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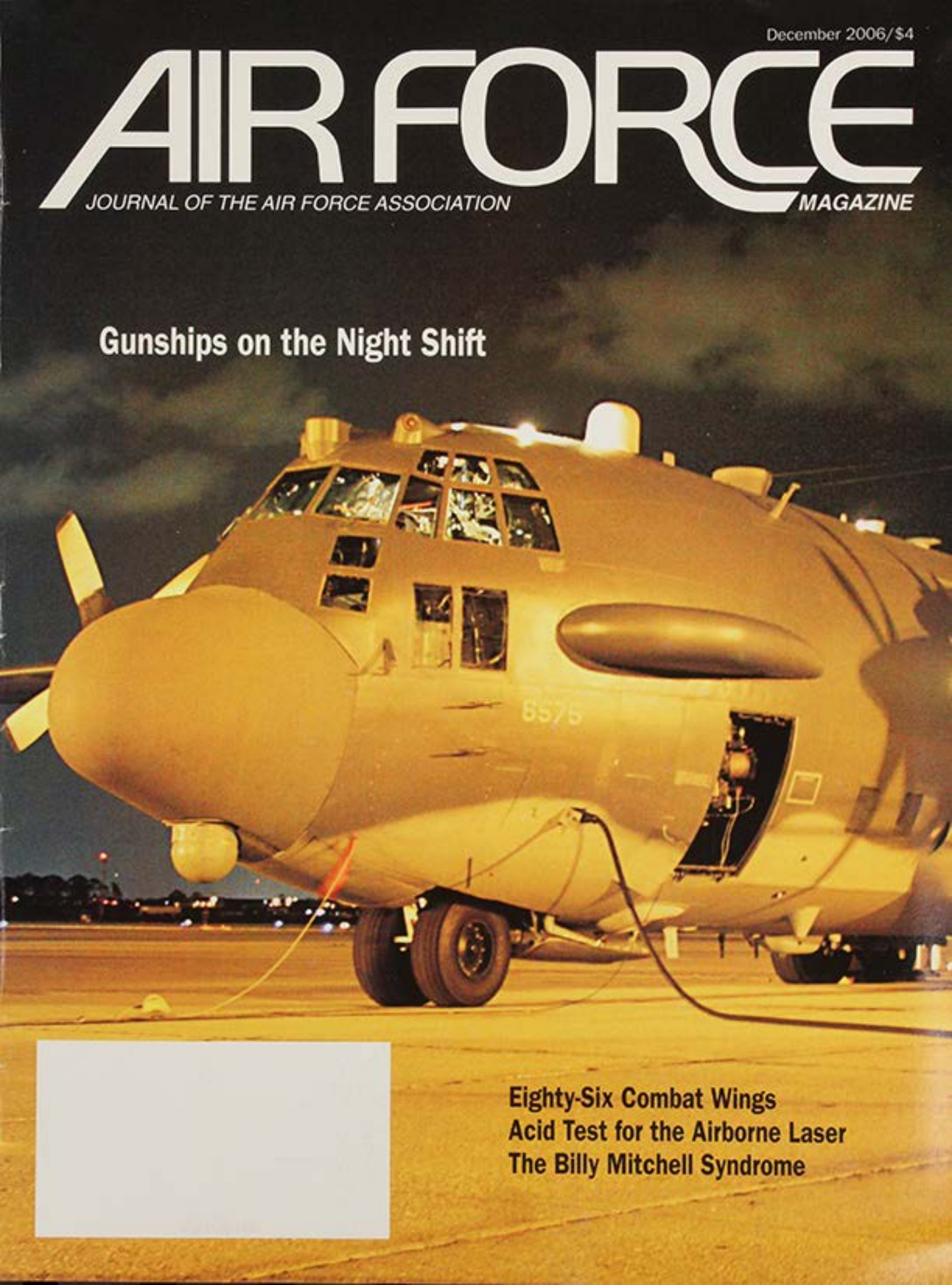
Gunships on the Night Shift



Eighty-Six Combat Wings

Acid Test for the Airborne Laser

The Billy Mitchell Syndrome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December 2006, Vol. 89, No. 12

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Editorial

By Robert S. Dudney, Editor in Chief

A Force For the Long Run

THE political ghost of Defense Secretary Donald H. Rumsfeld, who resigned under fire on Nov. 8, will haunt the Pentagon for some time. He has put a deep imprint on the place. For the Air Force, that legacy is not altogether positive.

His thinking was evident in the Pentagon's latest Quadrennial Defense Review, unveiled this year. Rumsfeld, greatly influenced by wars in Iraq and Afghanistan, shifted DOD emphasis away from "traditional" conflict—that is, against nation-states—toward war with "irregular" forces such as terrorists, insurgents, and guerrillas.

Low-intensity conflict, the QDR said, is now the "dominant form of warfare." Fighters and other advanced weapons were of relatively less value. The services would have to adjust accordingly.

Every transition is also an opportunity. With Rumsfeld's power now at an end, his successor may want to reconsider that QDR decision, at least as it pertains to the Air Force. The question is this: Has DOD overemphasized irregular warfare?

One who thinks a great deal about that issue is Gen. Ronald E. Keys, head of USAF's Air Combat Command at Langley AFB, Va. As the ACC boss, he's in charge of some 1,100 aircraft, 25 wings, 15 bases, and 105,000 troops and civilians. He has no choice but to take the long view, and thus his words have special weight.

"I think there is a danger, and we worry about that," Keys told the Defense Writers Group, a gathering of Pentagon reporters, on Nov. 9 in Washington, D.C. "Across the Air Force—particularly in Air Combat Command—I had better be able to fight tonight, and I've got to be able to fight 30 years from now, too."

Iraq and Afghanistan aren't the only wars to consider. "You've got to be able to fight in North Korea," he said. "You've got to be able to defend in the China-Taiwan Strait. You've got to be able to go to Iran." Such scenarios would entail high-intensity clashes with large national forces. Those nations could be defeated only by a technologically advanced "conventional" military.

Keys has said before that the Air Force is spending a lot of time "trying to find one white SUV racing down the road" in Iraq. He went on to say, "When you get to Korea, your problem is not finding one white SUV; your problem's going to be 1,000 tubes of artillery shelling Seoul. It's going to be four tank armies."

Keys said USAF needs versatile platforms, equally good in a permissive environment or a "kick-down-the-door" scenario. The stealthy F-22 Raptor fits the bill to a T, but Rumsfeld imposed a drastic cut—reducing the buy from the 381 that USAF considered the minimum requirement to only 183 today.

Some new emphasis on irregular threats was warranted, but overcorrection can be dangerous.

"I've got 183 of 'em; that's what I plan to live with," snapped Keys, when asked if the Air Force would seek more. "I need 381. I can afford 183."

Legacy aircraft such as the F-15 won't carry the mail indefinitely, either. "It's got a score of 108 to nothing in combat," Keys observed, "but it won't be 108 to nothing in combat for the next 30 years."

Ironically, Keys noted, modern fighters are ideal even for low-intensity war. "With the F-22 or the F-35," said Keys, "you have the ability to get in where people don't see them, the ability to listen where people don't know you're listening, and to find things that people don't want found." Many ignore this reality, however.

USAF will continue to seek high-end, adaptable weaponry. That will at times bring the service into conflict with "people who think you are too sophisticated and you've got too much technological overmatch," said Keys. Success is not assured.

The centrality of irregular warfare is exerting a worrisome influence on the Air Force in another, indirect way—through confusion over Air Force and Army roles and missions.

The problem stems from the Pentagon's large-scale diversion of USAF airmen into missions normally performed by Army soldiers—the so-called "in-lieu-of" taskings. Thousands of airmen are filling in for Army troops. This has been done to allow the ground service to fight in Iraq and Afghanistan even as it remakes itself into a lighter, more mobile force at home.

"We have a problem," said Keys. "I'm spending money to train people in skills that I don't maintain in the United States Air Force." Example: Airmen driving 50-caliber gun trucks in Iraqi convoys, or airmen serving as volunteer interrogators.

He notes that ACC security forces, in any 12-month period, are deployed to Iraq for six months and prepping for the next deployment for two months—eight months in all—making it hard to meet ACC's own needs. When it comes to explosive ordnance disposal specialists, truck drivers, and combat engineers, the story is much the same.

Providing "outside-the-wire" base security poses a special problem. "I'm paying for light infantry and getting armored fighting vehicles for my folks," said Keys. "The question is, should I be doing that against all of the other things I should be doing?" Inevitably, Air Force readiness is diminished.

The ACC chief knows his remarks aren't welcome everywhere. According to Keys, "These are unpopular questions that people don't like to speak about, but the unspeakable will happen, whether you speak about it or not."

The bedrock of current US military doctrine is "full spectrum dominance"—the ability to defeat the enemy at any point on the ladder of escalation. It hinges on the ability to control the skies, swiftly defeat an invading enemy, and rapidly take the fight to the adversary. It requires, in a word, airpower.

That is worth remembering. Some new emphasis on irregular threats was warranted, but overcorrection can be dangerous, and it is not easy to know when that has happened.

"How will you know?" asked Keys. "You only know if you screw it up when a war happens. That's the hard part. There's no metric out there that tells you you've got exactly the right force." ■

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The Ten Truths

Regarding "The Ten Truths," by Editor in Chief Robert S. Dudney, October 2006, *["Editorial," p. 2]:* Sounds a lot like [a] hymn "How Great We Art."

In the 1950s, I would argue with my brother. I said, "He who controls the air controls the ground." That was our air doctrine then. My brother, an infantryman veteran from World War II, stated emphatically, "The only way you can control the ground is to have a guy on the corner with a weapon."

I am a blue-suiter, but I think my brother was right.

Lt. Col. Tony Weissgarber, USAF (Ret.)
San Antonio

Washington Watch

Reference RAND's study "Learning Large Lessons" *["Washington Watch: RAND's Advice: Let Airpower Lead," October, p. 8]:* Given the tremendous importance maneuver plays in successful land operations, the contributions of air operations should be obvious. Thanks to the unprecedented moving target indicator capabilities provided by Joint STARS, beginning with Desert Storm the Air Force has demonstrated that airpower can create an intractable dilemma for enemy land forces. If the enemy attempts to move, he can be seen and targeted; but if he does not move for fear of being seen and targeted, friendly land forces can use their maneuver to achieve the advantages of surprise, position, and mass. If joint warfighters have not been designing wargames and exercises to refine the ability of US forces to create and exploit this dilemma, Congress should be asking why not.

Lt. Col. Price T. Bingham, USAF (Ret.)
Melbourne, Fla.

A Better Way to Run a War

Maj. Gen. [Charles D.] Link, USAF (Ret.), is exactly correct. Whatever benefits or gains accrued from the enactment of the Goldwater-Nichols Act *["A Better Way to Run a War," October, p.36]* with regard to increasing jointness or strengthening the role of joint theater commanders have been terribly offset by how the politicians have misused the act's increased role and power for a civilian Secretary of Defense.

Iraq is the greatest mistake this country has made in my lifetime—not in how the occupation has gone (that is a secondary set of disasters), but in the decision to start a war with Iraq on the basis of "cherry-picked" intelligence by a cabal of naive, militarily inexperienced politicians. It appears the military and the normal centers of competence within the government were not consulted as to the decision to offensively engage; they were told. The real reasons for the war have never been adequately or fully explained, but all of the false, headline grabbing claims have now been exposed as being untrue. Those who made those claims, led by the vice president, knew or should have known they were false when they were made.

No military or Defense Department head resigned over the charge to war. No one has been fired or paid a price of self-punishment for a murderous policy of engagement which has cost some 24,000 casualties [and that], even if successful, will not result in a regime friendly to us or supporting our policies; has taken over twice as long as it was originally estimated it would and is still ongoing; and is costing 10 times as much per year (in our deficit spending dollars) as the total was supposed to have cost when it was started.

Civilian politicians like Rumsfeld, and McNamara before him, belong in the peacetime chain making [budget], production, and bureaucracy decisions. They are civilians kowtowing to their party and the President who put them in office. Wartime decisions involving strategy, casualties, and force levels are the proper role only of the experienced and trained military who have no party and owe allegiance to the nation and not its temporary, and military unqualified, office holders.

Short of rescinding the act and specifying the proper roles for the CJCS and the Defense Secretary, the Congress should mandate that an inexperienced, non-ex-service-qualified SECDEF must have a deputy who is an ex-uniformed theater commander and that the CJCS must be a voting member of any decision to go to war. Nothing less will save us from a similar politically motivated war

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

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

declaration in the future. Having once mastered how to take the nation into a war which was not in its interests, the politicos will not willingly surrender that power without public and organizational pressures.

Bill Barry
Huntsville, Ala.

■ *On Nov. 8, Secretary of Defense Donald H. Rumsfeld resigned.—THE EDITORS*

Aeromed Evac's Forefathers

I enjoyed reading your article "The 90 Percent Solution" *[October, p. 60],* and although Lt. Gen. Paul K. Carlton Jr. was a great Air Force surgeon general, the genesis of the current aeromedical evacuation system predates him. The ideas were formed in a cauldron that contained numerous strong-willed, intelligent, strategic thinkers that had the courage to break the paradigms of the times. Look back at the work in the Reinventing Aeromedical Evacuation, Aeromedical Evacuation 20XX, and the Aeromedical Evacuation Tiger Team reports. A small group of dedicated individuals at the 374th at Yokota AB, Japan, Hq. PACAF at Hickam AFB, Hawaii, 452nd and 4th AF at March ARB, the Air Force Reserve, and at Hq. AMC worked hard to forge the current system. There were also some other great generals in the aforementioned organizations that had the foresight and leadership to enable these great individuals to succeed. Keep in mind that the portion of the plan that is currently in place works well in a low to medium intensity conflict but in a high to extremely high intensity conflict, in multiple theaters with massive casualties, and where resources are stretched to their limits, it would require full implementation of the original plans. Hence, "The 90 Percent Solution."

Col. Michael A. Fleck,
Commander, AFROTC Det. 75
San Diego State University

The Missing Astronaut

Mr. Boyne's article in the October 2006 *Air Force* Magazine was excellent *["Air Force Astronauts," p. 72].* However, he overlooked one individual whom I had the pleasure to meet and beat at racquetball, that being Col. Frederick Gregory, USAF (Ret.).

He was selected as an astronaut in January 1978 and has logged 455 hours in space: as pilot for the orbiter *Challenger* (STS-51B) in 1985, as spacecraft commander aboard *Discovery* (STS-33) in 1989, and as spacecraft commander aboard *Atlantis* (STS-44) in 1991.

Mr. Gregory retired as a colonel in the United States Air Force in December 1993 after logging 7,000 hours in more than 50 types of aircraft, including 550 combat missions in Vietnam. His 30-year Air Force career included serving as a helicopter pilot and as a fighter pilot. He graduated from the United States Naval Test Pilot School and served as an engineering test pilot for the Air Force and for NASA.

Thanks again for an excellent article.

CMSgt. Robert G. Wheeler,
USAF (Ret.)
Incline Village, Nev.

Bomber Talk

I enjoyed Frederick Johnsen's article, "The Making of an Iconic Bomber," in October *[p. 78].* I, too, have been intrigued by the same question, and I spent a lot of time speaking to former Liberator and Flying Fort pilots whenever I could. I think the "elephant in the room" answer to why the B-17 is more famous is simple—the B-17 was easier and more fun to fly—even the most devoted B-24 pilots I met spoke of the Liberator as "flying like a dump truck." That is my theory!

Col. Bud Vazquez,
USAF (Ret.)
Bedford, Mass.

My husband [Carroll W. Guy] and I enjoyed reading the article "The Making of an Iconic Bomber." However, the information would have been more complete if activity of the Fifth Air Force and Thirteenth Air Force in the Pacific Theater during World War II had been included.

As a second lieutenant and later a first lieutenant, Carroll Guy flew B-24 bombers in New Guinea in the 43rd Bombardment Group, the 65th Bombardment Squadron, from 1943-44. Geographically, this was the largest theater in the war. In 1942, the Fifth Air Force only had a few B-17s. Later the B-24 was the bomber most often used on the many raids on Japanese bases since it had a greater fuel capacity and thus a longer range. Some of the missions my husband was on lasted as long as 14 hours.

After the war, my husband was assigned to Goose Bay, Labrador, Canada, for a year from which he checked on three radio transmitter sites above the Arctic Circle. These were used for commercial flights to home in on for polar flights to Europe. He also dropped supplies and mail to the men stationed there. He felt privileged to be flying the B-17. Despite the grueling weather conditions, the B-17 performed beautifully.

Sallie T. Guy
Murray, Ky.

Much of the article confirmed what I know about the B-24 and B-17 debate. I fly the Commemorative Air Force's B-24 *Diamond Lil.* Mr. Johnsen's assertion that there is only one flying B-24 in the world is incorrect. I believe Mr. Johnsen is referring to the only flying B-24 as the

one flown by the Collings Foundation, currently named *Witchcraft.* That "only one flying B-24" misconception is incorrect and those of us who maintain and fly *Lil* are working to undo the common belief that *Lil* is an LB-30 and not a B-24. *Lil* was built as a B-24A, paid for by the British Air Commission (BAC), and signed for as an LB-30 in May 1941. When delivered, she had bomb bays and gun positions in the nose, both waists, an upper gunner, tunnel gunner, and tail gunner. She had no turrets. She still has B-24A data plates on her engine oil tanks. Had she been delivered to the Army, her serial number would have been 40-2366. The British gave her serial number AM927 and intended her to be a training airframe for RAF Liberator aircrews. She was based at the Trans World Airways training center, "Eagles Nest," in Albuquerque, N.M. In July 1941, with TWA pilots at the controls, AM927 experienced a landing mishap in Albuquerque when her right brake was either locked or turning slowly. The tire blew out, she departed the right side of the runway, the right main landing gear and nose gear collapsed, and her days as a bomber were over. The British wanted the airframe repaired and AM927 *Lil* became the prototype airframe for the C-87 Liberator Express.

The B-24 line started with the XB-24. The Army wanted certain modifications, and that airframe was redesignated XB-24B. Consolidated produced seven YB-24 preproduction airplanes. Six went to Britain as the LB-30A. The seventh went to the Army as 40-702. The B-24A production run would have been 38 airframes. The first block of 20 B-24As were delivered to the British due to France no longer being in a position to take delivery of them when the first B-24A rolled off the production line in May 1941. Had France not been defeated by Germany, the French would have owned *Lil. Lil* was the 18th airframe of that first block of 20, called LB-30B, the Liberator I. Of that block of 20, two went to BOAC, one was crashed nine days after delivery, and the other 16 airframes were converted to submarine hunters and assigned to 120 Squadron in Coastal Command. *Lil's* sister airplane two numbers behind her, AM929, was credited with five U-boats sunk before she was crashed in Canada in the later stages of the war. The Army took delivery of nine B-24As; one, 40-2371, was destroyed at Pearl Harbor on 7 December. The last block of nine B-24As rolled off the line as B-24Cs.

After AM927's landing mishap, the BAC and Consolidated had an agreement that Consolidated would operate the aircraft in the US delivering parts and personnel. We have pictures of *Lil* when she still had the B-24A short nose, B-24 greenhouse canopy, and round engine nacelles. We have another picture of *Lil,* circa late 1945, with an extended nose and the current two-piece windscreen you see when you view the airplane. When the war concluded in Europe, the BAC gave the airplane back to Consolidated. Consolidated worked to get AM927 on the civil register. *Lil* received civil certification as NL 24927 on 1 April 1947. I can't be certain, but I believe the type certificate data sheet (TCDS) that can be found on the FAA's website TCL-6-3, 21 February 1947, is the one from when *Lil* was being put on the civil register.

Those of us who love, fly, and maintain *Diamond Lil* realize she is a very unique airplane. No other aircraft has a history like hers—she is the only B-24A that survived the war, either flying or in a museum. The misconception that she is an LB-30 and not a B-24 is one that has been entrenched for all her life. We are working to restore her bomb bays and gun positions, return her to the B-24A she once was, and end that misconception forever. On paper she is an LB-30. Even *Witchcraft* is as there is no B-24 TCDS. *Diamond Lil* is very much a B-24 and the older one of the two left flying in the world.

Maj. Robert Prater,
ANG
Will Rogers ANGB, Okla.

We pilots who were privileged to fly both of these great planes in what is considered to have been the major air battles of World War II regret that what we consider to be one of the most important factors in comparing these two planes is so often left out, and I would be grateful for a chance to bring this to the attention of *Air Force* Magazine readers: In the interest of brevity, may we state that there were two major air wars in World War II—Europe and the Pacific? With this in mind, let's make some comparisons between these two great warbirds.

The Fortress was best at high altitude because the Liberator, with its narrow Davis wing, did not perform well above 15,000 feet. Add to this the fact that the Lib was about 10 knots faster than the Fort, making formation with the two planes difficult. The Liberators had to constantly S to keep from overriding the Forts. This S-ing at high altitudes resulted in poor formations. Altitude, not pilots, made for loose formations. Once Eighth AF Headquarters separated them into their own groups, this problem was pretty well solved. Although the B-24 was not as "light" on the controls as the Fort, [the Lib had] a bit more muscle [and] did well in formation.

Now we come to the different theaters of war: The European war was done at high altitude, while the Pacific was mostly medium altitude. One can immediately see a difference in performance, but take careful note of the following: The war over Europe was, to a great extent, a fight with the enemy all the way to the target and back home. This made more exciting news for the "folks back home," giving the Flying Fortress fantastic publicity. Not so with the long over-water flights in the Pacific. So the B-17 became the "star" bomber.

But note this important information which the folks back home were not fed: The B-17 could never fly as far, with as great a bomb load, as the Libs did in the Pacific. Ask some of the Navy B-24 crews what it was like to fly a 12- or 18-hour mission. The B-24 accomplished amazing missions in the Pacific which were never told to the public. I honestly believe that my fellow pilots who flew both would agree that regardless of which plane the pilot might prefer, it is simply not fair to make comparisons without considering the theaters of war.

Maj. J. Charles Macgill,
USAF (Ret.)
Salisbury, Md.

A Better Warthog

Regarding the September 2006, p.16, "Building Better Warthogs" *["Washington Watch"]:* Latest edition to the A-10 series is the A-10C with all the bells and whistles that will greatly increase the aircraft capabilities. Added now are structural improvements (new wing), precision engagement upgrade, [ability] to carry advanced targeting pods, new networking gear, along with new cockpit displays and digital equipment. All this is great for its warfighting abilities, but at what cost in terms of added weight and decreased performance as a result of this extra weight?

The A-10 entered the Air Force in the early to mid-1970s and it's seen many improvements over the years. Each improvement adds just a bit more weight. As we all know, add weight, lower performance. Today's A-10 engine thrust is just a bit over 9,200 pounds, same as when the aircraft first entered service. How much weight has been added to the aircraft since then? It's no wonder the aircraft stops when the gun is fired. So what can be done to increase performance and give the pilot a bit more edge? Simple: Increase engine thrust with new updated engines.

Back a couple of years, I was employed with a major engine manufacturer and was part of a team working towards re-engining the existing A-10 aircraft. The goal was to convince the Air Force that we (the engine company) could re-engine with new commercial engines at very little or no cost to the Air Force for the new engines. In addition, and included, we would also accomplish all the field-level repair and spare parts of these engines. The pilots and maintainers all thought it was a great proposal. The cost to the Air Force: the O&M funds allocated to maintain its existing engine program.

Why would the Air Force not jump at a

chance to finally fix the A-10 performance at no or little new engine cost? In order to upgrade to a new and increased thrust engine, the aircraft fuel system would require modification at the tune of $1 million. The Air Force wanted the new engines, but just could not come up with funds for the aircraft modification.

Today's commercial CF34 engines exceed 18,000 pounds of thrust and, with the latest electronic technology, more than double the existing A-10 TF34 engine thrust with its old outdated analog controls.

If the Air Force would delay just one F-22 or F-35 into service, they would have more than enough funds to re-engine today's A-10 fleet. We owe our pilots more protection than they are now getting. There is no aircraft in today's inventory that can do what the A-10 does and that includes the upcoming F-35, which cost between $48 million to $63 million a copy depending on model type. I wonder if an F-35 can reduce its flight speed to around 150 miles per hour, almost stop when its gun fires, and ramp up to getaway power quickly?

[Of] course the proposal would still have to be on the table from the engine manufacturer.

MSgt. Paul R. Soucy,
USAF (Ret.)
Myrtle Beach, S.C.

Under Lockdown

After persevering for 40 years and winning the Cold War, we were attacked at home on September 11th, 2001 by a new kind of enemy. To meet this new challenge, we're using tools that are, by and large, the same ones used 25 to 50 years ago. *[See "Under Lockdown," September, p. 54.]*

Many of the front-line F-16 fleet are 25 years old, as are the "modern" B-1 bombers, F-15 air superiority fighters, and the A-10s now supplying close air support capability for our ground troops. The KC-135—backbone of our aerial tanker fleet—and our remaining B-52 bombers are 45 years old. Imagine sending your son or daughter on a long trip with a car that was 25 to 50 years old. Now imagine watching your child flying out to fight for our nation in an aircraft of the same vintage. For most of us, either concept is simply unthinkable.

Rebuilding our capabilities as a nation and arming our sons and daughters with world-class tools must be a national imperative. To do this we must do three things:

Divest Now: When our Air Force leadership tries to do a "spring cleaning" to pay for the modern tools of its trade, interest groups close ranks and thwart the professionals—time and again. These are hard words to write and reflect on—I've been there. As a vocal community advocate for Utah throughout both the 1995 and 2005 Base Realignment and Closure deliberations, I often asked myself whether the national and our local interests were in harmony.

Interest groups and communities across the nation need to educate themselves and understand what our sons and daughters need to meet the enemy and survive. They should check their local interests at the door and do the right thing, even when it becomes personal. If this means accepting a change to missions, retiring aircraft, or closing a local base, so be it.

Invest in the best capability possible: Unfortunately, eliminating aged systems is but a small component of financing the major overhaul needed. Even if all the Air Force's proposed divestitures were embraced by DOD and Congress, a huge bill remains. For this reason, the Air Force has proposed cutting its force by 40,000 active duty and reserve people (from over 350,000 to just over 315,000 active duty, from over 72,000 reserve to about 65,000 reserve) almost immediately—and plowing the pay and entitlements those people would otherwise receive back into new systems. Money gleaned from these reforms is now reflected in the budget lines for new systems: finishing the F-22 buy; developing and buying a new tanker (USAF's top acquisition priority) to replace those old KC-135s; developing and buying an advanced bomber to replace the B-52s and B-1s along with a new fighter, the F-35 or Joint Strike Fighter; developing and buying unmanned surveillance and combat systems; updating the intercontinental ballistic missile fleet, deploying the next generation of space assets; and expanding and modernizing the special operations forces and their related systems. Popular support for the Air Force strategy is crucial.

Stay the course: Finally, it should go without saying that, having embarked on the modernization path, we ought to see it through. Unfortunately, in the business of defending our nation, there are frequent examples of fickle behavior. Every time we change, things slow down and the price goes up—delaying critical capability and increasing its cost. The challenge to interest groups, communities, and our elected representatives is simple—stay the course. Plan the buy, and then buy the plan—on time, on cost, on target. The result will be swift, affordable modernization of our Air Force.

As a nation we must preserve a balanced armed force. Some investment in large ground forces is necessary for the short term. Recent modern history and any reasonable reading of the tea leaves, however, tell us that air and space power will remain the dominant national security instrument.

Vickie McCall
Ogden, Utah

The Chart Page

By Tamar A. Mehuron, Associate Editor

Where the Nukes Are

World military arsenals contain more than 27,000 nuclear weapons, with 95 percent of them in the hands of either Russia or the United States. So says a new report from the Center for Strategic and Budgetary Assessments, a US think tank. Its author, Steven M. Kosiak, says Moscow has 16,000 nukes (of which 7,200 are militarily operational) while Washington's stockpile runs to 10,000 weapons (of which 5,750 are operational or in "reserve"). Thus, a huge number of weapons in both nations are "inactive," meaning they have no military function. Included in the tally are strategic, theater, and tactical weapons. Nuclear capability is attributed to seven other "declared" and "undeclared" powers—China, France, Britain, Israel, India, Pakistan, and North Korea. These seven, combined, possess no more than 1,450 such weapons.

Two at the Top

Declared and Undeclared Nuclear Arsenals, 2006

Country	Nuclear Warheads
Russia	16,000
US	10,000
China	400
France	350
Britain	200
Israel	200
India	50
Pakistan	48
North Korea	2

Note: Figures for Russia and the US include all active and nonactive warheads. For other nations, the figures given portray the high end of a high-low estimate.

Source: "Spending on US Strategic Nuclear Forces: Plans and Options for the 21st Century," Steven M. Kosiak, CSBA, 2006.

Washington Watch

By John A. Tirpak, Executive Editor

In Space, Pain and Gain; Flexing Muscles in the Pacific; Raptors Through the Years ....

Now, a Space Monopoly

The federal government's two main suppliers of satellites and medium and heavy rockets, Boeing and Lockheed Martin, have been cleared to merge their businesses into a space monopoly—the United Launch Alliance.

The Federal Trade Commission, which announced the decision in October, said it recognized that the move will hurt competition and boost costs, but believed it was necessary to maintain assured access to space. The two firms supply not only the Defense Department but also NASA and other agencies.

Boeing and Lockheed officials unveiled the ULA plan in mid-2005 and had been awaiting FTC clearance ever since. (See "Aerospace World: Competition in Space Launches," March, p. 20.) The two companies, which have been competing against each other in the Evolved Expendable Launch Vehicle program, have been losing money on their launch and satellite operations because there hasn't been enough business to justify their investment. They are now free to consolidate staffs and facilities.

The EELV program began in the early 1990s, when a forecasted boom in the satellite and launch business led the Air Force to structure its rocket competitions such that it would only pay for services, leaving development and infrastructure costs to be borne by the suppliers. It was expected that USAF would get a good deal on space services if it procured them from a humming assembly line of commercial sales.

However, the boom in the commercial space market never appeared and costs climbed rapidly on Boeing's Delta II and Delta IV and Lockheed Martin's Atlas V programs.

The new joint venture will be led by officers from both companies and will slim down to about 3,800 employees spread across Alabama, California, Colorado, Florida, and Texas. Launch facilities will be maintained both at Cape Canaveral AFS, Fla., and at Vandenberg AFB, Calif.

"The consolidation of the nation's only two suppliers of government MTH [medium-to-heavy] launch services is likely to cause significant anti-competitive harm," said the FTC. However, it noted that the Defense Department informed the FTC "that the creation of ULA will advance national security by improving the United States' ability to access space reliably."

The FTC said this will happen because "a single workforce ... will benefit from an increased launch tempo and because ULA will integrate Boeing's and Lockheed Martin's complementary technologies."

The Pentagon, the FTC said, had concluded that "the national security benefits of ULA would exceed the anti-competitive harm."

The FTC's permission came with some strings. The joint venture can't favor its parent companies in future space vehicle contracts and must give other competitors "equal consideration and support" in launch services contracts. In other words, it can't block other companies from using ULA space launch facilities.

Also, ULA must "safeguard competitively sensitive information obtained from other space vehicle and launch services providers." That means it can't take what it learns in confidence about other companies' spacecraft and use it to improve ULA's parent company products. The conditions specify that ULA can't design its launch vehicles such that only Boeing or Lockheed Martin spacecraft can be mated to them.

Boeing photo

Boeing and Lockheed Martin will do this together.

The conditions were partly a response to a lawsuit from Northrop Grumman, the third-largest supplier of space systems to the Defense Department, which charged that the monopoly would shut them out of future competitions. Northrop Grumman became a major player in the military satellite market when it acquired TRW in 2002.

Kenneth J. Krieg, the undersecretary of defense for acquisition, technology, and logistics, said in a February budget briefing that the Pentagon believes in competition, but in the case of medium-to-heavy launch services, "it's got to be competition for which there is real competition."

In support documents supplied to the FTC by the Pentagon, Krieg's office acknowledged that the merger will likely lead to higher launch costs in the long term and dampen innovation on the part of the rocket makers. However, the fact that ULA will maintain two different families of launch vehicles—the Delta and Atlas—eliminates the chances of a single-point failure in space access and was therefore a good trade to make.

Gen. Kevin P. Chilton, head of Air Force Space Command, said in September that the ULA arrangement is logical.

At AFA's Air & Space Conference in Washington, D.C., Chilton said, "It makes sense to increase assured access to space and to focus teams working the same issues with regard to final assembly and how we produce those two vehicles."

The costs of the merger will be better known when the government makes its next big block purchase of launch services, called Buy III. In this buy, the government will start picking up more of ULA's launch infrastructure costs,

which had been borne by the contractors. Consolidation of efficiencies and the reduced costs should permit the rocket launch business to become profitable again, which in itself helps preserve access to space, Pentagon officials have said, because it dissuades contractors from leaving the business altogether.

Beefing Up PACAF

The Air Force is building up its assets in the Pacific Theater, adding both greater numbers of systems and more capable equipment, while expanding its relationships with regional air services, reports the commander of Pacific Air Forces.

"We have modest growth" in numbers of systems, said Gen. Paul V. Hester, "but we have, I think, exceptional capability growth with the new platforms." Hester spoke about changes and initiatives across his command in a September interview with *Air Force* Magazine coinciding with AFA's Air & Space Conference.

PACAF has already traded some of its C-130s for eight new C-17s, as Hickam AFB, Hawaii, is the first beddown base for the large airlifter outside the continental US, Hester said. Alaska will be getting eight C-17s as well and preparations are being made to base 36 F-22s at Elmendorf AFB, Alaska, within the next two years, he reported. Hickam will also trade in its older F-15s for F-22s. In addition, the Air Force will permanently station three Global Hawks at Guam starting next year, building up to seven by 2009.

Moreover, "we're into our third year of continuous bomber rotations" at Guam for several months at a time. Every type of US heavy bomber—B-1s, B-2s, and B-52s—has cycled through Andersen AFB, Guam, he noted.

"We have an appropriate number of six to eight KC-135s to support those bombers, and then twice a year we have rotations in there of fighters," he continued, noting that F-15Es deployed to Guam last year and more are coming soon. Also, "we see a much more frequent presence of Navy fighters that drop in to the Andersen ramp and do business out there and do exercises out there as well."

The number of personnel deployed to PACAF bases will not increase much, though, Hester said. The new systems require less of a personnel "footprint."

Hester said he has been frustrated in his efforts to engage with China in military-to-military relations.

"We have hosted multiple Chinese delegations of various sizes and numbers of flag officers in Hawaii," Hester reported, adding that he has then permitted those delegations to tour range and base facilities in Alaska. Chinese observers have also been permitted to watch exercises in Guam.

"We are all waiting for an opportunity to visit [China] and have more substantive discussions about how to start building our relationship," Hester said. He said he might have the chance to go "in early spring" of 2007.

Asked if he is particularly concerned about China's rapid modernization of its air forces, Hester said, "Every nation has the inherent right of self-defense" and said he's less concerned about the lack of visibility into China's defense budget and plans than the "building of a new generation of fighters."

The US, he said, is "interested in learning from them what is their vision of the future and why they are building particular kinds of capabilities across all of their services."

Japan remains the "key alliance" for the US in the Western Pacific, Hester said.

The US has not sent its bombers to Japan, Hester noted, because while there is no restriction on such aircraft in mutual defense agreements, "there just has been no need for us to go to Japan with our bombers, and ... because they don't have large bombers in their inventory, we're sensitive not to take those bombers there."

Bombers likewise haven't been landing in South Korea—again, not because of any restriction, but because it hasn't been necessary. The big bombers do exercise in the air above South Korea, training along with tactical air control parties on the ground to coordinate air strikes, but they usually make a pass, drop or simulate the release of ordnance, and fly back to Guam, Alaska, or wherever they staged.

Hester said that, to his knowledge, there are no plans to change the scheme of control of air forces in Korea. Discussions about handing control of joint forces in Korea over to the South Korean government, he said, "would be for the ground maneuvering units ... [and] would exclude air forces." However, he said, discussions about command and control of forces on the peninsula are ongoing.

"If in fact the airpower remains under our control, I would keep it under 7th Air Force," Hester said.

Exercises on the Rim

Alaska has become the main exercise destination for Pacific-based forces, in a recurring exercise once called Cope Thunder and now known as Red Flag-Alaska. It is a complement to the Red Flag-Nellis air wargames that have been held in Nevada for three decades.

"We have a very close relationship, now, with Red Flag-Nellis, and we will then be broadening the opportunities for international cooperation at either Alaska or Nellis," Hester explained.

A number of Pacific Rim nations have sent aircraft to participate in the exercises, and Hester said he is hoping to expand the number of guests. He would like to have India as a guest at Red Flag-Alaska, possibly in 2007.

"We've been to India twice, now, in the last three years, with F-15s from Alaska [and] F-16s from Misawa [AB, Japan] this last trip. That's an opportunity to start a growing and significant relationship with our Indian counterparts, and we expect that will continue on an every-two-year basis," Hester said. The US fighters have been allowed to exercise at two different ranges in India.

While PACAF units have had some chances to fly with Australia's Air Force over that country, such opportunities are "few and far between," Hester noted. "The greater exercise opportunity is with Singapore," he said.

Such exercises are all over water, owing to Singapore's small land area, Hester said, "so there's no bomb-dropping. It's strictly air-to-air." The US has no permanent base in Singapore, but both USAF and Navy aircraft are frequent guests there.

"They are gracious to let us be there to exercise with them up to four times a year, in what we affectionately call 'Singapore Slings,'" Hester said. Recently, he sent a unit usually based in South Korea to the tiny country at the tip of the Malay peninsula. Thailand has hosted two exercises with PACAF in recent years—Cobra Gold and Cope Tiger.

Cobra Gold, once a combat exercise, became a humanitarian and disaster relief exercise following the 2004 Indian Ocean tsunami disaster. Cope Tiger, once an air-to-air wargame, added an air-to-ground element last year and featured the first ever deployment of A-10s to Thailand, Hester said. In late September, he did not know if the new Thai government, following the recent coup, would continue the exercises, but had received no messages saying the new government would discontinue them, either.

The US has not deployed any fighters to the Crow Valley flying range in the Philippines since the eruption of Mt.

Pinatubo caused the Air Force to vacate Clark Air Base in 1991. (See "Clark Digs Out of the Ashes," March 2000, p. 40.) PACAF has been using the Alaskan range complex ever since.

Hester said that Guam is also being used as a flying range and offers opportunities for joint exercises with the Navy and other countries. Japan, he said, is excited at the prospect of doing flying exercises at Guam.

"The weather's good, the flying's good, there's also a bombing range there, [and an] unrestricted opportunity to fly supersonic there."

Hester noted that the Japanese have sent their F-4Js to Guam two summers in a row, and they have dropped live weapons on both occasions.

The exercises with Japan are not necessarily nation vs. nation, Hester said. The two air forces "blend our airplanes for the specific [missions] we have. ... They can take their F-4s, we can escort them with F-16s, and we can oppose them with F-16s." The exercise "allows us to work side by side, increase interoperability, learn from each other," and develop common techniques and procedures. He expects that Japan will in the future deploy its own aerial tankers and AWACS aircraft for the exercises. The additional assets will allow a "larger, more complex scenario."

Given that Guam is becoming such a strategic hub for USAF and Navy operations in the Pacific, has anything been done to give it greater protection?

