TX. **Contact:** Mo Berg, 202 Oak Ln., Euless, TX 76039 (817-267-6814) ([moveraberg@sbcglobal.net](mailto:moveraberg@sbcglobal.net)).

**34th BS, Wright-Patterson AFB, OH (1960-75).** Aug. 24-28 at the Holiday Inn in Fairborn, OH. **Contact:** Ovidio Pugnale (937-426-5754).

**47th BG Assn (WWII).** May 12-15 in Nashville, TN. **Contact:** Costa Chalas (508-224-4982) ([hojo2@compurium.net](mailto:hojo2@compurium.net)).

**58th Fighter Assn**, including the 58th FW (WWII), 58th FBW (Korea), and the 69th, 310th, 311th, 428th, 429th, and 430th Fighter Bomber Sqs. June 15-20 in Alexandria, VA. **Contact:** Jean Kupfere (812-945-7649) ([jkupfere@iglou.com](mailto:jkupfere@iglou.com)).

**68th FIS/FS.** June 16-19 in Fairborn, OH. **Contact:** W. Hearon, 7548 University Dr., Shreveport, LA 71105-5421 (318-797-3331) ([vw haze@bellsouth.net](mailto:vw haze@bellsouth.net)).

**667th, 932nd, 933rd, and 934th AC&W Radar Sqs,** Iceland. May 11-15 at the Air Defense Command Museum, Peterson AFB, CO. **Contact:** William Chick, 104 Summit Point Ct., Chapin, SC 29036 (803-932-9596) ([littlechick@msn.com](mailto:littlechick@msn.com)).

**4080th Strat. Recon Wg,** all squadrons. May 26-28 at the Civic Center in Del Rio, TX. **Contact:** 4080th SRW Reunion Committee 2005, PO Box 1526, Del Rio, TX 78841-1526 (830-775-5346).

**Air Transport Command Assn** including ATC, MATS, and AMC veterans. May 19-21 in Savannah, GA. **Contact:** Rick Ravitts (815-229-1122) ([devonshir@att.net](mailto:devonshir@att.net)).

**Bolling AFB B-25 Bunch.** May 22-26 at the Biloxi Beach Resort in Biloxi, MS. **Contact:** C.J. Smith, 5249 Old A&P Rd., Ripley, OH 45167-9747 (937-375-4671).

**Flying Tigers of the 14th AF Assn (WWII),** veterans of the American Volunteer Gp (1941-42), China Air Task Force (1942-43), and 14th AF (1943-45). May 26-29 in Arlington, VA. **Contact:** Robert Lee, 717 19th St S., Arlington, VA 22202-2704 (703-920-8384).

**Nagoya/Komaki Air Base Reunion Assn,** Fifth AF. May 22-25 at the Lodge of the Ozarks in Branson, MO. **Contact:** John Campo (816-407-0055) ([jaymcee@aol.com](mailto:jaymcee@aol.com)).

**OCS Class 62-C.** March 21-23 in San Antonio. **Contact:** Stowe, 807 Hogan Dr., Papillion, NE 68046.

**Pilot Class 43-D Assn.** April 13-16 at the Holiday Inn University Mall in Pensacola, FL. **Contact:** Frank Dutko, 316 Florida Ave., Gulf Breeze, FL 32561-4242 (phone: 850-932-3467 or fax: 950-932-3901) ([duke43d@hotmail.com](mailto:duke43d@hotmail.com)).

**Pilot Class 52-A.** May 11-15 in Dayton, OH. **Contact:** Don Schmidt (623-561-0474) ([dlsch@cox.net](mailto:dlsch@cox.net)).

**Veterans of Underage Military Service.** April 21-25 in Dayton, OH. **Contact:** R. Thorpe, 6616 E. Buss Rd., Clinton, WI 53524-8814 (608-676-4925).

