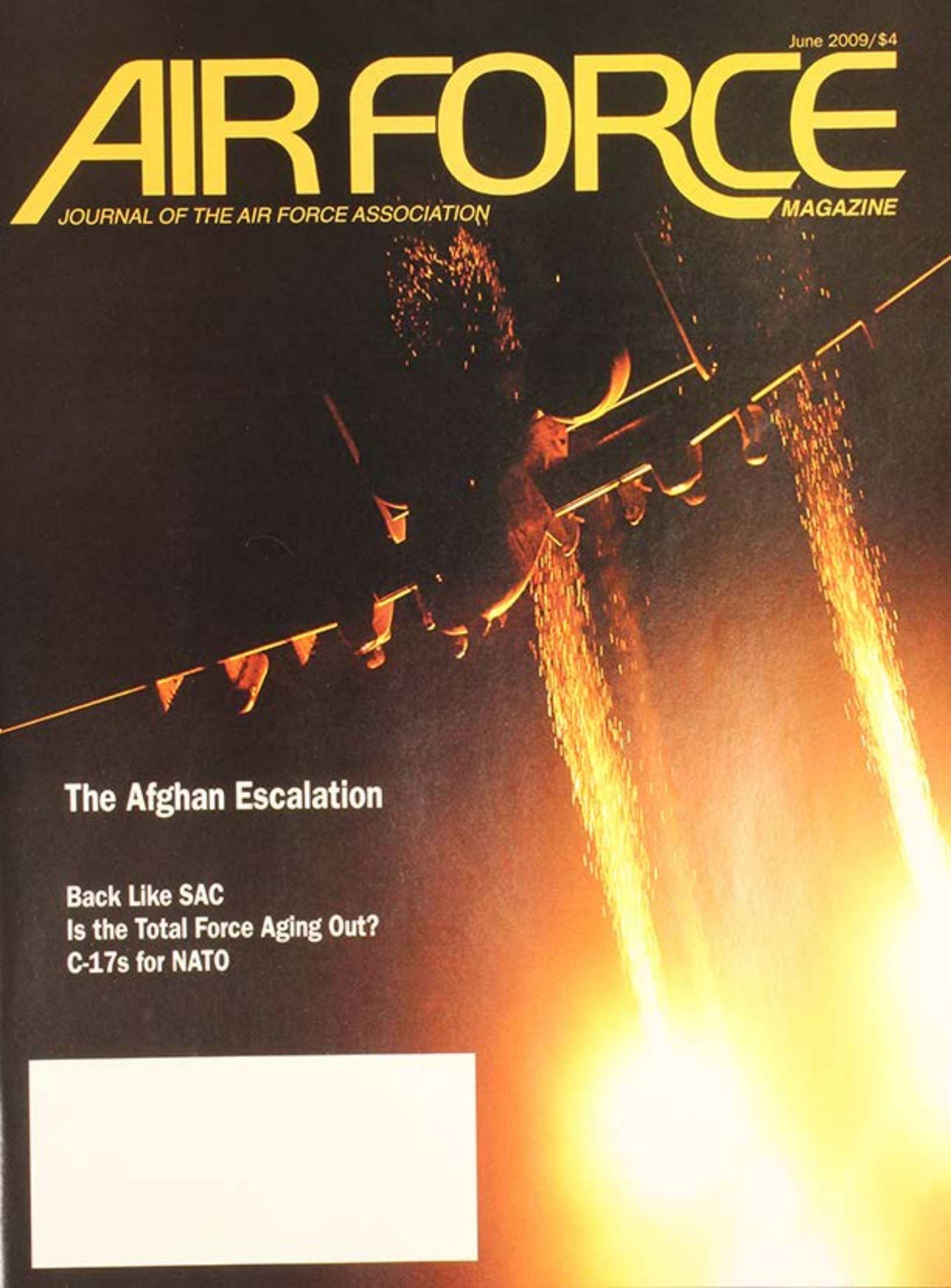


June 2009/\$4

# AIR FORCE

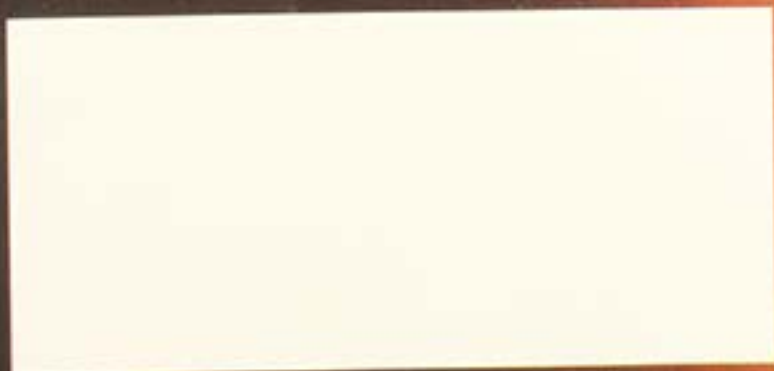
JOURNAL OF THE AIR FORCE ASSOCIATION

MAGAZINE



## The Afghan Escalation

**Back Like SAC**  
**Is the Total Force Aging Out?**  
**C-17s for NATO**





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MAGAZINE

June 2009, Vol. 92, No. 6



**About the cover:** A USAF A-10 deploys flares over Afghanistan. See "The Afghan Escalation," p. 28. USAF photo by SSgt. Aaron Allmon.

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## Defending the Deterrent

**S**IR Thomas Inskip, a stalwart in Britain's pre-World War II government, achieved a small place in history as a result of some unfortunate words he uttered on Aug. 3, 1939. He asserted, "War today is not only *not inevitable*, but is *unlikely*."

Within a month, Germany smashed into Poland, and the war was on.

Miscalculation on the Inskip scale may be memorable, but the basic problem isn't rare. Predicting future military matters always has been hazardous. Complexity and human unpredictability play big roles. As was true in the case of Sir Thomas, however, blindness to danger can have another cause: simple wishful thinking.

That point came forcefully to mind with the release, on May 6, of *America's Strategic Posture*, a new nuclear strategy study, the work of a commission headed by former Secretaries of Defense William J. Perry and James R. Schlesinger. If ever there was a welcome antidote to the current wave of wishful thinking about nuclear weapons, this 158-page paper is it.

To those seeking abolition of nukes, the commission had this to say: "The conditions that might make possible the global elimination of nuclear weapons are not present today." Further, it warned, the creation of such conditions "would require a fundamental transformation of the world political order."

America, the report went on, will for a very long time need a credible deterrent. That means keeping up the triad of Air Force ICBMs and manned bombers and the Navy's strategic submarines. This will cost money, said the commission, as will modernization of the stockpile and renovation of US nuclear laboratories.

It is hard to believe that such talk went down well with President Barack Obama, who, in a blazing April 5 speech in Prague, called on the US—"the only nuclear power to have used a nuclear weapon"—to lead the world toward full de-nuclearization.

The official White House text reads, "I state clearly and with conviction America's commitment to seek the peace and security of a world without nuclear weapons. I'm not naive. This goal will not be reached quickly—

perhaps not in my lifetime. It will take patience and persistence. But now we, too, must ignore the voices who tell us that the world cannot change. We have to insist, 'Yes, we can.' (Applause.)"

It's a shame the President didn't wait to hear from the panel, a bipartisan group of twelve strategic heavyweights, which was created by Congress in 2008. He might have benefited from some of its unpopular but realistic conclusions. Among them:

- The US must continue to safeguard its security by maintaining "an appropriately effective nuclear deterrent force."

### A heavyweight commission pours cold water on wishful thinking about nuclear arms.

- The US requires a stockpile of nuclear weapons that is safe, secure, reliable, and credible.

- The US could make further reductions in its stockpile, *if* this were done while also preserving the resilience and survivability of US strategic forces.

True, the panel agreed the US "should continue to lead international efforts" to prevent proliferation, reduce the level of nuclear stockpiles, secure residual nuclear weapons and fissile material, and more. Also true, Obama in Prague promised to keep "a safe, secure, and effective arsenal," both to "deter any adversary" and "guarantee that defense to our allies."

For all that, the contrast between the commissioners' cautiousness and Obama's rhetorical flourishes could not have been clearer.

Particularly noteworthy was the commission's view on "extended deterrence"—that is, extension of the US nuclear umbrella to the nation's allies.

The credibility of this security guarantee, in both Europe and Northeast Asia, has kept nuclear-capable nations from seeking their own arsenals. The panel warns that any weakening of the US deterrent could actually encourage proliferation. That is, more nations might go nuclear should they lose confidence in the true reliability of US nukes or Washington's willingness to

use them. This is the polar opposite of what Obama wishes.

The panel might have helped Obama with his Prague pledge to "begin the work of reducing our arsenal." The commission reports that the US arsenal at its 1967 peak contained 32,000 weapons but today has about 5,200 operational warheads. Only 2,000 are fitted on long-range launchers.

The commission report came along at a propitious time, given the range of challenges that confront the nuclear deterrent.

According to many reports, Obama wants to replace the current Strategic Arms Reduction Treaty (which expires this year) with a new regime imposing a ceiling of roughly 1,000 operational strategic nuclear warheads apiece on the US and Russia.

The Obama Administration also dropped plans for a new Next Generation Bomber. Secretary of Defense Robert M. Gates informed the Senate Armed Services Committee he would wait to see the outcome of forthcoming US-Russia arms talks. Only then, Gates warned, would he be able to know "whether we still need a triad."

Finally, the future of the so-called Reliable Replacement Warhead—the Pentagon's preferred solution to dangers posed by an aged stockpile—is in doubt. In fact, the Department of Energy reports that its technical work on the RRW "ceases" in 2010.

For the first time in history, the deterrent faces a serious threat to its long-term existence, and is in need of defending.

We hope that our President, though filled with a passionate desire to rid the world of the curse of nuclear weapons, comes to recognize the importance of realities expressed in this new report. Maybe there's something to be said for disarming ourselves, for demonstrating goodwill to the likes of Iran and North Korea, but we doubt it.

As the case of the hapless Thomas Inskip demonstrated, wishful thinking doesn't get you very far in a world of real enemies with real military power. A wise nation looks to its own deterrent, because it will conclude that it should do everything possible to deter wars and not have to fight them at all. ■

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## The Gates Budget

Defense Secretary Robert Gates recently fired the Air Force Chief of Staff and the Secretary of the Air Force for supposedly mismanaging nuclear weapons. But we all know they were fired for having "next-war-itis." We all know that planning by the Air Force has to take in all the "what-ifs." If that is next-war-itis, then so be it [*Editorial: The Air Force That Comes Next*, May, p. 2].

In today's newspaper, there is an article that says that Secretary Gates wants to cut the funding for the F-22 and other unnamed weapons systems. His reason given is the "smaller, lower-tech battlefields the military is facing now and expects in the coming years." Lower-tech? Where has Secretary Gates been lately? Certainly not studying the Iraq-Afghanistan battlefields. We have very high-tech battlefield airmen calling in air strikes by very high-tech aircraft—aircraft that have already served their useful lives in a short period of time—not to mention the high-tech armored vehicles, tanks, soldiers' and airmen's high-tech personal armament, etc. The various unmanned aircraft that are in high demand are as far away from low-tech as you can get!

What we need is a Defense Secretary and Joint Chiefs of Staff who still have next-war-itis, planning for all the "what-ifs" and the weapons systems necessary for it.

MSgt. Larry Merritt,  
USAF (Ret.)  
Corry, Pa.

## Crumbling Infrastructure, Too

This past week, it came to me that the Air Force has been pretty much transforming into what I call an "Antique" Air Force [*The Air Force Accepts More Risk*, April, p. 26]. Not only are the vast majority of the aircraft old, or becoming ancient, but the infrastructure is also becoming atrociously bad.

We have a building here at Robins AFB, [Ga.], building 125, that opened in 1942. The facility is a four-hangar building with three floors of office areas on the north and south sides of the building. In other words, it's huge.

The vast majority of the sprinkler systems are from 1954. [National Fire Protection Association Code]25, which

we're mandated to comply with, dictates that sprinkler heads must be changed out after 50 years, or a 10 percent sample base must be removed and tested every 10 years. That puts the sprinkler heads at 55 years old and getting older every day. Currently, there is no plan or funding to replace or test these sprinklers. My question is: How much are we willing to lose? The building is made of wood and houses four C-5s at any given time, along with countless engines and other parts.

This is a typical building for the Air Force. Most bases have been encountering these issues and don't have any answers.

The average age of the fire trucks is nearly 20 years old. The P-19 crash truck is a Vietnam-era vehicle and one of the primary pieces of equipment on any airfield. Office cubicle furniture is so old that electrical systems built in the furniture often short out and/or catch fire. Tens of thousands of employees complain of the heat and AC units in their buildings.

I'm beginning to call this an Antique Air Force because that's what we're driving and flying. By the way, we're starting to see firefighters younger than the trucks that they're driving.

Yes! Fixing these things will take enormous amounts of money. Get over it. These issues aren't going away, and they won't get better on their own. This is the price for our freedom. It is expensive—not to mention, can you think of a better "stimulus" plan than investing back into America? I'd rather see our tax dollars paying for our military's future than throwing it over in some

Do you have a comment about a current article in the magazine? Write to "Letters," *Air Force Magazine*, 1501 Lee Highway, Arlington, VA 22209-1198. (E-mail: letters@afa.org.) Letters should be concise and timely. We cannot acknowledge receipt of letters. We reserve the right to condense letters. Letters without name and city/base and state are not acceptable. Photographs cannot be used or returned.—THE EDITORS

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Third World country that hates our guts. Somalia comes to mind.

Joseph Carroll  
Warner Robins, Ga.

### Preparing for World War

Being a child of the 1940s, I found the April edition of your fine magazine full of fun-to-read stuff with regard to World War II. Most especially did I enjoy the full-color spread of the late 1930s-early '40s aircraft by Warren E. Thompson ["Preparing for World War," p. 40]. Since most of the magazines and books of the era were printed in black and white, the impact of color was lost in the presentations. When color photographs started to become more widely printed, there was a plethora of World War II photographs to choose from, so the colorful aircraft from the prewar era were largely ignored, which is why a color section like Mr. Thompson's is so appreciated by the likes of me.

I did see one photo that deserves a bit more explanation, however. On p. 47 is shown an aircraft reputed to be a Bell P-39 (photo No. 4) that grabbed my attention, due to its yellow wings and natural aluminum fuselage, indicative of the Navy. On p. 395 of Ray Wagner's *American Combat Planes* (1960 edition), you will find the same photograph (except it is black and white) and identified as the Bell XFL-1, an adaptation of the P-39 for the Navy and evaluated along with the Grumman XF5F-1 and the Vought XF4U-1 (guess which one won). The XFL-1 had a tail wheel rather than the tricycle gear of the P-39, a raised cockpit canopy, and a tail hook under the rear fuselage (which is visible in the photograph). With a top speed of 338 mph at 11,000 feet, it was in the same ballpark as the existing Grumman F4F-3 Wildcat. That fact, plus the Navy's bias against liquid-cooled engines for carrier work and the superior performance of the Corsair, automatically relegated the XFL-1 to the category of interesting might-have-beens.

Interesting add-on to the XF5F-1 Skyrocket's write-up is that it formed the genesis for the far-more-successful F7F-1 Tigercat, which I used to see flying around the circuit at El Toro MCAS and actually touched at the Orange County Fair one year. What a beautiful aircraft it was! I recently saw one make a touch-and-go at the Oxnard Airport earlier this year.

Since you gave coverage to the Boeing XB-15 (also known initially as the XBLR-1, for experimental bomber, long range), it would have been nice to have seen coverage of the Douglas XB-19 (XBLR-2), which I thought was a nicer looking aircraft. My father worked for Douglas during the war years, putting

together tail cones for the A-26 Invader, and brought a full-color print of the XB-19 home that I admired for years. Both were severely underpowered, but proved beneficial for testing large, long-range aircraft.

As icing on the cake, I was delighted to read the "Airpower Classics," which covered the Focke-Wulf Fw 190, an aircraft I thought was an absolutely ideal Luftwaffe fighter. If the Luftwaffe had concentrated production on the Fw190 rather than the Me/Bf 109, it would have been interesting. But that's another "what-if" of history.

Thanks so much for your efforts in putting together an outstanding magazine with a great balance of articles pertaining to the present state of the USAF and its illustrious past. Much of what I see currently coming to pass is a return to the funding and mentality of the Depression era of the '30s, and we all know where that left us in regard to preparedness and equipment quality when World War II rolled around! Dare we lose the value of the lessons history has taught us?

Robert Taylor  
Ventura, Calif.

As a retired Air Force command pilot and amateur naval aviation historian, I enjoyed looking at the photographs which Warren Thompson collected for his "Preparing for World War" article in the April issue. I learned of the Curtiss A-18 for the first time by seeing it in the article (the photograph appears to be printed backward, however, based on the apparent direction of rotation of both engines). I was pleasantly surprised to see so many Navy paint schemes and manufacturers included in the article.

The Grumman XF5F-1 (photo No. 1, p. 45) not only looked like a child's toy airplane, there were probably many toy airplanes built in its likeness as it was the inspiration for the superweapon flown by the Blackhawk Squadron in the "Blackhawk" comics during World War II. It is one of the Navy prototypes that actually made it into the Army, in highly modified form, as the XP-50, though it didn't fare any better there than it did in the Navy. It's hard to believe it came from the same company that designed what is, in my opinion, the most beautiful "round engine" fighter ever produced, the Grumman F7F Tigercat.

One item definitely in need of correction is photo No. 4, p. 47. The aircraft is not a P-39 Airacobra as identified, but rather the Navy Bell XFL-1 Airabonita, which was similar in appearance to the P-39, but very different in many technical aspects of the design.

Col. Richard L. Perry  
USAF (Ret.)  
Albuquerque, N.M.

### The Mission-Adaptive Air Force

As I read "The Mission-Adaptive Air Force" [April, p. 48], I am encouraged that the entire Air Force, under the leadership of General Schwartz, is structuring, training, and operating as a total fighting force. The Air Force is no longer a few pilots who were the warriors. We are back to the basics of being a military fighting force.

Col. Don Hengesh,  
USAF (Ret.)  
Petoskey, Mich.

### Doolittle's Raid

I have always been in awe of the heroism and airmanship displayed by Doolittle's Raiders, and John Correll's account [Doolittle's Raid, April, p. 56] was excellent. However, there is a factual error in his story.

In August 1971, the cadet wing was returning to the US Air Force Academy at the end of their summer programs for the start of the academic year. I was assigned to work in the cadet wing command post for that particular day. Shortly before noon, we were notified that the Doolittle Memorial Case, on display at the academy at the time, had been vandalized. The cadet officer-in-charge immediately dispatched me to secure the area.

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I spent the rest of the afternoon guarding the memorial, with its broken lock and missing bottle of brandy, lost in the shuffle of the day's activities. Thankfully, none of the goblets had been disturbed. I remained there until early evening, when a commissioned officer happened by. He queried me as to what I was doing and, after I explained, left. He returned about 15 minutes later with a security policeman in tow, and I was dismissed from my post.

This incident remains, to this day, the most shameful act of vandalism I have ever encountered. The perpetrator, and the stolen bottle of brandy, have never been found. General Doolittle was very respectful and circumspect when informed, stating his belief that someone other than a cadet must have done this.

Mr. Correll stated the bottle of brandy has been in the case since 1960. In reality, that original bottle was replaced after its theft.

Lt. Col. Stephen M. Strack,  
USAF (Ret.)  
Oxnard, Calif.

### LBJ's Sandbox

Regarding the picture of President Lyndon Johnson, center, and top aides [as they] ponder a map of Vietnam in 1968, p. 64, April 2009 issue [*"Paradox List"*]: It is not a map they are pondering but rather a model of the Khe Sanh area. It has been said that the impressions we gain of terrain where we live in the first 20 years of life are the most lasting. President Johnson came to appreciate a good aerial photo but, like many people who grew up in flat country, he had a tendency to envision landforms in Vietnam as being flatter than they actually were. This was especially true of the terrain encompassing Khe Sanh. Hundreds of photos and intelligence cables delineating communist activity in the area arrived in Washington each day. Locations were often expressed in hard-to-understand grid coordinates. The President was having difficulty grasping the situation around Khe Sanh, especially from high-altitude photos acquired by SR-71 missions.

Sensing the President's difficulty, Richard Helms, the deputy chief of intelligence, asked Arthur C. Lundahl, the director of the National Photographic Interpretation Center, if he could do anything to assist the President. Lundahl thought a terrain model centered on Khe Sanh might do the trick. Lundahl, in turn, asked me to have the model constructed using aerial photography and to make sure that all succeeding aerial photos produced and sent to the White House could be orientated to the model. The model was constructed in just three days and sent to Walt Rostow,

the President's special assistant for national affairs. He was briefed on the model and, in particular, in the use of a special grid that could be superimposed on it to pinpoint new activity and developing military situations reported by cable.

President Johnson is shown being briefed on the model by Rostow. The President was pleased with the model and the ease with which he could relate to communist activities in and about the Khe Sanh complex. The President always approached the model with the same intensity with which military planners use terrain models. Observing this continued interest and obvious attachment, Rostow dubbed the model "The President's Sandbox." Personnel in the White House situation room and the President's staff subsequently came to refer to it in that same way. Strikes were ordered from information received and reflected on the model. In the photo, you can see the hinges on the model case, the grid, and areas deemed of special interest.

Normally, after any military operation, when models were no longer necessary, they would be returned to the National Photographic Center for storage. The President, however, kept the Khe Sanh model, and I understand that it is now a part of the collection at the Lyndon B. Johnson Library in Austin, Tex.

Dino A. Brugioni  
Hartwood, Va.

### Minus One

I read with great interest the article about 1st Lt. Gary Foust's mission out of Malmstrom AFB, Mont. [*"Gary, You Better Get Back In It," April, p. 68*]. I was the weapons controller assigned to control that mission, call sign Huntress 36, in the SAGE building only a few blocks from the 71st FIS flight line. The flight checked in minus one F-106.

I was informed that that one aircraft aborted the mission. After a radar hand off from ATC, the flight of three proceeded to the training area north of Malmstrom, where I proceeded to set a one-on-three mission. Shortly after the lead called a "judy," I listened to Lieutenant Foust's wingman try to help him recover his aircraft from the flat spin. After he punched out, the flight lead confirmed a good chute, followed by a call that he was safely on the ground. I've visited the National Museum of the United States Air Force several times and always go by to visit 787 on display there.

Col. Bill Hall,  
USAF (Ret.)  
Fairfax, Va.

As a former SAGE intercept director (Bangor Air Defense Sector, 1965-67), I was fascinated by "Gary, You Better



Get Back In it!," telling the story of a pilotless F-106 landing in Montana in 1970. I am curious, however, about why the 71st FIS was doing ACM training. I controlled hundreds of intercepts by F-89, F-101, and F-106s out of Loring and Dow Air Force Bases, all of which involved fighter vs. bomber tactics. Dog fighting of the kind described in this article was not part of the training program. Of course, the internal gun had yet to be installed in the F-106, so the only weapons were the Genie and the Falcons, which were useless in a close-in encounter.

After reading this article, it makes one wonder how the datalink modified close control system we used to "fly" the F-106 from the SAGE blockhouse might have worked in bringing the aircraft down for a landing (at least in empty Montana)—and also to ask why it took us so long to develop the UAV concept used with such success today in Southwest Asia.

Maj. Mark M. Bonnot,  
USAF (Ret.)  
St. Louis

### The Matterhorn Missions

I feel a great compliment is due John Correll for his history of the initial activities of the XX Bomber Command and the real disasters in correcting the problems connected with those first combat missions from the CBI [*The Matterhorn Missions*, March, p. 62]. I was a crew member of the 58th Wing, 462nd Grp, 768th Squadron, which took our olive drab B-29 to the CBI from Kansas via Gander Lake, Marrakech, Cairo, Karachi, to Piardoba, India, with an advanced base in China at Kiunglai. Mr. Correll was able to tell the story very well with fuller details of what the mechanical problems of the B-29 were and how they were solved—better than the historians have done in the past and better than those from the wing itself. Due to the lack of details and information, the XXI Bomber Command has been ignored in the part it played through trial and error in making the B-29 such a great aircraft. I would just point out a few additional details.

Having formed the crews in October 1943, each crew went to one of the four B-29 bases in Kansas, with ours being at Victoria. There was one B-29 on the field. Each crew member of the original crews was flying as a specialist. Of course, the pilot and copilot were interchangeable; the bombardier was also a backup for the navigator and vice versa. The radio member was also a repair specialist, while the engineer was supposed to be an engine specialist, but this seldom happened. However, the gunners were all specialists, with the right gunner being a power plant (engine) specialist on the

Wright 3350 engine. The left gunner was an electrical specialist, the tail gunner was a sheet metal specialist and the central fire control/senior gunner was a specialist on the completely new type of remote gunnery system. With most of the crews' flight training being made in B-17 planes, the crews were not able to completely obtain the knowledge of the new B-29s before being rushed to go to the CBI. I think secrecy kept the XX Bomber Command unreported!

Another setback in training was production delays, which Mr. Correll points out, but in spite of the crews' familiarity with the plane, the "ground crews"—the mechanics primarily—never had much time to learn repair on an actual B-29, as they were shipped by ship on Feb. 16, 1944, just as production of the B-29 was picking up and rolling off the production line. As the result, the aircrews had to learn to maintain the planes on the trip to the CBI, when they left on Easter morning of April 9, 1944. The entire period of the 58th Wing being in the CBI, the enlisted crews worked daily on their aircraft to maintain their planes' engines and particularly when on missions in China. Again, the ground crews left early by ship to the Marianas island of Tinian, leaving the flight crews to maintain our planes until we got to Tinian. On April 29, 1945, we left the base in India, flying the Hump to Luliang, China, just south of Kunming, arriving at 1140 hours for lunch, then changed [to] a prop governor and took a short nap before leaving for Tinian at 1800 hours, arriving Tinian at 0730 hours on April 30, 1945. We were 16:50 flying hours out of Piardoba, India. From then on we had men to repair and maintain the plane, while we were able to increase the number of bombing missions and rest some between. Of our original crew of 11, only five of us finished our 35 missions and rotated home for furlough, and the war ended as we hit Seattle and were discharged.

W. Hanes Lancaster Jr.  
Johnson City, Tenn.

### More Tanker Talk

With regard to "Air Force World: Fast(er) Track for KC-X?" in the March 2009 issue [p. 12], and "Tanker Requirements Scrub" in "The John Young View" in the January issue [p. 52], thus far discussions I've seen on the new tanker issue have been on the competition specifications/requirements and on the cost-effectiveness of a single-source buy. However, I have not seen too much on the effect upon day-to-day operations and planning with a tanker force that includes KC-30s.

Both tanker competition candidates—the KC-30 and the KC-767—are outstanding aircraft that meet or surpass competition specifications for both cargo

hauling as well as refueling ability. However, the KC-30 is an outsize aircraft—"more," as the first bid team termed it—compared to its direct competition, the KC-767. This is even truer for the legacy tanker, the KC-135, which it would replace. The 30 is in a different class to the extent that, as Boeing noted, they would have offered a projected KC-777 if they'd known of the desire for a "more" tanker.

If KC-30s are procured, it appears this disproportionate difference in size will reveal its significance to airlift mobility planners as the new planes work their way onto mobility schedules. Mobility resource schedulers may find themselves gradually edging away from assigning KC-30s to remote deployed SEA locations because it would be counterintuitive to have all that capacity out on refueling tracks if cargo awaits airlift at various locations around the globe. They'd want those big-belly 30s where the airlift capability need is the greatest, and might find themselves, as time went on, arranging for the smaller plane—legacy 135s, most likely—to fly those remote tracks instead.

By the same token, AEF deployment planners will find themselves rounding up as many 30s as they can. As the competition specs anticipated, the 30's hauling capacity can potentially cut the mobility resources needed for such movements. Similarly, 30s would be terrific for tanker express work—might even revolutionize it once the realization hits that more than incidental cargo could be carried. In other words, it appears as though the 30s would make a great deployment resource. The smaller (legacy) plane would be (and is) a great deployed asset.

Such a split would work through at least the second projected buy, as legacy tankers are gradually replaced. However, the number of legacy tankers eventually will diminish to the point that the KC-30 force will pick up the deployed mission. As this publication often notes, however, the pace of global mobility operations has been and is forecast to be at surge levels for the foreseeable future. In such a case, scheduling conflicts may appear as the 30's value as a cargo hauler edges into its refueling mission.

The solution appears to be a mixed force that includes KC-30s and some tanker not in the "more" category. Besides the long-cited reason (avoidance of a fleetwide grounding), the mixed force might ease day-to-day mobility planning by enabling appropriate mobility asset assignment to the deployed and deployment missions. A 767 win or a split buy would obviate this factor, but if it doesn't, somehow keeping the Boeing line warm might pay off operationally in the future.

Steven Agoratus  
Hamilton, N.J.

# Washington Watch

By John A. Tirpak, Executive Editor

The Gates manifesto; Those 60 F-22s; Hamre on DOD decision-making ....

## “The President’s Budget”

It didn’t take long for the somber term “Black Monday” to spring into general usage. The words referred to Monday, April 6, the day Secretary of Defense Robert M. Gates drew himself up and announced his plans to terminate or postpone the bulk of USAF’s major modernization programs.

Gates’ decisions were taken within the context of deep reductions in the proposed Fiscal 2010 defense budget, which had not yet been finalized. He characterized the moves as his “recommendations” to President Obama, but the act of revealing such advice publicly and in advance was unprecedented.

Normally, DOD budget announcements are tightly held until they have the President’s imprimatur, which is why the resulting document is always called “the President’s Budget.”

Gates said the early move was to inform Congress of his thinking since the budget cycle was delayed under the new Administration. Ordinarily delivered to Congress by late January, this budget reached Capitol Hill May 7.

Gates acknowledged imposing strict rules on top service leaders during budget deliberations, requiring signed oaths that they would not disclose what was being discussed to underlings, Congress, the press, or each other. Gates claimed that the press conference announcing his decisions was intended to head off leaks and speculation before the budget was actually submitted to Congress.

Despite his characterization of the package as “recommendations,” the decisions were viewed as faits accomplis and were presumed to have Obama’s support.

The Air Force took the deepest cut. Gates terminated production of the F-22 fighter at 187 aircraft and production of the C-17 airlifter at 205 aircraft. He halted the CSAR-X combat search and rescue helicopter program (which was on the verge of a contract award). He closed down the Transformational Satellite Communications System program, postponed the start of the 2018 bomber (mandated in the 2006 Quadrennial Defense Review) and shifted the Airborne Laser from a preproduction effort to a research-only project.

Gates also announced the sudden retirement from the Air Force inventory of 250 fighters—more than three wings’ worth—in Fiscal Year 2010. It had been previously suggested that this drawdown would be phased in over five years.

With regard to the F-22 and C-17 program, Gates argued that his decision to end production was not a cut but “completing” those programs. He noted that the Pentagon capped F-22 production at 183 in 2004, and the additional four airplanes are attrition replacements. Although a new Mobility Capability Study has not yet been completed, Gates said that 205 C-17s will be “sufficient” given the mix of other strategic and tactical airlifters available.

Gates approved only two high-profile aircraft modernization programs: the F-35 fighter and the KC-X tanker. Although he asserted that he would sharply boost and ac-

celerate the F-35 to make up for the termination of the F-22, the newer program was already slated to see an uptick in production in Fiscal 2010. Gates pledged an accelerated F-35 test program.



USAF photo by S/A. Vernon Young

Not a “cut,” but a completion, at 187 Raptors.

He also promised that the KC-X tanker, which he ordered terminated last fall because of its protest-afflicted history, would get under way again this summer. He argued against splitting the buy between two manufacturers, and later said he would lay his body “across the tracks” to prevent such an arrangement, due to its cost.

As for the CSAR-X, Gates expressed a preference for a “joint” solution to the mission, arguing that he’s not sure there needs to be a dedicated rescue mission in a single service.

## Fuzzy Math on F-22s

Gates’ termination of the F-22 at 187 aircraft produced shock and dismay among the program’s supporters, both in academia and Congress. The way it was explained implied that there was a strong difference of opinion between the service and the defense chief.

In February, Air Force Chief of Staff Gen. Norton A. Schwartz stated publicly that a larger number was in the offing—he later acknowledged he had sought production of an additional 60 fighters. He further stated that the new force number—243 F-22s—was supported by months of deep analysis that would “stand up to scrutiny.”

On Black Monday, however, Gates blandly reported that the Air Force hadn’t asked for more than 187 aircraft, saying “the military advice that I got” was that 187 was enough. He also indicated that his stop-the-F-22 decision wasn’t a budget maneuver, and that he would have made the same choice even if there had been plenty of money available.

When asked about the Air Force’s analysis indicating 60 more F-22s were needed, Gates said that 187 had been “their advice as well.”

To answer the obvious discrepancy, Schwartz and Air Force Secretary Michael B. Donley penned an April 13 editorial for the *Washington Post*. They explained that the service had concluded that 243 F-22s would be a “moderate risk force” (381 would have been a low-risk force). However, they explained that since the analysis, the Pentagon was “revisiting the scenarios on which the Air Force based its assessment,” particularly the number of simultaneous major combat operations the US might need to fight. In the grand scheme of other budget priorities, Schwartz and Donley wrote, “we do not recommend that F-22s be included in the Fiscal 2010 defense budget. ... The time has come to move on.”

