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March 2007, Vol. 90, No. 3

AIR FORCE MAGAZINE

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About the cover: F-22s in flight. See "Making the Best of the Fighter Force," p. 40. Photo by Lockheed Martin.

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Editorial

By Robert S. Dudney, Editor in Chief

The Battle of the Boots

"We can begin by working together to increase the size of the active Army and Marine Corps, so that America has the armed forces we need for the 21st century," President George Bush remarked Jan. 10, in a crashing *non sequitur.*

The sentence's first part referred to Bush's plan to expand US ground forces by 92,000 soldiers and marines, at a cost of $112.4 billion. No confusion there.

It was the second part ("the armed forces we need for the 21st century") that clanked. Despite Bush's words, it isn't obvious that more "boots on the ground" are what we need. They certainly are not the only or most urgent need.

Under Bush's plan, the Army would grow to 547,000 troops (up from 482,000) and Marine Corps to 202,000 troops (up from 175,000). His plan is debatable for both (a) what it might do, and (b) what it definitely won't do. Take the second part first.

The buildup will do nothing to ease the current operational stresses caused by the war in Iraq. Even the Pentagon concedes it will take five years fully to recruit, train, and equip new units, so no new forces will enter the operational flow anytime soon. To the extent the sky is going to fall, it has already fallen.

Perversely, when these new troops *are* ready, they will be too late. Public support for the war is ebbing. Both parties know this, and probably soon will find a way to sharply reduce if not eliminate our ground presence. That would ease the stress significantly.

What about "future Iraqs?" If the new troops can't help now, might they be useful in similar major counterinsurgencies to come?

The statement "future Iraqs" is virtually self-refuting. Polls show that one Iraq war is quite enough for most Americans. That being the case, it is a good bet that it will be a long time before a President commits the nation to another long, Iraq-style slog.

So much for what the buildup won't do. More worrisome are effects that the expenditure could produce—directly and indirectly.

The direct objective—especially within the Army—is to better prepare the ground forces for conventional, high-intensity combat. There is no doubt about that.

Vice Adm. P. Stephen Stanley, a top Joint Staff planner, said the buildup idea stemmed from a recent strategic risk assessment. The study found that Army and Marine Corps units, heavily focused on counterinsurgency operations in Iraq and Afghanistan, had little time at home station to train for "full spectrum" warfare.

Given world realities, creating more ground forces looks like a marginal if not poor investment.

Expanding the two ground services will give their units more time at home, which in turn "will allow us to establish that full spectrum training capability that we need," Stanley noted.

This rationale is especially important to the Army, which further affirms it with its commitment to the Future Combat System, Patriot air defense system, UAV fleets, and the like.

The question, however, must be asked: In which high-intensity war would we need greatly expanded US conventional ground forces?

Today's major-war scenarios feature huge adversaries such as China, Russia, North Korea, and Iran. Against those foes, experts agree, US air, space, naval, and special operations forces would dominate, with conventional land forces in a lesser role.

Given world realities, creating more ground forces looks like a marginal if not poor investment.

There could be a pernicious indirect effect: use of Air Force and Navy as bill-payers for ground force growth, with all that implies.

Gen. Peter J. Schoomaker, the Army Chief of Staff, bluntly rejects such poaching. However, other Army partisans—especially retired generals of a certain stripe—call for USAF and the Navy to "live with less" so that the ground forces might have more. Cannibalism of that type would generate tremendous problems.

While it does not get public acclaim, the Air Force has been heavily committed in the Mideast for 16 years, in both combat and support roles. Equipment is wearing out faster than anticipated.

With modernization stymied, aircraft age has risen to historic highs, and USAF now faces what one top officer calls "a crisis" in modernization. The Air Force decided to cut 40,000 troop spaces just to keep the modernization program from going under.

In addition, readiness has declined 17 percent, and 14 percent of USAF aircraft are under flight restrictions.

Air Force leaders report that, so far, service funds have not been diverted to the ground force project. Still, we can't help but notice that the period of danger has just begun.

Ground-force expansion, costing $6.6 billion this year, has a significant "tail." Planned annual expenditures would go like this: $17 billion, $20.7 billion, $21 billion, $17.6 billion, $16.5 billion, and $13 billion.

When the expansion is complete, steady state cost will be $15 billion to $20 billion per year, according to defense analysts.

The Pentagon this year raised the budget to accommodate the expansion. The danger will come when inevitably the budget turns down. The cost of the extra ground troops will still be there, and someone will have to foot the bill.

We have said before and will repeat here: If genuine Army and Marine Corps needs are not being met, Congress should do what it takes to meet them. A corollary, however, is that Air Force needs are equally important, no less urgent, and should also be met.

The issue here is not the glory of the Air Force. The issue is whether the projected defense program, overall, is the best for the nation. For reasons we have enumerated here, we think it is not.

This is no time for a major expansion of ground forces. The adverse effects will be magnified if, in doing so, we sacrifice our dominance in the air, in space, and on the high seas. ■

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Letters

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Billy Mitchell

Dr. Rebecca Grant is a jewel for our Air Force and the Air Force Association. She is a superbly credentialed observer of our institution, articulate, with a keen sense of history. She has written extensively. Her piece entitled "The Billy Mitchell Syndrome" in the December issue *[p. 52]*, for these and other reasons, got my attention. In it, she expresses views on airpower advocacy which are blissful, nostalgic, ... and wrong.

Dr. Grant's treatment of Mitchell's past is no doubt historically accurate. Her other vignettes may be equally accurate, but they lack context. Mike Dugan remains an icon for many of us. He had no small role in propelling my tenure over the years. But what Grant doesn't relate in her account of General Dugan's relief is the undeniable fact that Goldwater-Nichols (GN) was very much in its youth at that moment. It is easy to conclude Secretary Cheney's decision was taken because of General Dugan's advocacy of airpower. I don't think so. At least not to the degree Grant suggests. Had Gen. Dugan's points been offered in a more academic setting, I'm inclined to believe the outcome would have been different. Instead, they were made while our national policy vis-à-vis Iraq was still solidifying, when sensitive negotiations with key allies were still under way, including an effort to secure the theater beddown of hundreds of coalition aircraft. And I would not be surprised if the comments were perceived as contrary to the letter and intent of GN, a change all the services and the Department of Defense resisted at the time. But in the end, GN became the law of the land and it emphasized not independent service action, but that of a cohesive joint team. Grant may see this as the "iron law of jointness." I don't.

Dr. Grant then provides commentary on Maj. Gen. Chuck Link's formulation that America's ground forces were too eager to engage the enemy ... to seek contact. This was a heady time for airpower advocacy, one that Grant celebrates. And there are few airmen at any rank, now or since, who can match Link's passion or clarity. Link's underlying argument that the Army and Marine Corps preferred contact to less costly, in blood and treasure, applications of force from the air certainly resonated at the time. May I suggest, however, it is one thing to stake out such a position in peacetime. In this case, circa 1996. But does anyone believe that the United States Army or the United States Marine Corps actually encourages such a notion today ... in Iraq or Afghanistan? We as an Air Force have had our own painful experience with eagerness for contact. Some have suggested, for example, the shootdown of two UH-60 helos in Northern Iraq in 1994 as a case in point.

Grant reflects on the takedown of Zarqawi. She laments the "secular religion" of jointness that induced the Air Force to "downplay" its role in that mission. Of course it was an occasion for pride in what airmen can do. But think of this: That command sergeant major on the ground who could have demonstrated his eagerness for contact by assaulting the farmhouse chose instead, contrary to his natural instincts, to rely on airpower to assure ultimate success in the mission. Think of that. If that is the "secular religion" of jointness to which Grant refers, I want more of it.

And now to Dr. Grant's real point: that "too much modesty for too long" can place the air and space and cyberspace power of our Air Force at risk. This is no doubt true. For me, the question is: Are we at our best when we focus on contribution more than attribution? I think so. Certainly, if the Army and Marine Corps

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To educate the public about the critical role of aerospace power in the defense of our nation.

To advocate aerospace power and a strong national defense.

To support the United States Air Force and the Air Force family.

are to grow by 90K personnel, it's clear that those AF assets that align with that growth should also increase: airlift liaison officers that I count on every day, FACPs that Ron Keys relies on every day, and countless other assets assigned to other Air Force major commanders. But in the end, our ultimate focus must recognize that jointness isn't a pejorative term, nor is it a notion that diminishes our Air Force. Instead, we have arrived in an era when the Air Force has air, space, and cyberspace missions to perform, though none are like to be "The Mission" in its entirety ... that is the Joint Force mission.

Are we diminished if others depend on us? Are we diminished if others take us for granted? Are we diminished if our earlier effective advocacy for effects-based thinking has taken us beyond the traditional focus on how and by whom the results are obtained? Dr. Grant is right in encouraging us to speak crisply and without hesitation about the purposes and relevance of airpower. My only point is that it must be done in full recognition that the Joint Force is more sophisticated, interdependent, and capable than any single service, agency, or discipline. In short, we must in our advocacy emphasize contribution over attribution.

Gen. Norton A. Schwartz
Commander, USTRANSCOM
Scott AFB, Ill.

■ *Wow! It's rare to see a four-star in such a lather. My point was that powerful advocacy of airpower options is actually essential to joint campaign effectiveness. Somewhere, Billy Mitchell is smiling sadly.—Grant Grant*

The two recent articles by Rebecca Grant are as absolutely fantastic as they are diverse. We need to see more from her.

Since she wrote the article on the Hellcat *["Cat Against the Sun," January, p. 74.],* I would like to see her write a like article on other WWII aircraft like the P-40. This aircraft was maligned by history, but the facts of its performance in WWII don't support this record. The P-40 really held its own against all comers when flown properly using the tactics developed by Chennault and other fighter pioneers. Supporting the role of airpower is the P-40 interdiction of the Japanese Army attempt to invade India, potentially kicking the Allies out of China. Flying Tigers were solely responsible for turning back this invasion by strafing and bombing the Japanese on the Burma Road.

Her article on "The Billy Mitchell Syndrome" is a direct hit (shack). Air Force senior leadership would do well to read this article and take it to heart. The recent issue with USAF integrity and the failure of leadership to defend the USAF mission is causing us to lose ground both politically and technically. Ms. Grant's assessments are excellent and her articles are superb.

William R. Taylor
Wright-Patterson AFB, Ohio

[Rebecca Grant's "The Billy Mitchell Syndrome"] was really interesting. But the Serbian conflict wasn't mentioned at all. Given the Army's attempt to get in the conflict and miserable, total failure, was that too sensitive for even AFA to mention? Airpower won that one singlehandedly!

There was a question in the article about whether we need a separate Air Force. Aside from the strategic situation, we need a separate Air Force to think airpower and not be distracted by ground force issues. Superb capabilities come from focused attention.

As an aside, my dad was a career Army officer. During WWII he was the point man signing American equipment over to the Russians in Tehran for the Persian Gulf Command. I get excited about USAF capabilities and pointed out what airpower did during the first Gulf War. He curtly informed me you still need "boots on the ground"! I kept my enthusiasm to myself after that. You need boots on the ground some of the time and joint operations, but you need airpower all the time.

Maj. Peter C. Laudieri,
USAF (Ret.)
Fairborn, Ohio

More on Grant

I very much enjoyed Rebecca Grant's article "Cat Against the Sun" and was in fact a bit pleasantly surprised to see an aircraft never flown officially by the USAAF discussed in *Air Force* Magazine.

I really do hate to nitpick at a nice piece of work, but it does repeat the old myth that evaluation of Koga's Zero influenced the development of the Hellcat. According to the article: "Grumman made a test flight with the new engine on July 30 [1942]."

Actually, though Koga's Zero was discovered on 10 July, it wasn't delivered to San Diego and brought back up to airworthiness for trials until late September—at which time the first production Hellcats were in the process of being assembled.

Of course, the Navy was perfectly aware that the Zero was faster than a Wildcat and that the Hellcat would need R2800 power to deal with the Zeke—but the admirals didn't need to capture a Zero to figure that out.

Greg Goebel
Loveland, Colo.

I really enjoyed the excellent article on the F6F Hellcat by Rebecca Grant. The only addition to the Hellcat story that I would like to have included would be mention of Cmdr. Hamilton McWhorter III, USN (Ret.), who was the first F6F ace. In October and November 1943, then Lieutenant Junior Grade McWhorter shot down five Japanese planes, making him the first to destroy five enemy planes while flying the Hellcat. He was also the first to shoot down 10 planes while operating from a carrier.

I had the good fortune to serve as an exchange officer with the Navy in VF-12, the Navy fighter squadron that Mac commanded in 1953. We are still friends and correspond regularly.

Col. Edward J. Mason,
USAF (Ret.)
Alexandria, Va.

Editorial: Second Opinion

You complain that the force structure needs to be increased (a point I agree with) *["Editorial: Second Opinion," January 2007, p. 2].* However, you then go on and blame the Democrats for not wanting to go along with the CDR report. The reason we cannot painlessly fund a $130 billion defense increase is because the Republicans took us into the war in Iraq. If we had stayed focused on the actual Global War on Terror (radical Islam) instead of the Bush Administration's fantasy of transforming Iraq into our image, there would be more than enough funding for all of the services.

Sean M. Mallory
Edinboro, Pa.

America's Airmen

The *Air Force* Magazine article "America's Airmen: An Air Force Enlisted Hall of Fame" *[January, p. 22]* has one significant omission: Cpl. Frank S. Scott, the first Army enlisted man to die in an aviation accident. Corporal Scott was killed on Sept. 28, 1912, along with pilot Lt. Lewis C. Rockwell, when the Wright B aircraft he was flying in suddenly plummeted to the ground at the Signal Corps Army Aviation School, College Park, Md. Scott Air Force Base in Illinois is named after Corporal Scott, the only enlisted airman I am aware of to be so honored.

Charles Downs
Glenelg, Md.

The director of the National Museum of the US Air Force, Maj. Gen. Charles D. Metcalf, USAF (Ret.), wanted us to bring an item to your attention that appears to be misleading in the January 2007 issue of *Air Force* Magazine.

The item in question is on p. 36 and says that Pitsenbarger's Air Force Cross, "awarded in 1966, was not rescinded." This indicates that Pitsenbarger then would have both the Air Force Cross and the Medal of Honor for the same event—which is misleading. While it's true that the AF Cross was not rescinded, what is not said is that it was upgraded. The AF Cross was upgraded to a Medal of Honor. Therefore, Pitsenbarger does not have both an AF Cross and the MoH— his AF Cross became a Medal of Honor. (This was recently verified by one of our historians at the museum as well as the Air Force Personnel Center.)

Rob Bardua
Public Affairs Division
National Museum of the US Air Force
Wright-Patterson AFB, Ohio

Thank you for your feature article "America's Airmen: An Air Force Enlisted Hall of Fame." These men [and women], and so many others like them who have never been recognized, were and are the strong backbone of our service. Thank God for their bravery, dedication, and integrity. So many of their stories have never been told before and are so long overdue.

I have some problems, however, with what was written about those

designated as the earliest recipients of the Distinguished Service Cross (p. 38). According to my source *[American Decorations: A List of Awards of the Congressional Medal of Honor, the Distinguished Service Cross, and the Distinguished Service Medal Awarded Under the Authority of the Congress of the United States, 1862-1926],* Sgt.1st Class Harold O. Nicholls, a balloonist, was the first enlisted member of the Balloon Service to receive this award. He was cited in General Order 26, War Department 1919. Sgt. 1st Class Fred C. Graveline, an aerial observer and gunner, received his in General Order 37, War Department 1919. Both of these men stepped into what had been officer positions because there were no officers available. They both are due every honor but I never met a good top sergeant who did not want the facts to be right.

Lt. Col. Richard M. Rupley,
USAF (Ret.)
Chassell, Mich.

The New Aggressors

Your beautiful cover story pictorial of the new aggressor squadrons was a fitting, posthumous tribute to one of the organization's founding fathers. Lt. Col. Lloyd W. Boothby coordinated the study that pointed to the need for live adversaries and served as the first aggressor squadron commander *["The New Aggressors," January, p. 52].*

In justifying the need for realistic air-to-air training, "Boots" said, "I'd hate to see an epitaph on a fighter pilot's tombstone that says, 'I told you I needed training'... How do you train for the most dangerous game in the world by being as safe as possible? When you don't let a guy train because it's dangerous, you're saying, 'Go fight those lions with your bare hands in that arena, because we can't teach you to learn how to use a spear. If we do, you might cut your finger while you're learning.' And that's just about the same as murder."

Boots succumbed to cancer on Nov. 26, 2006. Following a memorial service at Nellis AFB [Nev.], his immediate family and I, his Southeast Asia GIB, were honored to attend the current aggressor's "Friday night roll call." That moving experience clearly demonstrated that current squadron members honor their heritage and that the mission of the United States Air Force, "to fly and fight," will never be forgotten.

Thanks, guys.

Lt. Col. George McKinney,
USAF (Ret.)
Pace, Fla.

Leave It to the Guard

Thanks for the fine article "Leave it to the Guard" in the January 2007 issue of *Air Force* Magazine. We are appreciative of your continued coverage of the Air National Guard and, specifically, the 116th Air Control Wing at Robins AFB, Ga.

However, I am compelled to correct one part of your report. The article stated, "The ANG crews of the 116th ACW flew missions over Iraq averaging 13 hours in duration." Actually, our Joint STARS crew members are a unique mix of active-duty Air Force, Guardsmen, and active duty Army members. The 116th ACW was the first-ever blended wing in the Air Force, a point of great pride for our unit and our base. Rarely will you ever encounter such a display of teamwork—men and women from three separate cultures working side by side to accomplish our vital national defense mission.

Again, we appreciate the positive coverage and the quality product you publish monthly for the Air Force audience. However, I would like to see credit given where credit is due. Joint STARS teams earn their successes in the field of battle together. It is our wish to be recognized that way.

Col. James Jones
Commander, 116th Air Control Wing
Robins AFB, Ga.

Eagle Flag

Not a big deal, but I noticed a small error in the "Eagle Flag" article *[January, p. 68].* I am quoted on p. 70 of the printed version of the magazine. The quote is accurate, but my duty title is not. I am actually the 5th Civil Engineer Squadron commander, not a "communications airman." Just thought you'd want to know. Otherwise, great article! Thanks.

Lt. Col. Brian G. May
Commander
5th Civil Engineer Squadron
Minot AFB, N.D.

That First Look

Walter Boyne's superb article on the historical unfolding of airborne early warning, "That First Look" *[January, p. 80],* notes some examples of contributions of NATO E-3 Airborne Warning and Control System (AWACS) aircraft, e.g. in Operation Deliberate Force against Bosnian Serb military targets in 1995 and in Operation Eagle Assist in the United States after the Sept.11, 2001, attacks.

NATO AWACS has contributed in other important ways as well, such as continuous operations in support of UN resolutions around the former Republic of Yugoslavia, responding to Iraq's invasion of Kuwait by monitoring air and sea traffic in the eastern Mediterranean and providing continuous airborne surveillance along the Turkey-Iraq border, and, of course, strengthening NATO deterrence in the first instance.

The NATO AWACS program has been unique, and its development was the result of much hard, coordinated work among NATO members. After several years of deliberations, on Dec. 6, 1978, the defense ministers of participating NATO nations signed a Multilateral Memorandum of Understanding for the NATO Airborne Early Warning and Control (AEW&C) Program. An unprecedented feature of the program was that NATO acquired its own collectively operated and maintained aircraft fleet. This acquisition comprised 18 NATO AWACS aircraft. The AEW&C program also included wide-ranging modification and upgrading of 40 existing NATO Air Defense Ground Environment (NADGE) sites to enable the sites to work effectively with the AWACS.

Fourteen of NATO's nations contribute to the AEW&C program. NATO states that the aircraft component "is the world's only integrated, multinational flying unit, providing rapid deployability, airborne surveillance, command, control, and communication for NATO operations."

A NATO E-3 crashed after an aborted takeoff in Greece on July 14, 1996 (no fatalities), which reduced NATO's inventory from its original level of 18 to its current level of 17.

NATO initially pledged five NATO AWACS for Operation Eagle Assist in the United States in the aftermath of the Sept. 11 attacks, but that number was soon increased to seven. NATO E-3 aircrews from 12 nations, based at Tinker AFB, Okla., participated. They completed their mission in the United States in May 2002. Referring to those aircrews, President Bush stated on May 16, 2002: "On behalf of the American people, I thank them for their important contribution to the defense of this nation."

Richard Boverie
West Palm Beach, Fla.

Where's the Outrage?

"Eighty-Six Combat Wings" *[December 2006, p. 24]* gave us an interesting factoid. Between 1996-2000 (the last four years of the Clinton Administration), the Air Force lost three wings. During 2000-2006 (the Bush Administration), the Air Force lost 13 wings. Which period of time featured the

loudest howling on the part of *Air Force* Magazine about how force cuts mean the end of the world as we know it? Well, it wasn't 2000-2006.

But that's consistent. When Mr. Rumsfeld decided to dump the decades-old two-MTW sizing yardstick for our force levels because of ... well, because he just didn't like it, I really don't remember *Air Force* Magazine screaming about weak-on-defense Republicans. Certainly not the way it did when the Clinton Defense Secretaries did just about anything.

Where was your outrage when President Bush cut large chunks out of the VA budget, while generating hundreds of thousands of new veterans? I can imagine what you'd have said if a Democrat tried to get away with that.

So thank you for finally clearing this up. I now know exactly how much stock to put in your editorial line.

Lance Charnes
Los Angeles

■ *Small point No. 1: Much, though certainly not all, of what has happened to US force structure in recent years is the result of actions and decisions made in the 1990s. Small point No. 2: Rumsfeld did not dump the two-Major Theater War standard, he increased, in relative terms, US emphasis on irregular warfare.—THE EDITORS*

Reader Exchange

My thanks to George Hyatt III for his letter about the F-100 in your last issue *["Letters: Thanks for the Pictures," January p. 6].* I was one of those 1968 "Hun drivers," having come to Vietnam directly from pilot training and FTU at Cannon AFB, N.M. Our class arrived in-country just in time to cut our battle teeth during the Tet Offensive, and I don't think we slowed down for the entire year! I believe there were about 20 squadrons spaced from top to bottom in South Vietnam, and we did it all, day after day, night after night, providing close air support to the troops, escort to the spray planes, cover for rescue missions. There was nothing the F-100 pilots weren't asked to do—and do well. I clearly remember the missions in the delta, at the Seven Sisters, the scary deep night missions around Pleiku as if they were yesterday. The pilots, the plane, and the mission clearly earned any recognition coming their way.

Col. Rich Buickerood,
USAF (Ret.)
Lucas, Tex.

Where IS Tuzla, Anyway?

[The December article, "The Night They Saved Vega 31," p. 71, carried the following statement:]

"To reduce reaction time, several of the helicopters had been ordered to Tuzla, Croatia, and were on alert there."

Great article, except that the last time I was in Tuzla, I'm pretty sure I was in Bosnia and Herzegovina.

Tim Kregel
Mackerbach, Germany

Fresh Air

I have been a member of AFA continuously for more than 30 years. I've also enjoyed reading *Air Force* Magazine each month. Up until approximately one year ago, I could always expect to see mostly the same mundane subjects and feature articles. And, although they were interesting to a point, they never really excited me nor were most very thought provoking. And when I read "Letters to the Editor" it would be a rare day to be able to read critical comments from anyone writing in—again only mundane "yes man" comments that really didn't address reality or much of anything important happening on Capitol Hill that would critically affect Air Force men and women or our country as a whole.

In other words, *Air Force* Magazine has never been known for its critical objective analysis or critique of key political issues that DO very much affect the conduct and condition of the United States Air Force and certainly those who currently serve in our military or civilian federal service—or have honorably served.

But I've been pleasantly surprised to see that *Air Force* Magazine has been able to evolve and has begun to unashamedly publish and express the opinions and comments of its members and editorial staff on a variety of sensitive political issues, Iraq included, that back in the day most military people, retired or otherwise, would have considered off limits. I applaud AFA for now telling it like it is instead of continuing to publish only innocuous, mundane, or myopic views of the Air Force and military where only good news is the order of the day. If you want that, get *Stars and Stripes* or the *Air Force Times.* Keep up the good work.

MSgt. Randolph E. Whitmire,
USAF (Ret.)
Rochester Hills, Mich.

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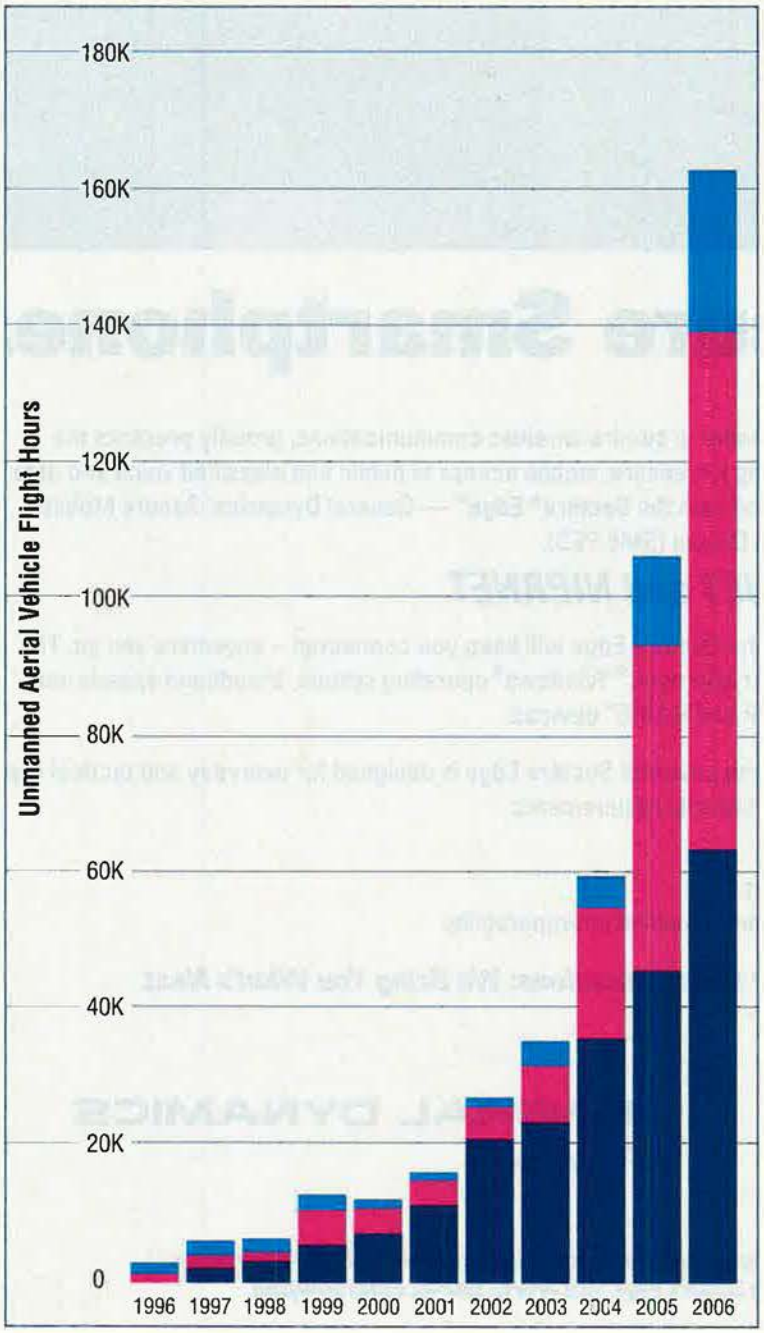
The Chart Page

By Tamar A. Mehuron, Associate Editor

That Giant Droning Sound

More Flying Action ...

(Major UAVs Only; Excludes Small UAVs)

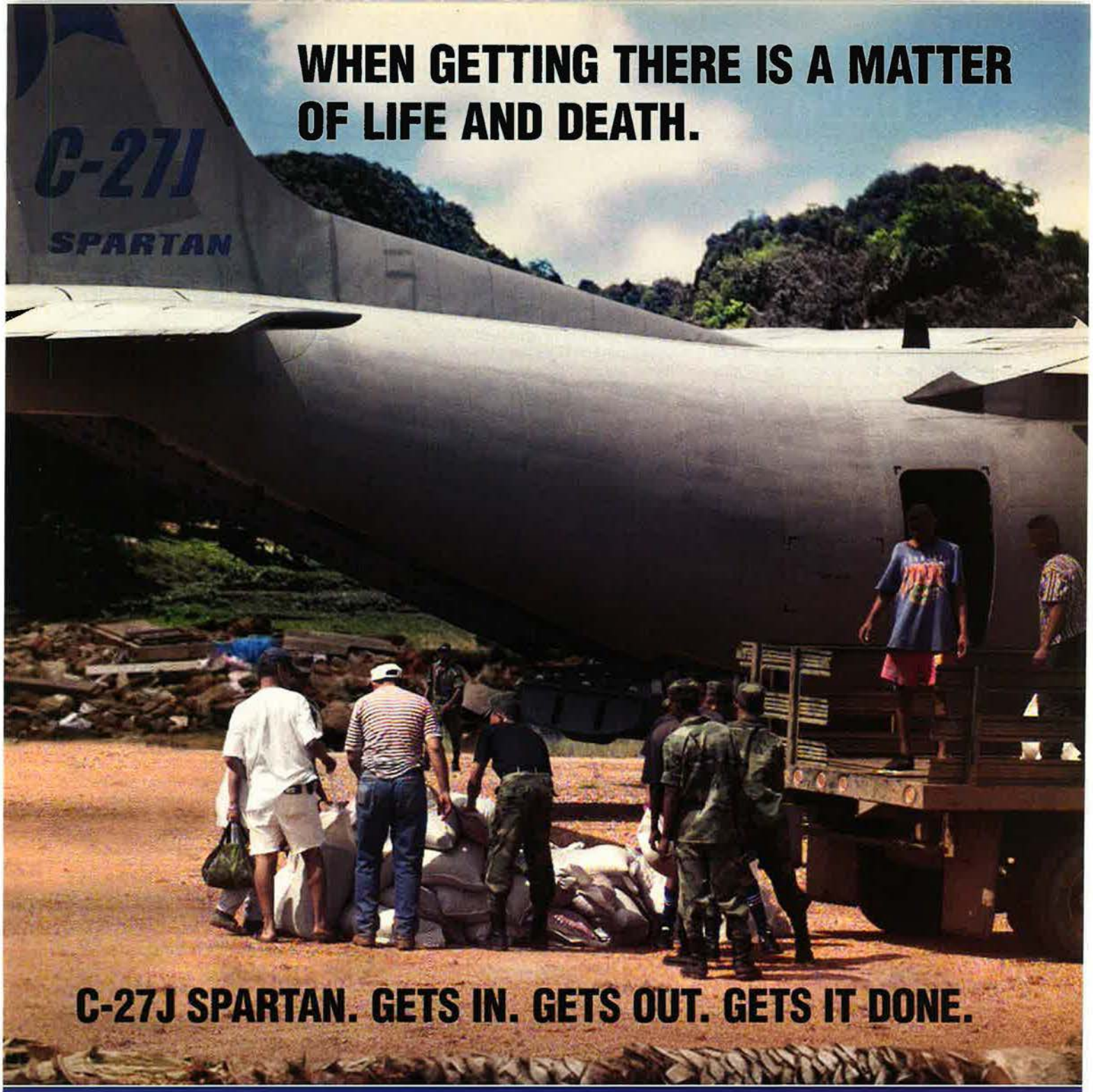


Unmanned aerial vehicles are big—really big. Starting with the dazzling success of USAF's MQ-1 Predator drones over Afghanistan, UAVs have been stellar players in the Global War on Terrorism, demonstrating strike, intelligence-surveillance-reconnaissance, and other capabilities. As UAVs have opened military eyes, theater commanders have been demanding more operational use and thus more systems. DOD and the services have responded in both areas. The end of the growth is nowhere in sight.

Source: Department of Defense, Unmanned Aircraft System Planning Task Force.

... and More Aircraft

NAME	OPERATOR	2002	2006
Predator	USAF	22	88
Reaper	USAF	0	8
Global Hawk	USAF	6	11
GH-Maritime	NAVY	0	2
Buster	ARMY	0	20
Pioneer	NAVY	34	33
Shadow 200	ARMY	24	212
Neptune	NAVY	0	15
Tern	SOCOM	0	15
Mako	SOCOM	0	14
Sentry	JOINT	0	3
Tigershark	NAVY	0	9
SnowGoose	SOCOM	0	28
Fire Scout	JOINT	0	4
Hunter	ARMY	41	54
I-Gnat	ARMY	0	4
		127	520



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Verbatim

By John T. Correll, Contributing Editor

They Fought (Virtually) Alone

"My Army has been underfunded for more than half a century. The Army's slice of the total defense budget has remained steady at about a quarter on the dollar since the Korean War. Today, the Air Force receives 36 percent of the weapons-buying budget, the Navy 33 percent, the Army 16 percent, and defense agencies 15 percent. Yet except for the 1999 Balkan war, soldiers and marines have done virtually all of the killing and dying since the end of World War II."***—Ret. Army Maj. Gen. Robert H. Scales, former commander of the Army War College, op-ed column,*** **Washington Times,** ***Jan. 10.***

Parochial Fixation

"The wedge issue—promulgated by those who have evidently forgotten how service parochialisms lead to catastrophic failures—is the perceived necessity to increase the size of the land forces at the expense of the Air Force and the Navy. ... Missing from this argument is any concern for the military's overall health or the insidious consequences of rekindling service rivalries. Missing also is any consideration of the dire straits the Air Force is in as a consequence of 16 years of continuous combat with zero recapitalization of its battle-worn equipment."***—Lani Kass, professor of military strategy at the National War College, op-ed column,*** **Washington Times,** ***Jan. 9.***

What Went Wrong

"Our past efforts to secure Baghdad failed for two principal reasons: There were not enough Iraqi and American troops to secure neighborhoods that had been cleared of terrorists and insurgents. And there were too many restrictions on the troops we did have." ***—President George W. Bush, address to the nation, Jan. 10.***

Too Many Approvers

"If the military measures we take in Iraq must first be approved by Iraqi politicians and the editorial board of the *New York Times,* we will not succeed even if we double the number of troops."***—Jack Kelly, syndicated columnist and former deputy assistant secretary of the Air Force,*** **Pittsburgh Post-Gazette,** ***Jan. 7.***

Precondition for Success

"During my visit to Iraq last month, it was clear that security is the precondition for political progress and economic development. Until the government and its coalition allies can protect the population, the Iraqi people will increasingly turn to extra-governmental forces, especially Sunni and Shiite militias, for protection. Only when the government has a monopoly on the legitimate use of force will its authority have meaning, and only when authority has meaning can political activity have the results we seek."***—Sen. John McCain (R-Ariz.), op-ed column,*** **Washington Post,** ***Jan. 7.***

Shali Changes His Mind

"I now believe that if gay men and lesbians served openly in the United States military, they would not undermine the efficacy of the armed forces. Our military has been stretched thin by our deployments in the Middle East, and we must welcome the service of any American who is willing and able to do the job."***—Ret. Army Gen. John M. Shalikashvili, former Chairman of the Joint Chiefs of Staff, op-ed column,*** **New York Times,** ***Jan. 2.***

Seamless Total Air Force

"The reason the Air Guard and the Air Reserve work so well is they keep those forces resourced at 100 percent C-1 status every day of the week. Because, as General [Michael] Moseley [USAF Chief of Staff] said, he doesn't know who's going to be flying a mission. He doesn't have to worry about what status they're in because he knows he's got a resourced force. They've got the equipment; they got the training."***—Ret. Marine Corps Maj. Gen. Arnold L. Punaro, chairman of the Commission on the National Guard and Reserves, commission hearing, Dec. 14.***

Ford Disagreed

"Rumsfeld and Cheney and the President made a big mistake in justifying going into the war in Iraq. They put the emphasis on weapons of mass destruction. And now, I've never publicly said I thought they made a mistake, but I felt very strongly it was an error in how they should justify what they were going to do. ... And I just don't think we should go hellfire damnation around the globe freeing people, unless it is directly related to our own national security."***—Former Pres. Gerald R. Ford, statement embargoed until after Ford's death, reported by Bob Woodward,*** **Washington Post,** ***Dec. 28.***

Foot in the Trap

"I don't think increasing the troops helps us get our foot out of the trap—it just puts 20,000 more targets on the ground. ... My going-in strategy would be to disengage, not on a known timetable because it gives too many options to the enemy, but set a course for disengagement out of there, knowing full well what will follow will be a disaster. But there is going to be a disaster anyway."***—Ret. Gen. Merrill A. McPeak, former Air Force Chief of Staff,*** **Southern Oregon Mail Tribune,** ***Jan. 10.***

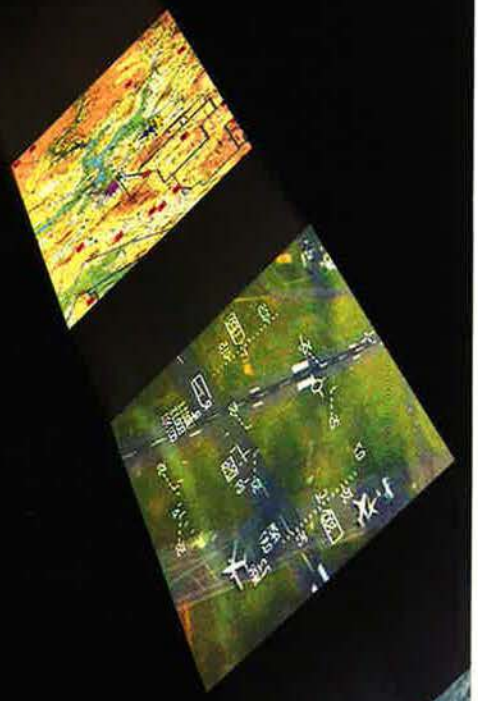
Strategic Thinkers

"Our Army is deployed globally, but our generals never seem to acquire the knack of thinking beyond the threat hypnotizing them at the moment (the Marines, with their stepbrother ties to the Navy, do a better job of acting locally while thinking globally). ... The reasons are complex, ranging from service culture to educational traditions, but it's incontestable that the Navy long has produced our military's best strategic thinkers—captains and admirals able to transcend parochial interests to see the global security environment as a whole."***—Ralph Peters, retired Army officer-columnist-author, on selection of Adm. William J. Fallon to head US Central Command, traditionally an assignment for an Army general,*** **New York Post,** ***Jan. 6.***

Precision Airdrop

"At the moment, we're seeing accuracy within 150 to 200 meters; in the end we'll see less than a hundred meters. For an old guy who started out doing this over 30 years ago, that's pretty remarkable."***—Air Force Gen. Norton A. Schwartz, commander of US Transportation Command, on Joint Precision Airdrop System, which drops cargo bundles from altitudes up to 25,000 feet, Air Force Print News, Dec. 20.***

Empowering the digital battlefield



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Washington Watch

By John A. Tirpak, Executive Editor

The New Counterinsurgency; Airpower to the Rear; That Satellite Is Toast ....