Hester said that Guam benefits from "the tyranny of distance, the vastness of the ocean. The distance ... from other land masses [such as] Japan, the mainland of China, or the Philippines, gives it its own level of protection, just because it's 'out there.'"

Still, if tensions rose with China over Taiwan, for example, "clearly, we could deploy Patriot [air defense missile batteries] there," Hester said. Also, "we do have an air defense capability with airplanes that we can deploy into Guam to sit air defense alert, not unlike how we sit air defense alert in Hawaii."

F-22 Multiyear Approved; Countdown Begins

Congress in October approved the Air Force's bid to buy the F-22 Raptor under a multiyear procurement contract, guaranteeing the production of the last 60 airplanes now on order but also starting the countdown to the closure of the F-22 production line.

The approval for the MYP came when President Bush signed the 2007 defense authorization bill and gave the go-ahead for Lockheed Martin to produce 20 F-22s per year in 2007, 2008, and 2009. That buy will bring the F-22 buy up to 183 aircraft—the most allowed under last year's Quadrennial Defense Review findings. (See "Washington Watch: Accommodating the QDR," February, p. 14.)

The Air Force, however, has never fully accepted the 183 number, consistently disagreeing politely with Pentagon leadership that the service needs 381 Raptors to meet all its obligations. In the QDR, compromise language gave the Air Force permission to keep buying F-22s if there are delays or setbacks in production of the F-35. The Air Force insisted that it have a warm stealth fighter production line—what it calls a "fifth generation" manufacturing capability.

Assuming that the F-35 remains on track, though, the last F-22s, in Lot 9, will be delivered in December 2011. The long-lead parts suppliers for the aircraft, however, will start "turning off" in 2007 or 2008, according to Larry Lawson, Lockheed Martin's executive vice president and general manager of the F-22 program.

Lawson, in a September interview with *Air Force* Magazine, said the most problematic manufacturing item for the F-22 is titanium, which has been in artificially short supply recently as Russia has reduced its output. He believes the market will correct by adding production capacity, "but you really have a 'hard stop' right after that, ... and I really have to go turn off the supply base" in about 2007-08, he said.

USAF photo by TSgt. Rick Sforza

Raptors—the few, the proud, the underbought.

The situation could prompt a revisit of the horse trading seen this September, when Congress, in the 11th hour, voted to add 10 C-17s to the Air Force's budget request, extending the production line nearly a year, until 2009. The extension was seen, among other things, as a way to give Boeing time to line up additional international customers for the airlifter.

However, the F-22 will not, apparently, get a lifeline in the form of export orders. Under the Obey Amendment, the F-22 may not be marketed overseas. Rep. David R. Obey (D-Wis.), author of the language, said it makes little sense to sell the Air Force's top technology to foreign countries if there is a chance the US could someday come up against it in battle.

Obey stands to become the chairman of the powerful House Appropriations Committee, which oversees defense funding, as the Democrats won the House in the November elections.

In its language approving the F-22 multiyear deal, the House-Senate authorization conference encouraged the Air Force to "continue to seek improved efficiencies in this program."

The Air Force had testified that the MYP, by giving contractors assurances of the number to be built, could save up to $500 million on the F-22 program. However, Lockheed Martin's Marietta, Ga., facility has been cranking out two per month, and a reduction of four airplanes a year will not lower overhead costs. The F-22 factory was designed to accommodate as many as 36 Raptors a year. The original, "most efficient" rate of production was 48 per year, before both senior Pentagon leaders and Congress reduced the program.

"Going from building 24 a year to 20 ... will be tough, but we'll make that adjustment," Lawson said. "Obviously, there isn't a capacity issue."

In exercises in Alaska this summer, a squadron of F-22s racked up an air-to-air combat record of 241-to-two against F-15s, F-16s, and F/A-18E/F Super Hornets. Other Raptors demonstrated bull's-eye hits on some 20 targets at Hill AFB, Utah, dropping satellite guided Joint Direct Attack Munition bombs from 50,000 feet and at speeds in excess of Mach 1.5.

Lawson said, "I don't get a lot of questions anymore about how effective the [F-22] is. ... The demonstrated effectiveness in multiple deployments gives you a strong feeling that this airplane can go to war." ■

Aerospace World

By Marc V. Schanz, Associate Editor

Airman Killed in Iraq Patrol

A1C Leebernard E. Chavis, 21, of Hampton, Va., died Oct. 14 on duty in Iraq. Chavis was killed while serving as a turret gunner during a patrol of the Baghdad area with Iraqi police, the Defense Department said.

Chavis was assigned to the 824th Security Forces Squadron at Moody AFB, Ga. He served in Iraq with the 732nd Expeditionary Security Forces Squadron, which is helping to train Iraqi police units.

USAF Resets Some Priorities ...

The Air Force has reset its buying priorities to cope with aging aircraft and the evolving employment of USAF forces worldwide, Secretary Michael W. Wynne and Chief of Staff Gen. T. Michael Moseley announced on Oct. 12.

Now heading the "top five" list is the KC-X program to replace USAF's aging fleet of aerial tankers. In descending order, the others are the CSAR-X combat search and rescue program; satellites for early warning and communications; the F-35 fighter; and the next generation long-range strike platform.

Missing from the lineup was the F-22 fighter, which has recently been approved for a multiyear procurement program. (See "Washington Watch: F-22 Multiyear Approved: Countdown Begins," p. 11.)

Moseley told reporters at a Corona meeting of top USAF brass in Washington, D.C., that the F-22 had been the No. 1 procurement priority from the mid-1990s "up until this morning."

However, the F-22 is being delivered—easing the declining fighter problem—while the tanker issue has reached critical mass, Moseley said.

"The single point of failure of an air bridge, or the single point failure for global intelligence, surveillance, and reconnaissance, or the single point failure for global strike is the tanker," he explained.

... And Predicts Slower Buys

Wynne noted that Air Force budgets will be too tight to replace the tankers at a once-hoped-for rate of 20 per year.

"I don't think we're going to get to that," he said. "We're probably going to replace at ... a rate of between 10 and 15 units a year." He expects the aircraft to cost $150 million to $200 million apiece, over and above development, and that first deliveries will not take place until 2012 to 2013.

Moseley said that limited funds will

AP photo by Gerald Herbert

President Bush on Nov. 8 announced that he would be replacing Donald Rumsfeld as Secretary of Defense. Bush said in a press conference that "Rumsfeld and I agreed that sometimes it's necessary to have a fresh perspective." Robert Gates, a former CIA director serving as Texas A&M president, was Bush's choice to be the next Defense Secretary. The announcement came the day after Democrats took control of the House and Senate in midterm Congressional elections that reflected widespread voter displeasure with the course of events in Iraq. Rumsfeld, who also held the post of Defense Secretary during the Ford Administration, held the job for nearly six years under Bush.

US and Pakistan Hammer Out New F-16 Deal

Pakistan has signed a deal to buy F-16s from the US in a sale worth $5.1 billion. The deal was in negotiation for months, because the US feared the fighter's technology would leak to unfriendly nations.

The Pakistan deal, for 18 Block 52 F-16C/Ds with an option for 18 more, was struck only after the US received reassurances about the capabilities and use of the aircraft. Mindful of the close arms cooperation between Pakistan and China, the US stipulated that Pakistan's F-16s will not have certain hardware, such as that used to penetrate air defenses. Pakistan also agreed that the US must approve in advance any F-16 flights out of Pakistani airspace. Personnel from the US will inventory the fighters and their systems every six months, and the fighters are to be segregated from aircraft supplied to Pakistan from other countries.

Islamabad also promised not to transfer any of the fighter's technologies to third parties, such as China. The deal calls for the 32 F-16A/Bs already in Pakistani service to receive the midlife update, and Pakistan will receive an additional 26 used F-16s at a later date.

In an unrelated agreement, the Defense Security Cooperation Agency has notified Congress that it wants to sell 30 Block 50 F-16s to Turkey for $2.9 billion, confirming reports of the sale earlier this year. (See "Aerospace World: Turkey Seeks Advanced F-16s," October, p. 18.)

The sales will allow Lockheed Martin to keep its F-16 line running through at least 2010, meaning there will be no break in production at the Fort Worth, Tex., factory before production of the F-35 Joint Strike Fighter ramps up there.

also stretch out procurement of the F-35 fighter, although he has not relaxed his grip on an overall target of 1,763 of the fighters.

"We used to say we would like 110 a year," Moseley noted. "I don't think we're there anymore. I think we're below 100."

First F-35 Bases Proposed

The Air Force in October released a list of the first beddown bases for the F-35 and said that the units flying this new fighter will be a mix of active duty and associate units.

First up will be Eglin AFB, Fla., for primary maintenance and flight training. Eglin will also be the common main training base for Navy and Marine Corps F-35 pilots.

Nellis AFB, Nev., will get the fighter for tactics development. Edwards AFB, Calif., will be the primary flight-test base. The first operational bases will be Hill AFB, Utah, and Kadena AB, Japan, followed by Shaw AFB, S.C., and nearby McEntire ANGB, S.C.

Both the South Carolina and Utah locations will combine active duty and reserve component personnel.

The aircraft are expected to begin arriving in 2009, with planned deliveries scheduled to run beyond 2025. All base selections are contingent on the successful introduction of the F-35 into service and on passing environmental impact evaluations.

USAF Records Safest Year Ever

The Air Force has just wrapped up its safest year since it was founded in 1947.

In Fiscal 2006, there were 19 Class A mishaps—those resulting in a fatality or more than $1 million in damage—down from 32 the previous year; among those, eight aircraft were destroyed vs. 11 in FY05. One airman died in a flying accident in the last fiscal year, while 14 were lost in the previous fiscal year.

Air Combat Command ended 2006 with four major flight mishaps and a fifth straight year without a single weapons mishap. The number of Class A mishaps in ACC during 2006 was down 67 percent from Fiscal 2005.

The tally of losses does not include two airmen who were killed on Feb. 17 during the midair collision of two Marine Corps helicopters off Djibouti in Africa. (See "Toward Zero Mishaps," p. 58.)

McNabb Pushes JCA Over Repaired Antiques

It will cost $22 million to $25 million apiece for the Air Force to repair dozens of aged and grounded C-130Es—money better spent on a new class of smaller cargo aircraft, Air Mobility Command chief Gen. Duncan J. McNabb said in September.

McNabb, speaking to reporters in Washington, D.C., said he's pushing for the new Joint Cargo Aircraft, on which the Air Force is partnering with the Army.

Given the bill to fix up what are mostly 40-plus-year-old airplanes, McNabb said, "at some point, this is not good for the nation," arguing that the money would more efficiently be put toward new airplanes that also meet new requirements. The grounded C-130Es have cracked wing boxes and need new engines and avionics.

The JCA program, he said, addresses three separate new needs at once—a light aircraft that can carry three pallets to far-flung troops at austere runways; replacements for the old C-130s, many of which are flying inefficient, half-full missions in combat now; and a short takeoff and landing airplane that would be useful in homeland defense and disaster relief here at home.

"We're looking for that sweet spot," McNabb said, an airlifter that can perform all three missions with one airframe.

A recent RAND study suggested the need for JCA is most urgent, as age issues are grounding more and more of the C-130 fleet. Increasingly diverse missions and a higher operating tempo have taken their toll on the Hercules, 33 of which were grounded and 26 in restricted status as of mid-October. Barring any changes, RAND said, the C-130 fleet will soon decline below 400 aircraft, making it tougher to meet theater demands.

The Army is planning on purchasing its first JCA in 2008 with the Air Force set to buy its initial version in 2010.

Recruiting Posts Strong Year

The armed forces all nearly reached their recruiting targets in Fiscal 2006, the Pentagon announced in October. The Air Force and Army beat the requirement.

The Air Force brought on 30,889 recruits—139 over its goal for the fiscal year.

The Army, which was 6,700 recruits short of its goal last year, overshot this year's target of 80,000 new soldiers by 635.

In the reserve components, two met or exceeded their accession goals—the Marine Corps Reserve and the Air Force Reserve, the latter of which brought on 6,989 people, beating its goal by 382.

The Air National Guard signed up 9,138 Guardsmen, falling 242, or three percent, short of its goal.

C-130J Goes Operational

Air Mobility Command has declared initial operational capability for the C-130J, the Air Force's leading intratheater airlifter. As with many systems in recent years, the aircraft has long been deployed in combat before the technical criteria of IOC were met.

The Oct. 16 announcement reflects successful completion of operational test and evaluation, equipping of the first combat squadron with its full complement of aircraft, and the filling-out of a full squadron with trained aircrews and maintenance members.

The Maryland ANG's 135th Airlift Group was the first combat delivery squadron to reach its full complement of aircraft and also meet the manning requirement for IOC.

USAF photo by MSgt. Jack Braden

Sniper school instructors from the Arkansas Air National Guard keep a close eye on the crowd gathered at a Little Rock AFB, Ark., open house in November. The airmen search for any signs of activity that could endanger spectators or USAF assets.

Prisoner of War/Missing in Action News

Missing World War II Airman Identified

The Defense Department announced in October it had identified the remains of an Army Air Forces pilot missing in action from World War II.

The remains of 1st Lt. Shannon Estill of Cedar Rapids, Iowa, were returned to his family for burial with full honors at Arlington National Cemetery.

On April 13, 1945, Estill's P-38J was struck by anti-aircraft fire while attacking targets in Germany. Another pilot reported seeing Estill's aircraft explode and crash, but because the site was within the sector of Germany later controlled by the Soviet Union, US personnel couldn't recover Estill's remains after the war.

Efforts to investigate the crash site began in 2003, when two German nationals found human remains, which they turned over to the US officials. In 2005, P-38 wreckage and additional human remains were discovered near the town of Elsnig. Scientists matched DNA from a maternal relative to positively identify Estill.

Vietnam War MIA Pilot Identified

The remains of 1st Lt. James L. Hull of Lubbock, Tex., were to be buried in November at Arlington National Cemetery. He had been missing in action since 1971. Hull's remains were identified in October by the Joint POW/MIA Accounting Command and the Armed Forces DNA Identification Lab.

On Feb. 19, 1971, Hull and a crew member were flying a mission near Vietnam's border with Laos when their O-2A Skymaster crashed. Both men died in the crash, but Hull's body was buried in the wreckage and could not be recovered due to hostile enemy action.

Investigations conducted between 1993 and 1997 involving the US, Vietnamese, and Laotian governments produced Hull's identification tag, but the crash site itself, inside the Laotian border, could not be examined at that time.

Interviews and the assistance of a local Vietnamese led to examination of the crash site in May 2006. Teams later used forensic identification tools to positively identify Hull's remains.

Vietnam MIA Is Identified

Identification of the remains of Maj. Charles L. Bifolchi, of Quincy, Mass., an Air Force pilot lost in the Vietnam War and missing since 1968, was announced in October by the Pentagon's POW/Missing Personnel Office.

Bifolchi's remains were returned to his family, and he was buried with full honors on Oct. 27 at Arlington National Cemetery.

Bifolchi and a fellow crew member were flying an armed reconnaissance mission against enemy targets in South Vietnam on Jan. 8, 1968 when their RF-4C aircraft disappeared. The next day, an Army helicopter discovered wreckage, but enemy activity, combined with steep terrain and high winds, prevented recovery of the crew.

Between 1993 and 2000, joint surveys by DOD and Vietnamese teams were conducted in the area believed to be the crash site. Remains held by Vietnamese citizens, who claimed to have recovered them from the crash site, were examined. Joint POW/MIA Accounting Command scientists used DNA from a Bifolchi relative to positively identify the remains.

The C-130J first deployed to Southwest Asia from December 2004 to March 2005, where the two airframes sent exceeded expectations. Four C-130Js have been continuously deployed to the region since June 2005, flying more than 7,844 hours and achieving a mission capable rate of 84 percent.

Boeing's 777 Enters Competition

Boeing, which had been sticking to its KC-767 aerial refueling aircraft as its planned proposal in the Air Force tanker competition, announced in September that it will also offer a militarized 777 in the contest.

The larger-aircraft offer is in recognition of the Air Force's stated intention to have the next tanker also serve as a swing airplane able to do some airlift, company officials said at AFA's Air & Space Conference in Washington, D.C. The Air Force has said it will consider a mix of different aircraft types for the mission, and Boeing will continue to offer the widebody KC-767, which has been purchased by Italy and Japan and is now in flight test.

The 777 has a maximum hauling capacity that exceeds 170,000 pounds of cargo, and company officials said it could be configured for quick changes between hauling cargo or passengers, on palletized seating. The aircraft could carry up to 37 cargo pallets fully loaded and would have a maximum fuel capacity of more than 350,000 pounds.

Boeing said that the Air Force's latest draft of its request for proposal clarified the service's requirements, such as the fuel offload rate and the ability for any new tanker to operate from a NATO-standard 8,000-foot runway.

The company also announced a new tanker boom being developed for use on the KC-767s being built for Italy and Japan, noting that the fly-by-wire boom could automatically correct its position to reduce potential damage to a receiving aircraft. The new boom would also be far easier to maintain than equipment now on USAF tankers.

Early Outs Draw Crowds at Robins

Thousands of Air Force civilians recently responded to an incentive program that sought to cut an estimated 185 positions at Robins AFB, Ga.—a sign that Air Force civilians are moving to take advantage of the upcoming force reduction.

At least 3,000 workers investigated an Air Force incentive bonus of $25,000 for those selected for early retirement or separation by Jan. 3, 2007. Of those,

Northrop Grumman photo

A Proteus aircraft carries a new and advanced multiplatform radar over Southern California. This was the first test of the new sensor system, which will be incorporated into the Global Hawk unmanned aerial vehicle.

The War on Terrorism

Operation Iraqi Freedom—Iraq Casualties

Casualties

By Nov. 9, a total of 2,838 Americans had died in Operation Iraqi Freedom. The total includes 2,831 troops and seven Department of Defense civilians. Of these deaths, 2,279 were killed in action with the enemy while 559 died in noncombat incidents.

There have been 21,572 troops wounded in action during OIF. This number includes 11,752 who returned to duty within 72 hours and 9,820 who were unable to return to duty quickly.

Mass Casualty Drill at Sather Air Base

Airmen at Sather AB, Iraq, tested their ability to react during a mass casualty exercise at the base on Sept. 29, helping to identify problem areas using skills learned from two weeks of classes prior to the drill.

Self-aid and buddy care classes were hosted by doctors and technicians with the 447th Expeditionary Medical Squadron. The classes focused on first aid and other skills and were attended by more than 650 airmen.

"I have to be assured that everyone down to the youngest and the least experienced airman knows exactly what they have to do and how they have to do it," said Col. Gregory L. Marston, the 447th Air Expeditionary Group commander. The colonel decided to continue the training theme during the exercise by making medical squadron airmen act as casualties in order to better assess skills.

The core of the self-aid buddy care training introduced tourniquet use for severe hemorrhaging.

Operation Enduring Freedom—Afghanistan

Casualties

By Nov. 7, a total of 345 Americans had died in Operation Enduring Freedom. The total includes 344 troops and one Department of Defense civilian. Of these deaths, 189 were killed in action with the enemy while 156 died in noncombat incidents.

There have been 1,034 troops wounded in action during OIF. This number includes 388 who returned to duty within 72 hours and 646 who were unable to return to duty quickly.

NATO Takes Command of Afghanistan Ops

NATO's International Security Assistance Force assumed command of coalition military security operations in eastern Afghanistan on Oct. 5—effectively becoming responsible for security operations throughout the country.

The Pentagon said the transfer marked a milestone in the progress of improving security and stability in the country.

The transition from a US-led coalition to the ISAF-led operation began two years ago with the transfer of responsibility for the northern portion of the country to NATO. Since then, the Afghan National Army has been integrated into coalition combat operations.

The US will continue to lead counterterrorism operations in Afghanistan, train and equip the Afghan armed forces, and assist in reconstruction efforts.

900 filled out formal applications.

The application window for the buy-out closed on Sept. 21, and the first round of offers was scheduled to be issued by the middle of October, according to Robert Williams, deputy director of civilian personnel at Warner Robins Air Logistics Center.

More than half the 12,300 civilian workers at the center will be retirement eligible in the next five to six years, reports the *Macon (Ga.) Telegraph*. Williams said the ALC is looking to replace and realign skills in the facility's workforce, with a focus on maintenance, avionics electronics skills, and engineering. Air Force Materiel Command is making personnel cuts across its variety of facilities and logistics centers.

SDB Goes Operational

Six months ahead of schedule, the Air Combat Command chief, Gen. Ronald E. Keys, has declared initial operational capability with the GBU-39 Small Diameter Bomb.

The declaration comes only weeks after the weapon was first deployed with Air and Space Expeditionary Force 3/4 in early September. The IOC declaration was contingent on having sufficient units available and air and ground crews proficient in operating and maintaining the weapon and its unique bomb rack.

The F-15E Strike Eagle is the only aircraft now equipped to carry the SDB, but future platforms planned for the weapon include the B-1B, B-2, F-16, F-22A, and F-35. Tests are currently being performed to integrate the weapon on a B-52 (see below).

The range of the SDB is more than 57 miles when launched at 40,000 feet and enables aircraft to launch bombs at multiple targets while beyond the range of many anti-aircraft systems. An all-weather, satellite guided weapon, it can be fired at targets that are ahead, abeam, or behind the launch aircraft.

B-52 Fit-Checked for New Bomb

Engineers at a Boeing lab in Wichita, Kan., have test-fitted the new GBU-39 Small Diameter Bomb in the bomb bay of the B-52, toward integrating the weapon on the venerable bomber.

For conventional missions, the bomb bay of the B-52 is not often used, with most ordnance carried on external wing pylons. Putting SDBs on the Common Strategic Rotary Launcher could increase the number of bombs carried by the B-52 by 100 percent, Boeing said. The rotary launcher, which normally carries conventional and nuclear cruise missiles, can hold 32 SDBs.

USAFE To Lose 3,500 Airmen

The Air Force plans to cut 3,530 active duty positions within US Air Forces in Europe in the next two years as part of its force-wide personnel drawdown. The number represents approximately 12 percent of the airmen currently sta-

Awards for Valor

Charleston AFB, S.C., Airmen receive Bronze Stars

Two Air Force explosive ordnance disposal technicians received Bronze Stars in October for helping destroy and disarm explosives during their tour in Iraq.

TSgt. Quincy Banks and SSgt. Michael Williams were honored for their service at an Oct. 20 ceremony at Charleston AFB, S.C.

During his deployment with the 447th Expeditionary Civil Engineer Squadron, Banks helped to prevent the explosion of approximately 34 improvised explosive devices, according to the Air Force, and thwarted an ambush that included two large IEDs that were buried. His actions helped save the crew of an Army tank that was operating in the area.

Williams participated in 99 missions involving 61 roadside bombs and nine unexploded ordnances. He also uncovered weapons caches, assisted in assault missions, disarmed three IEDs, and helped recover the remains of the two Army casualties.

Schoomaker Says US Must Spend More on Defense

The nation must spend more on defense, because failure to modernize the military is hurting future readiness, the Army's Chief of Staff, Gen. Peter J. Schoomaker, said in October.

The blunt comments were offered at a conference of the Association of the United States Army in Washington, D.C. Schoomaker said that the cost of prosecuting the wars in Southwest Asia should not be borne "at the expense of future readiness" and that the military cannot afford to mortgage its future. "Failure to underwrite this commitment with sustained investment will increase risk for the Army, the joint team, and the nation," he declared.

"Let there be no mistake. Our soldiers' effectiveness in battle, both today and tomorrow, ultimately depends upon a national commitment to recruit, train, equip, and support them and their families properly," he said. "This is a matter of national priorities, not affordability."

Schoomaker pointed out that defense spending sits at less than four percent of America's gross domestic product, compared to World War II, when it claimed 38 percent; the Korean War, at 14 percent; and Vietnam, at 10 percent.

He also characterized the war as still in its early stages, with a long road ahead.

"I have little doubt that we are much closer to the beginning than the end of this Long War, and time is not on our side unless we understand how to use it."

Defense Secretary Donald H. Rumsfeld recalled Schoomaker from retirement in 2003 to serve as the Army's top officer. Schoomaker had previously served 31 years, mostly in special operations.

tioned in Europe, according to *Stars and Stripes.*

Brig. Gen. Michael A. Snodgrass, director of plans, programs, and requirements at USAFE, told the paper in October that nearly every type of job in the command will be affected. Snodgrass said USAFE will give up airmen specializing in avionics, fuels, staff duties, and services.

Virtually every specialty "is pretty much getting touched," he added.

Airmen will not be separated, but their billets will be phased out after they transfer back to the US. In addition, about three percent of the Air Force's general-schedule staff—approximately 55 American civilian employees—will be cut from Europe, and the positions will not be filled after personnel are rotated back to the US, according to USAFE.

Dutch Approve JSF Pact

The Netherlands has agreed to sign a memorandum of understanding with the US that solidifies the Dutch commitment to the F-35 Joint Strike Fighter production program, according to the Dutch state news service.

The Dutch Cabinet agreed to sign the MOU despite a threat from the opposition Labor Party that it would withdraw from the project.

The agreement was to be formally signed in November and was touted as a logical next step in the Netherlands' long involvement in the JSF project. Cabinet officials stated that the MOU was not a commitment to purchase aircraft, but that a decision for purchase will be taken in 2009 by the next government.

"Laser Gunship" Begins Tests

A C-130H began flight tests with the Advanced Tactical Laser concept demonstration program in October at the White Sands Missile Range in New Mexico, according to Boeing. The demonstration could be the forerunner of building a "laser gunship" that could succeed today's AC-130 aircraft.

During flight tests that began Oct. 10, the aircraft found and tracked ground targets at the range using a low-power solid state laser as a stand-in for the ATL.

The company fired the high-energy chemical laser for the first time in ground tests in Albuquerque, N.M., this past September. The weapon is mounted in a rotating turret in the belly of the aircraft.

By 2007, Boeing said it will install the ATL on the aircraft and fire it in-flight at ground targets to demonstrate the military utility of high-energy lasers.

CRAF Contracts Top $2.3 Billion

Air Mobility Command will spend more than $2.3 billion with 11 contractors or contractor teams to move people and cargo around the world next year, the command announced in September.

The annual Civil Reserve Air Fleet contracts purchase airlift above and beyond that performed by AMC's own cargo airplanes. In exchange for making their aircraft available for emergency use in wartime, the companies receive preference for military air freight contracts during peacetime.

The Pentagon has cited the need to maintain a healthy CRAF as one of the reasons it has opted not to request more C-17 airlifters. Gen. Norton A. Schwartz, US Transportation Command chief, has said that too much organic airlift would reduce the amount of lift available to farm out under CRAF, which could induce participants to quit the program.

The single largest potential CRAF contract was to the Alliance contractor team, comprised of Evergreen International Airlines and North American Airlines, which is guaranteed at least $142 million out of a potential $1.08 billion worth of CRAF work.

Depending on AMC's requirements, it may contract for more than $2.3 bil-

USAF photo by SSgt. Nicholas Jacobson

A KC-10 Extender connects to a second KC-10 on Oct. 17 over Iraq. This maneuver allows the connecting KC-10 to offload more fuel for coalition aircraft missions in the area. The KC-10 can carry as much as 55,385 gallons of fuel.

Peterson Ending Tour; Search for AFA President Begins

The Air Force Association has begun its search for a new President (formerly called Executive Director) to succeed Donald L. Peterson, who is retiring in 2007 after serving for five years in the position. A search committee has been appointed to identify candidates.

The search committee consists of Thomas J. McKee as chairman, Michael E. Ryan, and Frederick J. Finch. McKee is a former AFA Chairman of the Board and National President. Ryan is a former Air Force Chief of Staff. Finch served as the 13th Chief Master Sergeant of the Air Force. All three have broad experience in AFA.

Persons wishing to be considered by the search committee must submit their requests in writing, to be received by Feb. 1, 2007, to:

Air Force Association
Attn: Presidential Search Committee
PO Box 791
Arlington, VA 22216-0791

The Air Force Association intends to select a new President early next summer.

lion worth of air cargo and passenger services.

USAF Completes B-1 Upgrade

The last batch of aircraft to be upgraded under the B-1B Conventional Mission Upgrade Program was completed in September, bringing the entire fleet of 67 B-1Bs to the Block E, or latest, configuration.

The CMUP began in the early 1990s. The B-1 was the first weapon system wherein the Air Force proposed to retire a portion of the fleet and use the maintenance savings to fund an upgrade. The B-1B fleet was reduced from 93 airframes to 67, with the savings used to complete the CMUP, which altered the bomber from a dual-role nuclear-conventional bomber to a strictly conventional system.

The Block E version is the third major fleetwide improvement and took five years to develop and install at a cost of $680 million. It replaces six older computers with four, increasing memory and output margins that are needed for conventional weapons, defensive systems upgrades, and future add-ons.

The avionics package includes the Wind-Corrected Munitions Dispenser, the Joint Standoff Weapon, and the Joint Air-to-Surface Standoff Missile. The B-1B boasts the largest single-aircraft payload in the Air Force inventory and is currently flying support missions for operations in both Iraq and Afghanistan.

X-45s Head to Museums

The two X-45A unmanned combat air vehicle demonstrators are headed for the nation's two largest aerospace museums, Boeing announced in October.

The two aircraft, designed and built by Boeing under Air Force and Defense Advanced Research Projects Agency programs, will soon go to the National Museum of the US Air Force at Wright-Patterson AFB, Ohio, and to the Smithsonian's National Air and Space Museum.

The X-45As wrapped up demonstration flights in August 2005, racking up several milestones for unmanned aircraft, including the first fully autonomous flight of a high-performance, combat-capable UAV and the first weapons release from an autonomous UAV. The two aircraft also flew collaborative missions.

The UCAV project became an all-Navy effort in February. The new program seeks to demonstrate a UCAV's ability to take off from and land on an aircraft carrier and to be operated safely aboard ship.

AFSOC Leads First Exercise

Air Force Special Operations Command kicked off Emerald Warrior 07 at Hurlburt Field, Fla., on Oct. 25. It was the first joint coalition exercise ever to be completely planned and coordinated by AFSOC.

The event ran from Oct. 25 to Nov. 3 and focused on the training of Air Force, Army, and allied units in special operations missions related to operations in Southwest Asia.

Scenarios included infiltration and extraction of personnel and equipment, recovery operations, controlling close air support, coordination of support operations, and command and control activities.

Much of the exercise took place at a nearby range at Eglin AFB, Fla.

Participating units included the 16th Special Operations Wing and 720th Special Tactics Group, as well as units from Eglin, Tinker AFB, Okla., Robins AFB, Ga., and MacDill AFB, Fla. The Army's 1/7th Special Forces Group from Ft. Bragg, N.C., also participated, as well as coalition forces from Denmark, Germany, Lithuania, and Norway.

Missile Trades Heft for Speed

RATTLRS, a Lockheed Martin-designed missile, was accelerated to speeds exceeding Mach 2 in sled tests at Holloman AFB, N.M. The tests were concluded in October.

Senior Staff Changes

RETIREMENT: Maj. Gen. Trudy H. **Clark.**

PROMOTION: To Brigadier General: Noel T. **Jones.**

CHANGES: Brig. Gen. Thomas K. **Andersen,** from Vice Cmdr., 12th AF, ACC, Davis-Monthan AFB, Ariz., to Dep. Cmdr., CAOC 6, Component Command Air-Izmir, NATO, Eskisehir, Turkey ... Brig. Gen. David J. **Eichhorn,** from Dep. PEO, ASC, AFMC, Wright-Patterson AFB, Ohio, to Dir., Ops., AFMC, Wright-Patterson AFB, Ohio ... Brig. Gen. Joseph F. **Mudd Jr.,** from Dep. Cmdr., CAOC 6, Component Command Air-Izmir, NATO, Eskisehir, Turkey, to Vice Cmdr., 12th AF, ACC, Davis-Monthan AFB, Ariz. ... Maj. Gen. Larry D. **New,** from Dir., Ops., AFMC, Wright-Patterson AFB, Ohio, to Dir., Jt. Theater Air & Missile Defense Org., Jt. Staff.

SENIOR EXECUTIVE STAFF CHANGES: Davy M. **Belk,** to Dir., Engineering, Ogden ALC, AFMC, Hill AFB, Utah ... David **Hamilton,** to Exec. Dir., Jt. Rqmts. & Integration, JFCOM, Norfolk, Va. ■

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USAF photo

Retired Col. R.J. Lewis, who was trained by the Tuskegee Airmen, speaks with Air Force Officer Training School students Oct. 19 at Moton Field in Tuskegee, Ala. The trainees were visiting Tuskegee to enhance their knowledge of USAF history.

RATTLRS stands for Revolutionary Approach to Time-critical Target Long-Range Strike.

The warhead went cleanly and completely through concrete barriers, and recovered hardware showed it remained structurally intact. The demonstration proved that lightweight penetrator warheads provide the penetration depth of significantly heavier weapons when coupled with high-speed vehicles, according to company officials.

The weapon is being demonstrated under the auspices of the Office of Naval Research; however, the technology is of a type that is of interest to the Air Force for a near-term long-range strike platform or weapon.

Flight demonstrations were scheduled for late 2007.

AETC Looking for Iraqi AF Pilots

Air Education and Training Command is putting together a program to train pilots for Iraq's new air force (see "Aerospace World: Iraqi Air Force Up and Running," November, p. 22) and is seeking qualified instructors who can provide a range of aircraft training services.

The command is looking for ground-based academic, simulator, and flight instruction skills, according to an Oct. 13 notice. The Air Force Security Assistance Training Squadron is leading the search for qualified personnel.

Officials predict the program will admit 100 to 200 Iraqi personnel each year,

News Notes

■ Airmen with the 554th RED HORSE Squadron broke ground on the Northwest Field Expeditionary Training Campus at Andersen AFB, Guam, on Oct. 11—starting a $20 million construction project that will span the next five years. The engineers will be housed on the campus, which will also be the home to Combat Communications, Commando Warrior, and Silver Flag. Military construction and related projects will bring the total cost of the complex to about $240 million. The complex is to be fully operational by 2016. The 554th Rapid Engineer Deployable Heavy Operations Repair Squadron Engineers is the only permanently assigned military heavy construction capability in US Pacific Command.

■ Headquarters of 13th Air Force, which moved from Guam to Hickam AFB, Hawaii, in 2005 has become a component numbered air force headquarters. Thirteenth AF is now one of 10 organizations designed to enhance the operational level support, planning, command, control, and execution of air, space, and information operations across the Pacific. The unit is directly responsible for two Air Force wings, the 15th Airlift Wing and the 36th Wing at Andersen AFB, Guam.

■ Britain has asked the US for permission to buy two MQ-9 Reaper unmanned aerial vehicles (recently renamed from Predator B), the Defense Security Cooperation Agency notified Congress in September. The transfer would mark the first overseas sale of the combat UAV system produced by General Atomics Aeronautical Systems of San Diego. The proposed $77 million deal with Britain does not include weapons, but the aircraft is compatible with several types of ordnance in the British inventory. DOD officials said that if the deal goes through, it will relieve pressure on the US fleet of unmanned vehicles operating in Southwest Asia.

■ Boeing and the Air Force's MILSATCOM Systems Wing have signed a $1.067 billion contract for up to three more Wideband Gap-filler System satellites. The Block II satellites will be similar to the Block I satellites already in production, with the Block IIs to feature a radio frequency bypass capability designed to support airborne intelligence-surveillance-reconnaissance platforms that need high bandwidth and data rates. Boeing is preparing the first WGS satellite for launch in 2007, with the Block II contract calling for the launch of the first Block II satellite by 2011. WGS will augment and eventually replace the Defense Satellite Communications System constellation currently on station.

■ Lockheed Martin's Sniper Advanced Targeting Pod successfully demonstrated compatibility with the launch of a Maverick missile from an adjacent A-10C wing pylon, during an August test at Eglin AFB, Fla. The ability to fire missiles so close to the Sniper ATP effectively qualifies Sniper for the Maverick configuration—doubling the previous A-10C Maverick load capabilities, according to company officials. The pod is part of the avionics upgrade known as Precision Engagement that is being undertaken on the A-10 at Lockheed's Owego, N.Y., facility.

■ Kansas State University has renamed its military science building in honor of Air Force Gen. Richard B. Myers, who retired last year after serving as the 15th Chairman of the Joint Chiefs of Staff. Myers was to attend the dedication ceremony at the Manhattan, Kan., university. The Gen. Richard B. Myers Hall is home to the university's Army and Air Force ROTC programs. Myers, who is a Kansas native, entered the Air Force in 1965 through the Air Force ROTC program at the university where he also earned a bachelor's degree in mechanical engineering. He currently holds a

DOD Opens New Africa Center in Ethiopia

The Department of Defense opened a small office in the Ethiopian capital of Addis Ababa on Oct. 26, a sign that the US may be moving forward on the concept of an African Command alongside the other regional commands.

US military involvement in Africa is now handled mainly by US European Command, although the Horn of Africa and Egypt are within the purview of US Central Command.

The new office is an annex to the department's Africa Center for Strategic Studies and is located on the grounds of the US Embassy in Addis Ababa, according to a center statement. The center is one of five regional centers around the world that are built to promote cooperation between the US military and foreign officials, reports *Inside the Pentagon*.

However, the idea for an African Command has been gaining ground in recent months, especially given the rise of extremist Islamist elements in some African countries and the growing dependence of the US on oil from nations such as Nigeria.

Secretary of Defense Donald H. Rumsfeld recently confirmed that he and the Joint Chiefs of Staff Chairman, Gen. Peter Pace, support the idea of a separate command for Africa and have been pushing for the department to "come up with the details as to exactly how it would be done," he said during a Sept. 22 town hall meeting with troops.

The DOD created Joint Task Force-Horn of Africa in 2002 under the auspices of US Central Command. Based in Djibouti, it is focused on humanitarian operations and counterterrorism operations there and in Eritrea, Ethiopia, Kenya, Somalia, Sudan, and Yemen.

Pace said that either a unified command with a separate headquarters could be established or a subunified command as part of EUCOM could be set up with dual-hatted officers in charge.

with the goal of graduating 50 fixed-wing and 50 helicopter pilots a year. All of the training will be conducted inside Iraq and will require flight instructors to be fluent in Arabic.

US and Iraqi officials are hoping to increase the approximately 750 personnel of the Iraqi Air Force to a force of nearly 2,000 by next summer.

Maintainers Post Perfect Score

Maintainers of the B-52 Stratofortress belonging to the 36th Expeditionary Aircraft Maintenance Squadron succeeded in achieving a 100 percent mission effectiveness rate and weapons release rate for every sortie flown from Andersen AFB, Guam, in September.

The numbers reflect nearly 50 sorties and more than 400 hours of flight time with 72 weapons released—all with only six bombers, according to Capt. Randy Schwinler, the officer in charge of the maintenance unit.

The squadron deployed from Minot AFB, N.D., with the 23rd Expeditionary Bomb Squadron to support a heavy bomber presence in the Pacific. The change in environment brought its own challenges to the unit, which battled heat, humidity, and rain as part of day-to-day maintenance challenges. Wind, lightning, and glare all slowed maintenance down.

The B-52s from Minot are deployed to Guam until January 2007, when they will be replaced with bombers from another unit. ■

part-time appointment at Kansas State as a professor of military history and leadership.

■ North American Aerospace Defense Command conducted Exercise Falcon Virgo 06-12 on Sept. 20 and 21 in the Washington, D.C., area, carrying out a series of training flights held in coordination with the Federal Aviation Administration, National Capitol Region Command Center, Civil Air Patrol, US Coast Guard, and other organizations. The exercise was designed to test NORAD's intercept and identification operations, with C-21s, F-16s, CAP aircraft, and Coast Guard helicopters participating in the two-day event. NORAD has conducted similar exercises throughout the US and Canada since the start of Operation Noble Eagle.