Gates undercut himself on the competitive threat the F-22 will have to counter, however, revealing that foreign versions of the fifth generation fighter will appear sooner than previously thought. In his budget cut announcements, he decried a military desire to “run up the score” in areas of military technology where the US is already dominant.

“Our conventional modernization goals should be tied to the actual and prospective capabilities of known future adversaries, not by what might be technologically feasible for a potential adversary given unlimited time and resources,” Gates said.

However, in a Pentagon press conference the next day, he asserted that “the intelligence that I’ve gotten indicates” that initial operational capability for a Russian fifth generation fighter “would be about 2016, and in China would be about 2020.”

Speaking to the National Aeronautic Association in April, Schwartz acknowledged that “243 is the military requirement” for the F-22. For all that, however, he said he had concluded that “more F-22s are unaffordable in the context of other things we must do.” Asked if 187 represents a “high risk” fleet—given that 381 was deemed low risk and 243 a moderate risk—Schwartz declined to comment further.

At an April 23 Center for Strategic and International Studies seminar on the actual need for F-22s, panelists concluded that Gates’ decision to halt the F-22 at 187 aircraft wasn’t backed up by any discernible analysis. Gen. Gregory S. Martin (Ret.), former head of Air Force Materiel Command and US Air Forces in Europe, said Gates’ number was “driven by a budget drill.” Adm. John B. Nathman (Ret.), former vice chief of naval operations, said that the lack of a “strategic model ... [was] one of the key gaps” in justifying Gates’ Raptor numbers, and the termination will serve to erode the nation’s aviation industrial base. Rebecca Grant, head of the Mitchell Institute for Airpower Studies, called the 187 figure “a made-up number” that had no basis in Air Force calculations.

Rep. Joe Sestak (D-Pa.), an F-22 critic, told the symposium that even he was dismayed that “the strategic template for ‘why’ was missing” from the April 6 budget announcements.

During an April 21 quarterly conference call with defense reporters, Lockheed Martin Chief Financial Officer Bruce L. Tanner said that the company would stop all lobbying to keep the F-22 line going, saying that Gates and the Air Force “are all completely aligned on this matter from top to bottom.”

At a Brookings Institution symposium on irregular warfare on April 24, Schwartz was asked if he thought there was “proper strategic underpinning” to Gates’ cuts. Schwartz replied that he thinks they “were thought through” at Gates’ level, and that “the truth of the matter is ... we have to contain the infinite appetite” for greater capability.

However, Schwartz said the Air Force won’t “sit still” and forgo arguing “our case or for what we think the joint team



Photo by Mark Finkenstaedt

**Hamre: Bandwagon is stifling the real issues.**

needs from its Air Force” in the upcoming Quadrennial Defense Review.

“We will argue ... strenuously; we will make the best possible case we can,” he said.

### **John Hamre Takes Exception**

Defense Secretary Robert M. Gates’ rash of big-ticket program terminations proved to be wildly popular among those who generally consider defense spending to be a waste of taxpayer dollars. Still, there are at least a few who worry about letting one man’s gut instinct take the place of reasoned strategy, analysis, and old-fashioned debate.

One who issues such a warning is John J. Hamre, president and CEO of the Center for Strategic and International Studies. Hamre is a former deputy secretary of defense with long and deep ties to the defense establishment in Congress. Hamre, who commands respect on both sides of the political aisle, cautioned that the media and the nation as a whole shouldn’t simply accept Gates’ pronouncements as the last word on major weapon systems. The debate should just be beginning, he insisted.

“I’m a huge admirer of Secretary Gates,” said Hamre at an April 23 CSIS seminar on tactical air issues. “I really do think he’s done a superb job.” However, Hamre said, “what’s emerging in Washington” is a media climate that cheers anyone in the Pentagon who suggests cutting defense.

“The media conclude, ‘Finally, somebody in DOD is being honest. ... Finally, they’re telling the truth.’”

However, Hamre said this bandwagon effect only serves to stifle the real issues of long-term security that have to be addressed. He expressed his worry that “anyone who questions [Gates] is somehow parochial and self-serving, [that] there isn’t a wider interest to be debated.”

He said the narrative is “evolving into a ‘virtuous Secretary of Defense who is now being confronted by venal politics.’”

Hamre—certainly near the top of the short list of Democratic figures who could have filled the Defense Secretary job had President Obama not made the bipartisan gesture of retaining Gates—said that Gates did right by trying to make “a rational set of choices about how we should move forward. It’s exactly what you want in your Secretary of Defense.”

Hamre said, “He’s thought his way through it, and now we, ... we Americans, we citizens, ... have to think our way through it.”

He noted that many of the decisions Gates has aired “are going to affect the shape of our capabilities for the next 25 years,” just as “we are ... the beneficiaries of decisions made about 20 years ago that reflect what we have today.” The Pentagon’s budget and plans, he noted, have “a very long-range time horizon. You have to think in long cycles in this business.” ■

## Afghan Buildup Sketched

The Air Force's presence inside Afghanistan will grow by more than 30 percent in coming months as the US military surges forces there, Chief of Staff Gen. Norton A. Schwartz said April 7 during a visit to Southwest Asia.

From a current force of 5,000 inside that country, the Air Force is "probably going to grow to about 6,600 or so," Schwartz told airmen of the 586th Air Expeditionary Group at an air base in the region. "It will be the full breadth of capabilities, from intelligence to defenders to combat support on installations to the aviation missions of all kinds and space, as well," he explained.

This buildup will occur as the manpower requirements in Iraq subside and US forces there draw down to 50,000 or below by the summer of 2010 as outlined by the Obama Administration. Schwartz said the Air Force will play a significant role in facilitating that drawdown.

## Airman Dies in Kabul

Airman First Class Jacob J. Ramsey, 20, of Hesperia, Calif., died April 10 of injuries sustained from a noncombat-related incident in Kabul, Afghanistan. As of mid-May, the circumstances surrounding his death were under investigation.

Ramsey had been deployed to Afghanistan from the 712th Air Support Operations Squadron at Ft. Hood, Tex.

## ICBMs First To Transfer

The Air Force's Minuteman III ICBM force likely will be the first of the service's nuclear legs to transfer to Air Force Global Strike Command later this year, followed by the B-2A and B-52H nuclear-capable bombers, Maj. Gen. C. Donald Alston, assistant chief of staff for strategic deterrence and nuclear integration, said April 24 during a National Defense University Foundation breakfast on Capitol Hill.

Global Strike Command, the Air Force's fledgling nuclear-centric major command, is expected to commence formal operations at the end of September at Barksdale AFB, La., but Alston said the ICBMs likely will not shift from Air Force Space Command's

operational control to AFGSC until "closer to the end of the year," while the bombers come over from Air Combat Command "soon after that."

He repeated the Air Force's message that the transfer of the ICBMs and bombers is a very deliberate process and will not be rushed to meet an arbitrary schedule. "We will transfer that responsibility when we are ready," he said.

## Space Command Divests

Air Force Space Command will lose about 3,000 slots as it divests itself of its ICBM mission and absorbs the growing cyber warfare role, taking on the new 24th Air Force, the service's new cyberspace central, AFSPC Commander Gen. C. Robert Kehler said March 31.

Speaking with reporters during a Space Foundation symposium in Colorado Springs, Colo., Kehler said AFSPC would shift some 10,000 ICBM slots over to Air Force Global Strike Command, which is assuming the ICBM mission later this year, but will pick up some 7,000 positions with acquisition of 24th Air Force.

Of the 7,000 cyber slots flowing into AFSPC, a portion will be Air National Guard and Air Force Reserve Command, as well as contract support personnel—many of whom are currently working in other areas, such as the Air Force Communications Agency, he said.

## F-35 To Haul Nukes?

The Department of Defense is working with allies to give the F-35 Lightning II stealth fighter the capacity to deliver nuclear weapons, Maj. Gen. C. Donald Alston, assistant chief of staff for strategic deterrence and nuclear integration, said April 22.

"We have a cooperative effort under way to move the F-35 into nuclear capability," Alston said at a National Institute for Public Policy conference in Arlington, Va. The F-35 has an operational requirement to be dual-capable—that is, the ability to deliver either conventional or nuclear weapons—but the nuclear capacity is not yet funded.

★ screenshot

USAF photo by Capt. Jody Ritchie



The Secretary of Defense Task Force on DOD Nuclear Weapons Management warned in December 2008 that DOD “must ensure that the dual-capable F-35 remains on schedule” to support the future US extended nuclear deterrent to NATO and other allies.

#### **DOD Launches QDR, NPR**

The Department of Defense announced April 23 that it had formally begun work on the next Quadrennial

Defense Review and Nuclear Posture Review.

The QDR, which is due to Congress in early 2010 will “address emerging challenges and explore ways to improve the balance of efforts and resources between trying to prevail in current conflicts and preparing for future contingencies,” according to DOD’s announcement.

The goal of the NPR, the last of which was done in 2002, is to set strategy and policy for the next five to 10 years and to

serve as “a basis for the negotiation of a follow-on agreement to the Strategic Arms Reduction Treaty,” said DOD. The Pentagon will conduct it in concert with the Departments of Energy and State and submit it to Congress along with the QDR.

#### **New Spy Sats Approved**

The Department of Defense and Intelligence Community intend to procure new imagery satellites and make greater



**05.06.2009**

*The wildfire season out West starts June 1, and US airmen are ready. Here, a C-130 hauling a huge sprayer—a Military Airborne Fire Fighting System—dumps water during training over Tucson International Airport, Ariz. The aircraft’s crew members—of the Reserve’s 302nd Airlift Wing, Peterson AFB, Colo.—and some 300 other Guardsmen and Reservists made the trip to Tucson. MAFFS units can drop water or a retardant called “slurry,” discharging 3,000 gallons in under five seconds. One run covers an area one-quarter of a mile long and 60 feet wide.*

USAF photo by SSGT. Joseph L. Swafford Jr.



## Global Strike Command Taking Shape

The Air Force announced April 2 that Barksdale AFB, La., is the preferred site for the permanent headquarters of Air Force Global Strike Command, the new nuclear-centric major command scheduled to commence operations at the end of September to oversee the service's nuclear-capable bomber and ICBM forces.

Two weeks later on April 16, President Obama nominated Air Force Lt. Gen. Frank G. Klotz to head the new command. Klotz, who has been assistant vice chief of staff since August 2007, has extensive experience with Minuteman ICBMs and nuclear matters.

Barksdale was selected over the other finalist locations that were announced in January: F. E. Warren AFB, Wyo., Malmstrom AFB, Mont., Minot AFB, N.D., Offutt AFB, Neb., and Whiteman AFB, Mo. The Louisiana base is already home to 8th Air Force, which oversees USAF's B-2A and B-52H nuclear-capable bombers, and the 2nd Bomb Wing, a B-52 unit.

"All six candidate locations received a thorough evaluation in accordance with our basing process," said Kathleen I. Ferguson, deputy assistant secretary of the Air Force for installations. The Air Force said the choice was primarily based on an installation's ability to provide significant nuclear mission synergy.

The choice was not without controversy as lawmakers in Nebraska claimed that Offutt had scored higher than Barksdale and the other finalist sites in the Air Force's evaluation. Accordingly, they pressed Secretary of Defense Robert M. Gates and President Obama to review the decision.

Per US law, the Air Force must still complete an assessment of the environmental impact of placing the new headquarters at Barksdale before making a final decision. That decision is expected this summer. Bolling AFB, D.C., has been hosting the provisional headquarters for Global Strike Command since January, under the command of Brig. Gen. James M. Kowalski.

**Hard, Dry, and Dusty:** An Air Force C-130P takes off from a dry lake bed during a search and rescue training exercise in Djibouti. The members are Reservists with the 81st Rescue Squadron, Patrick AFB, Fla. They practiced transporting parascuemen to a water jump, aerial refueling of a CH-53E helicopter, an assault landing on an unimproved runway, and transloading crash survivors.

use of services provided by commercial satellite imagery providers under a "2 plus 2" plan approved in April by the Obama Administration to modernize the nation's aging spy satellite architecture.

In a release April 7, Director of National Intelligence Dennis C. Blair said the joint initiative with DOD is "an integrated, sustainable approach" that would ensure that the nation "will not have imagery gaps" looking forward. "We are living with the consequences of past mistakes in acquisition strategy, and we cannot afford to do so again," he said.

The new imagery satellites would be "evolved from existing designs," Blair said. The new commercial elements of the architecture would likely be available in the next several years, while the overall architecture would be fully

## Gates Throws Open CSAR Mission

Secretary of Defense Robert M. Gates not only canceled the Air Force's Combat Search and Rescue Replacement Vehicle, dubbed CSAR-X, in April, he also questioned the merits of USAF's leading role in the combat search and rescue mission.

Citing a "troubled acquisition history," Gates announced his decision to terminate the CSAR-X program, which sought to field the successor to the elderly HH-60G Pave Hawk helicopter, during an April 6 Pentagon press conference on the Department of Defense's Fiscal 2010 budget proposal.

Before Gates' announcement, the Air Force was poised to award the CSAR-X contract, believing that it had resolved the issues that had derailed the original source selection in November 2006.

Instead, Gates said DOD would take another look at the requirements behind the program and develop a more "sustainable approach." But he went further, saying there is a "fundamental question" of whether the CSAR mission "can only be accomplished by yet another single-service solution, with a single-purpose aircraft."

The relook would determine whether there is a requirement for a "specialized" CSAR aircraft or whether it should be a "joint capability," he said.

In remarks April 15 at Air University, Maxwell AFB, Ala., Gates was more emphatic against CSAR-X. "Frankly, the notion of an unarmed helicopter going 250 miles by itself to rescue somebody did not seem to me to be a realistic [operational concept]," he said, adding, "What I want is a joint effort."

Meanwhile, Air Force Chief of Staff Gen. Norton A. Schwartz said April 16 that, although CSAR-X was axed, the need for new rescue capability did not go away.

"There is no doubt in my mind—none—about the need for a vertical-lift capability which can bring Americans and our friends home from denied space," he said during a National Aeronautic Association-sponsored event in Washington, D.C.

deployed "before the end of the next decade," he said.

### Senators Slam C-17 Cuts

Sen. Joseph I. Lieberman (I-Conn.), head of the Senate Armed Services Committee's airlift panel, said April 6 he disagrees with Secretary of Defense Robert M. Gates' decision to stop production of Air Force C-17 Globemaster III transports at 205 units.

"Every combatant commander I speak to tells me that we need more of these aircraft, and I will work to make sure they stay in production," Lieberman said in a release. Gates had earlier that day presented his major recommendations for the Department of Defense's Fiscal 2010 budget to the press, which included completing the

US military's production run of C-17s at 205 aircraft.

In a separate statement April 6, Sen. Christopher S. Bond (R-Mo.) also criticized the move, questioning the logic of rendering a decision before the results of the Pentagon's Mobility Capability Study are known around June. In fact, he called it "premature" and "an example of ready, fire, aim."

### Congress Gets War Bill

The Obama Administration submitted an \$83.4 billion supplemental spending package for Fiscal 2009 to Congress on April 9 that includes \$75.5 billion to sustain the US military's operations in Afghanistan and Iraq. The White House said this is "the last planned war supplemental."

The bill includes \$6.3 billion for Air Force operations and maintenance, \$1.4 billion for personnel costs, and \$281 million for military construction, principally in Afghanistan. The request also allots \$2.4 billion for USAF aircraft procurement, including \$600 million to buy four F-22s, \$196 million for 10 MQ-9 Reaper unmanned aerial vehicles, \$45 million for six manned C-12 aircraft as well as various UAV upgrades, targeting pods, and multiple manned aircraft enhancements.

Among the additional USAF funding lines are \$1.8 billion for equipment such as ground vehicles and \$57.4 million for Hellfire missiles for MQ-1 Predators UAVs.

### Second WGS On Orbit

The Air Force successfully launched the second of its Wideband Global SATCOM military communication satellites into orbit on April 3 from Cape Canaveral AFS, Fla., aboard an Atlas V rocket.

Boeing, the satellite's manufacturer, subsequently announced April 6 that it had acquired the first on-orbit signals from the spacecraft, which is designated WGS-2, indicating that "the spacecraft is healthy and ready to begin orbital maneuvers and operational testing." Following a series of orbital maneuvers and on-orbit testing, WGS-2 was expected to begin operations, joining WGS-1, which was placed in space in October 2007 and entered service in April 2008.

Boeing is under contract to build a total of six WGS satellites to augment and eventually replace Defense Satellite Communications System satellites. They will provide a giant leap in communications bandwidth throughput.

### USAFE Gets First C-130J

US Air Forces in Europe on April 7 celebrated the arrival of its first C-130J Super Hercules transport. The aircraft is the first of 14 that will be delivered to Ramstein AB, Germany, by 2010. They will be part of Ramstein's 86th Airlift Wing, replacing the aged C-130Es that the wing's 37th Airlift Squadron has been operating.

"USAFE truly does bring a lot to the fight, in particular the vital airlift capability we provide in the Global War on Terror and vital humanitarian operations the world over," Gen. Roger A. Brady, USAFE commander, said during the welcoming ceremony. He added, "The C-130J will give us an even greater capacity to perform all those missions."

Ramstein is scheduled to receive 10 C-130Js this year and the remaining four next year, according to C-130J manufacturer Lockheed Martin.

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## Proposed Split Tanker Buy Stirs Argument

Splitting the work to supply new aerial tankers between Boeing and Northrop Grumman would likely increase the Air Force's developmental costs by "somewhere around \$7 billion to \$14 billion" in just over the next five years, Secretary of Defense Robert M. Gates told reporters April 14 at Ft. Rucker, Ala., during a tour of the Army aviation center and each service's war college.

Gates has steadfastly opposed a split buy, telling an audience on the following day at Air University, Maxwell AFB, Ala., that he was laying his body "down across the tracks" in opposition to that approach. While at Rucker, he said his foreboding cost estimates should provide fuel to support a "clean competition" starting anew later this year to choose a winner from among the two aerospace giants.

Despite Gates' pronouncements, support for the split buy remains and may even be increasing as a means to get beyond the logjam that has held up the tanker recapitalization. Rep. Neil Abercrombie (D-Hawaii), chairman of the House Armed Services air and land forces panel, for example, said April 19 he remained open to the split buy and did not understand how Gates arrived at his figures since the Boeing and Northrop Grumman tankers would be "two commercial airliners essentially."

Rep. John Murtha (D-Pa.), chair of the House Appropriations Committee's defense panel, also continues to support the split approach. Further, Sen. Daniel K. Inouye (D-Hawaii), chairman of the Appropriations Committee, expressed a willingness to consider a split buy to speed acquisition of new tankers since there is such dire need for them, CongressDaily reported April 22.

Press reports also surfaced in April that representatives from Boeing and EADS, parent of European aircraft maker Airbus that is teamed with Northrop Grumman, would accept a split. Lawmakers from Alabama, the state in which the Northrop Grumman-EADS team would assemble its tankers, said they would also support a split program.

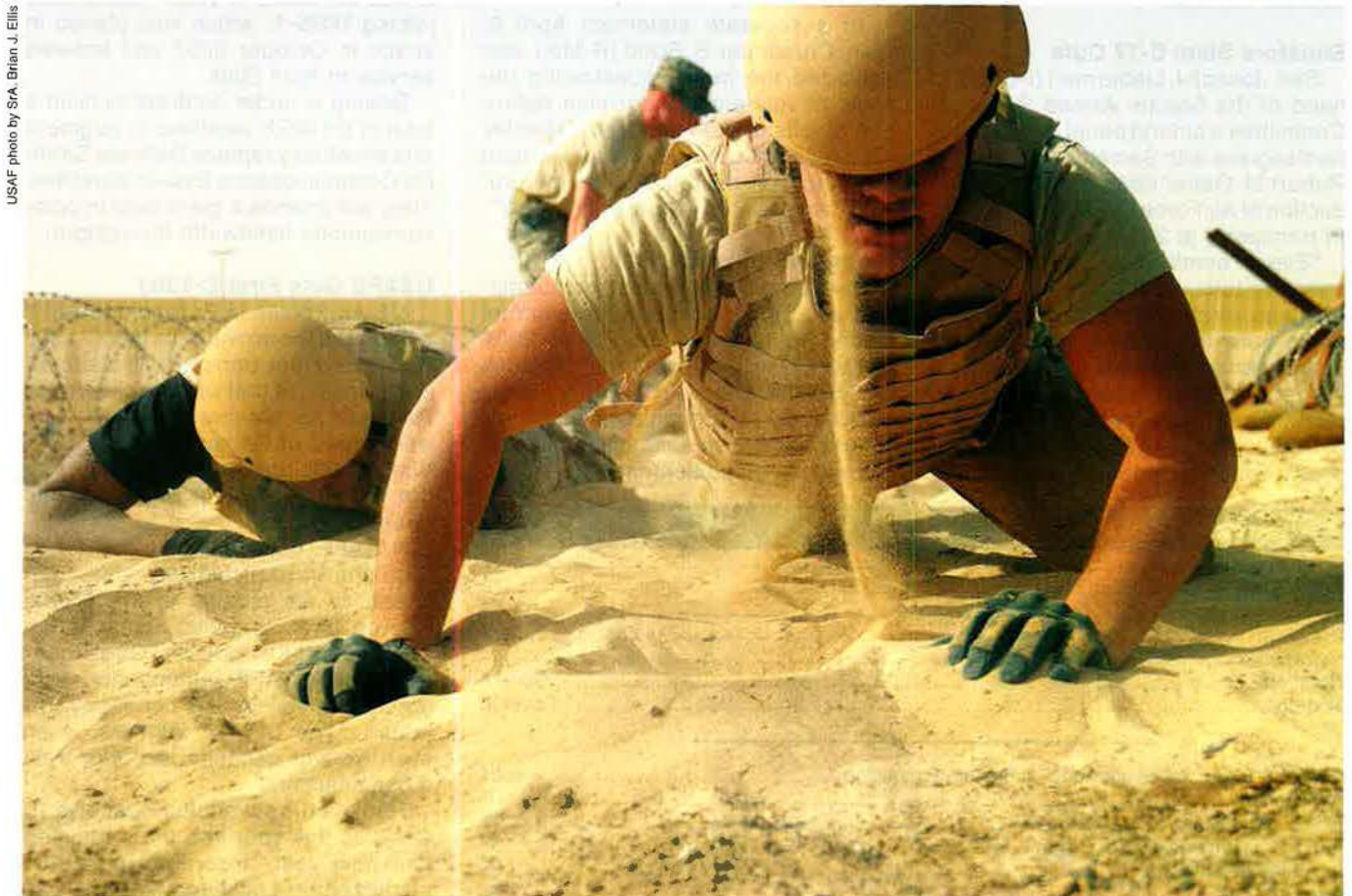
## Avenger UAV Revealed

After several years of secrecy, General Atomics Aeronautical Systems, Inc., in April unveiled its semi-stealthy, jet-powered Predator C unmanned aerial vehicle, which it dubs Avenger. The company said the multirole UAV flew for the first time April 4 at the company's flight operations facility in Palmdale, Calif. A test program is now ongoing.

Avenger, which was built with company funds, is the latest offering in the company's Predator UAV family that includes the Air Force's MQ-1 Predator and the MQ-9 Reaper (Predator B). It is designed to be more survivable in higher threat environments and provide a quick response armed reconnaissance capability.

The Pratt & Whitney PW545B engine gives it the ability to fly at more than 460 mph and operate at up to 60,000 feet. Supporters on Capitol Hill are lobbying for the Department of De-

**Dry Mouth:** Sand pours from the helmet of A1C Bryan Rozier as he rises from a 25-foot belly crawl through a sand pit. Rozier on April 25 was participating in Defender Challenge, a competition held in Southwest Asia. Teams from many units competed in the challenge, which tested stamina, strength, and reaction skills.



USAF photo by SrA. Brian J. Ellis



### Operation Iraqi Freedom—Iraq

#### Casualties

By May 11, a total of 4,287 Americans had died in Operation Iraqi Freedom. The total includes 4,276 troops and 11 Department of Defense civilians. Of these deaths, 3,440 were killed in action with the enemy while 847 died in noncombat incidents.

There have been 31,245 troops wounded in action during Operation Iraqi Freedom. This number includes 17,494 who were wounded and returned to duty within 72 hours and 13,751 who were unable to return to duty quickly.

#### Airmen Train Iraqis in Air-to-Ground Operations

Airmen assigned to the 521st Air Expeditionary Advisory Squadron at Kirkuk Regional Air Base in April began training their Iraqi Air Force counterparts in the employment of precision air-to-ground weapons on IqAF Cessna Caravan aircraft, which are now dubbed AC-208s with the addition of Hellfire surface attack missiles.

The introduction of precision air-to-ground kinetic operations is a "major milestone" for the development of the Iraqi air arm, said Brig. Gen. Robert C. Kane, commander of the Coalition Air Force Transition Team. CAFTT and the 521st AEAS are charged with training and advising the IqAF.

Iraqi Air Force Squadron 3 already flies intelligence-surveillance-reconnaissance missions in their Caravans and will be the first fixed-wing asset in the reconstituted IqAF to have an air-to-ground attack capability.

The training for the squadron's first two aircrews, comprising a pilot and sensor operator, is part of an effort to fully integrate the Iraqi air arm into combat operations, which includes counterinsurgency operations and air support for Iraqi Army troops.

### Operation Enduring Freedom—Afghanistan

#### Casualties

By May 11, a total of 678 Americans had died in Operation Enduring Freedom. The total includes 677 troops and one Department of Defense civilian. Of these deaths, 454 were killed in action with the enemy while 224 died in noncombat incidents.

There have been 2,820 troops wounded in action during OEF. This number includes 996 who were wounded and returned to duty within 72 hours and 1,824 who were unable to return to duty quickly.

#### F-16s Destroy Anti-aircraft Weapons in Helmand Province

Air Force A-10s and F-15E Strike Eagles participated in two strikes in late April that destroyed two enemy anti-aircraft weapons discovered in Helmand Province as coalition troops uncovered several insurgent groups with mounted heavy weapons.

On April 20, a pair of A-10s engaged an enemy truck armed with an anti-aircraft heavy weapon in the Lashkar Gah area of Helmand. The A-10s used their 30 mm guns to attack the truck on a strafing run, which coalition troops later reported was successful.

On the following day, F-15Es attacked an enemy truck carrying another mounted anti-aircraft gun outside Lashkar Gah, first disabling the truck in a strafing run, which prevented enemy fighters from driving it into a civilian area. The Strike Eagles then destroyed the weapon using 500-pound GBU-38 bombs.

The strikes came several days after US forces in Afghanistan warned that new intelligence indicated Taliban elements had obtained heavy anti-aircraft weaponry that could place some aircraft and helicopters in jeopardy.

Villagers in and around Lashkar Gah reported that insurgents had obtained a ZPU-1 heavy anti-aircraft machine gun and had mounted it on a truck. Other reports indicated that ZPU-2s were also being equipped on trucks.

ZPU-1s and -2s are one- and two-barrel heavy machine guns often used to attack helicopters and other vulnerable low-flying aircraft.

fense to sponsor further Predator C development.

#### SBSS Satellite Complete

Manufacture and test of the Space Based Space Surveillance pathfinder satellite has been completed on budget and on schedule, Gary E. Payton, the Air Force's deputy undersecretary for space programs, said April 2. Launch of the satellite is expected around July.

"This is an acquisition success in space," Payton told reporters during a Space Foundation symposium in Colorado Springs, Colo. He said the satellite was ready for shipment to its launch site and project engineers were working to resolve a few "potential technical issues" associated with the SBSS launch vehicle, an Orbital Sciences Minotaur rocket, after an anomaly with similar booster in February doomed the successful placement in orbit of NASA's Orbiting Carbon Observatory satellite.

SBSS will monitor objects in geosynchronous orbit from its own position in low Earth orbit. Boeing leads the industry team, which includes Ball Aerospace, that is supplying the spacecraft.

#### ANG C-5 Wing Gains IOC

The West Virginia Air National Guard's 167th Airlift Wing was formally dedicated as a fully operational C-5 Galaxy strategic transport unit April 4 at a ceremony in Martinsburg.

"It has been a challenging and exciting 10-year journey to reach this day," said Sen. Robert C. Byrd (D-W.Va.), who took part in the ceremony. He harkened back to the unit's early days, flying P-51 Mustangs, switching in the early 1970s to an airlift role with the C-130 Hercules tactical transport, and surviving Pentagon plans to shutter the unit entirely.

The years of work, along with more than \$220 million worth of military construction, "has transformed the 167th Airlift Wing into the nation's premier C-5 facility," said Col. Roger L. Nye, wing commander, *The Herald Mail* of Hagerstown, Md., reported April 4. The wing actually flew its first C-5 mission in March 2007.

#### Holloman UAV Class Graduates

The first 11 unmanned aerial vehicle system crews trained at Holloman AFB, N.M., graduated April 10 after 10 weeks of instruction. These airmen—11 pilots and 11 sensor operators—are now full-fledged MQ-9 Reaper operators and were expected to support combat operations in Afghanistan starting in May.

Air Combat Command announced last year that it wanted to begin MQ-1 Predator and MQ-9 operator training at Holloman to augment and eventually replace the formal training unit at Creech AFB, Nev. Due to the urgency

## Senior Staff Changes

**RETIREMENTS:** Brig. Gen. Joseph M. Reheiser.

**PROMOTIONS:** To Major General: Thomas K. Andersen, Blair E. Hansen, Mary K. Hertog, Jan-Marc Jouas, James M. Kowalski, Joseph Reynes Jr.

**NOMINATIONS:** To be Lieutenant General: Robert R. Allardice, Thomas J. Owen, Marc E. Rogers, Larry O. Spencer. To be Major General: Salvatore A. Angelella, Gregory A. Biscone, Andrew E. Busch, Timothy A. Byers, Susan Y. Desjardins, Judith A. Fedder, Eric E. Fiel, Craig A. Franklin, David L. Goldfein, Susan J. Helms, John W. Hesterman III, Darrell D. Jones, Robert C. Kane, Stanley T. Kresge, Susan K. Mashiko, Michael R. Moeller, Clyde D. Moore II, Douglas H. Owens, James O. Poss, Mark F. Ramsay, Robin Rand, Suzann M. Vautrinot, Lawrence L. Wells, Janet C. Wolfenbarger. To be Brigadier General: Michael W. Miller.