The Petraeus Doctrine

In a counterinsurgency, airpower is mostly useful as a means of hauling around ground forces while keeping an eye on the bad guys. Air strikes are probably too blunt an instrument to be of much value, and ground commanders should think twice before asking for them. If air strikes are used, though, a ground forces commander definitely should control them.

Quaint musings from a dusty, pre-"joint" Army field manual? Nope. Fresh ink from Lt. Gen. David H. Petraeus, tapped by President Bush to be the new commander of Multinational Force-Iraq.

The strange comments about the applications of modern airpower are contained in the dead-last, five-page annex to a brand-new 335-page Army-Marine Corps combined arms doctrine on counterinsurgency (or "COIN"), co-signed by Petraeus and Marine Corps Lt. Gen. James F. Amos. Field Manual 3-24 was published in December.

Petraeus, a Princeton Ph.D. whose dissertation was titled "The American Military and the Lessons of Vietnam," took on the rewrite of the counterinsurgency doctrine because the Army hadn't updated it in more than 20 years.

As commander of the 101st Airborne Division in the 2003 major combat phase of the Iraq war, he frequently told reporters that the Army was ill-prepared to fight insurgencies and failed to learn from the history of such conflicts. He left Iraq in 2005 to take up command of the US Army Combined Arms Center. In January, he was confirmed by the Senate, 81-0, for his new job in Iraq.

The views in FM 3-24 reflect a limited knowledge of airpower's true role in the current operation and suspicion that airpower can all too easily prove counterproductive. This is all the more distressing in light of the view that Petraeus will set direction for the ongoing fight in Iraq.

DOD photo by Sgt. Curt Cashour

Petraeus wrote the book.

The new doctrine argues that airpower is best put under control of a tactical ground commander or, at the highest level, the multinational force commander, but not an airman.

It usually takes a while for a government to realize that an insurgency is under way, Petraeus and Amos wrote. The insurgents "take advantage of that time to build strength and gather support." When the fight erupts, defenders "have to 'come from behind'" and catch up to the situation.

In short, counterinsurgencies don't go too well at first. Western militaries "falsely believe that armies trained to win large conventional wars are automatically prepared to win small, unconventional ones" and fight COIN with a similar mind-set.

Militaries that are successful in beating an insurgency are those that "overcome their institutional inclination to wage conventional war" in doing so, Petraeus and Amos wrote.

USAF photo by TSgt. Adam Johnston

These things get faint praise.

Army's Little Helper

Petraeus and Amos damn airpower with the faintest of faint praise, cautioning that, aside from the purely supportive functions of battlefield mobility and persistent ISR, airpower can be too heavy-handed to be of much use.

In the COIN fight, airpower "will most often transport troops, equipment, and supplies" for ground forces "and perform intelligence, surveillance, and reconnaissance missions," Petraeus and Amos argued. These are air- and space power's greatest contributions in the COIN fight, they

said. Such a use offers "asymmetric advantages" over the enemy, allowing immediate movement of "land forces where they are needed," especially in rough terrain.

Modern airlift can also "quickly deliver humanitarian assistance," especially in isolated areas, and this builds great credibility and favor with the local population.

Offensive air strikes are useful if the insurgents "assemble a conventional force" and huddle together for easy air attack.

"However, commanders [should] exercise exceptional care when using airpower in the strike role," they warned. They asserted that errant bombs causing civilian casualties and destruction of civil facilities "provides insurgents with a major propaganda victory." Even when such attacks are justified, media coverage of such attacks "works to the insurgents' benefit."

The doctrine portrays the decision to call in air strikes as one requiring heavy deliberation, as commanders must "weigh collateral damage against the unintended consequences of taking no action." And when summoned, air attack must be based on "timely, accurate intelligence, precisely delivered weapons with a demonstrated low failure rate, appropriate yield, and proper fuse" to achieve the desired effects without blowing up anything unintentionally.

"Inappropriate or indiscriminate use of air strikes can erode popular support and fuel insurgent propaganda. For these reasons, commanders should consider the use of air strikes carefully during COIN operations," the two ground generals wrote.

However, they acknowledged that being too cautious with airpower isn't good, either, noting that "avoiding all risk may embolden insurgents while providing them sanctuary."

Airpower offers advantages in collecting ISR and signals intelligence for spotting and tracking insurgents and pinpointing their positions. Helicopters—the main air asset employed by the Army—"have been especially useful in providing overwatch, fire support, alternate communications, and medevac support," the doctrine explains.

However, air assets should be at the disposal of the ground commander, according to the new doctrine manual.

"At the tactical level, air support requires a decentralized command and control system that gives supported units immediate access to available combat air assets and to information collected by air reconnaissance and support assets."

While the COIN fight is on, the Air Force should work as fast as it can to help the host nation build up its air capabilities, according to the doctrine. Those should focus on mobility and surveillance.

What the Air Force Thought

The Air Force wasn't thrilled about the Army-Marine Corps counterinsurgency document, which the service said gave short shrift to airpower's capabilities, as proved in the ongoing counterinsurgency operations in Iraq and Afghanistan.

Maj. Gen. Allen G. Peck, commander of the Air Force Doctrine Center at Maxwell AFB, Ala., said he had seen the doctrine penned by Petraeus and Amos, and said that it reflected "a very two-dimensional view of how to fight a counterinsurgency." If airmen had written it, it would be "different," Peck observed.

The Air Force provides "maneuver" capabilities by backing up ground troops with kinetic and nonkinetic means, Peck noted.

The Air Force is working on its own COIN doctrine and is proposing to the Pentagon that a joint doctrine be developed. The Air Force version is on a fast track to be finished in August. The service is simultaneously pushing for a joint doctrine.

When that process is under way, "it will be helpful for us to have our Air Force doctrine in hand," he said.

USAF agrees with Petraeus and Amos that air mobility is a powerful "asymmetric" capability and certainly endorses the view that ISR—air and space-based systems alike—are critical.

However, Peck said he was concerned about the doctrine's tendency to low-rate the value of force applied from the air. He said FM 3-24 does "probably a bit too much hand-wringing over the potential for collateral damage," because the Air Force exercises great care in selecting targets and uses the minimum explosive power possible to achieve the desired effect.

The notion that the Air Force applies "indiscriminate" power is obsolete and wrong, he said, adding, "We do not go out and do carpet bombing." Moreover, worries about errant attacks should be extended to "include artillery and mortars," which are imprecise when compared with laser or satellite guided bombs.

Peck went on to say Petraeus and Amos did not adequately take account of the contribution of airpower's speed, range, and flexibility. "I would have liked to have seen more discussion, throughout the document, ... about how ground commanders can leverage this asymmetric capability in the fight," said Peck. "I think that is a shortfall."

Maj. Gen. Allen Peck

The Air Force did make "some rather extensive inputs" into the Army and Marine Corps process of writing 3-24, Peck said. "Some were accepted and some were rejected," he said. "They are under no requirement to include our views."

He noted that it was "a bit of an uphill battle" to get the Army to accept that airpower should be under centralized control and not simply tethered to a tactical ground commander.

"I would give General Petraeus some credit for including some of these constructs that, frankly, not everybody was universally thrilled about," Peck observed.

China's Satellite Shot

China on Jan. 11 destroyed one of its own space satellites with a ground-based interceptor missile, making it the third nation to demonstrate an anti-satellite capability.

It was the first to do so in more than 20 years. The US and Soviet Union tested such systems in the 1970s and 1980s.

The shot destroyed an old Chinese weather satellite at an altitude of 500 miles above Earth. The explosion created

a huge debris belt in space and threw Washington into a tizzy over the security of its own satellite constellations and the prospects for a new arms race in space.

Confronted with news of the test, Chinese press officers professed to know little about it. That is unusual for Beijing, which normally orchestrates a major defense demonstration with statements from throughout its government.

Space experts speculated that China may not have been expecting success and was caught unprepared. The government later confirmed the test and offered indirect comments that they are not seeking to launch a new arms race in space.

The interceptor consisted of kinetic vehicle mounted atop a ballistic missile, directly hitting the target satellite in orbit. The shot demonstrated sophisticated guidance and maneuvering capability—at an altitude where most American intelligence-surveillance-reconnaissance satellites operate.

Space watchers estimated that the destroyed satellite shattered into at least 800 pieces and possibly 1,000 creating a hazard to space navigation that may persist for 20 years.

A week later, the White House issued a statement that China's development and testing of ASATs is "inconsistent with the spirit of cooperation that both countries aspire to in the civil space area." A National Security Council spokesman said the US had communicated its "concern" to the Chinese.

The test may have been a response to earlier White House action, however. In October, a new US Space Policy was released, in which President Bush insisted that the US reserved the right to deny space access or capabilities to any adversary and resisted the idea of treaties that would ban ASATs or in any way restrict the US use of space for military purposes.

The US owns more than half the 840 or so active satellites now in orbit and is heavily dependent on space assets for communications, navigation, and ISR.

The only space weapons treaty in force prohibits the basing of weapons of mass destruction in space. The US is a signatory to that agreement.

2007 Threat Briefing

China's Jan. 11 anti-satellite test took place on the same day that Army Lt. Gen. Michael D. Maples, the director of the Defense Intelligence Agency, warned Congress in testimony that China had joined Russia in likely possessing an ASAT capability.

"Several countries continue to develop capabilities that have the potential to threaten US space assets," Maples told the Senate Select Committee on Intelligence, "and some have already deployed systems with inherent anti-satellite capabilities, such as satellite-tracking laser range-finding devices and nuclear-armed ballistic missiles." He added that "a few countries are seeking improved space object tracking and kinetic or directed energy weapons capabilities."

Air Force officials have confirmed that on at least one occasion China "painted" American satellites with a ground-based laser.

Maples went on to tell the Senate panel that developing these ASAT capabilities is "financially taxing" and that nations seeking to deny the US use of its space assets could rely on more terrestrial means, such as "deception, electronic warfare, or signal jamming, and ground-segment physical attack."

Rep. Edward J. Markey (D-Mass.) said China's test showed that there is an urgent need to establish a new international treaty on space weapons.

Orbital systems represent the "soft underbelly" of the American military, Markey said, "and it is urgent that President Bush move to guarantee their protection by initiating international agreement to ban the development, testing, and deployment of space weapons and anti-satellite systems."

Sen. Jon L. Kyl (R-Ariz.), however, argued that the Chinese test is a "wake-up call" that the US must take more physical steps to protect its assets in space.

Kyl argued against the treaty idea as wishful thinking, saying that such agreements would do little to dissuade other countries from developing ASAT capabilities or other space weapons. Kyl, ranking member on the Senate Judiciary subcommittee on Terrorism, Technology, and Homeland Security, told a symposium of the conservative Heritage Foundation in late January that any hostile nation with ballistic missile capabilities—including Iran and North Korea—could conceivably have or be close to possessing an ASAT capability of its own.

Space treaties are hard to enforce, Kyl warned. Surprises such as China's ASAT test can occur with little warning. Nuclear anti-proliferation treaties have done little to stem the spread of nuclear technology to countries such as North Korea and Iran, he said.

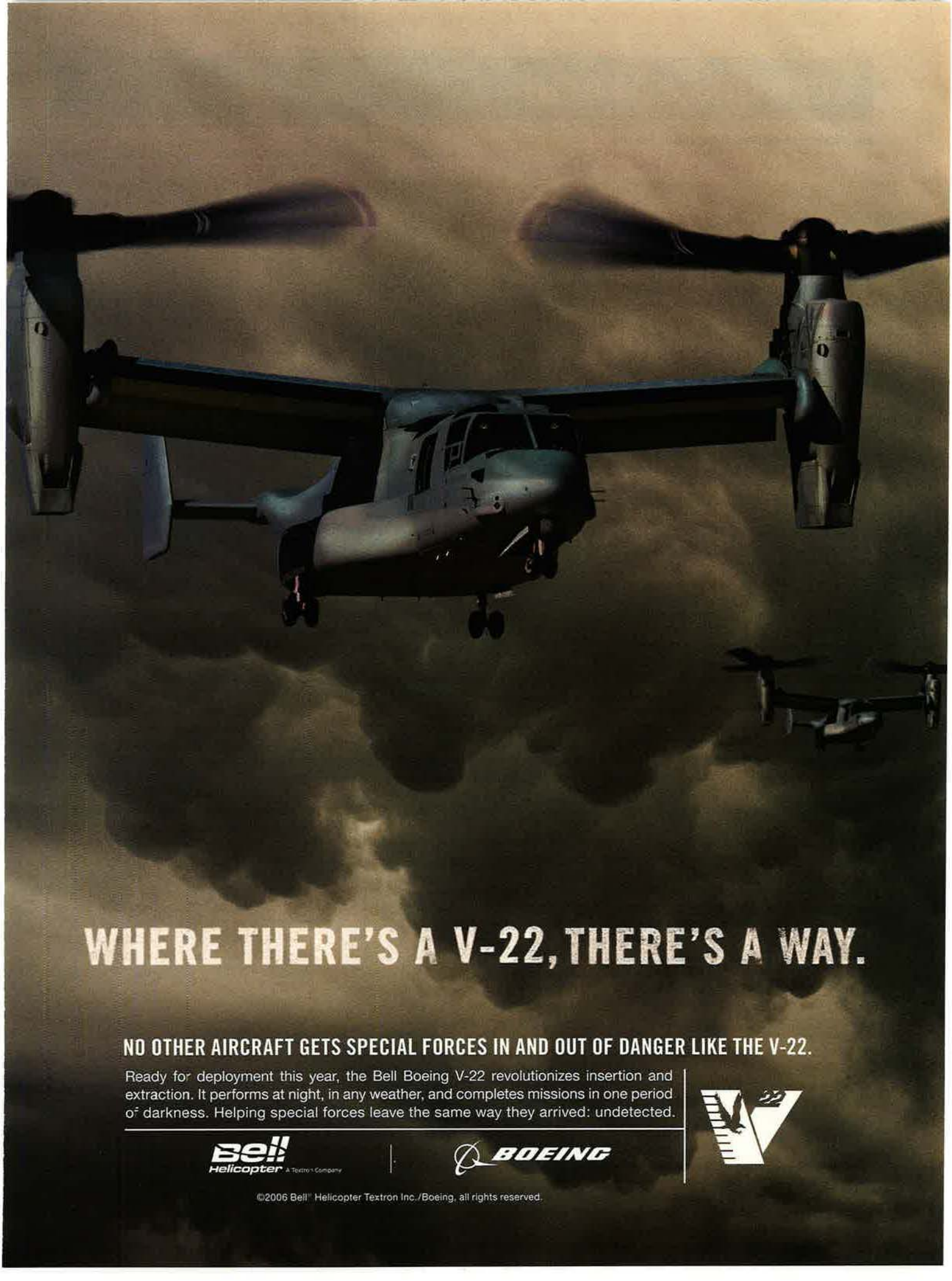
Kyl also noted that US "space denial" systems now in development seek only to temporarily blind or silence adversary satellites, not destroy them. (See "Space and Counterspace," June 2006, p. 42.) "Clearly, the Chinese do not feel similarly encumbered," Kyl said. ■

AP photo by Dennis Cook

Maples' warning was right on target.

Federation of American Scientists

Before it exploded into a thousand pieces.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Aerospace World

By Marc V. Schanz, Associate Editor

1,100 Officers Face Cuts Soon

This month the Air Force will convene a board to consider for separation nearly 1,800 officers from year groups 2003 and 2004 to help it in its force shaping efforts. March 31 also marks the start of the service's consideration of another 3,000 officers for a June reduction in force board targeting year groups 1995, 1996, 2000, and 2001.

The FSB will select roughly 379 officers—112 from 2003 and 267 from 2004—for separation by Sept. 29, 2007.

The same separation date will apply to some 722 officers to be selected by the RIF board set for June. As of Feb. 8, the RIF would target 95 officers from 1995, 67 from 1996, 173 from 2000, and 387 from 2001.

The Air Force has identified specific career fields in which it has overages in each of the affected year groups. They range from navigators and air battle managers to engineers and scientists and personnel managers.

All of the affected officers had the opportunity to accept voluntary separation program incentives, and as of the end of the 2006, the Air Force had approved more than 1,800 applications. The officers meeting the RIF board have until the end of this month to apply for VSPs.

USAF photo

Air Force AC-130 gunships struck al Qaeda targets Jan. 8 in Somalia. The area hit, Ras Kamboni, a heavily forested area near the Kenyan border, was allegedly a terrorist training base. Somali officials said the attack was aimed at terrorists who planned the attacks against the US embassies in Kenya and Tanzania in 1998. (See story, p. 22.)

Keys Wants Lightnings

The Air Force shouldn't deliberately hold back on the F-35 Lightning II fighter program merely in hope of acquiring more F-22 Raptors, Air Combat Command chief Gen. Ronald E. Keys told reporters in January.

Last year's Quadrennial Defense Review decided to keep the F-22 line going as a hedge against problems with production of the F-35. However, Keys observed, such a dire situation doesn't seem to be playing out, so far.

"I'm not inclined to buy F-22s over JSFs if the JSF is (a) working and (b) it's coming ... online," Keys said. He needs "more new airplanes," and the Air Force can afford to build a larger quantity of the less-expensive F-35.

The QDR capped the F-22 program at 183 aircraft, and Keys said he'll live with that if "the country can only afford 183."

However, he went on, "my position has always been I need 381 of them." With just 183 aircraft, Keys said he'll have 126 available for combat, divided into seven squadrons—three in the Pacific Theater and four in the continental United States.

F-22 Decision 18 Months Away

Gen. Ronald Keys said he has not heard whether Congress would be receptive to an independent purchase

Iran Announces It Now Possesses New Russian SAMs

Iran announced in January that it has received a shipment of new Russian-made air defense missile systems and will deploy them to defend the country's major nuclear sites.

The announcement that Tor-M1 mobile systems—known in NATO parlance as the SA-15 Gauntlet—had arrived came at the start of three days of Iranian military exercises, the first such drills since the United Nations Security Council approved sanctions against Iran on Dec. 23, 2006.

Iranian Defense Minister Mostafa Mohammad Najjar told the state news agency that the Iranians had "constructive" defense transactions with Russia, but did not say how many systems had been delivered. A report by Russia's ITAR-Tass news agency claimed the weapons are expected to be used to protect installations such as the nuclear facilities at Isfahan, Bushehr, and Tehran.

The agency also quoted Sergei Chemezov, Russia's head of foreign weapons sales, who said the Tor-M1 systems were delivered before the end of December—but was not clear on whether the sale was complete before the Security Council voted for sanctions.

The Tor-M1 is a low-to-medium-altitude SAM system capable of engaging aircraft and helicopters as well as precision guided weapons and various missiles. Although it is an autonomous system, the missile launcher will fit into a network.

Service Members Eat and Drink More, Smoke Less

More military personnel are overweight, and while they smoke cigarettes less than they used to, they use "smokeless" tobacco products and alcohol more, according to a new Pentagon study of health-related behaviors.

The results of the 2005 survey, released in January, show that even though they are exercising more, more US service members are overweight, according to William Winkenwerder Jr., the assistant secretary of defense for health affairs. He noted an "elevated" use of alcohol among the troops. Although heavy drinking has declined from 20.8 percent in 1980—the first year of the survey—to 18.5 percent in 2005, it is on a new upswing after reaching a low of 15.4 percent in 1998. The survey shows the younger service members are most likely to drink too much. They are also more likely to substitute "smokeless" tobacco products for cigarettes.

About half those surveyed in 1980—51 percent—were cigarette smokers. That dropped to 29.9 percent in 1998, but had crept back up to 32.2 percent in 2005.

Not surprisingly, those who have deployed in the last three years showed greater levels of stress and poor health behaviors such as use of drugs, alcohol, and cigarettes. However, Winkenwerder said the force overall is "using positive coping mechanisms in dealing with the stresses of their current wartime environment."

Despite the negative findings in some areas, Winkenwerder said he is "pleased, and even a little surprised, that despite the stresses of war and ongoing deployments, nearly all indicators of service members' health and well-being continue to be quite good, compared with civilian populations."

The survey is the ninth to be undertaken and included reports from 16,000 US military personnel at all ranks. The behaviors are self-reported, anonymously.

of more F-22s—that is regardless of the state of the F-35 program.

The ACC commander said he was aware of Air Force plans calling for a supplemental purchase of 20 F-22s in the Fiscal 2010 budget—beyond the current multiyear contract for the last 60 airplanes.

Keys said he's hopeful. "The further you go into the [F-22] buy," he said, "the cheaper they are."

The critical decision point is about 18 months away.

"You have to have long-lead money if you're going to do it," Keys said. Long-lead items are those that take years to fabricate and test before they can be installed on an aircraft.

"That's the point [at which] we have got to make a decision. If you don't make a decision, ... that's a decision."

Gates Seeks More "Boots"

Secretary of Defense Robert M. Gates in January unveiled plans to boost the size of both the Army and the Marine Corps in the next several years.

Gates announced Jan. 11 that he had recommended a permanent end strength increase of 65,000 soldiers and 27,000 marines. The expansion would take place over five years.

In most of those years, the Army and Marine Corps would add 7,000 new soldiers and 5,000 new marines, respectively. The rest of the increase would come by making permanent the temporary increase of 25,000 soldiers and 5,000 marines Congress enacted last year.

When all the new troops have been brought on duty, the Army's permanent end strength will go from 482,000 to 547,000, and the Marine Corps' will go from 175,000 to 202,000.

Meanwhile, the Air Force will continue to shrink from 334,200 today to 311,100 in 2013, under plans announced last year. USAF also would cut reservists and civilians.

During a news conference, Gates said it will take some time before the new troops are available for deployment. The Army's deputy chief of staff G-8, Lt. Gen. Stephen M. Speakes, told reporters in Washington that the increase in Army soldiers alone would cost $70 billion from 2009 to 2013, including their pay, health care, and equipment. DOD put the total cost at $112.4 billion.

SECDEF Caps Reserve Call-Ups ...

Gates also announced changes to the way the Pentagon will manage forces in both the active duty and reserve components, setting a cap on the length of involuntary mobilizations and moving to keep reserve component units together.

As of Jan. 11, Gates said, reserve component personnel can only be involuntarily mobilized for up to one year at a time, compared to the current limit of 16 to 24 months. After the year's activation, Guardsmen and Reservists are not to be called up again for five years.

However, Gates left the door open for more frequent mobilizations. "Today's global demands will require a number of selected Guard and Reserve units to be remobilized sooner than this standard," he said, adding that such exceptions would be "temporary."

Reserve ground forces will be deployed by unit, rather than on an individual basis, Gates continued. This will

USAF photo by SSgt. Stacy L. Pearsall

TSgt. Harvey Holt of the 732nd Expeditionary Forces Squadron and his military working dog accompany US and Iraqi soldiers during a Feb. 6 patrol in Kahn Bani Sahd, Iraq. Thousands of airmen have performed nontraditional duties on the ground to relieve pressure on the Army and Marine Corps.

allow the military to achieve "greater unit cohesion and predictability in how reserve units train and deploy," he asserted.

Gates said there would be a rise in compensation for active duty and reserve troops who deploy early or serve on extended tours.

... And Moves To End Stop-Loss

Secretary of Defense Robert Gates has ordered the service Chiefs to scale back the use of Stop-Loss policy, a controversial directive that keeps service members deployed beyond the end of their commitments.

In a memo sent to the service Chiefs, Joint Staff Chairman, and undersecretaries of defense, Gates requested plans that would minimize the use of Stop-Loss for active duty and reserve components by the end of February, *The Hill* newspaper reported in January.

Several Congressmen had expressed their displeasure with the use of the practice for National Guard and Reserve personnel.

A Stop-Loss order for Guard and Reserve units, in effect since November 2002, allows DOD to keep members whose enlistment is set to expire, if it needed to maintain unit strength and integrity.

Several lawsuits have been filed against DOD, but the Pentagon has argued successfully that Stop-Loss is essential to the US national security interest.

Photo by Johnathan Chuck

An F-22 from the 27th FS, Langley AFB, Va., awaits departure from Hickam AFB, Hawaii. About a dozen Raptors deployed to the Far East as part of the US Pacific Command forces. It was the fighter's first deployment overseas.

ANG Flies in Blizzard Relief

Air and Army National Guardsmen from eight states worked to help citizens and communities pummeled by the powerful ice storms and blizzards of late 2006.

The year-end weather turbulence devastated the nation's midsection and claimed at least 13 lives.

In response, Guardsmen in Colorado, Kansas, Nebraska, New Mexico, Oklahoma, Oregon, Texas, and Washington spent the winter holidays finding and rescuing motorists, transporting mecical supplies, feeding stranded livestock, and restarting electrical power systems.

In New Mexico, Kansas and Colorado, Guard aircraft dropped hay to starving sheep, cattle, and horses. A Wyoming ANG C-130, flying out of Pueblo, Colo., dropped one-ton hay bales on each trip. In numerous states, Guardsmen made house-to-house checks on the safety and health of snowbound residents.

Guardsmen transported food to travelers stranded at Denver Airport and performed search and rescue operations on regional highways, rescuing more than 130 people.

USAF photo by MSgt. Daniel Nathaniel

SSgt. Jason Lapeyrouse (l) and SSgt. James Johnson (r) help SrA. Emily Jones secure her flak vest befores she departs Manas AB, Kyrgyzstan, for Afghanistan. All three airmen trained with the Army and will be deployed alongside soldiers in Afghanistan.

C-130Js Roll On

Production of the C-130J, which was to end in 2009, will go on well after that year, says the Pentagon.

Deputy Secretary of Defense Gordon England reversed a decision by former Secretary of Defense Donald H. Rumsfeld to cancel Lockheed Martin's tactical transport aircraft after its current run ends.

The Air Force told Rumsfeld that it needed more-modern transports to replace old C-130s that cost huge amounts to repair and replenish. (See "Air Mobility in the Doldrums," August 2005, p. 32.)

England made his decision in a Dec. 13 program decision memorandum sent to the service Secretaries and

The War on Terrorism

Operation Iraqi Freedom—Iraq

Casualties

By Feb. 13, a total of 3,122 Americans had died in Operation Iraqi Freedom. This total includes 3,115 troops and seven Defense Department civilians. Of those fatalities, 2,509 were killed in action by enemy attack, and 613 died in noncombat incidents.

There have been 25,530 troops wounded in action during OIF. This includes 13,081 who returned to duty within 72 hours and 10,449 who were unable to quickly return to action.

F-15s and B-1 Strike Insurgent Stronghold

US Central Command Air Forces on Jan. 8 supported a coalition attack on a known insurgent stronghold south of Balad Ruz, Iraq.

Combat aircraft, including F-16C and F-15E fighters and a B-1B bomber, pounded insurgent targets.

In total, more than 25 targets were hit, including enemy buildings, equipment, vehicles, weapons caches and personnel, CENTAF officials said.

Coalition aircraft also provided an array of support for ground forces in the area of the operation, which began on Dec. 26.

US Launches Air Assault East of Baghdad

Bombers, fighter jets, and attack helicopters pounded a web of irrigation canals east of Baghdad as US and Iraqi ground troops closed in on the suspected gathering spot for Sunni Arab insurgents. The early January action targeted a haven and a training ground for al Qaeda in Iraq and other militant groups.

About 1,000 US and Iraqi troops participated in the assault.

One weapons stash uncovered contained 1,169 Katyusha rockets, small arms, and ammunition, officials said.

Operation Enduring Freedom—Afghanistan

Casualties

By Feb. 10, a total of 354 Americans had died in Operation Enduring Freedom, primarily in and around Afghanistan. This total includes 353 troops and one Department of Defense civilian. Of those fatalities, 195 were killed in action by enemy attack and 159 died in nonhostile incidents such as accidents.

A total of 1,116 troops have been wounded in Enduring Freedom. They include 449 who were able to return to duty within three days and 667 who were not.

Senior Taliban Commander Killed in Air Strike

Mullah Akhtar Mohammad Osmani, a senior official in the Taliban leadership, was killed on Dec. 19 by a coalition air strike, Combined Forces Command-Afghanistan reported.

Fresh intelligence led coalition forces to Osmani's location near the Pakistani border with Afghanistan in Helmand Province, CENTCOM officials reported. His vehicle was traveling in a deserted area and was destroyed by a coalition air strike, instantly killing him and two unidentified associates.

Osmani was in the "top ring" of Taliban leadership and was also a close associate of Osama bin Laden and Gulbuddin Hekmatyar—an Afghan warlord long on the US most-wanted list. Osmani was the Taliban's chief of military operations in Uruzgan, Nimroz, Kandahar, Farah, Herat, and Helmand Provinces. He played a key role in facilitating terrorist operations involving the Taliban and al Qaeda that included suicide attacks, kidnappings, attacks against civilians, and attacks on coalition, NATO, and Afghan forces.

150 Taliban Killed in Border Air Strike

Aircraft from Central Command supported NATO and Afghan ground forces in Paktika Province Jan. 10 during an attack on infiltrating insurgents that killed as many as 150 of the enemy, coalition officials reported.

CENTAF supported International Security Assistance Force and Afghan National Army forces with intelligence-surveillance-reconnaissance, air refueling, and strike aircraft during the operation.

Numerous precision munitions, missiles, and cannon rounds were expended on a significant number of insurgents in the Bermel district of Paktika that had been observed infiltrating from Pakistan. The groups were tracked and engaged in Afghanistan through a series of ground and air attacks along the sparsely populated border region.

Chiefs of Staff. It detailed spending through 2013.

England added to the future years defense program some $1.77 billion to purchase 20 C-130Js, at the rate of four per year, for Air Force Special Operations Command, along with $863 million more to help buy KC-130J tankers for the Marine Corps.

About 186 C-130Js have been sold to US armed services and foreign militaries.

England Scotches Supplementals

Deputy Secretary of Defense Gordon England told the House Budget Committee in January that the Pentagon has sworn off using emergency supplemental budget requests to fund war operations in Iraq and Afghanistan.

These proposals were controversial, given that they usually contained little supporting detail.

England said the 2008 budget would be accompanied by an estimate for the year's war costs and that the final supplemental for Fiscal 2007 would be the last one submitted.

Both Republicans and Democrats have criticized the use of supplementals to fund the war, specifically castigating DOD for including in them items such as the F-35 Joint Strike Fighter.

The Air Force planned to request some F-35s in the supplemental because emergency bills are meant to replace assets lost or used up in combat. The F-35s will replace F-16 fighters lost in combat operations since 1991.

Skelton Forecasts Increase ...

Rep. Ike Skelton (D-Mo.), the new chairman of the House Armed Services Committee, said at a January symposium that the nation can't afford to choose between funding war operations or modernizing its forces.

It must do both, said the hawkish Democrat.

"I don't think it's a choice between boots on the ground and high technology," Skelton said, although he also asserted that better training of personnel may be more important than numbers. He added that professional military education programs—a topic he has pushed frequently in Congress—should be expanded.

Skelton spoke at an event sponsored by the Washington-based Center for Strategic and International Studies, along with Rep. William Thornberry (R-Tex.), Rep. Jim Marshall (D-Ga.), and Rep. Jim Saxton (R-N.J.).

... And Closer DOD Scrutiny

Rep. Ike Skelton, in remarks to the CSIS symposium, said the Bush Administration's defense budgets will receive closer scrutiny during his tenure.

USAF Gunship Strikes al Qaeda Targets in Somalia

An Air Force AC-130 gunship attacked a suspected al Qaeda camp in southern Somalia on Jan. 8, hitting at terror leaders suspected of plotting the 1998 bombings of US embassies in Africa. However, it is believed the main targets escaped.

The AC-130 strike was the first acknowledged US military action inside Somalia since it withdrew troops in 1994, after 18 Army Rangers and Delta Force special operators were killed in a 1993 raid later portrayed in the book and film "Black Hawk Down." (See "Heroes at Mogadishu," June 1994, p. 28.)

Within two weeks of the January attack, another AC-130 struck in the same region, but results were inconclusive.

The gunship in the first strike was going after Abu Talha al-Sudani, a Sudanese resident of Somalia since 1993—described by the Pentagon as an explosives expert close to Osama bin Laden—as well as Fazul Abdullah Mohammed and Saleh Ali Saleh Nabhan, the two men believed responsible for embassy bombings in Kenya and Tanzania.

Sudani was believed to be the financier for the embassy bombing operation. He was involved in the 2002 bombing of a Kenyan hotel and was fingered by US intelligence as an associate of Gouled Hassan Dourad, a man who led a Somalia-based network that supported al Qaeda's efforts in the country.

However, Michael E. Ranneberger, US ambassador to Kenya, told the BBC after the attack was made public that Mohammed had not been among those captured or killed and that the two others were believed to be still at large in Somalia.

Mohammed and Nabhan were believed by US intelligence to be sheltered by Somali Islamic fundamentalists who controlled Mogadishu until December, when they fled attacks by Ethiopian troops.

The Pentagon provided no official information about the second AC-130 strike's target, other than an acknowledgment that it took place.

He specifically noted that the House Armed Services subcommittee on investigation and oversight will be revived after laying dormant since 1995.

In the past, Skelton has left it to other HASC members to choose the programs that get the most attention. He said the panel will need to ask tough questions about Administration priorities and its decisions.

500+ Forced To Retrain

More than 500 USAF noncommissioned officers will be involuntarily retrained into undermanned career fields in 2007, the Air Force Personnel Center confirmed in January.

About 560 applications were approved for the voluntary part of the Fiscal 2007 NCO Retraining Program, according to AFPC officials, but that only came to 52 percent of the 1,073 enlisted airmen the Air Force was looking for. Local military personnel management units were sent a list of eligible NCOs on Jan. 4. Those NCOs were to sign a statement acknowledging they may be eligible for involuntary retraining, although such statements did not constitute an order to retrain.

Air Force officials said they were notifying three times as many NCOs as needed to meet the goal. Completed applications were due to the AFPC by Feb. 28—afterward, those who declined to accept the possibility of retraining will be barred from re-enlistment or promotion.