■ The Museum of Aviation Foundation in Warner Robins, Ga., broke ground on the construction of a new hangar for exhibits on World War II on Sept. 29, with Maj. Gen. Thomas J. Owen, commander of Warner Robins Air Logistics Center, participating in the ceremony. The ground breaking represented the first new hangar to be added to the museum in the last 10 years. The 60,000-square-foot facility will honor the contributions of World War II veterans with exhibits covering the air war in Europe, the home front, and the Pacific Theater, among other topics. Aircraft to be in the display include a B-29B Superfortress, P-51D Mustang, and P-40N Warhawk.

■ The 347th Rescue Wing at Moody AFB, Ga., was formally redesignated as the 23rd Wing during a Sept. 29 ceremony at the base, presided over by Brig. Gen. Blair E. Hansen, vice commander of 9th Air Force at Shaw AFB, S.C. The redesignation caps a series of changes for the wing, including the assumption of the 23rd Fighter Group at Pope AFB, N.C., and Moody's 820th Security Forces Group. The base also accepts the responsibility of carrying on the historic Flying Tigers heritage, dating back to the days of Claire L. Chennault's American Volunteer Group in China at the beginning of World War II. (See "The Flying Tigers," p. 36.)

■ Raytheon reached a contract milestone on its High-speed Anti-Radiation Missile Targeting System program in September, with the delivery of the first R7 pod to the Air Force. The R7 pod is mounted on the side of an F-16 and provides critical identification capabilities to pilots as they patrol air above a battlespace. Using the system, a pilot can detect, locate, and identify ground-based emitters then decide to avoid the area or engage the emitter. All the current Air Force HTS pod inventory will be retrofitted to R7 over the next two years.

■ The Air Force released the Chief of Staff of the Air Force reading list on Oct. 13, including a wide range of books covering topics from aviation history to efficient business practices. New books include *The Philippine War 1899-1902* by Brian McAllister Linn; *From Babel to Dragomans: Interpreting the Middle East* by Bernard Lewis; *I Could Never Be So Lucky Again*, an autobiography by Gen. James H. "Jimmy" Doolittle, and *Victory on the Potomac: The Goldwater-Nichols Act Unifies the Pentagon* by James R. Locher III. The CSAF reading list can be accessed at www.af.mil/library/csafreading.

■ Hickam AFB, Hawaii, lost power for approximately 14 hours after a 6.6 magnitude earthquake struck Hawaii on Oct. 15, but suffered no damage. The base used backup generators to power essential facilities, allowing it to stay open throughout the blackout. The quake and its aftershocks caused mud slides and some damage to buildings in parts of Hawaii, but no fatalities were reported. ■

Action in Congress

By Tom Philpott, Contributing Editor

Thinner Raises in 2007; Tricare Fees Go Down in Flames; Pay and Benefits Revealed ....

Pay Hikes Approved

In passing the 2007 Defense Authorization Act, members of Congress put their final stamp of approval on new military pay raises, expanded retention incentives, and enhancements of some benefits—particularly for members of the Guard and Reserve.

The $532.8 billion authorization, which President Bush signed Oct. 17 and which includes Energy Department national security funding, will deliver a 2.2 percent pay raise in January to most service members. It also will provide a special April 2007 raise, targeted to middle-grade enlisted members and most warrant officers. Specifically, members in pay grades E-5 with eight or more years of service and in E-6 and E-7 with 12 years or more service will see additional raises up to 2.5 percent next spring.

Compensation gains were thinner than what service members and retirees have come to expect, based on other legislative action in recent years.

Bush Thumped on Tricare

Congress decisively turned back the Bush Administration's plan to raise out-of-pocket Tricare costs to under-62 retirees and their families.

That meant lawmakers needed to find about $490 million to pump back into the Defense Department's proposed 2007 military health budget.

"It was important, for reasons of equity, that we turned back the Tricare fee and deductible increases," said Rep. John McHugh (R-N.Y.), chairman of the House Armed Services military personnel committee, in an interview.

Many lawmakers were "disturbed" that the first place identified for economy in the military health care system was "the backs of beneficiaries," McHugh said. "It just seemed almost intuitive that there ought to be other places to go to first, particularly in time of war."

Pay, Benefits Detail

Here are the major pay and benefits initiatives Congress approved for Fiscal 2007 for the military community:

■ Reserve Tricare Expanded. Any drilling National Guardsman or Reservist will be eligible to enroll in a premium-based Tricare benefit by Oct. 1, 2007.

McHugh was happy to sink the Tricare increases.

Premiums are 28 percent of plan costs. When the new benefit takes effect, DOD will repeal two higher-premium tiers of Reserve Tricare coverage that Congress approved last year. (Members who enrolled in the higher premium tiers will see their premiums decrease when the universal Tricare Reserve benefit takes effect.)

■ Tricare Fees and Co-payments. Besides blocking plans to impose higher Tricare fees, deductibles, and co-payments on under-62 military retirees, lawmakers scrapped plans to overhaul Tricare retail network and mail-order drug co-payments. The House had voted to raise co-pays on retail drugs and eliminate co-pays for mail order drugs to encourage greater use. The Senate approved a different scheme to shuffle co-pays, including mandatory use of Tricare mail-order for maintenance medicines. Congress ultimately decided to leave co-pays for medicines unchanged while government auditors study the issues.

■ Tricare and Employer-Sponsored Incentives. Effective Jan. 1, 2008, employers of military retirees and other Tricare-eligible beneficiaries will be barred from offering special incentives to encourage retirees to utilize Tricare instead of employer health plans. Recognizing concern that Tricare-eligible beneficiaries not be barred from participating in the full range of cafeteria health plans offered by employers, Congress also directed DOD to file a report by next April on the potential impact of this change on non-Tricare exclusive employer health care offerings.

■ Debt Protection. To curb exorbitant "payday" loans that can drag service families into debt, money lenders by next fall will be prohibited from charging military members more than 36 percent annual interest on consumer loans. The law also will set strict guidelines on disclosure of loan information and will prohibit automatic loan renewals, refinancing, or consolidation without issuance of new documents and disclosure statements. Congress intends to reassess debt protection next year to ensure lenders still are making short-term loans available to military personnel.

■ HPSP and Medical Pays. The services are authorized to raise the $579 monthly stipend for the Health Professions Scholarship Program to as high as $2,500 a month. Other increases in medical bonuses and incentives also were approved for selected reserve health care professionals in critically short wartime specialties, for dentists, and others. The services also have authority now to pay a $400,000 accession bonus to medical officers and dentists with critical skills.

■ Transfer Bonus. The incentive bonus offered to members transferring between armed forces will be raised $2,500 to $10,000.

■ Critical Skills Bonus. A bonus of up to $50,000 could be paid to encourage retirees and reserve component members with critical skills to volunteer for active duty low-density, high-demand assignments.

■ 40-Year Pay Chart. Effective April 1, troops who serve longer than 30 years will see an expanded basic pay chart to raise their compensation and to enhance their future retired pay. The expanded chart will provide new basic pay steps after 30, 34, and 38 years of service.

■ Travel Reimbursements. Service members who have household goods lost or damaged during permanent-change-of-station moves will receive full replacement value for their loss beginning in the spring of 2008. This standard will replace current reimbursements from carriers based on the weight of the damaged item, a formula that provides members only a fraction of actual replacement costs.

■ Retirement Age Ceiling. Mandatory retirement age for active duty generals and admirals is being raised from 62 to 64. Mandatory retirement of reserve component officers also rises, from 60 to 62 for officers at or below O-7 rank. The ceiling for O-8s and above would be raised from 62 to 64.

■ War Zone SGLI. For those months when service members are assigned to war zones such as Iraq and Afghanistan, the military will begin covering the premiums for $400,000 in Servicemembers' Group Life Insurance.

■ Manpower Levels. The Air Force will shrink by 23,200 airmen in 2007 while the Navy will lose 12,000 sailors—changes in line with Administration requests. The Marine Corps will see a 5,000-member increase. Army strength will increase by 30,000, and Army National Guard strength will climb by 17,000 beyond the total requested by the Administration.

■ Voluntary Separation Incentive. A new tool to help the Air Force and Navy pare their ranks is voluntary separation pay which would be set at up to four times the amount of involuntary separation pay for overmanned ranks or specialties.

Senior Compensation Goes Up

On Jan. 1, the US military's 36 four-star generals and admirals and its 125 lieutenant generals and vice admirals will see basic pay climb by 8.7 percent—or roughly $1,100 a month.

At present, basic pay can't exceed Executive Level III for federal civilians, which is set at $12,667 a month or $152,000 annually. That will change to Executive Level II on Jan. 1, boosting the military basic pay ceiling to $13,767 a month or $165,200 annually. The ceiling could go even higher when Congress decides on 2007 federal civilian pay levels.

Even more significant to O-9s and O-10s are three changes to the way their retired pay is calculated. Together the changes will boost annuities to a newly retiring O-10 with 33 years of service, for example, by $37,000 a year.

The first factor is the 40-year pay chart. Also, starting Oct. 1, 2006, senior officers who retire no longer will have their annuities based on a percentage of their "capped" basic pay. Instead, retired pay will be based on basic pay levels shown in the military pay chart, which makes a huge difference.

Finally, for those who serve longer than 30 years, their annuity formulas can rise beyond the current maximum for retired pay of 75 percent of final basic pay. Now the Secretary of Defense has authority to add to a service members' retired pay at a rate of 2.5 percent of basic pay for each year served beyond 30. Thus an officer with 33 years, for example, could receive 82.5 percent of basic pay as their annuity, and a member who serves 40 years would get the new maximum of 100 percent of basic pay.

Left on the Shelf

Congress failed to approve numerous Senate-passed initiatives popular with large segments of the military community. As a result, reservists won't see an increase in GI Bill benefits. Disabled retirees rated as "unemployable" won't see their full retired pay restored before 2009. Survivor benefits will continue to be reduced by VA Dependency and Indemnity Compensation (DIC), and there will be no change to the 2008 effective date of the paid-up rule on premiums for Survivor Benefit Plan (SBP) participants.

As in years past, Senators scored political points by winning initial passage of these initiatives but failed to fence off dollars to pay for them, spelling the end of the amendments when it came time to reconcile bills with the House.

For example, the Senate passed a provision to lower the reserve component retirement age based on how long National Guard or Reserve members were activated for the war on terrorism. Sen. Lindsey O. Graham (R-S.C.), chairman of the Armed Services subcommittee on military personnel, wants reserve personnel to be able to retire a year earlier than age 60 for every two years they serve past the 20-year mark.

"The biggest issue unaddressed in terms of [reserve] recruiting and retention is letting people retire before 60," said Graham in an interview. Facing deployment every three or four years had taken a toll on career Guard and Reserve personnel, he said.

"Once they get up to the 20-year point, people are punching out," said Graham. To be able to retire earlier in return for serving longer is one way to turn that around, he said. ■

Verbatim

By John T. Correll, Contributing Editor

Quagmire Theories

"The American people have heard the critics say we're failing—but their reasons keep changing. In the first days of Operation Enduring Freedom, the critics warned that we were headed toward a 'quagmire.' And then when the Taliban fell, and operations began in Iraq, the critics held up the multinational coalition in Afghanistan as a model and said it showed that everything we were doing in Iraq was wrong. And now some of the critics who praised the multinational coalition we built in Afghanistan claim that the country is in danger of failing because we don't have enough American troops there."***—President Bush, Reserve Officers Association, Sept. 29.***

Drifting

"It seems to me the situation is simply drifting sideways."***—Sen. John W. Warner (R-Va.), chairman of the Armed Services Committee, returning from his eighth trip to Iraq,*** **Chicago Tribune Online,** ***Oct. 6.***

Shifting

"We're starting to see this conflict here transition from an insurgency against us to a struggle for the division of political and economic power among the Iraqis."***—Gen. George W. Casey Jr., commander of the multinational force in Iraq, Associated Press, Sept. 22.***

Wild Blue Wonder

"With one bold leap, the Air Force jumps into first place for having the most distinctive service memorial in the Washington area."**—Washington Post** ***review of the new Air Force Memorial, overlooking Arlington Cemetery and the Pentagon, Oct. 12.***

It Ends With "Play Ball"

"A recent Harris poll found that two out of three American adults don't know all of the words to 'The Star Spangled Banner'—and many don't even know which song is our national anthem or why it was written."***—The National Anthem Project, July.***

Fools Beware

"My experience with Secretary Rumsfeld is he doesn't brook fools. But if you come to the table with a solid position, he's going to listen and he's going to make a decision based on your input."***—Ret. Gen. Ronald R. Fogleman, former Air Force Chief of Staff and former member of the Defense Policy Board, PBS Online NewsHour, Oct. 2.***

Timing Was Right

"After a series of thoughtful conversations, Secretary Rumsfeld and I agreed that the timing is right for new leadership at the Pentagon."***—President Bush, announcing departure of Donald H. Rumsfeld as Secretary of Defense, Nov. 8.***

Diminishing Influence

"The most important thing the US does in Asia is provide the guarantee of Japanese security, which dampens the chances of strategic competition between Japan and China. But China has grown a lot stronger economically since 2000, and America looks weaker militarily since 9/11, so people in Asia see a more equal relationship between China and America emerging."***—Hugh White, professor of strategic studies, Australian National University,*** **Boston Globe,** ***Sept. 22.***

McPeak's Advice

"Now I think what we must do is just leave. Our presence there sabotages our own national interest. ... The situation on the ground will be terrible, but it's time to face an unpleasant reality. We're going to lose and it's irretrievable. ... If you keep doing what you have been doing and expect a different result, that's the clinical definition of insanity."***—Ret. Gen. Merrill A. McPeak, former Air Force Chief of Staff, on the war in Iraq,*** **The Free Press,** ***Mankato, Minn., Oct. 8.***

The Long Air War

"We've been doing this in the Arabian Gulf in large numbers since August of 1990 when the 1st Tactical Fighter Wing deployed into the Eastern Province of Saudi Arabia for Operation Desert Shield. The Air Force has never left the Middle East. It is critical for us all to understand the following: The Air Force has been in continual combat since that time—16 straight years through operations Desert Shield, Desert Storm, Northern Watch, Southern Watch, Vigilant Warrior, Desert Fox, and now Operations Enduring Freedom and Iraqi Freedom. In fact, we've been fighting in Afghanistan 14 months longer than the United States fought World War II."***—Gen. T. Michael Moseley, USAF Chief of Staff,*** **Air Force Print News,** ***Oct. 12.***

Space Madness

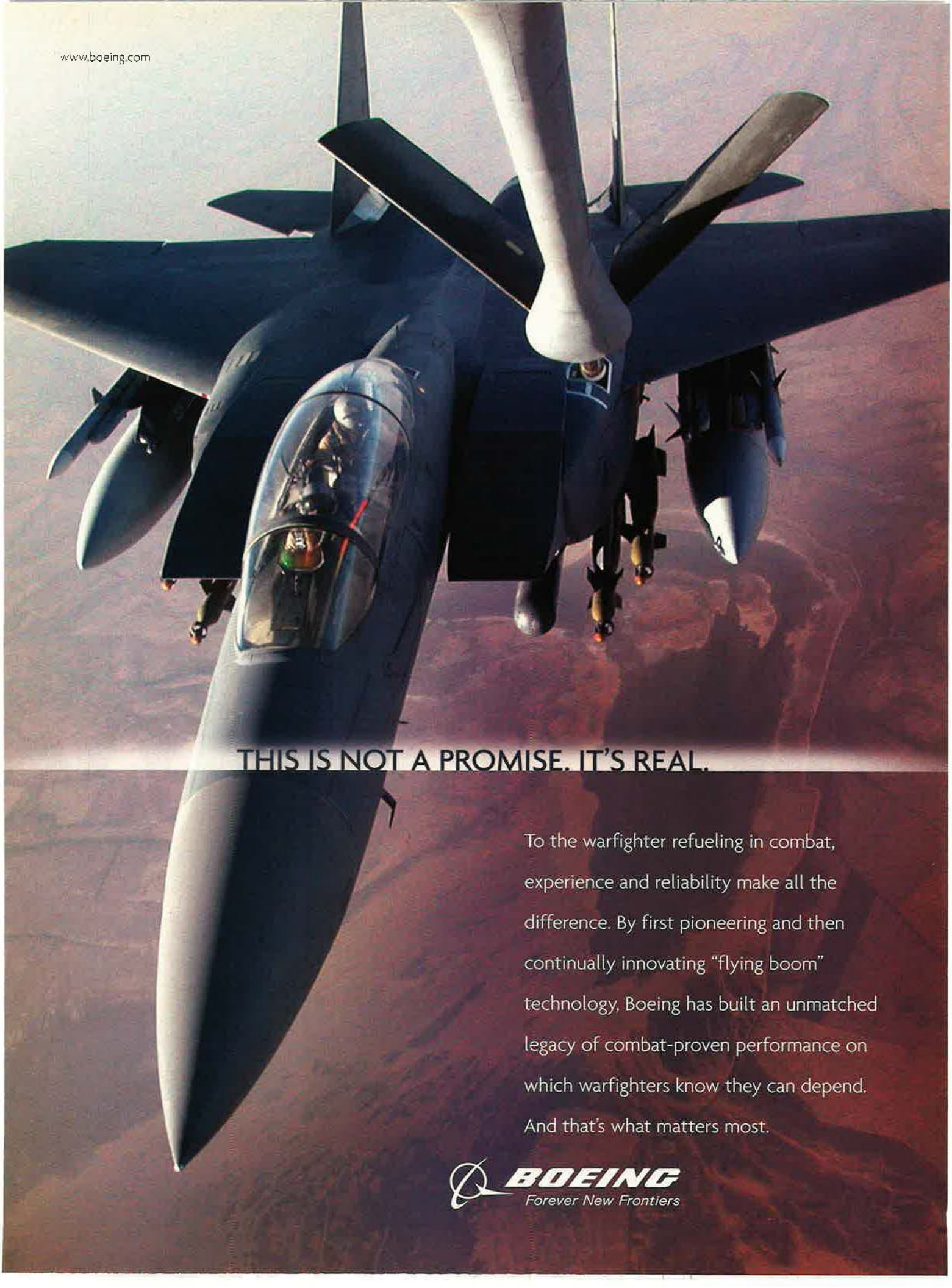
"We need to stop the madness of piling payloads onto our satellites and get launches on a more regular pace. We have seen huge leaps forward in technology and have tried to push technology into space when it may not have been ready, and that's damn near killed our launch industry because the schedule has been so badly mauled by delays."***—Secretary of the Air Force Michael W. Wynne,*** **Defense News,** ***Sept. 25.***

The Cyberspace Threat

"Enemies who cannot match us on land, at sea, in the air, or in space are exploiting the fact that in cyberspace you have a very low entry cost. Low cost is what makes that domain extremely attractive to nations, criminal and terrorist organizations who could not possibly attack the United States symmetrically. All you need to do is buy a laptop or a cell phone. As a matter of fact, you can just go to an Internet cafe and not even buy that stuff. You can buy yourself a phone card and you can cause high-impact effects."***—Lani Kass, director of the Air Force Cyberspace Task Force,*** **Air Force Print News,** ***Oct. 5.***

Killing Is Insufficient

"We understand that we can't kill our way to victory. We have to be out ahead of the sound of guns, not chasing the sound of guns."***—Vice Adm. Eric T. Olson, deputy commander, US Special Operations Command,*** **Baltimore Sun,** ***Sept. 24.***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Forever New Frontiers

Eighty-Six Combat Wi

The Air Force has determined its ideal force of strike, ISR, and mobility forces for 2012.

At dawn, ground crew members on Guam prepare a B-2 stealth bomber for a training flight.

ngs

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

USAF photo by MSgt. Val Gempis

The United States Air Force is embarked on a new and fundamentally different approach to shaping its force structure. For the first time in its nearly 60-year history, USAF has adopted a comprehensive roadmap that sets out the preferred size, number, and composition of all of its operational forces.

The move promises to bring notable change in several areas—from fighters to spyplanes, from bombers to airlifters.

Hints of the new setup first appeared in the Pentagon's Quadrennial Defense Review, which analyzed service needs over the next 20 years. In the final report, released in February, the Pentagon announced it would, from that point forward, "organize the Air Force around 86 combat wings." It gave no details.

Now, Air Force officials have begun to fill some of the blank spaces left in the statement. They have unveiled a new unit of measurement—the "combat wing equivalent." They have set a target year—2012—for achieving their goals. Moreover, they are specifying various force categories and numbers.

Under current conceptual plans, the proposed 86-wing Air Force would feature three major types of forces:

- Strike. The future force would field 28 strike wing equivalents, units containing forces that attack targets. Most of these units—19—would be fighter-attack wings. They would be complemented by six wings of long-range bombers and three wings of long-range ballistic missiles.
- Mobility. A total of 34 mobility wings would provide strategic and tactical airlift and aerial refueling capability to the joint force. The mobility force would encompass USAF's fleets of long-range C-17 and C-5 airlifters, theater-range C-130 transports, and both KC-135 and KC-10 aerial refuelers.
- ISR. USAF would operate 24 wings of intelligence-surveillance-reconnaissance assets and supporting forces. The category is huge. It comprises not only manned aircraft such as the U-2 and unmanned systems such as the Global Hawk but also command and control aircraft, space assets, air operations centers, and battlefield airmen units.

Achieving the plan's goals won't be easy. The service must execute

USAF photo by MSgt. Val Gempis

F-15 fighters jam the ramp at Kadena Air Base on the Japanese island of Okinawa. USAF's fighter force will continue to shrink as new F-22s and F-35s replace legacy fighters.

buildups in some areas and expensive modernization in others. At present, say Air Force officials, planned long-range funding is insufficient for the task.

Force Structure, Defined

USAF officials say that, by using the new combat-wing concept, the service can more realistically determine the proper size of its forces, identify strengths and weaknesses, and help regional commanders grasp the kinds of capabilities provided by Air Force units. The Air Force intends to use the combat-wing construct to guide investment and boost resources in the specific areas where they are needed most.

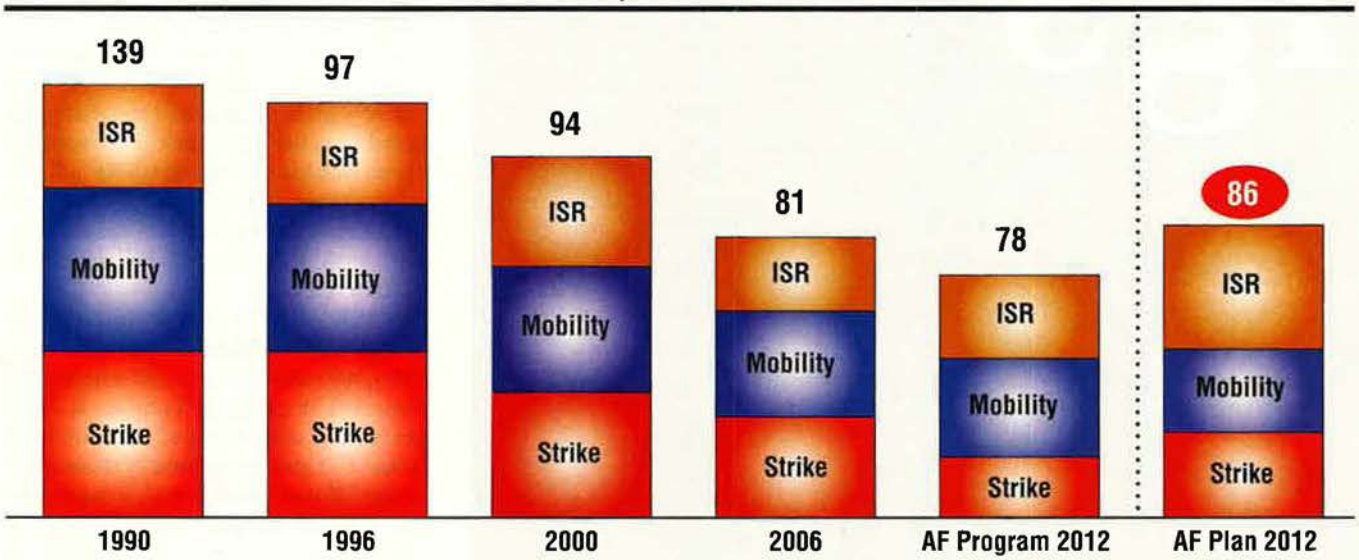
The Defense Department's dictionary of military terms describes "force structure" as being one of four pillars of military power (the others being readiness, sustainability, and modernization.) "Force structure" itself is defined as being the specific number of units of a certain size and composition. The classic examples are Army combat brigades, Navy battle fleet warships, and Air Force fighter wings. These have been considered the basic building blocks of military power; they translate into ground divisions, carrier battle groups, and air and space expeditionary forces.

Within the Air Force, a wing is an organization composed normally of one primary mission group along with all maintenance, supply, and other support organizations necessary to keep the operations group in action on a sustained basis. Specifically, the new combat wing equivalent is defined as being "equal to the number of combat assets (aircraft, missiles, etc.), divided by the normal number of assets per squadron, divided by the normal number of squadrons per wing."

For decades, USAF unofficially used the term "fighter wing equivalents" as shorthand for expressing its contemporary size and level of capability. During the last decade of the Cold War, for example, USAF fielded more than 36 fighter wing equivalents. After the Cold War ended, a drawdown imposed deep cuts, and the Air Force was left with only 20 FWEs. The comparison of the high and low figures for fighter forces seemed to offer an adequate picture of the effect of servicewide cuts.

Today, claim Air Force officials, that old way no longer provides a clear, accurate picture of the value of a given force structure. For one thing, counting fighter wings says nothing about the combat power inherent in other parts of the Air Force. For another, it does not account for intangible but significant

Will USAF's Combat Force Structure Go Back Up?



The number of Air Force combat wings has steadily declined, even during the George W. Bush Administration. If it is to arrest that trend, USAF must come up with new funding for its "2012 Plan."

USAF photo

SSgt. Jeffrey Hicks performs a postflight inspection of an RQ-1 Predator at Ali AB, Iraq. The Air Force's 86-wing template forecasts big growth in UAV forces.

factors such as stealth, precision, and extended range.

The New Yardstick

As a result, the Air Force now has abandoned use of the traditional fighter-wing-equivalent metric, alone, as a means for expressing the size of its forces. It has been retired in favor of a new yardstick based on total wing equivalents, which is said to give decision-makers a better portrait of overall Air Force capabilities.

This new CWE metric recognizes that the service's overall combat power greatly exceeds that provided by its fighter wings alone. The so-called combat-wing-equivalent standard takes into account not only fighter and attack aircraft but also long-range bombers, strategic missiles, mobility forces, intelligence-surveillance-reconnaissance units, command and control systems, and even battlefield airmen formations and sophisticated air operation centers.

Moreover, the new combat wing equivalent approach endeavors to factor in the "quality" aspect of Air Force formations. Officials do not merely count the number of aircraft on hand and group them into units of roughly equal size, as in the past. Under the new approach, USAF attributes a higher level of combat utility to certain types of aircraft—stealthy ones, for example—and thus lowers the number of such aircraft needed to make up a notional wing.

"Clearly, an active duty space wing, an Air National Guard fighter wing, and a Reserve airlift wing have vastly different resources and organizations," reads an Air Force document explaining the concept. The 4th Fighter Wing at Seymour Johnson AFB, N.C., has four squadrons with some 95 advanced F-15E fighters. Some Guard units are far smaller, with older aircraft, and as such are not comparable. So-called "flagged" wings vary widely in size and capability and thus are no good as standard units of account.

The term "86 combat wings" therefore expresses in a more comprehensive way the kind of power that the Air Force can make available for use in wartime. Service officials maintain it is the force needed to carry out the national security strategy. In that sense, the 86-combat-wing construct resembles the Army's concept of 70 brigade combat teams and the Navy's concept of a 313-ship battle fleet of carriers, submarines, major surface combatants, and fleet support ships.

Computation of force structure is an inexact science. However, it used to be clearer than it has been in recent years. As recently as 2001, the Pentagon reported that the Air Force had 20.2 fighter wing equivalents in active, Air National Guard, and Air Force Reserve service. This fighter force structure was subdivided into categories: four air superiority wings, three attack and close air support wings, and 13.2 multirole wings.

DOD did not similarly use the term "wing" to express the size of the Air Force's heavy bomber, airlift, ISR, and strategic missile forces. However, it did report that USAF's combat-coded force included 154 heavy bomber aircraft, 1,194 mobility aircraft, 550 strategic missiles, and 117 ISR-type aircraft.

Since then, DOD has rarely provided detailed force structure information. This is no small thing. Measurements of force structure determine whether the nation has enough armed power to carry out its defense strategy.

Three Requirements

The latest QDR laid down a new

Boeing photo

An E-3 AWACS test aircraft (shown here) takes off as part of an upgrade program. USAF seeks the equivalent of six new wings of intelligence, surveillance, and reconnaissance power.

Photo by Guy Acelo

Two battlefield airmen fan out in a recent exercise. If all goes as planned, the Air Force will bring 1,000 of these specialized troops to the force. That's about one wing's worth.

force-sizing standard for the armed forces. It said that the armed forces must be sufficiently large and robust for three tasks: defending the American homeland, defeating threats posed by irregular warriors such as terrorists and insurgents, and winning two simultaneous major conventional overseas campaigns. According to Air Force officials, that requires 86 combat wings of specific types.

USAF's force structure has undergone a more or less continuous decline for a decade and a half. According to an Air Force booklet, "86 Combat Wings," the service in 1990 fielded a total of 139 combat wings—strike, mobility, and ISR. The number had plummeted to 94 by the end of the Clinton Administration, but the decline did not stop there. Under President George W. Bush, the number of wings has fallen by another 14 percent. The Air Force says that much of this occurred in the strike category—fighters and bombers. Today, the Air Force fields only 81 combat wing equivalents of all types.

At present, however, the Air Force is in danger of shrinking even further. The most recent six-year program (covering the period of Fiscal Years 2006-11) is inadequate even to maintain the current force levels. According to an Air Force briefing, it sustains only 78 of the new combat wing equivalents, three fewer than are fielded today.

Under that program, the Air Force would hold onto its existing force structure in two of the three general areas—ISR and mobility forces. It is in the area of strike that further shrinkage would occur, with strike wings declining from 29 to 26. All three lost wings would be fighter-attack types.

The QDR, however, proposes a significantly different outcome—86 wings. As a result, the Air Force has come up with a new proposal—as yet unfunded—that would add a net of five combat wing equivalents to today's 81-wing Air Force. The service would still lose those three fighter wings, taking that part of the force from 22 down to 19 wings. However, that loss would be offset by the addition of eight other wings.

The largest increase would come in the field of ISR. In that area, the Air Force would add six wings' worth of capability. Five of these would be based on UAVs such as Global Hawk and Predator. The sixth new ISR wing would come in the form of 1,000 additional battlefield airmen, who help find targets and help attackers zero in on their locations.

Two Bomber Wings

What about the other two new CWEs? They could be long-range bomber formations. Today, USAF has four CWEs of such heavyweight B-1Bs, B-2s, and B-52s. The fifth and sixth wings would come from production of a next generation heavy bomber, which is expected to enter development within a few months. It is strange, however, that the Air Force included these two wings in its "2012" force. The first of these new bombers will not arrive until 2018 at the earliest, concedes Air National Guard Brig. Gen. Stanley E. Clarke, deputy director of strategic planning on the Air Staff.

As always, lack of money could undermine this new "2012 plan." Starting with the 2008 budget request due out early next year, the Air Force will seek additional funding to build forces capable of discharging its requirements, but there is no assurance of long-term success.

In determining the size of a fighter wing equivalent, Air Force planners use as a baseline the typical active duty wing, composed of three squadrons of 24 mission-ready aircraft each, or 72 combat-coded fighters. This formula still

Changes to Combat Wings

	2006 Actual	2012 Program	Change	2012 Plan
Strike	29	26	+2 LRS	28
Mobility	34	34	+0	34
ISR	18	18	+6 ISR	24
	81 Combat Wings	**78 Combat Wings**	**+8 Combat Wings**	**86 Combat Wings**

Under its new plan, the Air Force would add eight combat wing equivalents in the categories of strike and ISR, while the number of mobility wings would remain the same.

USAF photo by MSgt. John E. Lasky

At Balad AB, Iraq, a C-17 comes in for a landing while an F-16 prepares to take off. The Air Force hopes it can halt the erosion of its force structure over the next six years.

works reasonably well for legacy fighters—F-15s, F-16s, and A-10s. However, the system breaks down when it is applied to newer, fifth generation fighters such as the advanced F-22 and F-35.

"It is important to note that we expect a squadron and wing in the future to consist of fewer aircraft with greatly increased capability," Clarke said. An F-22 squadron, say, may contain 18 Raptors, but that squadron would be at least as potent as a more-traditional squadron of 24 F-15Cs. "You're looking to measure a degree of capability," said Clarke. "An F-22 is more capable than an F-15, and, therefore, counting that by tail numbers just doesn't make sense."

There is nothing really new about the phenomenon of fewer units producing greater capability. In World War II, it took, on average, 1,000 B-17 sorties to destroy a single target, and the Army Air Forces, as a result, fielded thousands of bombers. Today, a single bomber equipped with precision weapons can destroy up to 80 targets with a single sortie, and the Air Force, consequently, fields roughly 100 bombers.

Officials emphasize that, although combat wing equivalents contain both qualitative and quantitative elements and measure both personnel and hardware, they are not arbitrary computations. They count forces in ways typical of the way the Air Force already manages its assets.

Measuring ISR combat wings is "interesting and complex," Clarke said. Today, a standard U-2 squadron would contain 24 primary mission aircraft. Meanwhile, an RQ-4 Global Hawk squadron would have 18 aircraft. "Over time, we expect to get more capability out of fewer platforms, due to the RQ-4's longer loiter time and increased reliability," said Clarke. Planned improvements to Global Hawk sensors will expand the gap even further, he said.

What Is What?

Even definitions of categories can be tricky. "It's not clean-cut anymore," said Clarke. "Predators fitted with Hellfires raise a very interesting question—are they strike or ISR [systems]?" In general, he went on, the Air Force labels as a strike system anything that can "put a warhead on a forehead." Meanwhile, "strike" systems such as F-16s, when they are flying over Iraq, are probably doing more ISR work than strike work. The Air Force has "augmented them with targeting pods and TARS [Theater Airborne Reconnaissance System] pods" that have created "somewhat of a surveillance and reconnaissance force" that also has the ability to strike.

If cost were no object, said Clarke, "we could probably put 15 [additional] wings of ISR down and still not meet all of what the combatant commanders would like to have. ... We'd love to be able to give them that, but that's kind of wishful thinking."

Even harder to calculate are units of battlefield airmen and modern air operation centers. They are centered on personnel and capabilities rather than iron. "If you look at the battlefield airmen [wings] and AOCs, you're roughly talking about a thousand personnel in each one of those as a wing equivalent," Clarke explained.

The Air Force plans to retire 10 percent of its older aircraft (and 25 percent of its older fighters) over the next few years. Meanwhile, the remaining systems will become ever more capable through provision of advanced weapons, precision targeting, networking, and stealth technologies.

Clarke said that the 86 CWE will account for about two-thirds of the active duty, Air National Guard, and Air Force Reserve force structure in the Total Force. Excluded from the wings will be combat training aircraft, attrition reserve equipment, test and evaluation units, and any other obvious noncombat forces.

Of the notional 86 CWEs in the future force, six would be available for each of the 10 rotating AEFs. The remaining 26 wings would be those that "deploy in place"—space systems, intercontinental ballistic missiles, strategic mobility forces, and so forth.

There is a limit to how far force structure reductions can go. The Air Force is convinced that it is near that point. "If you kept drawing us down, we really weren't going to be able to get where we needed to be, to meet all of the combatant commander requirements," Clarke said.

There is obviously a mismatch between forces and requirements. Some members of certain career fields still deploy too often and over excessive periods.

There are parallels to the 1990s, when the Pentagon became busier than ever, fighting one low-level contingency after another, while drawing down from Cold War force levels and nearly halting procurement during the decade-long "peace dividend."

This shortsighted fiscal savings sparked a decline in military readiness, caused widespread troop burnout, and produced a huge modernization backlog that still afflicts the armed forces. Mission capable rates fell year after year, and airmen were worn down by repeated and open-ended deployments.

The Air Force is now explicitly acknowledging that the imbalance between force structure and requirements continues. Finding the money to close the gap will be a struggle, but now that the Air Force has identified a baseline number, it has a "stake in the ground" to aim for. "This is what we want to plan for," Clarke said. ■

The Airborne Laser Narrows Its Beam

Everything now hinges on successfully shooting down a ballistic missile in 2008.

By John A. Tirpak, Executive Editor

The Airborne Laser, formerly a full-up weapon development project, was recently reduced to a basic technology demonstration effort. Some thought the demotion was a prelude to harsher action and that the Pentagon soon would kill off the program altogether.

It hasn't turned out that way. In fact, the program, though long delayed, is far from dead. Its managers still aim to deliver a critical fighting capability to the nation.

The effort has been narrowed considerably, though. The ABL project is today focused on a single goal: demonstrating that the system can shoot down a ballistic missile in its boost phase. Nearly all planning and engineering aimed at future operational versions of the system has been put on hold, pending the success of a real-world test set for late 2008.

If the shootdown is successful—and it will be just one element of a whole "campaign" of tests and demonstrations aimed at proving the ABL's viability—then the Pentagon could well launch a development program to field a more definitive system within the decade.

The downgrading of the ABL occurred in February. However, said Air Force Col. John A. Daniels, the ABL program director, the 2008 shootdown has been the focus for some time.

The program falls under the supervision of the Missile Defense Agency. Its leaders reasoned that, if the program could not demonstrate basic success,

Boeing photo

There won't be a second Airborne Laser to join this unique aircraft until 2015 at the earliest, but the program continues.

then "it didn't make a lot of sense to talk about the second airplane and then subsequent production airplanes," Daniels said.

Cost and Complexity

The ABL program, explained Daniels, is extraordinarily complex, and the Defense Department and MDA leadership "did not want us to get sidetracked and begin spending some dollars toward the second airplane and beyond." He added, "They wanted us to keep our eye on the ball."

Money certainly played a role in the downscoping of the program, Daniels acknowledged, but he believes the approach taken is "prudent," in that success will lead, "eventually," to actual production aircraft.

The ABL program was originally budgeted for $1.1 billion in 1996, but the most recent cap on the program, set this spring, is $3.6 billion.

The first ABL—a 747 stuffed with pipes, pumps, motors, chemicals, computers, and state-of-the-art optics—is now being modified in preparation for nearly two years' worth of tests that will build up to the late-2008 shot. The Pentagon has not decided the type of missile to be engaged, but it will be representative of the types of theater ballistic missiles deployed by some of America's unpredictable adversaries.

Daniels said the Pentagon's program objective memorandum—the out-years spending plan—contains money to start trade studies for a second ABL beginning in Fiscal 2009.

"It's there," he said, but under the rescoped program, neither he nor his industry or government team is "distracted" by production planning. Daniels said he and the team are not "spending much time or effort on that because we have our heads down and we're trying to get this lethal demonstration executed."