**CHANGES:** Lt. Gen. (sel.) Robert R. Allardice, from Dir., Strategy, Plans & Policy, CENTCOM, MacDill AFB, Fla., to Cmdr., 18th AF, AMC, Scott AFB, Ill. ... Maj. Gen. Thomas K. Andersen, from Dir., Plans & Prgms., ACC, Langley AFB, Va., to Dir., Rqmts., ACC, Langley AFB, Va. ... Brig. Gen. Mark A. Atkinson, from Cmdr., 402nd Maintenance Wg., Warner Robins ALC, AFMC, Robins AFB, Ga., to Dir., Log., Instl., & Mission Spt., USAF, Ramstein AB, Germany ... Maj. Gen. Michael J. Basla, from Vice Dir., C4 Systems, Jt. Staff, Pentagon, to Vice Cmdr., AFSPC, Peterson AFB, Colo. ... Brig. Gen. Brian T. Bishop, from Cmdr., 332nd Air Expeditionary Wg., ACC, Jt. Base Balad, Iraq, to Dep. Dir., Politico-Mil. Affairs (Western Hemisphere), Jt. Staff, Pentagon ... Brig. Gen. Michael R. Boera, from Dep. Dir., Ops., PACOM, Camp H. M. Smith, Hawaii, to Dep. Commanding General, Combined Airpower Transition Force, Combined Security Transition Command-Afghanistan, Kabul, Afghanistan ... Brig. Gen. Christopher C. Bogdan, from Sr. Mil. Asst. to the Undersecretary of Defense for Acq., Tech., & Log., OSD, Pentagon, to Dir., KC-X Prgm., ASC, AFMC, Wright-Patterson AFB, Ohio ... Maj. Gen. (sel.) Andrew E. Busch, from Cmdr., Defense Supply Ctr., Richmond, Defense Log. Agency, Richmond, Va., to Cmdr., Ogden ALC, AFMC, Hill AFB, Utah ... Maj. Gen. (sel.) Timothy A. Byers, from Dir., Instl., & Mission Spt., ACC, Langley AFB, Va., to Civil Engineer, DCS, Log., Instl., & Mission Spt., USAF, Pentagon ... Maj. Gen. Floyd L. Carpenter, from Vice Cmdr., 8th AF, ACC, Barksdale AFB, La., to Cmdr., 8th AF, ACC, Barksdale AFB, La. ... Maj. Gen. William A. Chambers, from Dir., Air & Space Ops., USAF, Ramstein AB, Germany, to Vice Cmdr., USAF, Ramstein AB, Germany ... Maj. Gen. Kathleen D. Close, from Cmdr., Ogden ALC, AFMC, Hill AFB, Utah, to Dir., Log. & Sustainment, AFMC, Wright-Patterson AFB, Ohio ... Brig. Gen. David A. Cotton, from Dir., C<sup>3</sup>, & Warfighting Integration, EUCOM, Stuttgart-Vaihingen, Germany, to Dir., Cyberspace, Transformation, & Strategy, Office of Warfighting Integration & Chief Info. Officer, OSAF, Pentagon ... Maj. Gen. (sel.) Susan Y. Desjardins, from Dep. Dir., Strat. Plans, Rqmts., & Prgms., AMC, Scott AFB, Ill., to Dir., Strat. Plans, Rqmts., & Prgms., AMC, Scott AFB, Ill. ... Brig. Gen. Daniel R. Eagle, from Dep. Cmdr., Combined Air Ops. Ctr. 6, Allied Air Forces Southern Europe, NATO, Eskisehir, Turkey, to US Defense Attaché, Russia, EUCOM, DIA, Moscow ... Maj. Gen. Jack B. Egginton, from Vice Cmdr., 3rd AF, USAF, RAF Mildenhall, UK, to Dir., Air & Space Ops., USAF, Ramstein AB, Germany ... Brig. Gen. Terrence A. Feehan, from Vice Cmdr., ESC, AFMC, Hanscom AFB, Mass., to Dep. Prgm. Mgr., Ballistic Missile Defense System, MDA, Huntsville, Ala. ... Maj. Gen. Alfred K. Flowers, from Cmdr., 2nd AF, AETC, Keesler AFB, Miss., to Dep. Asst. Secy. for Budget, Office of the Asst. SECDEF for Financial Mgmt. & Comptroller, Pentagon ... Brig. Gen. Craig A. Franklin, from Cmdr., 31st FW, USAF, Aviano AB, Italy, to Cmdr., 332nd Air Expeditionary Wg., ACC, Jt. Base Balad, Iraq ... Brig. Gen. Walter D. Givhan, from Dep. Commanding General, Combined Airpower Transition Force, Combined Security Transition Command-Afghanistan, Kabul, Afghanistan, to Commandant, AFIT, AETC, Wright-Patterson AFB, Ohio ... Maj. Gen. Mary K. Hertog, from Dir., Security Forces, DCS, Log., Instl., & Mission Spt., USAF, Pentagon, to Principal Dir. to Dep. Asst. SECDEF for Middle East Policy, Office of the Undersecretary of Defense for Policy, Pentagon ... Brig. Gen. James M. Holmes, from Spec. Asst. to the Asst. Vice C/S, USAF, Pentagon, to Principal Dir. to Dep. Asst. SECDEF for Middle East Policy, Office of the Undersecretary of Defense for Policy, Pentagon ... Brig. Gen. Dave C. Howe, from Dir., Log., Instl., & Mission Spt., USAF, Ramstein AB, Germany, to Dir., Instl. & Mission Support, ACC, Langley AFB, Va. ... Lt. Gen. Frank G. Klotz, from Asst. Vice C/S, USAF, Pentagon, to Cmdr., Global Strike Command ... Maj. Gen. Mark T. Matthews, from Dir., Rqmts., ACC, Langley AFB, Va., to DCS, Strat. Plans & Assessment, Multinational Force-Iraq, CENTCOM, Baghdad, Iraq ... Lt. Gen. (sel.) Thomas J. Owen, from Dir., Log. & Sustainment, AFMC, Wright-Patterson AFB, Ohio, to Cmdr., ASC, AFMC, Wright-Patterson AFB, Ohio ... Maj. Gen. (sel.) Robin Rand, from Principal Dir. to Dep. Asst. SECDEF for Middle East Policy, Office of the Undersecretary of Defense for Policy, Pentagon, to Dir., LL, OSAF, Pentagon ... Brig. Gen. Anthony J. Rock, from Dep. Dir., Ops., NORTHCOM, Peterson AFB, Colo., to Commandant, Air Command & Staff College, AETC, Maxwell AFB, Ala. ... Lt. Gen. (sel.) Marc E. Rogers, from Vice Cmdr., USAF, Ramstein AB, Germany, to IG, OSAF, Pentagon ... Brig. Gen. Charles K. Shugg, from Cmdr., Jt. Unmanned Aircraft Systems Ctr. of Excellence, JFCOM, Creech AFB, Nev., to Vice Cmdr., AF Cyber Command (Provisional), Barksdale AFB, La. ... Lt. Gen. (sel.) Larry O. Spencer, from Dep. Asst. Secy. for Budget, Office of the Asst. SECDEF for Financial Mgmt. & Comptroller, Pentagon, to Dir., Force Structure, Resources, & Assessment, Jt. Staff, Pentagon ... Brig. Gen. William W.

of training new UAV operators to support operations in Southwest Asia, ACC commenced training at Holloman before completion of the environmental assessment of adding the new mission at the New Mexico base.

The Air Force in March released the environmental impact analysis, finding no significant impediment to using Holloman in this role.

## Reserve Recruiting Broadens

Lt. Gen. Charles E. Stenner Jr., Air Force Reserve chief and commander of Air Force Reserve Command, said in early April he is making a push to attract new members to the Reserve who have no prior Air Force experience, as part of his efforts to keep recruiting numbers strong for his component.

"We're seeing fewer and fewer prior service [Reservists]," said Stenner during a tour of air bases in Southwest Asia. Accordingly, he said, "We're looking very hard at recruiting non-prior-service folks who want to participate."

Air Force Reserve Command also remains focused on enticing airmen who are leaving the active duty component to join the Reserve organization. "These highly trained and highly skilled individuals can continue to participate as their lives evolve," he said. AFRC recruiting has remained strong, consistent with trends for the Air Force and US military overall.

## Developers Eye Beale Site

The Air Force announced April 8 that it was poised to begin negotiations with representatives of a commercial land developer for the use of 334 acres of undeveloped prairie land on Beale AFB, Calif.

Kathleen I. Ferguson, deputy assistant secretary of the Air Force for installations, chose Beale Community Partners, LLC, on March 31 from among the bidders responding to a May 2008 solicitation, after its proposal was ranked as most promising.

The Air Force Real Property Agency is pursuing this initiative under the Department of Defense's Enhanced Use Lease initiative, which makes underutilized land on military bases available to private developers for commercial uses. Possible uses of the Beale land include light industrial facilities, a wastewater treatment plant, and a rail accessible development.

## C-17 Pushed for Stewart

New York lawmakers Rep. John J. Hall (D) and Rep. Maurice D. Hinchey (D) sent a letter to Chief of Staff Gen. Norton A. Schwartz March 31 asking for an update

## Senior Staff Changes (cont.)

**Uhle Jr.**, from Dep. Dir., Strat. Planning & Policy, PACOM, Camp H. M. Smith, Hawaii, to Dep. Dir., Ops., PACOM, Camp H. M. Smith, Hawaii ... **Brig. Gen. Brett T. Williams**, from Cmdr., 18th Wg., PACAF, Kadena AB, Japan, to Dir., C4 Systems, PACOM, Camp H. M. Smith, Hawaii ... **Brig. Gen. Robert Yates**, from Dep. US Mil. Rep. to NATO Mil. Committee, Brussels, Belgium, to Dir., Ops., Plans, Logistics, & Engineering, JFCOM, Norfolk, Va. ... **Maj. Gen. Mark R. Zamzow**, from Spec. Asst. to the Cmdr., 3rd AF, USAFE, RAF Mildenhall, UK, to Vice Cmdr., 3rd AF, USAFE, RAF Mildenhall, UK.

**SENIOR EXECUTIVE SERVICE RETIREMENTS:** **Craig W. Duehring**, **Donald W. Hanson**, **Richard E. Knoll**, **Robert L. Sierakowski**, **Virginia L. Williamson**.

**SES CHANGES:** **Nancy K. Andrews**, to Dir., Contracting, ESC, AFMC, Hanscom AFB, Mass. ... **Martin M. Mazick**, to Vice Cmdr., AFRC, Robins AFB, Ga. ... **James N. Stewart**, to Dir., P&P, AFRC, Robins, AFB, Ga. ... **Marilyn M. Thomas**, to Dep. for Budget, Office of the Asst. SECAF, Comptroller & Financial Mgmt., Pentagon ... **Patricia M. Young**, to Asst. DCS, Log., Instl., & Mission Spt., USAF, Pentagon ... **Patricia J. Zarodkiewicz**, to Dep. Dir. of Staff, USAF, Pentagon. ■

on the status of the C-17 Globemaster III airlifters promised for the New York Air National Guard's 105th Airlift Wing at Stewart ANG Base.

They said they were concerned after learning that the Air Force no longer plans to use the additional 15 C-17s funded in Fiscal 2008 supplemental appropriations to "cascade" C-17s to the wing in 2010. Instead, they wrote, these airlifters "will be used as backup aircraft inventory" for the active force until USAF completes the Mobility Capability Study this fall.

The move will delay force stationing decisions "until at least 2010" and "will jeopardize the future of the wing," which flies some of the oldest C-5A Galaxy airlifters in the inventory, they wrote.

### Laser Maverick Deal Struck

Raytheon announced a contract on April 2 to supply the Air Force with a new variant of the laser guided AGM-65 Maverick air-to-ground missile called the AGM 65E2 Laser Maverick. This new version will feature state-of-the-art laser seeker technology and an upgraded control section that will enable close air support platforms to use it to attack high-speed moving targets precisely in urban settings.

Under the deal, Raytheon will provide upgraded components for up to 450 AGM-65E2s, with first deliveries of the new components expected in 20 to 24 months.

US Central Command identified an urgent operational need in 2007 for the

means to counter fleeting targets in urban environments with minimal chances of collateral effects. The Air Force identified the new Laser Maverick to address the need, as well as the Laser Joint Direct Attack Munition, which has already been used in combat.

### P&W Advances F100 Engine

Pratt & Whitney announced March 26 that it has begun production on the first F100-PW-229 engine enhancement package, the latest evolution in the F100 series that powers F-15 and F-16 fighters.

Warren Boley, vice president of P&W military programs and customer support, called EEP another example of the company's "pioneering work in fighter engine technology," adding that it offers "superior performance" and "reduces maintenance and life cycle costs at a time when value and efficiency are top priorities on the nation's agenda."

P&W plans to begin delivery of the new configuration in October and upgrade kits for existing 229 engines by the end of 2010. USAF and several other operators of the F100-PW-229 engine "have expressed interest in having upgrade kits to modify their existing engines," said Boley.

### Airmen Receive Bronze Star Medals

TSgt. Gregory R. Pauli, an explosive ordnance disposal technician with the Massachusetts Air National Guard's 104th Fighter Wing, Barnes Airport, received a Bronze Star Medal with Valor Device April 5, for his actions as an active duty EOD team leader in Afghanistan in June 2007. After his convoy came under attack and the first vehicle was destroyed by an improvised explosive device, Pauli, then a staff sergeant, played a leading role in helping the wounded, securing the perimeter, and rallying his troops for rescue efforts.

Airmen receiving Bronze Star Medals for meritorious service in Iraq were: Col. Calvin Williams, vice commander of the 75th Air Base Wing at Hill AFB, Utah, on March 17; Capt. Josh Aultman at Sather AB, Iraq, on April 15; Capt. James D. Couch from the 349th Recruitment Squadron, Tinker AFB, Okla.; TSgt. Brendan Brown, 87th Civil Engineer Squadron EOD Flight at McGuire AFB, N.J., on April 6; TSgt. David Townsend, 509th Logistics Readiness Squadron at Whiteman AFB, Mo., on April 16 (presented by Vice President Joe Biden);

**On Track:** A Delta II rocket boosts an experimental satellite for Missile Defense Agency's Space Tracking and Surveillance System mission into orbit from Vandenberg AFB, Calif., on May 2. The Space Tracking and Surveillance System is slated to become part of a constellation of land-, sea-, air-, and space-based sensors.

USAF photo by A1C Heather R. Shaw

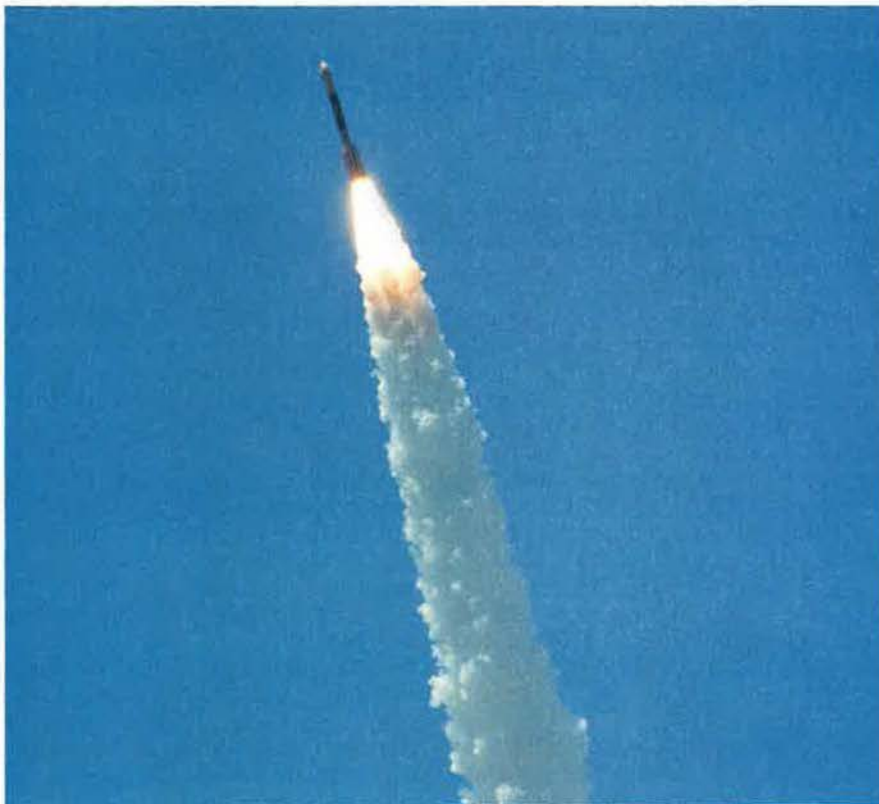


Photo via Tom Kaminski



**New Bird On the Block:** The Mississippi Air National Guard's 186th Air Refueling Wing, Key Field, Miss., took possession of an MC-12W, USAF's newest ISR platform, on April 27. A temporary MC-12 mission qualification training detachment will be based at the airfield. The Mississippi airfield was chosen for the mission in part because of the 186th's experience with manned ISR aircraft, including 12 years flying the RC-26 with a counterdrug program.

and SSgt. Peter Arbelo, 87th CES EOD Flight, at McGuire, on April 6.

Earning the medal for exceptional service in Afghanistan were TSgt. Timothy Bayes, 782nd Training Group, Det. 6, at Gulfport, Miss., March 30; and TSgt. Wendell Snider, 782nd TRG, Det. 6, at McGuire, March 30.

#### Vietnam War Pilot Remains Identified

The remains of Lt. Col. Earl P. Hopper

Jr., an F-4D Phantom pilot missing in action from the Vietnam War, have been identified and were returned to his family, the Department of Defense announced April 2.

Hopper's F-4D was shot down by a surface-to-air missile during a mission near Hanoi, North Vietnam, on Jan. 10, 1968. While his copilot, Capt. Keith Hall, was able to eject and was subsequently captured and held as a

prisoner of war until 1973, Hopper was unable to eject.

A series of investigations and excavations at the crash site in Son La Province, west of Hanoi, between 1993 and 1998 led to the recovery of skeletal fragments and crew-related items that ultimately resulted in Hopper's forensic identification, according to DOD.

#### DFC to World War II Airman

William S. Norred, a B-26 Marauder pilot in World War II, received a posthumous Distinguished Flying Cross with Valor Device April 13 during a ceremony in Greenville, Ala. Lt. Gen. Allen G. Peck, Air University commander, presented the award to Norred's widow, Doris, telling her that the ceremony represented "justice delayed, but justice done."

The DFC recognized Norred, who died at age 91 in August 2008, for his heroism and outstanding skills during a bombing mission over the Rizzo Airdrome, Sicily, on June 15, 1943. According to his citation, the then-captain "contributed singularly" to the success of a B-26 raid when he continued to lead his formation, despite flak damage to his aircraft, to complete a "devastating" bombing run. He then outmaneuvered 12 enemy fighters that pounced upon his unescorted aircraft.

In December 2008, the Air Force Board for Correction of Military Records reviewed Norred's records and corrected them by directing that he be awarded the DFC. ■

## News Notes

- Sue C. Payton formally stepped down from her post as assistant secretary of the Air Force for acquisition on April 8 after more than two-and-a-half years in the post. David M. Van Buren, who had served as Payton's principal deputy since 2008, became the acting acquisition chief.

- Scott F. Large resigned as director of the National Reconnaissance Office, effective April 18. Large became the 15th NRO director in October 2007. His announcement came on the heels of the Obama Administration approving a plan to procure new spy satellites.

- Maj. Gen. Charles B. Green was nominated April 17 to receive a third star and to become the Air Force's next surgeon general. Green would replace Lt. Gen. James G. Roudebush, who has served as USAF's top medical officer since August 2006 and plans to retire in October.

- The Senate on April 3 confirmed Maj. Gen. Michael C. Gould to lead the Air Force Academy and receive a third star.

- The Air Force conducted the first ground test of the combined ramjet scramjet engine being developed under the DARPA-led Falcon hypersonic research program April 9 at the Arnold Engineering Development Center on the grounds of Arnold AFB, Tenn.

- Northrop Grumman on April 20 announced that it has delivered the integrated payload for GEO-2, the second Space Based Infrared System early warning satellite to Lockheed Martin for integration with its host satellite bus. This satellite is slated for launch in 2011.

- Five of the nine surviving Doolittle Raiders gathered April 16-18 in Columbia, S.C., for the group's 67th reunion. On April 17, the official Doolittle Raiders' crest, which reads "Toujours au Danger," or "Always into Danger," was passed to the 34th Bomb Squadron from Ellsworth AFB, S.D.

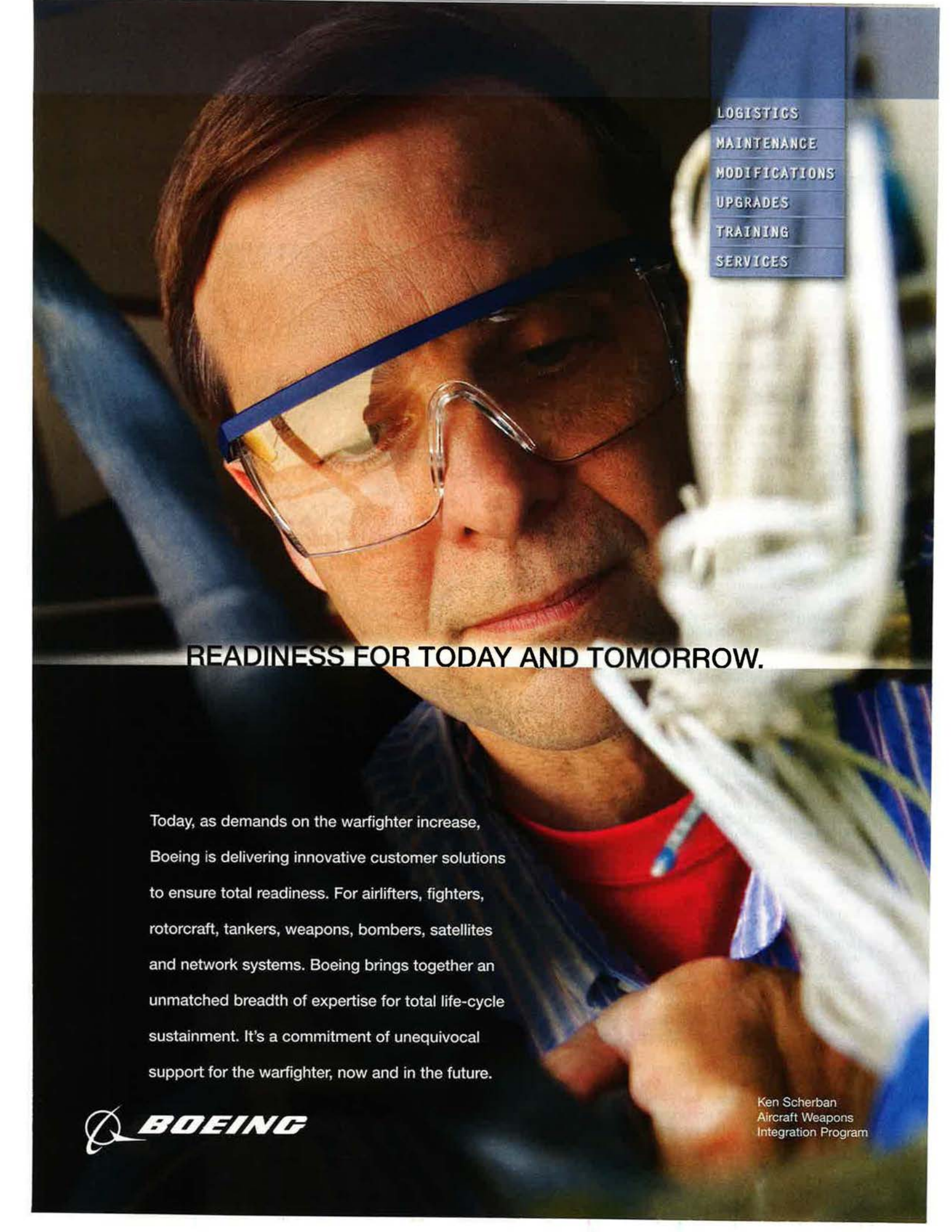
- The Minnesota Air National Guard's 179th Fighter Squadron, the F-16 unit of the 148th Fighter Wing based at

Duluth, has won the Raytheon Trophy for 2008, the Air Force announced in April. The award recognizes the air defense or air superiority unit with the best performance.

- The 402nd Electronics Maintenance Group at Robins AFB, Ga., a unit that tests and repairs avionics on various military aircraft, has won a second place Shingo Prize, a prestigious award considered the Nobel Prize of manufacturing, the Air Force announced in April.

- The US military's fleet of RQ-4 Global Hawk unmanned reconnaissance aircraft (i.e., Air Force and Navy assets) surpassed 30,000 total flight hours during a 22-hour sortie of an Air Force RQ-4 over Southwest Asia on March 31.

- The 325th Fighter Wing at Tyndall AFB, Fla., on April 10 formally dedicated a monument to the 67,000 airmen who trained in aerial gunnery during World War II at the base's former Army Air Forces Flexible Gunnery School. ■



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## Thinking About an “Engine War”

In the early 1980s, engine manufacturers Pratt & Whitney and General Electric began an unusual, decade-long struggle. The goal each year was to win the largest annual share of F-15 and F-16 engine contracts from the Air Force. This became known as “the Great Engine War,” and its lessons still are debated.

The subject is hardly academic. That bygone war now shapes up as a template for a possible second conflict. This prospective contest would match up the same two engine houses, and decide how to divvy up engine contracts for the new F-35 fighter. Billions are at stake.

P&W already is on the battlefield; years ago, its F135 engine was picked for the F-35 contract. The specific question now is this: Should the Pentagon spend scarce dollars to qualify an “alternate” engine and keep alive a competition P&W thought it had won?

Under current plans, the F-35 will dominate fighter procurement for decades. By 2035, the F-35 may represent 95 percent of all manned fighter aircraft in the US inventory.

With the F-35 exerting such an enormous impact, the engine question looms large. The Defense Department itself has wavered. In mid-2005, it awarded General Electric a \$2.4 billion multiyear contract for developing GE’s competitive F136 engine. Four months later, in December 2005, DOD dropped its support and declared its backing for short-term engine cost savings.

Then-Air Force Secretary Michael W. Wynne told lawmakers that he “fought to include the second engine,” but in the 2007 and 2008 budgets, yielded to DOD demands “to provide harmony in the house.”

Congress subsequently ordered three independent reviews of the alternate engine program.

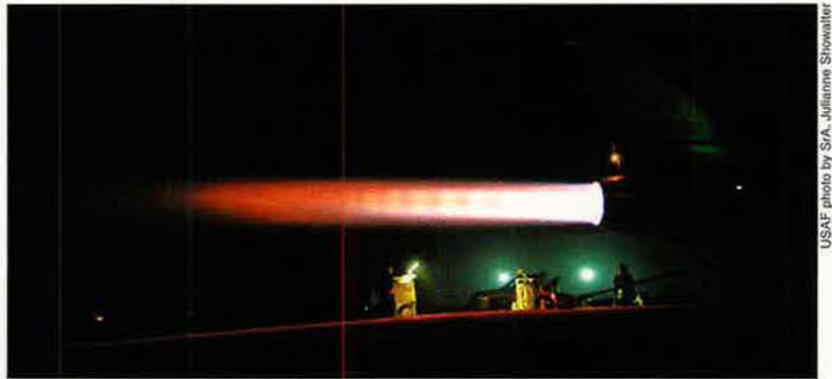
DOD’s Cost Analysis Improvement Group said a competition must yield 25 percent savings to break even. The Institute for Defense Analyses determined that 40 percent savings would be needed to break even in procurement. Both the CAIG and IDA determined that the program is unlikely to save DOD money unless the long-term operations and support contracts are also competed. The Government Accountability Office found a break-even point at some 12 percent savings.

Despite pressure from Congress, the Pentagon since 2005 has refused to fund the program. Congress simply adds the money anyway and orders DOD to continue with the program. In this way, the alternate F136 engine received \$465 million this year. Lt. Gen. Mark D. Shackelford, USAF’s top uniformed acquisition officer, testified in March that the alternative engine program will cost the US \$4.3 billion through 2015.

President Obama himself called the alternate engine program an example of “unnecessary defense programs that do nothing to keep us safe” when he announced the details of DOD’s 2010 budget request May 8.

Yet cost is not the only consideration. In the early 1990s, P&W’s F135 was selected by both Lockheed Martin and Boeing to power their respective F-35 competitors. (The F135 is derived from P&W’s F119 engine, used by the F-22 Raptor.)

Concerned that P&W was being handed a future fighter engine monopoly, however, Congress in 1996 ordered an al-



Getting fired up.

ternate engine program based on the GE-Rolls Royce F136. The intent is to produce two interchangeable engines that are nevertheless unique in their particulars. P&W has a three-year head start on the GE team, and is supplying engines to the earliest-mode fighters.

P&W naturally opposes the government support of a competitor engine program. GE stands to benefit as it did in the 1980s when it skimmed off much of the F-15 and F-16 engine business—after P&W had won the competition. Thus, for the second time in the memories of P&W executives, the company faces the risk of seeing a competitive result overturned.

The Great Engine War may have lowered USAF’s prices at the time. However, the main goal was not cost reduction; it was to acquire engines with greater reliability. USAF got that.

Those who favor maintaining an alternate engine contend that it will reduce long-term costs, increase the contractor’s responsiveness to military needs, increase engine reliability, and protect a critical segment of the military industrial base. As advocates tell it, the second engine program provides insurance against a single-point failure that could undermine the entire F-35 fleet, and with it, most of the nation’s tactical airpower.

Opponents say cost savings are unlikely because of reduced economies of scale, dual logistics trains, and longer learning curves. They add that single-source engines for fighters are the norm, and dual designs will double the number of engine problems that inevitably arise. The opponents also point out that fleetwide engine failures are exceedingly rare.

The P&W F135 has, by all accounts, performed well. It has, however, experienced typical development problems. The fate of the alternate engine likely depends on how Congress weighs the value of insurance versus short-term cost. The impact on local jobs will also, surely, play a major role.

For its part, the program office has not taken sides. Maj. Gen. Charles R. Davis, the F-35 director, has said Congress should approve whichever engine development programs it feels are appropriate—but be certain to pay for them.

“If Congress uses [the F-35 development account] to fund this engine,” Davis explained, “we will have serious problems.” ■

More information: <http://openncrs.com/document/RL33350/>

USAF photo by SrA. Julianne Showalter

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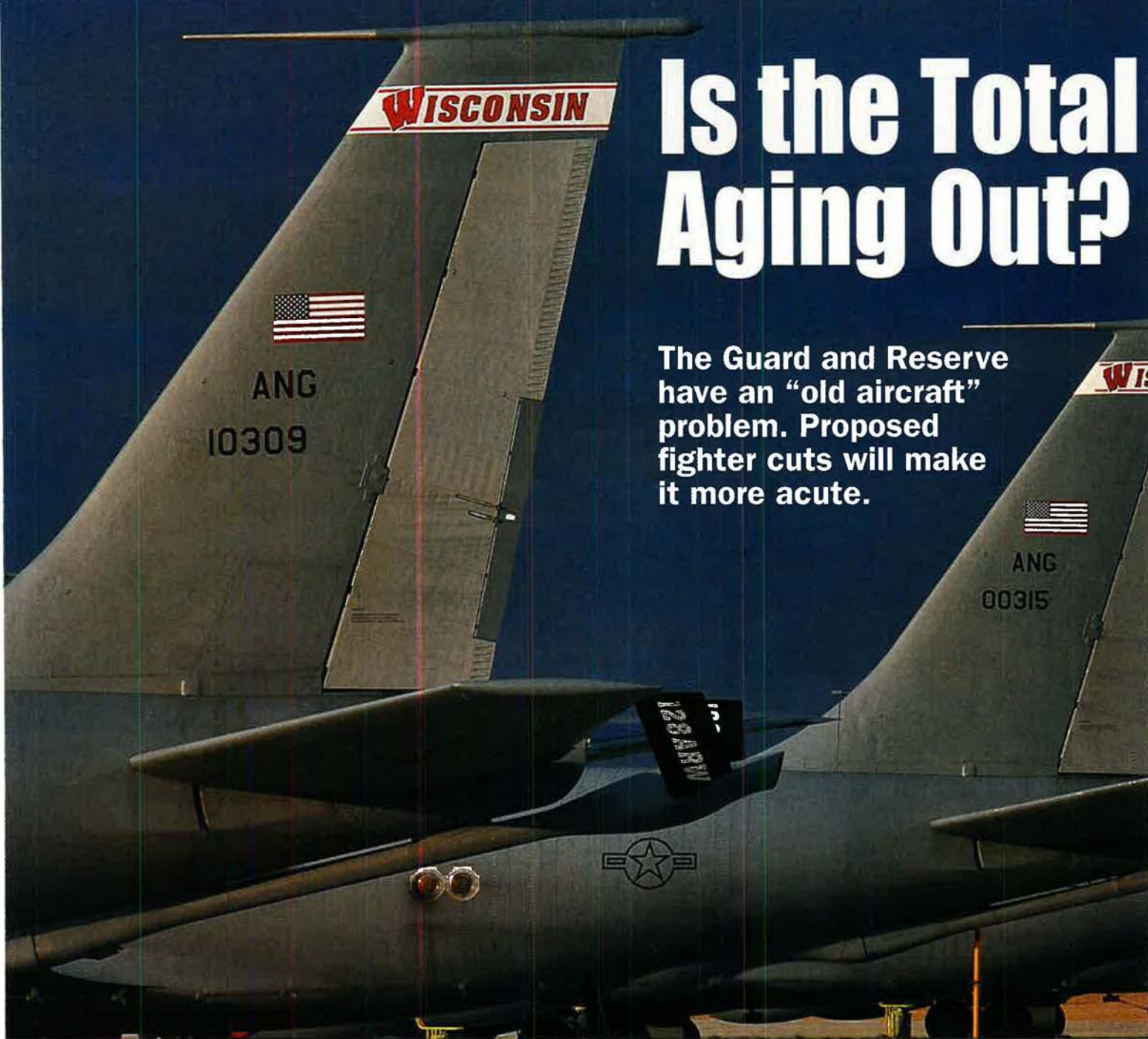
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# Is the Total Aging Out?

The Guard and Reserve have an “old aircraft” problem. Proposed fighter cuts will make it more acute.

**A**t the end of 2008, the average age of Air Force aircraft, in total, was exactly 23.1 years. That’s bad enough, but there is another story within that story. It is even worse.

At the same moment, the average for aircraft within the Air National Guard was 26.5 years. Within Air Force Reserve Command, the average aircraft age was 27.7 years.

The fighter forces put the age problem into even higher relief. Air Force F-16s, taken as a whole, average about 17 years of age. In the Guard and Reserve, they average more than 20 years. Air Guard F-15s, specifically, average more than 28 years of age, and those have been used in combat for some 20 years.

Plainly, the Air Force’s Guard and Reserve components need aircraft recapitalization. However, budget plans unveiled April 6 make it likely that the long-deferred modernization of the Air Force will be delayed and stretched out yet again.

Defense Secretary Robert M. Gates recommended most USAF aircraft replacement programs either be postponed or terminated. He announced that more than three wings’ worth of current Air Force F-15s, F-16s, and A-10s—a total of some 250 fighters—would be rapidly retired.

It is not yet certain what these moves will mean for the Guard and Reserve. Traditionally these components have

received older aircraft as the active duty force traded up to newer equipment. However, the inventories of both the active duty and the Guard and Reserve are now old at the same time, and they will reach—and surpass—their normal retirement ages together.

US Northern Command chief Gen. Victor E. Renuart Jr. told the Senate Armed Services Committee in March that “legacy fighters” that now carry out the air sovereignty mission “will be stressed to maintain reliability and capability as we move into the 2013 to 2025 time frame.”

He said North American Aerospace Defense Command’s ability to do its job will be affected if “legacy fighters retire



# Force

By John A. Tirpak, Executive Editor



KC-135Rs of the 128th Air Refueling Wing, Wisconsin ANG, lined up on the flight line. Aged Guard and Reserve air fleets are in need of replacement.

without a designated replacement being fielded in adequate numbers to maintain NORAD's air defense response capability." He said replacing these aircraft—as well as tankers and airborne warning aircraft—is critical to the future success of the NORAD mission set.