The overmanned career fields included crypto-linguists in seven language groups, F-15 and helicopter avionics technicians, bomber maintainers, and base support fields. The second phase of the program began Jan. 3 and will end when retraining quotas are met—no later than March 31, said an AFPC spokesman.

Eglin Gets Reserve Associate

Air Force Reserve Command announced in January that it will establish an associate unit with Air Combat Command at Eglin AFB, Fla., in Fiscal 2008.

The new unit would support the 53rd Wing's test and evaluation mission; the relationship could expand to include other organizations at the base. Under the classic associate structure, Reservists operate and maintain equipment with active duty counterparts. The program has been so successful that the Air Force is now forming active associate units in partnership with unit-equipped Reserve organizations. By sharing equipment, they use it more efficiently and train more people, said Lt. Gen. John A. Bradley, AFRC chief.

Development of Air Combat Command-gained Reserve associate units began in 1996. In 1997, the Fighter Reserve Associate Test Program began, with a dozen Reservists working with the 20th Fighter Wing at Shaw AFB, S.C. (See "Future Total Force," July 1999, p. 28.)

England Rejects F-35 Cutbacks

Deputy Secretary of Defense Gordon England has rejected plans submitted

USAF photo by MSgt. Kevin J. Gruenwald

Capt. Merrick Baroni, an F-22 pilot with the 94th FS at Langley AFB, Va., steps out to his Raptor during Red Flag exercises at Nellis AFB, Nev. The early February event marked the F-22's first trip to Red Flag.

USAF photo by MSgt. Don Perrien

B-52s from Barksdale AFB, La., and Minot AFB, N.D., fill up the flight line at Andersen AFB, Guam. The big bombers deployed in February as part of a scheduled rotation into the Pacific Theater.

by the Air Force and Navy to scale back the number of F-35 Joint Strike Fighters each service would purchase in the Fiscal 2008 budget, according to Bloomberg News.

In a budget memo signed Dec. 13, England ordered the services to add $1.8 billion in their 2008 budgets so that the Air Force and Navy could each buy six of the fighters, preserving the pace of the program at a critical stage. The F-35 is in early flight test. The Air Force had planned on buying four, while the Navy hadn't budgeted any in 2008, Bloomberg reported.

The Air Force plans to purchase 1,763 F-35s over about 20 years, while the Navy plans to buy 680 along with the Marine Corps.

F-117s Sent to South Korea

The Air Force in January dispatched a half-dozen F-117 stealth attack aircraft and more than 200 support personnel from the 49th Fighter Wing, Holloman AFB, N.M., to Kunsan AB, South Korea, marking what could well be the aircraft's last overseas deployment.

The detachment of stealth aircraft was sent to beef up the 8th Fighter Wing in fulfilling its security responsibilities in the Western Pacific. The F-117s were expected to fly missions with Kunsan's F-16s and also participate in a combat readiness exercise.

Air Force officials said the move bolstered the deterrent value of US forces on the peninsula, at a time when tensions over North Korea's nuclear and missile tests remains high.

The F-117 is expected to phase out of the inventory in 2008. (See "Fade to Black," October 2006, p. 66.) The Korean deployment marks the fourth time the stealth aircraft have deployed to South Korea.

Project Marti Begins

The Air Force and Boeing announced in January that they have demonstrated for the first time how a near-space vehicle can be used as a theaterwide information point that sends out real-time tactical information to ground forces.

The technology was recently demonstrated in the first of a series of experiments to be conducted under the name Project Marti, intended to prove the concept of using a near-space vehicle to provide persistent coverage over a wide area, collecting and distributing information from several low-altitude assets, including unmanned aerial vehicles.

High-altitude platforms could be cheaper than low-orbit satellites, which are expensive to build and launch and don't persist over the target area.

Researchers from Boeing's Phantom Works and from the Air Force Research Laboratory conducted an initial demonstration in which various sources passed information through a balloon-based communications node. The balloon stood in for a high-altitude vehicle; ground stations mimicked low-altitude UAVs and users.

China Brandishes New Fighter

China in January officially acknowledged one of its open secrets: It has a

Senior Staff Changes

RETIREMENT: Maj. Gen. Richard B.H. **Lewis.**

PROMOTIONS: To Major General: Thomas F. **Deppe. To Brigadier General:** John D. **Posner.**

NOMINATIONS: To be Major General: Thomas W. **Travis. To be Brigadier General:** David H. **Cyr,** Douglas J. **Robb. To be AFRC Major General:** Frank J. **Casserno,** Stephen P. **Gross,** Clay T. **McCutchan,** Frank J. **Padilla,** Loren S. **Perlstein,** Jack W. **Ramsaur II,** Bradley C. **Young. To be AFRC Brigadier General:** Frank E. **Anderson,** Patrick A. **Cord,** Craig N. **Gourley,** Donald C. **Ralph,** William F. **Schauffert,** Jack K. **Sewell Jr.,** Richard A. **Shook Jr.,** Lance D. **Undhjem,** John T. **Winters Jr.**

CHANGES: Brig. Gen. Robert R. **Allardice,** from Dir., Airman Dev. & Sustainment, DCS, Manpower & Personnel, USAF, Pentagon, to Cmdr., Coalition AF Transition Team, ACC, Baghdad, Iraq ... Brig. Gen. Floyd L. **Carpenter,** from Dep. Dir., Natl. Sys. Ops., Jt. Staff, Pentagon, to Dir., Airman Dev. & Sustainment, DCS, Manpower & Personnel, USAF, Pentagon ... Brig. Gen. Richard C. **Harding,** from Staff Judge Advocate, ACC, Langley AFB, Va., to Cmdr., AF Legal Ops. Agency, Bolling AFB, D.C. ... Brig. Gen. Charles W. **Lyon,** from Dep. Dir., Prgms., DCS, Strat. P&P, USAF, Pentagon, to Cmdr., 379th AEW, ACC, Al Udeid AB, Qatar ... Brig. Gen. Robert M. **Worley II,** from Dir., Strat. Plans, Prgms., Analyses, Assessments, & Lessons Learned, AFSPC, Peterson AFB, Colo., to Dep. Dir., Prgms., DCS, Strat. P&P, USAF, Pentagon.

SENIOR EXECUTIVE STAFF RETIREMENTS: Charles B. **Jackson,** Edward C. **Koenig III,** Richard L. **Testa.**

SES CHANGES: Richard W. **Lombardi,** to Dir., Budget Investment, Office of the Asst. SECAF (Financial Mgmt. & Comptroller), Pentagon ... Charles D. **Riechers,** to Principal Dep. Asst. Secy. (Acq. & Mgmt.), Office of the Asst. SECAF (Acq.), Pentagon. ▪

USAF photo by Mark P. Mackley

An unarmed Minuteman III lifts off from Vandenberg AFB, Calif., during a Feb. 7 operational test. The test was designed to determine the ICBM's reliability and accuracy.

a hot new indigenous fighter—the F-10.

The fighter got the feature treatment on Chinese state television, dominating air time during a detailed five-minute broadcast.

Geng Ruguang, deputy general manager of the China Aviation Industry Corp., said China is now the fourth country in the world to develop and field advanced fighters, engines, and missiles.

He claimed that the F-10 is in many respects superior to the F-16 and French Mirage 2000.

Although China touts the F-10 as its first home-grown fighter—that is, not a Russian design—it strongly resembles the defunct Israeli Lavi, which itself was based on the US F-16.

China is known to have received Israeli assistance in developing the F-10.

Still images of the F-10 have long circulated on the Internet. First flight was in 1998.

The video shows 25 Chinese pilots marching in front of about at least 15 F-10s lined up at an air base.

Northrop Continues E-10 Work

Electronic Systems Center at Hanscom AFB, Mass., awarded $256 million to Northrop Grumman to perform design and analysis work on E-10 radar and wide-area air- and ground-surveillance

News Notes

■ Air Mobility Command delivered 1.4 million passengers and 500,000 short tons of cargo in 2006, according to end-of-year statistics released in January. Those figures include everything transported by AMC aircraft, as well as by commercial charters working for USAF. The C-17 alone carried about a third of the passengers—470,000—and half the cargo. Of the fleet's two airlifter-tankers, the KC-135s airlifted more people (moving 6,003 versus the KC-10s 1,794) but less cargo (313 short tons versus 1,909 via the KC-10 fleet).

■ The remains of service members killed in combat will travel by military aircraft whenever possible, according to the 2007 National Defense Authorization Act, which took effect Jan. 1. The law states that military or military-contracted aircraft will be the primary mode of transportation for such remains, rather than commercial service. While each service member who dies in a theater of combat is transported by military aircraft to Dover AFB, Del., the law changes how the remains are moved from Dover to their place of burial. The new law also specifies that an honor guard accompany the remains to their final resting place. The next of kin may waive military transportation and the honor guard.

■ An Air Force T-38C training aircraft based at Columbus AFB, Miss., crashed 40 miles south of Memphis, Tenn., Jan. 18. The two pilots ejected safely. The flight was a routine low-level navigation training exercise. The cause of the crash is under investigation.

■ Responding to protests from veterans' groups, New Jersey Gov. Jon S. Corzine (D) announced in January he would veto a new state law under which schools could stop teaching about the significance of Veterans' Day and Memorial Day. Corzine said it is important for New Jersey schoolchildren to "understand the sacrifices people have made" for the nation. The law was part of a larger bill involving property taxes, passed by the state legislature in December 2006, which relieved schools from an obligation to teach units about various holidays. The measure was intended as a way to reduce costs.

■ Gen. William T. Hobbins, chief of US Air Forces in Europe, presented Air Medals in January to 35 Danish F-16 pilots who flew during Operation Enduring Freedom from October 2002 to October 2003. At the time, the pilots were attached to the 376th Air Expeditionary Operations Group at Manas AB, Kyrgyzstan. Hobbins saluted the Danes for their service and support for coalition efforts in Afghanistan. To qualify for the decoration, the Danish pilots had to fly at least 15 hours of aerial operations in a hostile combat zone, which they surpassed by flying nearly 900 mission hours over Afghanistan during their tour.

■ The first revamped Minuteman III carrying the Mk 21 re-entry vehicle was deployed in October 2006, the Air Force announced. The hardware and electronics upgrade was completed under the Safety Enhanced Re-entry Vehicle program. The first SERV missiles were deployed and are on alert at F.E. Warren AFB, Wyo. As of December, 2.4 percent of the planned modifications were complete.

■ The "Happy Hooligans" of the North Dakota Air National Guard have begun receiving C-21 executive transports as replacements for F-16s given up in the 2005 Base Realignment and Closure (BRAC) process. The first of eight C-

Hanscom Is as Hanscom Does

The Air Force's Electronics Systems Center at Hanscom AFB, Mass., is "heavily involved" in cyberspace operations and is helping to modernize the force's combined air and space operations centers to operate in the cyber arena, the center's commander said in January.

Lt. Gen. Charles L. Johnson II said the field of cyberspace is nothing new to ESC, yet it poses a range of new challenges to confront, such as offensive operations and disabling enemy networks—capabilities "we are working on," he said. Speaking at the National Press Club in January, Johnson said some of the cyber activities will remain classified for the time being.

The Air Force is integrating new capabilities into older air and space battle management practices in the force's operations centers around the world, he explained.

"Falconer" air and space operations centers at headquarters for US Central Command, US Southern Command, US Forces Korea, Pacific Air Forces, and US Air Forces in Europe will be the core of the Air Force's command and control capabilities for years to come, Johnson said. However, smaller air operations center locations that rely on Air National Guard and Reserve personnel to support deployed operations and provide reachback capability may see some consolidation, he said.

The Air Force is looking at whether the number of such smaller support elements—particularly warfighting support centers—should be "trimmed" to save money, Johnson said. New management processes will allow USAF to centralize command, control, communications, computers and intelligence-surveillance-reconnaissance efforts, Johnson said.

systems, according to a January announcement.

In a cost-cutting move, USAF demoted the E-10 sensor aircraft to a technology demonstration program in the Fiscal 2007 budget. However, Northrop Grumman continued to work on the new aircraft's radar.

The E-10 was slated to be the replacement for the current fleet of air- and-ground-control sensor aircraft such as the E-3 AWACS and E-8 Joint STARS, but was reduced to just one airframe to test new technology.

Detachment Stands Up at Yokota

Pacific Air Forces in January activated a new detachment of 13th Air Force at Yokota AB, Japan.

The detachment assumed responsibility for planning and executing air operations around Japan. Air Force officials said that Det. 1 of 13th Air Force will enhance command and control operations and make the force more interoperable with US and Japanese air, naval, and ground forces.

The new unit reports to 13th Air Force at Hickam AFB, Hawaii, instead of Yokota's 5th Air Force. The move is part of a reorganization of Air Force assets in Japan and is driven by the new security environment and capabilities faced by PACAF, according to 13th Air Force Commander Lt. Gen. Loyd S. Utterback.

He noted that missile defense and cyberspace efforts require theaterwide perspective and coordination. The detachment will bridge the capabilities of 13th Air Force to better support 5th Air Force and its work with the Japanese Air Self-Defense force, Utterback said.

The detachment, numbering about 50 personnel, will work with the 613th

21s bound for the 119th Fighter Wing, Hector Arpt., N.D., arrived in Fargo Jan. 10. Personnel have been training for the last several years to prepare for the new mission. The C-21 is a bridge mission until about 2010, when the unit is expected to take on the Joint Cargo Aircraft. The 119th will also be receiving Predator unmanned aerial vehicles as their fighters go to other units or are retired.

■ Congressional leaders from the Philadelphia area were briefed in January on the Air Force Reserve's plan to deactivate the 913th Airlift Wing at nearby Naval Air Station Joint Reserve Base Willow Grove. Willow Grove will close due to BRAC decisions made in 2005, but the wing's status was not resolved in that decision. Air Force Reserve Command's C-130s at Willow Grove will move to a new airlift wing at Pope Army Airfield, N.C.

■ The 815th Airlift Squadron at Keesler AFB, Miss., completed its transition to the C-130J-30 in January, when it received the last of its alloted eight aircraft of the type. The C-130J-30 is a "stretched" new version of the Hercules, able to carry a greater payload. The Reserve wing also operates 10 WC-130J hurricane hunters. The unit has been instrumental in introducing the J model of the C-130 into USAF service, having begun testing the aircraft in 1998.

■ Lockheed Martin and Michelin Aircraft Tire Co. won a contract Jan. 3 worth an estimated $700 million over 10 years that will provide logistics and warehousing for all tires used on Air Force and Army aircraft throughout the world. Lockheed is the subcontractor on the deal and will provide demand forecasting, inventory management, warehousing, and transportation. The two companies have provided similar services to the US Navy for its aircraft tires since 2001.

■ In another BRAC-related move, the Air Force's flight standards division has begun moving from Andrews AFB, Md., to the FAA's Mike Monroney Aeronautical Center in Oklahoma City. The Air Force Flight Standards Agency move will help both organizations reduce expenses. USAF will spend $5 million to renovate its space in the center, with an expected completion in 2008.

■ US troops and airmen from US European Command's Medical Civilian Assistance Program traveled to Rwanda and Botswana in December, providing medical services to nearly 1,500 patients. The team conducted medical exchange seminars at the Kanombe military hospital in Kigali, Rwanda, at a returnee camp at the Tanzanian border, and at a barracks in Gaborone, Botswana. The goal of the exercise was to familiarize the Rwanda and Botswana militaries with the programs, procedures, and concepts the US military uses for preventive medicine and deployed medical operations.

■ The Air Mobility Warfare Center at Ft. Dix, N.J., has engineered a way to make loading passengers easier on flight lines. The new Halvorsen Air Stairs Kit connects passenger stairs to the cargo loader at the existing walk deck. In the stairs mode, the steps remain level regardless of height adjustments by the loader, while in the cargo mode with the stairs stowed, the steps close flat and function as a walk deck. At any time the stair can be removed and the original walk deck can be refitted. The idea is to have one piece of equipment handle both cargo and passenger loading at forward bases. ■

USAF photo by TSgt. Shane A. Cuomo

Japan Air Self-Defense Force liaison officers work alongside USAF members during Exercise Keen Edge in February at Hickam AFB, Hawaii. This bilateral event is held to increase US-Japan air cooperation.

Air and Space Operations Center and 5th Air Force staff in Japan.

Huge C-17 Group Takes Flight

The largest-yet formation of C-17s flying from a single base took off from Charleston AFB, S.C., on Dec. 21, 2006.

Twenty C-17s from the 437th and 315th Airlift Wings lifted into the air at 30-second intervals, flew over a nearby bridge, and flew back over the base.

The formation continued to North Auxiliary Field near Orangeburg, S.C., where it completed an airdrop. The formation was designed to help airmen complete needed training, with more than 500 training events taking place during the flight and seven aircrews certified as formation airdrop leads.

Nine of the C-17s practiced aerial refueling as part of the training as well.

F-16s in Commando Sling

Six F-16C/Ds from the 354th Fighter Wing at Eielson AFB, Alaska, deployed to Singapore in January to participate in Commando Sling, which ran Jan. 8 to Jan. 26.

Commando Sling, an exercise that began in 1990 to provice air combat training for USAF and Republic of Singapore Air Force fighter units, helps airmen sharpen air combat skills and improve tactics and procedures for sustained operations at deployed locations and non-US installations.

Air Force F-15C/D Eagles from the 3rd Wing at Elmendorf AFB, Alaska, participated in Commando Sling 07-01 in October 2006. F-16s from Kunsan's 8th FW are scheduled for a third exercise in May.

India, Russia in Fighter Effort?

India and Russia are discussing ways to cooperate on a fifth generation fighter comparable to the F-35 and possibly the F-22, *Times of India* reported in December.

Both MiG and Sukhoi design firms last November pitched to the Indian government their ideas for a new fighter to be built in cooperation with Hindustan Aeronautics Ltd.

Hindustan, in turn, handed its own concepts to Russian defense officials when they visited India in January as part of a state visit by Russian Fresident Vladimir Putin.

Both governments seem to favor the joint fighter project. Hindustan produces a variant of the Su-27 Flanker under license to Sukhoi.

F-22 Team Wins Collier Trophy

The National Aeronautic Association has chosen the F-22 Raptor industry team to receive the Collier Trophy for 2006. The prize is considered the most prestigious award given for achievements in air and space.

The trophy will be presented at a June dinner in Washington, D.C., to the Lockheed Martin-led industry team, which includes Boeing, Pratt & Whitney, Northrop Grumman, Raytheon, and BAE Systems.

Although the stealthy and highly maneuverable F-22 has been in development for about 20 years and has already demonstrated many "firsts" in fighter capabilities, the NAA said it was recognizing the airplane this year because of its operational status and impressive performance in last year's Northern Edge exercises in Alaska. In those joint-force wargames, F-22-led forces trounced a highly capable, numerically superior force of fighters 241-2, struck 100 percent of their assigned ground targets, and flew 97 percent of their assigned missions, demonstrating unprecedented readiness for such a new weapon system (See "The Raptor in the Real World," February, p. 32.)

David Ivey, chief executive officer of the NAA, said the award recognizes "the unquestionable superiority of the Raptor" over any existing fighter. The prize will also recognize the design, testing, and operation of the F-22.

Except for four years during World War I, the Collier Trophy has been awarded annually since 1911. Previous honorees include Chuck Yeager, Howard Hughes, the crew of Apollo 11, and Gen. H.H. "Hap" Arnold. (See "The Robert J. Collier Trophy," May 2006, p.142.) ■

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Action in Congress

By Tom Philpott, Contributing Editor

Task Force Eyes Fee Increases; Lawmakers Ready for Battle; Webb Seeks GI Bill Gains ....

Raising Tricare Fees

In January, the 14-member Task Force on the Future of Military Health Care held its first public meeting, with the Congressionally chartered study group pledging to deliver by May its recommendations on raising Tricare fees.

Congress created the task force to verify the appropriateness of the DOD proposals to slow what defense officials contend is alarming cost growth in military health care and to weigh other actions to control costs.

Defense officials have complained that annual military health costs are now $38 billion, up 130 percent since 2000.

Cost is projected to climb to $64 billion by 2015, representing 12 percent of total defense spending versus eight percent today. Most of the growth is linked to new benefits including Tricare for Life and Tricare pharmacy benefits for service elderly.

Half the task force is from DOD and half are outside health or fiscal management experts. Some task force members already are on record as supporting the fee increases, including retired Air Force Gen. Richard B. Myers, former Joint Chiefs Chairman.

The Air Force is heavily represented. The co-chairman is Gen. John D.W. Corley, vice chief of staff. Other Air Force-affiliated members are Lt. Gen. James G. Roudebush, surgeon general, and Maj. Gen. Joseph E. Kelley, Joint Staff surgeon.

Does Task Force Support It?

No task force member challenged the DOD plan at the first meeting. Indeed, Robert Galvin, director of global health care for General Electric, said the plan "sounded like it was well-researched, rigorously thought through."

Congress said one task force member had to be selected to represent beneficiaries. Defense officials chose retired Army Reserve Maj. Gen. Robert W. Smith III, former president of the Reserve Officers Association. ROA was one of two service associations to support the DOD plan when it was unveiled. Smith urged defense officials to explain that military health care is not an "entitlement," as some retiree groups argue, but a "benefit" which, Smith suggested, employers adjust from time to time.

AP photo by Kiichiro Sato

Rep. Walter Jones (R-N.C.) says "no" to Tricare increases.

David S.C. Chu, defense personnel chief, noted that Tricare fees have not been raised since they were set in 1995. He warned the task force that unless the cost of Tricare is "rebalanced" it "cannot be sustained."

The DOD plan would double the annual enrollment fees for Tricare Prime, the managed care program, for senior enlisted and nearly triple it for officer retirees over two years. Retirees E-6 and below and their dependents would see a 41 percent increase.

The annual deductibles for Tricare Standard would be raised, and, for the first time, Standard users would pay an enrollment fee. Pharmacy co-payments also would be raised.

William Winkenwerder Jr., assistant secretary of defense for health affairs, said retired pay for an E-6 has climbed by $300 a month over the last decade while Tricare fees have been frozen.

Meanwhile, Rep. Chet Edwards (D-Tex.) and Rep. Walter Jones Jr. (R-N.C.) have reintroduced legislation to block any Tricare fee increases.

The legislation would ensure that Congress alone has authority to increase Tricare Prime enrollment fees for retirees and survivors, pharmacy co-payments, Tricare Reserve Select enrollment fees, and co-payments for inpatient care.

Edwards said in a press statement that the legislation would keep "the "promise of quality, affordable health care for military retirees."

A Final Month's Pay

Jones also introduced a bill that would allow surviving spouses of military retirees to receive the deceased's final full month of retirement pay if couples are in an arrangement to have checks electronically deposited in their joint account.

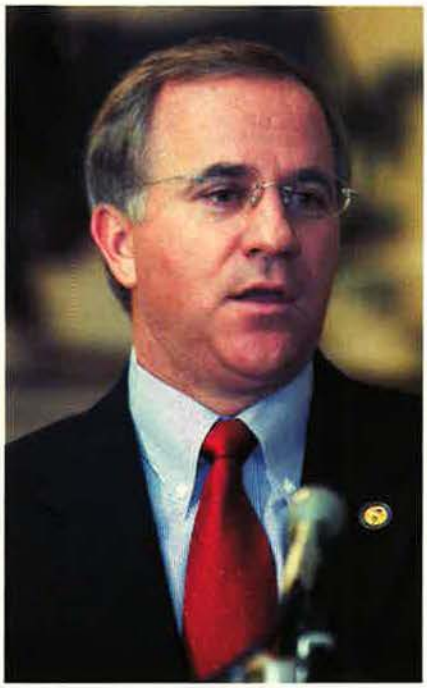
The Defense Finance and Accounting Service requires that it be notified of a retiree's death so retired pay can be suspended effective the day after death. At the urging of the Fleet Reserve Association, Jones drafted the Military Retiree Survivor Comfort Act.

FRA said it pushed for the bill because a widow, unaware of current policy, had faced financial difficulty when DFAS recouped money from her joint account. If this legislation is enacted, only survivors of retirees with joint accounts would receive a full month's payment, regardless of what day of the month the retiree dies.

Joint Hearing Restored

Only days after Democrats assumed the chairmanships of the House and Senate Veterans Affairs Committees, they announced plans to reinstate the traditional joint hearing held each spring where leaders of veterans service groups come before a joint House-Senate committee hearing.

The timing of such hearings, in the spring and fall, allows major vet groups to testify before Congress while their organizations are holding their annual meetings so that interested veterans can pack the hearing room.



AP photo by A.J. Mast

Buyer opposes "spectacles."

Rep. Steve Buyer (R-Ind.) two years ago replaced what he viewed as joint hearing spectacles with separate House and Senate VA committee hearings early in the budget year. (See "Action in Congress: Empowered ... or Muzzled," January 2006, p. 24.)

"Democrats are relegating veterans to the back bench by receiving their input cn the budget and [on] legislative issues after the budget is put together," said Buyer, the VA committee's ranking Republican. Veterans groups "must engage Congress with timely substance in order to best advocate the interests of their veterans."

But veterans groups praised the move. Paul A. Morin, national commander of the American Legion, expressed appreciation to Democratic leaders for restoring the Legion's "full voice" on Capitol Hill.

Rep. Bob Filner (D-Calif.), new chairman of the House VA committee, shrugged off Buyer's arguments. "You want to have veterans see the process," Filner said. "You can do both. You can have them in the budget process directly, which I'm going to do, and you can add the public hearings."

New Deployment Pay

Officials announced plans to pay $1,000 more per month to reservists deployed earlier or for longer than new Guard and Reserve rotation policies dictate. The precise rules for implementing this new pay were still being developed at press time. (See "Aerospace World: SECDEF Caps Reserve Call-Ups ..." p. 19.)

Pentagon personnel chief David S.C. Chu told a press conference that the payments should go to "those whose expectations we seriously violate" rather than to members forced to deploy a day early or to return a day late.

"I don't think any of our people believe, nor do I think the American taxpayers believe, we should suddenly give you some big compensation," for minor schedule lapses, Chu said.

GI Bill Proposals

Sen. Jim Webb (D-Va.) recently introduced his first bill, to improve Montgomery GI Bill benefits for personnel who have deployed since the attacks of Sept. 11, 2001. The legislation would enhance education benefits to cover tuition, room and board, and provide a monthly stipend of $1,000.

The demands of the war on terrorism justify a more generous benefit, Webb said.

In general, to qualify for Webb's enhanced program, veterans must have served at least two years of active duty, with at least some period of active duty time served beginning on or after Sept. 11, 2001.

The enhanced educational benefits would be set to match the duration of time served but not to exceed a total of 36 months coverage.

Veterans would have up to 15 years to use their benefits. ■

AP photo by Steve Helber

Webb pushes for enhanced GI Bill.

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Tough Test for Secret Warriors

Air Force special operators must fight terrorists and transform themselves—at the same time.

By Adam J. Hebert, Senior Editor

A series of AC-130 gunship attacks against suspected terrorist training areas in Somalia seemingly came out of the blue in January. The air strikes targeted Fazul Abdullah Mohammed, the alleged mastermind behind the 1998 embassy bombings in Africa that killed 225 people.

This special operation was conducted with the support of Somalia's embattled government—but prior to the first gunship strike on Jan. 7, few knew there was even a US special operations presence in the region.

This is how it often is for the Air Force's secretive special operations forces. Growing worldwide demand and unique skills needed for the war on terror put AFSOC in the throes of what is shaping up as one of the greatest evolutions in the command's illustrious history.

External military and internal organization demands have put unprecedented pressure on the service's elite 13,000-strong commando force. Demand for the air commando's unique skills has been so high around the globe that many missions have to be turned down for lack of manpower and equipment. USAF's special operators are heavily engaged in worldwide combat operations, carrying the war to terrorists both as active combatants and in long-term advisory missions.

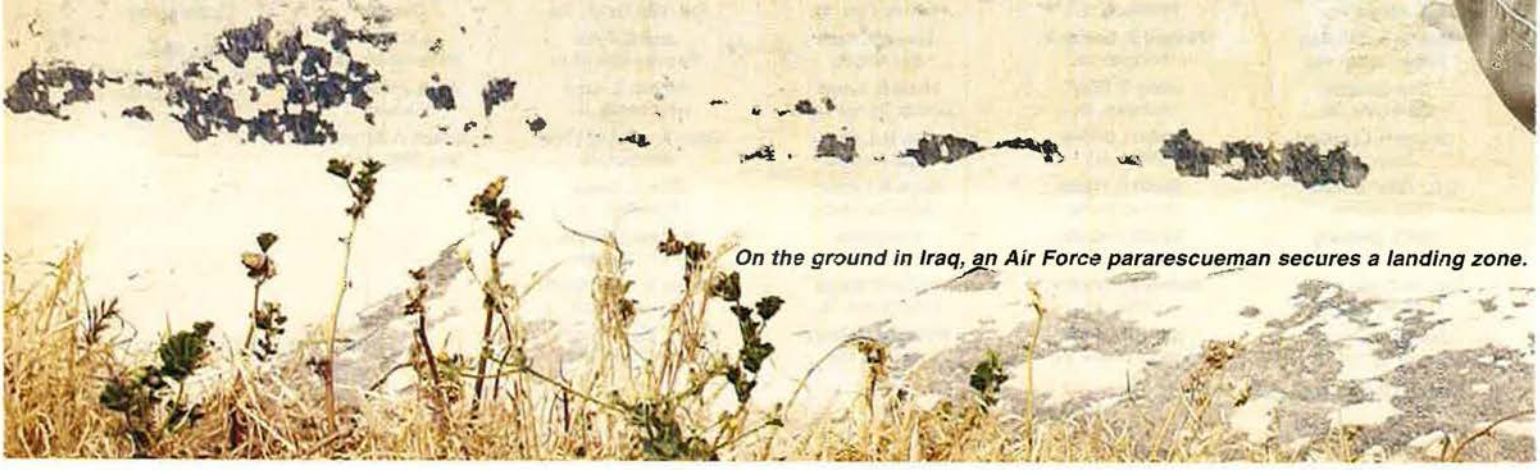
In response, the Air Force and US Special Operations Command are backing a major expansion of AFSOC's organization and equipment: SOF force structure is in the midst of a buildup unlike any seen since the Vietnam War. In this buildup, AFSOC is creating several new types of capabilities and expanding several others. In addition, the Air Force is building a second wing of special operators.

While the rest of the Air Force is cutting 40,000 personnel and replacing large numbers of old aircraft with small numbers of new ones, the air commandos are hiring. Much of the new capability is about to reach the field.

"We're growing," says Lt. Gen. Michael W. Wooley, AFSOC commander, "as a result of folks recognizing the value of [SOF] on the battlefield."

The SOF community has taken up these dual challenges with a zeal characteristic of air commandos from their earliest days.

Today's special operators trace their lineage to August 1943 when Gen.



On the ground in Iraq, an Air Force pararescueman secures a landing zone.

USAF photo by SSgt. Aaron D. Allmon II

USAF photo by TSgt. Lee Schading

AFSOC's gunships, such as the AC-130 seen here, are continuously modernized. Plans call for delivery of four newly updated AC-130Us this year.

Henry H. "Hap" Arnold, Commanding General of Army Air Forces, directed two veteran fighter pilots, Lt. Col. Philip G. Cochran and Lt. Col. John R. Alison, to build a self-reliant composite fighting force to support British operations in Burma. (See "The All-American Airman," March 2000, p. 52.) Thus was born the 1st Air Commando Group, whose spirit has lived on in various units, guises, and locations for more than 60 years.

Battlefield Value

The air commandos' wide range of specialized capabilities have brought a high operations tempo.

Battlefield airmen assigned to special tactics teams work independently or in small groups on the ground, calling in air strikes, performing pararescue missions, and providing combat weather data in the field. A variety of specialized aircraft move commandos into and out of hostile territory, refuel other SOF aircraft and, in the case of the gunships, provide devastating fire in support of ground troops.

At the other end of the spectrum, battlefield airmen are using small UAVs to provide tactical intelligence to American troops on the ground. SSgt. Ben Hannigan, a combat controller, said he has used small UAVs, such as the Pointer or Raven, overseas to survey a compound and see whether it might contain a "person of interest."

These small aircraft were also used to reconnoiter the dangerous roads in front of convoys. The video imagery, which is of the same quality as from a handheld video camera, is provided directly to the operator in real time.

The goal, Hannigan said, is for every deploying battlefield airman to have his own personal UAV.

Meanwhile, other air commandos are engaged in long-term missions around the globe, offering counterinsurgency training to friendly nations. They help other nations stamp out terrorism within their borders, train them in aviation tactics, and integrate foreign air forces into coalition missions.

When the US was attacked on Sept. 11, 2001, AFSOC was optimized for executing short-duration missions. The training and readiness the air commandos had in place has allowed the airmen to accommodate an increased operating tempo.

"We don't make any apologies or whine about operations tempo," Wooley said of this change of course. "This is exactly what we train to do."

The strong sense of mission helps the air commandos deal with an optempo that regularly has them deployed to war zones for half the year.

"They know they are contributing ... every day," said CMSgt. Michael P. Gilbert, AFSOC's command chief master sergeant. "There is no question about whether what they are doing matters. It is very easy for them to connect the dots."

Gilbert pointed out, "I don't think anyone anticipated a five-year special operation," but, he said, the command is likely to wear out its aircraft before it wears out its people.

AFSOC has essentially reached a "set deployment requirement," he said, so that air commandos who have already deployed numerous times can now be scheduled for home-station assignments such as training the younger airmen.

Daily Battle

Col. Timothy J. Leahy, vice commander of 1st Special Operations Wing, said AFSOC must maintain its training pipelines, but demand for aircraft overseas is so high that it is "a daily battle" to find the sorties, even when efforts are made to fence them off.

Finding aircraft for gunship training

USAF photo by SSgt. Greg L. Davis

CMSgt. Eddie Alicea fires a heavy machine gun from an MH-53J Pave Low during a training mission over the Eglin Range, Fla.

USAF photo by Capt. Tom Montgomery

In Niger, a 6th SOS rotary wing aviation advisor uses text messaging and a tactical radio to communicate with his unit and Niger Air Force helicopter crewmen.

in particular is "a tough nut to crack," said Gilbert, but the problem is relieved somewhat by the fact that AC-130 crews fly operational missions overseas almost every night. That on the job experience helps offset the lost training.

High wartime demands create other sources of friction. Vice Adm. Eric T. Olson, deputy SOCOM commander, told the *Baltimore Sun,* "More of our force than we'd like" is devoted to the shooting wars in Iraq and Afghanistan, which means commandos are "underrepresented globally."

Leahy said SOF commanders must carry out a balancing act with their deployed forces. There are missions air commandos can perform because they are on the battlefield, but there is also a need to hold back some capability for missions only AFSOC can perform. Sometimes, a different, non-SOF aircraft can perform a mission that at first glance would go to the air commandos.

The command operates small numbers of a wide variety of aircraft, so there is precious little held in reserve. "You don't see line after line" of the same types of aircraft on the ramps at Hurlburt Field, Fla., Leahy noted.

Nowhere is this more apparent than in the 6th Special Operations Squadron, AFSOC's combat aviation advisory unit which helps train foreign air forces. The squadron currently flies UH-1 helicopters, one Russian-built Mi-8 helicopter, one Soviet-made An-26 transport, and several C-130 variants, along with a few other unusual types.

The 6th SOS flies whatever aircraft are flown by nations seeking help in fighting terrorists. The squadron trains foreign air forces in the tactics needed to fight terrorism on their own soil and take part in international operations.

The squadron sent small teams to some 15 nations in 2006, said Lt. Col. Bo LeMay, 6th SOS director of operations.

In recent assignments, USAF special operators have schooled Filipino airmen in nighttime troop insertion missions, Chad's Air Force in C-130 low-level delivery tactics, and Niger's aviation arm in air-drop and advanced helicopter operations. Many other locations and missions are classified.

"In most places where terrorists exist, [US military] force is not a viable option," said Col. John D. Jogerst, commandant of the USAF Special Operations School. As events since 9/11 have shown, terrorists often gather surreptitiously within "legitimate host nations with functioning governments."

Part of the reason air commandos are so valued is because of their regional expertise. At Hurlburt, the dedicated special operations school has a broad range of courses that help deploying commandos understand threats they will face and political and cultural environments in which they are to operate.

"The staff and faculty of the school deploy regularly," Jogerst said. In December, one was on a UN observer mission and two were in Iraq.

High Leverage

By helping the foreign air forces perform counterterrorism missions on their own, officials say, a deployment of 15 US troops now can prevent the need to send 15,000 troops later. "We understand that we can't kill our way to victory," SOCOM's Olson said.