Boeing is the prime contractor and integrator and provides the battle management system. Northrop Grumman provides the main laser system, and Lockheed Martin is the supplier for the beam and fire-control systems.

The ABL program got under way in 1996, when the Air Force, under Chief of Staff Gen. Ronald R. Fogleman, offered the concept as a way of obtaining a rapidly deployable system to defend US troops and allies against theater ballistic missiles, which proved vexing in the 1991 Gulf War. Iraqi Scud-type TBMs slipped past Army Patriot air defense systems and wreaked havoc in rear areas of Saudi Arabia, killing scores of troops. Saddam Hussein also fired Scuds into Israel, in a vain attempt to broaden the war. Israel, though it took casualties, didn't take the bait, and the tactic failed. However, the problem of TBMs remained as one of the great unresolved military challenges of that conflict.

The Air Force envisioned a fleet of seven ABLs, which it saw as the minimum needed to maintain one "orbit"—a 24/7 capability—in a given regional hot spot.

Heart of the Matter

The heart of the ABL is an enormous chemical oxygen-iodine laser, or COIL, contained in the body of the aircraft. It requires thousands of gallons of chemical fuel that must be mixed and pumped at high speed to produce the intense light needed for destructive effect. These megawatts of energy, focused through a ball turret in the nose, would be aimed at a boosting missile more than a hundred kilometers away. The laser makes use of adaptive optics that compensate for atmospheric distortion, thus keeping the beam tightly focused.

This high-energy laser will rupture the skin of a missile, causing its pressurized fuel to explode. The missile would then fall back on the nation that launched it, along with whatever warhead it might be carrying. This last point also could make the ABL a powerful weapon of deterrence.

Carried onboard as well are other lasers that target the missile, track it, and assess the air turbulence between the nose turret and the target. This in turn feeds the onboard computers, which adjust the beam to compensate for the turbulence, to keep it as coherent as possible.

In its early vision, funded by the Air Force out of its own budget, the ABL was expected to yield an initial operational system in 2006.

However, the program has been beset by chronic delays. Target shootdown dates slipped several times, and the new 2008 goal is more than six years past the originally planned lethal test in 2002.

Asked why the program has slipped so much, Greg Hyslop, Boeing's ABL program director and vice president, said the magnitude of the task wasn't fully understood at the beginning.

"I think people underestimated the technical challenge of this program," Hyslop said, "and what it would take to put a megawatt-class laser on an airborne platform ... with the pointing and jitter levels that we're trying to achieve. That is a very difficult technical problem and an integration problem."

Unique among defense projects, the ABL requires the disciplines of aeronautical, mechanical, electrical, computer, propulsion, chemical, and optical engineering, to name just a few.

Boeing photo

Big Crow, seen here, is a KC-135 that will simulate ballistic missile targets for the ABL. The aircraft employs intense heat lamps to mimic the hot plume of a missile in boost phase. Onboard sensors and telemetry help correct the ABL's aim.

"My sales pitch for engineers is ... whatever your background, I can find a job for you at ABL," Hyslop observed.

It quickly became unwieldy to juggle the often-incompatible demands of the two main thrusts of the program: the optics and the chemical laser. It was necessary to start flight testing the battle management system and laser optics, but the labyrinthine plumbing and laser modules needed extensive time on the ground to be sorted out.

The solution was to buy an old Air India 747 carcass and use it to fit-test the laser inside. That carcass, poking its nose through a hangar at Edwards AFB, Calif., is called the System Integration Lab, or SIL. Work could proceed on getting the laser to properly fit and work in the SIL while the battle management and optical system could be developed on the actual flying prototype.

Sub in a Bomber

"It's a lot of mission equipment," Hyslop said of the ABL's guts. The chemical laser, targeting and illuminating lasers, battle management system, and the large ball-turret optical system together weigh "over 200,000 pounds," he noted.

"The dry weight of a B-2 bomber is around 100,000 pounds, so [it's like] we're building two B-2 bombers inside this fuselage," Hyslop said, adding that "it's pretty densely packed" and seems more like a submarine inside than an aircraft.

He added that the weight of the ABL has remained "stable" for two years.

"I think everybody has a good handle on all the plumbing requirements. Now, it's just making sure we can interface plumbing with aircraft structure, and we do all that in the right way."

Although modern computer design tools can help engineers fit plumbing and wiring into an aircraft and check for conflicts before any metal is installed, such tools were not used early on, Hyslop said.

"Not as much went into the preliminary design phase as it should have. Since then, for the installation, we've done a lot more of that."

The ABL's program milestones are described as "knowledge points," because their successful attainment inform the pace at which the program can go forward.

There were two knowledge points achieved in 2005, Daniels said.

"The first one was that we had to fly the airplane with the optical system and the battle management system on board and demonstrate that it was airworthy, that we could point the turret where we needed to turn it in flight," and begin to collect data on jitter of the aircraft, Daniels said. The test showed the mirrors and optics were all correctly aligned and that the software is operating properly. All this was accomplished in July of 2005.

The second goal of the year was to get the high-energy laser fully installed in the surrogate airframe and run it; this was accomplished in December of 2005, about 10 weeks later than planned. The laser was fired about 70 times, getting up to one shot with a duration of 10 seconds.

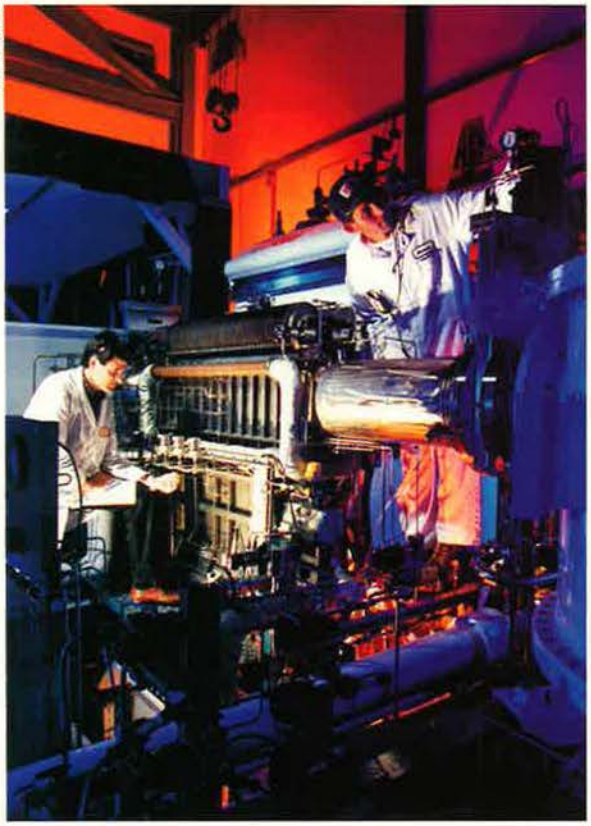
"We got good power, and, most importantly, we got good reliability out of that laser," Daniels said. "We were able to operate it several times in quick succession."

The dwell time needed for the laser to rupture a missile skin is classified,

AP photo by Ruhollah Vahdati

Iran tested its long-range Shahab-3 in November exercises (shown here). Tehran launched more than a dozen ballistic missiles in a single day.

Boeing photo



Technicians check out one of the ABL's six laser modules. Workers recently disassembled and refurbished the entire chemical oxygen-iodine laser system in preparation for the crucial tests.

but Daniels said it was less than 10 seconds.

So far, 2006 has been "by far the most technically challenging" year of the program, Daniels said, because the goal this year is "putting it all together."

The first goal is to have the flying prototype fully modified to accept the high-energy laser. This requires strengthening decks, building tie-downs and organizing the extensive plumbing, installing the illuminating and tracking lasers, and making sure "it all works," Daniels said. This work, "a very technically challenging knowledge point due to hardware and software integration," was to be done in late August, but Daniels said it would be finished in late September. The modifications were being done at Boeing's Wichita, Kan., facilities.

The year's second big goal, which Daniels hoped in August to have accomplished by the end of December, is to fly the all-up system—with a surrogate, lower-power battle laser—and actually test its lasers on a simulated target.

Big Crow

The first target is a KC-135 called "Big Crow," which has a ballistic missile painted on its side. High-intensity heat lamps have been installed at the tail of the "rocket," which offer a thermal and infrared signature that mimics the plume of a boosting missile. The kilowatt-class Beacon Illuminator Laser (BILL) and Tracking Illuminator Laser (TILL) will be tested in these flights, which will also be done near Wichita. The Big Crow also has its own lasers, which can provide instant feedback on how well the ABL's systems are reading the atmospheric distortion and maintaining beam control.

Lastly this year, the high-energy laser was to be dismantled, checked, and refurbished.

"That's not a small task," Daniels said. Each of the six laser modules in the system "is about the size of a Chevy Suburban sport-utility vehicle sitting on its end," not to mention the "thousands of parts" in the plumbing system. In August, Northrop Grumman reported that the teardown was going well and that the COIL parts were showing little wear and tear.

Hyslop said there were "few surprises" upon inspection of the COIL parts and that the system was in good shape, considering that it has had chemicals running through it for several years.

"To take one of those apart, refurbish it, put it back together, and then have it pass its acceptance test, that was a major accomplishment on the program," he asserted.

Early in 2007, the ABL goes back to Edwards, where the refurbished COIL will be installed.

"By the end of 2007, we hope to have a full-up ABL weapon system that's ready to start ground and flight testing early in 2008," Daniels reported. He emphasized that the philosophy of the program will continue to be "crawl, walk, run."

In the lead-up to the lethal shootdown demonstration, the ABL will target the Big Crow and some other surrogate missiles, some of them instrumented to provide feedback on laser performance. The program may also try its sensors on an F-16 climbing in afterburner, which resembles a ballistic missile, Daniels said.

Finally, in late 2008, an all-up demonstration will be run to show that the ABL can acquire, track, target, and destroy a boosting missile at a range that is classified, but "militarily useful," Daniels said.

And Next? ...

What happens then? The program will not come to an abrupt halt, nor will it go immediately into a weapon development phase, Daniels reported.

Following the shootdown test, if it is successful, the ABL will be tried out in a variety of conditions and scenarios, possibly against more challenging targets. The data acquired from these tests will be used to better shape the eventual weapon program and help refine the design of follow-on ABL aircraft.

"We know this first airplane is a true prototype," Daniels said, "and there's going to be significant changes between the first airplane and the second airplane that's funded by the Missile Defense Agency."

Lt. Gen. Henry A. Obering III, head of the MDA, told *Air Force* Magazine in an e-mail message that the whole ABL program doesn't hinge on a single shot and isn't the only game in town.

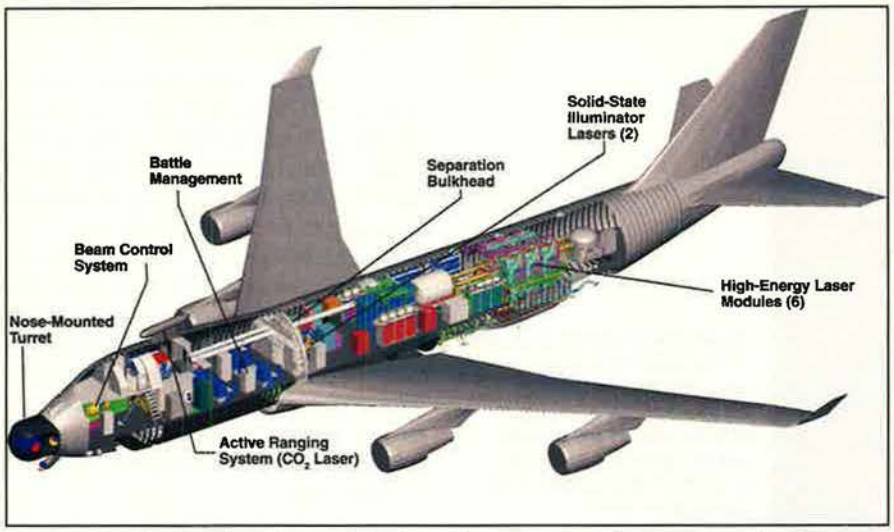
"We have adopted a test build-up approach that will give us good confidence as we conduct the lethal engagement," Obering said.

"Remember, this is not just a single point for the program; this is more of a campaign, since the program will continue to conduct flight tests against all classes of boosting missiles."

As a backup—or competitor—to ABL, the MDA has launched the Kinetic Energy Interceptor program, which seeks to develop a rocket that could shoot down a boosting ballistic missile.

"It has always been our view," Obering said, "that the flexible and high-perfor-

Boeing illustration



The labyrinthine interior of the ABL is described as more akin to a submarine than an aircraft. Even if live shootdown tests are successful, it remains to be seen whether the ABL can be made to operate in a militarily useful, repeatable, and reliable way.

mance KEI booster could also be used as part of an affordable, competitive next generation upgrade for our midcourse or terminal interceptors."

He said that both projects are "on track," and the KEI will make the first flight of a high-acceleration booster in 2008, the same year ABL will make its first shootdown demonstration.

"We are preserving decision flexibility with respect to our boost phase programs until we understand what engagement capabilities they can offer," Obering asserted.

In March, Obering told reporters at an MDA conference that it remains to be seen if the ABL could be made into a reliable weapon system. Even if the system is successful in getting airborne and shooting down a missile, it could prove too finicky to be a practical weapon system.

If "every time we come back and land, we have to recalibrate ... and refine that laser," the system may be unworkable, he said.

"If it becomes labor intensive like that, it could not very well be made affordable or operational in that regard. ... Even though you may meet your technical goal, you want to make sure that you met supportability and operability goals as well."

Reason for Optimism

Still, many are upbeat. In April, Obering told the Senate Armed Services Committee strategic forces panel that, even though there are "many technical challenges with the Airborne Laser," the run of successes since 2004 "gives me reason to be optimistic that we can produce an effective directed energy capability. An operational Airborne Laser could provide a valuable boost-phase defense capability against missiles of all ranges."

There won't be time or money to take half-measures with the next ABL, Daniels said. Because the systems are so expensive, "we can't afford to have a second airplane that's a prototype. [It] has to be a real bridge to production; it's got to be very much like a production aircraft."

The emphasis in designing the second airplane will be on improving its functionality—to "fix the things that haven't worked as well as we would have liked on the first airplane"—and making it more reliable and maintainable, more like a weapon system, he said.

A lot of attention will be paid to reducing life cycle costs and making the airplane easier to produce.

"If we spend some money up front before we lock in the design of the second airplane, we have the opportunity to not only reduce the production cost significantly, but ... reduce the O&S [operation and support] cost, which as you know will eat your lunch on an airplane that's hard to maintain." Emphasis will be put on reducing parts count and making the aircraft lighter.

"It has to be a stable ... simpler design," Daniels asserted.

Finally, "Tail 2" may need an increase in performance, either from the laser or the algorithms that tweak its beam. Daniels said that the lag between the shootdown demonstration and the launch of the weapon program may allow some "technology insertion" that could improve performance or simplify the design. He said that the Air Force Research Lab is working on improvements to the COIL, the basic design of which is largely unchanged since the late 1970s.

He said, "We're also doing a lot of exciting work with solid-state illuminators" that could improve the BILL and the TILL. However, even advanced solid-state lasers—powered by electricity—will not be able to match the power of a COIL for the foreseeable future, "so I think the chemical laser is going to be with us for a while." Optics and refined processing algorithms could also produce greater power without changing the COIL design, Daniels said. (See "Toward a New Laser Era," June, p. 72.)

While all this is being done, the first ABL will continue to be flight tested, and the lessons learned will be applied directly to the design effort. Also, the Air Force, which would fund and operate the ABLs after they are developed, will be working on their concept of employment. The current concept of operations for the ABL, which would serve with Air Combat Command, was written in 2001 and signed by ACC's then-commander, Gen. John P. Jumper.

The "down payment" on the second airplane—funding for long-lead production parts—is not now scheduled until Fiscal 2011. Modifications to an airframe probably wouldn't start until 2013, "so, realistically, ... we wouldn't be back in the air with a second airplane, doing testing with the weapon system, before the 2015-2016 timeframe," Daniels forecast.

Does that mean the US will be without a boost phase intercept system until 2015? Daniels doesn't think so. The experimental version of the E-8 Joint STARS was deployed, midtest, to combat in the 1991 Gulf War, nearly a decade before achieving true "operational" status. Daniels believes the first ABL will be similarly useful should a national crisis arise requiring such a capability, even if it is limited and not a full-up weapon system.

"If we are successful in our lethal demonstration and some nation around the globe flexes its muscles and tensions rise," Daniels observed, "even if our reliability is not that good, I suspect the stakes are so high" that the first ABL "absolutely" will be sent into battle. ■

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The Flying T

Their combat run was only seven months, but that was enough to establish their legend.

By John T. Correll

Ten Japanese bombers, twin-engine Kawasaki Ki-48s, took off from the Gia Lam airfield near Hanoi on the morning of Dec. 20, 1941. Their target was Kunming in southwestern China, the capital of Yunnan Province and the eastern terminus of the Burma Road.

The Japanese did not know—and would not have cared if they had known—that the surveillance and warning network had spotted them and relayed the word to Kunming. They had bombed Kunming and Chungking regularly for more than a year without opposition.

This time, it would be different. For the previous two days, two squadrons of fighter aircraft had been stationed at Kunming—Curtiss P-40s with 12-pointed Chinese stars on their wings and red-and-white shark's teeth markings around their air scoops.

The bombers were circling around to strike the city from the far side when they were intercepted by four P-40s. The Japanese jettisoned their bombs and fled. They did not get far before they were caught by more of the fighters, which ripped through the formation and shot down three bombers. The others broke away, but one of them was trailing smoke. It exploded before reaching the Indochina border.

The shark-mouthed P-40s were the fabled Flying Tigers on their first combat mission. However, they were not yet known as the Flying Tigers. That name, bestowed on them back in the United States, came later. They referred to themselves as the American Volunteer Group, or AVG.

The P-40s returned to the field and one of them did a victory roll. They were met on the ground by their leather-faced leader, Claire L. Chennault. "It was a good job, but not good enough," he said. "Next time, get them all."

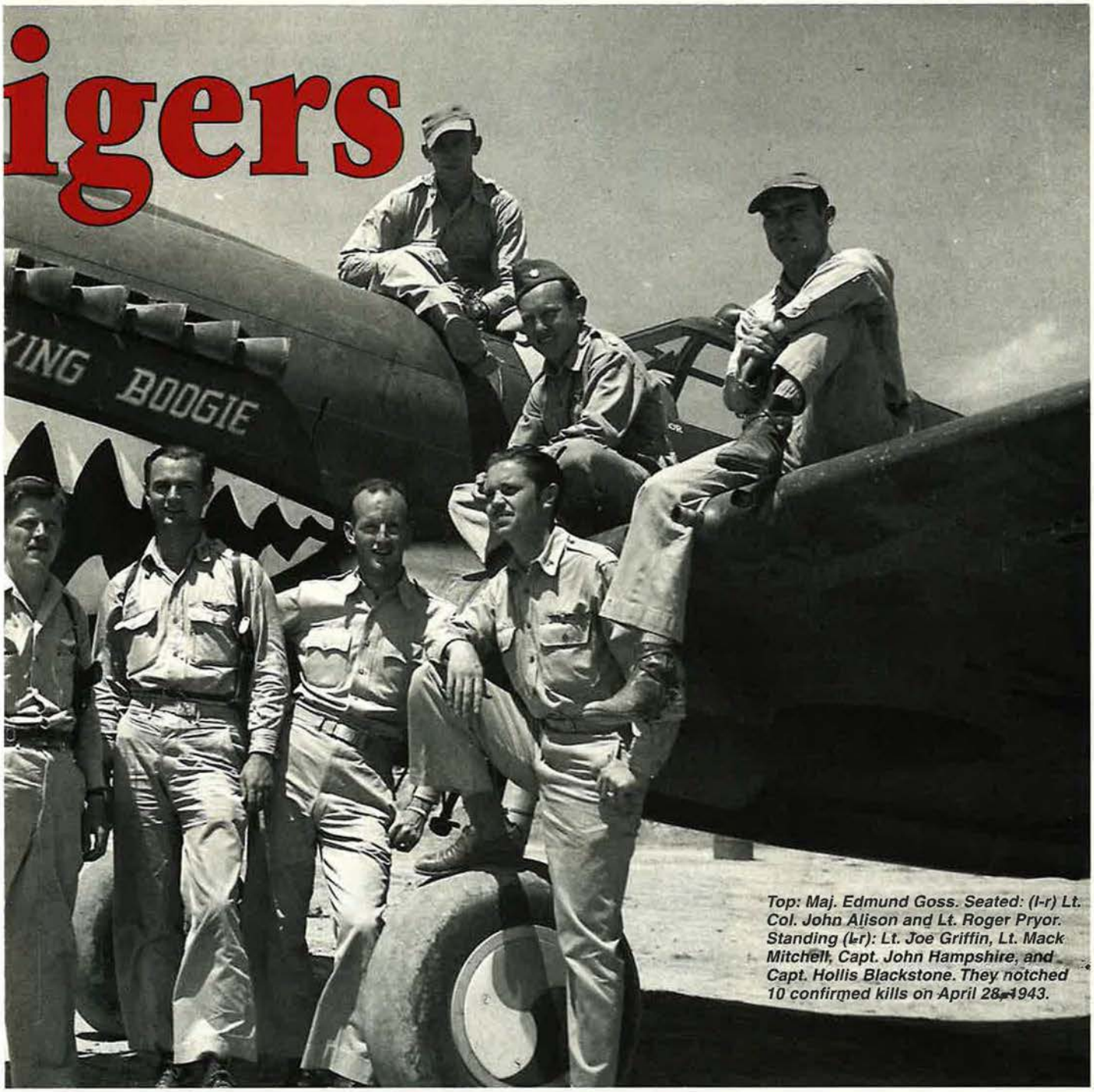
The mayor of Kunming and hundreds of citizens thronged to the airfield in a procession to heap honor and thanks on the AVG. There would be more encounters with the Japanese Air Force, but not over Kunming. "Japanese airmen never again tried to bomb Kunming while the AVG defended it," Chennault said.

The AVG, pilots and ground crews alike, were former members of the US armed forces, recruited to fight on contract for the Chinese Air Force, which had been effectively blown out of the sky by the Japanese. Chennault, who had retired from the Army Air Corps as a captain in 1937, had no military rank, even though the Chinese called him "colonel." His passport said he was a farmer. (See "Flying Tiger, Hidden Dragon," March 2002, p. 72.)

The Flying Tigers existed as a combat unit for only seven months. They never had more than 50 combat ready aircraft at a time, and never more than 70 pilots ready to fly. They faced an enemy force that was 20 times larger with better airplanes. They were chronically short of parts and supplies. Nevertheless, they shot down at least 10 Japanese airplanes for every one they lost, and they held the line in China until the regular Army Air Forces could get there.

The AVG's combat run was brief, but it was long enough to establish the legend. The Flying Tigers are one of the most famous and admired organizations in all of military history. No fighting airplane is more quickly recognized than the P-40 with the shark's teeth and the glaring eye.

igers



Top: Maj. Edmund Goss. Seated: (l-r) Lt. Col. John Alison and Lt. Roger Pryor. Standing (l-r): Lt. Joe Griffin, Lt. Mack Mitchell, Capt. John Hampshire, and Capt. Hollis Blackstone. They notched 10 confirmed kills on April 28, 1943.

Chennault Goes to China

China had been at war since 1931, when the Japanese seized Manchuria. (See "Before the Flying Tigers," June 1999, p. 72.) The Chinese had struggled to build an air force without success, employing a succession of ineffective foreign advisors and mercenaries. The pilot training cadre, furnished by the Italian dictator Benito Mussolini, awarded wings automatically, regardless of qualifications, to the sons of Chinese politicians.

Generalissimo Chiang Kai-shek, leader of the Nationalist Chinese, appointed his wife, the formidable Madame Chiang, to head China's Aeronautical Commission, clean out graft, and reorganize the air force. On the advice of one of her competent counselors, she hired Claire Chennault of Waterproof, La., to conduct a three-month survey of the Chinese Air Force.

Chennault was an excellent pilot, a good tactician, and a superb leader, but "abrasive" was one of the milder terms used to describe him. He was a fierce champion of pursuit aircraft, as fighters were then called, and he was never on good terms with his Air Corps colleagues, who thought the future belonged to the bomber. "Who is this damned fellow Chennault?" asked an up-and-coming lieutenant colonel named Henry H. "Hap" Arnold.

Chennault arrived in China in May 1937. He would stay, in one capacity or another, until he left to retire as a major general in 1945, still at loggerheads with the Army. He got along well with both the Generalissimo and Madame Chiang, who had been educated in Georgia and Massachusetts and who spoke English with a Southern accent.

"I reckon you and I will get along

Staff map by Zaur Eylanbekov

Japanese forces held eastern China, including the coastline, and the Nationalist government held out in Kunming. Without access to Chinese ports, Chiang Kai-shek relied on the Burma Road, and hired American volunteers to guard it.

all right in building up your air force," Chennault drawled.

"I reckon so, Colonel," she drawled back.

In July 1937, soon after Chennault's arrival, the Japanese launched a major offensive. Peking, Shanghai, and Nanking fell to the invaders. As the Nationalists fell back to their wartime capital at Chungking, Chennault stayed on to help with training and air defense.

The problems of the Chinese Air Force went deep, and the continued use of international mercenaries was no solution. Some of them were proficient but most, Chennault said, "subsisted almost entirely on high-octane beverages."

The Japanese held eastern China, including the coastline. Without access to the Chinese ports, Chiang Kai-shek relied on the Burma Road as his principal lifeline. Munitions and war materiel went north from Rangoon to the railhead at Lashio, where the Burma Road began. Built by the Chinese with hand labor, the Burma Road crossed the Himalayas to Kunming, 700 miles away on the eastern side of the mountains. To get over the high passes, trucks had to negotiate several miles of grueling hairpin turns for every mile of forward progress they made. There were two suspension bridges, across the Salween and Mekong River gorges.

The AVG

In 1940, the Chinese decided to try a different approach to protect the Burma Road and defend their cities. They would hire 100 American pilots and buy 100 of the best American airplanes they could get. The generalissimo sent his brother-in-law, the Harvard-educated T.V. Soong, to Washington, D.C., to make the arrangements. A few months later, Chennault was dispatched to help him.

They proposed to recruit from the ranks of Army, Navy, and Marine Corps pilots. That idea was flatly rejected by Hap Arnold, by then a major general and Chief of the Air Corps, and by his Navy counterpart, who felt they had no pilots to spare. The request to purchase airplanes was turned down as well.

However, the "China Lobby," which had considerable strength in Washington, appealed the decision to President Roosevelt, who ordered that the airplanes be made available and that the pilots be released by the services. This did not improve Chennault's reputation with the War Department.

Claire Chennault is shown here as a major general. For his time with the Flying Tigers, he had no official rank and was usually called "colonel."

The Curtiss-Wright aircraft plant in Buffalo, N.Y., diverted production of 100 Tomahawk II fighters, export versions of the P-40 originally intended for the British, to China. Although first-line Air Corps squadrons flew the P-40, it was regarded as obsolete. It was built for low-altitude combat and lacked the agility and climbing speed to match the best fighters of the day, the British Spitfire and the Japanese Zero.

On the other hand, the P-40 was rugged and had qualities of its own, such as diving speed and firepower. It had two .50-caliber machine guns on the nose, firing through the propeller arc, and four .30-caliber guns, two on the leading edge of each wing. The Tomahawks obtained for the AVG were essentially equivalent to Air Corps P-40Bs. (See "A Family of Hawks," p. 41.)

The AVG signed up 109 pilots and 186 support personnel who sailed for China in the summer of 1941. Most of the pilots were paid $600 a month—double or triple their military pay—plus a bonus of $500 for every Japanese airplane they destroyed. Ground crew members got $150 to $350 a month, with some line and crew chiefs later raised to $400.

Before the AVG could go into action, the aircraft had to be assembled and the crews trained. The first aircraft were delivered in crates to Rangoon in May 1941. There were no spare parts, not even extra spark plugs. Shortage of parts was a problem that was never solved completely.

The AVG was activated Aug. 1 with a training base at Kyedaw airfield outside of Toungoo, 175 miles north of Rangoon. There were three squadrons with whimsical names. The First Pursuit Squadron was the "Adam and Eves" because Eve chasing Adam was the first pursuit. The second squadron, with a nod to the host country, was the "Panda Bears." The third squadron, "Hell's Angels," was named after a 1930 Howard Hughes movie about World War I aviators.

The AVG had no military ranks, but Chennault regularly spoke of "officers" and "enlisted men," and there were two mess halls, one for pilots and staff and the other for technicians. "No salutes were required," Chennault said. "If somebody cared to salute me, I always returned it." His signature block was simply "C.L. Chennault, commanding."

Photo by R.T. Smith via David Hill

With their distinctive shark-mouth paint schemes, these P-40s are instantly recognizable as Flying Tiger aircraft. The Americans defeated their adversaries by a margin of at least 10-to-one.

It was during the training period in Burma that the AVG adopted its famous trademark, the shark's teeth. The design was not original with the AVG. It was copied from pictures in *Illustrated London News* of RAF Tomahawks in Egypt. The RAF had copied it from Me-110s of the 76th Luftwaffe Group.

Every day at Toungoo, Chennault lectured on tactics he devised to reduce the advantages of the Japanese fighters and emphasize the P-40's strengths.

"You can count on a higher top speed, faster dive, and superior firepower," he said. The Japanese fighters "have a faster rate of climb, higher ceiling, and better maneuverability. They can turn on a dime and climb almost straight up. If they can get you into a turning combat, they are deadly.

"Use your speed and diving power to make a pass, shoot, and break away. You have the edge in that type of combat. All your advantages are brought to bear on the Japanese deficiencies. Close your range, fire, and dive away. ... Make every bullet count. Never try to get all the Japanese in one pass. Hit hard, break clean, and get in position for another pass."

(Many stories about the AVG tell of fights with the Japanese Zero. In actuality, the Flying Tigers never faced the Mitsubishi A6M Zero. By December 1941, it had been withdrawn from China

Pictured (l-r) are Generalissimo Chiang Kai-shek, Madame Chiang, and Claire Chennault. Madame Chiang, a shrewd political operator, was instrumental in bringing Chennault to China.

US Army Lt. Gen. Joseph Stilwell (r), shown here with Chinese Army Gen. Liao Yao-Hsiang, was in 1942 named commander of US forces in the China-Burma-India Theater. "Vinegar Joe" was an infantry officer with a strong prejudice against airpower. He immediately set about the task of taking over Chennault's Flying Tigers.

for employment elsewhere in the Pacific. The AVG's opponents were the Japanese Army's Nakajima Ki-43 Oscar, which strongly resembled the Navy's Zero, and the Nakajima Ki-27 Nate. According to Flying Tiger communications tech Robert M. Smith, "The AVG called all Japanese fighter planes Zeros.")

Chennault had another advantage with an air raid warning system that he described as "a vast spider net of people, radios, telephones, and telegraph lines that covered all of Free China accessible to enemy aircraft."

To War

In the days following the Dec. 7 attack on Pearl Harbor, the Japanese struck all over Asia. When Hong Kong fell, Chiang Kai-shek lost his last air route to the China coast. The Japanese seized bases in Thailand, notably at Chiang Mai in northern Thailand, from which they could more easily threaten the Burma Road. They invaded Burma Dec. 11.

Chennault had not quite finished the AVG training but decided he had to deploy from Toungoo anyway. He sent one squadron to join the RAF in the defense of Rangoon and took two squadrons to Kunming, which became his primary base of operations.

The Japanese bombers from Gia Lam struck Kunming Dec. 18 and encountered no resistance. The AVG airmen, arriving later that day, saw the smoke from the bombing. By dawn on Dec. 19, the AVG had 34 Tomahawks ready to fight at Kunming.

On Dec. 20, the bombers returned and the AVG shot down four of them. That engagement marked not only the combat debut of the AVG but the first defeat in battle for the Japanese Army Air Force.

Back in Washington, the AVG's Stateside administrative and support arm at the Chinese Embassy hit upon "Flying Tigers" as a nickname for the AVG. Contrary to a recurring story, the name had nothing to do with the teeth on the aircraft, which were in any case shark's teeth. The name was first used by *Time* magazine Dec. 29, 1941, in an article entitled, "Blood for the Tigers."

The AVG pilots learned with surprise from press reports that they were the "Flying Tigers," but they warmed to the name and kept it. Walt Disney studios designed a Flying Tiger insignia. It had a Bengal tiger with wings leaping through a V-for-Victory device.

Three days after the AVG chased the bombers away from Kunming, the Battle of Rangoon began and it was a major event. "Although the AVG was blooded over China, it was the air battles over Rangoon that stamped the hallmark on its fame as the Flying Tigers," Chennault said. For the next 10 weeks, he rotated his three squadrons between Rangoon and Kunming.

Opposing the invasion of Burma was a hodgepodge of ground forces led by the British and a handful of RAF and AVG aircraft. Dispute continues about the statistics from this action, but RAF Air Vice Marshal Donald F. Stevenson, Allied air commander in Burma, estimated that the Allies destroyed 291 Japanese aircraft in the Burma campaign. He attributed 217 of those to the AVG.

The P-40 was an excellent airplane for the Battle of Rangoon, which was mostly fought below 20,000 feet. At that altitude, the P-40 was the best airplane in the fight, and it was the best armed.

"The victories of these Americans over the rice paddies of Burma are comparable in character if not in scope with those won by the RAF over the hop fields of Kent in the Battle of Britain," said British Prime Minister Winston Churchill. In August 1943, the British awarded the Distinguished Flying Cross for defense of Burma to AVG pilots David L. "Tex" Hill, Edward F. Rector, Charles R. Bond Jr., and (posthumously) John V. Newkirk.

Holding the Line

The valiant effort was not enough to beat the overwhelming Japanese strength. Rangoon fell March 8. The invaders surged northward, capturing Lashio and pushing the Chinese army backward along the Burma Road. The Japanese had 14 air regiments, between 400 and 500 aircraft, in Burma, China, and Thailand.

By early May, the Japanese were inside China, on the western side of the Salween River gorge. The retreating Chinese Army had blown up the bridge, even though some of their own forces had not yet gotten across.

"There were no obstacles between the Japanese and Kunming but a broken bridge and the AVG," Chennault said. "If the Japanese got to Kunming, it meant the end of the war for China."

Closure of the Burma Road and Japanese capture of Kunming would have left China with only one remaining supply route, through Turkestan and Mongolia from Russia. Transports could fly over the Hump of the Himalayas from India into Kunming, but they did not have the range to reach Chungking.

The replacement aircraft, delivered to the Flying Tigers in March, were critical to what happened at the Salween gorge. They were P-40Es, with bomb racks, which gave the AVG its first capability for bombing.

For four days, Chennault threw everything the AVG had against the Japanese, attacking them from the Salween River all the way back to the Burma border. It was enough. "By May 11, the only military traffic along the Burma Road was moving south toward Burma," Chennault said.

To better defend Chungking and deter bombing raids, Chennault deployed two of his squadrons to eastern China. They headed off air raids, dive-bombed enemy airfields and bases, and took a definite toll on the Japanese forces.

"The group had whipped the Japanese Air Force in more than 50 air battles without a single defeat," Chennault said. "With the RAF, it kept the port of Rangoon and the Burma Road open for two-and-a-half precious months while supplies trickled into China."

The AVG had "saved China from final collapse on the Salween," he said. "Its reputation alone was sufficient to keep Japanese bombers away from Chungking. It freed the cities of east China from years of terror bombing."

Top guns for the AVG were Robert Neale with 15.55 victory credits and Tex Hill with 11.25. (See "Tex," July 2002, p. 81.)

Stilwell and Bissell

The China-Burma-India Theater was set up in December 1941, and Generalissimo Chiang Kai-shek was named Supreme Allied Commander for China.

Almost immediately, the US War Department began maneuvering to induct the AVG into the regular US Army. The Army was willing to recall Chennault to active duty but not as its top commander in China.

That job went to Joseph W. Stilwell, "Vinegar Joe," a friend and protégé of Gen. George C. Marshall, the Army Chief of Staff. In March 1942, Stilwell was promoted to lieutenant general and named commander of US forces in the CBI Theater.

Stilwell was an infantry officer with a strong prejudice against airpower in a theater that was largely about airpower. Diplomacy was not among his skills. He spoke Chinese but did little to hide his condescending attitude toward the Chinese people. He held Chiang in contempt and called him "Peanut." (Stilwell referred to Roosevelt, who was confined to a wheelchair, as "Rubber legs.")

When Allied forces were in retreat from Burma, Stilwell refused to board an airplane sent to fly him out. Instead, he chose to walk out to India and led a ground party of 118 through the jungles to India. The ranking American officer in Asia was out of touch with the rest of his command for two weeks.

When the AVG was merged into the Army Air Forces, Chennault, at Chiang's request, would be the senior air commander in China, but Col. Clayton L. Bissell, was named to head American Air Forces in the CBI. He, rather than Chennault, was Stilwell's air deputy. Bissell had been junior to Chennault when both of them were in the Air Corps, and Chennault had a low opinion of Bissell.

Chennault was called to active duty, promoted to colonel, and then to brigadier general. However, at Stilwell's insistence—with the full support of Marshall and Arnold—Bissell was promoted to the same grades one day earlier than Chennault at each turn.

Their intent was to ensure that Chennault would be subordinate to Bissell at all times. Their antipathy deepened later when Roosevelt met Chennault, liked him, listened to his advice, and invited direct correspondence from him.

Stilwell persisted in his disdain for airpower. In a famous exchange reported by *Time* magazine, Stilwell told Chennault that "it's the man in the trenches that will win the war." Chennault shot back, "Goddamn it, Stilwell, there aren't any men in the trenches."

End of the AVG

Few of the AVG pilots were enthusiastic about being inducted into the Army Air Forces in China. They preferred to fly out their contracts and go home. Even so, most of them eventually returned to US military service. Two of them went on to earn the Medal of Honor. The AAF could have recruited more of them than it did in China in 1942, had the offer been made with greater consideration and respect.

Bissell, in a radiogram to the War Department, described the AVG pilots as a "wild, undisciplined lot." Indeed, the Flying Tigers were often boisterous and unruly. Their critics emphasized that aspect of the AVG but gave short shrift to the fighting abilities of the airmen and their contributions in plugging the gap against the Japanese in the first days of the war.

According to Chennault, more of the AVG veterans would have joined the AAF if they could have gotten a furlough before resuming combat and if the Army had been willing to offer them regular commissions.

Instead, Bissell gathered the AVG force at Kunming and issued a threat. "For any of you who don't join the Army, I can guarantee to have your draft boards waiting for you when you step down a gangplank onto United States soil," he said.

After that, only five pilots and 22 of the ground personnel chose to join the AAF. Service with the AVG did not count for promotion, retirement, or time in grade. The Flying Tigers did not share in the generous promotions awarded elsewhere for those with prewar military service.

Dissolution of the AVG was set for July 4, 1942, but the US Army was not ready. "Fifty-five AVG pilots and ground crew men who were unwilling to see the air defense of China collapse completely when the Army was unable to provide either planes or personnel by July 4 ... volunteered to remain in combat for two extra weeks," Chennault

Chennault (c) confers in Kunming with Col. Robert Scott Jr. (l), later to become author of* God Is My Co-Pilot, *and Brig. Gen. Clayton Bissell. Chennault had a low opinion of Bissell, whom Stilwell picked as his air deputy.