The leaders of the Guard and Reserve could not comment, in mid-April, about what solutions are in store for their aging aircraft situation. However, what does seem clear is that the three Air Force components will be sharing equipment more than ever before.

The Guard and Reserve will participate in virtually every mission the Air

Force performs, and indications are they will have to continue to be an operational—and not just strategic—air reserve force. In any case, the Guard and Reserve will have to evolve.

### Geezer Aircraft Acceleration

Lt. Gen. Harry M. Wyatt III, head of the Air National Guard, sees trouble from the phaseout of 250 fighters from the combined force. If they come mostly from the Air Guard, he said, it will leave much of the air sovereignty mission unmet.

About 80 percent of the Guard's 460 F-16s are performing that air

sovereignty mission, which entails tracking, challenging, and intercepting suspicious or unresponsive aircraft entering US airspace. It's a mission that must be performed, Wyatt said, but there's no consensus on what the Guard will use to do it.

The retirements would "accelerate" the Guard's old aircraft problem, which is already growing acute, he said.

The Government Accountability Office recently sounded an alarm about this. It said in a January report that the alert mission could be without viable aircraft by 2020 unless someone quickly takes steps to replace old F-15s and F-16s. The watchdog agency said the Air Force hasn't dealt with the issue yet because it's been "focused on other priorities."

Under plans set in motion even before Gates' April announcements, most strip alert sites that currently support the air sovereignty mission will have retired their airplanes between 2010 and 2020, the GAO said. By 2022, half the Guard's fighter units will have no aircraft. With no replacements, the Guard by 2026 will have retired all its F-16s.

This is not strictly a hardware problem. Wyatt noted that today's Air Guard pilots are among "the most capable, combat-experienced crews that we've had in years," thanks to nonstop real-world combat deployments since 1990. If "they don't have anything to fly, then you lose that capability," Wyatt asserted.

The ANG chief added, "It's not just a money decision. It's not just a capability decision for today—it's one that could affect us for a long, long time, because it would take generations to replace" the combat experience that would be lost. The fighter mission may not have much direct use to state governors, for whom the Guard also works, but it is crucial for the strategic capabilities of the nation, he said.

So strongly does Wyatt feel about the need to recapitalize the Guard with new fighters that he thinks the ANG should get priority over Pacific Air Forces and US Air Forces in Europe in being provided with new-build F-35s. He believes that despite urgent pleas from the PACAF commander, Gen. Carrol H. Chandler, and the USAFE commander, Gen. Roger A. Brady, for the Air Force to provide F-35s in those theaters first.

"Certainly, I can't deny the importance of their missions," Wyatt said,

USAF photo by SMSgt. Jeff Rohloff

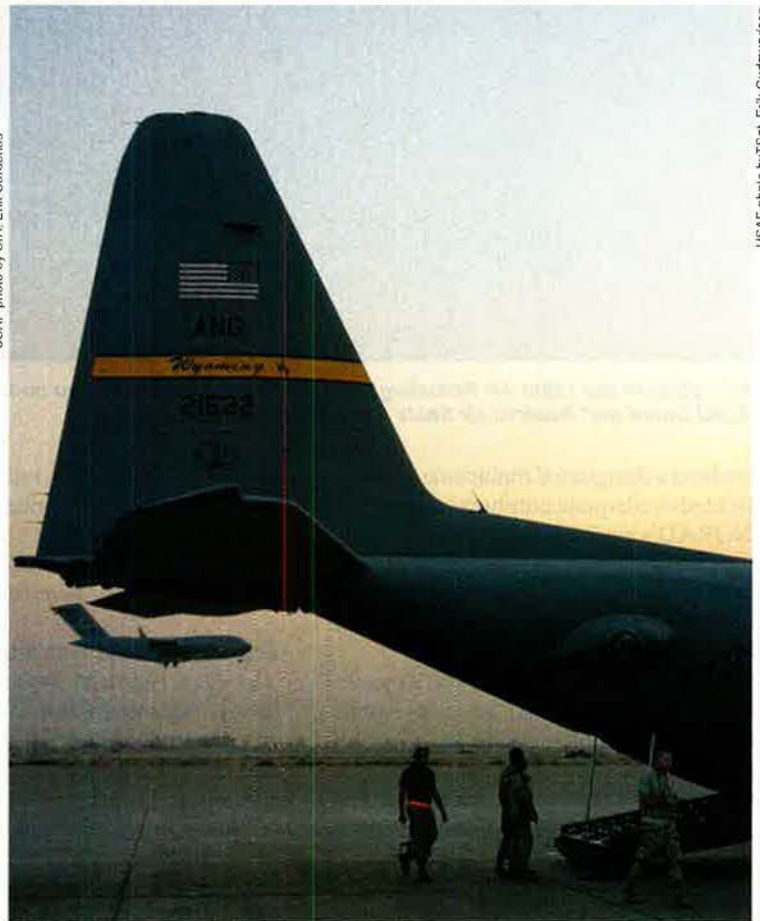


USAF photo by Maj. David Marie

**Left: Capt. Rick Mitchell of the 442nd Fighter Wing, an Air Force Reserve unit from Whiteman AFB, Mo., prepares for a nighttime sortie over Afghanistan. Below left: Capt. Susan McCormick, a Reservist from Westover ARB, Mass., inventories supplies on an aeromedical evacuation flight en route to Manas, Kyrgyzstan. Below: A Wyoming Air Guard C-130 is readied for a mission at Balad AB, Iraq.**



USAF photo by SrA. Erik Christinas



USAF photo by TSgt. Erik Gudmundson

“but what I think we need to do is, while we recognize the importance of USAFE and PACAF, the fight that we cannot lose is the one that takes place over the continental United States.” Forward theater commanders usually have “the luxury” of determining the time and place and equipment they will use in an air action, whereas the CONUS defenders don’t, Wyatt asserted.

“We really, no kidding, have to have a discussion about the No. 1 mission, in my mind, which is defense of the country,” he said. “The Air Force needs to make some decisions about what missions they can afford to take risk in, and which ones they can’t.”

Wyatt added, “I think the No. 1 mission needs to be given the No. 1 priority, and the best airplane available to do that.”

Gen. Craig R. McKinley, head of the National Guard Bureau, said in February that the Air Guard would have to be “proportionally resourced” to the active force in fighters. He told reporters in Washington that meetings were under way with Air Combat Command to make the allocations. The apportionments would have to harmonize with the overall question of deciding “how many fighters we need in our Air Force.”



Cyber-war is seen as a key mission for the Guard and Reserve; civilian experts are expected to lend their network defense skills to USAF.

Sen. Carl Levin (D-Mich.), chairman of the Senate Armed Services Committee, said in March he recognizes the punishing load the Air Guard has borne. Speaking with reporters in Washington, he said the Air Guard has been “clearly ... overused” by way of providing additional manpower and equipment over nearly two decades of operations.

“If for whatever reason a decision is made to continue to rely on [the Air Guard] to the extent we have, then we’ve got to provide it with the equipment that has been a necessary part of that use,” Levin said. “It’s got to be recapitalized.”

Wyatt said the Air Guard may be in for some serious rethinking, due to the greater use it’s seen, as well as the need to replace its worn-out equipment.

Funding of the Air Guard “is still heavily influenced by the Cold War,” he said.

The ANG participates in air expeditionary forces, performs the air sovereignty mission, supports state governments at need, and continues to be the strategic reserve of the Air Force. Yet, despite being an “operational force,” Wyatt said, “we’re still funded like we were nothing more than the old strategic reserve of the 1960s and 1970s. And so we need to take a look at the way we resource and fund the Air National Guard.”

If homeland security “is really mission No. 1, then let’s put our money and our resources where our mouth is. ... That’s what I think we need to do.”

In testimony before the Senate Appropriations defense subcommittee in March, Wyatt said he has “not ruled ... out” the possibility that the Guard could meet its equipment needs by buying new

examples of the F-15 and F-16. The Air Force has long said it doesn’t want to buy “new old” fighters and is committed to a fifth generation fighter force.

### Preserving Options

However, members of Congress have pointed out that it is hard to significantly speed up the F-35 program—a great deal of the test program has yet to be performed—while the F-15 and F-16 are still in low-rate production for foreign customers.

Wyatt told the panel that progress has been made in earmarking some early F-35s for the Guard, but “we are preserving our options to include a fourth generation buy.”

Wyatt’s counterpart at the Air Force

Reserve, Lt. Gen. Charles E. Stenner Jr., said in an interview with *Inside the Air Force* that he opposed buying new fourth generation fighters. They would have to be supported over a 30-year life expectancy—an unwanted and potentially large expense.

Moreover, Stenner said, the aircraft would be progressively less relevant against adversary defenses, which will pose serious challenges even to fifth generation fighters. Buying new F-16s or F-15s would “perpetuate the problem,” Stenner said.

Rethinking the Guard is something that will likely flow from new US strategic documents, Wyatt said. Moreover, regional combat commanders will have a say.

“I would just remind everybody,” said Wyatt, “that there is a combatant commander called NORTHCOM, who ... should be considered just as seriously as any other combatant commander around the world. And I’m not sure that [NORTHCOM] is getting the attention it deserves.”

The elevation of McKinley to National Guard Bureau director with four-star rank means the Guard will now have a seat at the table where the overarching decisions are reached, Wyatt said. The Air Force will bring its views, and the Quadrennial Defense Review will play a pivotal role in deciding the Guard’s future, he said.

Although the Guard has traditionally been an “airframe-based” organization, “we need to think about capabilities,” Wyatt said.



Lt. Gen. Harry Wyatt III (r), head of the Air Guard, makes a point at a Congressional hearing. Wyatt thinks homeland defense should be among the first missions in line for new F-35s. To his right is Vice Adm. Dirk Debbink, chief of the Navy Reserve.



**SrA. Fred Egan, a Reserve avionics technician from Indiana, checks tools while deployed in Southwest Asia. Leaders say Reservists need flexibility in overseas deployments.**

The Guard is a natural place to invest in cyber capabilities, Wyatt said, because it can draw on information industry experts with a desire to serve their country. The Air Force can't compete with the industry on pay and benefits, but needs the expertise, and the Guard is one way to get it.

He also sees "dual use" capabilities as a new growth area for the Guard, particularly in platforms such as unmanned air vehicles and intelligence-surveillance-reconnaissance systems. In those systems, the equipment can serve the state role in an emergency as well as the federal role as part of the Total Force.

The Guard will likely play a big role, he said, ranging from operation of UAVs to exploitation and dissemination of ISR products, a field that is slated to receive a boost in funding and manpower both. Moreover, the Guard can play in soft power operations such as training of foreign militaries—a role for which Wyatt thinks it is especially capable.

"It's not just about delivering kinetic effects," he said. "It's about delivering effects, and you can do that in a lot of different ways," he said.

Though the Guard's size is about one-third that of the active force—106,700 airmen, compared to 327,000—he doesn't expect a proportionate share of the budget. Still, tighter budget times and a smaller fleet mean that, more than

ever, the Air Force and the Air Guard must be "co-equal" partners, according to the ANG director.

### Embedded Associates

The ANG "should be involved in the same capabilities and the same platforms" as the active force, he said. In the past, when the Air Guard's functions "were not mirrored" in the regular force, they tended not to be given sufficient resources. That won't work anymore, Wyatt said.

Although the missions of the Air Force demand about a half-million-person force, "we cannot afford to have 450,000 active duty airmen," and the Guard—and Air Force Reserve—make up the difference in the most cost-effective way possible, Wyatt asserted.

The Air Force will soon be experimenting with something called "embedded associates." There are three kinds of unit associations now. In a Guard or Reserve associate arrangement, personnel from the Guard and Reserve are hosted by an active unit and use its equipment. In an active association (once called a reverse associate arrangement), active duty personnel are hosted by a Guard or Reserve unit and use its equipment. In a reserve associate unit, Guard and Reserve members work with each other.

The embedded associate concept won't work like the others, and there will

be no template to follow, Wyatt said. On a unit-by-unit basis, force structure and manning will be evaluated to see how more capability can be squeezed out of assets already on hand. The percentages of active, Guard, and Reserve billets will vary from unit to unit.

Manning levels won't change, but the idea is to get maximum use out of assets that might otherwise remain idle—for example, during a weekend, in the case of some active units—so that utilization rates go up.

The approach is not to reduce costs—manning levels won't change—but to increase the capability and the manpower available, Wyatt said.

The embedded associate is the first step in what Secretary of the Air Force Michael B. Donley has termed "Total Force Integration II."

After the last round of base realignment and closure, it was necessary to shift some people and missions, "to help facilitate the good things that came out of BRAC but also mitigate some of the 'broken glass'" that came out of it, Wyatt said. Now, Donley wants to know "have we done all we can with TFI?"

After discussions involving Wyatt, Stenner, Donley, and Chief of Staff Gen. Norton A. Schwartz, "the consensus was that it's going to be hard work, but there are some opportunities that remain" in homogenizing the three components, "and we need to keep calling it TFI," Wyatt reported.

There are "great opportunities" for further associations and partnerships, he said, particularly in cyber, ISR, and UAVs. The cyber mission is being developed from the beginning with the Guard and Reserve components and the active force. Also, the Guard is slated to receive a new airlift system, the C-27J transport, which is smaller than the C-130 that has been a staple of Guard missions for decades.

Even in the nuclear mission, Wyatt sees opportunities. He noted that Air Guardsmen are flying B-2 bombers, perform security for nuclear sites at Minot AFB, N.D., and sit strategic alert in KC-135 tankers. The Guard is being incorporated into the Personnel Reliability Program, which vets airmen's stability and trustworthiness for work with nuclear systems.

"Secretary Donley asked me to consider all possibilities, not to be constrained by any preconceived notions that any career field was off-limits," Wyatt said. "He specifically mentioned ICBMs." He added, "I can see some



*The Guard and Reserve F-16 fleet has been heavily used. Retirements will cut into the force available for homeland defense.*

circumstances where that might work. And we're looking at those."

A few years ago, Wyatt said, then-Chief of Staff Gen. T. Michael Moseley, now retired, ordered a study to see what the Air Force would look like "if you threw away all the preconceived notions of what [it should look like] and how it should be constructed. ... The answer that came back [was], ... it looked a whole lot like the Air National Guard with active associate members bedded down in the Reserve units."

The study found that the Guard and Reserve offered "the most efficient way of doing business ... [at the least] cost to the taxpayer," Wyatt asserted. "You pay for the military capability you need at the time; you don't pay for a large standing military."

Stenner, chief of the Air Force Reserve, said the fiscal situation clearly means there needs to be some rebalancing of the relative weights and roles of the active, Guard, and Reserve elements.

"We know that there are new mission areas that we're likely to be involved in because we are ... involved in everything the Air Force's three components do," Stenner said. Like the Guard, he said the Reserve will be involved more with UAV, cyber, nuclear, and ISR missions. However, he cautioned that the latter poses some problems because ISR is already so heavily tasked, and the Reserve recruits mainly from active personnel who are leaving.

"We have less of an ability to recruit when we have a highly stressed, LD/HD [low-density, high-demand] career

field. Folks who are leaving the regular Air Force know that we are just as much 'all in' in the Reserve and Guard. So, they hesitate to come on board with us when they leave."

### The Reserve Triad

Stenner said the key to preserving the Reserve will be to keep active duty periods both predictable and flexible. Reserve people can't keep being mobilized and not have it affect their families and employers, the two other legs of what he called "the Reserve triad" that allow the organization to function. Without the home support, there's no Reservist.

While the ideal continues to be a 120-day deployment every five cycles of the Air and Space Expeditionary Force, "we know that's not reality right now," Stenner said, and "dwell" times of one-to-three, one-to-two, and even one-to-one are not unknown in the Reserve.

"I can be more 'in' in certain areas, but [it] will have an impact," he said. If Reservists are needed, he said, the Reserve won't hold back. However, if the mobilizations continue to be the rule, and "if we continue to use that asset over and over and over, then they'll leave us." The key will be maintaining the predictability—even if it is frequent—and the flexibility to break up deployments in chunks easier for Reservists to manage. Stenner said he needs the flexibility to convert a single-person deployment of 120 days into a deployment of three or four people for 30 to 40 days apiece.

Stenner warned that "if we are firm in our belief that 179 [days deployed] must be for everybody, then there will be folks who just cannot do that."

However, he noted that "interestingly, what we are finding ... is, the folks who are deploying have a higher retention rate than those folks who haven't deployed. That's telling me that those folks ... want to do what they're trained to do and do want to serve their country."

Is comparability of pay and benefits an issue?

"We have made tremendous strides," Stenner said. Of 29 benefits offered to active, Guard, and Reserve members, "25 of those are exactly the same. ... The other four are slightly different, and in most cases, for good reason." He added that in polling of Guard and Reserve members, "there were small nuances to those benefits, but ... we have not heard of those being major detractors" from serving in the Guard and Reserve.

Stenner and Wyatt both said that it will be important to preserve the culture of their organizations even as they become more integrated with the active Air Force. Leadership of highly mixed units was predicted to be a problem, but really hasn't turned out to be one, they said.

Stenner noted that "operational direction" in associated units "on any given day, is done by memorandum of agreement." Generally, he said, "he who has primary responsibility for the mission" is in charge.

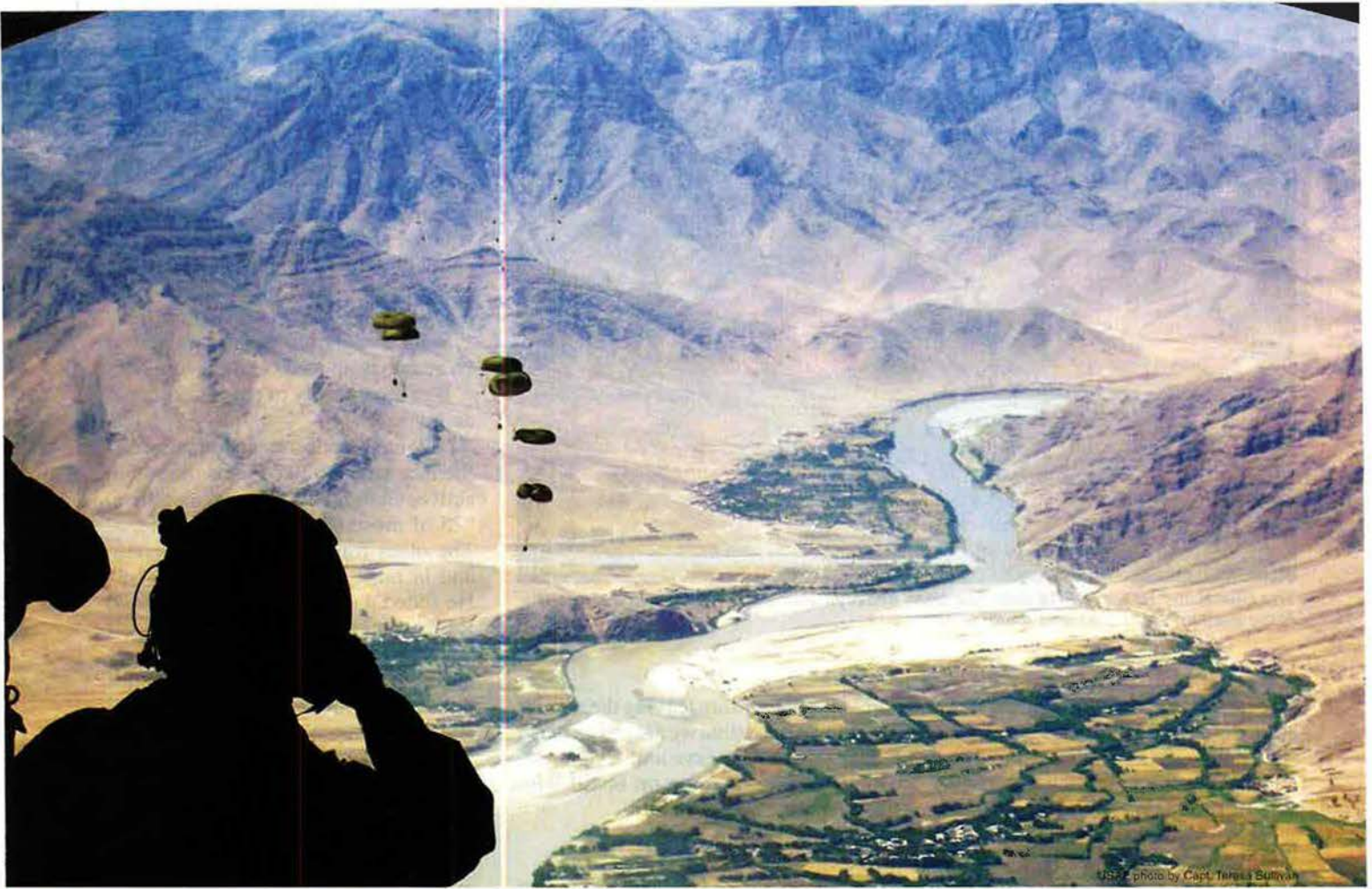
"On a daily basis, they're working for whomever owns the iron," he said.

Wyatt would like to see greater recognition given to those Guard and Reserve members who have developed special skills and have leadership roles in their civilian lives, which he hopes will make them more competitive for command assignments in the future.

So, what's next for Total Force?

It's "to look at every new mission area through the lens of association," Stenner said. "And to look at how we best balance the active ... and the Reserve component—how we best balance the full time and part time to give you the daily capability we need around the world."

Wyatt said, "I would hope that our leadership ... will take an honest look at ways to enhance the defense of this country by a Total Force approach" that would consider the "unique capabilities" of the Air National Guard, "and I really think they will." ■



USAF photo by Capt. Teresa Sullivan

# The Afghan Escalation

By Rebecca Grant

**A**irmen have been at war in Afghanistan since Oct. 7, 2001. Few would have imagined then that the war would be the major issue for a new President in 2009, more than seven years later. But it is.

"I want the American people to understand that we have a clear and focused goal: to disrupt, dismantle, and defeat al Qaeda in Pakistan and Afghanistan, and to prevent their return to either country in the future," said President Obama in announcing a new strategy in March 2009.

In May, Defense Secretary Robert Gates took the unusual step of removing Army Gen. David McKiernan, the top US commander in Afghanistan, thereby providing another indication of how seriously the administration felt a new direction was needed for the war.

More US troops will deploy to Afghanistan to beef up the security and stabilization efforts of the NATO-

USAF photo by SSgt. Aaron Allmon



Top: SSgt. Derek Howard, a loadmaster with the 816th Expeditionary Airlift Squadron, surveys cargo bundles descending to a drop zone in Afghanistan. Above: An F-15E flies combat patrol over the mountains of Afghanistan.



## To a great extent, airpower defines the art of the possible in Afghanistan.

*SMSgt. Robert Spaulding (l) instructs Capt. Abdul Rahman, an Afghan Military Police commander, during a training session at Kabul Military Training Center, Afghanistan.*

led International Security Assistance Force.

Today's Afghan war features a revived Taliban plus new insurgent players. Conflict escalated in 2006. Skirmishes with NATO-led forces and terrorist attacks on the Afghan population have put the US objectives of stability and security there at risk.

Ground forces draw the media eye, but to a great extent, airpower defines the art of the possible in Afghanistan. More than 70 expeditionary airfields of various types are now in operation there. From close air support to precision airdrops to resupply ground forces, airpower is the tactical and strategic enabler for this vital and distant war.

It's not unusual for 60 or more fighters and bombers to patrol Afghanistan every day. Backing them up are tankers, airlift, and the all-important aircraft of ISR—intelligence-surveillance-reconnaissance capabilities.

"There's nothing quite so comforting as an F-15E with a full bomb load flying over your head if you're in contact," said Army Brig. Gen. Mark A. Milley, at the time operating with the 101st Airborne Division near Wardak, Afghanistan. "That makes all the difference in your day."

From the start, this nation's Afghanistan strategy has relied on airpower to produce heavy firepower, surveillance, and resupply. New Obama Administration policy directions will refocus US goals on the ground, but airpower remains central to achieving them.

### Going Final

The Afghanistan conflict evolved through three distinct phases.

First was the war to unseat the Taliban from controlling the government. This was a short, sharp engagement producing victory in just a little over two months. The air campaign cleared the way: Kabul fell in November

2001 and Hamid Karzai's provisional government took shape in December.

Phase 2 was already under way by then. The hunt for al Qaeda sites and supporters began with the first weeks of Operation Enduring Freedom and continues today. From 2002 through 2005, this mission dominated. Force levels remained relatively low and casualties were intermittent. The world's eyes were on Iraq but Taliban, al Qaeda, and other elements were regrouping.

Phase 3 began in 2005 as the Taliban and other insurgents reasserted leverage over towns and villages, particularly in Afghanistan's south and east. NATO-led forces fanned out to patrol more contested areas, but their maneuvers stirred up new resistance. US and NATO airmen provided constant fire support, surveillance, and supply drops. Close air support activity shot upward. By July 2008, US Air Forces Central was dispatching more CAS sorties for Afghanistan than for Iraq.



USAF photo by SSgt. Brian Ferguson

**Above:** An MQ-9 Reaper unmanned aerial vehicle armed with Hellfire missiles and laser guided bombs taxis down a runway in Afghanistan. **Below:** MSgt. Gordy Heinen and TSgt. Steven Hayes check dropsondes before a test of the Screamer Joint Precision Airdrop System.

Beginning this year, airmen will participate in the fourth phase of the war in Afghanistan: the search for lasting victory.

The insurgents are not fighting the same fight today as in 2001 or even 2005. The Taliban remain the strongest element. Mixed in are an amalgamation of groups with significant money and support. Poppy cultivation in the south, especially Helmand Province, fuels the insurgency there.

Tactics have changed, too. Maj. Gen. Mart de Kruif, ISAF's commander for Regional Command South, explained that "two years ago, the insurgents changed their overall strategy from attacking our strength towards focusing on terrorizing the local nationals, the Afghan people."

Increased use of improvised explosive devices was one result. "For ISAF, that means that we have to deliver a 24/7 security in the focus areas where we are placed," de Kruif pointed out. "It's no use getting into a village at 8:00 in the morning and then leaving that village at 5:00 in the evening."

"Once we start the shape, clear, hold, and build concept in a region, we have to stay there," said de Kruif. NATO had enough forces to clear parts of central Helmand and central Oruzgan Provinces, he said. However, "to be able to extend these focus areas, we definitely need more troops."

What hasn't changed about Afghanistan is the ongoing reliance on airpower to make the fight viable for far-flung forces.



USAF photo by S/A. Brian Ferguson

In fact, the challenges of Afghanistan have done much to reshape the combat power of the Air Force. Afghanistan may have done more even than the conflict in Iraq to bring changes in USAF's combat airpower.

Four lines of change stand out. They are:

- Introducing ISR as an independent variable;
- Providing routine tactical resupply on a nonlinear battlefield;
- Fine-tuning firepower for irregular warfare, and;
- Setting the strategic conditions.

#### ISR Comes Into Its Own

It was in Afghanistan that the role of ISR took shape as an independent

variable in successful air campaign operations. Imagery and electronic intelligence was important from the start. The Global Hawk reconnaissance drone proved its value in shooting thousands of images of developing situations from 2001 onward.

Airmen continually refined ISR as operating conditions changed. ISR tasking for imagery such as full-motion video, for example, most often followed tips from other sources. Ground forces might call in a tip based on human intelligence, or other signals intelligence might provide the cue.

"A ground unit might receive a Humint tip indicating presence of the enemy in a certain location," an ISR expert, Lt. Col. Michael L. Downs,

wrote in the fall 2008 issue of the Air Force's official *Air and Space Power Journal*. To confirm the tip, a battalion may request ISR support to locate that activity. Tips often gave the imagery platform a better shot at finding the item of concern. Hence, the increased activity of ground forces tended to generate an upswing in requests to survey particular areas.

Aerial resupply has become another signature achievement of the Afghanistan war. The changes at the tactical level began in 2006 just as the conflict was moving into its third phase.

"We were doing a lot of [cargo drops] within anti-aircraft artillery and small-arms range," said Lt. Gen. Gary L. North, AFCENT commander.





**An A-10 from the 75th Expeditionary Fighter Squadron, Bagram AB, Afghanistan, drops flares during a combat patrol over Afghanistan.**

Aircraft sometimes took hits, and the threat was growing. North urged Air Mobility Command to speed up the delivery of the Joint Precision Airdrop System to the theater to enable satellite guided resupply.

The first combat JPADS drop took place from a C-130 on Aug. 31, 2006.

For airmen, JPADS improves survivability by permitting higher altitude airdrops above many types of ground fire. Accuracy is excellent—cargo typically landed in “an area the size of a football field,” said North in an interview.

C-17s began making combined JPADS and Screamer (steerable GPS-guided container delivery system) drops in May 2007.

“The system was amazing to watch,” said SSgt. Derek Howard, an evaluator loadmaster. “When the bundles departed the aircraft and the chutes deployed, you could instantly see them turning in what appeared to be a formation as the guidance system began steering the bundle directly over the drop zone.”

Land forces responded favorably. JPADS “has saved soldiers’ lives [by] offsetting ground convoy requirements and reducing rotary wing sorties intended for airdrop operations,” an official Army statement acknowledged.

Of Afghanistan’s 70-some airfields, only a few—such as Bagram—are major hubs. Most of them are expeditionary airfields supporting aircraft such as C-130s.

The growing number of airfields has greatly increased tactical flexibility. Army doctrine has long specu-

lated about a dispersed, nonlinear battlespace. In Afghanistan, the network of forward operating bases has already created that type of war. Dispersed operations deliberately place heavier demands on resupply by air, and the air component closely monitors the location and status of land forces.

Soldiers and marines at the firebases can also call for quick-response tactical airdrops. Air planners pre-position pallets with supplies ranging from water and blood units to ammunition. Aircraft are assigned to sit alert, much like the system for close air support. When a call for immediate supplies comes in, aircraft can be loaded and on their way to the drop zone in under an hour.

### Answering the Call

Rapid response also helps move wounded troops quickly. Helicopters pick up many of the wounded in Afghanistan. Top priority is to move them to the hospital at Balad in Iraq. Wounded who reach Balad average better than a 90 percent survival rate. The air component has been known to use everything from C-17s to KC-135 tankers for fast medical evacuation from Bagram.

Now, with Afghanistan’s troop numbers expanding, airmen have been conducting advance airdrops to build up supplies of materials such as lumber.

The next phase of operations will create even greater dependence on strategic airlift. Negotiations for new land routes primarily cover nonlethal equipment such as food, water, and spare parts. US Transportation Command airlifts in weapons, munitions, and essential vehicles such as MRAP (mine-resistant, ambush-protected) trucks.

Raw kinetic data from the air war tell the evolving story of the tactical and strategic dependence on airpower.

US airmen and coalition partners flew 19,603 close air support sorties over Afghanistan in 2008. That was more than a thousand sorties over the 18,423 they flew over Iraq.

Given the smaller number of forces in Afghanistan, the switch was testament to the urgency of the campaign.

“We can help people in a number of different ways, not necessarily dropping weapons,” commented one RAF Harrier pilot based at Kandahar Air Base. Fighters and bombers flew 2,740 shows of force, and responded to 3,630 troops in contact situations.

“If they’re smart, they’ll go away,” said Air Force Capt. Vanessa Mahan, an F-15E weapon systems officer deployed to Bagram.

What the data reveal is just how carefully airmen can rheostat their effects to fit the requirements of controllers on the ground.

Every aircrew shares a common goal: getting to the joint terminal attack controller fast enough to fill the request.

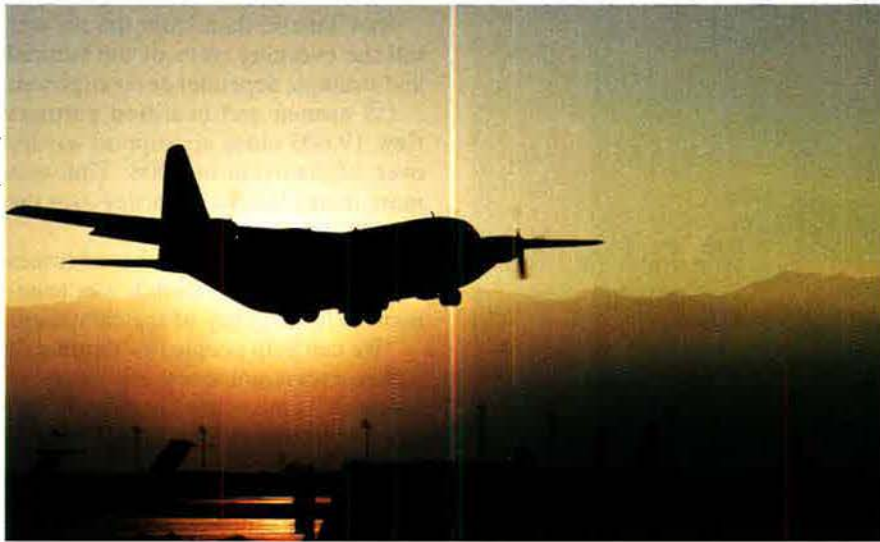
The process begins by tapping into shared tactical data. Alert aircraft such as the A-10 and F-15E can begin building a tactical picture as they warm up their engines. Fighters and bombers airborne tap into the same picture. The tactical data they access can include links from ISR assets such as Predator and direct communication with JTACs on the ground.