The 6th SOS has played a key role in building up the new Iraqi Air Force from scratch and trained more than 100 airmen to serve as embedded advisors to the fledgling air force. In 2005, four AFSOC air commandos and one Iraqi airman died in a crash in eastern Iraq. (See "Aerospace World:

USAF photo by SSgt. Andy Dunaway

A pair of MC-130 Combat Talons fly off the Florida coast at dusk. AFSOC has placed new mobility aircraft at the top of its wish list.

USAF photo

Air commandos train foreign air forces for counterterrorism missions. Here, a USAF deputy mission commander and maintenance instructor set up ground communications in Niger.

Four Airmen Die in Iraqi Crash," July 2005, p. 16.)

Not all of the pressures are operational in nature. AFSOC is up against an array of internal challenges, too, as it grows and realigns to better meet requirements.

In 2005, shortages of personnel and equipment forced the 6th SOS to turn down more than half of its requested missions. SOCOM commander Army Gen. Bryan D. Brown therefore directed that AFSOC double the size of the combat aviation advisory unit to meet the growing need for these operations. The squadron should grow to 230 personnel by the end of the year, and the mission will likely be split between Hurlburt and Cannon AFB, N.M.

AFSOC is the smallest of USAF's major commands. Officials anticipate "modest growth" in the command's end strength over the next few years, but the missions and equipment will see dramatic change.

At present, the command has only one US-based operational wing, the 1st SOW at Hurlburt. The wing reclaimed its historical name only last year; before then, it was the 16th Special Operations Wing.

A Second Wing

The previous designation, however, has not been retired, only suspended until this October when it will be bestowed on a brand-new special operations wing.

This newly created 16th SOW—only the second to be based in the United States—will be formally reactivated at Cannon. It will have access to the large and underused Melrose Training Range, a major step forward.

Hurlburt is "pretty close to the point where, to build something, you have to tear something down," said Leahy of the 1st SOW. Wooley agreed. "We are out of room at Hurlburt Field," he said, noting that the addition of the wing at Cannon will fulfill a decade-long plan to base an SOF wing west of the Mississippi.

From its base in the Florida panhandle, the 1st SOW has to support training operations throughout the United States, a fact that leads to movement and flying-time problems.

At Cannon, AFSOC will create "mirror image" capabilities east and west, Wooley said. Gunships, CV-22 Ospreys, special tactics units, SOF refuelers, and ground trainers will be present at both Hurlburt and Cannon, though the exact arrangement of units is still in flux.

Wooley called the Melrose range the "crown jewel" of the command's western infrastructure. It will give AFSOC a dedicated training range with the altitude and desert conditions similar to those that the air commandos are likely to encounter in the US Central Command area.

The AFSOC chief noted that the command's Predator UAV force will be at Cannon. The 3rd Special Operations Squadron is currently based at Creech Air Force Base in Indian Springs, Nev., and is flying MQ-1s borrowed from Air Combat Command.

The squadron eventually will control AFSOC's own fleet of Predators. The command's full capability of about 24 will be in place in 2011, with a mix of both MQ-1 Predator and MQ-9 Reaper UAVs.

A new intelligence squadron—AFSOC's first—was established last year to process this UAV intelligence and distribute it to the commandos in the field. (See "Aerospace World: AFSOC Activates Intel Squadron," October 2006, p. 16.) Lt. Col. David Hambleton, commander of the 11th Intelligence Squadron, noted that the benefit of having a special ops intel unit works both ways.

Special operations forces in the field are more willing to "open up" with details

Photo by Guy Aceto

The 6th SOS flies a wide range of specialized aircraft used by other nations. Shown here is the squadron's Russian-built Mi-8 helicopter.

about their mission and needs to fellow commandos, he said, while the operators in the intelligence shop will have a better understanding of what the forces in the field are trying to accomplish and how they operate.

One member of the 11th, Capt. Loree Filizer, earned a Bronze Star for "actions leading to an air strike" that killed a known terrorist in June 2006.

The command is assessing its long-term intelligence needs, Hambleton said, and is concluding that heavy current requirements are not a temporary thing but rather a permanent situation. The 11th's staff is expected to grow from 38 persons today to about 150 in a couple of years.

Officials noted that targets and locations are often observed for long periods. SOCOM can identify patterns and then establish a terrorist's habits and contacts—a time-consuming process that Hambleton compared to a stakeout.

UAVs and intelligence personnel can keep watch and help coordinate an attack as special operators, "riding in the back of AFSOC aircraft, ... go in and finish them," said Leahy.

The intelligence squadron reports to AFSOC's warfighting headquarters. This headquarters—soon to be named 23rd Air Force—is designed to have both reachback capability and a deployable command and control system, said Col. Michael W. Callan.

Pickup Game No More

Callan hopes that, in a few years, AFSOC will have a dedicated, deployable C2 capability that will end the "pickup game" that repeatedly occurs when air operations center personnel need to deploy to support a combat operation.

New hardware will help ease the demands on aircrews as well. The CV-22 Osprey will take on part of the infiltration and extraction mission from AFSOC's ancient MH-53s, with smaller aircrews and a reduced maintenance requirement.

Today's MH-53 Pave Lows are old—the fleet averages 36 years of age—and some even flew in the famed Son Tay prison raid in North Vietnam in 1970. Wooley said the command will retire all of them by 2008. The mission will be transferred to Army MH-47s for heavy lift missions and Air Force CV-22s for rapid movement missions.

Wooley said 2008 is a "firm mark on the wall" for the MH-53 retirement, as the command is not buying spare parts to last beyond then.

SOF Actions Since Vietnam War

Year Denotes Start of Operation

1975 - Response to seizure of *S.S. Mayaguez,* Cambodia
1975 - Operation Eagle Pull, evacuation of Cambodia
1975 - Operation Frequent Wind, evacuation of South Vietnam
1980 - Operation Eagle Claw, hostage rescue in Iran
1981 - Response to kidnapping of US Army Brig. Gen. James L. Dozier, Italy
1983 - Operation Urgent Fury, hostage rescue, Grenada
1983 - Operation Big Pine, Honduras
1983 - Operation Bild Kirk and others, El Salvador
1984 - Response to kidnapping of President Jose N. Duarte's daughter, El Salvador.
1985 - Response to hijacking of TWA Flight 847
1985 - Response to hijacking of ship *Achille Lauro,* Mediterranean Sea
1986 - Operation El Dorado Canyon, US raids, Libya
1986 - Response to bombing of Pan Am Flight 73, Scotland
1987 - Operations Earnest Will, Prime Chance I, Persian Gulf
1988 - Operation Golden Pheasant, Honduras
1989 - Operation Safe Passage, Afghanistan
1989 - Operation Poplar Tree, El Salvador
1989 - Response to coup attempt on Philippine President Corazon Aquino
1989 - Operation Just Cause, Panama
1990 - Operation Promote Liberty, Panama
1990 - Evacuation of US Embassy, Liberia
1990 - Operation Desert Shield, Saudi Arabia, Kuwait, Iraq
1991 - Operation Desert Storm, Saudi Arabia, Kuwait, Iraq
1991 - Operation Eastern Exit, Somalia
1991 - Operation Provide Comfort I, II, II, Turkey, Iraq
1991 - Operation Northern Watch, Turkey, Iraq
1991 - Operation Sea Angel, typhoon relief, Bangladesh
1991 - Operation Desert Calm, Saudi Arabia
1991 - Operation Southern Watch, Kuwait
1992 - Operation Provide Promise, Italy, Yugoslavia
1992 - Operation Restore Hope, Somalia
1993 - Operation Continue Hope I, II, Somalia
1993 - Operation Deny Flight, Yugoslavia
1994 - Operation Restore Democracy, Haiti
1994 - Operation Uphold Democracy, Haiti
1994 - Operation Support Hope, Rwanda
1995 - Operation United Shield, Somalia
1995 - Operation Deliberate Force, Italy, Yugoslavia,Bosnia
1995 - Operation Joint Endeavor, Italy,Yugoslavia, Bosnia
1996 - SAR support for Secretary of Commerce Ronald H. Brown, Croatia
1996 - Operation Assured Response, embassy evacuation, Liberia
1997 - Operation Silver Wake, embassy evacuation, Albania
1997 - Evacuation of civilians, Republic of Congo
1999 - Operation Allied Force, Serbia and Kosovo
2000 - Operation Atlas Response, flood relief, Mozambique
2001 - Operation Enduring Freedom, Afghanistan

Organization

Warfighting HQ

Air Force Special Operations Forces
Hurlburt Field, Fla.

Wings

1st SOW
Active
Hurlburt Field, Fla.

16th SOW
Active (planned)
Cannon AFB, N.M.

919th SOW
Air Force Reserve Command
Duke Field, Fla.

193rd SOW
Air National Guard
Harrisburg Arpt., Pa.

Groups

352d SOG
RAF Mildenhall, Britain

353d SOG
Kadena AB, Japan

720th Special Tactics Group
Hurlburt Field, Fla.

Staff illustration by Zaur Eylanbekov

The first operational CV-22s, as illustrated here, are beginning to arrive. Plans call for two tilt-rotor squadrons at Hurlburt Field, Fla., and two more at Cannon AFB, N.M.

The Pave Low is not even AFSOC's oldest aircraft. That distinction belongs to its 10 MC-130E Combat Talons, which are 42 years old, and 19 MC-130P Combat Shadows, which are 38 years old.

Plans call for purchasing a dozen MC-130Ws—but five MC-130s of various configurations have already been lost in the war on terror. AFSOC officials call the purchase an "interim solution" to AFSOC's mobility problems.

Old aircraft are "increasingly difficult and expensive to operate," noted Col. Billy Montgomery, AFSOC director of plans, programs, and requirements. As special operations forces and aircraft inventories continue to expand, the need for additional airlift and refueling capability is increasing.

The interim requirement is for 37 new MC-130-type aircraft to perform the infil-exfil and resupply mission. Ongoing studies of special operations mobility and refueling requirements are likely to lead to a requirement for 61 aircraft, Wooley said.

As new aircraft come on line, "we'll start with Talon Is and retire them one-for-one until they're gone," said Wooley. "Then we'll retire Shadows."

Enter the Osprey

The CV-22, AFSOC's highest-profile acquisition program, is likely to assume part of the mission currently performed by the MC-130. Unlike the MH-53, the Osprey can keep up with C-130s on missions and can transport troops into tight locations with its vertical takeoff and landing capability. AFSOC last year moved the 8th Special Operations Squadron, which will become the first operational CV-22 unit, to Hurlburt from nearby Duke Field.

The operators are anxious to get their hands on the CV-22, to figure out the best ways to employ an aircraft that offers a unique blend of helicopter and fixed-wing attributes. With engine nacelles that pivot in flight, the Osprey combines turboprop speed with rotorcraft utility. (See "The Osprey Factor," August 2001, p. 66.)

The CV-22 program grew out of the 1980 Desert One debacle, the hostage rescue effort in Iran that failed in part because the US had no aircraft with sufficient speed and range to fly from the Arabian Gulf to Tehran in one "period of darkness." The Osprey was designed to solve this problem.

Lt. Col. Theodore Corallo, 8th SOS commander, said the Air Force's CV-22 is scheduled to become operational in 2008 but that SOCOM would like the capability as soon as possible. Plans director Montgomery said there will be two CV-22 squadrons at Hurlburt and two at Cannon.

Wooley added that he is trying to accelerate the purchases, so that AFSOC can get its complement of 50 aircraft two years sooner than the current date of 2017 because "we really need that aircraft on the battlefield today."

The command has a requirement for more than 50 Ospreys, he added, but, for the time being, 50 is "the number."

For the gunship community, four new AC-130U aircraft have already been built; final outfitting and integration will continue through 2007. These aircraft will carry 30 mm Bushmaster guns rather than the 25 mm and 40 mm weapons found on today's AC-130Us. (See "The Night Shift," December 2006, p. 44.) The new weapons (the same caliber as the gun on the A-10) promise greater accuracy and reliability.

Montgomery said developmental problems with the 30 mm belt-feed system have been solved, and the entire fleet of 21 AC-130Us will have the new weapons by the end of 2010.

The dual 30s may someday also be added to AFSOC's eight AC-130H Spectres. ■

USAF photo

Some 6th SOS air commandos mug for the camera with army regulars in a sub-Saharan nation.

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The Air Force of the future will have a "high-low" mix and a "new-old" mix.

Making the Best of the Fighter Force

by John A. Tirpak, Executive Editor

Even if the Air Force gets all the new fighters it needs—381 F-22 Raptors and 1,763 F-35 Lightning IIs—it will still have to field an unprecedentedly large number of older fighters for decades, in order to meet all the service's obligations. No longer will "aging aircraft" issues focus solely on large mobility and sensor aircraft; the Air Force is now preparing to fly fighters that will near 50 years old.

To pull off this feat, USAF will extend the lives of its 1980s-vintage fighters—F-15s, F-16s, and A-10s—with substantial structural changes and give them new equipment that will make them as capable and "relevant" as possible, within the limits of money and technology. Some will be retained into the 2030s—perhaps longer.

The task will be a delicate balancing act, though: The Air Force must spend only so much money as necessary to keep the old fighters useful against evolving threats, while not robbing procurement accounts of funds needed to buy the new aircraft. Without the new fighters in the mix, and in sufficient numbers, the plan falls apart. And, while technology has made it possible to double up the roles of many new aircraft, there still have to be enough to go everywhere the nation asks.

Buying the new fighters is "critical," according to Lt. Gen. Raymond E. Johns Jr., deputy chief of staff for strategic plans and programs.

"While extending the service life of legacy aircraft meets some niche requirements," they will find it increasingly tough to get past modern integrated air defense systems, Johns said.

"It's critical that we keep production of our fifth generation fighters on track, ensuring sufficient quantities" to preserve the US edge in air combat, he said.

Nevertheless, there just aren't enough F-22s or F-35s on order to meet all the Air Force's commitments, which for the fighter force involves the ability to fight up to two nearly simultaneous major theater wars as well as ensuring sovereignty over US airspace.

Last year's Quadrennial Defense Review validated "what the nation expects of our Air Force," Johns said in an interview. The amount of airpower it specified—86 combat wings—will require keeping some of the legacy fighters going for decades to come. The Air Force said it has about 81 combat wings' worth of forces now. (See "Eighty-Six Combat Wings," December 2006, p. 24.)

The QDR also specified 183 F-22s, versus the Air Force's long-validated

Lockheed Martin photo by Paul Weatherman

The Air Force won't be getting enough F-22s (shown above en route from Langley AFB, Va., to exercises in Alaska) and F-35s to meet all its obligations, so large numbers of "legacy" fighters will remain in service another 20 years.

Lockheed Martin photo by Jack Noble

The F-35 Lightning II takes off on its first flight. USAF officials want to buy F-35s in lots of 100 a year, but probably won't get that many.

requirement for 381. All agree the smaller figure was driven by monetary constraints and not by strategy.

"We still need and want 381," Johns said, but he said the lower figure is "not ... a crisis to me" because the decision on whether to go beyond 183 will take place beyond the current planning cycle, in 2010. The Air Force succeeded in winning Congressional approval to buy the F-22 on a multiyear contract basis, getting three lots of 20 each. In Fiscal 2010, when the multiyear expires, the Air Force hopes to get approval to buy at least 20 more. The decision point will come beyond the term of the Bush Administration, which set the 183 limit.

Despite pressures within and without, the Air Force has also not backed off its requirement for 1,763 F-35s to replace the F-16 and A-10. It is on track to start fielding the Lightning in squadron service by 2013.

The two new fighters are highly capable, offering major advances over their predecessors in survivability and effectiveness. The Air Force has long said it will not be necessary to replace the older aircraft with the new on a one-for-one basis.

Gen. Ronald E. Keys, head of Air Combat Command, told defense reporters in Washington last fall that "we're going to take that F-15 fleet down to about 178" aircraft, "and we'll probably retire about two or three airplanes for every Raptor we get." The Air Force will "probably, at least, take down two F-16s or A-10s per Lightning that comes on."

The rate at which F-35s will enter the inventory is causing concern. Chief of Staff Gen. T. Michael Moseley said last fall that he doubts the Air Force will be able to buy F-35s at the expected rate of 100 per year. (See "Aerospace World: ... And Predicts Slower Buys," December 2006, p. 12.) The F-35 "ramp rate" is especially important, because the F-35 will primarily replace the F-16, which was bought in annual lots of more than 200 each in the 1980s. The earliest F-16s have reached, and in some cases surpassed, their planned life expectancy and must retire. However, the F-35s won't appear in operational service for another six years.

"I want to be buying enough F-35s so that as the F-16s time out, I'll replace them with an F-35," Johns said. "We're not ramping up sufficiently to do that."

He said the Air Force is making its case to the Pentagon leadership and Congress for a more aggressive F-35 build program—he declined to discuss planned rate of production—because in the face of future air defense threats, "just more legacy aircraft are not going to meet" the Air Force's needs. In USAF budget documents released in February, the service revealed it can only afford 48 F-35s a year over the FYDP. If it can't increase that number, it will take about 40 years to buy all 1,763 required.

The Air Force is expected to buy six F-35s in Fiscal 2008. Johns said that USAF expects to field the F-35 in squadrons of 24 aircraft each, unlike the F-22, which serves in 18-aircraft squadrons.

The service's fighter needs have not been reduced because new capabilities have emerged that can do some of the traditional fighter mission, Johns noted. Unmanned combat aerial vehicles can do light strike; bombers can perform close air support; and a new bomber program

USAF photo by TSgt. Ben Bloker

Maj. Mark Mitchum, an F-15 pilot with the 149th Fighter Squadron, prepares for a sortie with the Virginia Air National Guard. The F-16 fleet was expected to start retiring in lots of 200 or more per year by now, since that was the rate at which they were bought in the 1980s.

is expected to expand the speediness and range of USAF's strike capabilities. However, those new capabilities are considered a bonus, not a force-changing development, Johns said.

When bombers perform close air support, Johns said, it's because "they can, because they're not being called to their primary ... mission. I can take advantage of it. But I'm not about to count a bomber in a close air support mission when, in a war, I need it to do its primary mission." Likewise, fighters have in the last few years been providing intelligence-surveillance-reconnaissance information through advanced targeting pods even though that isn't their principal purpose. (See "Eyes of the Fighter, January 2006, p. 40.)

"No one has relieved me of my [major combat operations] ... obligations," Johns said, so he can't economize by requiring systems to do two very different missions simultaneously. The Air Force, he said, is reducing its fighter inventory because aircraft are getting more capable, but it still must have "sufficiency" to handle all its commitments.

To stave off a "waterfall" of F-16 retirements that would leave the Air Force with an unacceptable deficit of fighters until the F-35 arrives, the service is well under way with a series of upgrades and repairs to give the Fighting Falcon more time in service.

USAF has scrutinized the F-16 fleet on an individual basis, analyzing how many hours each has flown, how many problems each has had, its general condition, age, and suitability for continued service.

"Between now and the end of [Fiscal] 2013, we'll lose about 200 F-16s," said Lt. Col. Timothy Forsythe, the F-16 program element monitor at ACC.

"That's going to be pretty much all of the Block 15 fleet" and most of the Block 25s, as well. Most of these are Air National Guard aircraft.

"The plan is to retire the oldest, least-healthy iron first," Forsythe said. Those that will retire by 2013 will not be upgraded.

Structural improvements, under a program called Falcon STAR, are being performed on those F-16s identified as being worth the expense and trouble to repair and beef up for more years of service. In general, those are the Block 30s and beyond. The most recent F-16s in the Air Force are Block 52s.

The structural upgrade replaces some bulkheads, wing skins, and other pieces that engineers have determined are failing or will fail, given the way the F-16 is now used. The Falcon was originally intended to be a lightweight, mass-produced fighter for daytime air-to-air missions and some light attack work. However, as its ground-attack capabilities improved, it became more heavily relied upon as a strike platform and was used chiefly in that mission in every major conflict since the 1991 Gulf War.

USAF photo

Two F-15s from the 67th Fighter Squadron, Kadena AB, Japan, fly over Okinawa. USAF will retain 178 older F-15C "Golden Eagles." The moniker stems from the fact that those fighters will be kept in top physical condition.

"We obviously are carrying a lot of heavyweight weapons" on the F-16, Forsythe noted, and "using the airplane quite a bit." The F-16 was expected to fly about 250 hours a year, on average, but those deployed to combat have averaged 300 hours per year or more. Put another way, that means the most heavily used Falcons are aging at the rate of five years for every four in service.

Initially, the F-16 was expected to have a 4,000-hour service life, which at 250 hours a year translates to a 16-year life. Falcon STAR will help the F-16s reach a service life of 8,000 hours, or 32 years.

The Falcon STAR is not a remanufacturing program, however, which would be much more expensive and comprehensive. And a more elaborate service life extension program, or SLEP, is not really possible because the F-16 was among the first aircraft to be made with large amounts of composite materials. Those materials were designed for a certain life expectancy.

Along with Falcon STAR is a companion program to make the F-16s more effective, called the Common Configuration Implementation Pogram, or CCIP. In most cases, the CCIP and the Falcon STAR are performed at the same time the fighters go into depot maintenance for planned checks, so as to keep them out of service for as little time as possible.

The CCIP provides the F-16 with the Joint Helmet-Mounted Cuing System, the ability to carry both HARM targeting pods and electro-optical targeting pods simultaneously, Link 16 data transfer system, and other improvements to make the aircraft more effective and relevant. Only Block 40 and later Falcons are getting the CCIP, because the earlier ones are expected to phase out before such capabilities become truly critical. The Block 50 and 52 F-16s already have the CCIP; it brings the older aircraft up to a similar configuration.

When F-16s reach the 8,000-hour mark, however, it remains to be seen whether they will have to be withdrawn from duty or whether they can continue in service a while longer. Forsythe said those decisions will be made on an individual basis.

"The airplane can fly for quite some time," Forsythe said. When it would

have to be retired "depends on how you treat it."

However, for planning purposes, the Air Force expects to withdraw the last F-16 from service in about 2025. By that time, under current plans, the Air Force will have about 620 F-35s. By comparison, the Air Force today, including active and reserve components, has about 1,300 F-16s.

The F-15 story will be more expansive. The Air Force has about 720 F-15C/D aircraft in active and Guard service combined, providing front-line control of the air both at home and abroad. The service plan is to replace a large portion of the air superiority F-15Cs with the F-22. However, to cover all its bases, the Air Force will still need to augment the F-22 with the F-15 beyond 2025. By then, the F-15 will have been in service for more than 50 years, and those still flying will be more than 35 years old.

Of the F-15C fleet, the Air Force plans to retain 178, which it has already identified by tail number. Like the F-16s, these aircraft have been chosen because of their relative youth, health and a history of being good maintenance performers. The Air Force calls it the "golden fleet," and those in it are being called "Golden Eagles."

Those that don't make the cut to be Golden Eagles will be retired at the rate of about 20 per year between now and 2018—roughly mirroring the delivery rate of the F-22, at least through 2010—then between two and 10 per year through 2025, according to Brian Dillon, an analyst with CPM Solutions, which is advising Air Combat Command on management of the F-15 fleet.

The 178 Golden Eagles will be the ones to get a comprehensive upgrade, both in structure and capability. The biggest feature of the upgrade is to replace the F-15's analog radar with a new, active electronically scanned array radar, or AESA, of a kind now being fitted to the Navy's F/A-18E/F Superhornets, and which come as standard gear on the F-22 and F-35.

The AESA—in this case, the APG-63(V)3—offers many more modes of operation, more simultaneous functions, greater range, and higher reliability because it is a solid-state system without moving parts. Care of the old analog radar has always been a major driver of F-15 maintenance hours.

Golden Eagles will also get a new combined Global Positioning System/Inertial Navigation System, new radios, digital video recorder, new identification, friend or foe systems, a helmet-mounted targeting system like that on the F-16, and "anything else we come up with between now and 2025," Dillon said. Other candidate improvements include new electronic warfare gear, a new central computer, and improved Link 16 systems. The Golden Eagles will be "the priority airplanes" to get the new equipment as it becomes available.

Moreover, the entire F-15C fleet will be powered by the Pratt & Whitney F100-PW-220, the last and most advanced version of the original F100 engine.

There will be a host of structural replacements, too, including wiring—which has started to rot on some early aircraft—new ribbing under weapons stations, and replacement of some of the flight-control system.

For several years, some F-15Cs have been flight-restricted, unable to go to their maximum potential speed or G-loading, because of age-related problems with the vertical stabilizers. There have been episodes where the verticals have become delaminated at high speed. (See "When Aircraft Get Old," January 2003, p. 30.) A repair is being done when the aircraft go through depot maintenance; Golden Eagles will all be fixed within the next three years.

However, Dillon said, the Golden Eagle program does not amount to a rewinging or reskinning.

An industry official said the F-15 was "overdesigned" back in the 1970s and, while it was originally specified to have a life of about 4,000 hours, the fleet is now expected to easily surpass 8,000 hours without a major SLEP. With "average" or benign usage, the F-15 could even double that figure again, to around 16,000 hours. An Air Force official noted that the F-15, being a large airplane, has "a lot of real estate inside," making it easier to install both structural and capability upgrades.

Dillon said the idea is to upgrade the 178 Golden Eagles as soon as possible. The structural upgrades, most of which are already funded, will add years to the life of the airplanes only if the work is done on the front end of the life extension. Funding for most of the capability improvements will await future budgets.

The Golden Eagles will be used in those parts of the world where the penetrating qualities of the F-22—particularly stealth, sensor fusion, and supercruise capability—are not essential to success in the air. That could be a domestic mission or one against an adversary that lacks a sophisticated integrated air defense system. The AESA radar will give the F-15C a capability against cruise missiles, which the current versions cannot easily defeat.

The Golden Eagles will serve in both the active and Guard forces.

As for the F-15E Strike Eagles, Dillon said they are all considered to be of the "golden" variety already, being much younger than the F-15Cs and having benefited from newer technology both at production and in subsequent upgrades.

"Right now, the entire inventory of E Models are Golden Eagles, if you will,"

USAF photo

Airmen perform maintenance on an F-15 during Phase 1 of an operational readiness Inspection at Langley AFB, Va.

Dillon said. "They're all on the [combat air forces] roadmap past 2025. All 224" of them. There are no structural upgrades planned for the F-15E fleet right now. However, the F-15E will get a radar upgrade "similar" to that on the F-15C fleet, and it will also be among the first to employ the Universal Armament Interface, a new pylon system that will allow the airplane to carry practically any munition in the USAF inventory.

Perhaps the most dramatic aspect of the Air Force fighter roadmap is that involving the A-10, an aircraft the service has moved to retire several times in the last decade. Now, rather than phase out the venerable Warthog, the service plans to retain the type at least to 2028, through the use of a comprehensive life extension program.

The program, known in an earlier iteration as "Hog Up," will see 223 A-10s receive all-new wings, "wingtip to wingtip," according to Lt. Col. Don Henry, the A-10's modernization requirements director for ACC.

The wings will be "100 percent brand new," he said, with replaced "flight controls, new fuel pumps for the fuel tanks in the wings," and new wiring. The factory-fresh wings will be externally "identical" to those with which the A-10 has been flying since late 1975.

Out of the 715 A-10s that were produced from 1975 to 1984, there are 356 still in service, and at least 223 of those are expected to be retained in the inventory until 2028.

The wing replacement became necessary when ACC discovered that a number of early A-10s, those with thinner wing skins than later versions, were suffering from wing cracks that couldn't be repaired.

"It was fortunate that we had a lot of jets out on the boneyard" at Davis-Monthan AFB, Ariz., Henry noted. For a time, the old airplanes could be salvaged for parts to keep the A-10s flying.

"That helped us up to a point," Henry said, but as the situation with the F-22 and F-35 evolved, it became clear the A-10s would have to serve a good deal longer than expected. Thus, the SLEP became more elaborate.

The drawings for the A-10 still exist, but not the tools. A competition will be held for design and production of the new wings. Early response from industry indicates that the Air Force underestimated how much the program would cost, "so we're a little bit short up front" in funding, Henry said. However, there's enough money to get the program started. The Air Force expects to get the first, low-rate production wings delivered in 2010 and then modify 40 A-10s a year until 223 have been equipped. The program is expected to cost $1.5 billion for the new wings alone.

USAF photo by Capt. Justin T. Watson

An A-10 Thunderbolt II pulls away after refueling over Afghanistan last December. After numerous brushes with retirement, the A-10 will get a major upgrade.

Along with the new wings, the A-10s will get some other structural repairs and a capability improvement known as "precision engagement." It will equip the Warthogs with all the newer Air Force weapons, the ability to carry new targeting pods—either Sniper or Litening—the Universal Armament Interface, data links, a boost in DC power, new cockpit displays, a new processor, and other enhancements.

The precision engagement modification is already under way; 30 A-10s have already received it and the rest will cycle through at the rate of six per month between now and 2011.

Moseley has said that he considers improving the A-10 engines a high priority, but the funding to update the engine had to be sacrificed to pay for the wing replacement. (See "Washington Watch: Building Better Warthogs," September 2006, p. 16.)

The propulsion upgrade program, or PUP, envisioned by the service would allow the A-10's TF34 engines to provide up to 30 percent more thrust, Henry said. There's no money to develop the change, but the requirement is carried as a high priority if funds do become available.

"That program is suspended, ... on hold," Henry said.

"Any self-respecting fighter pilot wants to have more power, but it's one of those tough decisions. ... What it comes down to [is] 'bang for the buck.' There are other things that would be more important to the A-10." While an engine improvement would improve survivability of the airplane, the wing replacement is a more urgent "sustainment" issue, Henry said.

The Air Force had to "mortgage the PUP," Johns said, "but we still want to do that."

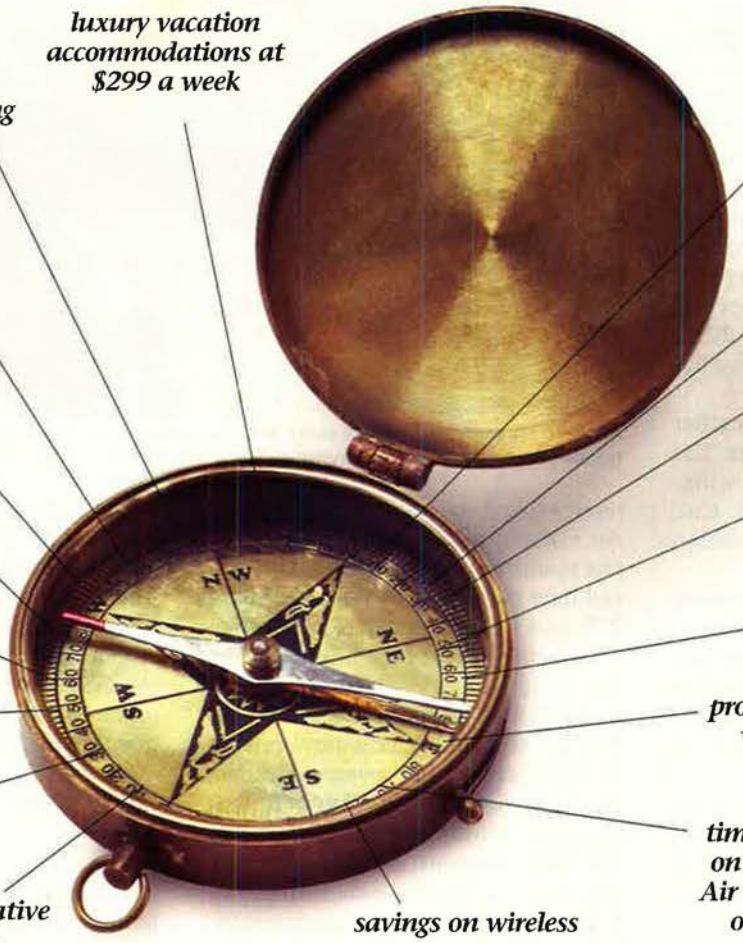
The entire fleet of A-10s will be of an identical configuration once all the modifications have been made—a far cry from just a couple of years ago, when ACC was considering the possibility of having to divide the fleet among deployable and nondeployable Warthogs.

Johns said that he foresees no game-changing developments in fighter technology in the near future that would allow the Air Force to radically alter its plans. However, he said the service is gaining a great deal from networking technology that allows ever-better effectiveness in putting aircraft where they are needed, at the time they're needed.

"Horizontal integration of [sensor information], ... the traditional sensors, the nontraditional ISR platforms, is going to be huge," he said. He said it is important to be able to distribute the unprecedented situational awareness of the F-22 to all aircraft in the fleet, but acknowledged that doing so will take money and time to accomplish.

"I think we're doing it as fast and as prudently as it should be done," he asserted. ■

Where Can You Get...



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The Keeper File

Orville Wright Plays Hardball

The 1903 Wright Flyer—the first working airplane—hangs in the National Air and Space Museum, but it took 45 years to reach Washington, D.C. For 20 of those years, it was on display in a British museum. Orville Wright sent it there.

In the 1920s, Orville—his brother Wilbur died in 1912—was feuding with the Smithsonian Institution about its claim that its late secretary, Samuel P. Langley, produced the first flightworthy airplane. Greatly angered, Orville in 1928 sent the Flyer to the London Science Museum. His public explanation suggested he believed that hardball tactics would force the museum to see things his way.

He was right. The loss of the Flyer became a huge issue in the Twenties, Thirties, and Forties. Eventually, the Smithsonian caved, conceding the Wrights' claim. The priceless relic came home in 1948.

"Why the 1903 Wright Aeroplane Is Sent to a British Museum"

Orville Wright
US Air Services Magazine
March 1928

Find the full text on the Air Force Association Web site
www.afa.org
***Air Force* Magazine**
"The Keeper File"

I have sent our original 1903 machine to the British National Museum because of the hostile and unfair attitude shown towards us by the officials of the Smithsonian Institution.

While Professor [Samuel P.] Langley was secretary of the Smithsonian, all of the relations between that institution and ourselves were friendly. At that time Wilbur and I were universally given credit not only for having made the first flight, but for having produced the first machine capable of flight and for the scientific research from which this first machine sprang. ...

After Professor Langley's death, the attitude of the Smithsonian began to change. The institution began a subtle campaign to take from us much of the credit then universally accorded us and to bring this credit to its former secretary, Professor Langley. ...

It misrepresented in the *Annual Report* of the secretary for the year 1910 (p. 23) the statement made by my brother, Wilbur, at the time of the presentation of the Langley Medal to us by inserting a quotation not used by him on that occasion, but used in a different connection at another time. The improper use of this quotation created a false impression over the world that we had acknowledged indebtedness to Langley's scientific work; that it was Langley's scientific work and our mechanical ingenuity that produced the first flying machine. This was not true. ...

Our original 1903 machine was offered in 1910 to the Smithsonian for exhibition in the National Museum. The officials did not want it, but preferred a much later model of less historic interest.

After the United States Circuit Court of Appeals had given a decision pronouncing Glenn H. Curtiss an infringer of the Wright invention and recognizing the Wrights as "pioneers" in the practical art of flying with heavier-than-air machines, Curtiss was permitted to take the original 1903 Langley machine from the Smithsonian to make tests in an attempt to invalidate this title of "pioneer," for purposes of another lawsuit. The Smithsonian appointed as its official representative at these tests the man who had been Curtiss' technical expert in the former suits and who was to serve again in that capacity in a new one. It paid Curtiss $2,000 towards the expense of the tests.