A Family of Hawks

The Curtiss P-40, called the Warhawk in US service, was the principal fighter of the Army Air Corps at the beginning of World War II. More than 14,000 were produced in different models and variants. The P-40 was flown by 28 nations, but it is forever associated in popular memory with the American Volunteer Group Flying Tigers. (See "Airpower Classics: P-40 Warhawk," March, p. 88.)

The P-40 evolved from the trusty Curtiss P-36 Hawk, to which it bears a strong resemblance, but the P-40 had a liquid-cooled Allison engine in place of the radial air-cooled engine of the P-36.

British variants were known as Tomahawks (equivalent to P-40Bs and P-40Cs) and Kittyhawks (equivalent to the P-40E and later models).

There is some confusion about which model the AVG initially flew. The airplanes were Tomahawks, diverted from an order for the British, but were they Tomahawk IIs (equivalent to P-40Bs) or Tomahawk IIBs (equivalent to P-40Cs)? Chennault, in his autobiography, *Way of a Fighter* (1949), called them P-40Bs, but many books and articles say they were P-40Cs.

The facts seem to be these. Curtiss sold the airplanes as H-81A3s, which would have been Tomahawk IIBs, or P-40Cs. However, AVG pilot Erik Shilling said emphatically that the features of the aircraft received were those of the Tomahawk II, including externally sealed fuel tanks. In other words, P-40Bs. It appears that Curtiss had some leftover parts in stock and decided to use them on the AVG order. The airplanes were essentially P-40Bs.

AVG replacement aircraft, which began arriving in March 1942, were Kittyhawks, or P-40Es. Unlike the P-40Bs, the Kittyhawks could carry bombs. They also had a larger radiator, so the air scoop moved forward, giving the shark face a stronger "chin." All told, the AVG got about 30 P-40Es.

said. Two of them were killed on these volunteer missions.

The China Air Task Force, commanded by Chennault, took over when the AVG was disbanded. It inherited the AVG's mission and assets, which included 31 Tomahawks (P-40Bs) and 20 Kittyhawks (P-40Es). Of these hard-used aircraft, 29 were flyable. The fighter element of the CATF was the 23rd Fighter Group. (The official designation changed from "pursuit" to "fighter" in May 1942.)

In March 1943, the China Air Task Force became Fourteenth Air Force, which picked up the Flying Tiger name and tradition and established its own reputation for effectiveness. Lt. Gen. Hiroshi Takahashi, chief of staff of Japan's Northern China Area Army, attested to its achievements.

"Considering all the difficulties my armies encountered in China, including guerrillas, ground armies, lack of supply, difficult terrain, noncooperation of the Chinese, I judge the operations of the Fourteenth Air Force to have constituted between 60 percent and 75 percent of our effective opposition in China," Takahashi said. "Without the air force, we could have gone anywhere we wished."

However, the soap opera was not quite over. In 1944, Stilwell was recalled from China at the request of Chiang Kai-shek. Marshall and Arnold, believing that Chennault had a hand in Stilwell's difficulties, replaced him as commander of Fourteenth Air Force and forced him into retirement.

On his way back to the United States, Chennault made a farewell call in Chungking. People from the countryside flocked to the city and mobbed the car in which he was riding. The driver turned off the engine and the crowd pushed the car through streets and up hills to the open square where thousands had gathered for the leave-taking ceremony.

Chennault retired Oct. 31, 1945 as a two-star general.

Legacy and Legend

As more information about World War II becomes available, parts of the Flying Tiger story have been re-examined with results that are hotly disputed. Between December 1941 and July 1942, according to AVG and Air Force records, the Flying Tigers destroyed 299 Japanese aircraft while losing only 12 of their P-40s in combat.

Those numbers are challenged by Daniel Ford, who did extensive research of Japanese Air Force losses, down to accounting for specific airplanes and crews, and interviewed veterans of Japanese units. In *Flying Tigers,* published by the Smithsonian Institution Press in 1991, he concluded that there had been multiple claims on many of the specific credits and that Japanese losses did not exceed 120 aircraft.

AVG veterans and supporters accused Ford of getting it wrong, but Robert Neale, commander of the Flying Tigers 1st Pursuit Squadron and leading ace of the AVG, called the book "a very well-documented history of the AVG with great attention to detail." Some recent books and articles accept Ford's numbers. Others do not.

Animosity toward the Flying Tigers is still found, notably among academicians. For example, a strange commentary, posted on the Air University Web site, discounts the AVG as a "much-storied group of mercenaries turned heroes" and says that "Chennault's strategic ideas can only be classified as puerile."

On the other hand, the US government in 1991 at long last recognized the achievements of the Flying Tigers with the award of a Presidential Unit Citation for operations from Dec. 7, 1941 through July 18, 1942. The citation said that the AVG was "a major factor in defeating the enemy invasion of South China."

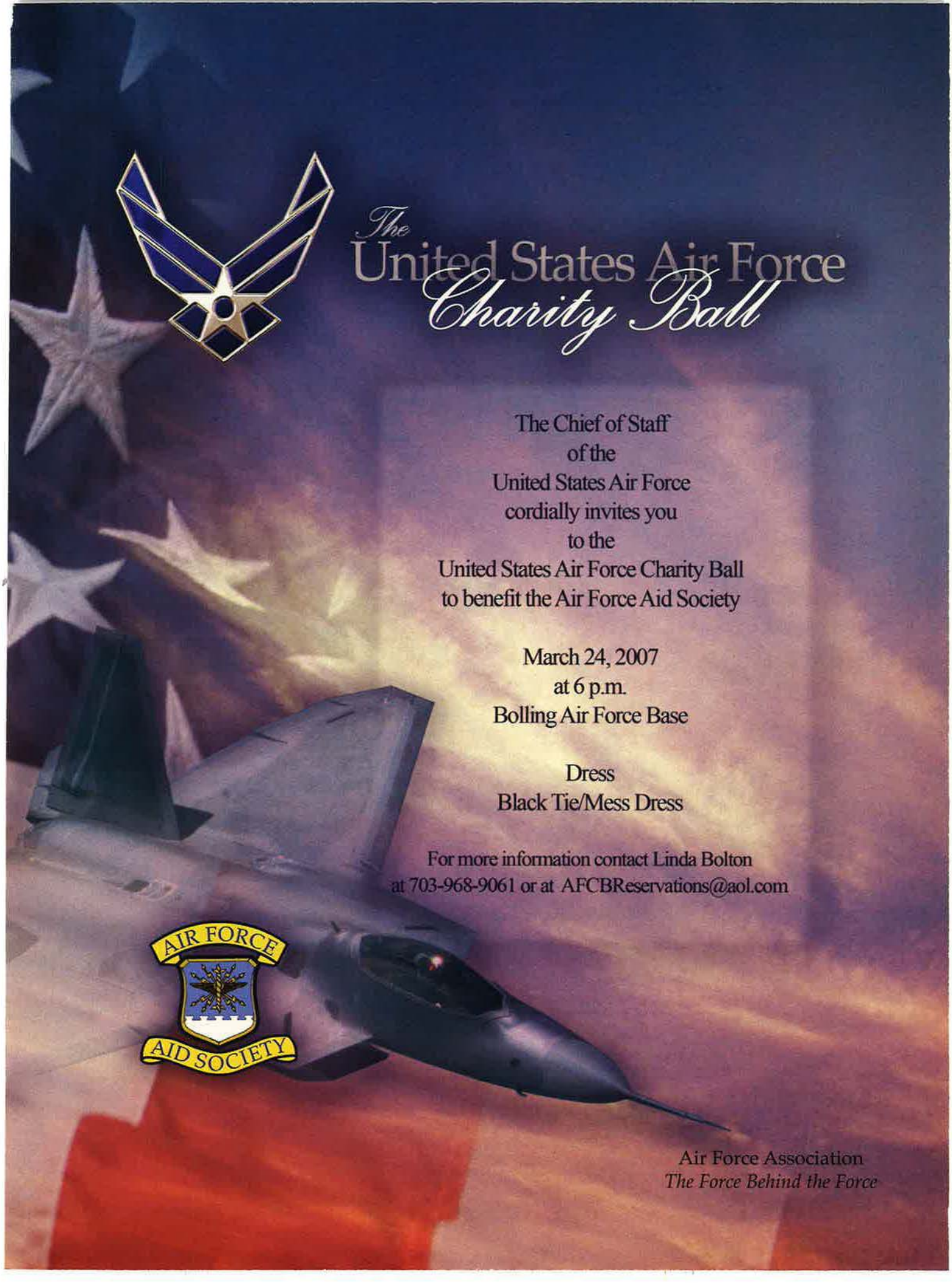
Through it all, the legend of the Flying Tigers survives. In the months following Pearl Harbor, they were the only effective Allied air force operating on the Asian mainland. Flying airplanes that were regarded as obsolete and hampered by irregular supply of parts and support, they consistently outflew and outfought the Japanese air regiments, which had better airplanes and were present in far superior numbers. Even if the revised numbers are accepted, they defeated their adversaries by a 10-to-one margin.

They provided both relief and hope for Chinese cities, which had not previously had much of either. They ended Japan's uncontested bombing raids, stopped some of the attacks and deterred others, and blocked the advance of the Japanese into China.

In 1957, Chennault was one of 29 airpower notables recognized at the AFA National Convention for their contributions to history. Today, AFA annually presents the Lt. Gen. Claire L. Chennault Award to the Air Force's best aerial warfare tactician of the year.

Chennault died July 27, 1958, nine days after Congress promoted him to lieutenant general. No doubt he would have been pleased to know that, almost 50 years after his death, the Air Force was carrying on the Flying Tigers legacy as A-10s of the 23rd Fighter Group, emblazoned with the distinctive shark's teeth markings, flew combat missions in Afghanistan. ■

John T. Correll was editor in chief of Air Force *Magazine for 18 years and is now a contributing editor. His most recent article, "Lavelle," appeared in the November issue.*



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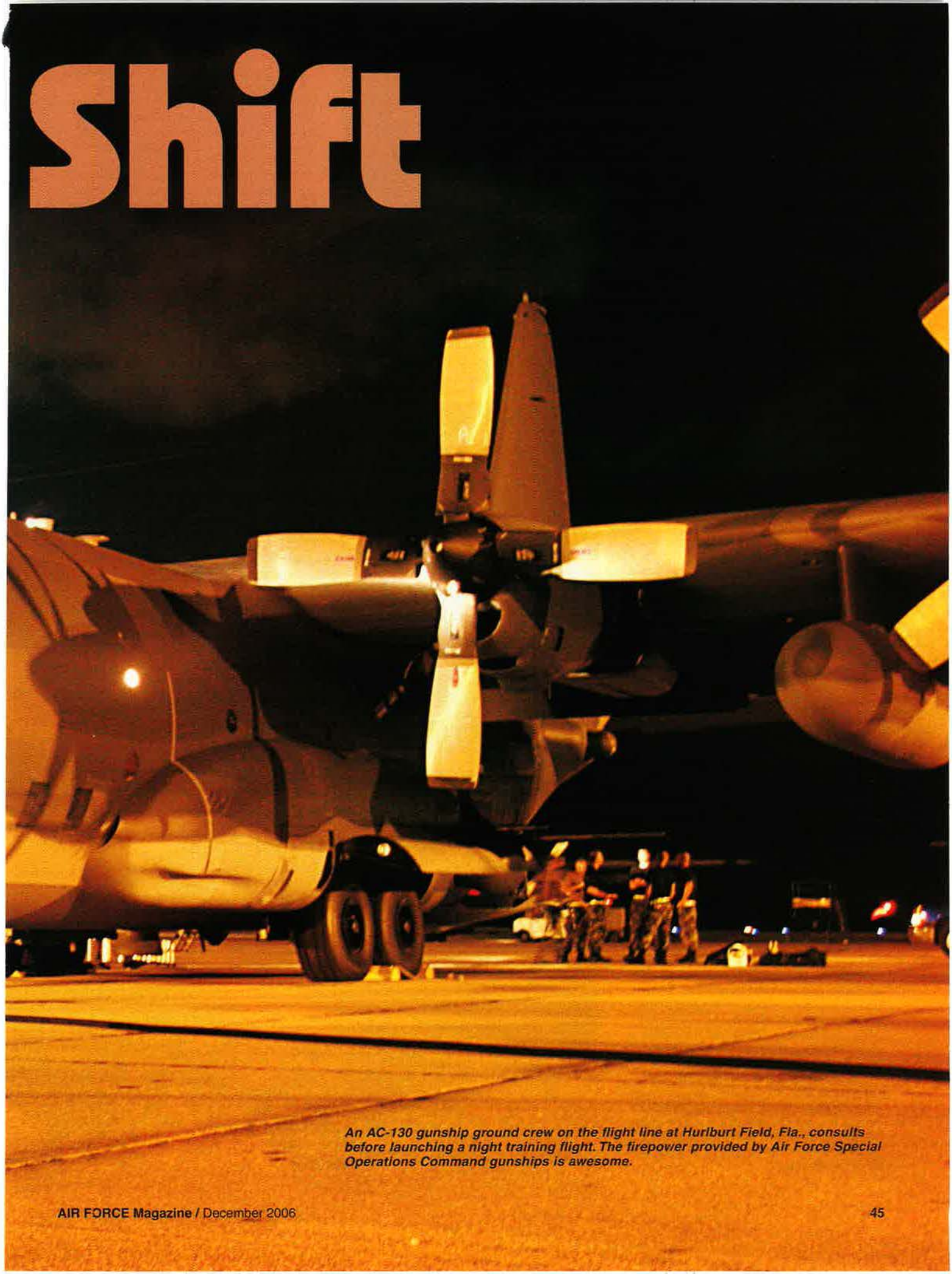
The Night

When the sun goes down, the workday is just beginning at Hurlburt Field, Fla., for Air Force Special Operations Command's gunship crews.

Photography by Guy Aceto

Shift



An AC-130 gunship ground crew on the flight line at Hurlburt Field, Fla., consults before launching a night training flight. The firepower provided by Air Force Special Operations Command gunships is awesome.

The gunship mission is in high demand, and crew members are deployed about 120 days per year. This year alone, the gunships of the 16th Special Operations Wing at Hurlburt Field, Fla., have flown more than 1,300 combat sorties totaling more than 8,000 combat hours. They are feared by enemies and beloved by friendly ground forces for their ability to rain down devastating fire at extremely close range.

Seen at left is the business end of an AC-130H—a 40 mm cannon and a 105 mm howitzer. The bulge between the two gun barrels houses a targeting radar. The gunship orbits above a target and delivers fire continuously on a specific location, creating the legendary "cone of fire."

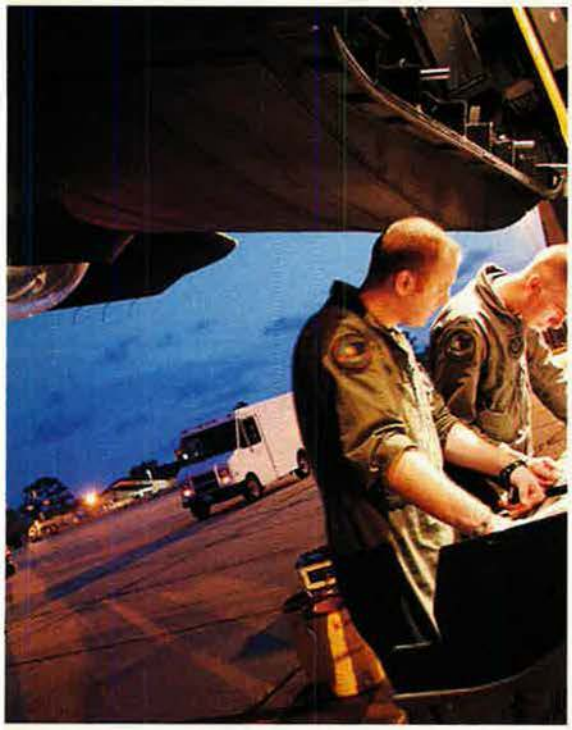
Clockwise from above: An air commando drops a clip of 40 mm rounds into the cannon at the rear of the gunship. Behind him, another member of the load crew stands ready. • The earliest version of the AC-130, on static display. In the foreground are its two 20 mm guns; visible at the rear of the aircraft is the A model's howitzer. The AC-130 is the latest in a long line of successful gunships, a legacy that includes weaponized C-131s, AC-47s, and AC-119s. • An AC-130H belonging to the 16th Special Operations Squadron is readied for a nighttime training mission. Today, the 16th SOW boasts two gunship squadrons—one flying 13 AC-130Us and the other operating eight venerable AC-130Hs, some of which saw action in Vietnam.

Above, weapons loaders insert a 105 mm shell aboard the aircraft.

Gunships are vulnerable, so they have always operated at night and are today equipped with a dazzling array of defensive capabilities. The ball seen at upper right is a Directional Infrared Countermeasures (DIRCM) pod, which is used to thwart heat-seeking missiles.

Right, the pilot's head-up display.

A1C Aaron Lewis (left) and SSgt. Thomas Hinkle swab out the interior of the cannon. The 105 mm howitzer is huge, and, like any gun, it still needs regular cleaning. At right, a crewman monitors the 40 mm gun.



Top left, the AC-130's engines and external fuel tanks are clearly visible. Note the metal "bucket" covering the rear of the engine. These shrouds help block and suppress the heat signature of the aircraft's four turboprop engines.

Top right are SSgt. Zachary Ross (l), A1C Aaron Lewis (in BDUs), and SSgt. Thomas Hinkle performing maintenance on an AC-130U's 40 mm gun.

Left, a flight crew goes over the mission paperwork in advance of the night's mission.

Above, a gunship is lit up after dark on the Hurlburt ramp.

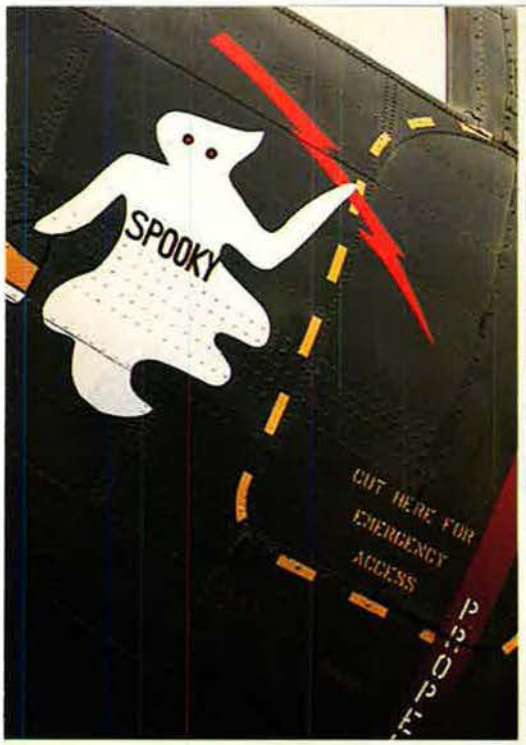
Serial No. 575, parked on the Hurlburt ramp, is a Vietnam War veteran. The 40 mm Bofors cannon was actually designed as an anti-aircraft gun and was used extensively for that purpose in World War II. The AC-130Hs added the 105 mm howitzer in 1972.

In addition to the 105 mm howitzer and 40 mm cannon, the newer U model gunships belonging to the 4th Special Operations Squadron also sport a 25 mm Gatling gun. These gunships can target two locations at once.

Above, the AC-130U weapons layout seen in profile. At the front is the 25 mm Gatling gun; the two larger caliber weapons are aft of the rear landing gear. AFSOC plans to soon replace the ancient 25 mm guns used on the AC-130Us with modern 30 mm Bushmasters offering better range, accuracy, and firepower.

At left, the weapons team carefully tends to a specially designed weapons storage crate.

Below, an AC-130H of the 16th SOS fires up an engine as takeoff time approaches. The night's mission will last more than seven hours and includes time to calibrate weapons, perform a midair refueling with night vision goggles, and lay down live fire in support of Special Forces training on the ground.



Clockwise from top left: Detail of the early Vietnam era AC-47 Spooky *on static display at the USAF Armament Museum near Hurlburt. The nickname now applies to the entire fleet of AC-130U gunships. Older AC-130Hs are called Spectres. • With a shot on its way, the breech of the huge 105 mm gun is rocked all the way back. The crew member at left is reaching for the next round to load. • A bucket heat shield attached to the rear of the turboprop engine. • Loadmaster MSgt. Scott Dennis calculates fuel requirements for that evening's mission. • The open door reveals a tracking system. On a regular C-130, this would be a crew entrance.*

At left, three H model AC-130s are being readied on the ramp. After Vietnam, these legendary gunships have seen action over Grenada, Panama, Somalia, Bosnia, Kosovo, Afghanistan, and Iraq.

Below, a gunship is obvious even head-on; numerous bumps and blisters house special mission equipment and distinguish it from a "slick" C-130.

Above, maintainers at work on a wing.

Below, a gunship at the start of a nighttime training mission soars over the Gulf of Mexico.

Today's AC-130 gunship is in heavy demand and will continue to be sent wherever ground forces need additional firepower. ■

USAF photo

Airpower advocates always have, and always will, face certain occupational hazards.

The Billy Mitchell Syndrome

By Rebecca Grant

Mitchell, shown standing at his 1925 court-martial, wrote that airmen "are bluffed and bulldozed so that they dare not tell the truth [about airpower], knowing full well that if they do, they will be deprived of their future career."

Airpower advocacy is part of being an airman. Air Force Doctrine Document 2 tells all USAF members, "Each of you must be articulate, knowledgeable, and unapologetic advocates." It adds, "We must understand what it means to be an airman" and explain "what air and space power can bring to the joint fight."

Advocacy rarely has been easy or safe. It has required reasoned articulation of complex capabilities, delivered at just the right time, in the right place, to the right persons. The message has not always been welcome. Today is no different.

Advocacy has a checkered history in the Air Force and its predecessor organizations. Start with Brig. Gen. William Mitchell in the 1920s, and you see that speaking up for airpower carried risks. Richard P. Hallion, former Air Force chief historian, has written that one result, among senior airmen, is a "tendency to not be as aggressive in arguing the airpower case as one would expect them to be." Call it the Billy Mitchell Syndrome.

Mitchell, America's first great air commander, was the master of airpower advocacy. (See "The Real Billy Mitchell," February 2001, p. 64.) He saw that it was a multipronged task,

requiring work in the joint community, with allies, inside the US government, in the press, and in the public arena. His singular achievement came late in World War I, when he talked his Army superiors and Allied chiefs into letting him plan and lead a major air campaign. The September 1918 Battle of St. Mihiel was the greatest air combat event of the war. Bringing together this offensive took all of Mitchell's powers of persuasion.

Stand back for a moment and consider how things looked in summer 1918. America was not yet a great military player; the US, though it had been at the Western Front for about a year, was still very much the junior partner among the Allies. The 1.2 million Americans in Europe were still, for the most part, firing French guns, flying French aircraft, and taking their training from French and British officers. Gen. Henri-Philippe Petain, commander of all French forces, summed up the matter this way: "There is no American army as such, as its units are either in training or are amalgamated with the British and French." US airpower had a commensurately low profile.

Fortunately, Gen. John J. Pershing, the top US commander in France, longed to change all that by proving American mettle in a battle fought under US command. It turned out to be the Battle of St. Mihiel Sept. 12-16, 1918. Some 550,000 US troops fought German forces on land and in the air. (See "The St. Mihiel Salient," February 2000, p. 74.)

Fast Talking

It was during that engagement that the world got a clear view of Mitchell's audacious airpower creed. He saw St. Mihiel as an opportunity to raise the Air Service profile in Pershing's eyes, if, he said, "we delivered the goods." To do it, Mitchell had to do some heavy persuading—and fast. He first importuned British Gen. Hugh M. Trenchard to lend him use of the RAF independent bombing force. Mitchell, a fluent French speaker, won operational control of hundreds of French fliers. Pershing also gave him full authority over virtually all US Air Service pursuit units, which enabled him to command them for air superiority and battlefield interdiction sweeps.

In short, the major Allies—Britain, France, and the United States—all trusted Mitchell to command the biggest air offensive of World War I. The American officer knew who to convince, what to say, how to explain airpower, and when to close the deal. *That* was a true success story in airpower advocacy.

The armistice did not slow Mitchell's efforts. If anything, he became even more determined to build up America's airpower. It is instructive to note that, upon his return home in 1919, he carefully confined himself to working within the War Department and following the rules of the bureaucratic game. Only after all such measures failed did he move on to employ other tactics.

It was no secret that strong advocacy of airpower caused resentment and opposition within Army and Navy circles. Mitchell himself, in his famous September 1925 statement that sparked his court-martial, charged that airpower partisans were forced to remain silent about the sad state of air operations—or else. "The airmen themselves," he wrote, "are bluffed and bulldozed so that they dare not tell the truth in the majority of cases, knowing full well that if they do, they will be deprived of their future career, sent to the most out-of-the-way places to prevent their telling the truth, and deprived of any chance for advancement."

In 1925, Mitchell, by impugning the Army and Navy leadership, deliberately provoked a court-martial, seeing it as the best and fastest way to bring the airpower debate to a climax. Though convicted at trial and forced to retire, Mitchell continued to speak out until his death in 1936. Gen. Henry H. "Hap" Arnold, a Mitchell supporter who became Chief of the US Army Air Forces in World War II, said, "The public was on his side, he was righter than hell, and he knew it." Others questioned the wisdom of his ways, and there is little doubt that Mitchell's fate made airmen of the 1920s and 1930s think twice before speaking their minds.

All-Out Brawls

In World War II, American air dominance helped secure victory, and advocacy returned with full force. Candid talk about airpower ran strong during the war years, of course. When the independent Air Force was created in 1947, there was no lack of outspoken partisans. Take, for example, the late 1940s, which featured a freewheeling discussion about the unification of the services and a bomber vs. carrier argument that culminated in what is now known as "the Revolt of the Admirals." That all-out Washington brawl pitted Air Force backers against Navy partisans in open conflict, and no one on either side minced words. Air Force officers gave at least as good as they got. (See "Revolt of the Admirals," May 1988, p. 62.)

Air Force officers stayed on the offensive well into the next decade. In the May 1956 issue of this magazine, for example, Gen. Otto P. Weyland, commander of Tactical Air Command, delivered an amazingly blunt assertion of the supremacy of airpower. He argued, "Airpower, as exemplified in the United States Air Force, is the fundamental military threat restraining the enemy." The general went on to say, "United States Air Force airpower is ... the decisive, dominant force assuring a continued Free World." Through the 1950s and early 1960s, Weyland, Gen. Curtis E. LeMay, Gen. Nathan F. Twining, and other senior leaders spoke widely and wrote extensively about the pivotal place of airpower in the defense of the nation.

Then, in the mid-1960s, the tide began slowly to turn, and open advocacy again became increasingly difficult. A particular strand of Cold War scholarly revisionism put strategic bombing in a negative light. Assessments of armed operations ranging from the firebombing of Dresden in Germany and the atomic attacks on Hiroshima and Nagasaki in Japan to the Cold War preparations for massive nuclear retaliation against the Soviet Union all cast US airpower in the role of villain.

Mitchell's reputation also sank. Revisionist criticism of the famous airman grew strong in the 1960s. Writing in 1964, the influential naval historian Samuel Eliot Morison accused Mitchell of keeping the Navy "weak" in the decade before World War II. Gen. Benjamin D. Foulois, an old Air Service rival of Mitchell's who lived until 1967, left an autobiography that sullied Mitchell's image even further.

In the post-Vietnam years, a full reversal of course occurred. A bumper crop of military histories blamed America's failure in Southeast Asia largely on deficiencies of airpower. By the late 1970s and 1980s, a doctrinal reaction had elevated land power to prime position and had reassigned airpower to a supporting role, a junior partner to the Army in the AirLand Battle concept. New perceptions devalued the historic achievements of airpower—whether with regard to

Mitchell, shown in France with his airplane, won operational control of hundreds of French fliers and virtually all US Air Service pursuit units for the Battle of St. Mihiel. He considered the huge battle an ideal opportunity to prove airpower's mettle.

specific battles or to the persona of Billy Mitchell.

Shortage of Mitchells

Institutionally, airmen were thrown onto the defensive. Outspoken, Mitchellesque advocacy became uncommon. A sign of the times appeared in 1982, when USAF's *Air University Review* published a controversial article by USAF Lt. Col. Timothy E. Kline. The title was, "Where Have All the Mitchells Gone?" Kline lamented what he saw as an expanding managerial culture within the Air Force that, as he perceived it, was robbing the service of its special sense of mission. According to Kline, what the Air Force lacked was not Mitchell's methods or flamboyance; it lacked his vision and his willingness to articulate it. "The Air Force," wrote Kline, "desperately needs a new Mitchell—not to do battle with the establishment but to provide a vision for airpower's future."

Inside or outside the service, it became increasingly perilous to maintain publicly that airpower had special value. A key point was reached in 1986 with passage of the Goldwater-Nichols Act, a law giving major new powers to the centralized "joint" establishment while sharply weakening the power of the military services. In 1990, the Air Force released its Global Reach-Global Power white paper, but Hallion, working for Secretary of the Air Force Donald B. Rice, recalled that "airmen seemed very reluctant to speak to the value of airpower in national defense."

Soon, USAF leaders were running into troubles of a kind scarcely seen in decades. The worst was the attack on Gen. Michael J. Dugan, which was perhaps the most improper political assault on an airman, or any other military figure, since the days of Mitchell. Dugan, a fighter pilot, became Chief of Staff in July 1990. On Aug. 2, barely a month later, Iraq invaded Kuwait. USAF forces rushed to the Persian Gulf as President George H.W. Bush began preparations for defense of allies and for a possible offensive against Iraqi aggressors. In mid-September, Dugan made a trip to the Gulf and, in several sessions with reporters, offered a candid assessment of airpower's contribution in the war to come.

Washington Post reporter Rick Atkinson, who was present at Dugan's press sessions, summed up his remarks in a long Sept. 16 article in that newspaper. The Chief of Staff had strongly (and, as it turned out, accurately) portrayed airpower as an offensive option that would overwhelm Iraq's Air Force and destroy much of its Army. Air attacks, he said, would not remain limited to targets in Kuwait but would range across Iraq. "The cutting edge would be in downtown Baghdad," Dugan told Atkinson.

Cheney's Problem

Secretary of Defense Richard B. Cheney found fault with Dugan's remarks and imposed a harsh penalty. The Pentagon chief demanded and got Dugan's immediate resignation, charging that the Chief "showed poor judgment at a sensitive time." There was little doubt, however, that part of the problem was that Dugan had extolled the singular capabilities of airpower. Dugan, unintentionally, had trod in the footsteps of Mitchell in asserting a claim that few understood or believed. Most galling, to some, was his suggestion that airpower could act independently of ground forces. Cheney slammed Dugan for "demeaning the contributions

Throughout the 1950s and 1960s, Air Force leaders such as Gen. Curtis LeMay (pictured), Gen. Otto Weyland, and Gen. Nathan Twining spoke out forcefully about the merits and unique capabilities of airpower for defending the nation.

DOD photo

Before the 1991 Gulf War, Gen. Michael Dugan, Air Force Chief of Staff, correctly told reporters that airpower could overwhelm the Iraqi forces and make Baghdad the "cutting edge" of the upcoming offensive.

of other services." Army Gen. Colin L. Powell, the Chairman of the Joint Chiefs of Staff, was "particularly upset by comments [suggesting] that the Air Force could win a war single-handedly," wrote Michael R. Gordon and Bernard E. Trainor in their Desert Storm book, *The Generals' War.* In reality, Dugan never said anything of the sort.

Within months, the Gulf War had amply vindicated Dugan, as American airpower dismantled Iraqi forces so thoroughly that Army forces needed only 100 hours to rout the pulverized remnant and drive it from Kuwait. However, Washington's nerve endings were still acutely sensitive to any claims of airpower dominance, as was soon made clear.

On March 15, 1991, Pentagon spokesman Pete Williams gathered reporters for a briefing by the new Air Force Chief of Staff, Gen. Merrill A. McPeak, about the performance of US airpower in the war. It turned out to be a prime example of the Billy Mitchell Syndrome. (See "The Keeper File: McPeak on Desert Storm," May 2004, p. 136.)

McPeak described the war as "a success story for US and coalition air forces," but then immediately emphasized the point that it was "a combined-arms operation in which all of the services made a very important contribution and, of course, all of our allies as well." The Chief then told the reporters, "I hope you'll forgive me, now, if I talk mostly about the air campaign for the rest of this time, since that's my piece of the thing."

Much later, after a full and rounded presentation, a reporter asked McPeak: "Is it conceivable that, by continuing the air war alone for another period, the Iraqis would have been totally defeated without a ground war?" McPeak's response was, "My private conviction is that this is the first time in history that a field army has been defeated by airpower."

Though McPeak's very next words re-emphasized the joint nature of the victory, the political damage was done. McPeak's comment was widely proclaimed in the press as yet another example of an *"airpower über alles"* mentality that supposedly runs rampant throughout the Air Force. Members of Congress weighed in with censorious commentaries. Even years later, airmen and airpower backers would wince at the mention of McPeak's remark. Somehow, McPeak—like Dugan before him—had traduced some iron law of jointness by accurately describing the capabilities of airpower in modern war.

Roughed Up

In retrospect, it becomes clear that airpower's Gulf War success did not quiet the critics but only inflamed them. By the mid-1990s, it was open season on airpower, and the officers of other services were only too ready to rough up anyone speaking out for airpower. One of these was Army Col. Douglas A. Macgregor, author of a widely cited 1997 treatise on landpower reform titled *Breaking the Phalanx.* Toward the end of the book, Macgregor unfurled his hostility. "Today's argument," he wrote, "that things have now changed, that precision strike and smart munitions have finally come into their own—aside from ringing with the same false hopes as the last 70 years of promises from airpower enthusiasts—is based on data of very questionable reliability."

It was a claim stated and restated by ground-pounders and their amen chorus in the press and Congress. In 1998, Air Force Maj. Gen. Charles D. Link summed up the problem for USAF leaders. "When a soldier talks about using airpower to support troops on the ground, he's applauded for his 'jointness,'" said Link. "When a sailor

DOD photo by TSgt. Rose Reynolds

Defense Secretary Dick Cheney, flanked here by Air Force Col. Alton Whitley and Saudi Brig. Gen. Abdul Aziz Al-Sudairi, commander of Joint Forces Saudi Arabia, promptly fired Dugan for his comments about airpower.

Gen. Merrill McPeak (standing), Dugan's successor, was criticized in an event that is now legendary in the annals of joint force political correctness. Asked late in a briefing if airpower alone could have defeated Iraq, McPeak said, "This is the first time in history that a field army has been defeated by airpower." It was immediately forgotten that McPeak had led off by extolling the joint nature of the victory.

talks about using Air Force tankers to extend the range of naval aircraft, he's lauded for his 'jointness.' But when an airman talks about using airpower independently to kill the enemy instead of putting our troops in harm's way in the first place, he's being parochial and 'unjoint,' which is now viewed as a sin on the order of adultery."

Over the past 15 years, a succession of Pentagon civilian leaders and high-ranking officers in the joint world have turned jointness into something of a secular religion. Any claims of special military competency are reviled as "service-centric" and "unjoint." Because such charges have negative political consequences, it is not surprising that unapologetic advocacy of airpower hasn't been heard as often as in years past. (The rules, for some reason, don't seem to apply to ground power, sea power, and all other forms of military capability, which are advocated openly and boisterously.) The big debates on combat concepts and programs found airmen forced onto the defensive or keeping quiet to avoid being boxed in. Frequently, tamping down discussions about airpower was tactically astute.

Advocacy includes informing both national leaders and the public about what airpower does. Lack of information inevitably distorts debate about defense. The *Washington Post's* William M. Arkin, a frequent but not unfair critic of the Air Force, picked up on the lack of understanding of airpower. In a recent *Armed Forces Journal* article, he marveled at how Americans—including, apparently, Army Gen. Tommy R. Franks, head of US Central Command—had no idea how effective airpower would be in Afghanistan. Arkin asked, "Could it be that Franks, CENTCOM, the Army, and Washington all lack[ed] an appreciation of airpower's potential and of the service's fundamental obedience to precision?"

Why Do We Need One?

The advocacy vacuum has led highly placed elected officials to wonder why the Air Force even exists. Retired Air Force Gen. Russell E. Dougherty, former head of Strategic Air Command, recounted the story of preparing Gen. George S. Brown for 1973 hearings on his nomination to become the Air Force Chief of Staff. The staff, said Dougherty, drilled Brown about current issues and sent him to Capitol Hill with "books all tabbed and filled with figures and facts." Then, said Dougherty, "the first question [Brown] got from the committee was, 'General, why do we need an Air Force?'" No one conceived that such a question would come up.

Advocacy is an art advanced by many airmen, at many levels. It begins—as it did for Mitchell—with operations. The dispatch of high-ranking air liaisons from the combined force air component commander to other components was one major example. Begun informally just prior to Operation Iraqi Freedom, the process is now a standard part of combat airpower practice. It's also classic Mitchell—airmen forging relationships and making sure joint commanders understood what airpower could do. At command levels, it's crucial.

Turning battlespace achievement into joint wisdom and historical record is another tough process. In the current armed forces, there is still a tendency to downplay the contributions of airpower, particularly in public settings. A case in point concerns the recent air strike that killed Abu Musab al-Zarqawi, a top al Qaeda operative in Iraq. The ability to track and target a terrorist so precisely stems from Air Force-led intelligence-surveillance-reconnaissance measures, choice of weapons, and development of tactics. While airmen were not the only ones doing the work, it was surely an occasion for pride in what airpower can do, yet official Air Force comments emphasized only teamwork, the collective nature of the fight, and so on.

No harm done, perhaps, so long as the American public and officials are fully aware of the value of air and space power and are willing to support it, but too much modesty for too long could cause problems. Mitchell unabashedly—and unapologetically—shaped the debate over airpower. Today, the task is to do the same. Proper stewardship of air and space power requires airmen not only to push the limits in combat but also to emphasize, publicly and frequently, what is special and vital about air and space power. No one else can be counted on to do it. ■

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For information on the Air Force Association, see www.afa.org

By Otto Kreisher

The Pentagon wants few accidents. Air Force leaders are thinking more like none.

Toward Zero Mishaps

Photo by Will Mallinson

A C-17 Globemaster III from Hickam AFB, Hawaii, experiences a compressor stall in engine No. 3 as it reverses at a New South Wales, Australia, airfield.

Recent emphasis on military flying safety is paying off, particularly for the Air Force, which just completed its safest flying year in every category that matters.

In Fiscal 2006, which ended on Sept. 30, USAF posted its lowest rate of Class A flight mishaps ever, had the fewest aircraft destroyed in accidents, and suffered only one fatality in a flight incident.

Collectively, 2006 was "the best year since we've been an Air Force," declared Maj. Gen. Stanley Gorenc, chief of Air Force safety and commander of the Air Force Safety Center at Kirtland AFB, N.M.

This success came despite an exceptionally high pace of flight operations in support of the Global War on Terrorism and a number of humanitarian missions around the world. The Air Force's safety record is particularly impressive compared to 2005, when the Air Force suffered its second highest mishap rate of the past decade.

USAF defines a Class A mishap as a noncombat accident that results in a death, a permanent total disability, or damage of at least $1 million. In 2006, the Air Force's mishap rate plunged to an all-time low of 0.90 Class A mishaps per 100,000 flying hours.