The JTACs themselves are assigned to all maneuver forces—sometimes they carry out dismounted patrols; at other times, they are assigned to tactical operations centers where they can control strikes for multiple patrols at once.

Many missions disrupt or deter terrorist operations. Take the example of IEDs. The use of improvised explosive devices soared after 2007. Most of them are aimed indiscriminately at the Afghan population. ISAF regional commander de Kruif confirmed that IEDs in Afghanistan are most commonly detonated by a pressure plate.

Aircraft orbiting overhead have been able to monitor and break up attempts by insurgents to place IEDs.

Airpower has also provided the “armed overwatch” essential to road movement through contested areas. The airpower shield is an integral part of today’s small-unit tactics. For example, in March, coalition aircraft launched a 500-pound laser



**A C-130 lands at Bagram Airfield. C-130s take off and land at most of Afghanistan's expeditionary airfields.**

guided bomb at insurgents who were attempting to place IEDs near the Kajaki Dam—a major reconstruction project. The bomb blast caught all but one insurgent. That lone squirter was taken down by strafing fire.

On the same day, aircraft were called to break up enemy small units preparing an attack near Nangalam. According to North, better cueing of ISR assets has resulted in strikes before hostile forces can attack.

According to the day's official summary, F-15Es took out multiple enemy fighting positions and destroyed several heavy machine gun nests during the engagement. The Strike Eagles followed up with attacks targeting enemy gunmen trying to escape into the mountains.

What do soldiers in Afghanistan feel when aircraft show up? "Relief," said Army SSgt. Adam Kern. "You know it's going to be over."

The roar of friendly aircraft overhead can bring about a quick change of emotions for friendly ground troops. "When [the aircraft] came on station and started doing their gun runs, you went from a feeling of 'I'm dead' to 'Look at them run,'" Kern said.

There are now several air units based in Afghanistan. Bagram hosts A-10s, F-15Es, and coalition aircraft. Kandahar has also become a major operating base for strike aircraft. Close air support aircraft sit alert as well as patrol the skies.

The maintainers realize the importance of keeping jet aircraft ready to go at a moment's notice. "If there's anything that needs to be done, you want to know within the first couple of minutes of landing, because this

jet might be asked to go up again in an hour," said SSgt. Brandon O'Neal.

All this airpower has clearly benefited from benign airspace. For nearly all of the Afghanistan war, there have been few threats to aircrews, which enables constant overwatch and support. However, the environment has never been completely free of threats. Enemy forces in Afghanistan are also trying harder to shoot back at aircraft. Helicopters have been particularly vulnerable.

### Mass Matters

NATO statistics noted a rise in sporadic attempts at surface-to-air fires (often abbreviated SAFire) in 2007 and 2008.

Airlifters and fighters are at risk when they go low. The low-altitude threat from small arms and shoulder-fired guided weapons is hard to eradicate and can never be counted out completely.

Potential threats include rocket-propelled grenades and shoulder-fired surface-to-air missiles. Takeoffs and landings can be hazardous, as can flying low for a show of force—an important tactic. "It tells the insurgents that there's close air support out there," said an RAF pilot interviewed for the British television network ITV Central.

Beyond this, air base security remains a constant priority. Insurgents have attacked airfields with mortars and suicide bombers on several occasions.

The nature of the mission has even opened the door for new threats. Low-

flying helicopters, cargo airdrops, and even fighters on strafing missions are enticing targets.

Despite the length and innovation of the conflict, it's hard to say how much impact it will have on the canon of American strategic thinking. Surprisingly little has been written about operations in Afghanistan in the professional military journals. Many of the most exciting titles date to the 1980s when analysis of the USSR's slow failure there made for compelling reading. In contrast, the shifts in US capabilities in this decade are underdocumented.

Part of the reason for the dearth of professional military writing may be that while tactics are constantly being refined, the strategic fundamentals of military operations in Afghanistan were set at the outset. It is a war where maximizing airpower is essential at the tactical and strategic level. The air coverage allowed commanders to mitigate risk and put in play a relatively small number of lightly armed forces.

Several attempts by the Taliban to draw coalition forces into set-piece land battles between 2001 and 2006 were squashed by airpower. Insurgent forces cannot defeat airpower when it is combined with smart tactics on the ground.

Airpower did not make US, coalition, or Afghan forces invulnerable. What it did—which would surprise no expert air commander—was to make the offense far more lethal and efficient.

Even with more troops headed to Afghanistan, the nation remains a scene of light ground forces working hand-in-hand with airpower. The unprecedented dependence on airdrops for tactical resupply speaks to the wide margin airpower gives to forces fighting there. In the irregular and dispersed fight, airpower's asymmetric advantages are tangible.

"It's a war, and in a war, mass matters," said Milley, the deputy commander for the sector including Wardak Province. "Over time, this will work—it has worked over and over again through history."

Whether the need is for massed supplies, massed intelligence, or massed firepower, airpower will offer it in Afghanistan. ■

*Rebecca Grant is a senior fellow of the Lexington Institute and president of IRIS Independent Research. She has written extensively on airpower and serves as director, Mitchell Institute, for AFA. Her most recent article for Air Force Magazine was "The Cyber Menace," which appeared in the March issue.*

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Photo Courtesy U.S. Air Force/Senior Airman Elizabeth Rissmiller

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# Like SAC

**Eighth Air Force is moving to emulate USAF's legendary nuclear force.**

**By Michael C. Sirak, Senior Editor**

**M**ajor changes are reshaping 8th Air Force, overseer of the nation's fleet of nuclear-capable B-2 and B-52 bombers and other assets, including intelligence-surveillance-reconnaissance aircraft and cyber warfare units.

The 8th, headquartered at Barksdale AFB, La., is shorthand for "long-range conventional and nuclear strike." It is launching a new "nuclear rotation" for members of its three bomber wings and will shed oversight of its non-bomber wings later this year.

This new focus on the nuclear mission is part of 8th Air Force's coming shift from Air Combat Command to Air Force Global Strike Command. Global Strike Command, the service's nascent nuclear-centric major command, should commence operations at the end of September.

USAF is working to re-instill an emphasis on strategic and nuclear deterrence in "the old traditional sense," harkening back to the days of Strategic Air Command, says Lt. Gen. Robert J. Elder Jr., 8th Air Force's outgoing commander.

"What we have been working on aggressively ... is to redevelop that concept," Elder said.

The 8th is working to develop airmen who are steeped in deterrence theory and able to articulate the continued importance of the nuclear mission to others across the Air Force and the entire Department of Defense.

"We are now building a cadre of people who understand what seems foreign to most people," said Elder,

who took over 8th Air Force in June 2006 and is now retiring, effective July 1. That foreign concept, he explained, is, "We actually put bombs on airplanes [and] don't want to drop them."

As head of 8th Air Force, Elder has also been US Strategic Command's joint functional component commander for global strike, with responsibility for planning and executing STRATCOM's



**Top: A B-2 takes off from Whiteman AFB, Mo., while another lines up for its turn. Above: A1C Robert Burnham, 5th Security Forces Squadron stands guard at Minot AFB, N.D., as weapons are transported during a nuclear weapons safety exercise.**



Photo by Sagar Pathak



USAF photo by A1C Jesse Lopez

strategic deterrence and global strike operations. In his post, he has also commanded Task Force 204, which oversees the nuclear bombers and U-2 and RC-135 surveillance and reconnaissance aircraft supporting STRATCOM's global strike mission.

The Air Force approved Global Strike Command to strengthen its nuclear stewardship after the unauthorized transfer of nuclear-tipped cruise missiles aboard a B-52 in August 2007, and the mistaken shipment of Minuteman III components to Taiwan in 2006.

### Enter the Global Deterrence Force

The Air Force announced in April that Barksdale is the preferred location for Global Strike Command's permanent headquarters, pending the completion of the environmental impact analysis required by law. A final decision is expected this month. Bolling AFB, D.C., has been serving since January as Global Strike Command's provisional seat.

8th Air Force will be joined by 20th Air Force as Global Strike Command's two numbered air forces. Located at F. E. Warren AFB, Wyo., 20th Air Force oversees the nation's Minuteman III ICBMs at bases in Montana, North Dakota, and Wyoming.

Concurrent with preparations for the move to the nuclear-centered MAJCOM, the "Mighty 8th" is incorporating the Global Deterrence Force

### A nuclear-capable B-2 stealth bomber soars over Whiteman AFB, Mo.

nuclear rotation into its routine. Under this construct, the nation's two B-52 wings—Barksdale's 2nd Bomb Wing and the 5th BW at Minot AFB, N.D.—spend alternating one-year intervals concentrating on the nuclear and strategic deterrence mission.

The 509th BW at Whiteman AFB, Mo., the Air Force's sole B-2 wing, will always be part of the Global Deterrence Force, but its two flying squadrons will switch off responsibilities every six months. They will alternate between conventional preparations and deployments—such as those in support of US Pacific Command's bomber force rotations to Guam—and a dedicated nuclear focus.

"We are pretty excited about the GDF," said Elder. The goal is to have the wings in the GDF "totally focused" on the strategic deterrence mission.

Elder differentiates between strategic deterrence and nuclear deterrence. "In some cases," he explained, "the things that STRATCOM wants us to do for deterrence purposes might not always involve nuclear [weapons], although, most of it, quite frankly, is. But we don't limit to that."

The 2nd BW recently concluded the inaugural GDF rotation, which, in order to sync the schedules of the wings for



**Lt. Gen. Robert Elder (r), commander, 8th Air Force, greets Gen. John Corley, ACC commander, at Barksdale AFB, La.**

future rotations, did not last a full year. The 5th BW has now rotated in for the first full-year stint.

Elder said that the inaugural GDF rotation provided valuable lessons.

"First of all, what we have found is that by taking this approach and having that kind of focus, it actually makes it easier to have people perform the mission than just trying to do it in little bits and pieces," he said. The Global Deterrence Force implementation "turned out to be somewhat easier than we thought."

At the same time, the experience highlighted some shortfalls, such as the need for more security forces personnel and the recognition that some alert facilities will require renovation or replacement. The alert facilities had not been used for that purpose since the first President Bush took SAC's bombers off continuous nuclear alert in 1991. "In the case of Whiteman and Offutt," Elder said, "we think we are going to need to have entirely new alert facilities built."

Another emerging lesson is the recognition that the nuclear mission is a wing-level endeavor and a garrison operation. Conventional bomber deployments of the sort that have been common in recent years are more squadron-centric, said Elder.

"When we moved from being a garrison-type force to an expeditionary Air Force, to support all of the theater things that we were doing, we somewhat forgot our days as a strategic deterrence force," he explained. "We basically

went through a big cultural change to get people to embrace the concept of an expeditionary Air Force—and, in some ways, we are having to reverse that for the nuclear mission."

In fact, he said, the bomber units need to be able to shift between the garrison and expeditionary mind-set as they rotate out of the GDF and into preparations for conventional deployments.

#### **Four BUFF Wings**

"That is a big complexity for us," he said.

As part of the GDF, the Air Force is establishing a new operational B-52 flying squadron at Minot. That will give the Air Force two operational BUFF wings at Minot and two at Barksdale. Elder said the plan is for the unit to stand up this fall and then be ready for combat, if called upon, next summer.

The new flying unit, which was still awaiting its designation as of early April, will have slightly more than 900 personnel and a full complement of 11 front-line jet aircraft and one backup—the same as the three other B-52 operational flying squadrons.

Having the four squadrons of 11 B-52s and the consistency of having two at Minot and two at Barksdale "is really important in order to be able to make this [GDF] rotation work smoothly," he said.

There is "a pretty good process in place" to churn out the trained aircrews, Elder said. Air Force Reserve Command's 93rd Bomb Squadron, located

at Barksdale, is assuming the lead for B-52 training under a plan approved in March by Gen. Norton A. Schwartz, Air Force Chief of Staff.

The Reserve unit is switching from being a combat-coded squadron to the formal training unit. It will be augmented by members of Barksdale's 2nd BW under an active association. This consolidated training mission will add nearly 300 airmen to Barksdale, Elder said.

With this arrangement, "we think we are going to be able to ramp up aircrew production to pretty quickly meet that need," said Elder, adding that "the bigger problem" is in fielding enough experienced maintainers.

"Quite frankly, we don't have sufficient maintainers today," he said. In fact, the Air Force estimates that it may take up to 10 years to fill all of the higher level maintainer positions for the new squadron—and that's assuming that the bomber force continues to receive personnel authorizations as a high priority.

USAF is also in the process of reopening a nuclear weapons storage area at Barksdale for the munitions that would be used by the 2nd BW's B-52s. It will join the weapons storage area operating at Minot for the 5th BW.

"It makes more sense for your weapons storage areas to be co-located with your airplanes," explained Elder.

"The bigger implication," he added, is that if there is an emergency or attack on one base, that "doesn't mean that you have lost all of your capability." The Air Force hopes to have Barksdale's new nuclear weapons storage ready in Fiscal 2010.

Elder said all three legs of the strategic nuclear triad are important, including the land-based ICBMs and the Navy's Trident submarine-launched ballistic missiles. The nuclear-capable bombers offer unique advantages, such as visibility, flexibility, and survivability, to the nation's strategic triad, he said.

Bombers are visible in the sense that they can signal intent to both allies and potential foes during a crisis if the United States places the bombers on alert or sends them into the air. The bombers are flexible because they can carry both conventional and nuclear weapons. They are recallable once airborne, unlike the Air Force's ICBMs and the Navy's ballistic missiles.

When the bombers are placed on alert with advanced strategic warn-



USAF photo by TSgt. Lee A. Osberry Jr.

ing, they are also quite survivable, Elder said.

The bombers also “complicate your adversaries’ defensive problems dramatically,” he said. They require different types of defensive preparations than those used to deal with ICBMs and SLBMs.

Bombers also provide a hedge against the possibility that some technological breakthrough could give the adversary a perceived advantage over US ballistic missiles.

Accordingly, Elder said the bombers would continue to be valuable assets in a smaller-size deterrent force.

In April, several weeks after Elder spoke with *Air Force Magazine*, President Obama announced that the US would enter into negotiations with Russia later this year to seek further reductions in the two nations’ nuclear forces.

The Air Force has done a good job in upgrading its B-2 and B-52 fleets, Elder said, but gradual “losses in capability” will degrade the bomber leg’s deterrent as time goes on.

Since effective deterrence is regarded as a function of capability and perceived will, the nation could “run into a bind” if it doesn’t have a credible new capability at some point. That’s why a new bomber, which notionally would have the same level of stealthi-

ness as the F-22, was considered so important to Air Force strategic planners, Elder said shortly before Defense Secretary Robert M. Gates announced his intent in April to delay the “2018 bomber” program.

### Looking to the 2018 Bomber

“If you have this kind of an airplane that can carry conventional and nuclear weapons and can penetrate into a highly defended area and hold a target at risk that is holding us at risk in some other way, now we have a viable capability,” Elder said.

Because a new bomber could carry either conventional or nuclear weapons, “another country would recognize that we have the will to use it,” Elder said. “And so, our strategic deterrence value goes up dramatically, and that is why I am such a big proponent for this capability.”

The Air Force’s reliable but lumbering B-52s are already limited to low-threat environments, while the stealthy B-2s, of which only 20 airframes exist, are considered a nighttime-only system in high-threat environments.

Gates said the bomber’s development would be put off until there is “a better understanding of the need, the requirement, and the technology.” The Pentagon will examine all its strategic requirements during this year’s

***A B-52H from Barksdale pops its chute at Minot, ready to participate in a multi-wing nuclear operational readiness exercise.***

Quadrennial Defense Review, Nuclear Posture Review, and in light of the US-Russia arms control negotiations, Gates added.

Elder worries about a major delay in the fielding of a new bomber, and senior Air Force officials had previously said the 2018 date was derived from emerging intelligence estimates about possible future threats and improving air defense capabilities. The fact that USAF’s nuclear-tipped Air Launched Cruise Missiles have about a decade of service life remaining is another factor driving the 2018 date. Elder said in April a new bomber would allow the Air Force to “change the approach” for delivering nuclear weapons.

While the Air Force has some capacity to work through a minor delay, a significant schedule slip “would be problematic,” Elder said. “The nation needs this capability because of the options that it provides.”

The fate of the next generation bomber is expected to be a major source of controversy during the current QDR deliberations and as the 2010 defense budget request is debated in Congress this summer. ■

# Team Airlift



USAF photo by A1C Kenny Holston

**Eleven European air forces will pool their talents with the US to make the most of three C-17 transports.**

By Marcus Weisgerber

**F**rom the looks of things, this could be a military joint venture like no other. Eleven European nations—some of them NATO members, others not—are teaming up with the US to create a new C-17-based strategic airlift fleet.

In just a few weeks, the first of three C-17 airlifters will touch down at a new home in Hungary—Papa Air Base, roughly midway between Budapest and Vienna. The former Warsaw Pact fighter base will be home for the versatile cargo haulers and hundreds of airmen from across Europe and the United States.

It will be the permanent station for those who will fly the C-17s on cargo missions around the world.

The multinational group will use the Boeing-made airlifters for missions ranging from troop transport, to equipment delivery and humanitarian relief operations.

DOD photo by Petty Officer 2nd Class Michael B. Lavender







**A C-17 photographed under assembly. Three of the airlifters will eventually be based at Papa AB, Hungary.**

USAF is the main driver behind the program and is footing the bill for one of the C-17s.

Other NATO members on the Strategic Airlift Capability (SAC) team include Bulgaria, Estonia, Hungary, Lithuania, the Netherlands, Norway, Poland, Romania, and Slovenia. NATO has other multinational capabilities, such as its 16-nation E-3 AWACS program, but what makes the Strategic Airlift Capability unique is the participation of Scandinavian nations Finland and Sweden—which are not NATO allies.

The consortium is set up similar to business jet time-share programs. Each participating nation signs up to use the C-17s for a certain number of flying hours. The more hours purchased, the more personnel are assigned to the wing.

The Swedes, in fact, have purchased 550 annual flying hours, the highest participation rate after the United States.

Unlike other aircraft-sharing partnerships, the strategic airlift capability allows participating nations to use the C-17s for essentially anything they want—so long as USAF Col. John Zaworsky, commander of the Strategic Airlift Capability's Heavy Airlift Wing, deems the mission safe for the crew and aircraft.

**Opposite, top: C-17s and Europe are joining forces. Pictured is a US Air Force C-17 as it readies for takeoff at Ramstein AB, Germany. Opposite, bottom: US Navy Seabees arrive in Afghanistan on a mission supporting NATO International Security Assistance Forces.**

Nations can use their flight hours to support domestic missions or NATO tasks. For example, a country participating in combat operations in Iraq could use the aircraft to transport its soldiers to and from the battlefield. This would likely not be possible if the aircraft were part of a traditional NATO structure, because any alliance member can veto any given mission.

### Flexibility Is Key

"It's a deliberate approach to try it a different way and to build flexibility into how we operate," Zaworsky—a veteran C-141 and C-17 pilot—said of the arrangement. Not being attached to NATO is important so that participating nations have the flexibility to do what they want with their hours.

Partners have purchased 3,165 hours of flight time, said Air Force Brig. Gen. Richard C. Johnston, chairman of the Strategic Air Capability Steering Board, a multinational panel that oversees the aircraft acquisition and program management, support, and operations. Johnston also serves as director of plans, programs, and analyses for US Air Forces in Europe.

"It's our job to work with those countries to make sure they get access to all the hours that they've already bought," Zaworsky said.

This construct was especially important to Finland and Sweden. Stockholm considered buying two of its own C-17s, but defense officials instead decided to join the multinational consortium.

The memorandum of understanding agreed upon by all participants makes "it difficult for any country to interfere with one another because each country can use the hours as they see fit," Zaworsky said. "It's not exactly a pay-as-you-go; it's more of a front-end-loaded program."

The fact that the C-17s do not belong to an institution was "a signal," said Swedish Col. Fredrik Heden, vice commander of the wing, in a March interview. "We can use that way of thinking [in the future by] reaching between" NATO and non-NATO countries.

"It's a great way of doing business," Heden said.

The entire effort, from letter of intent in 2006 to iron on the ramp this July, should take less than three years—very fast considering the number of nations involved. To put the rapid stand up of the wing in perspective, NATO has been trying to field a new fleet of surveillance aircraft since a statement of intent was signed in 2002, but numerous nations have pulled out of that program and there is still no time frame for when operations will commence.

This is not to say the C-17 initiative has been flawless. The effort encountered some turbulence when five of the original partners—Denmark, Latvia, Italy, Slovakia, and the Czech Republic—dropped out of the program. The loss of these nations and their financial contributions forced organizers to forgo some infrastructure projects at Papa and eliminate the installation of some advanced systems on the C-17s.

Despite the shrinkage of charter participants, commanders are convinced more countries will join and current members will increase their usage rates once the Globemasters prove their utility.

"This is a 'build it and they will come,' situation, US Air Forces in Europe Commander Gen. Roger A. Brady told reporters in March. "I think people are going to fall in love with this capability."

Each of the SAC consortium nations determines a single contact to communicate directly with the wing's command and control branch. The C2 branch then develops the flying schedules and plans the C-17 missions. It is Zaworsky's job to make sure each country gets its fair share of hours.

During planning conferences over the past few years, many Heavy Airlift Wing participants said they plan to use the C-17s to rotate troops and equipment in and out of Afghanistan.



“To fly all the hours that we need to, we’re going to need to pretty much keep the planes busy every single day,” Zazworsky said. “There’ll be a lot of mutual pressure within peers to not have the plane just going off for something that’s not a productive airlift mission.”

A nation could also use its C-17 hours to support NATO Response Force commitments or the European Union battle group commitments. The participants “get a lot of capability for a relatively small investment,” Zazworsky said. “Our goal is to use these planes very efficiently.”

That being said, Johnston added that participants “have the ability to say, ‘I don’t want to participate in hours or [with] personnel for a particular mission.’” The ability to opt out is “extremely important, not only to the individual nations—it’s important [to] NATO [and] the EU,” he said.

If this were not the construct, “we’d be quagmired in bureaucracy,” Johnston said. Without the ability for missions to be executed without unanimous agreement, “this whole program would fail,” he said.

For the past few months, commanders have been bringing new personnel into the wing and settling them into their new positions. Airmen from all of the participating nations are slowly

making their way to Hungary, along with their families, who will live in Papa.

“The really rewarding part is, all the nations take this program very seriously, and they’re sending high-quality people ready to go to work,” Zazworsky said.

Personnel are “spreading out into all parts of our headquarters building and in the final throes of establishing [an] infrastructure that you’d normally have in an office building that wasn’t there before,” Zazworsky said.

#### Updating an Air Base

This month, the wing should present Budapest’s Defense Ministry with policies and procedures “so we can demonstrate to the Hungarians that we’re ready to operate safely,” he said. This involves “pulling together all the basic regulations and operating policies any flying unit would have to include” and the maintenance and supply effort that “keeps the parts flowing.”

The goal is to have the unit certified about a month before the first C-17 is scheduled to arrive. The certification is necessary since each aircraft will be registered under Hungary’s authority.

The Globemaster IIIs will have Hungarian markings, a blue strip across the top of the vertical stabilizer, red, white,

***Airmen load humanitarian aid bound for the Republic of Georgia into the cargo bay of a C-17. Consortium members will have the freedom to choose their own airlift missions.***

and green markings across the rudder, and triangular roundels on the wings.

The wing is expected to receive its full complement of three C-17 aircraft by the end of October.

Despite the current worldwide financial crisis, the nations are still committed to the program. “I think if we get this thing up and running, it’ll send the right message to the nations that are participating that their national treasure is being expended on something that’s going to really make a difference in their ability to move personnel and cargo where they need it,” Johnston said.

Zazworsky first traveled to Papa in June 2008. Over the following few months, the colonel split his time between Ramstein Air Base in Germany and Papa before settling down full-time at the Hungarian base—along with Heden—last October.

The Heavy Airlift Wing’s headquarters building is an old modified dormitory. When Zazworsky, Heden, and their small staff first arrived at the base, there was no computer network, and mobile phones were the main form of communication. The group sent work-related e-mails in

the morning and evening from their Internet-equipped hotels.

"It was really a fascinating, totally new challenge," said Heden, a fighter pilot by trade, who most recently commanded a JAS-39 Gripen training wing in Sweden.

The airfield at Papa, its instrument approach systems, and a portion of the aircraft parking ramp were improved when Hungary joined NATO in 1999. Since then, the base has been a contingency field for alliance aircraft. The air traffic control and weather forecasting equipment are in good shape.

Two Hungarian Air Force search and rescue helicopters—tasked with emergency-response missions in the western portion of the country—are also stationed at the base.

The Hungarians are working on a number of infrastructure improvements to roads and security, and are constructing a new office building and gymnasium.

The SAC program is paying for ramp extensions, so all three C-17s can fit. Several hardened aircraft shelters—left over from the airstrip's previous life as a fighter base—are being converted into storage areas for maintenance equipment and supplies. In all, about 350 Hungarian military officials will run the base.

A hangar and new headquarters building were part of the original program, but were deferred when nations dropped out of the consortium last year.

"For now," Zazworsky said, "we'll be operating without a hangar."

Each participating nation will have its own pilots, loadmasters, flying crew chiefs, and security forces. USAF will train pilots at its C-17 schoolhouse at Altus AFB, Okla. Seven C-17 instructor pilots and five loadmasters will form a training cadre.

In February, two Swedish airmen began loadmaster training at Lackland AFB, Tex. In March, two Norwegian pilots and two loadmasters began their training.

The initial C-17 flight training program familiarizes pilots with the Globemaster's computerized avionics system, said Norwegian Maj. Christian Langfeldt, who is among the first at the schoolhouse.

The C-17 is "very automated, so that's a big difference," said Langfeldt, who has flown the P-3 Orion and NATO E-3 AWACS.

After graduating, the new C-17 pilots will receive additional training at Papa



Photo by Greg L. Davis

**This USAF C-17 came to Tazsar, Hungary, for a mission supporting NATO forces. Some consortium members are expected to use the C-17s to transport troops and equipment to Afghanistan.**

to later become aircraft commanders and instructors.

The initial crews are expected to graduate in June, shortly before the first C-17 arrives at Papa.

Zazworsky said his goal is for the first airplane to be flown to Hungary with a multinational crew. "It looks like we're on track to do that."

The SAC countries have contracted the flight line maintenance at Papa to Boeing. In addition, a group of crew chiefs from the United States and three other nations will perform maintenance if an aircraft breaks down at a forward location.

### More Nations To Join?

Training missions will also be flown at air bases in each participating nation, so that aerial port, crash, and fire personnel are familiar with the C-17.

Both US and European commanders believe the Heavy Airlift Wing could expand not only to include more C-17s, but other types of airlifters, such as the Lockheed Martin C-130J, Airbus A400M, or the Alenia C-27J.

"My main goal is to create a unit that's operationally effective right away, but also flexible enough to expand," Zazworsky said.

The agreement allows the wing to add different types of aircraft, and states: "The objective is to establish a SAC program to acquire, manage, support, and operate C-17 aircraft and other assets needed to meet national requirements of the participants."

"There are additional hours that are available to be purchased," Johnston said. "If nations wanted to join, we would see them buying those remaining hours. If we go past 3,500 [hours], then we really need to start looking at buying another airplane."

Securing purchasers for the 300-plus annual hours that are still available would allow the consortium to build that hangar and make other infrastructure improvements. More money would also allow for add-on systems, such as Large Aircraft Infrared Countermeasures on the C-17s.

"I think really our operational experience in the first year or two will drive the discussion of whether to procure another plane," Zazworsky said. The airfield at Papa, "with some improvement, could handle a lot more aircraft," he noted.

Even though the first C-17 has not even arrived, other countries have expressed interest in joining the SAC consortium, according to Johnston.

"There are nations that have already started inquiring about the program as active members or asking for airlift support," he said. "Getting this program up and running in July ... will clearly demonstrate we've got the capacity and the energy to make this a success."

Sweden's Heden offered an even larger opportunity if the multinational cargo-hauling pact proves a success: "If you asked me for a wish, I would say let's ... do it with tankers." ■

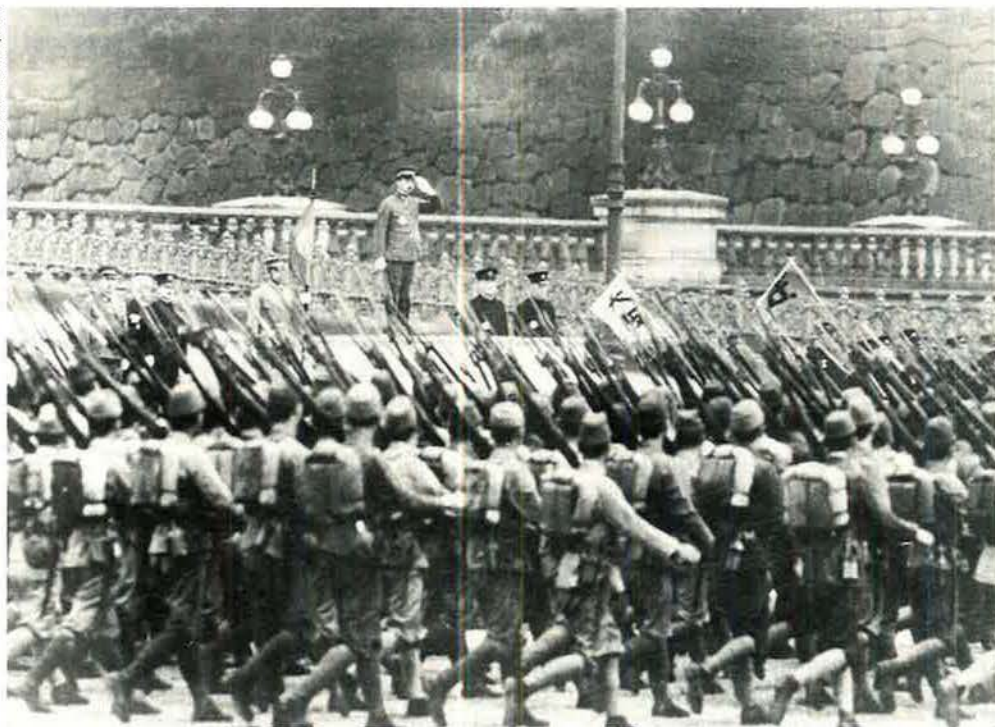
*Marcus Weisgerber is managing editor of the Washington, D.C.-based defense newsletter Inside the Air Force. This is his first article for Air Force Magazine.*

Before the atomic bombs brought an end to the war, US troops were set for massive amphibious landings in the Japanese home islands.

# The Invasion That Didn't Happen

By John T. Correll

Belmann/Corbis photo



Emperor Hirohito reviews Japanese troops in Tokyo in June 1941. Only when Japan suffered severe hardship did his enthusiasm for the war begin to wane.

**T**here was never any chance that Japan would win World War II in the Pacific. When Japan attacked the US at Pearl Harbor, it bit off more than it could chew. Japan reached the limits of its territorial expansion in the next few months, and, from then on, it was a steady rollback as Japanese forces were ousted from the Solomons, New Guinea, the Marianas, the Philippines, Iwo Jima, and Okinawa.

After Germany surrendered in May 1945, the full war effort was focused on the Pacific. It was nominally an Allied effort, but almost all of the forces closing in on Japan were American. The Japanese Navy was gutted. What remained of

Japanese airpower was mostly kamikaze aircraft, although there were thousands of them and plenty of pilots ready to fly on suicide missions. Nevertheless, Japan hung on with great tenacity. It still had 4,965,000 regular army troops and more in the paramilitary reserves.

The outcome of the war was sealed in 1944 when the United States obtained air bases in the Marianas. From there, B-29 bombers could reach Tokyo and all important targets in Japan. Night after night, the B-29s rained firebombs and high explosives on the wood and paper structures of Japan. On March 9, 1945, the bombers destroyed 16 square miles of Tokyo and killed 83,793 Japanese.

Gen. Henry H. "Hap" Arnold, commander of the Army Air Forces, predicted that the bombing would be sufficient to prevail and "enable our infantrymen to walk ashore on Japan with their rifles slung." Adm. Ernest J. King, Chief of Naval Operations, believed that encirclement, blockade, and bombardment would eventually compel the Japanese to surrender.

Others, notably Gen. George C. Marshall, the influential Army Chief of Staff, were convinced an invasion would be necessary. In the summer of 1945, the United States pursued a mixed strategy: continuation of the bombing and blockading, while preparing for an invasion.

Japan had concentrated its strength for a decisive defense of the homeland. In June, Tokyo's leaders decided upon a fight to the finish, committing themselves to extinction before surrender. As late as August, Japanese troops by the tens of thousands were pouring into defensive positions on Kyushu and Honshu.

Old men, women, and children were trained with hand grenades, swords, and bamboo spears and were ready to strap explosives to their bodies and throw themselves under advancing tanks.

An invasion would almost certainly have happened had it not been for the successful test of the atomic bomb in the New Mexico desert on July 16, an event that gave the United States a new strategic option.