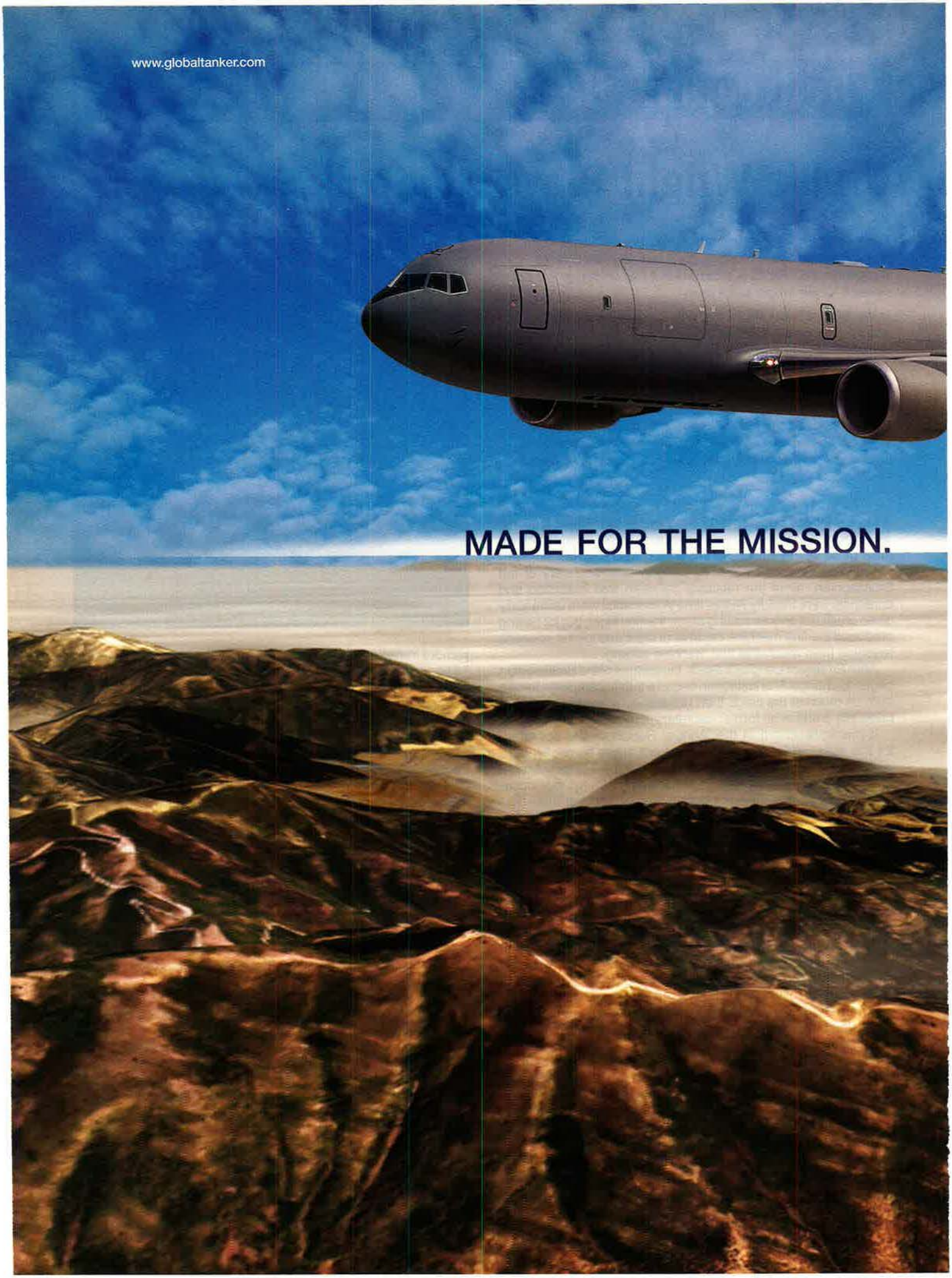
It published false and misleading reports of Curtiss' tests of the machine at Hammondsport, leading people to believe that the original Langley machine, which had failed to fly in 1903, had been flown successfully at Hammondsport in 1914, without material change. (See *Report* of the National Museum, 1914, pp. 46, 47. Smithsonian *Report,* 1914, pp. 4, 9, 217-222.) These reports were published in spite of the fact that many changes, several of them of fundamental importance, had been made at Hammondsport, among which were the following: Wings of different camber, different area, different aspect; trussing of a different type, placed in a different location; Langley's fixed keel omitted; motor changed by substituting different carburetor, different manifold, and different ignition; propeller blades altered; hydroplane floats added; wing spars, which collapsed in 1903, reinforced; tail rudder made operable about a vertical axis and connected to a regular Curtiss steering post; small vane rudder replaced by a large rudder of different design.

This machine, restored back to its original form with much new material, the old having been mutilated or destroyed at Hammondsport, was placed in the National Museum with a false label, saying that it was the first man-carrying aeroplane in the history of the world capable of sustained free flight and that it had been successfully flown at Hammondsport, June 2, 1914.

Following the controversy on this subject three years ago, the old label was removed and a new one still containing false and misleading statements was put in its stead.

In spite of this long-continued campaign of detraction, for years I kept silent, with the thought that anyone investigating would find the facts and would expose them. I had thought that truth eventually must prevail, but I have found silent truth cannot withstand error aided by continued propaganda. ...

In sending our original 1903 machine to the Science Museum, London, I do so with the belief it will be impartially judged and will receive whatever credit it is entitled to. I regret more than anyone else that this course was necessary. ■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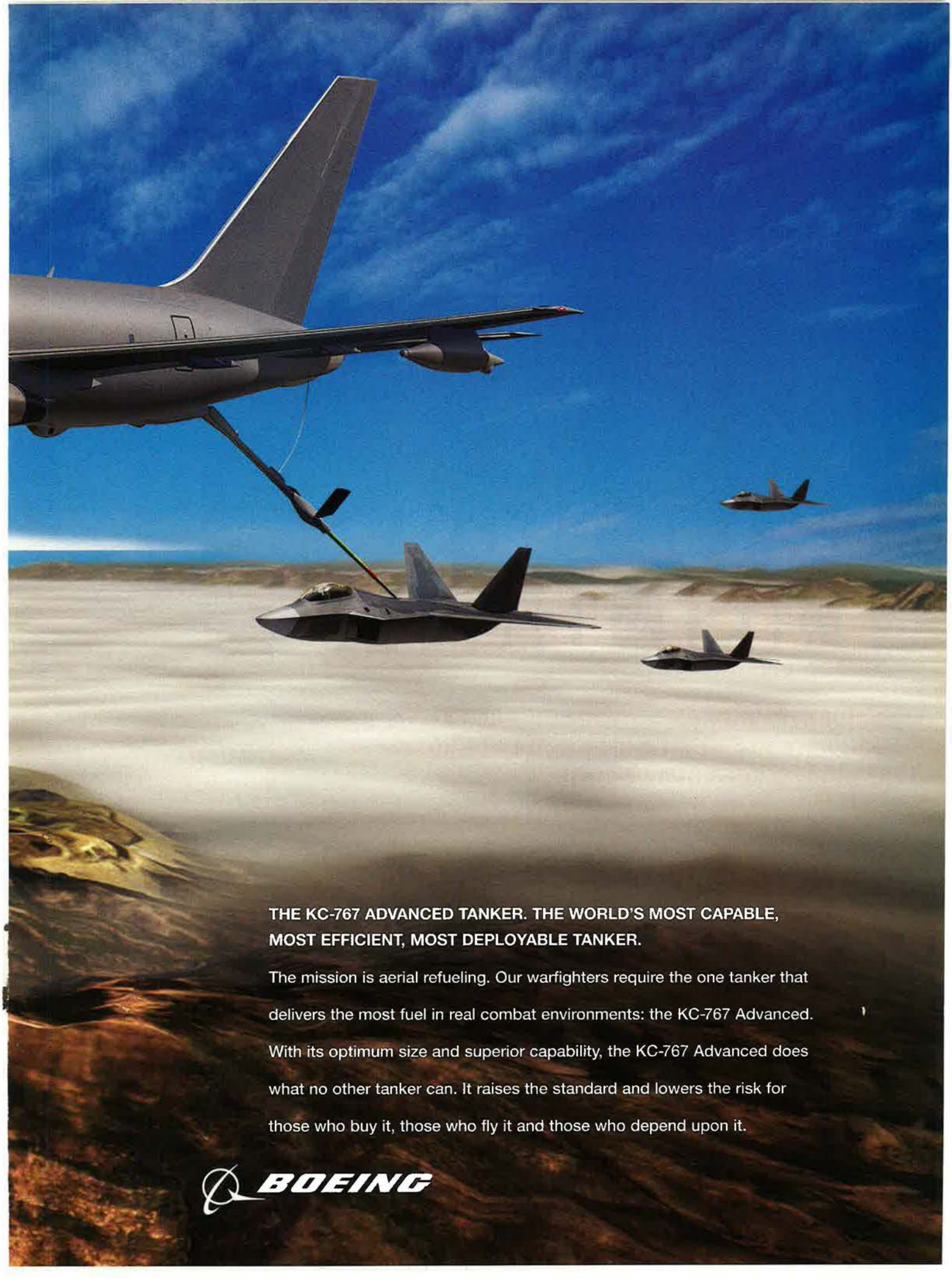
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BOEING

Bird Dog's Last Battle

Hilliard Wilbanks swept low over the advancing enemy, firing out the side window with his M-16 rifle.

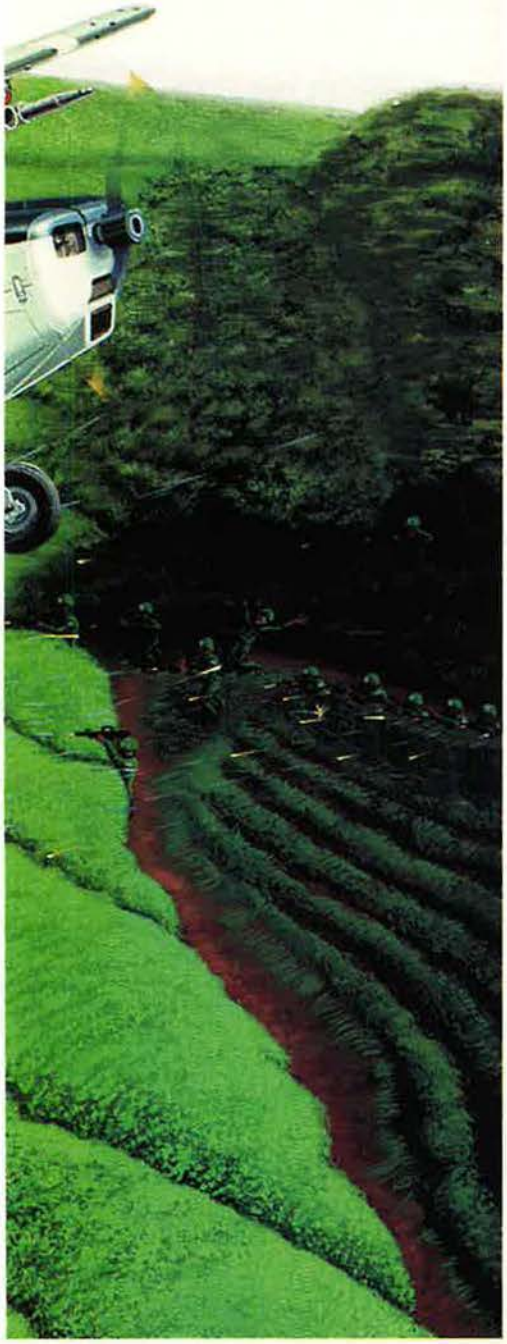
By John T. Correll

Habersham County is nestled in the foothills of the Blue Ridge Mountains in northeastern Georgia. The population today is only about 36,000. Forty years ago, it was even less, but despite that, seven of Habersham's sons lost their lives in the faraway war in Vietnam. One of them, Hilliard Almond Wilbanks, was posthumously awarded the Medal of Honor.

Hilliard Wilbanks grew up in the small town of Cornelia, where he played the piano at his church and was right guard on the football team. Opportunities in Cornelia were limited, so when he finished high school in 1950, Wilbanks enlisted in the Air Force. He then served almost four years as an air policeman in Strategic Air Command.

In 1954, Wilbanks qualified for the aviation cadets, and in 1955, he earned his commission and pilot wings. His first duty as an officer was as a T-33 instructor pilot at Greenville AFB, Miss. Subsequently, he was an F-86 Sabre pilot and an aircraft maintenance officer in Alaska and Nevada. In 1966, he trained as a forward air controller at Hurlburt Field, Fla., and went to Vietnam, where he flew the O-1E Bird Dog.

By Feb. 24, 1967, Wilbanks had flown 487 combat missions. He had already received the Distinguished Flying Cross and 17 Air Medals. He was scheduled to finish his tour and leave Vietnam on March 18. He already had orders for Laughlin AFB, Tex., where he would have been an instructor pilot in the T-37 flight training program.



He was eager to see his wife and four children, including twins who were born two weeks after he had left the United States for Vietnam. He had survived almost 11 months of dangerous duty, but his luck was about to run out.

No Guns, No Armor

The Air Force's forward air control system was disbanded after the Korean War and had to be rebuilt in 1962 for Southeast Asia. In Vietnam, there were no regular battle lines. Typically, enemy forces and targets were concealed by jungle cover and the situation on the ground was difficult to see from the air.

To help pilots put their ordnance on target and to lessen the risk of hitting allied forces and civilians, the rules of engagement required that all ground attack strikes in South Vietnam be directed by a forward air controller.

FACs flew low and slow in small spotter airplanes, conducting visual reconnaissance in the same area every day. They became familiar with the terrain and regular activity in their sector and thus would notice if any big changes took place. They knew the places where an enemy might hide. FACs were based with the Army units they supported, so the forces in action below were not strangers. Like Wilbanks, most FACs had previously flown fighters, so they also understood the problems and capabilities of the strike flights.

The first FAC aircraft in Vietnam was the lightweight Cessna O-1E Bird Dog. It could reach 150 mph in an emergency, but the normal cruising speed was 104 mph. The Air Force first obtained Bird Dogs from the Army, where they had been in service since 1950 with the designation L-19.

The O-1E had two seats, but FACs usually flew alone. The Bird Dog carried no ordnance except four 2.75-inch white phosphorous smoke rockets, used to mark targets. Small-arms fire from the ground could easily penetrate the cockpit.

Later in the war, FAC aircraft would add armor and weapons, but in the early days the pilots were starkly vulnerable. Fortunately, the Viet Cong understood that the FACs directed the attack fighters. To avoid bringing down an air strike upon themselves, they seldom shot at the FACs unless an engagement was already in progress.

At this stage of the war, FACs had a divided command structure. They were assigned to a support squadron at an air base for administration, maintenance, and supply. However, they lived with the Army, and their mission orders came through a different chain. The FACs' operational boss was an air liaison officer, or ALO, attached to an Army headquarters.

Wilbanks was assigned to the 21st Tactical Air Support Squadron at Nha Trang, but, in actuality, he worked for the ALO for the Central Highlands, Lt. Col. Norman Mueller. Mueller—a FAC himself—was attached to the US Army advisory team working with the South Vietnamese 23rd Division, headquartered at Ban Me Thuot.

Mueller and his FACs were responsible for the southern half of II Corps, the largest of the four military regions in South Vietnam. Their area covered

Photo courtesy of Wilbanks family

Far left: An Air Force Art Collection painting by Stewart Wavell-Smith, "FAC Tea Party," depicts Wilbanks' last mission. Left: Wilbanks in 1955 was a second lieutenant undergoing basic training at Laredo AFB, Tex.

Photos courtesy Wilbanks family

Wilbanks in Vietnam, where he was only weeks away from the end of his tour when he took off on Feb. 24, 1967.

seven provinces, about 10,000 square miles. Normally, Mueller had about 30 FACs, but replacements had been slow in arriving and in February 1967, only 12 were assigned. They flew numerous missions every day. "There were no holidays," Mueller said.

For most of his time in Vietnam, Wilbanks had been the senior sector FAC at Bao Loc, a provincial capital on the southwestern flank of the Central Highlands, about 100 miles north of Saigon. As the end of his tour approached, though, an opening occurred at Da Lat. "I reassigned Captain Wilbanks there in recognition of his hard work," Mueller said.

Ambush at the Plantation

Da Lat, higher up in the mountains, was considerably cooler and less humid than the coastal plain. South Vietnam's military academy was there. The climate was ideal for growing vegetables for the Saigon market. At these higher elevations of the Central Highlands, plantations with chest-high tea bushes predominated. The cultivated areas were interspersed with jungle.

Yet the roads and the railway south were often disrupted and harassed by the Viet Cong. North Vietnamese Army units passed through the area regularly. The NVA infiltrated down the Ho Chi Minh Trail in Laos, cut through Cambodia, and crossed the border into central South Vietnam. To intercept the infiltrators, US Special Forces manned outposts at 20-mile intervals and the 23rd Ranger Division of the South Vietnamese Army conducted regular sweeps in company strength or better.

On Feb. 22, 1967, an NVA battalion arrived in the area of Di Linh, about 15 miles from Wilbanks' former base at Bao Loc. There, the NVA regulars joined forces with the local Viet Cong. On Feb. 23, the communists captured a large tea plantation. They forced the owners and workers to help them build an ambush site on the two hills overlooking the road that ran north from Saigon to Da Lat. Laboring through the night, they dug hundreds of foxholes and several machine gun emplacements among tea bushes, all carefully camouflaged.

The next morning, unaware of the ambush, the South Vietnamese army company stationed at Di Linh notified division headquarters at Ban Me Thuot that it was heading out for its regular sweep of the area. The company walked into the ambush at the tea plantation and was all but annihilated.

The officers and the NCOs were killed. The radio bearer, who ¡ been cautioned to never let the enemy capture his radio, threw it down a well behind the plantation house. Thus, the ambush was not reported. The NVA dragged the dead out of sight, penned up the survivors with the other captives, and reset the ambush.

The day wore on and nothing was heard from the company. Around noon, two Ranger companies from Bao Loc set out to see what had happened. Capt. Daryl Westby, who had replaced Wilbanks as the sector FAC at Bao Loc, flew overhead reconnaissance. By late afternoon, Westby had flown three sorties but had not found either the missing ARVN company or the enemy unit.

Mueller, in his own O-1 Bird Dog, flew down from Ban Me Thuot to help. Army advisor Maj. Robert A. Snell

Wilbanks (flight suit) and two unidentified crew members show off their O-1 Bird Dog during a day in 1966.

Staff map by Zaur Eylanbekov

On Feb. 22, 1967, an NVA battalion and Viet Cong near Di Linh forced locals to help them build an ambush site.

came along in the back seat. They met Westby at Bao Loc. Mueller said they would take over the FAC job for a while to give Westby a break to eat and rest. Mueller was having trouble with the radio in his airplane, so he left it at Bao Loc and took Westby's Bird Dog instead.

Mueller called Wilbanks, who was airborne near Da Lat, and asked him to come join the search. Wilbanks had flown hundreds of reconnaissance and combat missions in the area. "He knew the isolated communities, the trails, the streams, the formidable jungles, [the] Green Beret activities, the tea plantations, and the native travel and work patterns better than anyone," Mueller said.

At Di Linh, Mueller and Snell saw the Rangers from Bao Loc approaching the tea plantation. Everything looked normal. Two flights of F-4 Phantoms were orbiting overhead, awaiting a call to action, but they were very low on fuel and had to leave. The most logical place for the enemy to be was a wooded area to the southwest, and Mueller directed the F-4s to expend their ordnance there in a single pass. They did so and headed home to Cam Ranh Bay.

The Trap Is Sprung

Wilbanks arrived and checked in with Mueller, who was busy with the F-4 strike. As the 23rd Battalion Rangers approached the tea plantation, Wilbanks flew visual reconnaissance ahead of them. He was in constant touch by radio with Army Capt. R.J. Wooten, the senior American advisor.

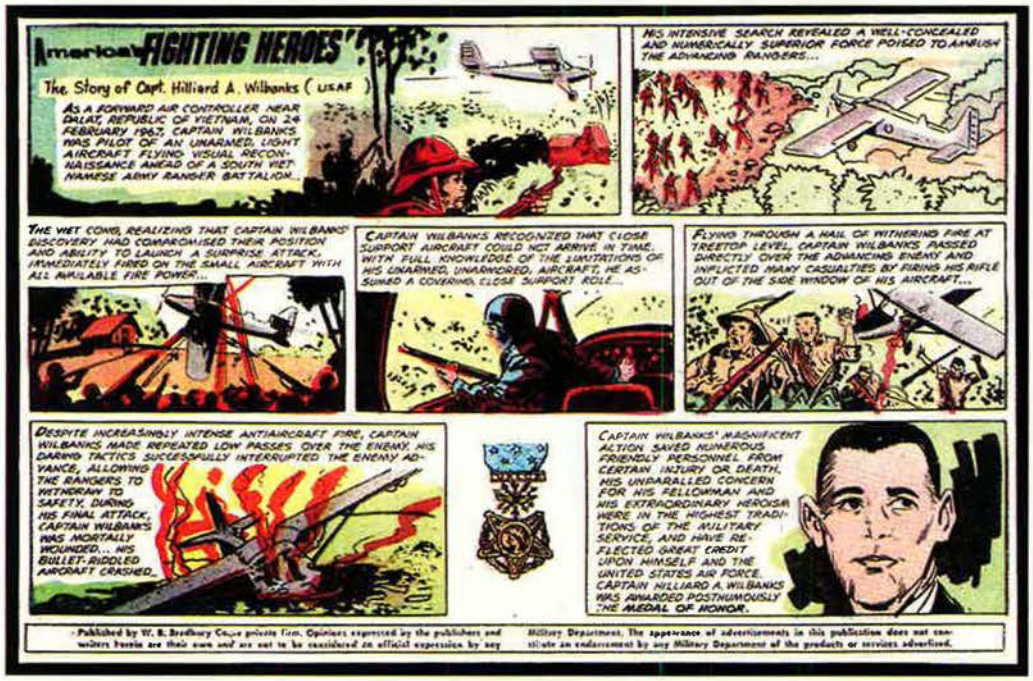
Three helicopter gunships were in the area in case Wilbanks needed them. Two more flights of fighters were on the way.

Wilbanks scanned the familiar slopes of the hills overlooking the road, looking for signs of change. He noticed lots of them, including the camouflaged emplacements among the tea bushes.

He had found the enemy force. He radioed a warning to Wooten that the Rangers were walking into an ambush. The NVA was either monitoring the FAC radio frequency or else sensed that


Photo courtesy Wilbanks family

North Vietnamese troops set the ambush in the Central Highlands near Di Linh, on the road between Saigon and Da Lat.



The tale of Wilbanks' last mission was told in this August 1968 issue of "Recon Record," published by American Armed Forces Features.

Wilbanks had seen them. Even though the Rangers were not yet fully in the crossfire, the NVA and Viet Cong opened up with everything they had. The trap was sprung.

Wilbanks quickly vectored the helicopter gunships onto the enemy positions. Wilbanks fired a smoke rocket to mark the target for the gunships as the whole hillside erupted with fire.

"My unit had been advancing eastward and the lead elements were working up a slope unaware of the prepared VC positions just ahead," Wooten said in his report of the action. "When the VC battalion learned their positions were discovered, they opened up on my forces and the two FAC planes above with 60 mm mortars, Czech 12.7 mm machine guns, .30-caliber machine guns, American BARs, and countless shoulder weapons. Two of my companies were pinned down and the forward elements suffered heavy casualties."

Two miles to the south, Mueller was flying low over the area bombed by the F-4s, looking for signs of the enemy force, and calling in a report to the Bao Loc sector command post. He was on the UHF radio frequency used by the fighters and did not hear the exchange between Wilbanks and the Rangers on the FM frequency.

Mueller did not know the enemy battalion had been flushed until a stream of .50-caliber tracers swept within a few feet of his airplane. Mueller put the Bird Dog into a vertical bank and pulled through several four-G turns before eluding the tracers. Then a second gun on the other side of the road opened up. This time, the tracers tracked Mueller for more than a mile before he ducked low behind a clump of trees to get away from them.

Meanwhile, the helicopter gunships, directed by Wilbanks, attacked the enemy positions and momentarily suppressed the ground fire. However, one of the helicopters took a .50-caliber hit in its hydraulic system. The pilot reported he might not be able to make it back to base. Wilbanks released the other two helicopters to accompany the damaged one as escorts.

Wilbanks Presses the Attack

The NVA and Viet Cong, seeing the gunships leave, boiled out of their foxholes and launched a fresh attack. They charged down the hill toward the exposed forward elements of the Ranger force.

The fighters would not arrive in time to help. Whatever was to be done from the air, Wilbanks would have to do himself. He took the Bird Dog down in a dive and fired a white phosphorous smoke rocket into the middle of the enemy ranks. That stopped the advance temporarily as the NVA turned their attention and fire toward the small airplane. Wilbanks attacked again, but his supply of rockets was soon gone.

The only weapon he had left was his M-16 rifle, which he carried for

Lt. Col. Norman Mueller was the air liaison officer for the Central Highlands, and Wilbanks' boss. On the day of the ambush, Mueller called in Wilbanks, who was airborne near Da Lat, and asked him to come join the search. Note, in this photo, the nine-foot-long, 20-pound python occupying Mueller's attention. He bought it for Army Special Forces men at Ban Me Thuot.

Several Air Force members gather under the sunscreen of a rudimentary maintenance shed that had been set up at the camp at Bao Loc.

self-defense in case his airplane was shot down and he had to defend himself on the ground. Three times Wilbanks swept low above the enemy force, firing his rifle on full automatic out the side window and changing clips between passes.

The M-16 was not in the same league as regular aircraft armament, but on full automatic, it spat out 700 rounds a minute and at the altitude Wilbanks was flying, the ground was well within lethal range. It was sufficient to slow down the NVA and Viet Cong and give the Rangers a chance to withdraw to a safer position.

Despite his evasive maneuvering, Wilbanks was an easy target for the enemy rifles and machine guns. "Each pass, we could hear his plane being hit," said Wooten.

Mueller, having shaken off the tracers, turned back toward the plantation and saw Wilbanks ahead, diving and jinking over the worst areas and firing on the enemy. "Twice I advised him to break it off and get some altitude, but got no response," Mueller said.

When the jinking movements stopped, Mueller knew that Wilbanks had been hit. "We joined on his left wingtip and could see his helmet slumped forward," Mueller said. "He was either unconscious or already dead. ... We flew in loose formation until he crashed."

"On the last pass, I estimate he was only 100 feet off the ground and directly over his objective," said Army Capt. Gary F. Vote, another American advisor. "He began making what appeared to be erratic moves, going first up, then down, then banking to the west. He then flew over my position. At this time, I felt he was wounded and looking for a friendly landing site, so I jumped up and waved my arms. However, as his plane banked again to the south, I could see that he was unconscious. His aircraft crashed 100 meters from my position."

Mueller reported, "The plane flew into the tea bushes at a very shallow angle and flipped onto its back right between the opposing forces." Mueller noted the time as 6:04 p.m.

Rescue Too Late

Wilbanks was still alive when Vote and two other Rangers got there. They cut away his harness and pulled him out of the bullet-riddled airplane. However, the Rangers and Wilbanks were pinned down beside the wreckage by intense fire from the hillsides.

Mueller summoned back the two helicopter gunships that had left on escort duty. They came sweeping in to attempt the rescue, but took heavy battle damage from the ground and had to pull out. Mueller put out an urgent call for "any Dust Off" (medevac helicopter) within reach of the area. An unarmed UH-1 Huey, airborne in the vicinity of Da Lat, responded.

To get in, the helicopter would have to avoid the kind of withering fire that had driven off the gunships. Mueller had the Huey approach from the west with the glare of the setting sun behind it and in the eyes of the gunners on the ground. To draw away the attention and fire of the enemy, Mueller made a pass at "moderately low altitude" on the eastern edge of the NVA position, then doubled back for another pass several hundred feet higher.

The distraction worked. The Huey swept in, almost without opposition, and picked up the Rangers and Wilbanks.

By this time, the strike forces had arrived and they obliterated the enemy position. The NVA withdrew to the south, pursued into the night by F-4s, F-100s, and A-1s, aided by AC-47 gunships dropping flares.

Photos courtesy Wilbanks family

Wilbanks' O-1, shown here after the crash, was a total wreck. With its pilot mortally wounded and unable to exert control, the Bird Dog flew into tea bushes and flipped on its back.

Medal of Honor presentation. Back (l-r), father Travis Wilbanks, Secretary of the Air Force Harold Brown, wife Rosemary Wilbanks, USAF Chief of Staff Gen. John McConnell, mother Ruby Wilbanks. Foreground, son Thomas and daughter Paula Ann.

The Huey headed to Bao Loc and medical help for Wilbanks, but it was too late. He died en route.

The Rangers lost 36 men in the ambush at the plantation, but it could have been much worse. The commander of the Rangers said later, "If it hadn't been for Captain Wilbanks' harassment of the enemy, my losses would have been two or three times as large."

"He did everything he could to stop the VC from taking our forward squads," said Sgt. 1st Class Clifton Tanksley, senior NCO advisor to the South Vietnamese Rangers. Tanksley had gone with Vote to pull Wilbanks out of the wreckage. "It looked for a while like nothing they could do would stop him because they were all firing at him. Me and all my men are proud to fight beside a man like him."

Medal of Honor

The Medal of Honor was awarded posthumously to Wilbanks for his actions in this engagement. It was presented to his wife, Rosemary Wilbanks, at the Pentagon, Jan. 24, 1968, by Secretary of the Air Force Harold Brown and the Air Force Chief of Staff, Gen. John P. McConnell. She was accompanied at the presentation by her two older children and by her husband's parents. Norman Mueller, who was to be a steadfast friend of the family in the years that followed, was there as well.

The citation for the Medal of Honor said that "Capt. Wilbanks recognized that close support aircraft could not arrive in time to enable the Rangers to withstand the advancing enemy onslaught. With full knowledge of the limitations of his unarmed, unarmored, light reconnaissance aircraft and the great danger imposed by the enemy's vast firepower, he unhesitatingly assumed a covering, close support role. ... His daring tactics successfully interrupted the enemy advance, allowing the Rangers to withdraw to safety from their perilous position."

In 1984, the Air Force presented the town of Cornelia a reproduction of Wilbanks' Medal of Honor portrait that hangs in the Pentagon. It was placed on display in the town library.

Most of the memorials and remembrances came later, though.

In September 2000, the Forward Air Controller Memorial was dedicated at Hurlburt Field, honoring the 219 FACs who were killed in action in Vietnam. Wilbanks is recognized by a bronze plaque on a pedestal near an O-1E Bird Dog aircraft. Mrs. Wilbanks was there to place a wreath, as was Angela Bennett, whose father, Capt. Steven L. Bennett, an OV-10 FAC, had also been awarded the Medal of Honor, also posthumously, for valor in Vietnam. (See "Impossible Odds in SAM-7 Alley," December 2004, p. 52.)

In April 2001, Wilbanks was inducted into the Georgia Aviation Hall of Fame at Warner Robins, Ga. It was a formal affair, at which Mueller spoke. Wilbanks' flying suit, blue service uniform, dog tags, notebook, and other personal items are exhibited there at the Museum of Aviation.

The Air Support Operations Building at Ft. Benning, Ga., was dedicated to Wilbanks in October 2001. Mrs. Wilbanks was presented the Vietnamese Ranger badge on behalf of the US Ranger advisors. In September 2003, USAF Pilot Training Class 55-P, of which Wilbanks was a member, sponsored a granite bench with his name on it at the National Museum of the US Air Force in Dayton, Ohio.

There have been numerous other remembrances as well. The most recent came at the new Air Force Memorial, dedicated in 2006 and overlooking Arlington National Cemetery and the Pentagon. Wilbanks' name, along with those of other Medal of Honor recipients, is prominently inscribed on a granite wall.

Wilbanks' hometown of Cornelia built a six-foot-tall, two-sided, black granite memorial marker, dedicated in July 2001. On its sides are a laser-etched portrait of Wilbanks, an image of his O-1E Bird Dog, and the citation for his Medal of Honor.

Mrs. Wilbanks placed a wreath and the memorial was unveiled by the four Wilbanks children, Paula Ann Wilbanks Tharp, Thomas Eugene Wilbanks, and the twins, John Hilliard Wilbanks and Deborah Louise Wilbanks Almand. Several of the Hilliards' grandchildren were there, as were other members of the family. Norman Mueller spoke, recounting the events of the Medal of Honor mission, and Jonathan Myer, who had known Wilbanks in FAC training, sang his composition, "Willie Wilbanks' One-Man War."

Air Force F-16s flew overhead in the missing man formation, and the International Bird Dog Association conducted a flyover in O-1Es. A light rain was falling, but 1,500 people—almost half the population of the town—turned out for the ceremony. The monument stands on the grounds of the Cornelia Community House, some 250 yards from where Hilliard Wilbanks was born. ■

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 Pentagon Papers," appeared in the February issue.*

Books

Compiled by Chequita Wood, Media Research Editor

Beyond al-Qaeda: Part 1: The Global Jihadist Movement. Angel Rabasa, et al. RAND, Santa Monica, CA (877-584-8642). 186 pages. $30.00 (download at http://www.rand.org/pubs/monographs/MG429/).

"Jump, Damn It, Jump!": Memoir of a Downed B-17 Pilot in World War II. Edward F. Logan Jr. McFarland & Co., Jefferson, NC (800-253-2187). 234 pages. $29.95.

Rumsfeld: His Rise, Fall, and Catastrophic Legacy. Andrew Cockburn. Scribner, New York (800-223-2336). 247 pages. $25.00.

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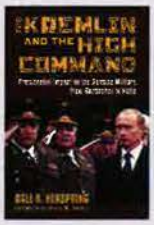

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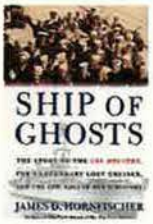

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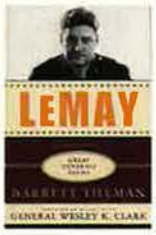

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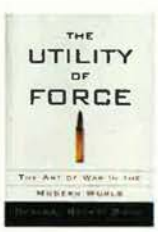

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Out in the Dakotas, the 28th Bomb Wing keeps the B-1B's edge sharp and ready.

BAD TO THE

The B-1B on takeoff is an awesome sight. This one belongs to the 28th BW, located at Ellsworth AFB, S.D.

B-ONE

Photography by Ted Carlson

With a sleek shape, swing-wing design, and four powerful jet engines, the B-1B is the fastest of Air Force heavy bombers. Like other aircraft, it has an official name—Lancer—which no one uses. What they really call it is "the Bone," a blending of "B" and "one." Some go further and call it "Bad to the Bone," recalling the raw rock classic by George Thorogood and the Destroyers. The 28th BW at Ellsworth AFB, S.D., is home to 29 of the big bombers.

Right: The B-1B's frontal shaping is no accident; it provided the first version of stealth in a US bomber.

Below right: A B-1B soars above the Great Plains.

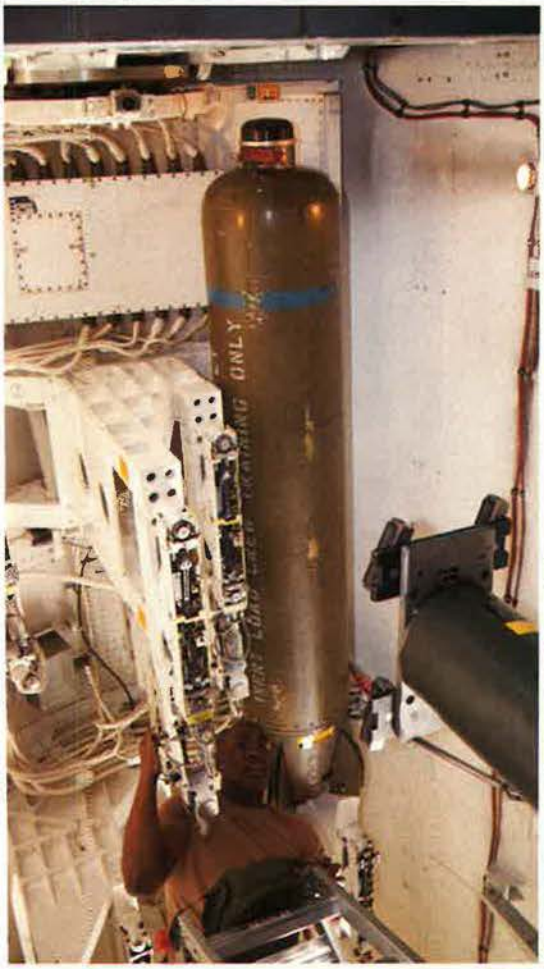
Below: "Sticks" of Mk 82 500-pound bombs fill up one of the B-1B's three cavernous weapons bays.

Clockwise from left: Lt. Col. Howard Shrum (l) and Capt. Donovan Davis pilot a B-1B back to Ellsworth. Note the bank angle. • A B-1B skirts Rapid City, S.D., Ellsworth's host city. • Capt. Jesse Hamilton exits through a B-1B crew door after a long flight.

The bomber's maintenance once was a headache, but the B-1B is now a strong performer.

Left: A maintenance crew tows a B-1B to the hangar for some TLC.

Clockwise from below: A B-1B shows its flying qualities, which more nearly approximate a fighter than a bomber. • A munitions crew loads a cluster bomb unit for transport to a B-1B. • Dark against a light background, a Bone begins a low-level bomb drop over Wyoming. • An ordnance crew member keeps close watch as he loads a cluster bomb on a B-1B.