This was an improvement of more than 40 percent compared to the rate of 1.5 in Fiscal 2005 and 1.48 in 2002. Moreover, it far surpasses the 1.55 rate turned in by the Navy, 1.90 for the Marine Corps, and 1.53 for the Army. (However, the other three services typically suffer more mishaps as a result of their heavy use of helicopters and participation in sea-based operations.)

The sharp improvement in flight safety was the result of a major emphasis on the issue from Defense Secretary Donald H. Rumsfeld down to the squadron level, Gorenc said. He noted that "the leadership is focusing on safety as never before" and that Gen. T. Michael Moseley, the Air Force Chief of Staff, is "always pushing us hard."

Rumsfeld's Push

Rumsfeld launched the new drive for safety with his order, declared in May 2003, for all the services to cut their accident rates by 50 percent by 2005. (See "A Plague of Accidents," February 2004, p. 58.) The directive came after the 2002 accident numbers were up, significantly, for all the services.

Military flight accidents that year killed 82 personnel and destroyed 63 aircraft worth nearly $2 billion. The toll in deaths and injuries and damaged or destroyed equipment was even worse when ground mishaps and off-duty accidents were included.

"World-class organizations do not tolerate preventable accidents," Rumsfeld said in a memo to the service Secretaries and service Chiefs.

Gen. John P. Jumper, then Chief of Staff, had already made the same point, telling Air Force personnel in December 2002 that the service "cannot tolerate, nor sustain, this level of loss." Though Rumsfeld set a tough goal, Jumper's was even more demanding—zero mishaps.

Air Force safety levels have steadily improved for six decades, but then, starting about a decade ago, the rates began to resist improvement. The service did set safety records in 2000, before the progress tailed off, and, in many cases, accident rates increased, especially in 2002 and 2005.

The setting of a new record in 2006 came as a welcome development, of course, but it still is not good enough for Air Force leaders. "We have a program throughout our Air Force to build safety consciousness," Air Force Secretary Michael W. Wynne told defense writers in September. "I believe personally that every airman deserves to go home the same way [the airman] arrived at work," Wynne said, adding that he includes Air National Guard and Air Force Reserve personnel in that goal.

The best result, clearly, came in the area of aviation fatalities, which fell

USAF photo by MSgt. John DeGroot

Maintainers with the 335th Aircraft Maintenance Unit at Seymour Johnson AFB, N.C., work on an F-15E Strike Eagle at a Southwest Asia air base. As in most years, fighter and attack aircraft accounted for most of Fiscal 2006's serious mishaps.

USAF photo by Doug Curran

The wreckage of a C-5 from Dover AFB, Del., lay in pieces in a field south of the base after an April 3 crash. The crew had added extra power to one of the airlifter's dead engines upon approach while a good engine on the same side of the aircraft idled.

from 22 in 2002 and 14 in 2005 to just one in 2006. "We hope the string continues," said Gorenc, "because that's very, very good."

That single, flight-related death was a tragic "anomaly," the safety chief said. The victim was an enlisted ground-support airman who was taking an incentive ride in an F-16. The airman had trouble with his oxygen system and died after being rushed to the hospital.

In an unusual twist in 2006, more Air Force personnel died while flying with the naval services than they did aboard Air Force aircraft. Two airmen were killed in the Feb. 17 midair collision of two Marine Corps CH-53E helicopters over the Gulf of Aden, and one died in a Navy flight training accident.

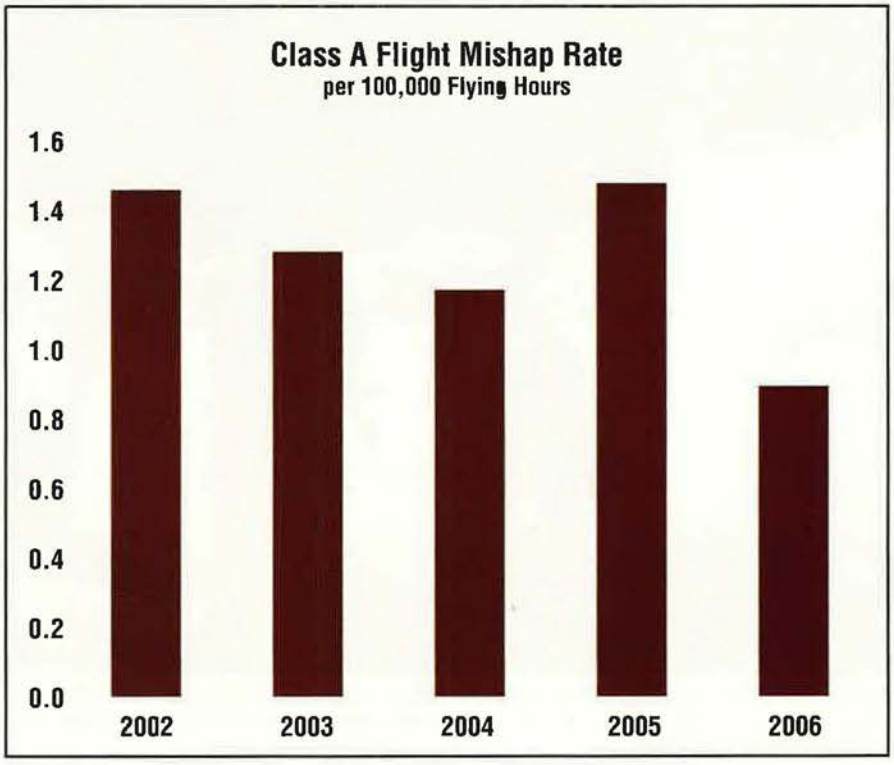
Gorenc said he also is closely monitoring the number of aircraft destroyed in flight accidents. In 2002, the loss was 19 airplanes, and the figure went up to 22 the following year. Then, in 2004 and 2005, there were record-low losses of 11 aircraft in each year. A new record was set again in Fiscal 2006, when USAF lost eight aircraft—three F-16s, two Predator UAVs, one F-15C, one T-38 trainer, and one C-5 transport.

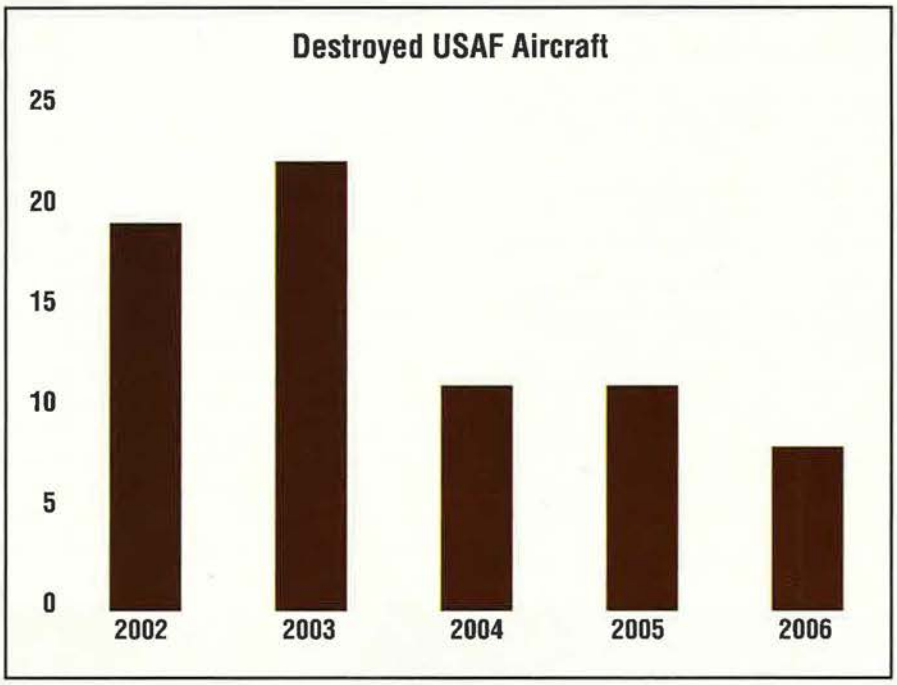
In a third key area—number of Class A mishaps—the Air Force almost met its ambitious goal of cutting the mishap rate to no more than half of the level in 2002, which was 35. The number in 2006 was 19.

"The bottom line is, in two out of the three things I'm tracking closely on the flight Class A side, we actually did make a 50 percent cut from '02," Gorenc said.

Three Safety Factors

Gorenc attributed the overall safety





improvement to three factors: leadership, risk management, and the gradual creation of a safety culture.

Safety begins with top-to-bottom leadership. The input of Rumsfeld and Moseley is important, but Gorenc said, "The guys who are making this happen" are the chiefs of safety and safety officers in the individual flight squadrons.

The second factor he cited was evidence that the average airman is "coming to grasp" the idea of operational risk management (ORM), a Pentagon concept to make commanders and individuals assess the danger in any proposed activity.

Gorenc said that from his experiences as a commander from squadron to group he believes that ORM is "really an issue of risk mitigation. We're not going to avoid risk in the type of work we're doing. It's an issue of how much risk you're willing to accept."

If the mission "absolutely needs to be done, you're going to take the risk," he continued.

But people should study the potential risk and "not just back into it." Despite its "operational" label, ORM "is an on- and off-duty issue" and should be called risk mitigation, he said.

Finally, Gorenc said, due to the leadership's emphasis, the service is experiencing "a slow culture transformation" that is making airmen at all levels determined to "do the right thing" when it comes to safety.

As usual, fighter and attack aircraft—with four of the eight aircraft destroyed—accounted for most of the Class A mishaps.

None of the services achieved Rumsfeld's 2005 goals in every category, and the Defense Secretary renewed the challenge last June, setting a new target of a 75 percent reduction by 2008.

"We must rededicate ourselves to those goals—and achieve them," Rumsfeld said. "Too often we excuse mishaps by citing the difficult circumstances in which we operate. We have trained our men and women to operate safely in very trying conditions. There is no excuse for losing lives, given proper planning, attention to detail," and active involvement of everyone in the chain of command.

"No" to the Status Quo

"Accountability is essential to effective leadership," Rumsfeld added. The Defense Department "simply will not accept status quo."

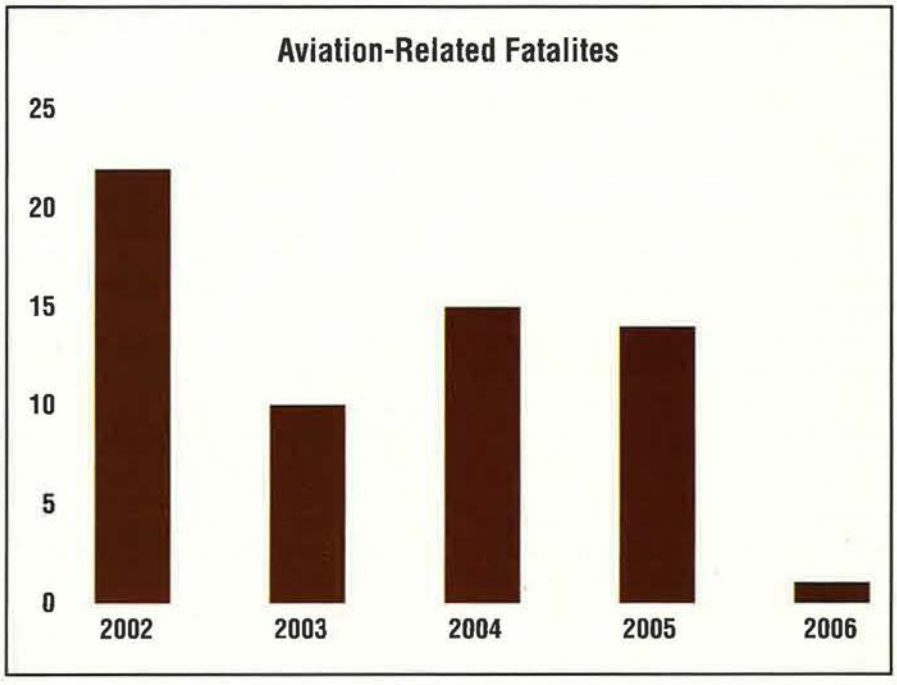
One of the safety center's key contributions, Gorenc said, are organizational safety assessments, conducted on a routine basis at the center's initiative or when a commander requests one. An example of the benefit of such an assessment, Gorenc said, was the sharp improvement in flight safety by Air Force Special Operations Command. In Fiscal 2005, "our special operations guys had helicopter problems" that resulted in six mishaps. "This year, AFSOC had zero mishaps."

He said the improvement was "directly attributed" to the leadership exhibited by the commander of AFSOC, Lt. Gen. Michael W. Wooley, who had the safety center go into his unit and give it an entire scrub down, assessing the culture of the organization.

After that assessment, Gorenc continued, "the commander adopted all of the ideas and recommendations that our folks had. He has taken a proactive approach, and you can see the results."

Among the other major commands, Air Combat Command topped the list of mishaps with four. But that was a sharp drop from 12 the year before.

Air Education and Training Command, Air Mobility Command, and Pacific Air Forces had three mishaps



Ground Accidents "Trending Up More Than I'd Like"

Beyond the high-profile issue of flight safety, the Air Force and the other services are facing a big challenge in trying to reduce ground accidents, particularly off-duty private motor vehicle (PMV) accidents, which are the biggest killer of young service personnel.

A total of 305 service members died on the highways in the last fiscal year. That is nearly equal to the total US deaths in five years of fighting in Afghanistan.

Reducing ground mishap fatalities is part of the safety challenge issued by Defense Secretary Donald H. Rumsfeld.

Maj. Gen. Stanley Gorenc, Air Force safety chief, is happy to note that there is a "good trend" in motor vehicle safety, particularly for off-duty mishaps. "It's the on-duty I'm worried about. Those numbers are trending up more than I'd like," he added.

For on-duty fatalities, the numbers are relatively small, the safety chief said, averaging about 10 a year from all causes. In 2006, there were 12 on-duty fatalities, he noted, including several personnel who died after a physical fitness run.

"Our commanders in the field have noted this and are really re-emphasizing the procedures that we need to go into on-duty to reduce the numbers," he said.

There are promising signs of improvement off-duty. In Fiscal 2002, the Air Force had 72 off-duty PMV deaths. That dropped to 46 in 2005 and to 44 in 2006, making the Air Force the safest of all the services in this category.

each; Air Force Materiel Command and Air Force Reserve Command experienced two each; and US Air Forces in Europe and the Air National Guard each posted one mishap in 2006.

Air Force Space Command and the Air Force Academy joined AFSOC in enjoying zero Class As, according to the safety center's statistics.

Broader Improvement

Defense-wide, the Marine Corps and the Army also showed improvements in flight safety over the previous fiscal year. The Navy had one more Class A flight mishap than in Fiscal 2005.

Although human error, or "aircrew factors," have traditionally been a major contributor to accidents, Gorenc said that "generally speaking, you're going to have an accident occurring when people are not following a proper procedure." That is why training is such an important part of accident reduction, he said.

Accident records for Fiscal 2006 provide some examples of how failure to follow the right procedures can lead to mishaps.

- In October 2005, an F-22 Raptor at Hill AFB, Utah, was involved in a Class A incident when the crew chief pulled the nose wheel safety pin while one engine was running. The engine intake suction pulled the flag and pin out of his hand and into the engine, causing $6.8 million in damage.
- A tragic example of failure to follow procedures occurred last December, when a maintainer working on a KC-10 at Travis AFB, Calif., failed to properly position a work stand and fell through the gap, suffering fatal injuries.
- In March, an F-16 flying out of Hill had an engine compressor stall. Although he was able to restart the engine, the pilot apparently was so preoccupied with the engine emergency that he forgot the cardinal rule: Fly the airplane first. The Falcon slowed down and stalled, forcing the pilot to eject.
- In April, a C-5 taking off from Dover AFB, Del., had to shut down one engine. After circling around and while trying to land with a heavy fuel load, the pilot attempted to add power to the dead engine while a good engine on the same side remained in idle. As a result, the Galaxy failed to make it back to the runway and broke up on impact, causing multiple injuries. (See "Aerospace World: Crew Faulted for C-5 Crash," August p. 17.)

Although the Air Force now has the oldest collection of aircraft in its history—averaging 23.5 years—Gorenc did not see that as a significant safety factor. "Obviously, the aging aircraft issue is a maintenance and operations issue" that the personnel who generate sorties have to monitor very closely, he said. More important than the age of the aircraft, however, is the training of the aircrews, so that they know how to respond if something does go wrong, and the training of the ground crews, so that they can make an accurate determination of whether an aircraft is safe for flight.

USAF photo by Lisa Terry McKeown

First Lt. Joden Werlin settles into the A-10 simulator before taking part in Virtual Red Flag at Pope AFB, N.C. Greater use of flight simulation and virtual training will help reduce accidents.

"It's not an issue of if the aircraft is safe," Gorenc said, because the Air Force is "not going to take it up into the air if it's not safe."

Despite last year's encouraging numbers, Gorenc said he was "certainly going to keep pushing the envelope" to ensure that safety remains a priority.

"I emphasize to the folks in the field that Air Force safety is really about maximizing air combat power," he said.

Any time there is a safety incident and an aircraft or an airman is lost, it reduces both readiness and combat capability, he explained. Neither the equipment nor the airman can be easily replaced. ■

Otto Kreisher is a Washington, D.C.–based military affairs reporter for Copley News Service and a regular contributor to Air Force *Magazine. His most recent article, "Flight-Test Worries," appeared in the February issue.*

Our Plane, Their Paint

On March 11, 1941, Congress passed the Lend-Lease Act, authorizing the US to supply much-needed military equipment to Allied nations fighting the Axis powers. Soon after the German attack on the Soviet Union on June 22, 1941, Moscow purchased from the US some 60 US fighters, of which about 20 were P-39 Airacobras. In this 1944 photo taken at a base in Russia near the Romanian border, USAAF Lt. Thompson Highfill (center) stands in front of a Lend-Lease P-39 along with two unidentified Soviet pilots. (Note the Soviet red star markings.) Lend-Lease aircraft comprised about 18 percent of all aircraft in the Soviet air forces. Several Soviet pilots who flew Airacobras became aces. After the war, not very much "leased" war materiel came back to the US.

In modern US history, the military's domestic role has never been this large.

The American The

From the inside, the nerve center for America's newest unified warfighting command looks much like the command centers of its predecessors. A wall of large video screens fronted by computer stations in the Joint Operations Center provides an electronic window onto a complex and dangerous theater of operations. Fighter aircraft patrol the sky, ready to vector at the first indication of an airborne attack. A picket line of naval forces guards sea approaches. Sophisticated radars keep lookout against missile strike. Thousands of soldiers guard against incursions across a potentially violent frontier.

What's unique about this Joint Operations Center, however, is that it resides at Peterson AFB, Colo., where it watches over the American homeland for US Northern Command.

At NORTHCOM—more, probably, than at any other place—one grasps the fact that the US military has assumed a more prominent role in the homeland than at any time in this country's modern history. In fact, NORTHCOM is the physical embodiment of a military presence on American soil that would have once seemed unthinkable.

Earlier this year, Army Maj. Gen. Richard J. Rowe Jr., the NORTHCOM operations director, told Congress, "Day to day, our headquarters is focused on deterring, preventing, and defeating attacks on our homeland, and we also stand ready to assist primary agencies in responding to man-made and natural disasters when directed by the President or Secretary of Defense."

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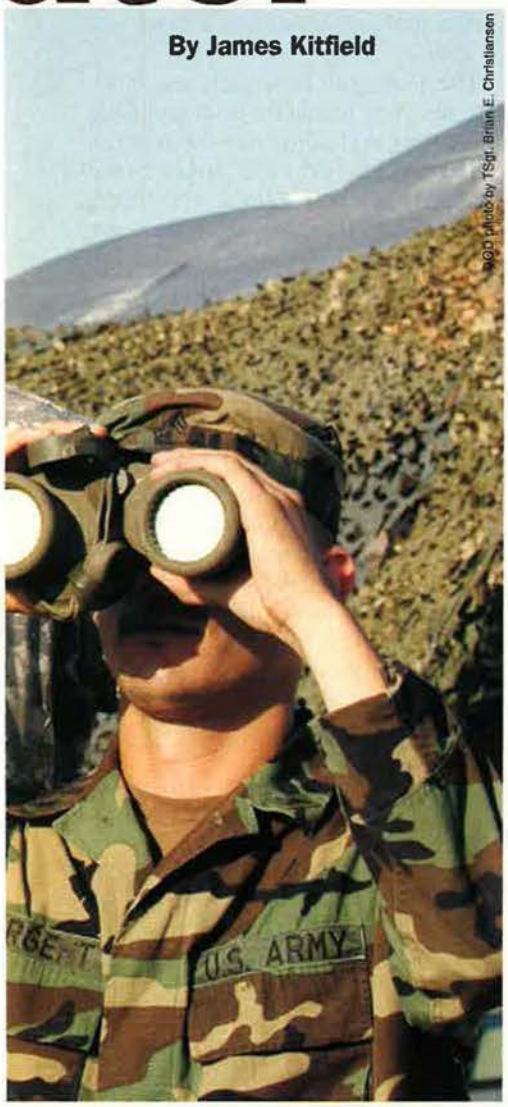
By James Kitfield



DOD photo by TSgt. Brian E. Christiansen

The US military, through NORTHCOM, is being called on to perform many new domestic missions. L-r, Army Sgt. David Cortes, Sgt. 1st Class Cary Hathcock, and Sgt. Fletcher Sargent keep an eye on the US-Mexico border in Arizona.

In 2005, NORTHCOM responded to four major hurricanes. One of them, Hurricane Katrina, brought about an unprecedentedly large mobilization that saw the deployment of 66,000 active duty and reserve troops to the Gulf Coast. Rowe said that NORTHCOM's command center had established a special watch desk just to track National Guard operations in various states.

To the Border

Today, NORTHCOM has deployed 6,000 Guardsmen to the US-Mexico border to help staunch the flow of illegal immigrants from the south.

NORTHCOM has also dispatched defense coordinating officers to each of the regional field offices of the Federal Emergency Management Agency, ready to act as conduits to massive US military support in the event of a hurricane, earthquake, terrorist attack, or other "incidents of national significance."

Some 36 National Guard weapons of mass destruction civil support teams are stationed around the country, prepared to respond to a catastrophic terrorist attack inside the United States.

Thanks to a new law passed by Congress last year specifically to allow such deployments, the National Guard also periodically provides troops to protect critical domestic infrastructure such as nuclear power plants.

Special Forces units such as the Delta Force reportedly continue to conduct exercises and train to take out terrorists armed with weapons of mass destruction—inside the United States if need be.

Meanwhile, reserve Special Forces detachments have deployed clandestinely inside the United States to monitor airstrips and smuggling routes favored by drug cartels. And in the Caribbean, gray-hulled Navy warships stand ready to hoist a Coast Guard flag and intercept smugglers.

This is all part of a rapid expansion of the military's reach into areas once deemed the exclusive purview of domestic law enforcement and emergency response agencies. While the armed forces have traditionally been the protectors of last resort in times of national crisis, two modern phenomena have resulted in increased military prominence. They are global drug cartels and transnational terrorism.

The rise in power, scope, and capability of such "nonstate" actors has proved to be a dark underbelly of globalization. Well-financed drug cartels and terrorist organizations with global reach have presented law enforcement officials with challenges and threats that simply outstrip the capabilities and reach of any one agency.

The expansion of the military's role in the Global War on Terror was very much an extension of a process that began in 1989, with the initial drafting of a reluctant military into the "war on drugs."

A Rose Is a Rose

A transnational threat is a transnational threat, regardless of whether it's drug traffickers, terrorists, illegal narcotics, or weapons of mass destruction. The assets the government uses to investigate, detect, and monitor those threats—and the methods of interdicting and apprehending suspects—are virtually the same. It was therefore probably inevitable that the Pentagon would eventually be brought into the war on drugs and Global War on Terror. No other agency can duplicate the Defense Department's unparalleled capabilities in command and control, strategic intelligence, secure communications, operational planning, strategic and tactical transport, and logistics support.

However, there are also pitfalls inherent in the military's steadily increasing participation in nontraditional missions. Already-busy troops now find themselves pulled in new directions—such as the southern border.

The decision to deploy National Guard troops to the border "represents a significant shift in thinking about the traditional role of the military on domestic soil," said Rep. Ike Skelton (D-Mo.), ranking member of the House Armed Services Committee, earlier this year. Men and women dedicated to protecting their home states as citizen soldiers and airmen, who have also "been sent for a second deployment in the Iraqi desert," are likely to be "asked to come home and spend another year in the Arizona desert."

As evidenced during the chaotic and much-analyzed response to Hurricane Katrina last year, operations combining multiple federal, state, and local agencies, with substantial military forces, are rife with command-chain problems and can be plagued by disjointed efforts.

Such operations also stretch the boundaries that the US generally puts its uniformed troops. Military involvement in wars on drugs and terror, for instance, have steadily eroded the

USAF photo by MSgt. Lance Cheung

NORAD fighters and tankers such as these were in the air almost immediately following an October report that a small aircraft crashed into a New York high-rise apartment building.

authority of the Civil War Reconstruction-era Posse Comitatus Act.

Posse Comitatus was passed in 1878 in response to the extensive use of Army troops to maintain order in the South during Reconstruction. The act supposedly bars US troops from domestic law enforcement activities such as searches, seizures, detentions, and arrest.

For a democracy born with a predisposition to view large standing armies with suspicion, the perception of a growing US military presence in American life is often viewed with concern.

"Some military officers welcome domestic law enforcement duties in a world where hijacked airliners, anthrax-infested envelopes, and other serious threats arise close to home," Maj. Gen. Charles J. Dunlap Jr., deputy judge advocate general of the Air Force, recently wrote in the *Washington Post.*

"Americans in the end do not like heavy-handed security efforts, regardless of how well-intended they are, and typically react quite negatively to them," Dunlap continued. "Think Kent State, Waco, and Ruby Ridge. ... America's full-time military will do whatever is asked of it, but America must carefully consider what it asks."

The Cartel Threats

In the wake of the crack cocaine epidemic that ravaged many US cities in the 1980s, Washington officials came to view the powerful drug cartels and their global criminal enterprises as strategic threats to the nation.

The drug cartels had vast resources and powerful political connections overseas that put them beyond the reach of any single US law enforcement or border control agency.

As a result, Congress passed a 1989 Defense Authorization Act that for the first time assigned the military the lead role in detecting and monitoring drug traffic in foreign countries and in "transit zones."

■ Thus was the military officially drafted into the war on drugs. It did not take long for the military's anti-drug mission to migrate onto American soil.

After some initial reluctance, the Pentagon embraced the counterdrug mission with typical can-do enthusiasm. DOD established three multiagency joint task forces for counternarcotics operations.

Though the task forces represent an alliance of federal civilian agencies and the military, they report to admirals and four-star generals, marking the substantial militarization of the war on drugs.

The Pentagon also built an elaborate network of radars to detect drug smugglers, including over-the-horizon radars with 2,500-mile ranges based in Puerto Rico, Virginia, and Texas and aerostat radar balloons tethered in the Caribbean and along the southern border. (See "Are Airships For Real?" November, p. 67.)

Most Americans would probably be surprised at the hands-on involvement of the military in often deadly counterdrug missions. Spy satellites, Air Force Airborne Warning and Control System surveillance aircraft, and Navy submarines routinely tracked suspected drug shipments in the transit zone. Army Special Forces trained local military forces in Central and South America in counternarcotics operations. Special Forces surveillance teams even monitored drug trafficking routes and favored airstrips inside the United States.

Military commanders had to devise clever work-arounds to avoid violat-

USAF photo by TSgt. Devin Fisher

In Colorado, military and civilian controllers monitor events from Northern Command's situational awareness center. NORTHCOM's duties have expanded in recent years, with no sign of a letup.

ing Posse Comitatus. At one point in the mid-1990s, for instance, nearly half of drug seizures on the high seas were conducted by small Coast Guard detachments operating aboard Navy warships, a tactic specifically designed to sidestep Posse Comitatus provisions forbidding military personnel from making arrests.

Pentagon legal analysts determined that all the detachments had to do was hoist a Coast Guard flag to turn a Navy gray hull temporarily into a Coast Guard cutter (the Coast Guard is both an armed service and a law enforcement agency and thus is not bound by Posse Comitatus). In many other instances, military ships tracked drug running aircraft or boats, but handed off the arrest to a law enforcement agency in the operation's final stage.

USN photo by Photographer's Mate Airman Jeremy L. Grisham

A National Guard truck brings supplies to evacuees stranded at the Superdome in New Orleans in the aftermath of Hurricane Katrina.

Evading the Posse

By far the most common workaround, however, was to employ National Guard troops in their Title 32, or state, status under which they report to state governors and are not bound by Posse Comitatus. It was not uncommon during the 1990s to see uniformed Army Guard troops not only helping construct roads and barriers at the southern border, but also boarding up crack houses in inner-city neighborhoods throughout the United States and searching cargo at major seaports.

National Guard helicopters routinely searched for domestic marijuana farms or used infrared devices to locate methamphetamine labs.

The military's expansive new counterdrug missions led to some tragedies that kept on the front burner the question of whether military forces should be engaged in law enforcement activities.

For example, in April 2001, a US surveillance aircraft handed off the tracking of a suspected drug running airplane to the Peruvian pilot of an A-37 fighter aircraft taking part in the US-coordinated Joint Air Bridge Denial program. Ultimately, the Peruvian fighter sent the civilian aircraft plummeting into the Amazon River in flames with two short bursts from its nose-mounted 7.62-caliber mini-gun.

Only later did the wreckage reveal that the unarmed civilian airplane was carrying a Baptist missionary family. A mother and her seven-month-old daughter were killed, and the American pilot of the aircraft was severely wounded.

After the trauma of the Sept. 11, 2001 terrorist attacks, there was little doubt that the military would see its roles and missions expand further into the realm of counterterrorism, which had also previously been treated as a law enforcement matter. In the immediate aftermath of the attack, Americans saw the deployment of tens of thousands of National Guard troops on their streets and in airports under Title 32 authority.

Americans also confronted the reality that a terrorist attack using nuclear, biological, or chemical weapons of mass destruction could prove even more devastating in terms of destruction and death toll.

In response to those sobering realities and President Bush's declared Global War on Terror, in 2002 the US established both the Department of Homeland Security (DHS) and US Northern Command. NORTHCOM was given dual roles in "homeland defense" and "homeland security."

In the former more narrowly defined role, Northern Command is responsible for repelling an enemy attack on the United States via air, land, or sea. In such instances, Northern Command's chain of command goes directly up through the Secretary of Defense and the President.

In the broader realm of homeland security, which primarily involves the federal government's preparation for and response to terrorist attacks and other major disasters, NORTHCOM is one of many supporting agencies that fall under the tasking of DHS, albeit with the necessary approval of the Defense Secretary.

In an attempt to sort out the complex and shifting command arrangements involved in homeland security missions, and to smooth over the various seams between agencies tasked with responding to disasters, DHS developed the National Response Plan. The NRP attempted to outline what constitutes a national emergency and which agency would likely take the lead in responding, given the unique circumstances of the crisis.

Disaster War Plans

For its part, NORTHCOM developed the first "war plans" for responding to natural disasters or terrorist attacks, positing 15 crisis scenarios of escalating consequence. As Hurricane Katrina made clear, however, neither the National Response Plan, nor NORTHCOM'S crisis scenarios were sufficient to answer a beguilingly simple question at a massive disaster scene: Who is in charge?

Adm. Thad W. Allen, Coast Guard Commandant, was given the reins of the Hurricane Katrina response effort roughly a week after the storm struck the Gulf Coast and flooded New Orleans. As the designated "principal federal official" on scene, Allen saw the confusion that results when the military—with its take charge culture—interacts with other governmental agencies in a disaster zone without a clear chain of command.

"I faced a quandary at the time,"

USAF photo by SSgt. Jacob N. Bailey

The crew of a US Army UH-60A Black Hawk helicopter delivers patients to Memorial Hermann Southeast Hospital in Houston. Domestic operations are now a part of the military's routine.

Allen said in an interview. "How much independent authority did I have to organize the mission when that was really a state and local government responsibility? ... We had to negotiate everything."

Allen said he would sit down with Army Lt. Gen. Russel L. Honore, commander of Joint Task Force Katrina, and city officials to "come up with a proposal for what needed to happen next, and then take it to the city's leadership. While city officials would usually acquiesce to our plans, it was a highly fluid and sometimes chactic way to operate."

Allen said that he and Honore "took a lot of license in determining what needed to be done, but whenever there was a strong objection by the city, the mayor had the last word. The US Constitution stipulates that all powers not granted to the federal government reside in the states. Believe me, I repeated that to myself quite a few times last year."

On May 15, 2006, President Bush announced that he was increasing the Border Patrol force at the southern border by 6,000 agents. The National Guard was asked to fill in while the new guards were hired and trained.

In responding to President Bush's request to once again expand military operations on American soil, officials have typically had to walk a legal and procedural tightrope. Commanders concede they will be flying unmanned reconnaissance drones over US territory as part of the mission, for instance, but insist they will not be spying on Americans.

Very Careful

"I want it very clear for this committee to know that those military [intelligence-surveillance-reconnaissance] platforms will not be used to collect intelligence on the American people," said Army Lt. Gen. H. Steven Blum, chief of the National Guard Bureau, before the House this year. "We will be very careful how they are employed."

The military will not process the intelligence, he said, and is "only providing the platform for the collection."

The National Guard troops will remain in Title 32 status under command of their respective governors, once again sidestepping Posse Comitatus (though officials insist that the agreed-upon rules of engagement, while allowing for self-defense and limited use of force, will not actually include law enforcement activities).

To authorize funding of the mission under Title 32, the Pentagon has also had to describe the National Guard operations on the border as "training."

"As we have been doing in the counternarcotics program since 1989, we'll be using engineers for engineering purposes, we'll be using pilots to fly aircraft, we'll be using [intelligence] analysts for intel support," said Paul McHale, assistant secretary of defense for homeland security, before Congress.

"We will keep our soldiers and our airmen within the requirements of their [annual] training. ... We will not ask them, under any circumstance, to engage in law enforcement-related activities."

Under expected provisions of the Defense Authorization Act of 2007, the President should also soon have expanded authorities to federalize the National Guard for domestic operations. The new provisions basically broaden the definition of what constitutes an applicable emergency under the Insurrection Act, through which Presidents have taken control of National Guard forces at least 10 times since World War II.

"The new language broadens the President's power and makes it easier for him to federalize the National Guard even in emergencies that fall short of the present definition of 'insurrection,'" said John Goheen, spokesman for the National Guard Association of the United States.

"Because Congress did this at the behest of the White House and without consulting the governors, we're obviously concerned," said Goheen. "We think the National Guard is a shared resource, and we're concerned this usurps the authority of the governors."

More broadly, some lawmakers are concerned that a series of new laws continuing to broaden the military's reach into domestic affairs, combined with historic trends toward a greater reliance on uniformed troops to combat the scourges of transnational drug cartels and terrorists, may be chipping away at important principles.

For instance, calling military operations at the Mexican border "training," "contorts the meaning of training as we would ordinarily understand it," said Rep. Robert Andrews (D-N.J.).

The military's role in supporting and conducting domestic operations is clearly far from settled. The unique capabilities that military forces offer, the need for those capabilities to counter terror and drug threats, and the traditional opposition to their employment within US borders all mean that the controversy is unlikely to subside. ■

James Kitfield is the defense correspondent for National Journal *in Washington, D.C. His most recent article for* Air Force *Magazine, "A Better Way to Run a War," appeared in the October issue.*

The Keeper File

USAAF's Declaration of Independence

In World War II, the drive for a separate US air arm moved two giant steps forward. In March 1942, the Army's "Circular 59, War Department Reorganization," declared the Army Air Forces to be autonomous. Then, on July 21, 1943, the cause got an even bigger boost—publication of "War Department Field Manual (FM) 100-20, Command and Employment of Airpower."

The document, approved by Gen. George C. Marshall, the Army Chief of Staff, reflected lessons of unsuccessful operations in North Africa in 1942, when ground commanders parceled out air forces piecemeal to ground units. FM 100-20 signaled a new day; it said air and ground forces were equal, that air superiority was "the requirement" for success on land, and that an air commander should have centralized control over airpower in a theater. Some historians now consider it the air arm's "declaration of independence."

"War Department Field Manual FM 100-20: Command and Employment of Airpower"

United States War Department
Washington, D.C.
July 21, 1943

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

Relationship of Forces—Land power and airpower are co-equal and interdependent forces; neither is an auxiliary of the other.

Doctrine of Employment—Air superiority is the requirement for the success of any major land operation. Air forces may be properly and profitably employed against enemy sea power, land power, and airpower; however, land forces operating without air superiority must take such extensive security measures against hostile air attack that their mobility and ability to defeat the enemy land forces are greatly reduced. Therefore, air forces must be employed primarily against the enemy's air forces until air superiority is obtained. In this way only can destructive and demoralizing air attacks against land forces be minimized and the inherent mobility of modern land and air forces be exploited to the fullest.

Command of Airpower—The inherent flexibility of airpower is its greatest asset. This flexibility makes it possible to employ the whole weight of the available airpower against selected areas in turn; such concentrated use of the air striking force is a battle winning factor of the first importance. Control of available airpower must be centralized and command must be exercised through the air force commander if this inherent flexibility and ability to deliver a decisive blow are to be fully exploited. Therefore, the command of air and ground forces in a theater of operations will be vested in the superior commander charged with the actual conduct of operations in the theater, who will exercise command of air forces through the air force commander and command of ground forces through the ground force commander. The superior commander will not attach Army air forces to units of the ground forces under his command except when such ground force units are operating independently or are isolated by distance or lack of communication. ...

In a theater of operations, there will normally be one air force. This air force will be organized in accordance with the task it is required to perform in any particular theater and, therefore, no set organization of an air force can be prescribed. ...

The combat operations in which air force units are engaged are directed toward the accomplishment of the following basic tasks: (a) Destroy hostile air forces. This will be accomplished by attacks against aircraft in the air and on the ground and against those enemy installations that he requires for the application of airpower. (b) Deny the establishment and destroy existing hostile bases from which an enemy can conduct operations on land, sea, or in the air. (c) Operate against hostile land or sea forces, the location and strength of which are such as to threaten the vital interests of the United States or its Allies. (d) Wage offensive air warfare against the sources of strength, military and economic, of the enemies of the United States and its Allies, in the furtherance of approved war policies. (e) Operate as a part of the task forces in the conduct of military operations. (f) Operate in conjunction with or in lieu of naval forces. ...

In order to obtain flexibility, the operations of the constituent units of a large air force must be closely coordinated. Flexibility enables airpower to be switched quickly from one objective to another in the theater of operations. Control of available airpower in the theater must be centralized and command must be exercised through the air force commander. ...