The overall invasion plan was code-named Operation Downfall. In April 1945, the Joint Chiefs of Staff named

Gen. Douglas MacArthur commander in chief of US Army forces in the Pacific in addition to his previous authority as commander in the South Pacific. He would lead the final assault on Japan.

The invasion plan called for a US force of 2.5 million. Instead of being demobilized and going home, soldiers and airmen in Europe would redeploy to the Pacific. Forces already in the Pacific would be joined by 15 Army divisions and 63 air groups from the European Theater.

Operation Downfall consisted of two parts:

■ **Operation Olympic.** This invasion of Kyushu, the southernmost of Japan's main islands, was set for Nov. 1, 1945. It would be an amphibious landing a third larger than D-Day in Normandy. The expectation was that nine US divisions would be opposed by three Japanese divisions. (In fact, Japan had 14 divisions on Kyushu.) Far East Air Forces would support the invasion with 10 fighter groups, six heavy bomb groups, four medium bomb groups, four light bomb groups, three reconnaissance groups, and three night fighter squadrons. In addition, the B-29s would continue their strategic bombardment. MacArthur said the southern Kyushu landings would be conducted "under cover of one of the heaviest neutralization bombardments by naval and air forces ever carried out in the Pacific."

■ **Operation Coronet.** This was the code name for an invasion, in March 1946, of Honshu, the largest of the Japanese islands. Coronet would require 1,171,646 US troops, including a landing force of 575,000 soldiers and marines. It would be the largest invasion force ever assembled. Operation Coronet would make use of airfields on Kyushu captured during Operation Olympic.

As Japan's desperation grew, the ferocity of its armed resistance intensified. The code of bushido—"the way of the warrior"—was deeply ingrained, both in the armed forces and in the nation. Surrender was dishonorable. Defeated soldiers preferred suicide to life in disgrace. Those who surrendered were not deemed worthy of regard or respect. On Kwajalein atoll, the fatality rate for the Japanese force was 98.4 percent. On Saipan, nearly 30,000—97 percent of the garrison—fought to the death. On Okinawa, more than 92,000 Japanese soldiers in a force of 115,000 were killed.

Japan continued the fight with fanatical determination in the belief that the willingness of soldiers and sailors to sacrifice their lives would compensate



**Gen. Douglas MacArthur, commander of Allied forces in the Southwest Pacific, wades ashore at the island of Leyte, Philippines.**

for shortfalls in military capability. The Ketsu-Go ("Decisive Operation") defense plan for the homeland counted on civilians, including schoolchildren, taking part in the battle.

#### **An Elusive Answer**

Some 17 million persons had died at the hands of the Japanese empire between 1931 and 1945, and more would be certain to die during the final stand.

Japan had been controlled by the military since the 1930s. In 1945, power was vested in the "Big Six," the Supreme Council for the Direction of the War. Members were the prime minister, foreign minister, Army minister (also called War Minister), Navy minister, chief of naval general staff, and chief of the Army general staff. Army and Navy ministers were drawn from the ranks of serving officers. The dominant member of the Big Six was the War Minister, Gen. Korechika Anami.

Emperor Hirohito, regarded as divine and revered as the embodiment of the Japanese state, was supposedly above politics and government. In fact, he was interested in, and well-informed about, both of them. His enthusiasm for the war did not wane until the bombs and hardship reached Japan.

On March 18, Hirohito toured the areas of Tokyo firebombed March 9 and 10; he concluded that the war was lost and that Japan should seek an end to it as soon as possible. However, Hirohito agreed with the strategy of waiting to negotiate until

Japan won a big battle, strengthening its bargaining position.

The prime minister was Kantaro Suzuki, a retired admiral, who sometimes sided with the council's peace faction but aligned frequently with the military hardliners, who dominated meetings and policy.

Japan still held most of the territory it had captured in Asia and Indochina, and hoped to keep some of it. Its remaining military strength was considerable. If it could inflict painful casualties on the United States, Japan might be able to secure favorable terms, it thought.

Today, a fierce argument still rages about what the casualty toll might have been if the Operation Downfall invasion had taken place. The answer is elusive. Wartime casualty estimates were based on inaccurate assumptions—usually low—about enemy strength. Postwar analysis has been severely distorted by academicians and activists on the American left seeking to prove that neither an invasion of Japan nor the atomic bomb was necessary to end the war.

After the war, President Truman said that Marshall told him at Potsdam (July 1945) that the invasion would cost "at a minimum one-quarter of a million casualties, and might cost as [many] as a million, on the American side alone." For this, Truman was ridiculed. There is no independent evidence of what Marshall said at Potsdam. Truman may have been embellishing it, but his numbers were not preposterous, as is often alleged.



**Gen. Korechika Anami, Japan's War Minister, opposed the surrender but would not go against the Emperor.**

In fact, Joint Staff planners on two occasions worked up casualty estimates and came out in the same range. In August 1944, using casualty rates from fighting on Saipan as a basis, they said that "it might cost us a half-million American lives and many times that number in wounded" to take the Japanese home islands. An April 1945 report projected casualties of 1,202,005—including 314,619 killed and missing—in Operations Olympic and Coronet, and more if either of the campaigns lasted more than 90 days.

MacArthur's staff made several estimates for Operation Olympic, one for 125,000 casualties in the first 120 days and another for 105,000 casualties in the first 90 days. Marshall sent MacArthur a strong hint about Truman's concern about casualties, whereupon MacArthur, who wanted the invasion to go forward, backed away from the estimates, declaring them too high.

At a critical White House meeting on June 13, Marshall gave his opinion that casualties for the first 30 days on Kyushu would not exceed the 31,000 sustained in a similar period of the battle for Luzon in the Philippines. (Marshall took that number from an inaccurate report. Casualties for the first 30 days on Luzon had been 37,900.) Others at the meeting based their estimates on Okinawa, where US casualties were about 50,000.

(To put these numbers in some perspective, the losses for the Normandy invasion, from D-Day through the first

48 days of combat in Europe, were 63,360.)

Neither comparison was apt. The Japanese forces on Luzon and Okinawa were a fraction of the size of the force waiting in the home islands. As Marshall and other military leaders were about to learn, they had drastically underestimated the strength of the Japanese defenses on Kyushu and Honshu.

US intelligence agencies had long since broken Japan's secret codes. "Magic" was the name given to intelligence from intercepted diplomatic communications, and "Ultra" was intelligence from Japanese Army and Navy messages. From these intercepts, it was known that Japan intended to fight to the end.

On June 15, an intelligence estimate had reported six combat divisions and two depot divisions, a total of about 350,000 men, on Kyushu. However, beginning in July, Ultra intercepts revealed a much larger force, with new divisions moving into place.

Subsequent reports raised the estimated number of troops, first to 534,000 and then to 625,000. That nearly doubled the June estimate, but it was still too low. In actuality, Japan had 14 combat divisions with 900,000 troops on Kyushu, concentrated in the southern part of the island around the Olympic landing beaches. The American force committed to Kyushu was 680,000, of which 380,000 were combat troops. Japanese forces were being pulled back into Honshu as well. Between January and July, military strength in the home islands doubled, from 980,000 to 1,865,000.

### The Bombs Fall

Would the United States have pressed ahead with Operation Downfall anyway? If so, casualties would be much higher than predicted. If not, Tokyo would have won its bet that the United States would back down if the price in American lives could be made high enough.

It did not come to the test. The casualty estimates were never updated to take the Ultra intercepts into account. On Aug. 4, the war plans committee of the Joint Chiefs of Staff suggested reviewing the plan in view of the Japanese buildup, but by then the decision had been made to drop the atomic bomb.

The first atomic bomb fell on Hiroshima on Aug. 6. Japanese officials understood what it was; Japan had itself

been working on a fission bomb. The Big Six shrugged off the loss and held their position.

When the second atomic bomb was dropped on Nagasaki Aug. 9, the Navy chief, Adm. Soemu Toyoda, argued that the US could not have much radioactive material left for more atomic bombs. The hardliners refused to consider surrendering unless the Allies agreed that Japanese forces could disarm themselves, that there would be no prosecution for war crimes, and that there would be no Allied occupation of Japan.

War Minister Anami said the military could commit 2,350,000 troops to continue the fight. In addition, commanders could call on four million civil servants for military duty.

The Soviet Union declared war on Japan Aug. 8, which put pressure on the Big Six from a different direction. The Japanese had hoped, without sound reasons or encouragement, that they could cut a deal with the Soviets to counterbalance the Americans and permit the Japanese to keep some of their conquered territory.

On Aug. 10, the Foreign Ministry, acting on approval of the Emperor, sent notice to the US and the Allies that Japan could accept the demand for surrender if "prerogatives" of the Emperor were not compromised. The United States replied that the authority of the Emperor would be subject to the Supreme Commander of Allied Powers. The hardliners dug in, and the peace faction fell into disarray. Vice Adm. Takijiro Onishi, vice chief of the naval general staff, declared: "If we are prepared to sacrifice 20 million Japanese lives in a special attack [kamikaze] effort, victory will be ours."

As the world watched and waited, Gen. Carl A. Spaatz, commanding US Strategic Air Forces in the Pacific, redirected the B-29 force away from the firebombing of cities to precision attack of military targets, especially transportation. Marshall and his staff were studying an alternate strategy, to use atomic bombs in direct support of invasion. The United States expected to have at least seven bombs by Oct. 31. They were told by Manhattan Project scientists that lethal radiological effects from an atomic bomb would reach out 3,500 feet but that the ground would be safe to walk on in an hour.

The impasse was broken by the Emperor who decided to surrender and announce his decision to the Japanese people in the form of an "Imperial Rescript" broadcast on the radio.

Army and Navy officers put up violent resistance. Some attempted to

destroy the recorded rescript before broadcast. The commander of the Imperial Guard, who would not go along with the plot, was assassinated by Army hotheads. They tried to find and kill Suzuki as well. They attempted to persuade Anami—who was opposed to the surrender but would not oppose the Emperor—to join in a coup. Had he done so, the surrender might have failed, but Anami committed suicide instead.

### Enter the Revisionists

The Emperor's rescript was broadcast at noon on Aug. 15, and the war was over.

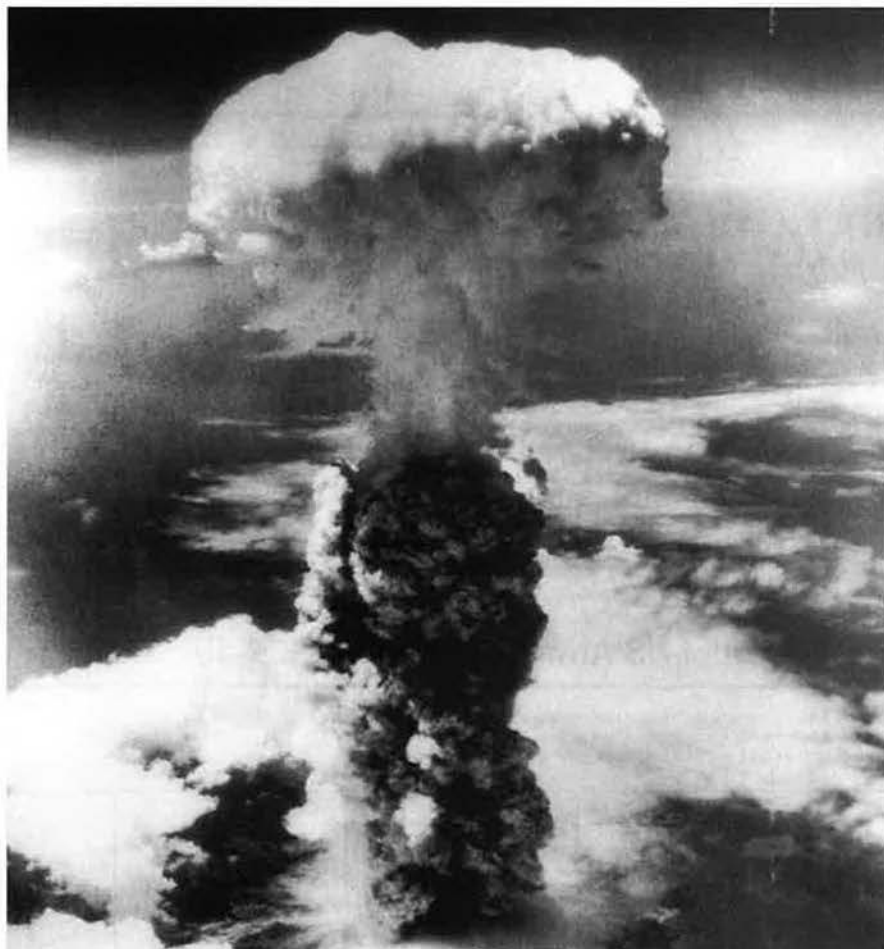
There was some criticism of the use of the atomic bomb in the immediate postwar period, but it was in the 1960s that the "revisionist" school of historians emerged, aggressively critical of the United States and challenging the necessity and motive for using the atomic bomb.

The central revisionist claim is that the atomic bombs were not necessary and that, even without them, the war soon would have been over. Japan was on the verge of surrender. The United States prolonged the war by insisting on unconditional surrender and dropped the atomic bombs mainly to impress and intimidate the Russians. In any case, the casualty estimates for an invasion of Japan were exaggerated.

The latest in the revisionist repertory is *Racing the Enemy: Stalin, Truman, and the Surrender of Japan* (2005) by Tsuyoshi Hasegawa, professor of history at University of California, Santa Barbara. "Americans still cling to the myth that the atomic bombs dropped on Hiroshima and Nagasaki provided the knockout punch," Hasegawa said. "The myth serves to justify Truman's decision and ease the collective American conscience."

A regular part of the revisionist litany is recitation of wartime opinions of Army Air Forces leaders, including Arnold and Gen. Curtis E. LeMay, who thought the war could have been brought to an end by conventional bombing. They ignore LeMay's later assessment that "the atomic bomb probably saved three million Japanese and perhaps a million American casualties."

Revisionists like to cite the US Strategic Bombing Survey of 1946, which said the Japanese would probably have surrendered by Nov. 1, even if Russia had not entered the war and even if no invasion was planned. The survey is



**A mushroom cloud rises over the Japanese city of Nagasaki on Aug. 9, 1945, three days after the first atomic bomb struck Hiroshima.**

not nearly as authoritative a product as the title sounds and its conclusions are contrary to the overwhelming weight of evidence.

It is reasonable to consider several factors as contributing to the surrender—bombing and blockade, Soviet entry into war, the impending invasion—but the Emperor's decision was key.

When Hirohito told his advisors that he intended to surrender, he gave three reasons: bombing and blockade, inadequate provisions to resist invasion, and the atomic bombs. He said on Aug. 14 that "a peaceful end to the war is preferable to seeing Japan annihilated."

In the Imperial Rescript of Surrender, he said, "The enemy has begun to employ a new and most cruel bomb, the power of which to do damage is, indeed, incalculable, taking the toll of many innocent lives." Hirohito, at a meeting with MacArthur Sept. 27, 1945 said, "The peace party did not prevail until

the bombing of Hiroshima created a situation which could be dramatized."

Japan was not ready to surrender prior to the dropping of the atomic bombs. Without them, the war would have gone on. Those who think otherwise seriously underestimate Japan's residual strength and determination.

Bombing and blockade would have eventually ended the war at some point but were not likely to have done so anytime soon. The B-29 firebombing would probably have resumed, and two nights of it on a par with March 9 would have exceeded the death toll of both atomic bombs.

Operation Olympic would most likely have gone forward against a Japanese force with 600,000 more troops than previously estimated on Kyushu—and that would have left the invasion of Honshu and Operation Coronet yet to come.

In the end, Japan would have been defeated, but the price in lives on both sides would have been terrible. ■

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*John T. Correll was editor in chief of Air Force Magazine for 18 years and is now a contributing editor. His most recent article, "Doolittle's Raid," appeared in the April issue.*

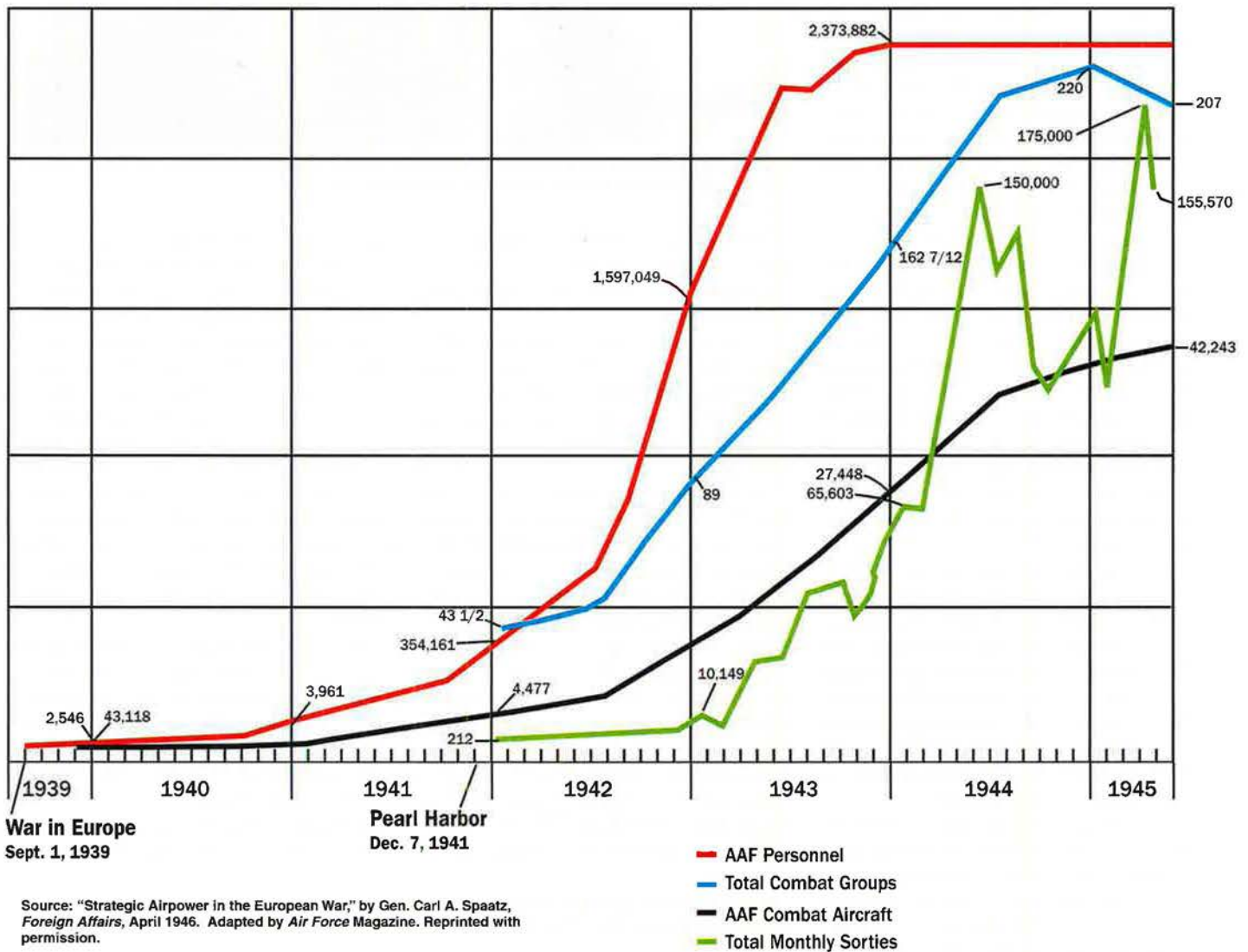
## “No-War-Itis” in the 1930s

After World War II, Gen. Carl A. Spaatz took up the topic of readiness—rather, the lack of it—in the 1930s. The Chief of Staff, writing in *Foreign Affairs*, said US Army Air Forces after Pearl Harbor rapidly built up personnel, combat groups, and, at a much slower pace, aircraft. However, it took years to forge such “things” into an effective fighting force, measured in combat sorties.

Sorties did not grow much until 1943, and did not hit high levels until 1944. They shot up at D-Day, declined, and then peaked in 1945. Spaatz warned this long lag between onset of a crisis and arrival of usable military power was dangerous, and should be avoided by careful planning for future conflicts.

### Expansion of US Army Air Forces, 1939-45

Curves are individually consistent but expressed in different scales. Small numbers on chart signify actual numbers of personnel, groups, aircraft, and sorties at given points.





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Through February, enlisted retention was at 93 percent of the year-to-date goals.

# Sustain and Retain

By Tom Philpott



USAF photo by SrA Andrew Salran



**L**ast June, the Air Force halted a force drawdown that had begun in 2005 and was more than two-thirds complete. Rather than cut a final 10,000 from USAF's end strength, personnel managers were told to reverse course and start expanding the active force to a target of 330,000 officers and enlisted airmen.

The reason? USAF had become too small to support wartime operations and

emerging missions. Simply put, USAF members were being asked to do too much.

Personnel managers saw evidence of this in poor enlisted retention rates. Fiscal 2003 retention goals were repeatedly missed, and enlisted retention finished the year at 38 percent of the goal.

The service quickly adjusted: This year, enlisted retention has improved, largely due to an expansion of re-enlistment bonuses. Today, officials express cautious

confidence that force retention is back on the right path.

"We were in a downsizing mode in Fiscal 2008," said Col. Kenneth Sersun, deputy chief of USAF's force management division in the Pentagon. The Air Force was "hurting significantly on the enlisted side" in retaining the right numbers of airmen in all three enlistment zones.

The Air Force received \$46 million for re-enlistment bonuses in 2008 (far less than it had requested), but defense officials took notice as the service missed its monthly targets.

The worry about whether USAF would be able to keep the proper number of airmen in uniform deepened after Defense Secretary Robert M. Gates announced that the Air Force's self-imposed drawdown, to free up money to recapitalize its aircraft fleet, would end at 330,000 personnel.

"That completely shifted our paradigm," Sersun said.

The retention challenge was about to get much more difficult. Far from just halting

the drawdown, USAF needs additional personnel for securing and managing nuclear weapons; more airmen for unmanned aerial system operations; expanded special operations forces; and airmen for burgeoning intelligence-surveillance-reconnaissance missions.

The Air Force increased its Selective Re-enlistment Bonus program significantly, to “three times what it was in ’08,” Sersun said. This year, USAF has gone from \$46

million to \$137 million in bonus money and from 37 eligible Air Force specialty codes for bonuses up to 88.

Lt. Gen. Richard Y. Newton III, deputy chief of staff for manpower and personnel, testified in March that the restored SRB program had left the Air Force “well positioned ... to meet FY09 retention goals and ensure we retain the right airmen, with the right skills, at the right time [for] our expeditionary requirements.”

### Stressed Specialties

Through February, enlisted retention was at 93 percent of the year-to-date goals. Compared to the recruitment-driven Army, Sersun said the Air Force has a “much greater need to retain personnel and, consequently, we’re doing it this year.”

Air Force officials played down the effects of a collapsing private-sector job market on their retention successes. This may reflect concern that market forces could be used to justify another slash in bonus programs, limiting the ability to react to manpower challenges—especially when the economy recovers.

“There has been a lot of speculation, particularly from the Army, that the economy is what drives retention,” Sersun elaborated. “In the Air Force, that’s not a significant aspect. We are a completely different force from the Army, ... a retention-based force, more technical in nature, with longer training times.”

In March, the Navy made the largest cut to the re-enlistment bonus menu in recent memory. Sersun said no such announce-

ment would be coming from the Air Force, which faces a different set of challenges. Seven percent of Air Force officers and almost 13 percent of enlisted personnel serve in “stressed” career fields—those with very high deployment rates, manning shortages, or some combination of the two. Some 38,000 airmen are affected.

Officially stressed enlisted career fields, affecting 33,000 personnel, include combat control, tactical air control party, pararescue, pavement/construction equipment, structural, operations management, explosive ordnance disposal, security forces, and contracting.

Stressed officer specialties, involving 4,600 personnel, are control and recovery, special operations navigator, airfield operations, security forces, civil engineer, contracting, and public affairs.

It is inaccurate to portray the service overall as “overworked, tired, and worn out,” Sersun said. “Yes, we are working hard, but ... they’re all in. They are ready to go.”

Contrary to popular perception, the pace of deployments thus far has not exacerbated the retention problems.

Surveys of Air Force personnel just don’t bear out that concern. “We don’t have any data that support the [notion] that deployments are hurting retention,” Sersun said. “As a matter of fact, we have some data to the contrary, that deployments are good for retention.”

Selective re-enlistment bonuses for enlistees and critical skills retention bonuses for officers remain the best tools to keep ranks full of quality airmen with the right skill mix, Sersun said. With bonus programs properly funded, “we’re very confident we’re going to meet our retention goals this year.”

Skill-specific challenges remain, however, with some AFSCs seeing significant shortfalls—and retention numbers overall are below what the service feels it needs to quickly shape the force.

Officer retention was strong last year, achieving 112 percent of the overall goal. It remains healthy this year and might hit all-time highs in the 20,000-strong rated officer community of pilots, combat systems officers, and air battle managers.

“We’re enjoying some of the best retention in the rated officer world that we’ve really ever seen,” said Lt. Col. David T. DuHadway, chief of rated force policy on the Air Staff. That’s critical because the rated community will absorb most of the force growth required for new or expanding missions.

Besides the robust UAS requirement of “50 full-motion-video combat patrols by



USN photo by Petty Officer 2nd Class Todd Frantom



USAF photo

Far left: TSgt. Wayne Birkand (l) and SrA. Joseph Northcutt assemble a KC-135 brake at an air base in Southwest Asia. Top: SSgt. Jarrett Cox keeps guard during a patrol through the Sadiyah district of Baghdad. Above: SSgt. Robert Coddington and TSgt. Surita Rorie re-enlist at a hockey game in Los Angeles.



**Airmen of the 525th Aircraft Maintenance Unit guide a Joint Direct Attack Munition along the flight line at Elmendorf AFB, Alaska.**

the end of 2011,” DuHadway said, “Air Force Special Operations Command is very actively buying aircraft and fielding them fairly rapidly.”

These include the new Liberty Project Aircraft, the MC-12 light ISR aircraft, with a total demand for pilots that could top 300. The demand for rated officers for these new missions will be met primarily through retraining, not growth in officer numbers, DuHadway said.

“We have to find ways of providing the aircrews for all these platforms on top of what we’re already doing,” he said. “Having good retention, which we have right now, is the key. It’s providing us with a foundation and the ability to sufficiently man all these mission areas.”

The Aviator Continuation Pay bonus program for rated officers showed a take rate of 68 percent last year, which is high.

This year, the Air Force opened ACP even to retirement-eligible officers. Also, some who did not take ACP in their first year of eligibility are being offered it again.

“In the past, we opened it up only the year that their commitment was up, and if they choose to take it, great; if they didn’t, they weren’t eligible anymore,” DuHadway explained. “We have a lot of requirements that have grown inside of our programming cycle.”

The Air Force has found that many pilots who decline the ACP bonus, which comes with a lengthy additional service obligation, are sticking around. The retention rate for these pilots is as high as 90 percent for some year groups.

Why do they stay in such numbers?

“Right now, airline hiring is virtually nonexistent,” DuHadway said. There isn’t always “a direct correlation between the health of the airline industry and the

strength of our aircrew retention,” he added, but “given that we have significant requirements growth, that is helping us significantly.”

### Short-term Turbulence

The ACP for pilots is offered after the initial pilot training commitment expires after 10 years of service. ACP bonuses offer pilots \$25,000 a year for up to five years of additional service. Battle managers and retirement-eligible officers in all three rated categories are being offered \$15,000 a year. The Air Force also has a voluntary recall program for retirees and reserve component aircrew officers—by mid-March, about 350 had applied this year.

“We think these two programs will help us get through what we see as some short-term turbulence trying to meet very high priority requirements,” said DuHadway.

“Retaining the right skills is a huge concern,” Sersun said, “particularly as we’re growing some missions and adding [personnel] authorizations to different areas.”

In fact, aggregate retention numbers are not enormously useful. Meeting skill-specific goals is far more consequential.

“If we have 600 cooks and need only 300 cooks, that doesn’t help the explosive ordnance troops in the field,” Sersun explained. “The SRB program is helping us to [retain] effectively.”

The Air Force will face a critical retention environment in 2010. Officials expect difficulty keeping some large career groups filled—particularly maintainers, vehicle managers, civil engineers, communications and computer system operators, and special operators.

Some AFSCs represent new areas for shortages.

The problem is tied to how rapidly the Air Force tried to reduce force strength beginning in 2005: To reach lower personnel targets, the service accessed only to 60 percent of requirements, signing 19,000 recruits instead of 32,000. So starting this year, force managers have to keep retention for the 2005 year group unusually high to avoid long-term skill and experience shortages.

Operational demands will stress the service in new ways, as some forces shift from Iraq to Afghanistan and the Air Force prepares for the emerging mission areas.

“This is one of the reasons why we need to continue to have a robust SRB program,” Sersun said. “Those career fields that we offer the highest SRBs to are also the ones” that are growing.

Over the past year, the Air Force has added 2,500 personnel to what it calls its “nuclear enterprise” mission, the No. 1 priority for Gen. Norton A. Schwartz, Air Force Chief of Staff.

Those personnel include security forces, command post controllers, munitions experts, and maintenance specialists for ICBMs and nuclear-capable aircraft. It takes bonuses to keep these airmen, even in a weak economy.

“They have lots of opportunities on the outside,” Sersun said. Security forces airmen, for example, often work in theater side by side with Blackwater contractors “making three or four times what the enlisted troop is making. ... You can imagine there’s a lot of pull there.”

A bonus policy change this year is helping retain the most critical skills. The \$60,000 cap on SRB awards was raised to \$90,000, the maximum allowed by law. As a result, bonus awards for some Zone C enlisted members (those with 10 through 14 years of service) in critical skills such as pararescue have jumped by \$30,000 for long-term contracts.

While retention is very strong among officers, a few pockets of concern remain. They involve some health professions, control and recovery officers supporting special forces, and contracting officers.

USAF this year is using \$65 million in medical bonuses to keep additional surgeons and biomedical science officers on its rolls. It also has deployed a new control and recovery bonus—and hopes to win approval for a contracting officer bonus. ■

*Tom Philpott, the editor of “Military Update,” lives in the Washington, D.C., area. His most recent article for Air Force Magazine, “Total Force Tricare,” appeared in the April 2004 issue.*

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# Carbon Copy Bomber



**The new Soviet bomber was really just a knockoff of a famous American bomber—no Bull.**

By Walter J. Boyne

Photo from Aleksey Mikhayev collection

**I**n the 1940s, the United States produced a bomber with capabilities so advanced that it required a national revolution in engineering, aerodynamics, manufacturing, electronics, material, and operation. And so did the Soviet Union.

The US spent more on its new bomber than it had on any previous aviation project. The Soviet Union did the same.

The US aircraft—the B-29 Superfortress—made history on Aug. 6, 1945, when it dropped an atomic weapon on Hiroshima. The Soviet aircraft went on display on Aug. 3, 1947 at the annual Tushino air show. Visitors in Moscow that day witnessed a stunning flyover: the debut of the Tu-4 bomber.

Here's the odd thing. The monumental US and USSR bomber programs had produced what was, for all intents and purposes, the same aircraft.

The three Tu-4s flown at the air show were indistinguishable from US B-29s, the state-of-the-art aircraft that had revolutionized long-range strategic bombing.

Western observers initially believed—hoped—that the aircraft seen at the Moscow air show were actually

three B-29s that had made emergency landings in the Soviet Union near the end of World War II. But there was also a Tu-70 passenger version of the B-29 in the flyby that day, which forced the observers to accept a troubling fact.

The Soviet Union had done the impossible: It had reverse engineered and produced flyable B-29 replicas in two short years. The Tu-4 was a virtual carbon copy of the Superfortress.

## Rise into the Modern Age

The Tu-4s gave the Soviet Air Force a strategic air arm that posed a genuine threat to the Free World. By 1950, more than 270 Tu-4s were deployed in Soviet Long-Range Aviation regiments. NATO gave the bomber the code name Bull, and by the Korean War, there were enough available for the Soviets to put them in the service of the People's Republic of China.

The Tupolev Tu-4 took part in no decisive battles, but its effect on Soviet aviation was incredibly important. The Bull brought the entire Soviet aircraft industry, from its design bureaus to its most insignificant parts supplier, into the modern airpower age.