Left: A B-1B lowers its gear and extends its slats in preparation for landing. The Bone can sweep its wings back to go fast or push them forward to get greater lift and range.

When conceived, the aircraft was supposed to serve as the bridge between the B-52—designed in the early 1950s—and a conceptual high-tech bomber—ultimately, the B-2. However, due to political delays, the B-1B was bought just before the B-2.

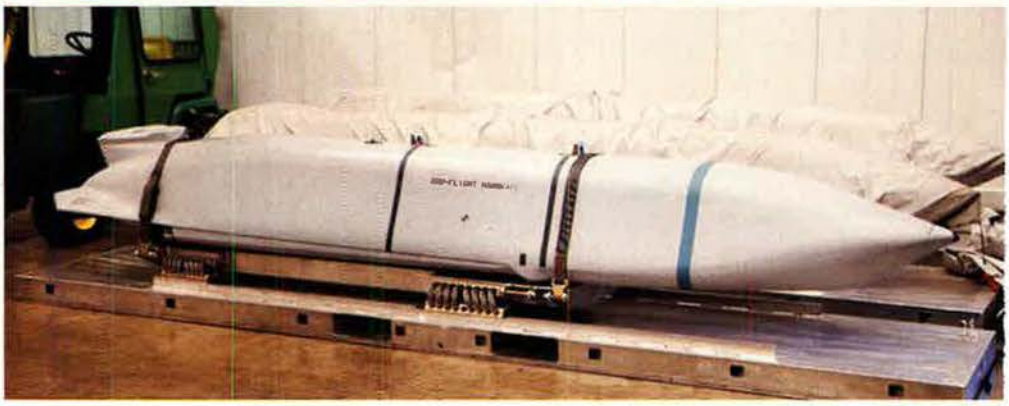
The B-1B almost didn't make it to the Air Force inventory. President Jimmy Carter in 1977 canceled the program just as it was about to go into the production phase. President Ronald Reagan revived it in 1981. USAF bought 100 aircraft.

Right: A1C Amy Hall and A1C Raleigh White, 28th Security Forces Squadron, stand ready to repel intruders.

Below: With wings pushed far forward, the B-1B achieves its full span.

Below right: A trio of Mk 82 500-pounders reposes in the bay.

Clockwise from above: The B-1B Black Widow *shows off some of the modern nose art that adorns Ellsworth's Bones. • Support crew members keep on truckin' even in frigid Dakota winters. • A trio of stealthy AGM-158 Joint Air-to-Surface Standoff Missiles awaits loading.*



The B-1B soon will be equipped with Sniper targeting pods on an external mount for use with laser guided bombs. It also carries towed decoys, which play out from the tail to spoof any threatening missiles.

Left: In a right bank, this B-1B reveals its three weapons bays, one of which can be fitted with an extra internal fuel tank.

Below: Capt. Michael Brazda, a weapon systems operator, goes to work in his "office" behind the forward cockpit. WSOs alternate between the offensive and defensive systems stations to remain proficient at both.

Bottom: A B-1B banks over South Dakota's Black Hills, home of the famous Mt. Rushmore national monument.

Second above: B-1B ordnance crew members lift a Mk 82 bomb into one of the aircraft's huge bomb bays.

Directly above: Several Mk 62 Quickstrike sea mines await possible use. The B-1B also has a maritime mission; the munitions above can be laid on short notice at any ocean choke point.

Clockwise from right: A B-1B catches the light of dawn over a nearby training range, the Powder River military operating area, during one of many daily training flights. • The B-1B named Doolittle's Destroyer *reminds all that the 34th Bomb Squadron, part of the 28th BW at Ellsworth, contributed crew members to Lt. Col. Jimmy Doolittle's famous April 1942 raid on Japan. • Airmen load Mk 82s on a B-1B; a yellow stripe around the nose indicates the round is live.*

Above: A "JAMMR" bomb loader brings another round to a waiting B-1B, which can carry a mixture of weapons adaptable to many types of attack requirements.

Left: The B-1B's thin profile and dull gray camouflage blend remarkably well with the rolling Black Hills. Soon, the B-1B will receive a "glass cockpit" of modern instrumentation.

More than 30 years after it first appeared on the drawing board, the B-1B still looks state-of-the art—sleek, fast, and menacing. It is in greater demand than at any time in its service career. The average B-1B is 19 years old, still slightly younger than its junior crew members.

Counterclockwise, from left: A B-1B banks into a graceful turn. Note the wing-like canards near the nose; they smooth out low-level flight. • A Bone breaks formation and tears away toward some new destination. • Lt. Col. Howard Shrum maintains loose formation with another bomber. Note the fighter-like controls at his fingertips.

Left: B-1B crew members (l-r) Capt. Michael Sims, Capt. Jesse Hamilton, 1st Lt. Chad Hillen, and Capt. Cora Seidler walk the ramp at Ellsworth. Above, a B-1B heads out on another mission.

Most Ellsworth personnel have deployed to operations over Iraq and Afghanistan, and training for such real-world deployments is a never-ending challenge. ■

Operation Gomorrah

The devastating 1943 bombing of Hamburg shook the Nazi regime as never before.

By Rebecca Grant

Corbis photo

RAF Bomber Command all but annihilated the German city of Hamburg at the close of July 1943. In the view of Air Chief Marshal Arthur T. Harris, the attacks on the so-called "second city of the Reich" were "incomparably more terrible" than any Germany had suffered to that point. The name bestowed on this series of raids seemed to fit its wrath-of-God nature. The RAF called it Operation Gomorrah.

The redoubtable "Bomber" Harris was right. His Bomber Command threw 2,355 sorties at Hamburg in three massive nighttime raids on July 24-25, July 28, and July 30. The United States Army Air Forces also flung itself into the attacks; Eighth Air Force, based in Britain, generated 235 daylight sorties in two raids during July 25 and July 26.

The main result was a horrendous July 28 firestorm that killed more than 40,000 persons in and around Hamburg. Most died of asphyxiation while huddling for shelter in their basements, or in the above-ground flames and melting asphalt of the streets.

By contrast, the Luftwaffe's Nov. 14, 1940 firestorm-bombing of the English city of Coventry killed 538 Britons.

The Hamburg raid was a shock to the Fuehrer, Adolf Hitler, and his air force chief, Hermann Goering. Former reichsminister Albert Speer wrote years later, "Hamburg had suffered the fate Hitler and Goering conceived for London in 1940."

The situation looked very different

Above and left: The remains of buildings in Hamburg after the RAF's devastating Raid Two on July 28, 1943. The RAF dropped more than 2,326 tons of bombs there.

from the Allied side. Harris described the RAF's own losses (57 aircraft in the three raids) as "minute." Hamburg's fate, in British eyes, could only be called just. "What happened at Hamburg was what happened when Bomber Command 'got everything right,'" wrote historian Martin Middlebrook in his definitive 1980 account of the attacks, *The Battle of Hamburg.*

Few doubted that Bomber Command had taken the World War II air war to a new level.

Total Air War

It was a level that had been conceived—even expected—a decade earlier. Prosecution of "total war" on cities and civilians as well as armies was part of interwar military thought in both England and Germany. In 1932, British Prime Minister Stanley Baldwin famously predicted, "The bomber will always get through. The only defense is offense, which means that you have to kill more women and children more quickly than the enemy [does] if you want to save yourself."

The concept resonated with the Luftwaffe, according to American historian Williamson Murray. One Luftwaffe theoretician argued in May 1933 that "terrorizing of the enemy's chief cities and industrial regions through bombing would lead that much more quickly to a collapse of morale."

When war finally came, the Luftwaffe soon executed city-busting raids on England, notably in the blitz against London and the firebombing attack on Coventry. Nearly three years later, it would be the cities of the Third Reich suffering the effects of these tactics.

Despite the drift of strategic talk in the 1930s, neither the Luftwaffe nor the RAF built top-class strategic bomber fleets before the war. At Bomber Command, the first years of the air war featured only desultory bombing activity. Initial results were poor and losses high.

Then, in September 1941, Prime Minister Winston Churchill approved a plan to build 4,000 bombers, devoting one-third of the British war production capacity to the effort.

Churchill believed a bomber offensive against Germany was a way of "breaking her war will," and he ranked the importance of the effort "second only to the largest military operations which can be conducted on the Continent."

Churchill put Harris in charge of Bomber Command in early 1942. When it came to faith in the power of the bomber, there was no bigger believer than Harris. (See "Bomber Harris," January 2005, p. 68.) He took over a command that was expending more than a quarter of its effort against naval targets, a policy he ridiculed as "frightening cod." The campaign against German industrial targets got about the same level of effort.

Harris redirected the command's focus, turning it to the generation of mass city bombing.

The choice of tactics came from experience, not theory. Harris in 1942 had tried low-level daylight bombing with his new Lancaster bombers. The results had been disastrous, with the RAF losing many bombers for little gain. From a tactical perspective, Harris thought, the British experience showed that the only way to achieve results was to fly at night and to carpet-bomb entire city areas.

"Hit the Workers"

Harris pursued cities for tactical reasons, but he had a clear operational premise, too. "De-housing" the German workers—and killing many of them along the way—could be as effective as blowing up factories, he concluded. Churchill's science advisor, Lord Cherwell, calculated that 22 million Germans lived in the Reich's 58 largest cities and that turning them out of their homes would weaken German morale.

"If you can't hit the works, hit the workers," Harris said in a famous, and infamous, formulation.

Ultimately, Bomber Command would do both. By the summer of 1943, Harris had built and trained a force geared for taking part in 1,000-aircraft night attacks on German cities. The Americans were ready for mass raids, too. However, the Allies faced a major problem: The air war in mid-1943 had not yet turned decisively in favor of the Allies, and, until it did, the whole plan for the Normandy invasion was at risk.

The most important task was gaining air superiority. Here the Allies were in a tough contest. The more they bombed Germany, the more fighters the Nazis pulled from the Mediterranean and other theaters to stiffen defenses. The Great Depression of the 1930s had left Germany with tremendous industrial overcapacity; war leaders quickly exploited this, and German fighter production actually grew in 1943.

The air war was at a crossroads. London and Washington, being slow in building their strength, had to use their bombers to cripple German industrial production before it was too late. The Americans geared up for August attacks on Schweinfurt and Regensburg. Harris picked Hamburg.

Many factors made Hamburg an ideal target. It was an industrial city, home to Blohm & Voss shipyards and hundreds of other, small manufacturers grouped around the city center. In addition, flying

Photo by Heinrich Hoffman, © Bettmann/Corbis

Adolf Hitler and Hermann Goering were shocked by the raids. Former reichsminister Albert Speer wrote, years later, that "Hamburg had suffered the fate that Hitler and Goering conceived for London."

to Hamburg would be easier than flying to most other German cities. To reach Hamburg, the bomber stream could fly eastward over the North Sea, slip past anti-aircraft guns and night fighters in occupied Holland, and reach Hamburg without having to fly over more than a sliver of German land.

RAF Bomber Command crews had bombed Hamburg several times before, but this mission was different. Bomber Command had top-notch Lancaster bombers, trained crews, technical advantages, and a daylight partner in Eighth Air Force. Now, as Harris said, "for the first time, the command found itself in a position, under suitable conditions, to inflict severe material damage on almost any industrial center in Germany."

Harris also had an ace in his sleeve. It was a supersecret radar electronic countermeasure, code-named Window. For more than a year, the RAF had been holding back on the use of Window, but Bomber Command pulled it out for the first Hamburg raid on the night of July 24-25, 1943.

Window was a huge advantage. One of the biggest problems confronting Bomber Command was the deadly combination of Luftwaffe night fighters and the radar warning system that controlled them. Grid boxes covered occupied Europe and each contained a night fighter—typically a Bf-109 or Bf-110—equipped with short-range cockpit radar. Prong antennae stuck out from the noses of the night fighters and gave their radars a range of about four miles in a 70 degree cone. The best, such as the He-219, could bag Lancasters seemingly at will and even take down the 400 mph Mosquito light bombers.

Long-range Freya radars picked up bombers at their assembly points about 80 miles from the British coast. From early 1942, the Luftwaffe also had a dense line of Wurzburg radars that gave ground controllers accurate vectors to the bombers. The Wurzburgs also assisted flak gun-laying.

Fool the Wurzburgs

Window's job was to fool the Wurzburgs. Window was tested and ready by early 1942, but then a strange self-deterrence took over and the RAF declined to use it.

Harris said the overriding reason the system did not go into use was the government's "fear of retaliation in kind at a time when our own radar defenses could have been obliterated by the enemy use of Window." However, Harris scoffed at this concern. It was folly, he thought, to assume the Germans didn't know about electronic countermeasures.

"The biggest mistake anybody can make, militarily," Harris said, "is to credit themselves with being so damn clever that, between two evenly balanced industrial nations, you dare not disclose a particular weapon or device to the enemy for fear of giving him something he doesn't already have."

As the Hamburg raids approached, "the power of the enemy defenses required drastic counteraction," said Harris.

"The morning of July 24, 1943 began as a summer day should, warm and bright," wrote RAF Flight Lt. A.J.F. Davidson, who was already a veteran of 39 bomber missions over Europe. Soon word came that "ops" were on for the night and "my gut began its familiar crawl."

For the 791 bomber crews who took off for Hamburg that night, Window was a new device. More than a few of them had doubts about whether it would work over heavily defended Hamburg.

Certainly the device didn't look like much. Thin aluminum strips, blackened on one side, were tied in bundles. A crew member crouched over a flare chute deep in the fuselage and hand-dispensed one bundle per minute until his bomber was out of Wurzburg range.

With more than an hour's warning from the Freya radars, Hamburg's intricate defenses swung into action. Civilians took to shelters. Searchlights

In this famous photo taken from above, an RAF Lancaster bomber flies over Hamburg on one of the raids that destroyed the German industrial city.

Air Chief Marshal Arthur Harris (shown here at RAF Bomber Command headquarters) believed the best way to achieve results was to fly at night and to carpet-bomb entire city areas.

swept the skies and flak batteries slewed to engage the enemy aircraft.

Then the Window clouds flooded the Wurzburg radar screens with false returns. Ground control operators lost contacts. This version of Window befuddled cockpit radar, too. On the night fighter scopes, Window clouds forced the fighters to freelance, using only visual cues. Their only option was to turn back into the bomber stream and try to pick out the silhouette of a big four-engine Lancaster.

Window caused the crumbling of the integrated German defenses. Bomber crew reports after the first attack described searchlights waving aimlessly. RAF signals intelligence confirmed the confusion of the ground controllers hit with Window.

The first RAF raid was a success, shutting down parts of the water system, for example. Large-scale fires flared up again and again.

Fire Typhoon

It was the RAF's Raid Two that began the firestorm.

The RAF did not expect this. Hamburg's brick buildings and waterways seemed to render it a less-than-ideal target for incendiaries. Also, a major fire in 1842 had already taken out medieval timber buildings still found in some German city centers, such as Dresden.

Consequently the bomb loads on the July 28 raid combined high explosives plus batches of the four-pound incendiary sticks. More than 700 aircraft of the main force dropped 2,326 tons of bombs in a concentrated area about two miles from the city center. Incendiaries started thousands of fires. Hot, dry weather played a part.

Then came the conflagration.

"About half way through the raid, the fires in Hammerbrook started joining together," noted an official RAF history. Superheated air of 600 degrees centigrade generated suction in the narrow streets and spun tempests where the "overheated air stormed through the streets with immense force," according to a contemporary German Army report.

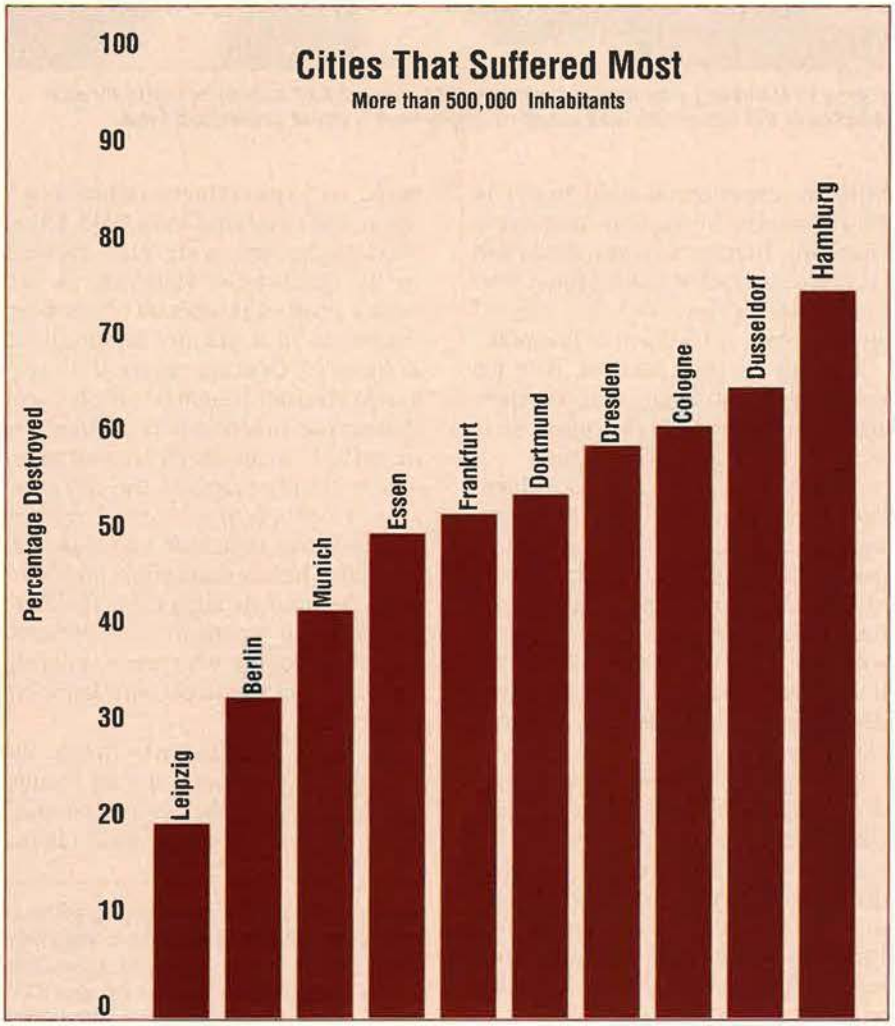
Suddenly, the whole area became one big fire, with surrounding air drawn into it with the force of a storm. The RAF bombing continued for another half-hour, spreading the firestorm area gradually eastward. It is estimated that 550 to 600 bomb loads fell into an area measuring only two miles by one mile.

The firestorm raged for about three hours and only subsided when all burnable material was consumed. Sixteen thousand apartment units vanished, along with more than 40,000 people. A German report called it a "fire typhoon such as was never before witnessed, against which every human resistance was quite useless."

Human tales—some inflated for propaganda purposes, yet all devastating—told of the horror. A policeman wrote of finding a girl, black with soot, wandering aimlessly and dragging her dead little brother behind her. Official records put the dead at 13,000 men, 21,000 women and 8,000 children.

Rattling the Reich

Bomber Command, protected by



For sheer devastation, Hamburg was No. 1.

Staff map by Zaur Eylanbekov

Flying to Hamburg was less dangerous. RAF and USAAF bombers could fly eastward over the North Sea and cross no more than a sliver of German land.

Window, experienced light losses in the July raids. On previous missions to Hamburg, Bomber Command had lost six percent of each attacking force. This time, however, losses totaled only 57 aircraft—just 2.4 percent of the total.

Beyond the light attrition, both the immediate bomb damage and the ripple effects in Germany high politics were victories for Bomber Command.

"When the smoke cleared," Harris later wrote, photos showed "the heavily damaged areas" covered at least 74 percent of Hamburg's closely built-up residential districts. The city docks and four main shipyards were damaged, with power and transport at a standstill. It was World War II's first widespread destruction of a major city. It would not be the last.

Hamburg's survivors demonstrated determination, but more than a million moved out of the city. Yet it wasn't the workers who were rattled. It was Nazi officialdom. For the first time, after almost four years of war, the devastating Hamburg attacks led many in the Nazi leadership to wonder whether Germany would be able to find a way out.

"The first heavy attack on Hamburg made an extraordinary impression," Speer told interrogators in 1945. Other Nazi higher-ups were also stunned by the bombing of Hamburg. A city with a million inhabitants "has been destroyed in a manner unparalleled in history," Goering reported. Propaganda Minister Joseph Goebbels wrote that regime functionaries in Hamburg described "a catastrophe the extent of which simply staggers the imagination." Goebbels thought food, shelter, clothing, and evacuation transport all presented nearly impossible problems after the raid. He added that the local Nazi official "spoke of some 800,000 homeless people who are wandering up and down the streets not knowing what to do."

To historian William L. Shirer, the greatest damage was "to the homes and the morale of the German people." Shirer remembered how lurid reports of Luftwaffe bombing of England had "buoyed up" German hopes for a quick victory early in the war. Those hopes, naturally, evaporated in an instant. Germany's military leaders could not deny the consequences. Hamburg, coming on top of the disasters on the Soviet front, brought home to many that Germany was heading for doom.

Speer said in 1945: "It was I who first verbally reported to the Fuehrer at that time that a continuation of these attacks might bring about a rapid end to the war."

It was not to be. In 1943, the power to capitulate was held by only one person—Hitler. His flunkies might be terribly shaken, but Hitler was not. He refused to visit any bombed cities despite the pleas of Goebbels and others that he do so.

Beginning of the End

Harris and Bomber Command did not win the war at Hamburg. The Allies couldn't know it at the time, but they faced nearly two more years of hard fighting and tough losses.

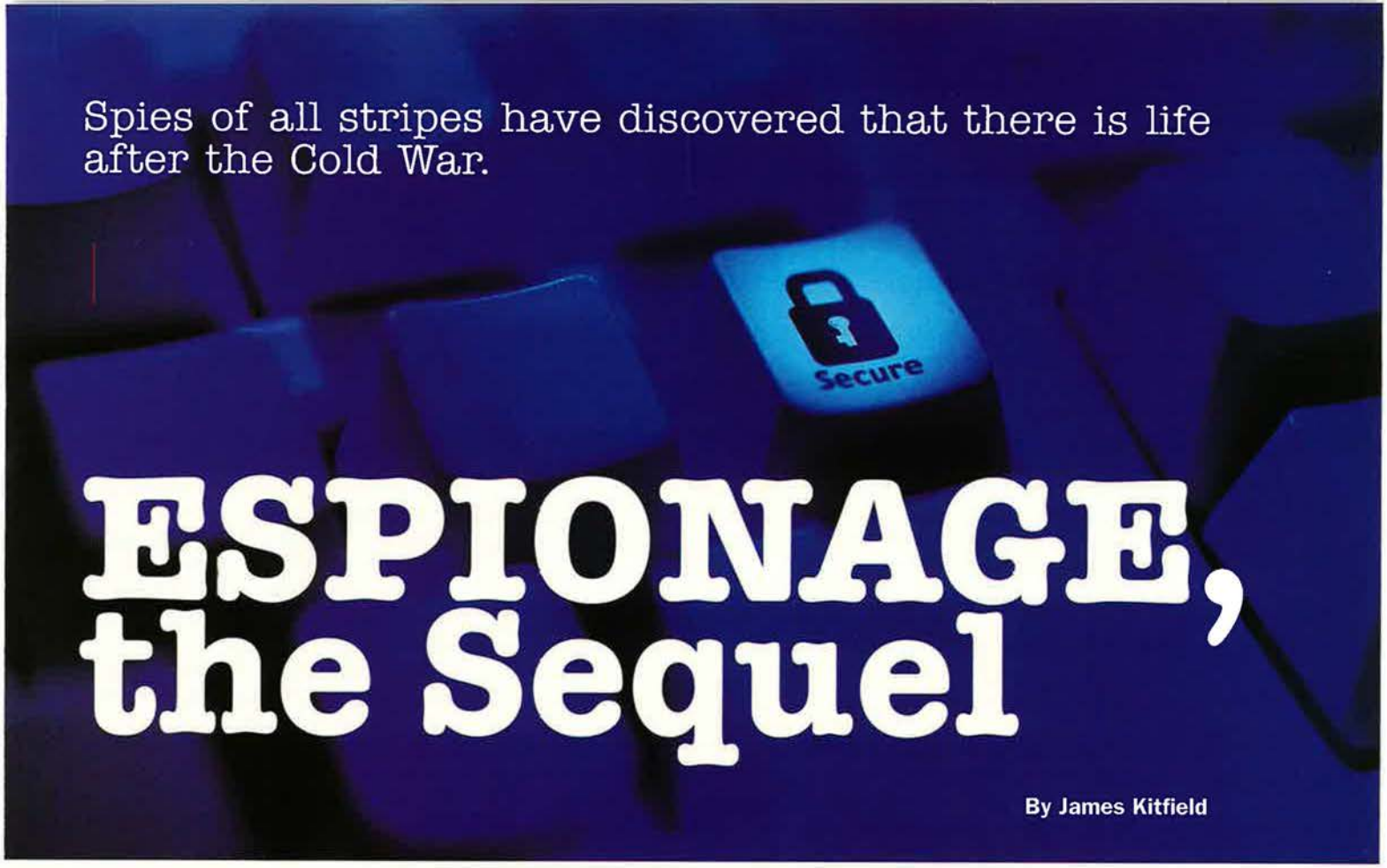
The city of Hamburg was attacked several more times right through the end of the war, although there were no more firestorms there. The only other firestorm to destroy a German city came at Dresden in February 1945. (See "The Dresden Legend," October 2004, p. 64.)

Still, the destruction of 6,200 heavily urbanized acres of Hamburg was grim enough. Only Berlin, with 6,427 burned-out acres, had more total area leveled, according to Bomber Command's calculations.

Harris had made his point. He turned the tables on Germany itself and Bomber Command shook the foundations of the Reich. What Bomber Command amply demonstrated at Hamburg was that the war could, and would, be won by the Allies, and that Germany would pay dearly. Time was running out on the Reich. As Churchill said, after the Axis forces began retreating from North Africa in November 1942, it was the "end of the beginning." Hamburg in July 1943 was the beginning of the end.

In 1945, the city of Hamburg surrendered to British armies with no resistance. ■

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. Her most recent article, "Safeside in the Desert," appeared in the February issue.*



Spies of all stripes have discovered that there is life after the Cold War.

ESPIONAGE, the Sequel

By James Kitfield

If there ever was a Golden Age of international espionage, the Cold War era was it. The superpowers and their satellites and allies maintained enormous spying establishments, spending scores of billions of dollars to employ thousands of professional case officers, spies, and analysts and finance their advanced equipment and sophisticated infrastructure.

Even though the Cold War is over, military espionage, at least, continues to thrive. In fact, it never slackened at all. Increasingly, foreign spies are hidden among us, recruited from among the more than 30 million foreign businessmen, scientists, students, researchers, academics, and tourists entering the United States each year.

Take, for example, the case of Chi Mak, a Chinese-born electronics engineer working for a US defense contractor. According to the federal government, he was part of a family that spied together and apparently hoped to prosper together. The FBI has alleged that Mak, along with his wife and brother, can be heard on FBI wiretaps discussing ways to smuggle an encrypted computer disk to China. The disk in question, the bureau added, was loaded with sensitive technological data.

Mak, whose case was reported in some detail by *Newsweek* last year, has pleaded not guilty to charges that he acted as an agent for a foreign government. His case is pending, as are those of his family members.

In pressing its charges, the government claimed that the information on the disk was linked to quiet "electronic-drive" submarine propulsion systems. Access to such technology could help China achieve one of its dearest strategic goals: making US Navy operations in the Taiwan Strait so perilous that Washington would think twice about coming to the aid of Taiwan in a cross-strait conflict.

The case is notable for a number of reasons. It reveals how new tools commonly associated with the technology revolution—cell phone cameras, wireless personal digital assistants, tiny computer "thumb drives," readily available encryption software—have made it far easier for foreign governments and companies to steal classified information.

According to the Defense Security Service, which monitors technology collection attempts for the Defense Department, the threat is growing. The most recent DSS report on technology collection trends, released in January, notes that the number of "suspicious" events is on the rise, as are the number of countries involved. DSS also notes a "dramatic increase in incidents involving government affiliated entities."

Record Numbers

The National Counterintelligence Executive says a record 108 nations were involved in trying to steal sensitive US technologies in 2005, the last year for which full data are available.

That Chi Mak may have been spying for China is suggestive of another trend: Experts say China is far and away the most aggressive and resourceful state sponsor of technological spying. (See "The China Problem," August 1999, p. 70.)

The FBI estimates that there are more than 3,000 Chinese "front companies" operating in the US with the express purpose of gathering intelligence and technology. Much of this is "dual use," with both civil and military uses.

The FBI has stated publicly that the

number of Chinese counterintelligence cases in Silicon Valley alone is increasing by 20 to 30 percent each year.

Globalization—characterized by the free flow of data, commodities, and people across porous national borders—has allowed these cases to become utterly commonplace. Industrial espionage and military technology theft is a thriving growth industry. Consider that, in 2005:

- The FBI opened 89 economic espionage cases and was working 122 active cases at year's end.
- US Immigration and Customs Enforcement conducted more than 2,400 export investigations involving violations of the Arms Export Control Act, International Traffic in Arms Regulations, the Trading With the Enemy Act, and other laws.
- According to the American Society for Industrial Security, economic and industrial espionage cost US businesses an estimated $59 billion.
- DSS reported 971 suspicious contacts, an increase of nearly 43 percent from a year before, though part of this may be attributable to "greater threat awareness."
- The top five, unnamed, "collecting countries" were responsible for 57.4 percent of all technology collection activity.
- State-sponsored spying activity nearly doubled from the year before, to 30.6 percent of the technology collection attempts.

Little wonder that some experts have characterized the trend as the greatest foreign intelligence challenge since the Cold War. Or as one former Russian intelligence officer commented to a reporter on the ubiquity of data theft and industrial espionage, "Everyone is stealing from everyone else."

Foreign theft of sensitive technologies has "eroded the US military advantage by making dangerous technology available to our adversaries," Michelle Van Cleave, the former national counterintelligence executive, testified in 2005 before Congress.

Prime Targets

Sensitive US technologies that underpin the economy and contribute to military superiority, she said, remain prime targets of foreign intelligence services, companies, and private individuals. Such spying and theft "has undercut the competitiveness of US industry by allowing foreign firms to acquire, at little or no cost, technology that US firms spent hundreds of millions of dollars developing."

One case began in 2004, as a seemingly innocent meeting at a Japanese trade show between two men who shared a common interest in electronic gadgets.

One was a Japanese employee of Nikon, the other a Russian working for the Russian trade representative office in Tokyo.

Over the course of subsequent dinners and drinks at various restaurants—the Russian always picked up the tab—the discussion turned to infrared sensor technologies that Nikon was working on for its cameras, but which also had applications in advanced weapons systems.

In February 2005 the Nikon employee was persuaded to give his new friend a prototype device designed to stabilize light signals in long-distance fiber-optic networks, in exchange for a few hundred dollars and some presents.

As was eventually reported in the Russian publication *Defense and Security,* the Tokyo police had long considered the Russian trading office a wholly owned subsidiary of Russian military intelligence. Eventually, Japanese law enforcement saw to it that the Japanese man was fired from his job and that the Russian quietly returned to Moscow.

The lines have blurred between industrial and economic espionage conducted by foreign governments and intelligence agencies, and spying instigated at the behest of private companies or individuals.

A number of foreign governments have created quasi-official organizations, such as the Russian trade office, to tap into and help direct the technology theft being conducted by the private sector.

Meanwhile, foreign intelligence services continue to aggressively conduct their own spying operations to collect technologies that commercial spies do not gather.

False Flags

Often, it is simply not clear who is behind the spying.

"In many cases, we do not know how much of a nexus there is between the private and public sectors that are targeting our technologies," conceded Van Cleave.

"Most foreign governments that are involved do not discourage such theft and often benefit from [it]," she testified. "It's clear, however, that the major threat countries continue to employ state organs—including their intelligence services—as well as commercial enterprises, particularly when seeking the most sensitive and difficult-to-acquire technologies."

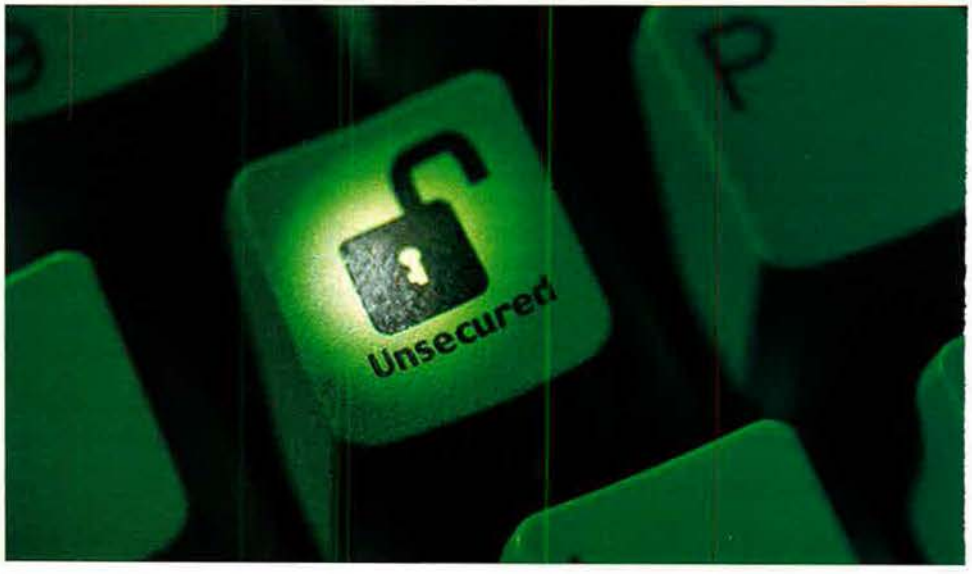
The leading state sponsors are an open secret and include India, Pakistan, Iran, Japan, France, and Israel.

By nearly all accounts, however, the top two "threat nations" are in a class by themselves. Thus, US intelligence officers and investigators spend much of their counterintelligence energies looking particularly into the activities of China and Russia.

But for an investigation by the Japanese magazine *Shukan Bunshun,* the suicide of a Japanese consul in Shanghai in 2004 might have been attributed to loneliness or thwarted career ambitions. Instead, the investigation revealed that the Japanese official was in a relationship with a hostess in a karaoke bar. Chinese intelligence officers reportedly threatened to make the relationship public unless the man divulged the secrets of Tokyo's diplomatic encryption system.

The Japanese consul hanged himself instead.

The case reveals why many experts be-



lieve industrial espionage and technical data theft have become a quasi-official part of Beijing's foreign and industrial policy, dating back to the 1980s and the "863 Program" launched by former leader Deng Xiaoping. Designed to put China on a fast track to technological equality with the developed nations, the 863 Program focused on achieving breakthroughs and shortcuts across a wide spectrum of military and industrial technologies.

Once critical technologies—or entire weapons systems—were acquired, Chinese engineers and scientists adapted them quickly to existing weapons and systems through reverse engineering.

The 863 Program helps explain why China today has more than 700 multinational R&D centers versus less than 50 just nine years ago, as *Newsweek* reported. The program also indicates why the United States and many allies are investigating and prosecuting dozens of cases of sensitive technology and banned items being smuggled to China, from night vision systems to seismic imaging equipment.

Without citing specific nations, the Defense Security Service notes that the "apparent across-the-board surge in activity" from the East Asia-Pacific region "will continue ... as gaps in technological capability become apparent in their weapons development processes. Lasers and optics technology and aeronautics appear to be priority technology targets for this region."

Too "Remarkable"

In a report, the House of Representatives listed 16 "remarkable" Chinese technological breakthroughs that suggest industrial espionage, from supercomputers and advanced communications systems to satellites and nanotechnology.

The 863 Program also helps explain how China was able to rapidly field leap-ahead weapons systems that seemed to clone the Tomahawk cruise missile and the Aegis seaborne radar system.

"I think you see [signs of Chinese industrial espionage] in cases where something that would normally take 10 years to develop takes them two or three," said David W. Szady, then chief of FBI counterintelligence operations, in 2005 to the *Calgary Herald.*

DSS provided a telling case study of how this technology theft can work, citing an example involving a Near Eastern nation. An employee of a Near East defense firm, working on a joint program with a US defense contractor, connected his computer to the US contractor's classified test network, ostensibly to "control the test of an expendable torpedo decoy."