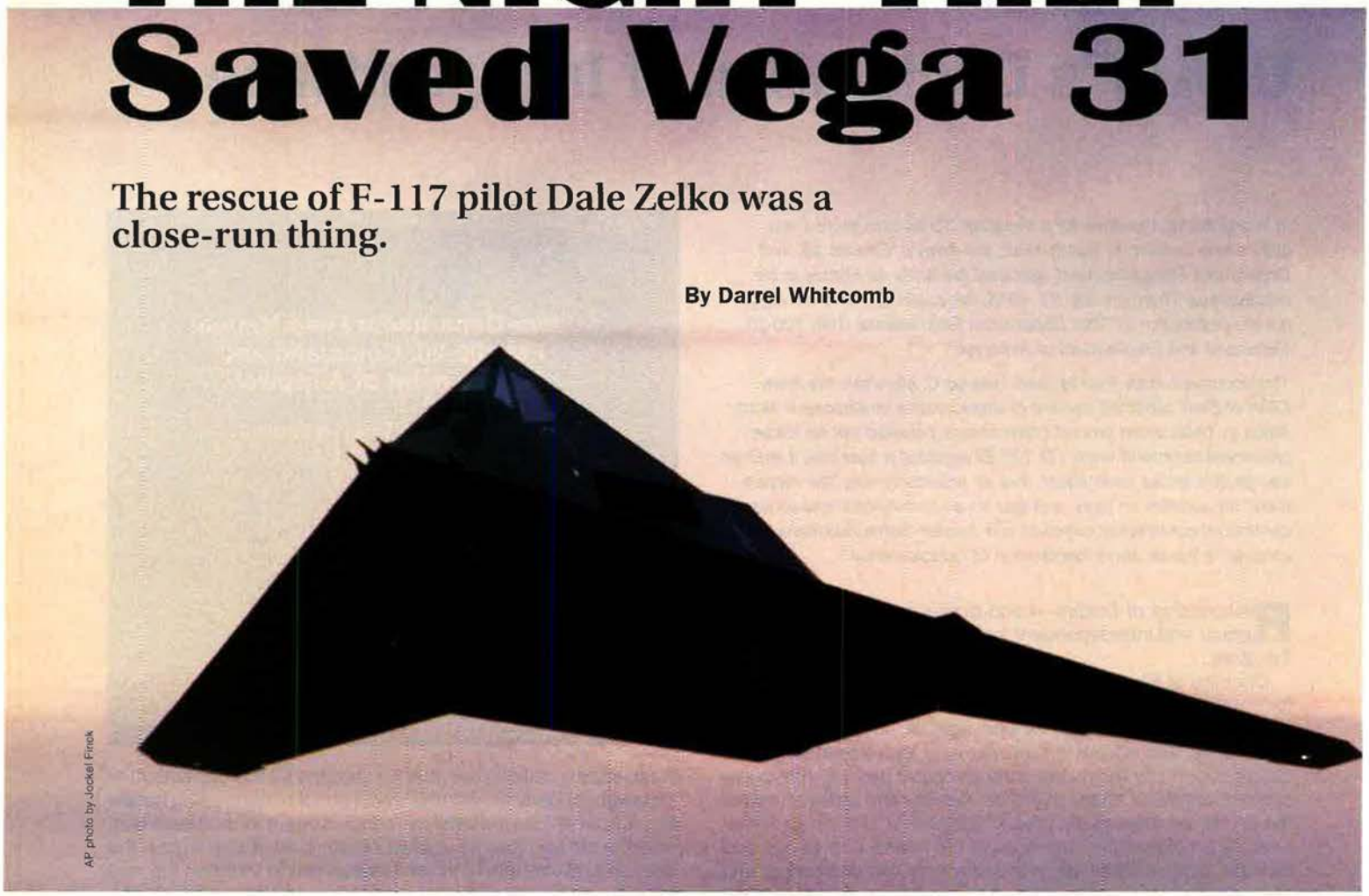
Generally, the aim of the strategic air force is the defeat of the enemy nation. Missions are selected which make a maximum contribution to this aim. Objectives may be found in the vital centers in the enemy's lines of communication and important establishments in the economic system of the hostile country. ...

The mission of the tactical air force consists of three phases of operations in the following order of priority: (1) First priority—To gain the necessary degree of air superiority. This will be accomplished by attacks against aircraft in the air and on the ground, and against those enemy installations that he requires for the application of airpower. (2) Second priority—To prevent the movement of hostile troops and supplies into the theater of operations or within the theater. (3) Third priority—To participate in the combined effort of the air and ground forces, in the battle area, to gain objectives on the immediate front of the ground forces. ■

THE NIGHT THEY Saved Vega 31

The rescue of F-117 pilot Dale Zelko was a close-run thing.

By Darrel Whitcomb



AP photo by Jockel Finck

An F-117 Nighthawk takes off from Aviano AB, Italy, at the start of Operation Allied Force.

On March 27, 1999, the fourth night of Operation Allied Force, USAF Lt. Col. Darrell P. Zelko turned his F-117 to an outbound heading, returning to Aviano Air Base in northern Italy. Zelko had reached his objective, and both of his aircraft's precision guided bombs appeared to have hit their target near Belgrade.

Zelko was flying with the call sign of Vega 31. It was his third sortie of the air war over Serbia. Deployed from the 49th Fighter Wing at Holloman AFB, N.M., he was engaged in his second combat operation. He was a veteran of the 1991 Gulf War.

However, Zelko was still deep in enemy territory. Vega 31 was west-northwest of the target area when his routine suddenly was shattered by indications that Serbian air defense systems had targeted his aircraft. The F-117 was not as maneuverable as most fighters, and Zelko could only watch and press on as the enemy tried to find him.

Seeing the enemy fire as it approached his aircraft, he closed his eyes as the brightness of the explosions temporarily blinded him and threw deadly shards of jagged steel into his airplane. The aircraft began to pitch and roll violently.

There were witnesses. Capt. Mark Baroni was the aircraft commander of Frank 36, a KC-135 that had just refueled several other aircraft. Baroni was looking toward Belgrade when he recalled that "all of a sudden, I saw a series of airborne explosions and then one really big one."

Zelko's aircraft, a legendary stealth fighter, was hit. Realizing that his aircraft was dying, he reached down and pulled the ejection handles. The canopy separated from the aircraft and the ejection seat fired, propelling him into the frigid night air.

Moonlight Ride

"My mom is not going to be happy with me," Zelko thought as he fell through the darkness. His parachute and life support equipment deployed. He quickly checked his chute, noting with some shock that the white and orange panels were clearly visible in the moonlight. Well-lit Belgrade was off to his right, and he sensed that enemy forces below would be alerted to capture him.

The propaganda value of shooting down and capturing an F-117 pilot would be enormous. The stealth fighter had until then seemed invincible. Zelko was determined to deny the enemy the second half of the prize—himself. It was about 8:45 p.m. local time. He was in for a long night.

Zelko took out his survival radio. "Mayday, mayday, mayday, Vega 31," he broadcast on the emergency "Guard" frequency.

The crew of Frank 36 heard the call, as did a NATO E-3 AWACS aircraft in an orbit not far away. Flight Lt. Frank Graham, a British officer onboard the AWACS, returned the call, "Vega 31, ... Magic 86 on Guard." Zelko was not at that moment able to respond.

Graham and the other AWACS crew members began frantically to react. Digging through reams of data, they had to quickly determine who Vega 31 was and what he had been tasked to do.

At the same time, they were beginning to get calls from several other agencies as the word of Vega 31's troubles quickly spread.

Zelko made another radio call. "Roger, roger, out of the aircraft." He paused and then continued, "Vega 31 is out, beacon on now," as he switched his radio to transmit the emergency signal.

Knowing that the Serbs were probably monitoring the frequency, he stopped the beeper after three seconds, but it was critical that Zelko get a signal out quickly. Time was of the essence, and he knew that coalition rescue forces would respond.

The crew in Frank 36 acknowledged his call. Zelko put away his radio and oriented on the terrain. Still descending toward the Earth, he was only about 20 miles west of Belgrade.

At about 3,000 feet above ground, he passed through a cloud deck. The wind was from the southwest and he could see that he was drifting down south of the town of Ruma in an area of open farm fields. There were many vehicles on the roads and he was concerned that somebody would spot his parachute.

Zelko picked his landing spot and turned his canopy toward a plowed field about 50 yards west of a north-south rail line and a road with a "T" intersection.

In Enemy Territory

Zelko landed, quickly hid his parachute, harness, and life raft, and scanned the road. Seeing no activity, he moved to a hiding site he had noticed just before he landed. It was about 250 yards away.

There, he grabbed some of the rich Serbian dirt and smeared it all over his face, neck, and hands.

Fortunately, Zelko had worn several layers of clothes, and he had some extra insulation. Tucked inside his T-shirt, right over his heart, was a folded American flag. It belonged to the young airman who had prepared his target folder for this mission.

As he settled into his hiding site, Zelko anticipated that rescue forces were marshaling. The United States did not send its warriors into harm's way without providing the capability to rescue them.

In preparation for combat, Zelko maintained excellent physical condition and had spent long hours reviewing the rescue procedures as directed by the special instructions (SPINs) in the daily tasking orders for the aircrews. He had received combat crew survival and evasion training and worked with specialists in his unit to develop a workable escape plan of action for just such an occurrence.

Zelko assumed that enemy forces knew of his arrival and also were actively organizing a search operation. Instinctively, he knew that his actions would be critical to the success or failure of any rescue attempt.

The downed pilot was equipped with several items to help facilitate his rescue. Besides his radio, he had Global Positioning System location equipment, several signaling devices, and a 9 mm pistol.

Rescue forces were in the region. Before the start of the conflict, three special operations squadrons deployed to an airfield near Brindisi, Italy. They were joined there by pararescue jumpers (PJs) from the 720th Special Tactics Group.

All were attached to Joint Special Operations Task Force 2. Their helicopters could be called on to perform combat recoveries under the tactical control of the Combined Air Operations Center at Vicenza, in northern Italy.

The CAOC worked for Lt. Gen. Michael C. Short, the 16th Air Force commander and combined force air commander for this operation. Short had made combat search and rescue a high priority.

Brindisi was almost 250 miles from Belgrade. To reduce reaction time, several of the helicopters had been ordered to Tuzla, Croatia, and were on alert there.

The task force launched just before Zelko took off. It consisted of a lead MH-53M piloted by Capt. James L. Cardoso and Capt. John C. Glass, an MH-53J flown by Capt. Shawn Cameron and Capt. Mark Daley, and the MH-60G of Capt. Chad P. Franks and Capt. Matt Glover. (See "Silver Stars," June 2000, p. 80.)

Lt. Col. Stephan J. Laushine, commander of the 55th SOS, flew in the lead aircraft as rescue mission commander.

Arriving at Tuzla, the alert aircraft proceeded to the hot refueling area while Laushine went into operations for an initial orientation. The operations center was soon notified that the F-117 was down.

Their immediate concern was Zelko's location. Information coming in from several sources initially indicated that Vega 31 was down northwest of Novi Sad, along the aircraft's planned egress route. Based on that analysis, Laushine built a plan. The three helicopters would take off as a flight. Each would have a full complement of Air Force PJs and would be augmented with Army Special Forces.

As the rescue teams were getting ready to go, CNN showed scenes of the still-burning F-117 wreckage, footage being supplied by Serbian news services. The imagery sent a chill through the operations center at Tuzla.

Hunkered down in his hiding site near Ruma, Lt. Col. Dale Zelko waited.

The Search and Rescue

CSAR doctrine calls for the formation of a task force composed of helicopters and A-10 attack aircraft. The escort aircraft would provide command and control and close-in air support for the helicopters.

For this operation, the A-10s from the 81st Fighter Squadron, Spangdahlem AB, Germany, had been deployed to Aviano. That evening, two A-10s were on rescue alert: Sandy 30, piloted by Capt. John A. Cherrey, and Sandy 31, piloted by Capt. John O'Brien.

Also orbiting—well to the south and at a safe altitude—was an EC-130E Commando Solo command and control aircraft. It had also monitored Vega 31's radio calls.

One of the team members, Capt. Ripley Woodard, an A-10 pilot from Spangdahlem, was monitoring intelligence reports. Strong enemy forces were in Zelko's area, and they were beginning

DOD photo by TSgt. Kia Thompson

As darkness falls, one MH-53J Pave Low III helicopter refuels in air while another cruises alongside. Choppers of this type, deployed in Italy, were key parts of the rescue of Vega 31.

to actively search for the F-117 pilot. Woodard knew that rescue forces had to move quickly.

Maj. Phil Haun, the A-10 weapons and tactics officer at Aviano, was in the operations center when it received the report that Zelko was down.

Another pilot delivered Zelko's vital isolated personnel report (ISOPREP) information. This data, known only by the downed pilot, would give the Sandys the ability to authenticate the survivor and avoid being drawn into a trap.

The A-10s then took off. Arriving over the survivor, Cherrey would become the critical on-scene commander.

Using the same coordinates given to Laushine, Haun also began working with the intelligence section at Aviano to develop a battle plan. He met with representatives from the F-16 squadrons also at Aviano and suggested targets for them to bomb.

Haun intended to launch two more A-10s half an hour after Cherrey departed. These would be Sandy 41 and Sandy 42 and would be available to escort the helicopters for the run in and egress.

Then, 30 minutes after them, he would take off with another A-10, to be Sandy 51, and Sandy 52, able to swap out with Sandy 30 and 31. This should allow for continuous contact with Zelko.

Haun also calculated a rendezvous place and time for the helicopters to join up with the A-10s and had that location passed to the command center at Tuzla.

Unfortunately, the rendezvous time passed to Laushine was indicated in local time. Haun was doing all of his planning in Zulu time. In this theater of operations, local time was one hour ahead.

When Laushine got the message, he realized that his force would be late for the rendezvous and he scrambled his crews to proceed to the meeting point, which was near the Serbian border west of Novi Sad.

Coordinates and Contact

Zelko could hear activity around him and stayed as still as possible. He took out his GPS and got a good readout of his position. He reported his position to the EC-130, using a special code directed by the SPINs.

Aboard the EC-130, the young sergeant who received the message from Vega 31 wrote it down and handed the message to Woodard, who knew immediately what it meant.

"He just gave us his position," Woodard said. "Plot it in the map." The sergeant did so. It showed that Zelko was down a few miles southeast of the town of Ruma, not northwest of Novi Sad. He was 30 miles closer to Belgrade than initially thought.

After more than an hour flying, Cherrey and his wingman entered Serbia northwest of Novi Sad. They tried to make radio contact with Laushine and his helicopters, but were unsuccessful. Unknown to Cherrey at the time, he and the helicopters had been given different sets of CSAR frequencies. It took a few minutes to sort that out.

Cherrey proceeded into the rescue area, made voice contact with Zelko, and authenticated him using the ISOPREP data. Then Cherrey received a call from the AWACS, with an updated position passed by Zelko. He quickly plotted the new position on his map.

A-10 pilot Cherrey called helicopter rescue commander Laushine and gave him the survivor's updated location. To save fuel, Laushine had landed his force in a field.

The new coordinates voided the recovery plan. Laushine had to quickly develop a new one.

And there was now another problem. All aircraft were now low on fuel. Flight Lieutenant Graham, up in the AWACS, scrambled to find tankers for all of the aircraft in the task force. Various Sandys would alternate as on-scene commanders.

The helicopters lifted off and rendezvoused with an MC-130P. They refueled from the tanker as it cruised 700 feet above the ground just three miles out of Serbian airspace.

After he had received his fuel, Cherrey and his wingman returned to the general area of the downed airman and reassumed the on-scene command role.

The helicopters were also now full of gas and had repositioned to a location west of Ruma along the Serbian border. The plan was for Sandy 41 and Sandy 42 to escort the helicopters as they proceeded in to the survivor at low altitude. As they approached, Sandy 30 and Sandy 31 would fly in over Zelko.

From Both Sides

After receiving a report that the survivor had been captured, Cherrey called Zelko again to reauthenticate him. Zelko answered correctly and the rescue was on.

The Serbs were closing in on him. In fact, it was later determined that a Serbian force of 80 troops and police were combing the nearby fields and had already found Vega 31's ejection seat and some boot prints.

Sandy 30 was ready to execute. He instructed the helicopter crews to call him when they were two miles from the survivor. Then Cherrey would direct Zelko to use a signaling device so the pilots could see him. Everybody acknowledged the plan.

Then another problem arose. A low cloud deck formed in the valley the approaching aircraft would use. The rescue helicopters could fly through such weather, but the escort A-10s needed to maintain visual contact with the helicopters to provide them any protection. It would be a helicopter-only rescue.

Additionally, Cherrey could no lon-

ger see the ground to assess the threat. This was critical because committing the helicopters for a pickup was his call. He could not fly down below the clouds for a look because the clouds were just too low. Thinking quickly, he called the survivor. "Vega 31, is it OK to come in there?"

Zelko was not ready for that question and did not answer. He knew that the enemy was all around but did not know how close or with what weapons.

After what seemed like an eternity, Cherrey called again. "Vega 31, if you don't answer, we're going to have to not do this now and come back later."

"Let's go for it," Zelko said, quickly figuring that if he then needed to abort the rescue effort, he could do it with his authentication data.

AP photo/Yugoslav TV

AP photo/Yugoslav TV

"Execute, execute," Cherrey said, and the helicopters committed to the rescue.

Then, Cherrey had to depart again because he was low on fuel. He quickly passed the on-scene command duty to Haun and his wingman, Capt. Joe Brosious, but Haun had a problem with his A-10.

His primary radio, UHF, could receive but not transmit. Haun had to call Brosious on a secondary radio and tell him what to broadcast on the primary. This was a critical step because the rescue helicopters, survivor, and Haun all needed to be able to instantaneously communicate during the pickup phase of the operation, and they had to do it on UHF. Brosious would have to be Haun's voice.

Into Serbian Airspace

Cardoso, in his MH-53, led the way with the second MH-53 and the MH-60 in trail formation on each side. Everyone aboard the helicopters was using night vision goggles as they proceeded in at treetop level to avoid the Serbian radars, anti-aircraft guns, and searchlights, but there were other dangers. As Cardoso led the task force in, one of his crew members spotted power lines and screamed, "Wires! Wires! Wires! Climb! Climb!"

Instinctively, Cardoso yanked back on the controls and the formation cleared the danger. They then descended back down to treetop level and continued in toward Zelko.

As the helicopters crossed into Serbian airspace, a surface-to-air missile site activated and began searching for allied aircraft. An F-16CJ overhead

AP photo by Srdjan Ilic

Top, video image of F-117 wreckage shown on Yugoslav television. Center, more TV footage showing the aircraft's identifiers. Above, members of the Serb media swarm around a section of the F-117's wing.

DoD photo by A1C Greg L. Davis

An MH-60G Pave Hawk helicopter lands during a training exercise. In the Zelko rescue, a Pave Hawk picked up the pilot and was gone in 40 seconds.

engaged it with a High-speed Anti-Radiation Missile.

Haun saw the missile streak down into the clouds. The site stopped radiating.

Below, the helicopters were rapidly approaching the survivor. The MH-60 would land and make the pickup, while the two MH-53s would orbit above and provide fire support.

The helicopter pilots called on the UHF radio that they were now two miles from the survivor. Zelko was ready. He was given the code word to turn on his signaling device. He complied.

Aware now that a rescue operation was going on, more Serbian missile sites in the area tried to track the intruding aircraft. The A-10 pilots received immediate threat indications on their radar warning receivers and employed their chaff dispensers, jamming pods, and maneuvered to evade the deadly missiles.

At the same time, the A-10 pilots were trying to maintain awareness of what was going on below them.

Cardoso announced that they were now overhead of the survivor's location—but he could not see Zelko's signaling device.

Zelko could hear the helicopters and tried to give them vectors. It did not help. He was becoming concerned and asked if the rescuers could see his signal.

Cardoso responded that they could not.

The moment was thick with tension as all realized that the opportunity was slipping away.

Zelko told the CSAR forces to stand by, informing them that he thought his signaling device was inoperative. Time for a successful rescue was running out.

Orbiting now in the pitch black above Zelko's position, Cardoso could see vehicles moving along the roads. There was no time to waste. "Just give me any ... signal," he barked on the radio. Zelko lit one of his flares.

The flare lit up the whole area, and Cardoso immediately saw him.

"We are bingo, bingo, bingo. Kill the flare," he called on the radio. This caused some confusion. To the special operations forces, bingo means "we have the objective in sight."

However, to the fixed-wing pilots, bingo means "I only have enough gas to get back to base and must leave now."

It confused Zelko, too, but at least the rescue forces now had a visual on him.

So did everybody else in the vicinity.

Cardoso directed the MH-60 to land and make the recovery. Zelko was right in front of him, about half a mile away.

Disorientation

The bright flash of the flare momentarily disoriented the MH-60 pilot, Franks. "It was like the sun coming up in my goggles," he said.

Zelko crushed the flare into the dirt with his boot. As he did, the MH-53s set up their protective orbit. Franks began a very steep descent and then settled on the ground. Zelko was 100 feet away. The PJs, SSgt. Eric Giacchino and SrA. John M. Jordan, dismounted and moved toward the survivor, rifles at the ready. In the helicopter, the gunners scanned with their mini guns for any close-in enemy activity.

Zelko was kneeling down as he had been trained to do. He used his radio to ask for permission to come aboard the helicopter. Then he noticed the dark forms of the PJs and raised his hands in a submissive pose. The PJs immediately identified him.

"How ya doin', sir?" one said. "We are here to take you home."

The orbiting MH-53 crews could see Serbian vehicles about 50 yards away.

When the PJs and survivor were safely aboard, Glover radioed the news that they were lifting off, survivor onboard.

They had been on the ground for 40 seconds. The rescue itself had taken a little over six hours.

The helicopters and A-10s headed west out of Serbia. Aboard the MH-60, the crew members did everything they could to make Zelko comfortable. The PJs gave him a quick examination and some water and food.

The helicopters proceeded directly to Tuzla. There, Zelko was more thoroughly examined by a flight surgeon and cleared to return to Aviano by MC-130.

Zelko personally tried to thank every one of the troops aboard all three helicopters. He received a pleasant surprise when he encountered Glover. Several years prior, Zelko had served at the Air Force Academy. Glover had been one of his cadets.

The MC-130 landed at Aviano at sunrise. The A-10 pilots had landed by then and they and much of the base were out to greet Zelko. He tried to thank everyone.

"He was watery-eyed as he thanked ... us for saving him," said Brosious.

The wing commander, Brig. Gen. Daniel P. Leaf, asked Zelko if he was ready to get a little rest. "Yes, sir," Zelko replied, but there was one more thing that he needed to do first: He had to present the young airman who had prepared his target folder with her flag. ■

Darrel Whitcomb is a career aviator and freelance historical writer. He served three tours in Southeast Asia plus a short tour in Iraq and is the author of The Rescue of Bat 21 *and* Rescue in Desert Storm. *His last article for* Air Force *Magazine was "Farm Gate," in the December 2005 issue.*

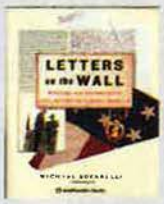
Books

Compiled by Chequita Wood, Media Research Editor

The American Aircraft Factory in World War II. Bill Yenne. Zenith Press, Osceola, WI (800-766-2388). 192 pages. $40.00.

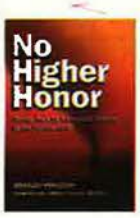
Finding the Target: The Transformation of American Military Policy. Frederick W. Kagan. Encounter Books, New York (800-786-3839). 444 pages. $29.95.

Letters on the Wall: Offerings and Remembrances From the Vietnam Veterans Memorial. Michael Sofarelli. Smithsonian Books, New York, (212-207-7000). 198 pages. $24.95.



Aviation Century: War and Peace in the Air. Ron Dick and Dan Patterson. Firefly Books, Buffalo, NY (800-387-5085). 352 pages. $49.95.

First Man: The Life of Neil A. Armstrong. James R. Hansen. Simon & Schuster, New York (800-223-2336). 770 pages. $18.00.



No Higher Honor: Saving the USS Samuel B. Roberts in the Persian Gulf. Bradley Peniston. Naval Institute Press, Annapolis, MD (800-233-8764). 275 pages. $29.95.

Battle-Wise: Seeking Time-Information Superiority in Networked Warfare. David C. Gompert, Irving Lachow, and Justin Perkins. GPO, Supt. of Documents, Washington, DC (866-512-1800). 174 pages. $15.00.

Four Decades of Courage: Development of United States Air Power and the 7th Bombardment Group. Irene W. McPherson. Authorhouse, Bloomington, IN (800-839-8640). 467 pages. $25.95.

Operation Homecoming: Iraq, Afghanistan, and the Home Front, in the Words of US Troops and Their Families. Andrew Carroll, ed. Random House, New York (800-726-0600). 386 pages. $26.95.

The Blog of War: Front-line Dispatches From Soldiers in Iraq and Afghanistan. Matthew Currier Burden. Simon & Schuster, New York (800-223-2336). 291 pages. $15.00.

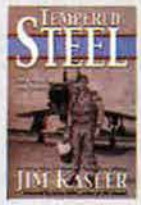
I Want You!: The Evolution of the All-Volunteer Force. Bernard Rostker. RAND, Santa Monica, CA (877-584-8642). 800 pages. $68.50 with DVD.

Strike: Beyond Top Gun. Rick Llinares. Zenith Press, Osceola, WI (800-766-2388). 192 pages. $34.95.

"Charlie" Brown's Vietnam Journal: A Tactical Airlift Pilot's View of the War. Garnett C. Brown Jr. PublishAmerica, Baltimore (301-695-1707). 178 pages. $19.95.

Iraq and Back: Inside the War to Win the Peace. Col. Kim Olson, USAF (Ret.). Naval Institute Press, Annapolis, MD (800-233-8764). 211 pages. $26.95.

Tempered Steel: The Three Wars of Triple Air Force Cross Winner Jim Kasler. Perry D. Luckett and Charles L. Byler. Potomac Books, Dulles, VA (800-775-2518). 271 pages. $18.95.



The Fighter Pilot's Wife: A Military Family's Story. Gilberta Guth. Call Sign Press, Novato, CA (800-888-4741). 376 pages. $19.95.

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Weapons of Choice: The Development of Precision Guided Munitions. Paul G. Gillespie. The University of Alabama Press, Tuscaloosa, AL (773-702-7000). 218 pages. $35.00.

Investing Now in Airpower for Tomorrow

The Air Force Association's 2007 Statement of Policy adopted by AFA's National Convention on Sept. 24, 2006 in Washington, D.C.

The United States Air Force is the world's dominant source of air and space power. No one else comes close. Air Force men and women have produced an unsurpassed record of achievement. Our dedication of the Air Force Memorial in the nation's capital in October 2006 salutes the service and sacrifice of those early airmen who founded our first aviation units, through the airmen who serve around the globe today in the world's most capable Air Force.

The question at hand is how to preserve and extend that dominance in light of a multitude of challenges that face our nation and our Air Force.

The United States Air Force has been in continuous combat for 15 years. Operations Desert Shield and Desert Storm featured a full spectrum of Air Force capabilities, dramatically demonstrating the value of airpower. Peace operations in Somalia, Haiti, and other venues depended on Air Force logistical and operational support. Operation Allied Force in Kosovo used airpower to achieve mission objectives without the use of US ground forces. Southern Watch and Northern Watch kept the forces of Saddam Hussein constrained within no-fly zones. Operations Enduring Freedom and Iraqi Freedom have seen the employment of close air support, precision aerial strikes, intelligence, reconnaissance missions, and critical logistical support.

Additionally, numerous disaster relief efforts and homeland defense missions have heavily taxed numerous entities within USAF's portfolio. In each case, our active duty Air Force, Air National Guard, and Reserve team has performed superbly.

Never before has the nation's ability to project military power depended so heavily on air and space capabilities. Whether it is the principal actor or a supporting force, USAF brings to the fight unsurpassed air, space, and cyberspace capabilities—adding strength, flexibility, and resilience to the joint force. In many cases, other US military branches would not be able to carry out their missions without the Air Force.

Much has changed over the years. The Air Force, for example, is flying unmanned aircraft over Iraq and Afghanistan controlled by airmen from bases in the United States and other remote locations around the world. Moreover, investments in air and space technologies have produced reachback capabilities and precision that would have been unimaginable even 15 years ago. Accuracy of weapons is now measured in mere feet from the target.

For all of its immense accomplishments, however, USAF faces formidable challenges as it enters the sixth year of the Global War on Terrorism, with the almost certain prospect that the war will go on for many years to come. The Air Force must continue to adapt to new fiscal, military, and political realities as it strives to reach the right balance of forces for this dangerous new century.

The Pentagon leadership has concluded, with Air Force concurrence, that a smaller force of highly modern systems can do the airpower job. The Air Force has adopted a strategy of divesting its least capable airframes, procuring advanced new aircraft, and modernizing what remains of the legacy force.

AFA strongly disagrees with any additional cuts in the end strength and has deep concerns regarding the increased demands being placed on the men and women of the Air Force. The nation must act now to preserve its air and space capabilities for the future challenge while ensuring we have the capability to support the Global War on Terrorism today.

The Long War

AFA believes the nation needs to fully

"We call for a greater national commitment in resources and integration of diplomatic, economic, and information instruments of power with the goal of neutralizing the threats we face."

understand the vital role the Air Force has played and continues to play in the Long War. Since 9/11, the Air Force has flown more than 144,000 air sorties over Afghanistan, about 80 percent of the coalition total. Since March 2003, when Iraqi Freedom began, the Air Force has flown more than 239,000 sorties over Iraq, again about 80 percent.

During this time, the Air Force shifted from scheduled air operations to on-call operations where it provides expansive coverage of the battlefield and has taken the fight directly to the enemy.

The Air Force continually puts up B-52 or B-1 bombers able to loiter for long periods, in order to precisely strike targets with remarkable speed. Fighter aircraft and AC-130 Gunships employ multiple systems and precision guided munitions to attack ground forces with little collateral damage. These weapon systems provide tremendous support to our ground forces.

The Air Force also operates field hospitals and provides daily aeromedical evacuations, which are significantly reducing battlefield losses. Our space and air teams are providing critical surveillance and reconnaissance, weather information, missile warning, and communications. Using satellites and air breathing platforms, this capability has provided key information to our field commanders. USAF combat controllers are carrying out critical missions, such as reconnaissance and strike control. Additionally, Air Force aircrews provide multiple daily airlift resupply support missions for the Army in order to reduce dangerous ground convoy requirements. Our strategic airlift and tanker aircraft provide worldwide critical capabilities for the joint team.

The use of unmanned systems such as Predator (armed and unarmed) and Global Hawk has given enormous assistance to ground forces by helping to locate and target roadside bombs, mortars, and weapons caches, as well as insurgents themselves.

In Iraq and Afghanistan, the Air Force role has shifted from attacking large formations of forces to counterinsurgency raids, providing surveillance and security of roads used by truck convoys, and spotting roadside bombs. The Air Force presence in the war zone won't be reduced even as commanders consider reducing ground forces. In fact, the reverse is true; the Air Force and air and space power will become even more important in the scheme of military operations once the ground presence is reduced.

Air Force battlefield airmen also are providing daily support missions in nontraditional roles such as ground convoy security teams and outside the perimeter security patrols. The Air Force role is continuing to expand in the Global War on Terrorism.

The Air Force is also playing an integral part in helping rebuild a country devastated by war. US airmen have begun training Iraqis in skills such as fire fighting, security, and support missions.

In Afghanistan, a significant presence of US special operations forces and coalition infantrymen along with our battlefield airmen, backed by air and space power, will be needed for some time. These forces must assist in internal security and nation building while continuing to conduct counterinsurgency operations.

AFA offers its unequivocal support for the American men and women of the US armed forces who collectively and individually perform above and beyond the call of duty. As they go about their duties, we are mindful that the goal of defeating worldwide terrorism is not solely a military effort.

We call for a greater national commitment in resources and integration of diplomatic, economic, and information instruments of power with the goal of neutralizing the threats we face.

Ancient Weapon Systems

The Air Force is operating the oldest aircraft fleet in the service's history. This has come about mostly by neglect—brought on by the ill-advised "procurement holiday" of the 1990s and a near-continuous use of weapons systems since Sept. 11, 2001. The nation cannot expect USAF to maintain its current dominance of air, space, and cyberspace while operating with outdated technologies.

Existing platforms have reached the point where they are inefficient and less effective in carrying out their respective tasks. They have sustained considerable wear and tear from combat operations around the world. Many of the nation's C-5 and C-130 airlifters are operating under flight restrictions, as are some F-15 fighters. In many areas, the Air Force can't fully utilize the older KC-135E air refueling aircraft because they lack the power to take off with full loads of fuel in high temperature desert conditions.

The costs to maintain these platforms are soaring. Twenty percent of the Air Force's procurement budget is being spent on modifications and upgrades, the highest percentage in the history of the Air Force.

The Air Force is today operating many aircraft saddled with flight restrictions significantly reducing combat capabilities. In fact, if the Air Force were called upon to fly all of its aircraft today, one-third would not be able to carry out their missions.

Legacy fighters are less and less capable of penetrating hostile airspace defended by double-digit SAMs and advanced fighters, which are readily available and proliferating around the world. In Operation Allied Force in the Balkans in 1999, Serbian gunners used fairly rudimentary systems to bring down an F-16 and even a stealthy F-117. Enemy air defense systems have improved dramatically since then.

Against this backdrop, the Air Force has been trying to divest itself of old aircraft, such as F-117s, B-52s, KC-135Es, C-130E/Hs, C-5As, and U-2s. Of the 1,033 aircraft slated for divestiture during the 2006-11 Future Years Defense Program (FYDP), 347 have been specifically blocked by legislative restrictions. More than a hundred of these aircraft have limited military utility because they have flight restrictions placed upon them due to structural and safety of flight issues. Dollars spent sustaining these aircraft in the operational inventory are therefore not available for acquisition of

new aircraft or upgrades to more-useful legacy systems.

AFA believes the nation must prevent this situation from getting worse. It calls on members of Congress to put a stop to the practice of legislative restrictions and allow the Air Force to balance its force structure as operational requirements and fiscal restraints demand.

Vital Modernization

The continued maintenance of these legacy aircraft is putting a considerable drag on Air Force plans to acquire new and more-capable aircraft. The list of weapons systems requirements is long, owing to the fact that so few have been purchased in the last 20 years.

In the 2005-06 Quadrennial Defense Review (QDR), the Pentagon determined that USAF should make an immediate start to develop a new long-range strike system. This new capability, it said, should go well beyond what is offered by today's fleet of B-1B, B-2, and B-52 bombers. Under QDR guidelines, the Air Force has until 2018 to get this new capability on the ramp. This means the Air Force must devote billions of dollars to the project over the next several years. AFA supports this initiative to field this important weapon system.

AFA believes that the need goes well beyond the bomber fleet. Acquisition of new fighter aircraft is extremely important. New aircraft slated for procurement include the stealthy F-22A air superiority fighter and F-35 multirole fighter to replace older F-15s, F-16s, and F-117s.

Mobility forces also have serious needs. A request for information has been issued to industry for a new tanker aircraft to replace the KC-135E tanker. The lift mission is being augmented by procurement of new C-130J and additional C-17 aircraft to meet the increasing demand for airlift. Legacy platforms slated to remain in the fleet, such as the C-5, will receive numerous capability and structural enhancements. In light of that reality, the USAF modernization program seems modest indeed.

AFA urges Congress to provide the resources necessary to provide adequate airlift and tanker capabilities.

Additionally, continued purchases of Predator and Global Hawk unmanned air vehicles will boost the critically important intelligence-surveillance-reconnaissance fleet capabilities.

All signs are that for the next several years, the defense budget will remain flat or close to it. Air Force leaders will be hard-pressed to find enough funding to pay for even a modest modernization program. **AFA believes that restricting the defense budget while at war is shortsighted and dangerous.**

The cost of modernization isn't the only problem. Actual operations have stretched financial accounts to a point where the Air Force has few remaining resources to support infrastructure upgrades, training, and operating costs while acquiring the new systems that are critical for the future of the force. Anyone who thinks this is an overly ambitious modernization program should think again. Even if the Air Force is able to procure all 612 aircraft slated for acquisition over the coming six years, the average age of the fleet still will go up, rising from 23.5 to 28 years.

The Defense "Burden"?

AFA believes that the nation can and must provide *more* resources to fund its military. Even counting annual war costs of some $80 billion to $100 billion spent in Iraq and Afghanistan, the economic impact on the American public for defense spending is relatively light, consuming only about four percent of the nation's $13 trillion gross domestic product. The "core" defense program—that is, the weapons, forces, and operations exclusive of actual war costs—is even lighter, taking only about 3.5 percent of GDP. By comparison, the nation devoted about 35 percent of GDP on military forces during World War II, about 10 percent of GDP during most of the Cold War, about nine percent during the Vietnam War, and more than five percent of GDP as recently as 1992, when the Cold War was winding down.

Today's spending is inadequate to support our forces given the record of the past. Higher defense spending is not "unaffordable," as many assert.

AFA believes that we should raise spending on the core defense program by one-half of one percent of GDP—lifting it from 3.5 to 4.0 percent. This would give the services an additional $65 billion every year. That level of funding would go a long way toward rectifying today's equipment problems. Clearly, US defense spending is insufficient in light of the current demands placed on the military. Service leaders should not have to choose between funding current wartime operations and modernizing its forces to be ready for future challenges.

Air Force leaders are respectful of the need to be good stewards of the taxpayers' dollars and have responded by paring down a variety of weapon systems and pushing for only the most critical modernization programs. The service continually seeks to become more efficient. AFA lauds these efforts and encourages the Air Force to push even harder in this direction. However, offsets can only achieve so much. It's going to take increased funds to maintain a viable warfighting capability.

We believe the nation needs to provide tangible support to our servicemen and -women fighting today by providing resources for those who will be carrying out the missions in years ahead. In a world of constantly changing technology, it is imperative that the Air Force stay at the leading edge of aerospace technology.

Space and Cyberspace

The nation depends heavily on the Air Force to meet the needs of the warfighter, and space plays a major role in meeting those needs. Space systems provide deterrence, situational aware-

"In a world of constantly changing technology, it is imperative that the Air Force stay at the leading edge of aerospace technology."

"The response to an attack on our national information infrastructure must be swift and sure, just as it would be if we were subjected to a traditional physical attack."

ness, communications, missile warning, positioning and tracking capabilities, and precision weapon guidance. In fact, space assets are essential to all military operations and to the nation. Airmen and soldiers in the field require critical information to do their jobs and to stay ahead of the enemy.

Persistent surveillance on the battlefield using unmanned vehicles, satellites, and the Global Positioning System provides the warfighter with instant information needed for everything from putting bombs on target to countering the threat from improvised explosive devices (IEDs).

Maintaining space superiority means improving and developing new technologies to assist the warfighter in denying the use of space to potential adversaries.

New systems such as the Space Radar, Space Based Infrared System, and the Transformational Satellite Communications System (TSAT) program must be acquired. These will continue to provide persistence over the battlefield. New communication developments include laser communications, which hold considerable promise as a breakthrough technology. As a key part of TSAT, laser communications will allow DOD to vastly increase its bandwidth. Development and employment of these systems must be supported.

ICBMs deliver effective 21st century deterrence. USAF needs to continue to sustain and modernize our land-based strategic deterrent and develop future strike capabilities.

In support of worldwide military operations, the Air Force needs to continue the upgrading and modernizing of America's launch ranges as the Evolved Expendable Launch Vehicle Program takes over as the foundation for assuring US access to space. It must continue funding for the National Polar-Orbiting Operational Environmental Satellite System that will accurately calculate meteorological data for our deployed forces, and proceed with the next generation of the Global Positioning System, GPS III, further enhancing navigation with resistance to jamming.

Unmanned platforms such as Predator and Global Hawk are controlled and monitored through already taxed systems, and even more bandwidth is required to send the radar data and digital streaming video from these platforms to the warfighter. Planned systems such as TSAT and the Wideband Gap-filler System will eventually meet these needs.