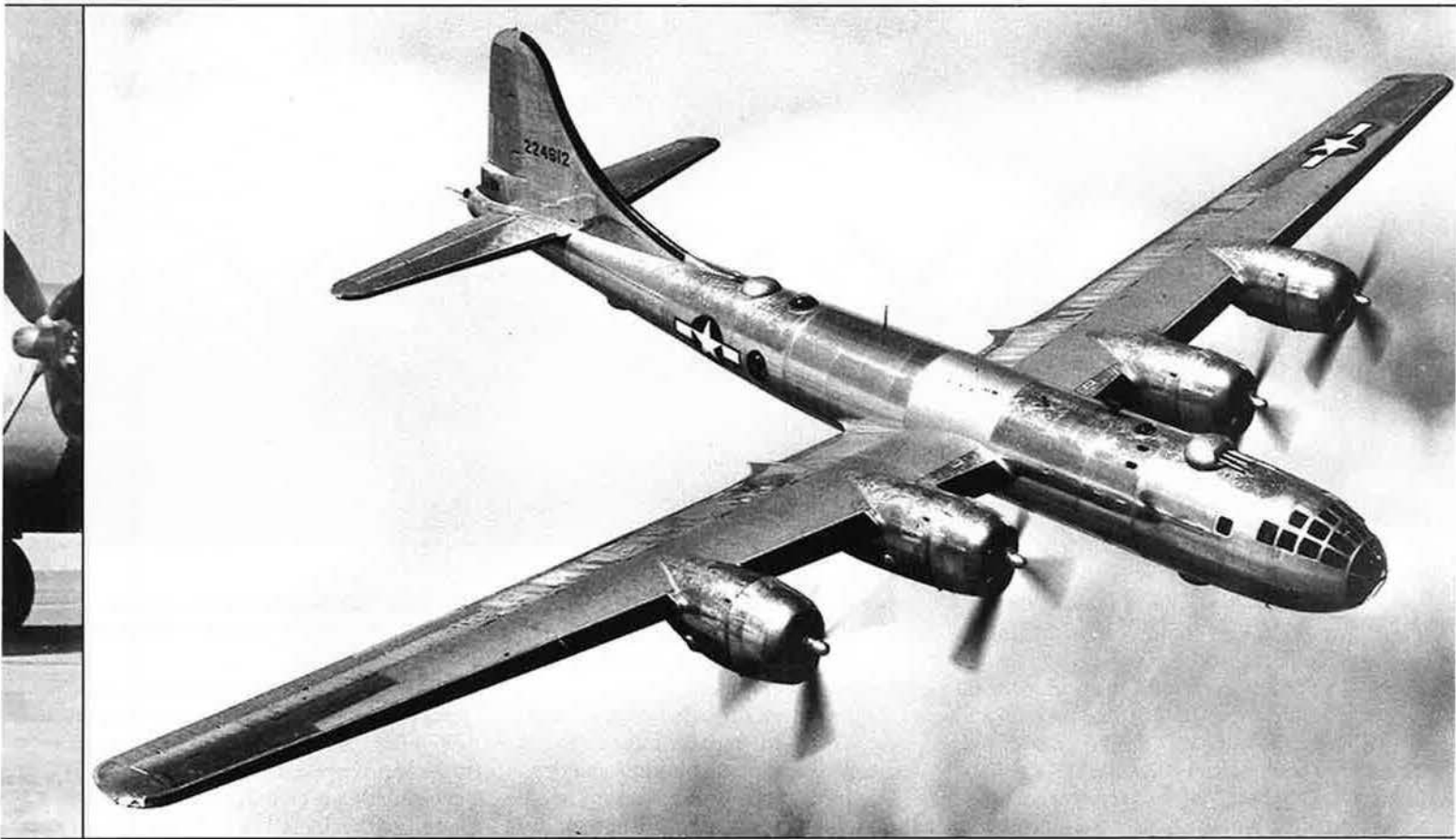
The Soviets made remarkable progress in producing nuclear weapons, but without the amazingly rapid production of the Tu-4, the USSR could not have delivered those weapons for many years.

The US B-29 effort was an immense undertaking. Program cost estimates vary, but it is generally stated that the entire B-29 effort cost about \$3 billion—more than the Manhattan Project that developed the world's first nuclear weapons. Huge new plants were built for the three companies that manufactured airframes—Boeing, in Renton, Wash., and Wichita, Kan.; Bell in Marietta, Ga.; and Martin in Omaha, Neb.

The B-29 was at the time the heaviest bomber ever built, dwarfing the B-17, Avro Lancaster, and Heinkel He 177.

Manufacturing contributed to the B-29 program's size. There were four main factories, three modification centers, and the largest subcontracting program in Boeing history for equipment and subassemblies.

Equally important was the B-29's complexity, with its new structure,



Left: Russian-built Tu-4s line up at a base in the Soviet Union. Here, a B-29, virtually indistinguishable from the Soviet copy, skims over the clouds.

pressurized crew compartments, central fire-control system, and powerful new Wright R-3350 engines equipped with two superchargers and trouble-prone propellers.

To obtain the required performance, Boeing reduced drag by specifying that the B-29 be built with smooth skin joints and flush riveting.

Also a cost factor was the pell-mell speed of the program—which saw the first aircraft flown before many key systems were designed, much less tested.

The B-29 entered combat on June 5, 1944 with a raid on Bangkok. In the next 13 months, it would help win the war with Japan—and simultaneously plant the seeds for the USSR's first great postwar bomber.

The Soviet Union had led the world in the construction and operation of large bombers in the 1930s. In the 1940s, however, the USSR turned its attention to smaller aircraft to stem the tide of World War II's German invasion.

The Russians first became aware of the B-29 program when a talkative Eddie Rickenbacker made a controversial June 1943 trip to the Soviet Union.

A later request for 120 Lend-Lease B-29s was ignored, but on July 29, 1944, the Soviets received a gift, seemingly out of the heavens. An intact B-29—*Ramp Tramp*—was damaged in a raid on Manchuria and forced to land in Vladivostok.

Three more Superforts soon fell into Soviet hands.

Two of the bombers—*General H. H. Arnold Special* and *Ding Hao!*—landed at Vladivostok's Tsentral'naya uglovaya, a Pacific Fleet air base; one—*Cait Paomat II*—crashed nearby.

### The Camps

As allies, the US and USSR kept up good relations during the war, but the United States had to exert strong diplomatic pressure on the Soviets to obtain the release of almost 300 airmen who wound up in Soviet custody. The interned B-29 crews were among these guests of the Soviet Union.

As the USSR and Japan were not at war in 1944, the Soviets sought to avoid antagonizing Japan by publicly returning the Americans who had diverted after bombing Japanese targets.

The Soviets ultimately succumbed to

US pressure to move the men from the harsh Siberian camps in which they were held. It was agreed first to transfer the crewmen to gulags in Central Asia where the weather was not so extreme.

Treatment in the camps was primitive by American standards, but normal to the resident Russians and probably exotically luxurious to the regular gulag inmates.

There were plenty of gulags across the Soviet Union, and this network ultimately became the escape route for the American crews.

The aircrews were moved from camp to camp across Uzbekistan and Turkmenistan until the men were in a position to be smuggled across the border, into Persia—modern-day Iran—with the USSR's cooperation.

At least four different "escapes" (called such to avoid criticism if the Japanese learned of them) took place with Soviet complicity. These escapes into British territory were orchestrated by the Soviet secret police and were done with such a degree of security that few knew the full story.

At their release, the American crew members were asked not to publicize

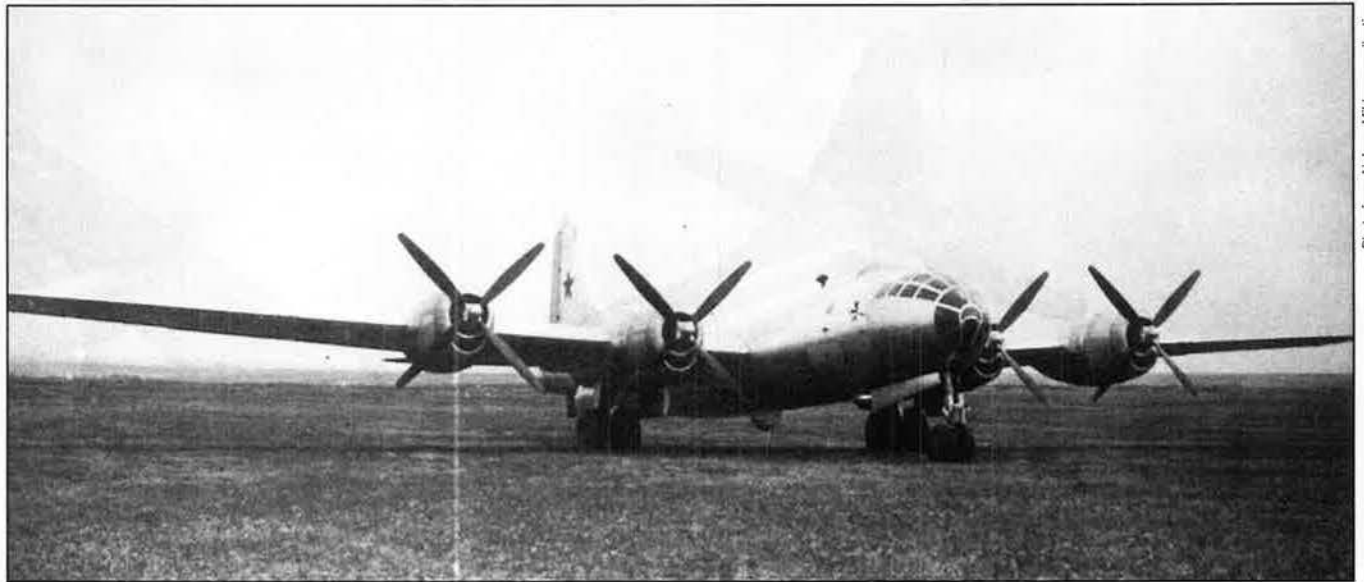


Photo from Aleksey Mikhayev collection

their stories so that the escape routes would not be compromised for future prisoners.

The Soviets would not give up the B-29s the airmen flew in on, however, and began a systematic test program which ran from January to July 1945.

The three flyable aircraft were taken to the Izmailovo airfield outside of Moscow and transferred to the 65th Special Mission Air Regiment. They then came under the purview of Air Marshal Alexander Golovanov.

Stalin was distressed that the Soviet Union did not possess a strategic bomber like the B-29, and was very unhappy with aircraft designer Andrei N. Tupolev,

whose own strategic bomber, *Samolet 64*, was not only behind schedule but also lacked essential bombing and navigation equipment.

Golovanov is reputed to have suggested to Stalin that the interned B-29s be copied and placed into production.

In June 1945, Stalin's orders were promulgated, tasking the Tupolev design bureau to copy the B-29 and put it into production. An extremely detailed instruction placed the weight of responsibility on Tupolev's shoulders—but also placed the whole of Russian government and industry behind him. His bureau was to break down a B-29 in the reverse order in which Boeing and

***The first Tu-4 to come off the assembly line, shown shortly after rollout in 1947.***

its subcontractors had assembled it. All parts were to be reverse engineered, and individual elements were to be assigned to the appropriate enterprises for manufacturing. Many elements of the aircraft had never been dreamed of, much less built, in the Soviet Union, yet firms were ordered to fulfill the task.

Stalin decreed that they be copied exactly, down to the smallest detail. Any deviation in one part would inevitably lead to deviations in others, and production chaos would ensue. (Small changes were later permitted, as with

***Crew members of a late-production Soviet Tu-4 are briefed before a training mission. The Soviet Union jump-started its airpower capability reverse-engineering four US B-29s that fell into Soviet hands.***



Photo from Aleksey Mikhayev collection



## Boeing B-29s Interned in the Soviet Union

Serial #	Name	Commander	Unit	Interned at	Date
42-6256	<i>Ramp Tramp</i>	Capt. H. R. Jarrell	770th BS, 462nd BG	Vladivostok	July 29, 1944
42-93829	<i>Cait Paomat II</i>	Maj. R. McGlenn	395th BS, 40th BG	Crashed	Aug. 20, 1944
42-6365	<i>General H. H. Arnold Special</i>	Capt. W. H. Price	794th BS, 468th BG	Vladivostok	Nov. 11, 1944
42-6358	<i>Ding Hao!</i>	1st Lt. W. Micklish	794th BS, 468th BG	Vladivostok	Nov. 21, 1944

**The Soviet Union scrupulously upheld agreements with Japan by interning US aircraft and crews making emergency landings in Soviet territory. Crews were treated roughly and secretly released, through Iran, in January 1945.**

the installation of Russian engines and cannon.)

This assignment seemed impossible for many reasons, not the least of which was the fact that the Soviets used the metric system.

There were subtle differences between the national aerospace industries as well. The Soviet aluminum industry could not be converted to mill aluminum sheet to American dimensions. Each aluminum part had to be analyzed for its strength requirements to determine whether a slightly larger (i.e., heavier) or smaller (i.e., lighter) piece of Soviet aluminum could be used. Weight control was essential, and it is to the credit of Soviet engineers that the Tu-4 was kept within one percent of its designed weight goal.

Dimensions were not the only problem; materials also had to be reverse engineered to determine their composition, with suitable alterations then being made in what had previously been standard Russian techniques.

In some areas—plastics, electronics, navigation and radar equipment, and most particularly, the fire-control system—the complexity and sophistication of the B-29 seemed beyond Soviet attainment.

Yet Stalin decreed an ironclad two-year deadline for the program. With Stalin, the term “deadline” had a double meaning, and he used Lavrenti Beria, the notorious chief of the Commissariat for Internal Affairs (NKVD), to back up his orders with the customary Soviet brutality.

### Scavenging the B-29s

No one knew this better than Tupolev, who had been arrested in 1937 on absurd charges that he had sold the Messerschmitt Me 110 design to the Germans. He began working in a gulag-like aircraft bureau in Moscow in 1939 and was not released from prisoner status until 1941 nor fully pardoned until 1955, two years after Stalin’s death.

Final control was in Tupolev’s hands. Against all odds, given the arcane interactions of the Soviet bureaucracy, what emerged was a model of managerial efficiency, one that was subsequently adapted by the Soviet Union’s successful space program.

Given Army Air Forces Chief Gen. H. H. “Hap” Arnold’s patronage of the B-29, the *General H. H. Arnold Special* was chosen to be disassembled and copied.

*Ding Hao!* was grounded for use as a back-up reference.

*Ramp Tramp* continued to fly for almost a decade, doing test work that included air-launching the near-supersonic rocket-powered Samolet 346 test aircraft.

Parts were scavenged from *Cait Paomat II*, the one Superfort that had crashed.

*General H. H. Arnold Special* was carefully broken down into separate assemblies. These were further disassembled, with each of the thousands of pieces—metal, instruments, radios, wiring, motors, ducts, vents, Dzus fasteners, everything—measured, photographed, weighed, and given a detailed written description. All parts were analyzed to determine the material from which they were made. The products of modern American chemistry—plastic, synthetic fabrics, lubricants—were especially challenging.

Draftsmen working around the clock created thousands of engineering drawings, each one including the key transition from American measurement standards to the metric system.

While Tupolev, a master politician, dealt with the key government, party,

**Artist’s rendering of the Tupolev Tu-4 Bull No. 220504, as it appeared in the late 1950s at Bagerovo AB, Ukraine.**



Artwork copyright Zaur Eylanbekov

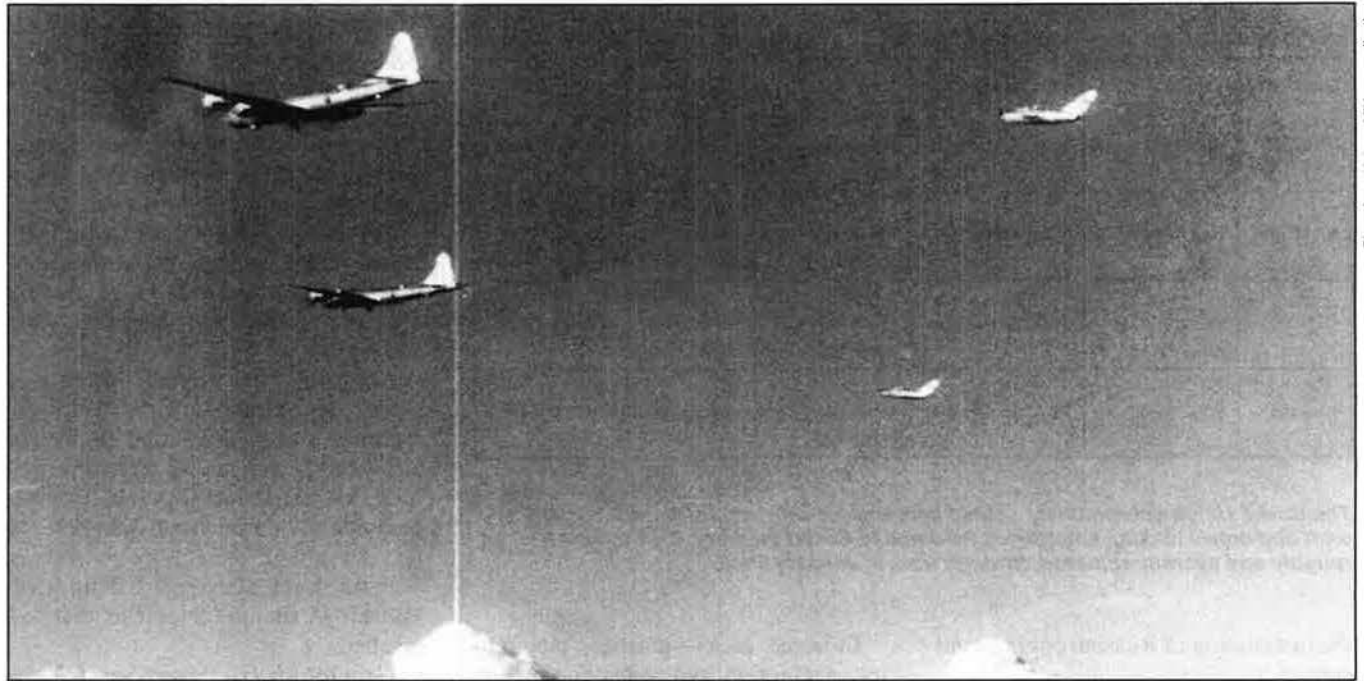


Photo from Aleksey Mikhayev collection

and service officials, his team at the design bureau managed the “routine” of cloning a weapon system. Special teams were assigned responsibility for each and every element removed from the B-29.

Tupolev mustered his industry, calling on scores of design bureaus, dozens of research institutes, and hundreds of factories. Their task was to create duplicates of the parts being removed from the B-29 and establish the manufacturing facilities to produce them in quantity.

The Tupolev design bureau carefully monitored the quality of the products. Some suppliers lobbied for their own products or manufacturing techniques, but Tupolev demanded conformance to the Boeing sample. In addition to the risk of cascading effects from a change, Tupolev realized that Beria might perceive some change, however innocuous, as being treason.

It was Tupolev’s good fortune that there was a suitable substitute for the B-29’s Wright R-3350 engine available, the Shvetsov ASh-73TK. The Soviet aircraft engine industry had licensed Wright products for years, building many adaptations of them. The ASh-73TK offered 2,300 horsepower and, while ultimately reliable, suffered some of the same teething problems encountered by the R-3350—including induction system fires.

In many ways, the biggest challenge of the B-29-to-Bull process was in its electronic systems, particularly the central fire-control system (CFCS) that used General Electric analog computers

to aim and fire weapons remotely. The CFCS was vital because the B-29 was pressurized, and large apertures for the guns were out of the question. It was an extremely complex system that called for a host of intricate parts and switches unknown to Soviet industry.

### Rolling Off the Line

Yet the Tupolev team pulled it off, and went on to substitute 23 mm cannon for the American .50 caliber machine guns.

By late summer 1946, a full-scale mock-up of the Tu-4 was ready, and *Ramp Tramp* was being used to gather data and check out the flight crews who would test the Tu-4.

The first production facility at Plant No. 22 in Kazan was hurriedly outfitted with the necessary templates, machine tools, jigs, and other equipment necessary for mass manufacture. Thousands of workers had to be taught new skills, and everyone worked 12 to 14 hours a day, seven days a week. Later, additional production came from Plant 18 in Kuibyshev and Plant 23 in Moscow.

Not content with duplicating the B-29, Tupolev also began the design and construction of a passenger version, the Tu-70, which flew on Nov. 27, 1946—six months before the Bull bomber itself.

***The Bull eventually served in a variety of roles, including that of a tanker. Here, two MiG-15s approach a pair of Tu-4s, ready to take on fuel.***

The first Tu-4 rolled out on Feb. 28, 1947, to the delight of the factory workers and to Tupolev’s profound relief. As aircraft came off the production line, they were entered into a 20-airplane test program for the state acceptance program.

First flight for the Bull bomber took place on May 19. The effort must have seemed worthwhile when the first three Tu-4s flew at the August Moscow air show, with Golovanov in one aircraft, creating an international furor.

The Soviets continued a testing role for the Tu-4s, most notably using the Bull for the first airdrop of a Soviet atomic bomb on Oct. 18, 1951.

The Tu-4 eventually served in many roles—anti-shipping, tanker, reconnaissance, missile launcher, drone carrier, and engine test bed—before retirement. But its most important contribution by far was spring-boarding the Soviet Union to a leading role in developing air and space power.

The crews of the four B-29s that made their way to Vladivostok had no idea how much of an effect their distressed aircraft would ultimately have. ■

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*Walter J. Boyne, former director of the National Air and Space Museum in Washington, D.C., is a retired Air Force colonel and author. He has written more than 600 articles about aviation topics and 40 books, the most recent of which is Hyper-sonic Thunder. His most recent articles for Air Force Magazine, “Ring of Remembrance” and “They Wanted Wings,” appeared in the February issue.*

## What Terrorism?

"In my speech, although I did not use the word 'terrorism,' I referred to 'man-caused' disasters. That is perhaps only a nuance, but it demonstrates that we want to move away from the politics of fear toward a policy of being prepared for all risks that can occur."—**Janet Napolitano, Secretary of Homeland Security, Spiegel Online, March 16.**

## What War?

"This Administration prefers to avoid using the term 'Long War' or 'Global War on Terror' (GWOT). Please use 'Overseas Contingency Operation.'"—**E-mail from Office of Management and Budget, officially downplayed as the "opinion of a career civil servant," Washington Post, March 25.**

## What Don't You Understand?

"The Administration has stopped using the phrase, and I think that speaks for itself."—**Secretary of State Hillary Rodham Clinton on the rebranding of the "War on Terror," Wall Street Journal, March 31.**

## Or, ACAEWWTDUH

"If it's appropriate, I'll use it [Global War on Terror]. ... Perhaps a better—another way—to refer to it would be, you know, a campaign against extremists who wish to do us harm."—**Pentagon press secretary Geoff Morrell, March 25.**

## God and the QDR

"If God really hates you, you may end up working on a Quadrennial Defense Review: the most pointless and destructive planning effort imaginable. You will waste two years on a document decoupled from a real-world force plan, from an honest set of decisions about manpower or procurement, with no clear budget or [future years defense plan], and with no metrics to measure or determine its success. If God merely dislikes you, you may end up helping your service Chief or the Chairman of the Joint Chiefs draft one of those vague,

anodyne strategy documents that is all concepts and no plans or execution. If God is totally indifferent, you will end up working on our national strategy and simply be irrelevant."—**Anthony H. Cordesman, National Defense University, March 11.**

## Nuclear Free

"The United States will take concrete steps toward a world without nuclear weapons. To put an end to Cold War thinking, we will reduce the role of nuclear weapons in our national security strategy and urge others to do the same."—**President Obama, speech in Czech Republic, April 5.**

## Behind in Influence

"This is a disaster for the Air Force and airpower in general. I think you would have to read into the recommendation that the Air Force doesn't have the political influence of the other services."—**Loren B. Thompson, Lexington Institute, on major shifts proposed in the defense budget, with Air Force programs taking heavy cuts, Dayton Daily News, April 7.**

## NATO in Its Dotage

"Present-day NATO is a shadow of what it once was. Calling it a successful alliance today is the equivalent of calling General Motors a successful car company—it privileges nostalgia over self-awareness."—**Andrew J. Bacevich, Boston University, Los Angeles Times, April 2.**

## The Robots Decide

"The trend is clear. Warfare will continue and autonomous robots will ultimately be deployed in its conduct. The time available to make the decision to shoot or not to shoot is becoming too short for remote humans to make intelligent informed decisions."—**Ronald Arkin, Georgia Institute of Technology, in a study commissioned by the Army, Chicago Tribune, March 30.**

## Stakes in Pakistan

"Pakistan is 173 million people, 100 nuclear weapons, an army bigger than the US Army, and al Qaeda headquar-

ters sitting right there in the two-thirds of the country that the government doesn't control. The Pakistani military and police and intelligence service don't follow the civilian government; they are essentially a rogue state within a state. ... The collapse of Pakistan, al Qaeda acquiring nuclear weapons, an extremist takeover—that would dwarf everything we've seen in the War on Terror today."—**David Kilcullen, Australian anthropologist and advisor to Gen. David H. Petraeus during troop surge in Iraq, Washington Post, March 22.**

## Ballistic Missiles Passé

"Ballistic missiles are about as passé as e-mail. Nobody does it anymore. If you're going to do something over the next couple of years to address the unknown, then my dollar is going to go toward sensor and command and control."—**Marine Corps Gen. James E. Cartwright, vice chairman of the Joint Chiefs of Staff, on missile defense, Reuters, March 23.**

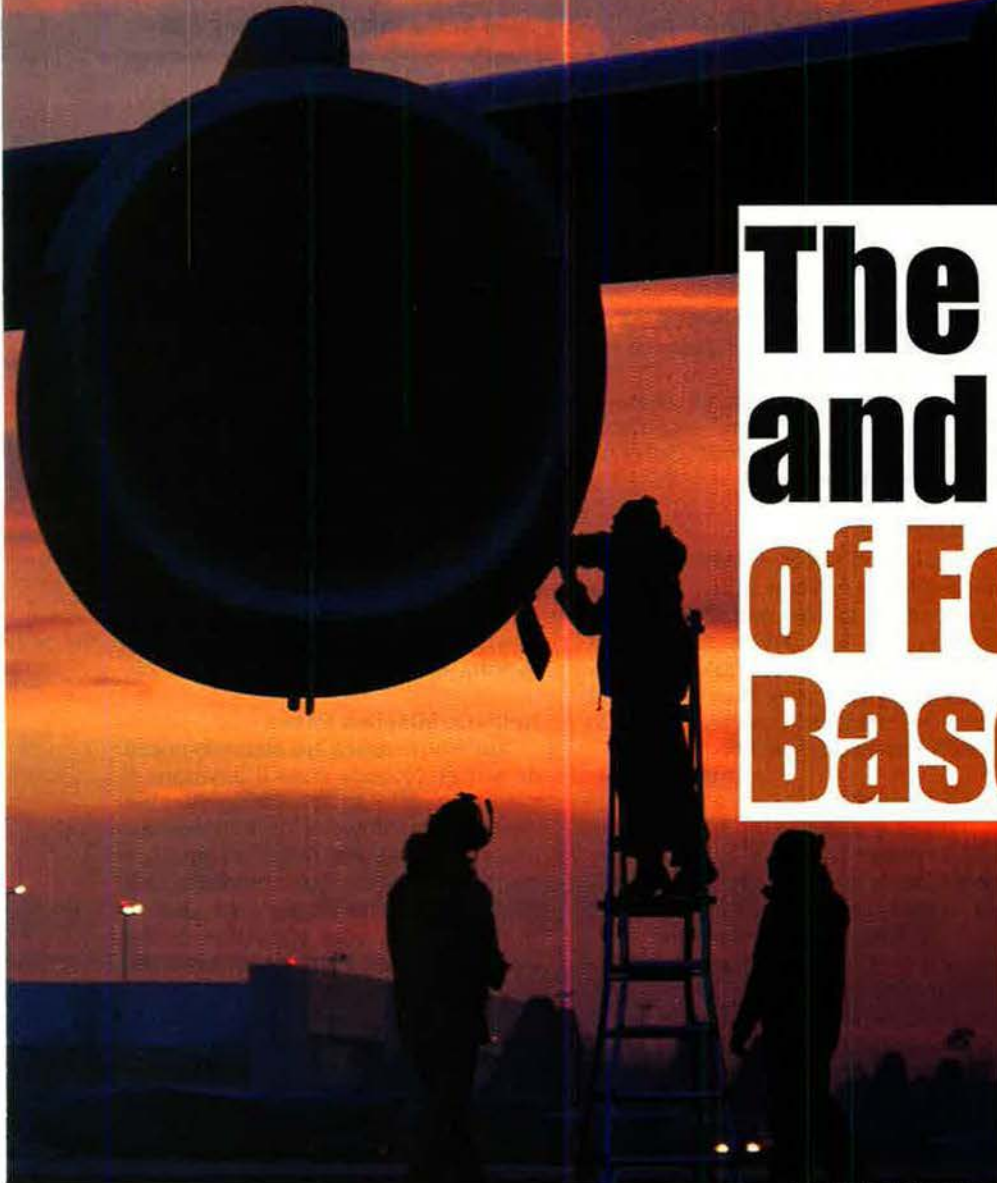
## What Ails Procurement

"The defense procurement system is a mess, and previous Pentagon reforms have faltered, thanks mostly to the micromanagers on Capitol Hill who are often more interested in funneling money to their home states than in spending dollars most effectively. Democrats and Republicans both belly up to this bar, usually while castigating the executive branch for failing to make 'tough choices.'"—**Wall Street Journal editorial, April 10.**

## All In

"Let there be no doubt—we, in your Air Force, are 'all in' and ready to 'double down' in the face of adversity. Our priority is to partner with the joint and coalition team to win today's fight. ... We are taking every feasible initiative to serve as a trustworthy partner in delivering game-changing capabilities with precision and reliability. ... Hear me loud and clear when I say that we are all in. This is our priority as an Air Force."—**Gen. Norton A. Schwartz, Air Force Chief of Staff, American Legion annual conference, March 3.**

USAF airmen perform an engine check on a C-17 at Ramstein AB, Germany.



USAF photo by A1C Kenny Holston

**Rumsfeld's Global Posture Review kicked off a reformation that goes on today.**

# The Ups and Downs of Foreign Bases

By James Kitfield

**T**he news from Kyrgyzstan was as momentous as it was unexpected. President Kurmanbek S. Bakiyev declared that he planned to expel US forces from Manas Air Base, the premier logistics and transport hub supporting US operations in Afghanistan.

Within days of that February announcement, the Kyrgyz parliament followed up with legislation that would end American use of the base. After receiving the eviction notice, Washington had six months to clear out.

Negotiations are continuing, but barring an unexpected change of heart in Kyrgyzstan (the parliamentary vote was 78-to-one), the US will have to find a new air base to support operations in Afghanistan. The timing, from the American perspective, couldn't be worse. President

Barack Obama had recently announced plans to add 17,000 combat troops to the force battling the Taliban and al Qaeda in Afghanistan, a down payment on an expansion that could eventually total 30,000 new US troops. That effort now would have to be reconfigured, if not reconsidered.

The sudden political earthquake that shook Central Asia underscored a fundamental truth about today's geopolitics. The military might of the world's lone remaining superpower, awesome as it is, hinges to a remarkable degree on a shrinking and fragile necklace of overseas bases.

With its access to this worldwide network of bases, Washington enjoys a unique position, one that allows US forces to project power and influence far

beyond its borders. Yet the US also has much to lose.

The existence of a major overseas US military presence has been a global fact for so long that it is today largely taken for granted. This and the wars in Iraq and Afghanistan have obscured the fact that America has embarked on the most significant realignment of its global military posture since the end of the Cold War some two decades ago.

Bakiyev's announcement came during the same week that insurgents destroyed a key bridge at the Khyber Pass, a historic choke point in the land route between Pakistan and Afghanistan. Through it travels three-quarters of the US supplies bound for Afghanistan.

It did not go unnoticed that Bakiyev dropped his bomb during a visit to Moscow. Russia promised Kyrgyzstan more than \$2 billion in loans and grants. Russian and Kyrgyz officials denied any quid pro quo, but Moscow has made no secret of its desire to get the US military out of Central Asia. And Bakiyev had long complained that the rent the US paid for access to the base was insufficient.

The Air Force transports 15,000 troops and a million pounds of Afghanistan-bound cargo through Manas every month. USAF's 376th Air Expeditionary Wing at

**A KC-135 takes off from Manas AB, Kyrgyzstan, on Feb. 6, 2009, for a refueling mission over Afghanistan.**



USAF photo by SMSgt. Julie Layton

Manas also flies KC-135 tankers, which delivered fuel to more than 11,000 US and NATO aircraft over Afghanistan in 2008.

Gen. Norton A. Schwartz, Chief of Staff, recently called the base a “key location” but added that it was not irreplaceable.

USAF has been operating from Manas since 2001, and since 2005, Manas alone has filled the need for a reliable Central Asian air hub near Afghanistan. That was when the US was kicked out of Karshi-Khanabad (K2) Air Base in Uzbekistan, after human rights tensions with Uzbekistan boiled over.

Washington has a good track record of finding new bases. The US successfully scrambled to find basing within range of Afghanistan after the 9/11 terror attacks, but with the loss of both K2 and Manas,

it will have to scramble once again. The threats to US global strategic interests never let up. Other recent challenges in the news include:

- Russian threats to station short-range missiles near its old satellites in Eastern Europe in response to proposed US missile defense sites in Poland and the Czech Republic.

- Chinese deployments of more surface-to-surface missiles near the Taiwan Strait to threaten bases on Taiwan.

- Iraqi parliamentary votes to compel US forces to withdraw from the country by 2011.

The push for a new global presence and basing strategy may prove one of the most significant legacies of Donald H. Rumsfeld’s second tenure as Defense Secretary during the years 2001-06. The

effort began with what was known as the Global Posture Review. It heralded a major shift of US military forces away from traditional Cold War locales to locations better suited to counter threats of Islamic extremist terrorism and tensions in the Western Pacific.