The network was also being used to test a "US designed, classified, and export-controlled second generation torpedo defense suite." When the test cycle was complete, the foreign employee left with his computer. Within months, his firm "announced its second generation torpedo defense suite, with similar characteristics and capabilities" as the classified US system.

Even in the shadowy world of espionage, signs of China's massive collection effort surface with regularity. In 2006, a Taiwan citizen pleaded guilty to spying for China, after he was caught in the US trying to illegally acquire and export cruise missiles and spare parts for fighter aircraft.

In 2005, a Chinese case officer who had worked for more than 10 years in European universities and companies defected to Belgium's state security services, revealing a network of hundreds of Chinese industrial spies spread across Europe.

Among the companies targeted by this network was the French communications firm Alcatel, as reported by the *Calgary Herald.* Alcatel is a prime contractor for the Galileo satellite communications system that Europeans hope will one day rival the Global Positioning System.

A Western intelligence officer quoted in the article said that China was eventually brought into the project because its successful spying made efforts to keep it at arm's length "futile."

Likewise, there is ample evidence that Washington's old adversary Moscow remains hyperactive in the fields of industrial espionage and sensitive data theft.

In one case, British defense contractor BAE Systems learned in 2002 that one of its employees was passing stealth cruise missile secrets to the Russians. Former BAE engineer Ian Parr is now serving 10 years for spying.

Dipping Into the Diaspora

A favored tactic of Russian intelligence, according to a number of reports, is to entice or coerce members of the huge Russian diaspora around the world to act as agents.

"In the Soviet period, the Kremlin treated Russian refugees as traitors and enemies, but now it is turning them into a fifth column," according to Konstantin Preobrazhensky, a former lieutenant colonel in Russian intelligence, quoted in Scotland's *Sunday Herald.* Intelligence officers "attract Russians overseas by appealing to their patriotism."

The Defense Security Service says information technologies top the list of desired capabilities, as they are the foundation of virtually all modern civilian and military processes. Examples include pursuit of Ka-band satellite communications systems, electronic warfare simulation systems, and tactical radios.

Next on the "most wanted" list are lasers and optics. The equipment sought in 2005 included night vision systems and laser range-finders.

Aeronautics, the key to the United States' vaunted airpower advantage, is the third-most pursued category of technology. Collection events included attempts to obtain military aircraft engines, tactical unmanned aerial vehicles, and missile-launch warning systems.

Other technologies pursued by foreign entities included target tracking systems, anti-tank guided missiles, and radar cross-section modeling software—in short, a laundry list of the most advanced US military technologies.

"These technologies are frequently cutting edge and provide the collector the advantage of saving time and costs associated with indigenous development of new technologies," DSS reported.

The methods that foreign intelligence services and foreign industrial competitors devise to acquire sensitive technologies are as numerous and ingenious as

China was eventually brought into the project because its successful spying made efforts to keep it at arm's length "futile."

the targeted technologies themselves.

In the age of globalization, US officials worry first that foreign countries or their industrial subsidiaries seeking sensitive technologies will simply buy US companies.

The acquisition of fiber-optic network provider Global Crossing by a Singapore company, and the sale of IBM's personal computer division to Lenovo, China's largest computer maker, are two sales that raised eyebrows in Congress.

China's acquisition of IBM's personal computers division could transfer advanced technology and corporate assets to the Chinese government, said a 2005 letter to the Treasury Department signed by, among others, Rep. Duncan Hunter (R-Calif.), then House Armed Services Committee chairman.

The transaction could also "result in certain US government contracts with or involving [personal computers] being fulfilled or participated in by the Chinese government."

A foreign company found out that its technological secrets were being stolen by a snooping switchboard operator in an overseas hotel.

Easy Exploitations

Authorities also worry that joint ventures and overseas subcontractor relationships between US industries and foreign partners are easily exploited by industrial spies. US firms frequently transfer secret data to foreign subcontractors, only to find out later that the work and information were then outsourced to third-party subcontractors of suspect reputation.

The National Counterintelligence Executive's annual report to Congress noted that in late 2004 a US software manufacturer reported that portions of its source code and the confidential design documents of one of its key products had been stolen from a recently opened research and development center in Mumbai, India. Despite successfully detecting the theft, the company had little legal recourse to stop further dissemination of the information.

Businessmen traveling abroad are also seen as prime espionage targets, and they are vulnerable to having their laptops, mobile phones, and Blackberrys stolen or bugged.

In one such instance, a Canadian aerospace company in negotiations for a sale to a foreign company found out that its technological secrets were being stolen by a snooping switchboard operator in an overseas hotel. The potential "buyer" was scamming the Canadian company, trying to steal its technology from the intercepted phone calls and faxes.

Attempts on classified or restricted technology range from the mundane to the sinister. The most popular method, for instance, is for spies to contact companies by e-mail, fax, or phone call, simply requesting sensitive information under the guise of a "sale" or "research." The hope is to find a company or individual naive about export controls.

Other attempts are far more nefarious. An organized campaign by professional hackers linked to China called "Titan Rain" attempted to steal data from numerous defense companies and agencies through cyber-assault.

According to DSS, "The potential gain from even one successful computer intrusion makes [hacking] an attractive, relatively low-risk option," and "the risk to sensitive information on US computer systems will increase."

In another case cited by DSS, a US contractor received an e-mail from a doctoral student requesting information on an "ultraviolet missile warning system."

The student claimed he was working on a research project assigned by his professor, and indeed such requests from university students to industry are a fairly commonplace part of the free exchange of information among researchers.

In this case, however, executives noticed that the e-mail came from a commercial Internet provider instead of the ".edu" that signifies educational institutions. Their suspicions were also aroused by the fact that the request was for information on a specific system rather than on a field of general scientific research.

30 Percent Factor

That case illustrates the vulnerability of the vast educational and research system to espionage. As noted by the NCIE's report to Congress in 2005, almost 30 percent of the science and engineering faculty employed by US universities and colleges are foreign born. More than 40 percent of the Ph.D.s awarded in science, engineering, and mathematics went to foreign citizens in 2004.

"The sheer size of the population and the access that some have to key R&D projects make it inevitable that this group will serve as an important funnel abroad for technologies."

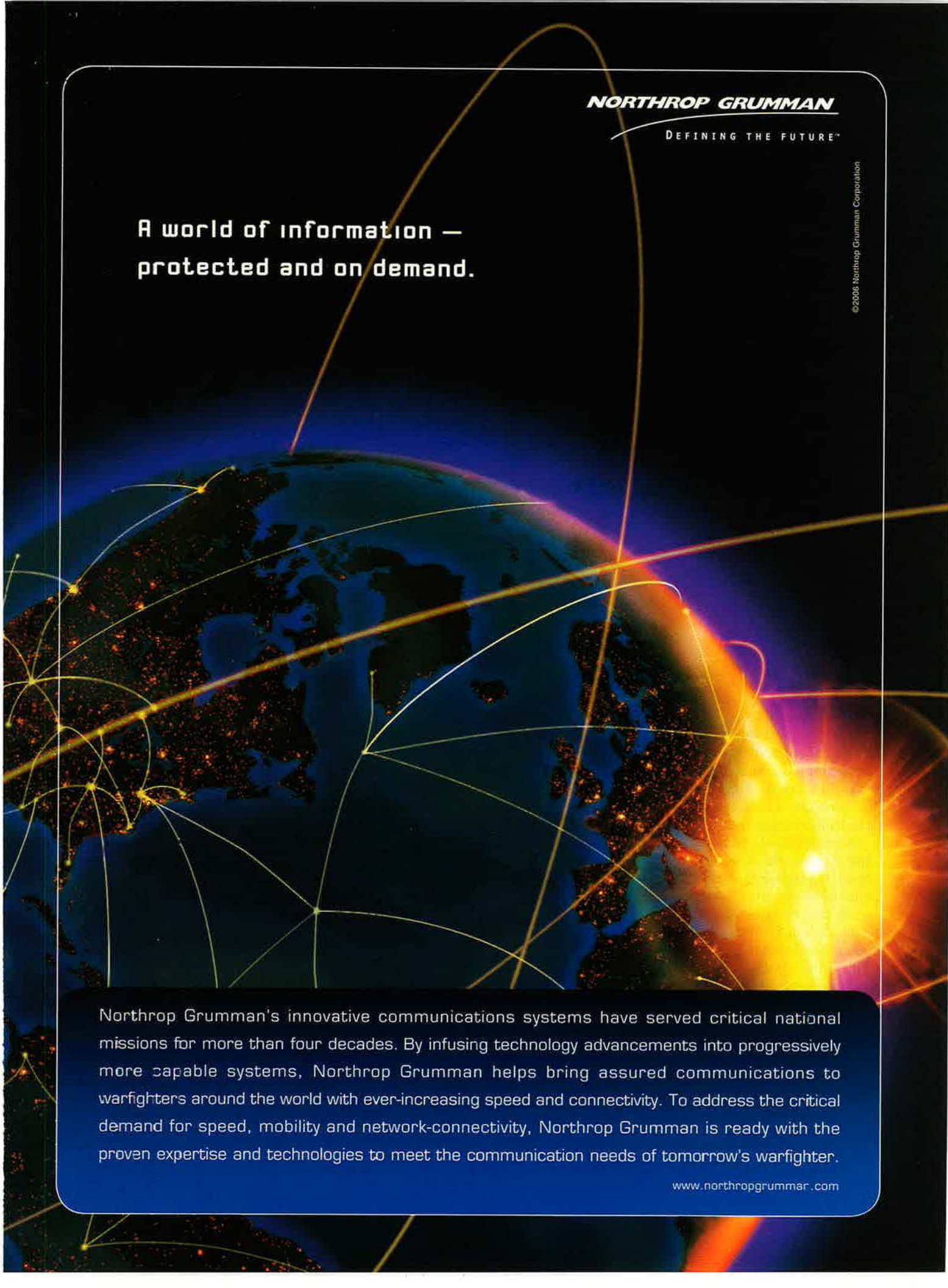
Take the Chinese student who attended Iowa State and the one at Penn State, both of whom were cited in a Defense Department report in 2003. According to the report and a follow-on investigation by the *Washington Times,* the two students transferred top-secret data on a special metal to a company with close ties to a foreign military. The metal is used in naval and aerospace sensors and weapons.

As the Pentagon report noted, the nature of the convoluted transaction was typical of the shady world of industrial and economic espionage.

Although "one of the Chinese students admitted sending this information to [China's People's Liberation Army], ... usually the connections between academic, commercial, and military organizations are not so clear cut," the report summarized.

Finally, some of the collection efforts would be right at home in the finest spy novels and movies. DSS notes that on one occasion, a film processing company contacted the FBI after it developed film showing "classified images of satellites and their blueprints." It was "determined that the pictures were taken from an adjacent office's window." ■

James Kitfield is the defense correspondent for National Journal *in Washington, D.C. His most recent article for* Air Force *Magazine, "The American Theater," appeared in the December 2006 issue.*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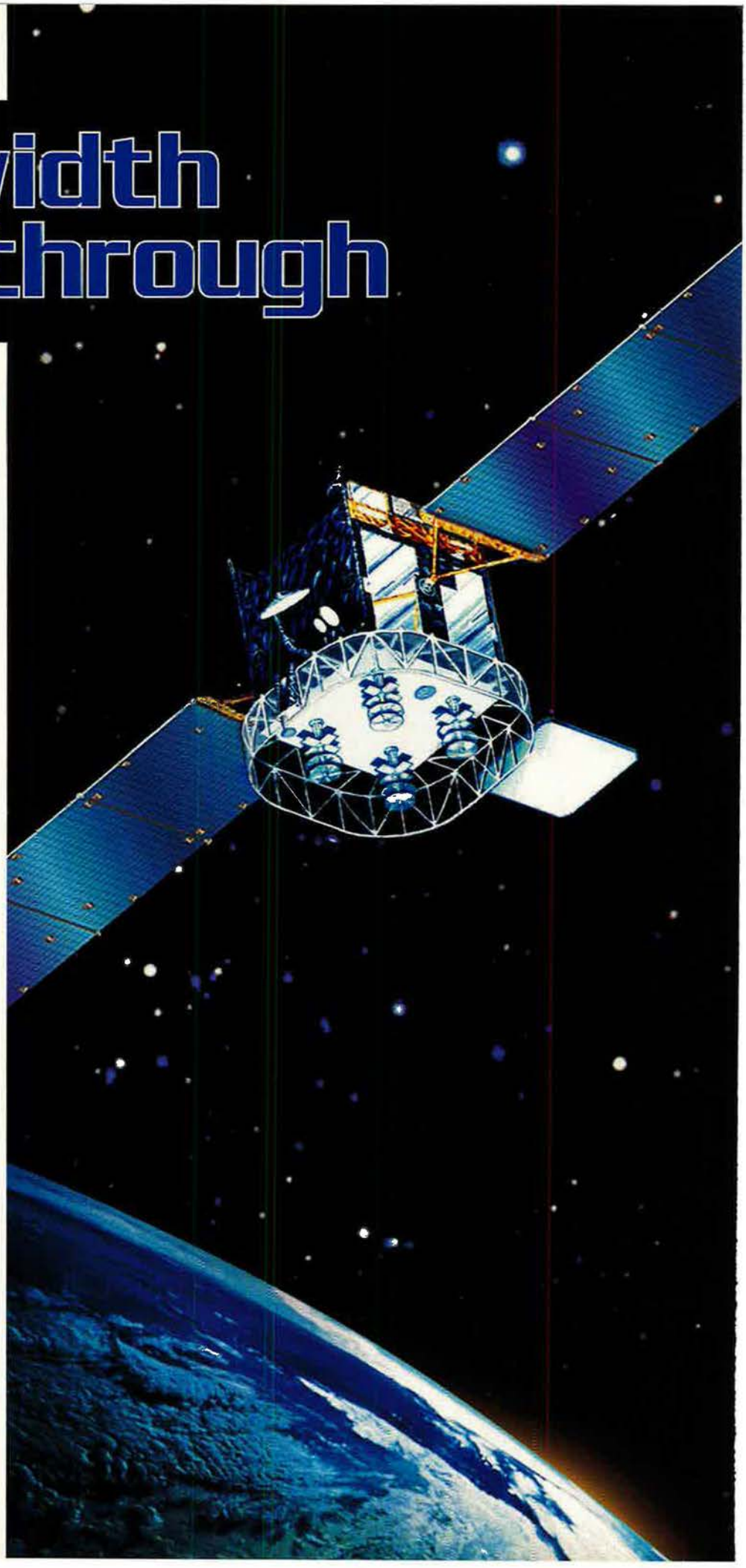
Bandwidth Breakthrough

A new generation of spacecraft will revolutionize military communications.

By Jeremy Singer



The Air Force—the world's dominant space power—is on the threshold of a mighty upsurge in communications capabilities.

Top USAF officials report that the service some time this year will begin launching communications satellites of sufficient power and sophistication to generate an explosion of usable electronic bandwidth.

After years of problems, setbacks, and delays, the new spacecraft are ready to provide military users a data transmission "pipe" of unparalleled scope and magnitude.

In colloquial parlance, the term "bandwidth" is used to mean the capacity for data, while "data transfer rate" refers to the speed with which you can send the data.

In the new era, US troops previously lacking access to advanced satellite communication channels will be able to use the same links used by commanders to hold video teleconferences in the field, pass targeting data, and track friendly forces.

Troops that are already connected to such satellites will be able to communicate much faster. In addition, they can shift some messages from

commercial to more-secure military systems.

The Air Force operates the primary Milsatcom systems that are used by all of the US armed services. Despite strains on the system, satellite communications play a key role supporting combat operations in Afghanistan and Iraq—and everywhere else, for that matter.

In the communications world, the relevant satellite systems are many—Milstar, Defense Satellite Communications System (DSCS), Advanced Extremely High Frequency Satellite Communications System (AEHF), Transformational Satellite Communications System (TSAT), Mobile User Objective System (MUOS), Polar Military Satellite Communications (Interim Polar), Wideband Global System, and so forth. (See "Space Almanac: Major Military Satellite Systems," August 2006, p. 81.)

They are mostly obscure to anyone outside of the military space community. They are also expensive.

For all that, their significance is beyond dispute. Gen. Kevin P. Chilton, head of Air Force Space Command, Peterson AFB, Colo., observed in November, "We're not on the Hill [Congress] arguing whether or not we need a new this or a new that. Everybody understands" that the military needs the capability.

High Priority

The Air Force recently designated the acquisition of new satellites for communications and early warning to be USAF's No. 3 modernization need, trailing in priority only to next generation air tankers and combat search and rescue helicopters.

While the Air Force designs and pays for most of the military's communications satellites, the heaviest users can be found in the Army and Navy. Richard W. McKinney, a retired colonel now serving as the civilian director of space acquisition in the Air Force undersecretary's office, said that USAF accepts this responsibility, and the bill, as part of its mission.

Even with a dramatic influx of new and faster satellite connections, deployed troops probably will rely on commercial systems well into the future. While tremendously valuable to US forces, commercial services lack the same levels of security as the military's own satellites, McKinney said. Military users can encrypt the data that they send over a commercial satellite, but those systems lack the protection against jamming and other types of interference typically found on an Air Force spacecraft.

The Pentagon conducted a variety of satellite communications experiments in the 1960s before designing the Initial Defense Communications Satellite Program, which was later renamed the Defense Satellite Communications System. DSCS is the Air Force satellite constellation most commonly used by deployed forces.

The Air Force began launching the first generation of DSCS satellites in 1966 and has upgraded them over time to include more bandwidth and faster data rates.

The Air Force launched the last of the DSCS III satellites in August 2003, and the final four of those satellites were upgraded to provide 200 percent more capacity than their predecessors—and up to 700 percent more capacity in certain situations. DSCS satellites are used by troops that range from those in ground vehicles to those in large aircraft like the airborne command post fleet.

The DSCS satellites have served as a workhorse for the US military, providing troops with a wide pipe for passing data, imagery, and video. Each DSCS satellite cost about $200 million.

While they retain some measure of protection against enemy attempts to jam or interfere with its signals, DSCS satellites lack the security needed for the most secure transmissions.

The most sensitive communications jobs are reserved for the Milstar constellation, which an Air Force fact sheet refers to as the "FedEx of communications systems—when it ... has to be there, Milstar is the system."

In addition to strategic messages, the Milstar satellites today carry air tasking orders, targeting data, imagery, and video teleconferences. The satellites have also been used outside of combat operations to support relief efforts for Hurricane Katrina.

Cold War Babies

The Milstar satellites, the first of which launched in early 1994, were designed during the Cold War and were built with the highest possible levels of signal protection to meet the needs of strategic forces. Unlike DSCS, Milstar reduces the chances of signal intercept or disruption by relying on links between satellites (rather than ground relay stations) to relay its signals over long distances.

With the end of the Cold War, the Milstar mission changed.

While Milstar still provides connectivity for the nuclear forces, the constellation has taken on an increased tactical role. For example, Air Force officials have credited the Milstar system with playing an important part in the command and control with the

While the Air Force designs and pays for most of the military's communications satellites, the heaviest users can be found in the Army and Navy.

Milstar is the "FedEx" of communcations systems—when it has to be there, Milstar is the system.

rescue of Army Pfc. Jessica Lynch from her Iraqi captors in 2003, though they have not publicized details.

While the Milstar satellites, which are built by Lockheed Martin, offer great protection against jamming, the satellites provide less bandwidth than DSCS birds, making them useful primarily for high priority messages such as nuclear command and control.

With changing priorities at the end of the Cold War, the satellites were redesigned with somewhat less—though still superior—signal protection as a trade-off to provide greater bandwidth for tactical users. Tactical users rely on Milstar for data and messages that simply must get through.

Each Milstar satellite costs about $800 million, and the last Milstar satellite was launched in April 2003. The Air Force plans to begin replacing the constellation in 2008 with Advanced Extremely High Frequency satellites.

Milstar is complemented today by a system known as Interim Polar, which features Milstar-compatible payloads hosted on classified satellites in orbits that can better reach the Earth's extreme northern latitudes. The first of those payloads, which was built by Boeing, was launched in 1998, and a third satellite is slated to become operational this year.

The polar-orbiting communications system is of particular interest to submarines that operate in the Earth's far northern regions. The Air Force is planning to begin launching a permanent polar replacement system, designed primarily to ensure continuity of service rather than a leap-ahead capability, around 2013. The program is still in the conceptual stage.

A dramatic expansion in available military bandwidth is expected to begin in June, according to Brig. Gen. Ellen M. Pawlikowski, commander of the Military Satellite Communications Systems Wing at USAF's Space and Missile Systems Center, Los Angeles Air Force Base. That is when the first Wideband Global System satellite, built by Boeing Integrated Defense Systems, will launch. (The WGS satellites were known as Wideband Gapfiller System until November 2006, when the Air Force changed the name to better reflect their importance.)

Big Boost

A single Wideband Global System satellite will provide as much bandwidth as the entire DSCS constellation, according to Chilton. Each satellite will cost about $300 million.

Those satellites will play an important role in helping the Air Force take advantage of intelligence-surveillance-reconnaissance assets such as unmanned aerial vehicles. Fully exploiting UAVs requires a tremendous amount of bandwidth to transmit data such as high-resolution imagery.

The Air Force announced in November that it would modify the Wideband Global System satellites beginning with the fourth spacecraft in the constellation, which is expected to launch in 2011, to better accommodate ISR aircraft.

The Air Force conceived those satellites as a military-owned option that would provide service similar to that of commercial satellites, McKinney said. To build the satellites as quickly and inexpensively as possible, the Air Force elected to rely heavily on commercial technology.

While the wideband global satellites have some protection against jamming and interception, they do not have the same level of security as the predecessor DSCS satellites, McKinney said.

In addition to more bandwidth, WGS will offer military users greater flexibility, McKinney said. Troops today who have equipment designed to work with one frequency band cannot communicate directly with those with different types of terminals, he said.

Wideband global will feature both X-band and Ka-band links, so a user with an X-band terminal can send a message to the satellite that is transmitted back down to Earth on a Ka-band link, or vice versa, he said.

When the Air Force awarded the contract in 2001, the first Wideband Global System satellites were expected to be on orbit in 2004. Boeing hoped to take advantage of technology used on commercial satellite efforts that were well ahead of WGS in development, but ran into trouble when those programs fell behind.

Further difficulty was caused when, due to the downturn in the commercial satellite marketplace, Boeing was forced to lay off and reassign engineers who would have been working on related technology.

The wideband global program ran into other problems in 2005 due to the installation of substandard parts on the satellites, which delayed their anticipated launch into 2007.

However, Pawlikowski said that work on WGS has gone much better over the past year-and-a-half. While additional issues have cropped up with the antennas and other subsystems on the satellites, those problems have been resolved relatively quickly, she said.

The Air Force's current contract with Boeing calls for the purchase of four wideband global satellites, with options for two more satellites. How-

The Navy Contributes a UFO Satellite

The Air Force buys, maintains, and operates the vast majority of the military communications satellites, but the other services aren't total freeloaders.

The Navy filled one key coverage gap with its constellation of the Ultra High Frequency Follow-On Satellite System.

UFO offers unique connections to troops on the move in aircraft, ships, and land vehicles, including those in locations shielded by wavelength-blocking tall buildings or jungle canopy. Troops often turn to these satellites, as well as commercial services, for their voice communications.

The UFO satellites are important to the Air Force. They carry payloads that connect users of the Global Broadcast System. GBS is a satellite-based system used to deliver maps, images, television news broadcasts, and other bandwidth-intensive products to deployed commanders.

The Navy's UFO system is expected to be replaced beginning around 2010 by the Mobile User Objective System.

ever, the Air Force could opt to order more and is working with US Strategic Command to determine whether doing so is necessary, Pawlikowski said.

Whatever Times Five

The increase in available communications bandwidth will continue in April 2008 with the launch of the first Milstar-replacement Advanced EHF satellite. The AEHF satellites, built by Lockheed Martin Space Systems, will enable users to pass the most secure communications at rates five times faster than the newest Milstar allows—and 3,400 times faster than the first Milstar spacecraft, McKinney said.

AEHF will also enable far more users to connect to the satellites simultaneously, an important capability for tactical forces. The number of users who can connect to Milstar at the same time is measured in the hundreds; Advanced EHF will allow several thousand connections at once, McKinney said.

The Air Force had hoped to have AEHF satellites on orbit by now. The service allowed Lockheed Martin and Boeing, which had been competing against each other to build the satellites, to join together as a team to accelerate the first launch by 18 months to late 2004.

However, the team fell apart, and technical difficulty on the program—most recently a delay in delivery of encryption equipment from the National Security Agency—contributed to moving the first launch into 2008.

The NSA has since delivered the needed encryption equipment, and the program's schedule has been stable over the past two years, Pawlikowski said, during which time the Air Force has made "huge strides" in its cooperative work with the NSA.

Despite the promise of improved capabilities with Wideband Global System and Advanced EHF, the Air Force is already looking forward to a follow-on generation of satellites called the Transformational Satellite Communications System, or TSAT, which for the first time will offer highly protected communications to troops on the move.

Lockheed Martin and Boeing are currently leading teams competing to build the TSAT satellites, which are expected to launch beginning around the middle of the next decade. The Air Force expects to choose a winner from the two companies to build the satellites in late 2007.

TSAT is expected to provide highly secure communications with a tremendous increase in bandwidth over the Air Force systems in use today and planned to launch over the next several years. The TSAT satellites will carry roughly 10 times the bandwidth of the Advanced EHF satellites, Chilton said.

Laser Links

The satellites' advanced capabilities are expected to be enabled in part by laser links that connect the satellites to each other as well as high-altitude aircraft. The system at times seems to have been portrayed as the Holy Grail in military communications capability, but the military has proved adept at rapidly expanding its bandwidth use to immediately soak up any additional capacity.

New technology such as the laser links for TSAT has raised concern on Capitol Hill that the Air Force was pushing immature components into space too quickly. (Congress trimmed $130 million from the Air Force's $867 million request for TSAT in the 2007 budget, but the cut was far less than in previous years, when the Air Force had several hundred million dollars slashed from its request.)

Pawlikowski credited the Air Force's new block acquisition approach to space systems with helping to improve Congressional confidence in TSAT. Beginning with its 2007 budget request, the Air Force revamped its approach to TSAT to field initial satellites with less capability. More advanced capabilities will be added in time as additional satellites in the constellation are launched.

Roughly 80 percent of the communications bandwidth used by forces in Iraq has been provided by commercial satellites, and it is not clear how that ratio may be affected by the launch of new military satellites.

McKinney acknowledged that commercial service is expensive, but noted that one of the prime benefits of commercial services is that it enables the military to buy just the additional bandwidth it needs to support surge requirements during a contingency.

Satellite communications is not the only area where the Air Force relies on the commercial sector for surge capability. Chilton said in a Dec. 18 interview that this model also works well in other areas for the military.

The Air Force operates and maintains military cargo aircraft such as the C-17 and C-130s for routine airlift, but also turns to the Civil Reserve Air Fleet during emergencies and when its own aircraft cannot handle all requirements, Chilton noted.

Despite the dramatic increase in bandwidth that is on the horizon with the advent of Wideband Global System, Advanced EHF, and TSAT, Air Force officials expect to continue their heavy reliance on commercial satellite communications services. ■

Jeremy Singer is a Boston-based staff writer with Space News *in Washington, D.C. He covers the Pentagon and is the editor for special projects. His most recent article for* Air Force *Magazine, "Responsive Space," appeared in the March 2006 issue.*

USAF photo via Harry Heist AMC Museum

The Pilgrim

Few ever mention it now. Whenever talk turns to important airlift operations, the subject usually is the Berlin Airlift, or Operation Nickel Grass in the 1973 Mideast War, or the Gulf War effort. Today, virtually no one recalls the time that the Air Force helped bring Muslim pilgrims to Mecca.

The time was August 1952. Over a period of four days, and operating on an emergency basis, USAF lifters picked up thousands of pilgrims stranded in Beirut and brought them to Jeddah, the Saudi Arabian gateway to Mecca—birthplace of the Prophet, site of the holy Kaaba, and location of the al-Haram Mosque.

This airlift was important because of the importance of Hajj, the annual Muslim pilgrimage to Mecca. It is a religious obligation that every believer is supposed to fulfill at least once in a lifetime. Today, nearly two million followers of Islam each year make the pilgrimage. These journeys are often costly and require arduous travel over long distances.

Each pilgrim must obtain Saudi clearance to enter the kingdom. Air travel has greatly eased the task of traveling, but, in 1952, mass air movement of the pilgrims was new. In late August, a crisis of serious proportions started to develop.

Three relatively new Mideast airlines—Air Lebanon, Middle East Airlines, and Saudi Arabian Airlines—found themselves overtaxed and overbooked as eager ticket sellers in all parts of the Islamic world sold far more tickets than the airlines could handle. Travelers had purchased tickets and gotten to Beirut, but then found to their dismay that they did not actually have reserved seats for the most important leg of the journey.

Closing Gates

An initial count showed that at least 1,000 pilgrims were stranded at or near the Beirut airport, 850 miles short of their destination. Unless something was done quickly, these travelers would not be able to reach Mecca by Aug. 27, the date set by the Saudi government for closing the gates to all seeking to enter.

This was deeply troubling to Saeb Salaam, president of Middle East Airlines, member of Lebanon's parliament, and future prime minister of Lebanon. Salaam knew many of the stranded travelers were poor, some having spent their entire savings on the ticket for a once-in-a-lifetime journey. Many, if they did not complete their pilgrimage on this trip, probably

would never again have an opportunity to do so.

Salaam was also concerned that a large number of the stranded pilgrims might wind up stuck in Beirut for a long time. For these unexpected visitors, food, water, and accommodations all were in short supply during Lebanon's sweltering summer months. The two major languages spoken in Lebanon—Arabic and French—were foreign to many of the pilgrims, a large number of whom came from Farsi-speaking Iran or from African nations. This only complicated matters further.

Because it backed the newly created nation of Israel four years earlier during the 1948 Mideast War, the United States was not popular in the Mideast. Salaam, however, looked past that problem and, on Aug. 21, 1952, contacted the US ambassador in Beirut, Harold B. Minor. Salaam asked the US diplomat about the possibility of Washington offering assistance.

Minor was new to his post, but he had long experience in the Foreign Service, and he was intrigued by the request. When Salaam suggested to him that the United States Air Force fly the pilgrims to Mecca, Minor was quick to see political benefits in doing so.

Minor knew the Air Force had the capability. USAF was still basking in the glow of the Berlin Airlift that it concluded only three years earlier. The Air Force had hauled into the divided German capital 2.3 million tons of food, fuel, and medicine and, in the process, defeated the Soviet Union's land blockade of Berlin's Allied sector. The Korean War was under way, and it required much airlift, but there was no question USAF could divert enough for the pilgrim detail.

The ambassador immediately agreed to investigate the situation. Minor cabled Henry A. Byroade, then assistant secretary of state for near eastern, south Asian, and African affairs, recommending a positive response. Byroade referred the matter to Thomas K. Finletter, the Secretary of the Air Force, who then took it up with Secretary of Defense Robert A. Lovett.

Situation Worsens

With each day, the situation in Lebanon deteriorated, and time was running out. Finletter and Lovett, realizing the urgency, gave quick assent to Minor's proposed airlift. Lovett added a proviso. It was this: The United States would refuse to accept any payments for pilgrim flights to Jeddah.

The Berlin-hardened Military Air Transport Service (MATS) was well-experienced in the conduct of emergency airlifts. On Aug. 23, alerting orders were sent out to two US wings: the 1602nd Air Transport Wing near Wiesbaden, West Germany, and 1603rd Air Transport Wing at Wheelus AB, Libya.

Both wings began to plan. Their officers determined that the 41st Air Transport Squadron at Wheelus and the 86th ATS and 1629th Support Squadron at Rhein-Main AB, West Germany, would provide airmen and aircraft.

The alert order called for the airlifters of the two wings to carry some 1,000 to 1,500 pilgrims from Beirut to Jeddah, about 50 miles from Mecca. The execution order on Aug. 24 designated Brig. Gen. Wentworth Goss, the commanding general of the 1602nd ATW, as the task force commander.

After distinguished wartime service, Goss became commander of the 1602nd in July 1952—just weeks before the start of the airlift. Col. Ar-

Airlift

A long time ago, in a distant place, US airmen helped out a throng of desperate Muslim travelers.

By Walter J. Boyne

USAF photo via Harry Hoist AMC Museum

Above left, some of the thousands of stranded pilgrims line up to board an Air Force C-54. Right, passengers settle in for the five-hour flight to Jeddah, gateway to Mecca.

Ayatollah Sayed Abdul Ghassem Kashani, a Shiite Muslim cleric from Iran, was the most prominent pilgrim. He was not only a religious leader but also speaker of Iran's Parliament. Hashani used the situation to score political points against the West.

thur C. Rush was designated deputy commander of the task force.

Within an hour of receiving its execution order, the 1602nd ATW dispatched its first Douglas C-54 Skymaster transport from Rhein-Main. It flew to Wiesbaden, picked up Goss, and proceeded to Khaldi Airport in Beirut. Rush had already arrived there and had begun preparations.

The mission wasn't easy. The 41st ATS at Wheelus had a total of eight available C-54s. One was out of commission. Three were in the midst of major inspections. One was inbound to Tripoli from some other location. Nonetheless, the squadron managed to dispatch four transports from Wheelus to Beirut. Two more aircraft followed on Aug. 25. For its part, the 86th ATS sent C-54 aircraft from Rhein-Main and dispatched from Orly Field in Paris a C-54 mobile maintenance aircraft carrying a spare engine and a load of parts.

By the evening of Aug. 25, all 12 C-54s had arrived in Beirut. Each of the big transports carried double crews. The C-54s brought in 209 flight, operation, maintenance, and traffic personnel—80 officers and 129 enlisted personnel.

Goss directed that the squadron assets be mixed to operate as an integrated task force. The 42 maintenance men were initially split into two 12-hour shifts of 21 men, providing round-the-clock maintenance capability.

Crews were billeted in local hotels. Transportation to and from the airfield was provided by Middle East Airlines. The lessons learned from the pressures of the Berlin Airlift were applied to the newest venture; as was the case there, operations personnel prepared flight plans in advance, and crews went directly to their aircraft.

Even before all of the C-54s had arrived, the Air Force commenced the airlift. It was dubbed Operation Hajji Baba, which was a fairly whimsical selection of names. Hajji Baba was the fictional hero in *The Adventures of Hajji Baba of Ispahan,* written in 1824 by British diplomat and adventurer James J. Morier. Morier's book—a kind of combined Arabian Nights-style fantasy and Don Quixote-style picaresque novel—relates the tale of a charming rogue who wanders far and encounters many interesting situations. This name, of course, had nothing to do with the actual situation.

The Start

The airlift was activated at 7 a.m., Beirut time, on Aug. 25.

Initially, flight operations were delayed because local authorities had failed to properly process the departing travelers for the American aircraft. This created huge passport and security delays—all of which were rectified by a simple expedient. The Lebanese director of civil aviation, made aware of the flight departure schedule, simply assigned processing for each C-54 flight to one of the three local airlines. Each airline had all the necessary documentation completed so that a block of 50 passengers and their baggage could be brought to each USAF aircraft as a group.

The local airline officials also supervised loading the passengers, who were mostly seated in the aircraft's bucket seats but sometimes on the floor.

To avoid the need to refuel at Jeddah (and thus lose time), the C-54s used a "canned load" of 2,700 gallons of fuel for a load of 50 passengers, which allowed for a round-trip flight with minimal time on the ground in Saudi Arabia. Aircraft based in Beirut began to take off on the hour.

Maj. Bill Voigt of the 86th ATS, a pilot and veteran of the Berlin Airlift, was pleased to be taking part in this special operation. He recalled that there were incidental conversations with the passengers as the flight engineer passed back through the cabin to check the rear door. Other than that, though, there were no exchanges between the crew members and the pilgrims.

Voigt noted that, after takeoff from Beirut, he would climb to altitude almost directly over the airfield, fly to Damascus, Syria, turn south to Amman, Jordan, and then angle toward a point on the Red Sea just north of Jeddah. This meandering route was chosen because Israel refused to allow the C-54s to traverse Israeli airspace.

The flying time was about five hours each way. At Jeddah, a small control team—two officers and two airmen—managed to turn aircraft in just 45 minutes. When the C-54s flew back empty to Beirut, they were turned again in 90 minutes if the aircraft was deemed serviceable. If not, a spare was immediately substituted.