To counter threats in space, the Air Force must invest more in space situational awareness and modernize early warning systems, such as the Defense Support Program (DSP) satellites that have been in operation since the 1970s and were used effectively during Desert Storm. In cyberspace, the US faces potential adversaries capable of penetrating vital telecommunications and information networks and diminishing our capability in the real battlespace.

In response, the Air Force has developed a cyberspace task force to lead airmen on the digital battlefield. The task force will afford new offensive capabilities and new target sets and will be at the vanguard of defending the nation against an electronic Pearl Harbor.

AFA believes it is crucial for the US to defend itself against cyber-attack. The response to an attack on our national information infrastructure must be swift and sure, just as it would be if we were subjected to a traditional physical attack. Protecting military, government, and commercial networks will require increased cooperation between the private sector, DOD, and other government agencies.

Homeland Defense

On the home front, 10,000 active duty, Guard, and Reserve forces continue to fly and support air and space operations in Operation Noble Eagle, the defense of US cities and industries from air assault.

The Air Force has flown more than 44,000 fighter, aerial refueling, and airborne early warning sorties since the Sept. 11 attacks. Air National Guard and Reserve forces have flown 32,000 of these missions. This is truly a joint force mission that fully leverages the capabilities of each component.

AFA believes that Congress and the executive branch should increase their efforts across the board to secure the nation's borders and airspace, while preparing for the possibility of a calamitous man-made strike or a devastating natural disaster. Specifically, the Administration and Congress must work together to fully fund the cost of the air defense mission in the Air Force budget and to provide for sufficient US-based airlift.

Total Force Integration

The US Air Force is a Total Force, a collection of critically important components whose true power stems from the interaction of mutually reinforcing capabilities. The power of the whole truly is more than the sum of these parts. The Air Force has done well in integrating the combat capabilities of these very different components, but there is room for improvement.

The Total Force comprises the active duty force, the Air National Guard, and the Air Force Reserve (with federal civilians and military contractors playing key support roles). Each of these components is indispensable. The Air Force could not accomplish its mission without their total commitment.

AFA believes that Air Force civilian and uniformed leaders should press for even greater integration of these elements of air and space power at home in the United States as well as in combat deployments overseas. Each component should share in the fate of the enterprise as a whole, whether that happens to be good fortune or sacrifice. The restructuring of forces, bases, and aircraft should not fall disproportionately on any one element to the exclusion of the others.

Active duty, Guard, and Reserve components should train to the highest standards and have the opportunity to partake in missions across the spectrum of operations, from humanitarian relief efforts to homeland defense and major combat operations. All have

excellent leadership and superb airmen capable of performing well in any situation.

At any given time, the Guard and Reserve provide significant support to USAF's forward deployed force. One success story has been associate units in which Reserve, Guard, and active duty personnel share aircraft. This means more crews for the same number of aircraft and increased use of the aircraft. This capitalizes on inherent strengths of the Air Force's components.

In an age of budget stringency, better use of all available resources is imperative and the capabilities of each component should be integrated to take full advantage of the strengths of each one.

When looking to the future, the success of Total Force can also be seen in the training provided to the three components. With the three components working closely together, the Air Force has been able to provide invaluable training for active, Guard, and Reserve units. This is all to the good.

Guard and Reserve units are, and will continue to be, closely associated with the active duty force. Because of this, Defense Department officials should review command and control structures to produce more unity of effort.

AFA believes the Air Force needs to continue to address the roles and responsibilities of all three components, while integrating for emerging new missions such as cyber-warfare, operation of unmanned aerial vehicles, and homeland defense.

No mission should be off limits to any of the Air Force components. Recognition of the vital roles and unique capabilities of the active force, Air National Guard, and Air Force Reserve is necessary if USAF is to get through the budget crisis ahead while producing maximum combat power.

Force Reshaping

High-technology weapon systems count for little without high-quality people to maintain and operate them. AFA understands that the Air Force faces difficult decisions about how best to ensure the right balance of personnel, infrastructure, weapons, and readiness throughout the force.

During the early years of the Global War on Terrorism, the Air Force was allowed to stay above its authorized end strength of 359,000, but in 2005 it drew down below the authorized end strength through normal attrition. In 2006, facing renewed budget pressures, the Air Force announced cuts of 40,000 personnel spaces over the next four years along with a cut in civilian strength. Combined with a reduction in enlisted recruits from 30,700 to about 28,000 in Fiscal 2007, overall enlisted end strength is expected to be 264,000 by the end of 2007. The Air Force is also accelerating retirements in certain grades and phasing out certain positions.

Thus, though the nation is at war, it will have fewer airmen trained to carry out combat operations and discharge other global commitments.

The Air Force needs to manage this force shaping endeavor in such a way that it produces a balance with the right mix of skills and experience for the expeditionary environment. We are pleased to see that the Air Force has developed a new initiative, Air Force Smart Operations for the 21st Century (AFSO 21), that will focus on identification and elimination of activities, actions, and policies that do not contribute to daily effectiveness.

AFA agrees with the Air Force that institutionalizing this new approach will allow the Air Force to meet the challenges of the next decade and help sustain the air and space force in the years to come. The practices, requirements, and management of the Air Force must constantly be evaluated to keep it efficient.

Much of this evaluation will and should rest with the men and women of the Air Force themselves. Therefore, AFA believes Air Force personnel at all levels should play an active role in evaluating the best ways to increase the efficiency of USAF.

New Breed of Airmen

The reality of a smaller force and the demands of the Global War on Terrorism have brought big changes in the roles of airmen. This in turn created a new breed of airmen.

Many now are serving in nontraditional roles in Iraq and Afghanistan, filling other service billets. They are serving as convoy vehicle operators and providing security for convoys throughout Iraq and Afghanistan. They are providing security for air bases by patrolling "outside the wire" and often in ways familiar to infantrymen.

There is no rear area in the war on terror. The Air Force is expanding its basic training to ensure that all airmen are prepared for what they might face while deployed. The new emphasis begins at basic military training, but the change is felt throughout the Air Force. Training today is more tactical, responsive to the demands in Iraq and Afghanistan, and tied to the Air and Space Expeditionary Force deployment cycle.

Battlefield airmen are providing vital tactical air control to help direct bombs and bullets at terrorists with high accuracy. These airmen engage in the full spectrum of missions, from C4ISR to close air support to training Iraqi security forces.

The challenge is to increase the ranks of battlefield airmen and to keep them on active duty. The Air Force is short of pararescue teams and controllers who work with ground special forces and other ground units. The Air Force plans to increase recruiting efforts and to plus up the ranks in those key areas.

Battlefield airmen showcase the dynamic nature of the Air Force. They demonstrate the ability of airmen to adapt to new roles more effectively. These airmen are becoming more versatile and better trained. They are willing to undertake and capable of performing tasks historically reserved for other branches.

"AFA believes the Air Force needs to continue to address the roles and responsibilities of all three components, while integrating for emerging new missions."

"Joint commanders know the Air Force can be counted on across the full spectrum of missions, from combat to humanitarian operations."

AFA salutes these airmen for their skill and dedication and applauds the USAF decision to have all airmen who are deploying receive combat skills training.

Education and Technology Gap

The Air Force's overpowering capabilities are not the result of happenstance. They are the product of an American educational infrastructure that has produced researchers, innovators, engineers, operators, and maintenance personnel who are capable of designing, operating, and supporting high-technology hardware. It is clear that the new threat environment will demand an even higher level of basic education and an increasing percentage of individuals with skills in science, technology, engineering, and math—known collectively as STEM.

Leaders from all sectors in the United States must focus on supporting our educational infrastructure to cultivate increasingly capable individuals.

STEM education is faltering badly. The country is simply failing to generate enough qualified individuals to satisfy industry and defense needs. According to a 2003 study conducted by the Department of Education, US 15-year-olds placed 15th among 28 industrialized nations in basic science skills. Another Department of Education study conducted in 2000 found that 35 percent of US high school seniors did not have a basic comprehension of math. Once, the US ranked third in terms of 18- to 24-year-olds earning natural science and engineering degrees. Now, it ranks 17th.

Asian nations have studied the US ascent in the technological realm and have taken educational steps to produce large numbers of persons skilled in STEM. It is important to recognize that we are in a never-ending competition, one that will influence the future economic and military well-being of the country. The United States must bolster the education system at all levels and start competing again.

The need is as great today as it was in years past. It is estimated that 13,000 personnel from DOD labs will be retiring over the next 10 years. This aging workforce needs to be replaced with new talent.

AFA believes DOD must expand its partnership with industry, school systems, and academia to encourage more participation from young people in the math and sciences and to nurture their interest and commitment to these disciplines.

In a related area, nations around the globe are making significant strides in technology. Some are matching, or even exceeding, US technical capabilities. A revitalized industrial preparedness program is key to transitioning science and technology from the laboratories to the production floor and is one of the critical elements of a strengthened presystems acquisition process. Sensible acquisition policies, business practices, and support for research and development of manufacturing technology are needed.

Spread Thin

Today, nearly a third of all airmen are stationed overseas, in more than 177 countries around the globe. More than 25,000 airmen are forward deployed in support of combatant commanders throughout the world. More than 21,000 are deployed directly for the wars in Afghanistan and Iraq.

Air Force units in the Pacific serve to counter the threat posed by North Korea. More than 52,000 personnel are based in Japan, South Korea, Guam, and other sites throughout the Pacific, providing on-call combat capability to joint warfighters.

The current buildup of forces on the island of Guam allows USAF to respond to military and humanitarian crises over great distances in a very short period. Airmen helped deliver more than 9,000 tons of relief supplies to Sri Lanka and other nations devastated by 2004's Indian Ocean tsunami and provided humanitarian relief to provinces in the Philippines following mud slides in 2006.

In Europe, more than 35,000 airmen and civilians are on duty as part of America's long-standing North Atlantic Treaty Organization commitments. US Air Forces in Europe is as busy as ever. Airmen have flown more than 27,000 sorties helping to enforce the peace accords in the Balkans. In support of the Global War on Terrorism, they are also pulling duty on the flight lines at airfields in former Soviet bloc nations.

Stateside, Air Force personnel responded when Hurricane Katrina devastated America's Gulf Coast. Active duty, Guard, and Reserve airmen rapidly deployed to assist with evacuation and recovery following this national tragedy, flying more than 5,000 sorties, delivering 16,000 tons of cargo, and conducting more than 5,500 rescues. They treated over 17,000 patients and evacuated more than 30,000 people to safety.

Joint commanders know the Air Force can be counted on across the full spectrum of missions, from combat to humanitarian operations. Because the Air Force makes the whole force better, AFA believes that a strong national commitment is necessary in order to sustain these capabilities.

Toward the Future

These are critical times for our nation. AFA believes that we must make the necessary investments today to win the Global War on Terrorism and to counter the threats of the future. We must not allow excessive focus on near-term operational risk to mortgage the future capability of the joint force.

Air and space dominance cannot be taken for granted. Building it is the business of every American.

"Our Air Force belongs to those who come from ranks of labor, management, the farms, the stores, the professions, and colleges and legislative halls. ... Airpower will always be the business of every American citizen."—Gen. Henry H. "Hap" Arnold.

In this, we dare not fail. ■

This Is AFA

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AFA National Report

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By Frances McKenney, Assistant Managing Editor

Meeting of Presidents

In his opening remarks at the orientation meeting for the Air Force Association's new Region Presidents and State Presidents, Robert E. "Bob" Largent said that the association had been undergoing the "single most important" reorganization in its 60-year history. It merged operations with the Aerospace Education Foundation, changing its tax status, and had begun reorganizing and streamlining its leadership and field operations structure.

"Your input, your counsel, was very much appreciated" in the transition process, he told the 44 field leaders who attended the three-day orientation. "Now," he said, "we can get down to the business of ensuring that we can carry out the AFA missions of educate, advocate, and support."

Largent described an hour-long meeting held that week between AFA's top officials and Gen. John D.W. Corley, the Air Force vice chief of staff, and Lt. Gen. Arthur J. Lichte, the assistant vice chief of staff. AFA will continue working closely with USAF leaders, Largent told the region and state presidents. "We're going to be on the same page."

During information sessions, held at a hotel two blocks from the new Air Force Memorial in Arlington, Va., field leaders learned about the various departments and functions of AFA's headquarters; they received an overview of the association; and they listened to briefings on field operations topics.

Fourteen region presidents attended the orientation meeting, including newcomers Michael J. Peters (Far West Region), Marvin L. Tooman (Midwest), Maxine Donnelly (Northeast), Leonard Vernamonti (South Central), and Edward W. Garland (Texoma).

Among the 30 state presidents were new officers Thomas O'Shea (Illinois), Sunny A. Siler (Kansas), Glenn M. Shull (Minnesota), Jerry Needham (Nebraska), Al Smith (New York), Joyce W. Feuerstein (North Carolina), Terry Cox (Oklahoma), Grant Hicinbothem (Utah), Scott Van Cleef (Virginia), and Vic Johnson (Wisconsin).

Who We Are; What We Do

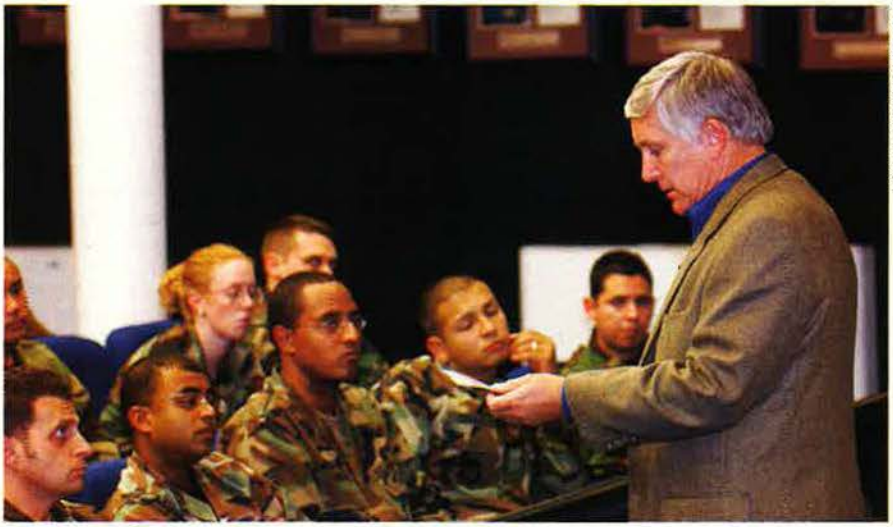
Next to its feature story about AFA Indiana State Teacher of the Year Kimberly Williams, the local newspaper printed an information box. It went right to the point: "Jim Fultz, aerospace education officer for the **Southern Indiana Chapter** and state Air Force Association, said the group seeks to educate the public about airpower."

The second paragraph noted that AFA conducts a Teacher of the Year program. The third paragraph stated, "Fultz said the Southern Indiana Chapter always takes suggestions for nominees."

Thus in one neat package, the state Teacher of the Year, the chapter, and AFA all received publicity in the *Herald-Times,* a newspaper serving Bloomington, home to Indiana University.

Marcus R. Oliphant, chapter president, said his group honored Williams at its September meeting. Williams teaches sixth-graders at University Elementary School in Bloomington and has been there for 20 years. Her students study aircraft and research flights of the 20th century and take a field trip to the Challenger Learning Center to participate in a simulated space flight. The newspaper article pointed out that Williams is the fourth consecutive state Teacher of the Year to have been nominated by the Southern Indiana Chapter.

The September chapter meeting also emphasized education through its guest speakers: Four AFROTC cadets and chapter member Lt. Col. Lori M. Bass, from Indiana University. Cadets Sarah Ricketts, Samuel Newlin-Haus, Kemper Kelly, and Samantha Schinder described their visits last summer to Air Force installations. Each spent five days at an active duty site as part of a freshman-year AFROTC program called Assist.



USAF photo by A1C Liliana Moreno

AFA Board Chairman Bob Largent speaks at the Airman Leadership School, Aviano AB, Italy, during his orientation Oct. 22-30 to US Air Forces in Europe. In media interviews and information sessions, he emphasized USAF's need for aircraft modernization and recapitalization and spoke about AFA's role as an Air Force advocate. Largent also visited USAFE bases in Germany and Britain. (A fuller account of this outreach tour will appear in the January 2007 issue.)

Iraq: An NCO's Viewpoint

The **Brig. Gen. James R. McCarthy Chapter** sought a specific kind of Operation Iraqi Freedom veteran to be its guest speaker. "We called nearby Patrick Air Force Base," wrote Chapter President Marguerite Cummock in an e-mail. "We specified we would prefer a senior enlisted person who was 'boots on the ground' in Iraq."

That's how CMSgt. David M. Lorenz came to address the chapter's September meeting. A superintendent with the 45th Launch Group at Cape Canaveral Air Force Station, Lorenz volunteered for deployment and had served as the chief enlisted manager for the 506th Air Expeditionary Group at Kirkuk. He was, in short, the senior enlisted airman at the Iraqi base from August 2005 until February 2006.

Cummock reported that Lorenz

Joe Sutter, AFA Vice Chairman, Field Operations (back row, third from right), took time out from the annual Region and State Presidents meeting to visit the Air Force Memorial with AFA's region presidents. Front row (l-r) are Jim Simons, Max Friedauer, Skip Williams, and Ed Garland. Back row (l-r) are Gary Hoff, Mike Peters, Maxine Donnelly, Marv Tooman, Joe Bisognano, Ted Helsten, Herc Herculson, Sutter, Bush Hanson, and Len Vernamonti. Not shown: Bill Howard. See "Meeting of Presidents," p. 83.

showed photos to illustrate his presentation about the base and the USAF personnel stationed there. Lorenz, who entered the Air Force 25 years ago, also talked about medical treatment for the wounded and what it was like in the northern city of Kirkuk during one of its elections.

Cummock and the chapter aerospace education VP, David R. Cummock, also named three Doolittle Fellows: chapter members John D. Champlain and Robert Perry and the Department of Aerospace Engineering at Embry-Riddle Aeronautical University, Daytona Beach.

Hell Hawks in Iowa

In the newsletter for the **Gen. Charles A. Horner Chapter** in Iowa, President Richard Schlegel II billed it as "the biggest event we have had in the last 10 years."

It was the chapter's September banquet, with nearly 140 guests. It featured music by a Big Band group of two dozen musicians and singers; former astronaut Thomas D. Jones as keynote speaker; and, as special guests, the chapter's namesake along with several P-47 pilots, in town for a 365th Fighter Group Hell Hawks reunion. This combination gala-reunion had been a year in the making, Schlegel said—"a big event for a small chapter."

Banquet speaker Jones served in the Air Force as a B-52 pilot and made shuttle flights on *Endeavour, Columbia,* and *At-*

Air Force Association Balance Sheet

	Dec. 31, 2005			Dec. 31, 2004		
	General Fund	Life Membership Fund	Total	General Fund	Life Membership Fund	Total
Assets						
Cash and Investments	4,537,220	14,619,829	19,157,049	3,963,535	14,311,101	18,274,636
Accounts Receivable	1,366,735	192,609	1,559,344	1,228,564	200,421	1,428,985
Prepaid Expenses	188,782		188,782	156,320		156,320
Inventory	96,825		96,825	109,690		109,690
Property and Equipment (net of depreciation)	13,367,352		13,367,352	10,512,851		10,512,851
Prepaid Pension	5,190,167		5,190,167	5,128,955		5,128,955
Other Assets	1,438,759		1,438,759	1,449,887		1,449,887
Total Assets	**26,185,840**	**14,812,438**	**40,998,278**	**22,549,802**	**14,511,522**	**37,061,324**
Liabilities and Net Assets						
Liabilities						
Accounts Payable	1,565,140		1,565,140	1,168,520		1,168,520
Premium Refund Payable	295,477		295,477	315,195		315,195
Accrued Expenses	444,251		444,251	467,938		467,938
Deferred Revenue	994,423		994,423	919,209		919,209
Note Payable	4,190,000		4,190,000	900,000		900,000
Total Liabilities	**7,489,291**	-	**7,489,291**	**3,770,862**	-	**3,770,862**
Net Assets-Unrestricted						
Undesignated	16,897,851		16,897,851	16,980,242		16,980,242
Designated	1,798,698	14,812,438	16,611,136	1,798,698	14,511,522	16,310,220
Total Net Assets	**18,696,549**	**14,812,438**	**33,508,987**	**18,778,940**	**14,511,522**	**33,290,462**
Total Liabilities and Net Assets	**26,185,840**	**14,812,438**	**40,998,278**	**22,549,802**	**14,511,522**	**37,061,324**

lantis. Schlegel said Jones used photos from these flights to illustrate his hour-long presentation to the chapter. Jones was invited to the event because he is co-writing a book, with Robert F. Dorr, about the Hell Hawks and welcomed the chance to interview the pilots.

At the banquet, chapter namesake retired Gen. Charles A. Horner presented each Hell Hawk with an autographed copy of *Every Man a Tiger: The Gulf War Air Campaign,* a book he co-authored with Tom Clancy. The chapter gave a year's AFA membership to the World War II fighter pilots and, as part of its role as their reunion host, arranged for them to visit the 132nd Fighter Wing (ANG) at Des Moines Airport.

Looking back on this chapter's gala-reunion Schlegel commented, "The most rewarding thing a chapter can do is help sponsor a segment of a veterans' reunion."

130 Percent

TSgt. John Wharton III of the 333rd Recruiting Squadron, Patrick AFB, Fla., took home the **John C. Meyer Chapter's** Recruiter of the Year award in Florida, in August. He was a shoo-in, having signed up 130 percent of his quota.

Other awards presented at the Meyer Chapter meeting went to Member of the Year Kathryn L. Robinson; Robert A. Polhemus, for his longtime service as chapter president and treasurer; Peter J. Goutiere, who traveled to China for a ceremony commemorating the end of World War II; Richard H. Trout II, for service as chapter secretary; Diane Polichek of the Tampa Chamber of Commerce; and Billy Murphy, for service to veterans in his role as director of the Florida National Cemetery in Bushnell. Murphy was guest speaker at this chapter meeting, providing information on veterans benefits.

Air Force Association
Comparative Statement of Revenues and Expenses

	Year Ended Dec. 31, 2005	Dec. 31, 2004
General Fund		
Revenue		
Aerospace Technology Exposition	1,481,186	1,536,616
Building Operations	1,040,273	1,037,982
Convention	953,132	928,440
Industrial Associates	83,050	98,700
Insurance Programs	2,016,495	1,848,864
Investments	96,414	121,323
Magazine	1,495,368	1,423,121
Membership	3,755,640	3,911,456
Patrons	267,130	291,954
Other	763,494	723,120
Total Revenue	**11,952,182**	**11,921,576**
Expenses		
Program Services:		
Aerospace Technology Exposition	797,650	717,396
Convention	1,938,784	1,581,959
Industrial Associates	103,568	130,544
Insurance Programs	2,446,951	2,448,903
Magazine	1,294,729	1,252,798
Patrons	332,588	301,456
Total Program Service Expenses	**6,914,270**	**6,433,056**
Supporting Services:		
Building	756,203	677,977
Membership	4,364,100	4,363,747
Total Supporting Services Expenses	**5,120,303**	**5,041,724**
Total Expenses	**12,034,573**	**11,474,780**
Changes in Net Assets General Fund	**(82,391)**	**446,796**
Life Membership Fund		
Life memberships granted	280,342	339,239
Revenue from investments	1,318,323	2,289,755
Less: Transfer to General Fund for equivalent annual dues and other costs	(1,297,750)	(1,288,847)
Changes in Net Assets Life Membership Fund	**300,915**	**1,340,147**

Treasurer's Note: The figures presented herein have been extracted from audited financial statements submitted previously to the Board of Directors of the Air Force Association. Expenses include chapter commissions, state commissions, and other direct support for field units totaling $352,555 in 2005 and $476,971 in 2004.

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I certify that all information furnished on this form is true and complete. I understand that anyone who furnished false or misleading information on this form or who omits material or information requested on the form amy be subject to criminal sanctions (including fines and imprisonment) and/or civil sanctions (including multiple damages and civil penalties).

The Recruiter of the Year award originated with Florida State Area VP Robert F. Cutler, who is from the **Gen. Nathan F. Twining Chapter.** Meyer Chapter President Dennis E. Foley, who had been a Reserve admissions liaison officer for the Air Force commissioning programs, and "always considered recruiters vital to the Air Force mission," followed up by collecting nominations. He zeroed in on Wharton, based on recommendations from the 333rd. Wharton is trained in aircraft electro-environmental systems and has served at McGuire AFB, N.J., and Elmendorf AFB, Alaska. He recruits in three high schools in the Inverness area, north of Tampa.

Some of the NCO's recruiting ability must have rubbed off; Chapter President Foley said he gathered three new members from this meeting.

Texas Two-Stars

Two retired Air Force major generals were guest speakers at the October Texas state AFA meeting, hosted by the **Denton Chapter.**

Retired Maj. Gen. Mary L. Saunders addressed the awards luncheon audience, describing some of her experiences during her three decades in military transportation and logistics. Saunders was vice director of the Defense Logistics Agency at Ft. Belvoir, Va., before her retirement in October 2005. She also talked about her work today as director of the Leadership Institute at Texas Woman's University—her alma mater—in Denton.

Among the awards presented at this luncheon was the Charlotte Loos Fellowship, sponsored by the state aerospace education foundation. It went to Robert S. Seidel and Helen S. Seidel, both from the **Dallas Chapter.**

The second two-star guest speaker at this fall state meeting gave his perspective on the F-35 Lightning II. Retired Maj. Gen. Wilbert D. Pearson Jr. had firsthand knowledge of the strike fighter's development, having been commander of the Air Force Flight Test Center at Edwards AFB, Calif., before his retirement in January 2005.

More AFA News

■ Sponsored by the **Capt. Eddie Rickenbacker Memorial Chapter** in Columbus, Ohio, Westland High School's AFJROTC cadets held their annual memorial service Oct. 28 at the gravesite of the chapter's namesake. Rickenbacker, the World War I ace and Medal of Honor recipient, was born in Columbus in October and is buried at Green Lawn Cemetery there. The ceremony of remembrance has been carried out for

AFA In Action

The Air Force Association works closely with lawmakers on Capitol Hill, bringing to their attention issues of importance to the Air Force and its people.

A Capital Flyover

On Oct. 13—the eve of the Air Force Memorial dedication ceremony—the Air Force Association and the Office of Air Force Legislative Liaison gave professional staff members from Capitol Hill a chance to see USAF assets in the sky and up close. Approximately 50 staffers were brought to the memorial site, overlooking the Pentagon and Arlington National Cemetery. They later watched the practice flight for the next day's events.

The flyover included an AT-6, B-2, B-17, B-24, C-17, C-47, F-4, F-15, F-22, F-86, P-51, Stearman, T-6A II, and the Thunderbirds, USAF's aerial demonstration team.

The Congressional staffers also went to Andrews AFB, Md., to view the aircraft on the ground and meet with flight crews.

at least two decades and includes the reading of a summary of Rickenbacker's life, placing of a wreath, a volley of rifle fire, and the playing of Taps.

■ The **Thomas W. Anthony Chapter (Md.)** received an autographed print of the Royal Canadian Air Force's Snowbirds aerial demonstration team in action. RCAF Maj. Cory Blakely, who flies the inner left wing position, presented the gift to Chapter President Charles X. Suraci Jr. and William H. Thomas, chapter communications VP, as thanks for the chapter's hosting of the Snowbirds when they were in town in May for the annual joint services open house at Andrews AFB, Md. ■

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

80th FG. May 17-19, 2007 in Milwaukee. **Contact:** Hal Doughty, 3620 McElroy St., Eau Claire, WI 54701.

446th BG Assn (WWII). April 24-29, 2007 in Savannah, GA. **Contact:** Marynell Roos, 5491 Tyshire Pkwy., Providence Forge, VA 23140.

Pilot Class 55-F. San Antonio in 2007. **Contact:** Chuck Davies, 4435 Monaco Dr., San Antonio, TX 78218 (210-653-1475)(cpmfd@sbcglobal.net).

Pilot Class 55-I, all bases. May 16-20, 2007 at the Sheraton Albuquerque Uptown, Albuquerque, NM. **Contact:** Ken Gero (505-897-7388)(55-iabq07@comcast.net).

US Military Liaison Mission Assn (1948-92), 7452nd SAS & Det. 1, 7113th SAS. April 20-21, 2007 in Arlington, VA. **Contact:** reunion@usmlm.org.

Seeking former members of the **3rd Strategic Support Sq** or **73rd BS** for a reunion in 2007. **Contact:** Steve Garstka (sagarstka@hotmail.com or stephen.garstka@hurlburt.af.mil) or Tom Markland (thomas.markland@hurlburt.af.mil).

Seeking former members of the **32nd FS/Air Operations Sq,** Ramstein AB, Germany, and Soesterberg AB, Netherlands, for a reunion in May 2007. **Contact:** Mario (webmaster@slobberinwolfhounds.com).

Seeking former members of **Aviation Cadet Detachment,** Chanute Field, IL, Class 1941-2, for a reunion. **Contact:** Elmo Huston, 42 Villanova Dr., Oakland, CA 94611 (510-339-1487)(t-elmo@webtv.net). ■

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.

Airpower Classics

Artwork by Zaur Eylanbekov

P-51 Mustang

The North American P-51 Mustang was one of the most successful and significant of all the World War II fighters. In Europe, the Mustang downed more enemy aircraft than did any other type. It was sleek and beautiful, much beloved by those who flew it. It was also vital to Britain's Royal Air Force. In fact, it was the RAF which bestowed its classic name, "Mustang."

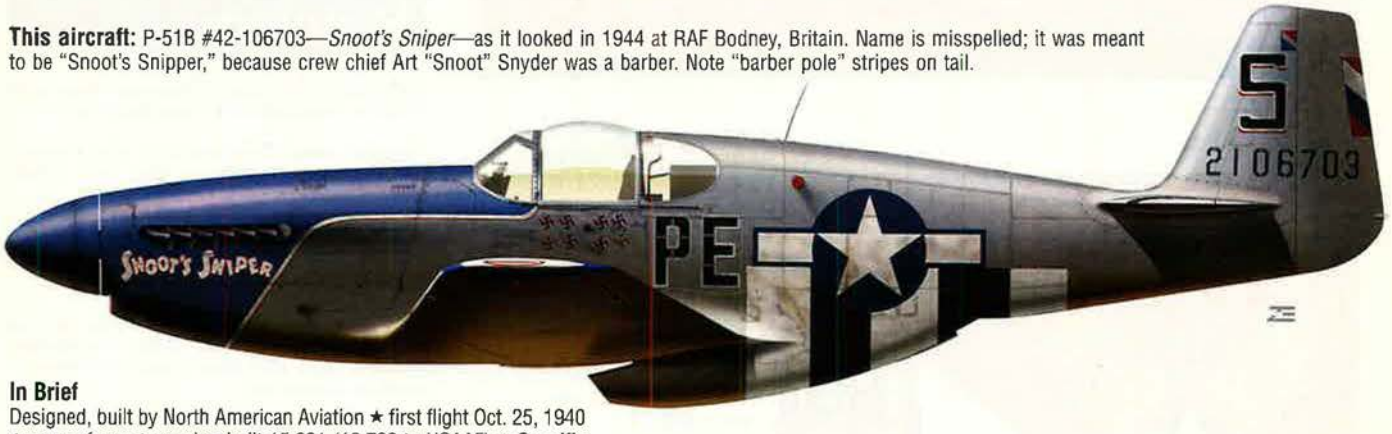
The Mustang lived two lives. It was developed in response to a 1940 RAF order. This first low-to-medium-altitude model was sufficiently impressive that USAAF bought 500 of a dive bomber variant called the A-36A. Then came orders for a variant called P-51A for photoreconnaissance and ground support. These "near Mustangs" turned in creditable service.

The Mustang's second, more famous life began with the P-51B. Designers dropped the Allison engine (optimized for low-to-medium altitudes) and installed a more powerful, supercharged Rolls Royce Merlin power plant, giving the Mustang superb high-altitude performance. More fuel tanks gave it the range to fly deep into Germany. Now the premier US air-to-air fighter, the P-51B on Dec. 13 escorted high-altitude bombers all the way to Kiel and back—marking a milestone in fighter operations. These escorts sharply reduced losses of B-17s and B-24s. Similarly, P-51s in the Pacific escorted B-29 bombers attacking Japan from Iwo Jima.

One war later, the Mustang helped prevent a North Korean rout of US forces following Pyongyang's June 1950 attack on South Korea. Yet the P-51 will always be known primarily by its World War II record: 4,950 enemy aircraft destroyed in the air—about half of the US total—and some 4,000 more on the ground, plus 230 V-1 vengeance weapons.

—Walter J. Boyne

This aircraft: P-51B #42-106703—*Snoot's Sniper*—as it looked in 1944 at RAF Bodney, Britain. Name is misspelled; it was meant to be "Snoot's Snipper," because crew chief Art "Snoot" Snyder was a barber. Note "barber pole" stripes on tail.



In Brief

Designed, built by North American Aviation ★ first flight Oct. 25, 1940 ★ crew of one ★ number built 15,621 (13,722 to USAAF) ★ **Specific to P-51D:** one Packard-built Rolls Royce Merlin 12-cylinder engine ★ armament, six .50-cal machine guns, two 1,000 lb bombs ★ max speed 437 mph ★ cruise speed 362 mph ★ max range 950 mi ★ weight (loaded) 11,600 lb ★ span 37 ft ★ length 32 ft 3 in ★ height 12 ft 2 in.

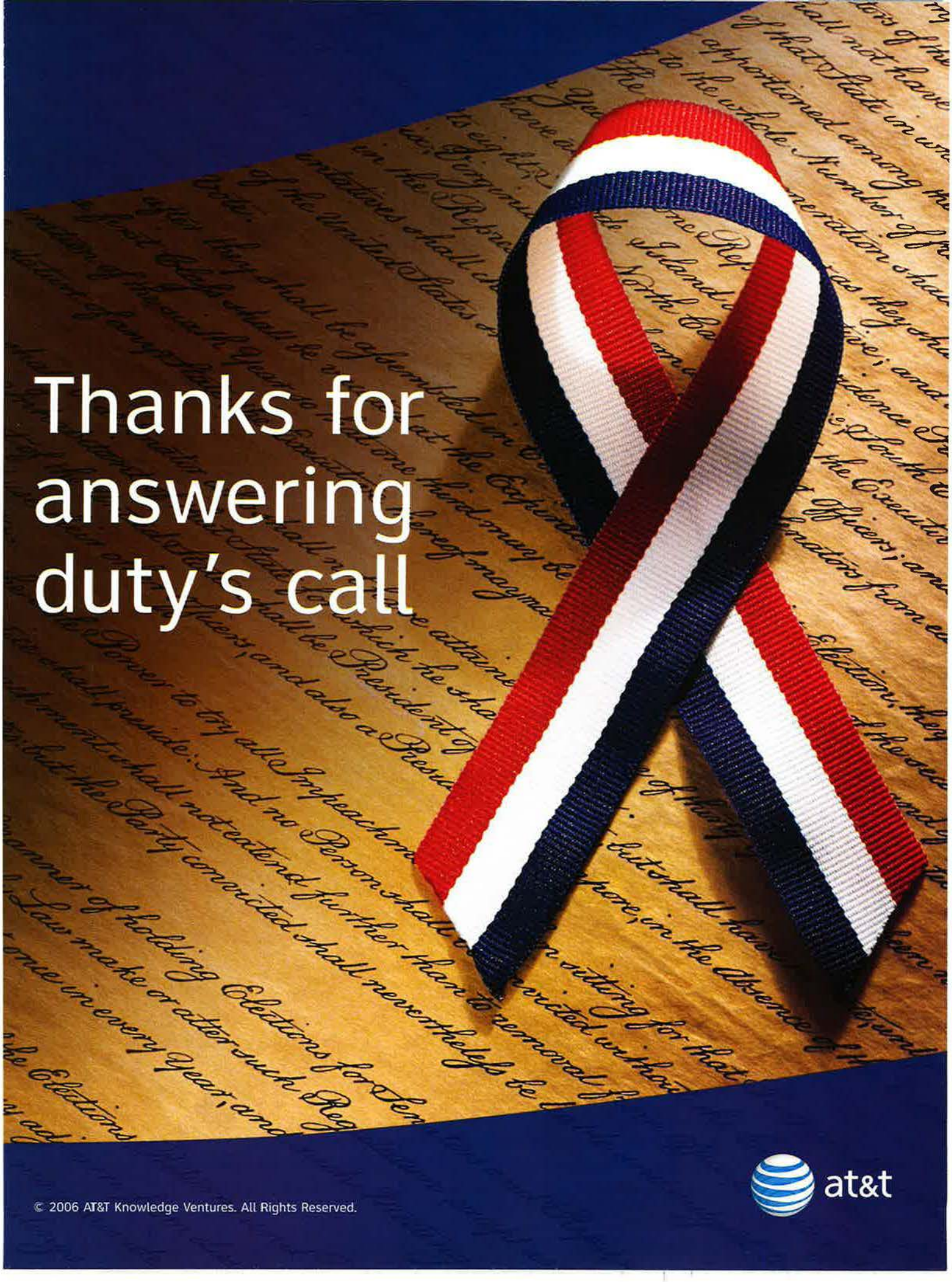
Famous Fliers

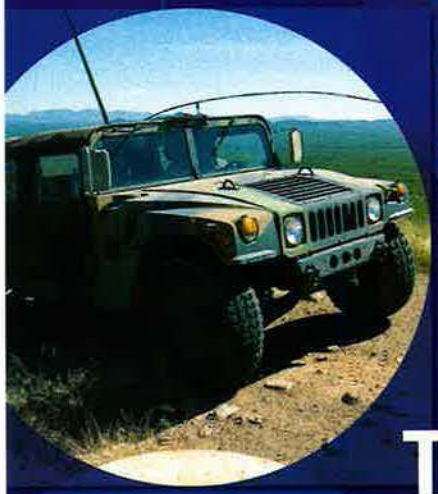
Three Medal of Honor recipients—Lt. Col. James Howard, Maj. William Shomo, Maj. Louis Sebille ★ **274 "Mustang Aces"**—including Maj. George Preddy (23.83 Mustang kills), Lt. Col. John Meyer (21), Capt. John Voll (21), Maj. Glenn Eagleston (18.5), Maj. Kit Carson (18.5), Maj. John England (17.5), Capt. James Varnell Jr. (17), Capt. Ray Wetmore (17), Capt. Don Gentile (16.5), Capt. Clarence Anderson Jr. (16.25), Maj. Samuel Brown (15.5), Capt. Don Beerbower (15.5), Capt. Richard Peterson (15.5), Lt. Col. Jack Bradley (15), Maj. Robert Foy (15), 1st Lt. Bruce Carr (14) ★ **other notables**—Tuskegee Airman Col. Benjamin O. Davis Jr., Capt. Robin Olds, Capt. Chuck Yeager.

Interesting Facts

Flown by 17 "Ace-in-a-Day" pilots ★ developed in just 117 days ★ was NAA's first true fighter design ★ saw action in all WWII combat zones ★ some nicknames: Fifty One; 'Stang; Peter-Dash-Flash ★ last USAF model (1957) on display at National Museum of USAF, Ohio ★ seen in many films, including "Fighter Squadron" (1948), "Battle Hymn" (1956), "Empire of the Sun" (1987), "Tuskegee Airmen" (1995), "Saving Private Ryan" (1998).

Mustangs such as this P-51 saw action in all theaters.





The driving force of Joint Force communications.

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