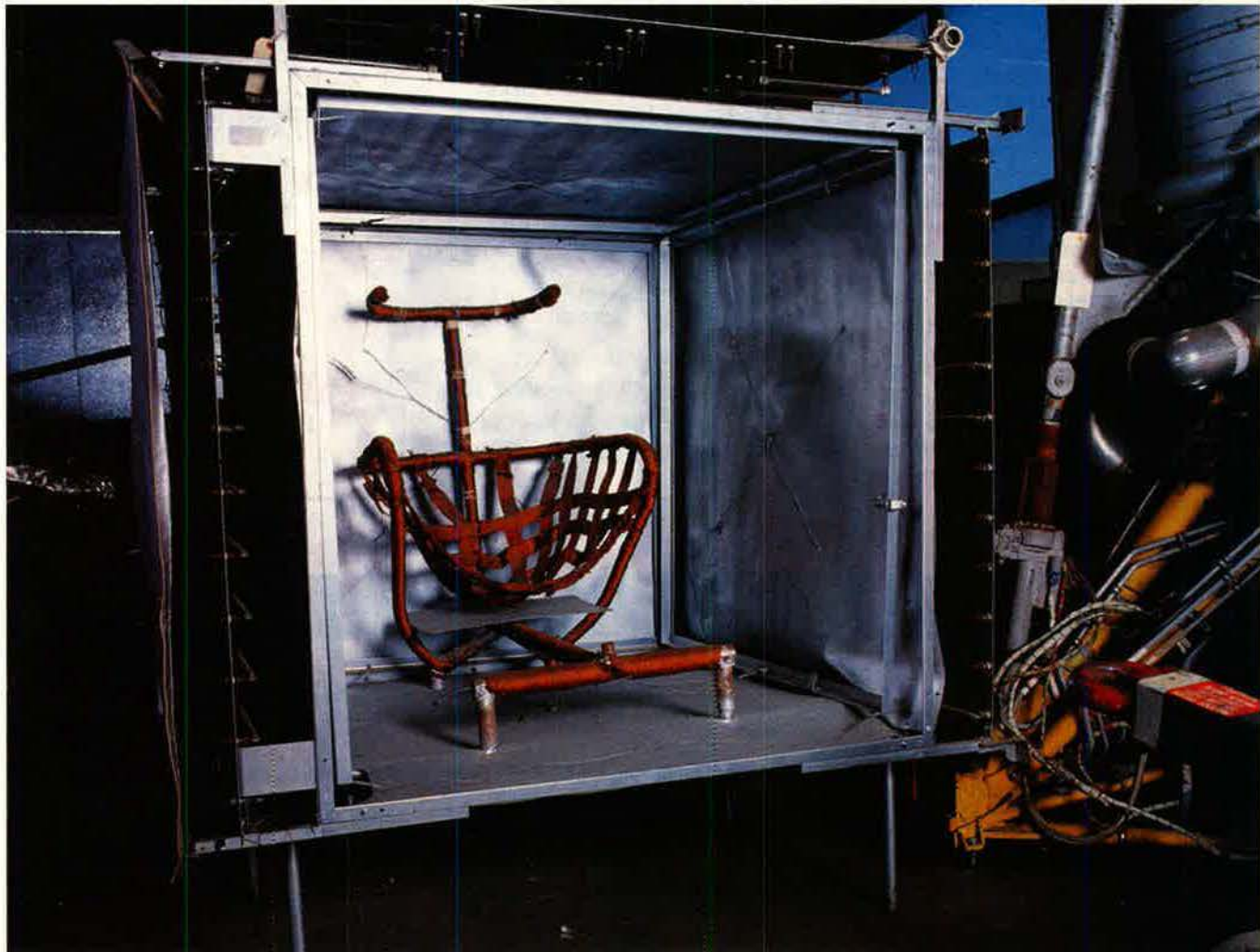
Seeking former **CBPO personnel**, Hahn AB, Germany (1984-90), for a reunion in May (Memorial Day) in San Antonio. **Contact:** TSgt. Lea Wright ([lea.wright@wpafb.af.mil](mailto:lea.wright@wpafb.af.mil)).

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.

# Pieces of History

Photography by Paul Kennedy

## The Hot Box



*In the early days of the US manned space program, USAF's Aerospace Medical Laboratory at Wright-Patterson AFB, Ohio, led DOD and NASA research into the thermal stress a human would experience in space and during re-entry into Earth's atmosphere. A big part of the program was the "heat pulse oven," a "hot box" used to test human endurance. It is shown above as it is now displayed at the National Museum of the United States Air Force and, at right, in a vintage photograph. The small cube, which measured four feet on all sides, was made of aluminum. External heat was provided by clear quartz infrared lamps, which could reach 500 degrees Fahrenheit.*





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