Kashani's Message

Not everyone was grateful. One dissatisfied traveler was the 1952 Hajj's most prominent pilgrim—Ayatollah Sayed Abdul Ghassem Kashani, a Shiite Muslim cleric from Iran. In addition to providing religious leadership for the faithful in his nation, Kashani served as speaker of the Iranian Parliament.

Kashani, a Persian, saw in the airlift an opportunity to score a significant political point concerning the role of the West and the United States in Iran. As he was about to step aboard the American aircraft that was to transport him to Jeddah, Kashani stopped and began to speak. His statement, widely quoted in the region's press, was that the West needed Iran's oil far more than Iran needed the West's money.

Kashani had a long history of confrontation with foreign powers. He had been imprisoned at one time or another by the occupying forces of both Britain and the Soviet Union. Most importantly, Kashani vigorously

USAF photo via Harry Heist AMC Museum

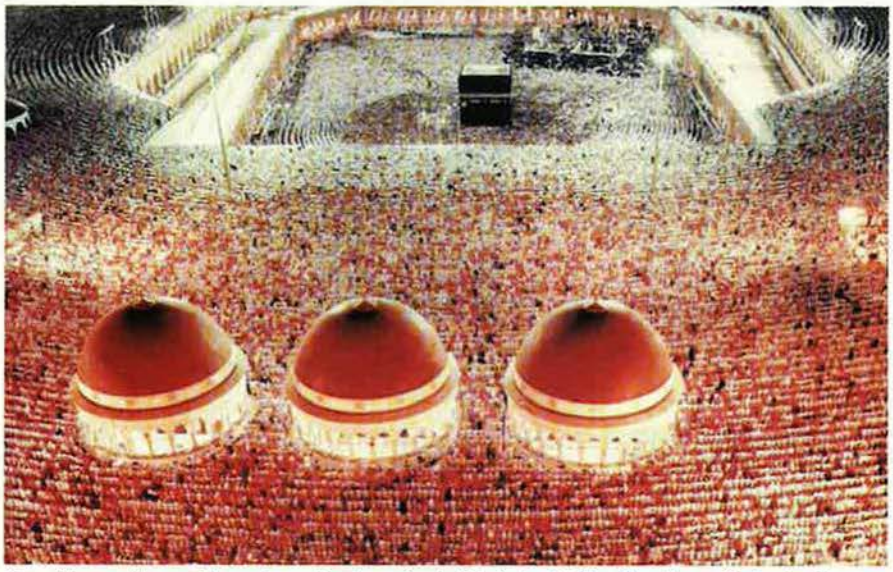
opposed foreign influence over Iran's petroleum resources. He had organized a political movement against the Anglo-Iranian Oil Co., which, in 1951, had brought about nationalization of the oil industry.

The Air Force air and ground crews were indifferent to Kashani's statements as they labored to make the trip tolerable for passengers. Each pilgrim was given an in-flight lunch consisting of bread, cheese, olives, and fruit, all provided by the American Friends of the Middle East organization.

Before long, American officers got an unpleasant surprise: The maximum number of pilgrims in need of air transport was not 1,500, as they had been led to believe; it was at least twice that number. If Saudi Arabia held to its plan to close the gates to Mecca on Aug. 27, it would be impossible to get them all there in time.

The State Department cabled Saudi authorities with an urgent request: Keep the gates to Mecca open for one additional day, until Aug. 28. Later, the Lebanese government made a similar request. The rulers of the kingdom not only met but also exceeded the request, delaying the closing of the gates until Aug. 29. That gave USAF a precious two additional days.

In every 24-hour period, the Air Force operation averaged more than 18 C-54 departures, each flight carrying about 50 passengers. This meant that USAF each day was delivering to Jeddah nearly 1,000 pilgrims. The last flight to Jeddah left at 5:22 a.m. on Aug. 29, and the last group of pilgrims arrived at Jeddah in time to reach Mecca only moments before Saudi officials finally closed the gates.



Top, Mecca-bound travelers deplane in Jeddah, just 50 miles from their destination. Above, a recent gathering of the faithful at prayer near the holy Kaaba, the large black edifice seen in the rear of this photo.

The airlifters had staged 75 round-trip Beirut-Jeddah flights. Not all of these, however, were of the nonstop variety. The Air Force sent three of the flights to Baghdad to pick up pilgrims stranded there and one to Jordan to do the same thing. They then continued on to Jeddah.

All told, the Air Force delivered to Jeddah a total of 3,763 passengers—nearly four times the original estimate.

The C-54 flights covered 117,000 miles, with some crews making the 12-hour round-trip four times. The very high daily utilization rate of the C-54s reflected their fine qualities as a transport and the professional skill level of the Air Force personnel.

The last of the American aircraft and air crew members departed Beirut on Aug. 30. Everyone returned to normal locations, and normal flight operations in the two wings resumed on Sept. 1.

Aftermath

Life published a four-page pictorial featuring photos taken in the operation. The State Department published a special booklet, titled *Pilgrim Journey,* and produced a documentary film recording various aspects of the event.

In the Islamic world, the response was generally favorable. Sami Solh, president of Lebanon's Council of Ministers, officially delivered to Minor, the US ambassador, formal expressions of gratitude for the US assistance. The Saudi monarch, King Abdul Aziz ibn Saud, presented 86 sets of traditional robes, keffiyehs, and royal headbands to those Americans taking part in the operation. Even virulently anti-American elements of the press found some kind things to say about the airlift.

Operation Hajji Baba still ranks high on the list of Air Force humanitarian operations. USAF came to the aid of Muslim pilgrims who had no other way to reach Mecca, and it prevented a possible humanitarian disaster in Lebanon. ■

Walter J. Boyne, former director of the National Air and Space Museum in Washington, is a retired Air Force colonel and author. He has written more than 600 articles about aviation topics and 40 books, the most recent of which is Roaring Thunder. *His most recent article for* Air Force *Magazine, "That First Look," appeared in the January issue.*

DOD
Senior Leadership

Compiled by Dina Elshinnawi, Editorial Associate

KEY:

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

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Robert M. Gates

Deputy Secretary of Defense
Gordon England

ASD, Legislative Affairs
Robert Wilkie

PDASD, Legislative Affairs
Lisa M. Cheney

DASD, Senate Affairs
Vacant

DASD, House Affairs
Virginia Johnson

ASD, Networks & Information Integration & Chief Information Officer
John G. Grimes

PDASD, NII
Linton Wells II

DASD, Deputy CIO
David Wennergren

DASD, C3 Policies, Programs, & Space Programs
Ron Jost

DASD, Resources
Cheryl J. Roby

DASD, Spectrum & Support
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DASD C3ISR & IT Acquisition
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DASD, Special Operations Capabilities
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AFA's Teacher of the Year, Susan Rippe, has made her aerospace program the envy of the region.

State-of-the-Art Teaching

By Bruce D. Callander

Susan Rippe, shown here at the AFA Air & Space Conference last September, is the Air Force Association's 2006 Christa McAuliffe Memorial Award recipient.

The Aerospace and Engineering program at Olathe (Kan.) Northwest High School offers state-of-the-art hardware, uses the same software as that used by industry, and is filled with students clamoring to take these demanding courses.

For her role in establishing and running this program, Susan Rippe is the recipient of the Air Force Association's 2006 Christa McAuliffe Memorial Award for national teacher of the year.

Rippe has more than 20 years' teaching experience and is a member of the Kansas Science Advisory Council. She now is the Aerospace and Engineering program coordinator and instructor in chemistry.

Rippe came to Olathe when both the school and its Aerospace and Engineering program were brand new. Now in its fourth year, the program is soaring.

The Aerospace and Engineering discipline is a three-year program designed to give students three hours per day of intensive technical studies—in addition to their normal high school programs. Students enter it as sophomores.

The administration tries to "block" the courses together consecutively. "Since we are so project based, oftentimes we need a larger block of time," Rippe explained.

While the program draws heavily on outside firms for help, the in-house equipment is the envy of most high schools.

"We have LCD [liquid crystal display] projectors in every classroom," Rippe said. "My classroom doesn't look like the typical chemistry lab. I have ovens in there so that we can anneal and heat-treat our metals. I have hydraulic presses and I have vacuum casters so that we can mold our metals into shape."

Big Time Wind Tunnel

Perhaps the top piece of equipment is a research-grade wind tunnel. A lot of high schools may have a tabletop wind tunnel, Rippe said, but few if any have a research-grade one.

The program also has a milling machine so the students can take whatever they create on a computer-aided design and drafting software program (Auto CAD) and mill it out. The current machine works only with wood, but

Rippe is hoping soon to have one that works with plastics.

In today's world, where technology rules, the right software is as important as the right tools. Rippe's program has a leasing license with one supplier that furnishes the latest software updates to run the Auto CAD system. Besides having the programs to run its milling machine, the department also has a 3-D software program called SolidWorks, which is what is being used in industry. The close partnership with local businesses helps ensure that what is used in the A and E program matches what is in use in the real world.

Sophomores take two specialized courses. One is aerospace and engineering chemistry. It is the regular high school chemistry but is focused on materials that engineers would use and includes metallurgy and the making of different alloys. At one point, Rippe gives students a piece of iron wire and tells them to strengthen it.

"We do a lot of ceramics research, a lot of polymer plastics type research, and some composites," said Rippe. "We learn chemistry that way so it's very hands-on, very project based, very team based, very relevant. And that's really the way we try to structure all of the courses."

The other hour sophomores take begins with a semester of "principles of technology" followed the second semester by a course in computer-aided drafting, which Rippe says is the workhorse of the engineer.

Junior year, students take aerospace and engineering physics, a course souped up to apply engineering principles to actual projects. For example, some students make a trebuchet—a variety of catapult. They also learn robotics and electrical engineering.

"Our students ... will build air-powered cannons and robots, and they do a lot of electrical circuitry in that class," she said.

The juniors also take aerospace and engineering math along with their regular high school math. When they are learning vectors, for example, they actually build a tower. To learn factoring, they build small balsa wood and Japanese tissue paper airplanes and learn the math principles involved.

The third class they take as juniors is aerospace and engineering CAD II and III: advanced computer-aided drafting.

The senior year offers students several options, such as a senior project. Currently, one team is redesigning the space shuttle. The current shuttle is a glider when it returns to Earth and, as a result, has limited places to land. The students are going to attach engines, redesign the wings and other components, and when finished, run it through a wind-tunnel test to make sure the model could become a full-fledged shuttle with engine power.

Wichita State University is working with the team redesigning the space shuttle. The students send the university design specifications and Auto CAD drawings, and the university will mill it out and test the design in the Wichita State wind tunnel.

Community Support

Rippe credits the school's advanced equipment to the strong community support it received. Olathe, she says, is an affluent suburb of Kansas City. Three years before the Aerospace and Engineering program started, a team was formed to help design it and others necessary to meet student needs for the 21st century. The school district and the community believe in such programs and support them financially.

As a result, the program operates as a magnet for interested students. They can come from anywhere in the district, and the program draws some from parochial schools and from home schools.

Seniors also have the option of paid internships in the community. The program today has students in 19 internships with various businesses in the Kansas City area. Five paid internships are at Honeywell Aerospace where the students earn high school credit and, most importantly, gain invaluable experience.

The district originally thought the cap for A and E enrollment would be 150, but it now has 185 students. Even so, the school manages to keep class sizes small enough so that students receive personal attention.

Rippe came to the program from a high school in Wichita where she had taught for 20 years. Her smallest class there was 30 students. In Olathe, her largest classes are 21 or 22 students. When they are taking on projects, the small class size is invaluable, she said.

One measure of the program's success may be the number of scholarships the graduates are offered. Rippe totaled them up last year and found that the 60 graduates had shared a total of $1.4 million in scholarships. (This included a number of scholarships that were turned down because the students accepted others.)

"Their resumes, because of the opportunities they have had, look like nobody else's when you're a high school senior" she said. "The number of scholarships that were awarded to them is a real testimony to that."

One student wanted to go to the Air Force Academy. Last year, he was offered appointments to both the Air Force Academy and the US Naval Academy, she said.

He recently returned and "just wowed my kids," Rippe said. "Of course he chose the Air Force Academy, but he said, 'I know I would not have received either of my appointments if it weren't for this Aerospace and Engineering program.'"

The program has so far accepted every student who has applied. Not all of them are considered top scholars when they come in, and there is attrition because the program is intense and rigorous. For those who wash out of the A and E program, they are still members of Olathe Northwest High School and they simply carry on as regular students.

A number of other high schools have shown interest in the Aerospace and Engineering program, and Rippe encourages them to visit and see presentations. "It seems like easily twice a month we have a group come through that's interested" because of the huge need for engineering expertise.

"The market will be wide open for engineering," she said. "Districts all over are calling us and coming in and wanting to start engineering programs."

The main purpose of the program is to give students a flavor for engineering. "We don't have to be specialized at the high school level," Rippe said. "That's the job of the colleges. What we are providing them is a pretty nice overview. ... I think that we are providing a solid foundation for any type of engineering," she concluded. ■

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, "The 90 Percent Solution," with Adam J. Hebert, appeared in the October 2006 issue.*

Fire in the Fortress

It was a spring day in April 1944. After taking part in a bombing attack on a German airfield at Achmer, this B-17 Flying Fortress, Merry On, *was hit by flak that set part of the engine and wing on fire. The cockpit filled with fumes, making it so dark that the pilot could not see the instrument panel in front of him. Here, the crash crew at the English airfield extinguishes the flames with a chemical called Foamite, giving the scene its snow-like appearance.*

AFA National Report

natrep@afa.org

By Frances McKenney, Assistant Managing Editor

Career Highlight

When AFA chapters in central Florida got together to honor a **Gen. Nathan F. Twining Chapter** member, the VIPs were numerous and represented a wide range of organizations.

Army Gen. John P. Abizaid, commander of US Central Command, headed the list of guests at a luncheon for CMSgt. Curtis L. Brownhill, CENTCOM's top enlisted man. Abizaid spoke about Brownhill's accomplishments during the chief's 33-year Air Force career.

Robert F. Cutler, the state central west area VP and chapter communications VP, organized the November gathering and counted more than two dozen enlisted leaders from MacDill Air Force Base's Chiefs Group at the luncheon.

Florida State Treasurer Tommy G. Harrison, from the **Central Florida Chapter,** was on hand to present Brownhill with an AFA state Presidential Citation. Other AFA officials included Henry L. Marois Jr., Twining Chapter president; Dennis E. Foley, **John C. Meyer Chapter** president; and Edward H. Hance, **Jerry Waterman Chapter** president.

Brownhill later wrote a thank-you letter to the chapter, saying that the luncheon in his honor was "a highlight" of his career.

Cadillac? Maybe Later

The Sacred Heart School in Omaha, Neb., called a student assembly when kindergarten teacher—and **Ak-Sar-Ben Chapter** member—Nancy Needham received her 2006 State Teacher of the Year award from AFA state officials, last fall.

One of the youngsters was so awed by the awards, which included $1,000, that he asked Needham if she was going to use the money to buy a Cadillac. As it turned out, Needham, who taught second grade when she was selected for the award, used the funds to buy several educational items that help the youngsters understand the solar system. One of them mimics a planetarium, projecting stars and planets onto a darkened ceiling.

At the presentation ceremony in front of the school's students and faculty, Needham received the Teacher of the Year honors from William Ernst, then Nebraska state president, and James M. McCoy, a former AFA Chairman of the Board who nominated Needham for the award. Also present was the current state president, Jerry J. Needham.

AFA Chairman of the Board Bob Largent (far right) attended the AFROTC commissioning ceremony at Clemson University, S.C., in December. Col. Lance Young (at left), the Strom Thurmond Chapter president, invited Largent to be the guest speaker. On hand were (l-r) Dan Hixon, commander of Arnold Air Society national headquarters, and 2nd Lt. Justin Mastrangelo, former AAS commander.

Pearl Harbor Ceremony

More than 800 people joined the annual Pearl Harbor Day ceremony sponsored by the **Long Island Chapter** at Republic Airport, N.Y., on Dec. 7.

Joseph E. Sutter, AFA Vice Chairman, Field Operations, was a guest speaker, while William G. Stratemeier Jr., chapter president, served as a master of ceremonies.

The ceremony is called the Dropping of the Roses because American Beauty roses—one for each year since Dec. 7, 1941—are blessed at the airport, then flown by warbirds to the Statue of Liberty and dropped in the waters around the monument. This year, the aircraft participating in the ceremony and a flyby included an AT-6, P-40, P-51, and an HH-60 from the 106th Rescue Wing (ANG), Francis S. Gabreski Arpt., N.Y.

In organizing the event, Chapter Treasurer Fred DiFabio coordinated involvement by several survivors of the Pearl Harbor attack, Civil Air Patrol cadets, veterans organizations, a local TV station personality, as well as police and firefighting units and a high school marching band.

Sutter presented an AFA national-level Exceptional Service award to Catherine Ward, chapter secretary, as part of the ceremonies at the airport.

El Dorado Canyon, Hour by Hour

A former F-111 pilot gave members of the **Montgomery Chapter (Ala.)** a comprehensive account of his role in Operation El Dorado Canyon, the 1986 raid on Libya.

Brig. Gen. Jay H. Lindell is today commandant of Air Command and Staff College at Maxwell AFB, Ala., but at the time of the raid—conducted in response to Libyan-sponsored terrorist attacks—he was a captain stationed at RAF Lakenheath, England.

Lindell spoke to the chapter's November luncheon about the details of El Dorado Canyon, giving an hour by hour account of the mission, including numbers and types of aircraft and weapons.

Chapter member Joe Panza reported that Lindell described the complications in the joint Air Force-Navy operation and the multiple aerial refuelings necessary because several countries had refused overflight permission.

Panza said a highlight of Lindell's presentation to the more than 100 luncheon guests was the actual F-111 cockpit infrared film showing strikes on several targets.

More Chapter News

■ The **Flying Yankees/Gen. George C. Kenney Chapter** in Connecticut is developing what Chapter President William H. Forthofer calls "a sustaining relationship" with AFROTC Det. 115 of the University of Connecticut. In January, Forthofer went to UConn's Storrs campus to address the cadets, who are led by chapter member Lt. Col. Roy J. Fullerton Jr. Forthofer, the director of quality for Pratt & Whitney military engines, spoke to some 40 cadets about the Air Force's current and future weapon systems and also shared the chapter's calendar of events. He pointed out that the chapter's "teaming" initiative brings together the ROTC cadets, Arnold Air Society cadets, and Pratt & Whitney.

Photo by Richard Slattery

A P-40 from Warbirds Over Long Island was among the vintage aircraft taking part in the annual Dropping of the Roses ceremony at the Statue of Liberty, Dec. 7. The late Joseph Hydrusko, Navy corpsman and Pearl Harbor survivor, started the tradition in 1970. The Long Island Chapter continues it. See "Pearl Harbor Ceremony," p. 91.

■ A Boy Scout at Ramstein AB, Germany, turned to the **Lufbery–Campbell Chapter** when he needed help in raising funds for a seating area he designed for Landstuhl Regional Medical Center's Wounded Warriors Ministry Center. Luke Secor, a 10th-grader working to become an Eagle Scout, had already cleared his landscaping project with the proper officials, arranged for its installation, and was only $300 short of his fund-raising goal when he asked for help. Within two days, chapter members, contacted by e-mail, responded with enough funds to put Secor over his goal. Secor's father is chapter member Maj. Blain W. Secor.

■ In Arizona, **Prescott/Goldwater Chapter** members joined a group of 40 Arnold Air Society cadets and Silver Wings volunteers from Embry-Riddle Aeronautical University, Prescott, in putting up holiday decorations at the extended care unit in the Bob Stump Veterans Affairs Medical Center. Chapter President Thomas Rowney headed the chapter volunteers, with the students led by Andrew Francis and chapter member Emma House.

■ The **Steel Valley Chapter** in Ohio, and several of its Community Partners, celebrated the holidays with the Youngstown Air Reserve Station Community Council in early December. Chapter President Fred Kubli Jr. said 90 guests filled a local restaurant, which was closed to other diners that day, to accommodate the party. Among the honored guests was Col. Timothy J. Thomson, 910th Airlift Wing (AFRC) commander. Cadets from the AFJROTC unit at Trumbull Career and Technical Center in Warren presented the colors, and a local musical group provided the entertainment. ■

AFA National Nominating Committee Seeks Qualified AFA Members for National Office

The AFA national nominating committee will meet at the end of April to select candidates for national officer and national board of director positions to be presented to the delegates to the AFA National Convention in September for election. Any candidate should have a good understanding of AFA and its mission, as well as a demonstrated leadership capability with broad perspective on the challenges facing the nation and the Air Force in the near and long term.

All officer positions are for one-year terms and open to any member. The incumbent Chairman of the Board, Vice Chairman of the Board for Field Operations, Secretary, and Treasurer are eligible to run again. AFA is seeking a new Vice Chairman of the Board for Aerospace Education.

Board positions are for three years. One position is limited to candidates from the central geographic area of AFA. That area includes the following states: Alabama, Arkansas, Louisiana, Mississippi, Tennessee, Indiana, Kentucky, Michigan, Ohio, Minnesota, Montana, North Dakota, South Dakota, Wisconsin, Illinois, Iowa, Kansas, Missouri, Nebraska, Oklahoma, and Texas. In addition to being from this geographic area, candidates must have demonstrated field leadership experience. Those interested are advised to consult with the appropriate state and region president. Contacts are available on the Web at http://www.afa.org/members/rgnstlst.asp.

There are two positions open to be elected on an "at-large" basis. These are open to any member. In evaluating potential candidates, the nominating committee will consider field leadership experience and geographic dispersal.

A snapshot of AFA's mission and current leadership team is available on the Web at http://www.afa.org/AboutUs/default.asp. Descriptions of the duties and responsibilities of these offices are in AFA's Operations and Procedures Manual at http://www.afa.org/members/OPM.pdf. Recommendations for candidates for these positions should be sent to the nominating committee through the staff and be received by March 23. Staff contact for questions or recommendations is Jim Simpson at jsimpson@afa.org or 1-800-727-3337, extension 5856.

USAF photo by MSgt. Donna Marlin

CMSgt. Curtis Brownhill, US CENTCOM's command chief, displays a memento he received at a Central West Florida luncheon commemorating his three decades of USAF service. Joining him were (l-r) Dennis Foley, John C. Meyer Chapter president; Henry Marois Jr., Gen. Nathan F. Twining Chapter president; Robert Cutler, Central West Area VP; and Edward Hance, Jerry Waterman Chapter president.

Have AFA News?

Contributions to "AFA 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: natrep@afa.org. Digital images submitted for consideration should have a minimum pixel count of 900 by 1,500 pixels.

Reunions (reunions@afa.org)

1st, 39th, and **84th C-133.** April 27-29 in Dover, DE. **Contact:** Jay Schmukler (302-697-9053)(jay.schmukler@verizon.net).

4th Emergency Rescue Sq Assn. Sept. 26-29 in Milwaukee. **Contact:** Chet Gunn, 237 Franklin St., Reading, MA 01867-1030 (781-944-6616) (tightboot@msn.com).

7th AF Flight Ops. May 3-6 in Dayton, OH. **Contact:** Jim Reed, 1705 Monte Carlo Ct., Santa Rosa, CA 95409-3918 (707-539-2184) (jrflies@aol.com).

26th BS. Oct. 12-14 in Altus, OK. **Contact:** (972-296-0407) (hkamm@sbcglobal.net).

33rd Troop Carrier Sq, 374th TCG, Fifth AF (WWII). May 17-20 at the Crockett Hotel in San Antonio. **Contact:** Nancy Marion, 13707 Bluffmeadow, San Antonio, TX 78216-1918 (210-496-2202) (msbiz@hotmail.com.

68th FIS, Itazuke, Japan, all years. June 7-9 at Embassy Suites Hotel in Oklahoma City. **Contact:** Jim Monsees (405-691-8646) (j.monsees@cox.net).

69th Depot Repair Sq, Fourteenth AF-Flying Tigers. May 24-26 in Washington, DC. **Contact:** Marty Oxenburg (215-663-1488) (martythekohen@comcast.net) (www.flyingtigers69thdrs.org).

100th BG (H). Sept. 6-9 in Nashville, TN. **Contact:** Don Bradley, 1310 Hansen Ave., Bellevue, NE 68005 (donduckdk@aol.com).

351st BG. Eighth AF, Polebrook, England. June 14-17 at the Best Western Bradbury Suites in Pooler, GA. **Contact:** Clint Hammond, PO Box 281, Mechanicsburg, PA 17055 (717-766-1489) (bombgroup351st@aol.com).

376th BG, Fifteenth AF, North Africa (WWII), including the **58th Service Sq.** Sept. 5-9 at the Marriott Milwaukee West in Waukesha, WI. **Contact:** Charles Andrews, 500 Maona Ave., Fond du Lac, WI 54935-6261 (920-921-0696) (candrews@milwpc.com).

379th Security Police Sq, Wurtsmith AFB, MI.

Sept. 6-9 in Oscoda, MI. **Contact:** Jeff Smith (windswep@earthlink.net) (www.wafb.net).

444th FIS. May 14-16 at the Sheraton Hotel in Charleston, SC. **Contact:** Wallace Mitchell, 535 Mimosa Rd., Sumter, SC 29150 (803-469-3297).

469th TFS, Korat AB, Thailand (1965-68). Sept. 6-9 at Wright-Patterson AFB, OH. **Contact:** Roy Dickey, 6490 Jesse Allen Rd., Milton, FL 32570 (850-983-9095) (rysdcky@aol.com).

622nd ARS (1955-64). May 3-6 in Houma, LA. **Contacts:** Alison Bourdier (985-876-3755) or Cleck (334-365-2108).

911th ARS. June 7-8 at Grand Forks AFB, ND. **Contact:** Kelly Ramsey (701-747-4261) (kelly.ramsey@grandforks.af.mil).

7330th Flying Tng Wg, Furstenfeldbruck, Kaufburen, and Landsberg ABs, Germany (1953-60). July 4-10 in Furstenfeldbruck. **Contact:** Mike Cale, 14017 Fortunes Ridge Ct., Midlothian, VA 23112-4658 (804-744-2117) (mikeaka81@comcast.net).

Air Force Photo Mapping Assn. Sept. 20-23 at the Dulles Airport Marriott in Dulles, Va. **Contact:** Neal Nelson, 1957 Cree Trail, Casselberry, FL 32707 (407-830-8685 or 407-579-6675) (nnelson@cfl.rr.com).

Air Forces Escape & Evasion Society. May 2-6 at the Sheraton St. Louis City Center Hotel & Suites in St. Louis. **Contact:** Clayton David, 19 Oak Ridge Pond Rd., Hannibal, MO 63401 (573-221-0441) (davidafe@adams.net).

Jolly Green Assn. May 3-5 at the Ramada Plaza Beach Hotel in Fort Walton Beach, FL. **Contact:** Lee Massey, 916 Aloma Faye Ln., Fort Walton Beach, FL 32547 (850-863-3131) (leetmassey@earthlink.net).

Pennsylvania AACS. July 10-12 at the Hampton Inn in DuBois, PA. **Contact:** Ed Rutkowski, 301 Blakley Ave., DuBois, PA 15801 (814-371-7167).

Perrin Field-AFB, TX. June 30 at Grayson County College, East Campus, in Denison, TX. **Contact:** Charlie Brown (903-463-4084) (broiris@cableone.net).

REDHORSE Assn, including all units. Oct. 29-Nov. 1, in Fort Walton Beach, FL. **Contact:** Tom Gallagher (tgallag1@tampabay.rr.com).

Sewart AFB, TN, including all units. May 25-27 at the Airport Marriott in Nashville, TN. **Contact:** Don Dallenbach (615-826-2212) (dondbach@comcast.net).

Strategic Air Command Intelligence. May 17-19 at the Embassy Suites in Omaha, NE. **Contact:** Marv Howell, 1305 Red Fern Cir., Papillion, NE 68133 (402-592-2054) (marvh@cox.net).

UNT 87-06, Mather AFB, CA. Oct. 4-8 in Reston, VA. **Contacts:** R. Liebman (mach1crow@highstream.net) or UNT87-06 Last Call, PO Box 402, Box Elder, SD 57719.

US Army Air Corps pilot classes (WWII). Sept. 26-30 in Minneapolis-St. Paul. **Contact:** Stan Yost, 13671 Ovenbird Dr., Fort Myers, FL 33908 (239-466-1473).

US Radar Sites Iceland, 667th, 932nd, 933rd, 934th AC&WS, all years. April 26-29 at the Radisson Hotel in Branson, MO. **Contact:** William Chick (803-932-9596) (littlechick@msn.com). ■

E-mail unit reunion notices four months ahead of the event to reunions@afa.org, or mail notices to "Unit Reunions," *Air Force* Magazine, 1501 Lee Highway, Arlington, VA 22209-1198. Please designate the unit holding the reunion, time, location, and a contact for more information. We reserve the right to condense notices.

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For information on the Air Force Association, see **www.afa.org**

Airpower Classics

Artwork by Zaur Eylanbekov

B-29 Superfortress

World War II bomber development reached its zenith in the B-29 Superfortress, a sophisticated heavyweight famed for carrying out the only wartime use of atomic weapons. Its cost was high, but the sleek bomber was unquestionably a war winner.

This Boeing giant emerged from the 1937 XB-15 design, though it underwent much change. The Army Air Corps in early 1940 specified a requirement for a "Hemisphere Defense Weapon" able to fly at 400 mph, travel 5,000 miles, and carry 2,200 pounds of bombs. AAC chose Boeing's Model 345, combining a high aspect ratio wing with Fowler flaps, new engines and avionics, and remotely controlled gun turrets. It was the first bomber with pressurized crew areas.

Gen. H.H. Arnold believed in the B-29, and the service ordered 1,500 even before first flight. Despite a troubled development, the B-29 was lethal and versatile. In December 1943, US leaders decided not to use the B-29 in Europe but to use its great range in the vast Pacific. The first B-29 raids on Japan came on June 15, 1944 and built up steadily. In March 1945, Maj. Gen. Curtis E. LeMay ordered night low-altitude use of incendiary bombs, and these raids, by hundreds of B-29s, devastated Japan. On Aug. 6, *Enola Gay* dropped an atomic bomb on Hiroshima. On Aug. 9, *Bockscar* dropped another on Nagasaki. Tokyo surrendered.

Five years later, B-29s, though past their prime, returned as workhorses of the Korean War. They flew 20,000 sorties, dropped 200,000 tons of bombs, and shot down 27 enemy aircraft. It was the end of the combat career for what might have been the most significant bomber in history.

—Walter J. Boyne

This aircraft: B-29A Superfortress #44-61835—*Dragon Lady*—as it looked in 1951 when assigned to SAC's 19th Bomb Group in Japan for Korean War duty. A World War II veteran, it bombed North Korea and shot down five MiGs, but crashed in the Pacific in late 1951.

B-29s unload incendiary bombs on Japan in 1945.

In Brief

Designed by Boeing ★ built by Boeing, Bell, and Martin ★ first flight Sept. 21, 1942 ★ crew 10 ★ number built 3,970 ★ bomb load 20,000 lb ★ **Specific to B-29A:** four Curtiss-Wright R-3350 engines ★ armament eight or 10 .50-cal guns (turrets), one 20 mm gun, two .50-cal guns ★ max speed 358 mph ★ cruise speed 230 mph ★ max range 4,100 mi ★ weight (loaded) 141,100 lb ★ span 141 ft 3 in ★ length 99 ft ★ height 29 ft 7 in.

Famous Fliers

Medal of Honor recipient—SSgt. (later MSgt. Henry E. "Red" Erwin. **Three SAC commanders**—Maj. Gen. (later Gen. and CSAF) Curtis E. LeMay; Col. (later Gen.) Thomas S. Power; 1st Lt. (later Gen.) Russell E. Dougherty. **Atomic bombing pilots**—Col. (later Brig. Gen.) Paul W. Tibbets Jr., Hiroshima raid, and Maj. (later Brig. Gen.) Charles W. Sweeney, Nagasaki raid.

Interesting Facts

Flown by USAAF, USAF, US Navy, RAF, RAAF ★ used in bombing, reconnaissance, refueling, transport, rescue, weather, special operations ★ led to B-50 bomber, KC-97 tanker ★ drop aircraft for X-series aircraft ★ Soviet Tupolev Tu-4 was a "Chinese copy."

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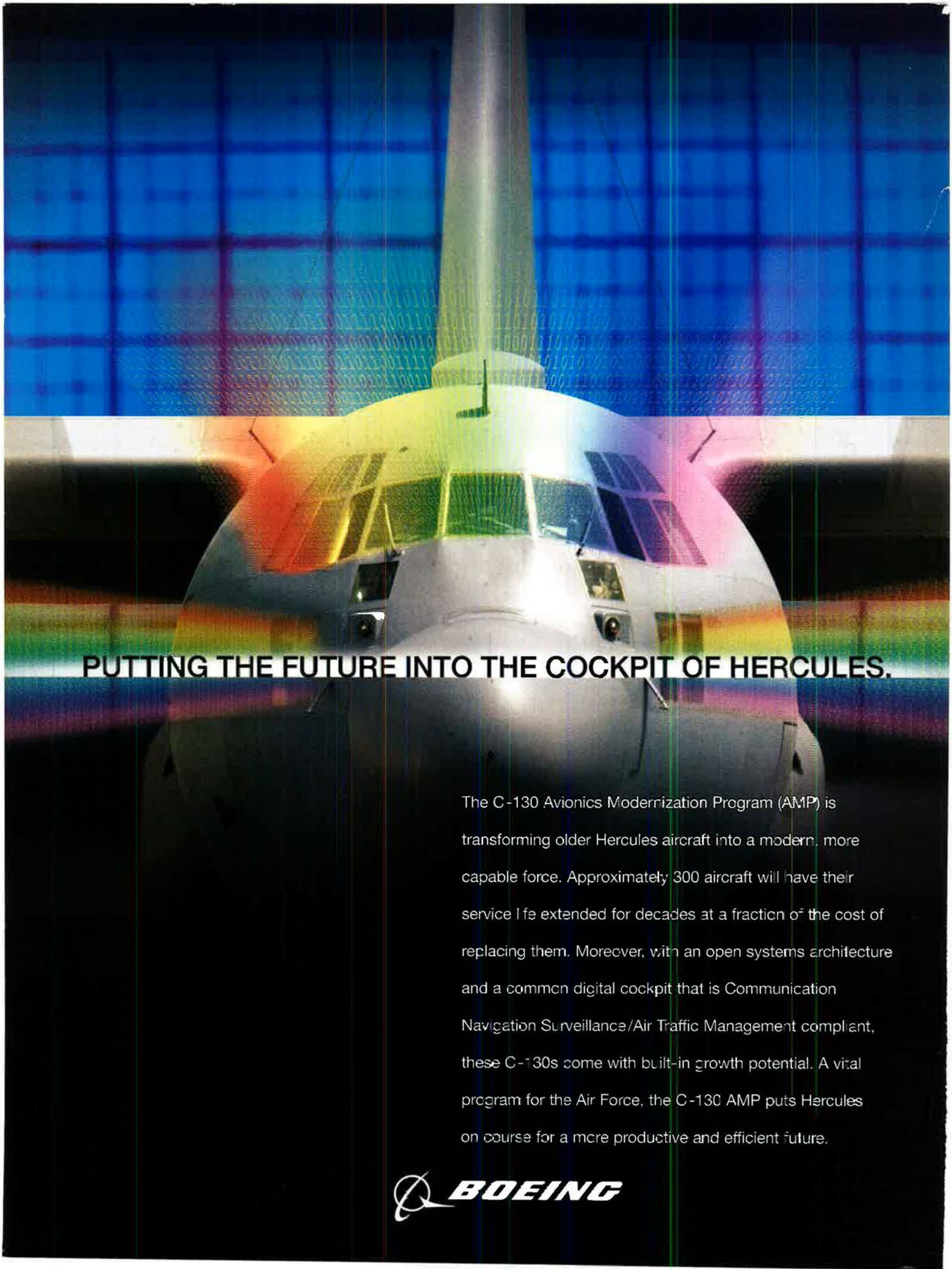
PUTTING THE FUTURE INTO THE COCKPIT OF HERCULES.
The C-130 Avionics Modernization Program (AMP) is transforming older Hercules aircraft into a modern, more capable force. Approximately 300 aircraft will have their service life extended for decades at a fraction of the cost of replacing them. Moreover, with an open systems architecture and a common digital cockpit that is Communication Navigation Surveillance/Air Traffic Management compliant, these C-130s come with built-in growth potential. A vital program for the Air Force, the C-130 AMP puts Hercules on course for a more productive and efficient future.
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