Operations in the Middle East prompted plans to return 70,000 troops to the United States from elsewhere in the world. This was done in part to improve the quality of life of service families left behind during deployments. In all, the 10-year plan called for reducing the US military footprint overseas by 35 percent.

The review heralded a major shift in basing requirements.

The shock of the Sept. 11, 2001 terrorist attacks allowed the US to overcome the inertia of the existing basing arrangements. Between 2000 and early 2002, the US increased its presence in the Middle East and Central Asia from roughly 25,000 to 70,000 troops.

The subsequent basing review took a comprehensive approach, seeking to address the short-term need for more forces in the Middle East, the long-term shift in strategic emphasis from Europe to Asia, and the change from a reliance on heavy, forward deployed forces at fixed bases to leaner, more expeditionary forces and fluid access agreements.

The shift is reflected in operations in Afghanistan and Iraq, and in major new deployments of military forces. The US is actively involved in preventing turmoil in a wide “arc of instability” stretching from North Africa and the eastern Mediterranean all the way through the Caucasus and Pakistan to Indonesia and the Philippines.

The world’s ungoverned spaces are a strategic vulnerability and potential sanctuaries for terrorist groups, so the GPR also called for the establishment of a new Africa Command and an increased military presence on that continent.

The global basing structure the Bush Administration inherited was frozen in the aftermath of 20th century wars, with major concentrations of forces still clustered in Germany, Japan, and South Korea.

“Rumsfeld recognized that the best way forward for American military facilities overseas can be summed up in the bumper sticker, ‘Access, Not Basing,’” said Thomas Ehrhard, a basing expert and senior fellow at the Center for Strategic and Budgetary Assessments.

The difficulty in fully implementing the posture review reveals a dysfunctional political dynamic that impacts basing



**An A-10 taxis down a runway at Bagram Airfield, Afghanistan. If the US loses access to Manas, air bases in Afghanistan may pick up more of the USAF mission.**

decisions, said Ehrhard, and which complicates strategic planning.

“Basically, it’s relatively easy to close an overseas base, much harder to close a base inside the United States, and harder still to spend money expanding the basing infrastructure overseas where needed,” said Ehrhard.

“For that reason, the GPR has been pretty successful in demobilization in Europe, less successful in matching US-based forces with the required lift needed to transport them to the fight, and ineffective in expanding, dispersing, and hardening our basing footprint as required in Asia.”

Central Asian drama notwithstanding, the most significant changes thus far have been in Europe. A decade after the Cold War, there were still more than 120,000 US troops stationed in Western Europe—but defending against what?

Subsequent changes have been smooth but dramatic. US Air Forces in Europe now operates five main operating bases (plus Incirlik AB, Turkey, which does not host permanently assigned aircraft), down from 25 at the peak of the Cold War. USAFE’s manpower has similarly been cut by more than half since 1990.

Bucking the overall trend, USAFE’s large air hubs, such as Ramstein AB, Germany, and Lajes Field in Portugal’s Azores islands, have grown as critical nodes in the air bridge between the US and air bases in the CENTCOM region.

The two heavy Army divisions and 55,000 soldiers in Germany, however, struck the Rumsfeld team as particularly ill-positioned and tactically unwieldy. Not surprisingly, the Army in particular came in for the most fundamental restructuring under the basing review.

The total number of US forces in Europe is dropping to 65,000 by 2012.

The number of soldiers has fallen from 70,000 earlier this decade to roughly 47,000 today, with a further decline to 28,000 anticipated.

The Pentagon has also signed 10-year agreements for access to seven flexible “forward operating locations” and “cooperative security locations” in new NATO member states Bulgaria and Romania.

#### Hard Choices

Under the basing plan, a brigade will periodically rotate to these Eastern European bases on temporary deployments—substituting occasional exercises for more expensive forward presence. The Air Force has already temporarily deployed aircraft and airmen to Romania several times in early tests of this arrangement.

Increasingly tense relations with Russia, including its invasion of Georgia in August of 2008 have given many pause in contemplating further European force reductions, however.

“In addition to plans to keep a Stryker brigade [in Europe], an additional heavy brigade or possibly even two should probably stay as well,” asserted Brookings Institution military analyst Michael E. O’Hanlon in his 2008 report, “Unfinished Business: US Overseas Military Presence in the 21st Century.” The DOD plan to rotate forces through Romania and Bulgaria will “add one more burden” to the Army, he noted.

Some experts fear, however, that the strains of the Iraq war and rising tensions with Russia will be used as excuses to revert to old, comfortable ways and keep excess forces in Europe.

“When you’re a global power like the United States, you have to make hard choices about where you will place limited military forces,” said Ehrhard.

“There is an ‘opportunity cost’ to leaving more forces in Europe, because that means you will have less forces and resources for Asia,” he added. “That’s a dubious strategic proposition.”

China’s meteoric economic growth and rapid military modernization in the past decade have inspired many recent basing decisions. Centerpiece alliances with South Korea and Japan are increasingly seen as vital.

With the strengthening of South Korean forces in recent years, DOD reasoned that the US could safely remove one of two Army combat brigades from the peninsula to free up forces for Iraq and Afghanistan. The US shifted its military footprint in South Korea, pulling US forces away from the Demilitarized Zone where they could be hit by North Korean artillery. The US Forces Korea headquarters is also to be pulled out of Seoul, where it occupied prime real estate and was a political lightning rod in one of Asia’s busiest cities. It will be moved midcountry.

In all, the plan is to downsize the military presence in South Korea from roughly 35,000 to 25,000 troops and to shutter 59 facilities—representing two-thirds of the total acreage US forces occupy in South Korea.

In Japan, the major change is the coming reduction—by about half—of the 15,000 marines on Okinawa. The heavy military presence there has long been an irritant in US-Japanese relations, so roughly 8,000 marines are scheduled to relocate to Guam.

Other locations in Japan are seeing their capabilities bolstered, and Kadena Air Base on Okinawa is increasingly a lynchpin in America’s Pacific military presence.

The Pentagon also seeks to secure secondary facilities, access agreements, and military-to-military relationships elsewhere in the region, most notably with Thailand, Singapore, the Philippines, and Australia.

If the blueprint for Asia outlined in the Global Posture Review seems generally sound, a number of experts note problems in the execution. Rumsfeld’s brusque style famously riled South Korean leaders—some of whom were convinced that Rumsfeld intended to use the GPR as cover for a complete withdrawal from their country.

“Alone among the world’s major powers, the United States today has ... enough capability in numerous strategically important parts of the world to make a difference in normal day-to-day regional



**A1C Sunny Ventura, 36th Expeditionary Maintenance Squadron, checks the horizon for the arrival of a second B-2 Spirit at Andersen AFB, Guam.**

balances of power," stated O'Hanlon. "Not only does the United States have a great deal of firepower stationed abroad, it has the infrastructure, the working relationships, and the transportation and logistics assets needed to reinforce its capacities quickly as needed in crises."

Rumsfeld may have unnecessarily irritated the South Korean leadership, but "moving US forces south from the Korean DMZ and out of Seoul; shifting marines to Guam from Okinawa to ease US-Japanese tensions; and hedging against a rising China all make sense from a practical perspective," said O'Hanlon.

The recent DOD attention to access in the Pacific may still be insufficient. A wargame recently run by Pacific Air Forces suggests that the Pentagon may have to go further to adequately check a rising China. Leaders of the Pacific Vision exercise concluded that more needs to be done to negotiate Pacific access agreements, further disperse US military assets to complicate an adversary's targeting challenge, and harden aircraft hangars, command posts, and ammunition depots in the region against potential attack.

Even if those steps are taken, possible weak links exist in the US military's posture in Asia. Because of the vast distances involved, more aerial refueling tankers are needed in the Pacific; however, attempts to modernize have seemingly hit a brick wall.

China's demonstrated ability to destroy an inactive satellite with a missile, and its focus in recent years on cyber warfare, also suggest that US satellite communications systems, radar networks, and computer grids in the Pacific region are vulnerable.

China is "increasing the range and lethality of its anti-access weapons in

fairly dramatic fashion, meaning its 'threat ring' in Asia now holds at risk a lot of our land- and sea-based forces in the region," said Ehrhard. "That means the United States needs more hardening of military facilities, greater dispersal of forces, better warning systems, as well as active and passive defenses. All of those steps carry costs. So while Americans would rather this strategic threat didn't exist at a time when we have so many other problems on our plate, to simply let our current basing network in Asia atrophy will only provoke China."

### The Singapore Model

Singapore is often held up as a model for the "lily pad" type of arrangement the US needs more of. American forces in Singapore are "small in number and low in profile," noted Kent E. Calder in his 2007 book, *Embattled Garrisons: Comparative Base Politics and American Globalism*. Yet the infrastructure there, "including ports, airfields, repair facilities, hospitals, and communications, is first rate." Pre-positioned equipment stocks mean that "in the event of a regional contingency, a smooth, rapid buildup would be easy to achieve."

Developing additional expeditionary locations along the "Singapore Model" will minimize the chance that the US will lose strategic access because of host-nation restrictions, enemy attack, or politics—as was the case at Manas.

"If a military base boasts a Burger King or a Taco Bell, then it probably represents the old way of basing," said Ehrhard. "In

the future, we need more fluid access agreements for expeditionary forces that can be activated—or not—depending on how threats develop."

Securing access has never been easy, even when dealing with longtime allies.

With the Cold War still raging, the US was ordered out of two NATO air bases in 1988. First to go was Torrejon AB, Spain, followed by Hellenikon Air Base in Greece.

In 1991, the eruption of Mount Pinatubo hastened the end of Clark Air Base in the Philippines. At the time, Clark was among the largest of overseas USAF operating locations—but it was also a political hot button between the US and Philippine governments.

Then, in 2003, NATO ally Turkey refused to allow its territory as a transit point to open the northern front for Operation Iraqi Freedom.

Each of these incidents was difficult to deal with, but the Air Force has proved time and again its ability to adjust. Indeed, in 2004, Col. Mike Sumida, then the vice commander at Manas, told the *Christian Science Monitor* that the facility "looks permanent, but it could be unbolted and unwelded if we felt like it."

In Iraq and Afghanistan, US operations have been sustained through an ever-shifting mix of forward bases, dispersed facilities, regional logistics hubs, and informal access agreements.

With the US and Iraqi governments having recently signed an agreement for the withdrawal of US forces by the end of 2011, and a major shift in forces from Iraq to Afghanistan already anticipated, adaptability will soon be tested again.

"Iraq and Afghanistan have reinforced the fundamental principle that this business is now about access, and not permanent bases," said Ehrhard.

When Uzbekistan shut down K2, it exposed the danger of depending on any single nation for access to an important region. Iraq, meanwhile, illustrates how many nations consider permanent US bases highly controversial.

"In the 21st century, we're going to need multidimensional arrangements and a very flexible military footprint that requires aggressive diplomacy, military exercises, and reciprocal military-to-military relationships," concluded Ehrhard. "In the future, military access is something we're going to have to work every day." ■

*James Kitfield is the defense correspondent for National Journal in Washington, D.C. His most recent article for Air Force Magazine, "The Mission-Adaptive Air Force," appeared in the April issue.*

Florida high schoolers square off in an unusual battle to defend a computer network.

# CyberPatriot Smackdown

By Peter Grier

Photo by Dan Higgins



**W**hen the results were announced, the winning team erupted in celebration. Teens from Osceola High School, in Kissimmee, Fla., cheered and fist-bumped as if they had just won a national debate contest or major athletic event.

In fact, their triumph had come in a more unusual, 21st century kind of

challenge. It was called *CyberPatriot*, the first-ever computer network defense contest designed as a national competition for high schoolers.

The Air Force Association held *CyberPatriot* Feb. 26-27 in conjunction with AFA's Air Warfare Symposium in Orlando, Fla. The point was to hook as many teens as possible on the challenge of cyber security—a discipline

*Air Force JROTC cadets (l-r) Michael Velaquez, Mark Schoeni, and Robert DeWitt work together on Team Doolittle to defend their network.*

for which military and commercial demand will only increase.

"We have very little computer security expertise in this country," said Gregory B. White, director of the



Center for Infrastructure Assurance and Security (CIAS) at the University of Texas, San Antonio. "We need a lot more."

White was instrumental in the competition's design and implementation. A veteran of 19 years of active duty in the Air Force, he is a colonel in the Air Force Reserve, and one of the nation's leading experts on computer security. At CIAS, he has run collegiate-level security competitions for years.

A national high school-level cyber competition has been a dream of White's since he initiated the National Collegiate Cyber Defense Competition more than five years ago. But *CyberPatriot 2009* was finally made possible by a convergence of interests and the persistence of an AFA national officer. For AFA, it is an aerospace education initiative with a potential national impact. Taking point on the project was S. Sanford Schlitt, AFA's vice chairman of the board for aerospace education, who pushed the project to completion in just a single year.

Science Applications International Corp. (SAIC) was a third partner in the effort. The firm provided its TeamDefend commercial cyber security training system as the competition platform during *CyberPatriot I*.



Photo by Dan Higgins

Two members of Team Spaatz, JROTC cadets Linval Overdiep and Gretchen Rivera, plot cyber defense strategies at the competition.

### The Roar of the Crowd

*CyberPatriot 2009* was a prototype event, and its field organizers did not really know the extent to which entrants would be engaged. They were worried that teenagers would find computer security challenges to be dull, or too hard, or that participants would throw up their hands in disgust or frustration.

Nobody thinks that anymore. The roar of the champions proved the enthusiasm was real. "People in the exhibit area heard those guys screaming and yelling," said David T. Buckwalter, AFA's executive vice president. "That was cool."

The first *CyberPatriot* games were limited to eight high school-age teams from Junior ROTC and Civil Air Patrol units within easy driving distance of Orlando. The teens were fired up even about the first day's results. When Osceola was named champion, the noise was so loud it passed through two walls and a corridor, into the exhibit hall.

To prepare the teams for the competition, *CyberPatriot's* organizers had posted some material on the main Web site of CIAS. SAIC held a distance-learning introduction to familiarize the students with the TeamDefend box. The TeamDefend system allows users to assume administrative and protective duties for a "network" similar to that used by a small commercial firm. Typically, that means a system of 50 or so users, with seven to 10 servers, Web and e-mail service, and an e-commerce site.

Buckwalter said he was worried that the organizers had not done too well in producing this academic introduction. Then he listened to a conference call following the TeamDefend introduction. The SAIC engineer running the call asked if anyone had questions, and a student piped up with something that Buckwalter describes as "computer gibberish."

"So we figured the kids are smarter than we are, and we went with it," he said.



Photo by Dan Higgins

Gen. Norton Schwartz, USAF Chief of Staff, speaks with Diana Londono and Michael Roach from Team Schriever at CyberPatriot I.



**Team Wilson, composed of cadets from the Florida Civil Air Patrol, celebrates its Day Two win. (L-r): Charles Walker, Timothy Walker (coach), Joshua Dovi, and Isaac Haring.**

In competitions, each team gets an identical hardware and software setup. They then must detect and respond to outside threats, patch holes, and keep the network and services up and running. Part of the point is to balance the need for cyber protections against business requirements. "You don't get to devote 100 percent of your time to security," said CIAS' White.

The collegiate-level competitions White runs are more challenging than the *CyberPatriot* scenarios. But that does not mean the high school-level problems are easy ones. They are meant to mimic the sort of thing competitors might encounter in the real world.

"If they were to graduate from high school and were to get a job as an IT professional at some company, they could walk into a situation just like this," said White. "You are pretty much guaranteed that somebody is going to attack you."

A Red Team of adult experts runs the attacks. The three-by-five-foot SAIC TeamDefend box monitors both their efforts and the defensive response.

The result is a quantitative score, updated in real time, so declaring a winner was a simple matter of comparing final scores.

The beauty of TeamDefend is that when you are finished with the three-hour exercise period, you get a log of all the things that happened, so you can clearly explain what the students

thought was happening versus the reality of what was, said Carleton Ayers, SAIC's chief systems engineer for TeamDefend.

One need only look at the march of news to see the need for expanded US training of and interest in cyber defense professionals.

In 2007, a cyber attack on Estonia blocked Web sites and paralyzed the country's Internet service. At the height of the crisis, Estonian use of bank cards and mobile phones was sharply curtailed.

In 2008, Russia's physical invasion of Georgian territory was accompanied by a cyber invasion. Georgian government Web sites were blocked, among other electronic tricks.

### **The New Threat Arena**

Also in 2008, US military computers were subjected to a severe and painful cyber assault that damaged some US Central Command networks. There is some evidence the attack was connected to the Russian government.

Then in early 2009, a University of Toronto study unveiled the so-called "Ghostnet," a web of thousands of computers in more than a hundred countries that had been infiltrated by cyber spies. Researchers said the hackers who carried out the assault were based almost exclusively in China, though the Chinese government denied any official involvement.

For the US, the particular problem in this area is that it has the most cyber "coastline" to defend. It has the world's largest economy and the biggest, most advanced military. Both are heavily dependent on smooth operation of advanced computer systems.

Yet an assault on these networks can be mounted by anyone with knowledge and a high-speed connection to the Web.

One thing *CyberPatriot* is not meant to be is a training ground for hackers. Hackers are searching for one chink in a computer system's armor; defenders have to mount a broader effort that takes into account all the different ways hackers might work.

While attacking things sounds fun, the more difficult academic and real world problem is defense of a network, said Ayers. Hackers need find only a single weakness; defenders have to protect the entire network while keeping their business systems running.

Realization of this vulnerability is one reason the Air Force has decided to establish 24th Air Force, under Air Force Space Command, to lead cyber defense operations.

In the cyber area, "we have near-peer competitors, which is something we've not had with other traditional warfighting assets," said Maj. Gen. William T. Lord, head of USAF's provisional Cyber Command, last year. "In the cyber domain, ... we have to run to stay ahead."

Running to stay ahead means, among other things, developing as many cyber warriors as possible. And despite all the buzz surrounding everything cyber, that is not happening in the nation as a whole.

"We need upwards of 10,000 [computer] security professionals a year, and we're not producing them," said White.

Hence *CyberPatriot*. It is intended as a sort of first step toward the big leagues for youngsters who might think the area is interesting, but have little idea of what it really entails.

Collegiate-level studies and competitions are great, but "the high school competition is meant to get people into this at an even earlier age," said White.

For AFA, the idea of *CyberPatriot* began with its Aerospace Education Council. The need was obvious—so why not try something that could potentially raise the profile of cyber security nationwide?

With Schlitt's networking and persistence, AFA connected with White and SAIC. By holding the proof-of-concept



CyberPatriot's winning team was Team Spaatz from Osceola High School in Kissimmee. Pictured are (kneeling): Jacob Caudill, Gretchen Rivera, Madiha Majeed, (standing, l-r) Joseph Delhoyo, AFA Chairman of the Board Joseph Sutter, Linval Overdiep, AFA Vice Chairman of the Board for Aerospace Education Sanford Schlitt, Kiara Vazquez, John Borrero, (back row) Rick Hamilton, and SASI retired Maj. Jeffrey Miller.

seph Delhoyo, and Rick Hamilton. Alternates were Madiha Majeed, Kiara Vazquez, and John Borrero. Their leader was Senior Aerospace Science Instructor retired Maj. Jeffrey A. Miller.

The first *CyberPatriot* event showed that the competition's formula is viable. Though the sample size was small, feedback from participants was very positive.

The goal now is to expand *CyberPatriot's* geographic breadth, and scale up the size of the contest. Organizers hope that this academic year, they will be able to attract entrants from 75 to 300 JROTC or CAP units, and have them engage in a preliminary round of distance competition. "What we're going to be having now is a multitiered concept," said White.

The first level will not involve travel. Instead, competitors will receive a disk containing a virtual image of an unsecured computer system. At some point they will receive a key to unlock the virtual system. They will then have a certain number of hours to plug the system's holes, as a remote scoring system watches.

"The more problems they find and secure, the more points they will get," said White.

Teams with the highest score will advance to the next level, consisting of perhaps 24 schools. They will then get a virtual image that will be a little tougher, with more problems, and perhaps a Unix-based system, as well as a Windows-based one.

An elite group of eight or so winners will advance and then travel to the *CyberPatriot II* finals in Orlando in February 2010.

As far as attracting teams goes, "we've had a lot of unsolicited interest," said White.

Beyond 2010, the hope is that *CyberPatriot* can expand beyond the bounds of JROTC and CAP units. The ultimate goal is a competition open to any high school in the US.

"Our ultimate goal, years and years in the future, is that any high school student in the country can sign up to compete in a national competition and through some phasing and staging ... fight a mini-cyber-war for some days, and be crowned the winner," said Schlitt. ■

event at AFA's Orlando symposium, *CyberPatriot* would be on display for senior Air Force and defense industry officials.

But where to get the contestants? The answer to that was Junior ROTC, which is made up of students already inclined to citizenship and service. The Civil Air Patrol's teen division wanted to be included, as well. In the end, eight teams from the Orlando area entered—seven from Air Force JROTC and one from CAP.

Each team was given the name of a prominent former Air Force or Civil Air Patrol leader. Thus Osceola High School's group was nicknamed "Team Spaatz," after Gen. Carl A. "Tooney" Spaatz, the first USAF Chief of Staff. The team from the Florida wing of CAP was named "Team Wilson," for Gill Robb Wilson, CAP co-founder.

Each five-member group of students took their turn at one three-hour exercise, and to keep interest as high as possible, the organizers decided to name a daily winner. Team Spaatz from Osceola was Thursday's champ.

Though their active involvement was over, Team Spaatz showed up to watch Friday's competitors. If no one beat their score, they would be *CyberPatriot's* overall victors. But—somewhat to the surprise of contest organizers—

two of the first day's teams out of the running showed up, too.

Of the four teams that competed the first day, only one didn't return. Their instructor, via e-mail, said their experience had been great—but that two team members had other commitments, and their colleagues did not want to attend without them—and that team voted to start preparing for next year's competition right away.

### A Very Close Race

Team Wilson, the CAP contingent, won Friday's heat. Their result was very close to that of Team Spaatz. But the final score, announced by Gen. Stephen R. Lorenz, commander of Air Education and Training Command, showed Osceola the overall champion, by a nose.

That is when the noise began. Collegiate-level cyber security competitions may be more difficult, and the competitors more experienced, "but the excitement is probably much greater at the high school level," said White.

The winning team's primary competitors were cadets Linval Overdiep, Gretchen Rivera, Jacob Caudill, Jo-

*Peter Grier, a Washington editor for the Christian Science Monitor, is a longtime defense correspondent and a contributing editor to Air Force Magazine. His most recent article, "Gary, You Better Get Back In It!," appeared in the April issue.*

# Keeper File

## FDR's Fifty Thousand Airplanes

*In 1939, the Air Corps had only 1,200 bombers and fighters, many obsolete. The US public, however, was shocked by Germany's early 1940 blitzkrieg into Holland, Belgium, and France. President Roosevelt delivered this short but stirring speech six days after that attack, when the Allies faced catastrophe. In it, Roosevelt issued his famous call for an air force of 50,000 airplanes and production of 50,000 more each year. That level of production was not possible, and Roosevelt was not using numbers literally. He was, rather, alerting Americans that a huge new level of effort would be required of the nation.*

**T**hese are ominous days—days whose swift and shocking developments force every neutral nation to look to its defenses in the light of new factors.

The brutal force of modern offensive war has been loosed in all its horror. New powers of destruction, incredibly swift and deadly, have been developed; and those who wield them are ruthless and daring. No old defense is so strong that it requires no further strengthening and no attack is so unlikely or impossible that it may be ignored. ...

Motorized armies can now sweep through enemy territories at the rate of 200 miles a day. Parachute troops are dropped from airplanes in large numbers behind enemy lines. Troops are landed from planes in open fields, on wide highways, and at local civil airports. ...

Lightning attacks, capable of destroying airplane factories and ammunition works hundreds of miles behind the lines, are a part of the new technique of modern war.

Our own vital interests are widespread. More than ever, the protection of the whole American hemisphere against invasion or control or domination by non-American nations has the united support of the 21 American republics, including the United States. More than ever in the past, this protection calls for ready-at-hand weapons capable of great mobility because of the potential speed of modern attack. ...

The Atlantic and Pacific Oceans were reasonably adequate defensive barriers when fleets under sail could move at an average speed of five miles an hour. ... But the new element—air navigation—steps up the speed of possible attack to 200 to 300 miles an hour. ...

Surely, the developments of the past few weeks have made it clear to all of our citizens that the possibility of attack on vital American zones ought to make it essential that we have the physical, the ready ability to meet those attacks and to prevent them from reaching their objectives.

This means military implements—not on paper—which are ready and available to meet any lightning offensive against our American interest. It means also that facilities for production must be ready to turn out munitions and equipment at top speed.

We have had the lesson before us over and over again—nations that were not ready and were unable to get ready found themselves overrun by the enemy. So-called impregnable fortifications no longer exist. A defense which allows an enemy to consolidate his approach without hindrance will lose. A defense which makes no effective effort to destroy the lines of supplies and communications of the enemy will lose.

An effective defense by its very nature requires the equipment to attack the aggressor on his route before he can establish

### “Ominous Days”

President Franklin D. Roosevelt  
Address at Joint Session of Congress  
The Capitol, Washington, D.C.  
May 16, 1940

Find the full text on the  
Air Force Magazine's Web site  
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“The Keeper File”

strong bases within the territory of American vital interests. ...

Combat conditions have changed ... rapidly in the air. With the amazing progress in the design of planes and engines, the airplane of a year ago is out of date now. It is too slow, it is improperly protected, it is too weak in gun power.

In types of planes, we are not behind the other nations of the world. Many of the planes of the belligerent powers are at this moment not of the latest models. But one belligerent power not only has many more planes than all its opponents combined, but also appears to have a weekly production capacity at the moment that is far greater than that of all its opponents.

From the point of view of our own defense, therefore, great additional production capacity is our principal air requisite. ...

During the past year, American production capacity for war planes, including engines, has risen from approximately 6,000 planes a year to more than double that number, due in greater part to the placing of foreign orders here.

Our immediate problem is to superimpose on this production capacity a greatly increased additional production capacity. I should like to see this nation geared up to the ability to turn out at least 50,000 planes a year. Furthermore, I believe that this nation should plan at this time a program that would provide us with 50,000 military and naval planes. ...

I ask for an immediate appropriation of \$896,000,000. And may I say that I hope there will be speed in giving the appropriation. ■

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\*According to the National Safety Council's 2008 Edition of Injury Facts



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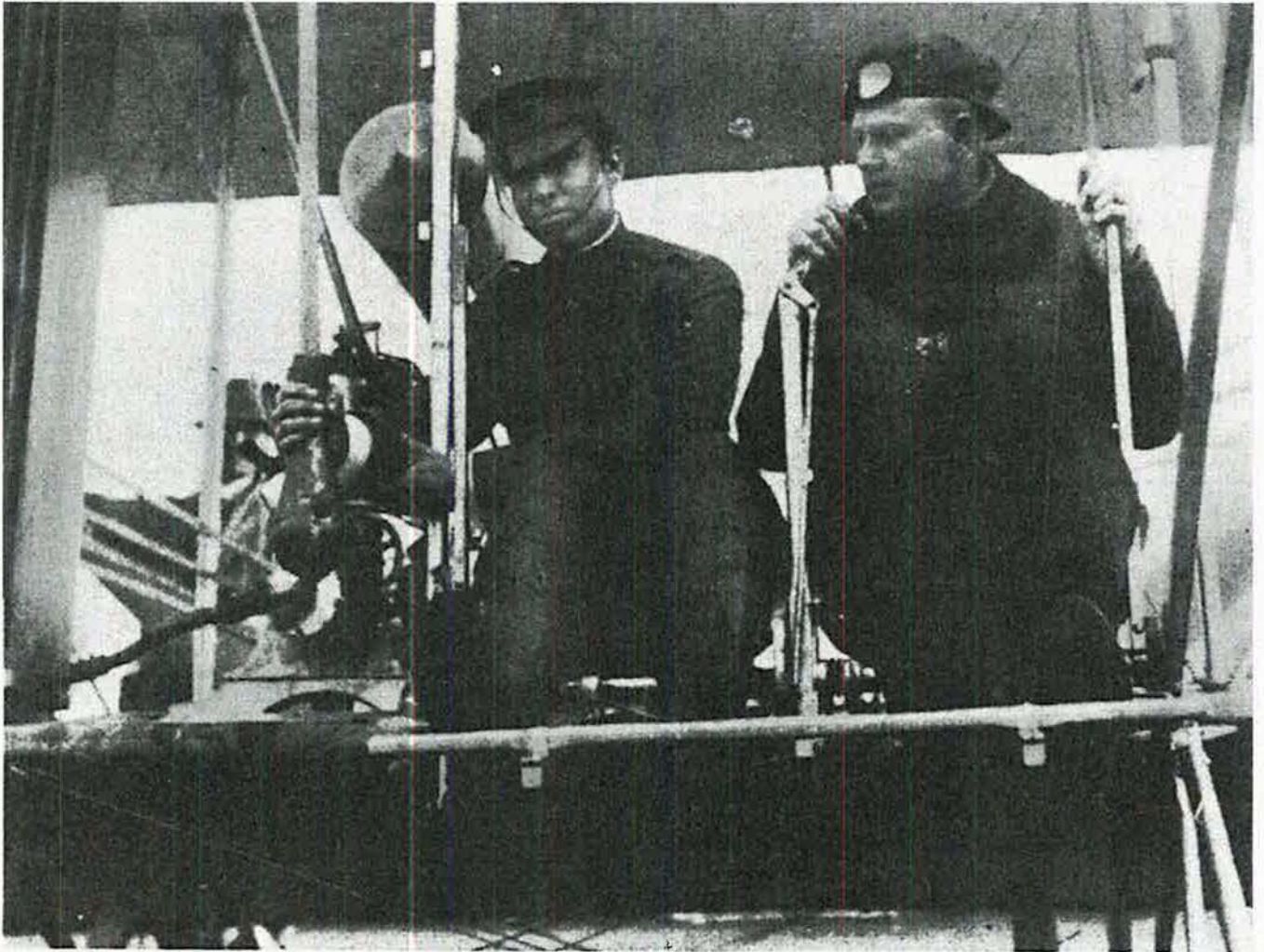
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# Flashback

## Bomb Away



*US Army airmen on Jan. 15, 1911, carried out a string of armament experiments at Tanforan race track, near San Francisco. In one of the event's most remarkable demonstrations, Lt. Myron S. Crissy dropped a live bomb from an airplane—the first time in history anyone had done this. Here, Crissy (l) and Phillip O. Parmalee, a civilian pilot, prepare to launch their Wright biplane on its epochal flight. The experiments proved that a 36-pound bomb could be dropped within a 20-foot area from 1,500 feet.*

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By Frances McKenney, Assistant Managing Editor

## While We Have Your Attention

As the local newspaper reporter for *The Meridian Star* noted, the real reason for the **Meridian Chapter (Miss.)** reception in April was to present awards to outstanding airmen from the Air National Guard's 186th Air Refueling Wing. But the guest speaker—US Rep. Gregg Harper (R-Miss.)—took the opportunity to promote the continuation of air missions in the area.

186th ARW airmen receiving honors that evening for outstanding performance and leadership were: A1C Steven N. Robinson, SSgt. Jeremy S. Stokes, MSgt. John J. Maloney, MSgt. David E. Miller, and SMSgt. Rodger S. Goodwin. Each airman received a plaque, AFA certificate, and a restaurant gift certificate. Civil Air Patrol cadet Lindsey Summerlin also received an award.

Chapter President Larry D. Pace made the presentations.

Keynote speaker Harper told the audience of more than 100 guests that, with KC-135 refuelers scheduled to move out in 2011, it was important to ensure a long-term flying mission for the area. The 186th, located at Key Field, also operates RC-26 aircraft and is the temporary home for Project Liberty MC-12 mission qualification training.

"We must fight to keep a flying mission here," Harper said. "I am committed to helping the 186th and its future." The first-term Congressman is on the House Budget Committee and a member of the Air Force Caucus and the National Guard and Reserve Components Caucus.

## Flapjacks for a Field Trip

Pancakes and an AFA grant helped the **Tidewater Chapter (Va.)** raise funds to sponsor an AFJROTC field trip to museums in the Washington, D.C., area in March.

Basic funding to charter four buses for this excursion came through \$3,000 that the chapter raised by holding a pancake breakfast in February. Tidewater President William M. Cuthriell said chapter volunteers cooked the flapjacks and served them up at a local civic club's facility, with AFJROTC cadets helping out by selling tickets and handling the setup and cleanup chores. More than 800 guests had pancakes that morning.



Staff photo by Eric Chang Lee

**AFA Board Chairman Joe Sutter (second from left) conducts a meeting of AFA's Senior Leadership Advisory Group in April. L-r: Richard Goetze Jr., Martin Harris (behind Sutter), Thomas McKee, Sandy Schlitt, David Blankenship, Bob Largent, Jim McCoy, and O. R. Crawford. Also at the meeting, but not pictured, were: Boyd Anderson, Pat Condon, Jack Price, and Gene Smith.**

A \$1,000 grant from AFA covered the rest of the cost for the cadets' field trip.

Some 180 of them, from Deep Creek, Grassfield, Great Bridge, and Oscar F. Smith High Schools in Chesapeake, Va., traveled to Washington. The cadets stopped first at the two-year-old National Museum of the Marine Corps near Quantico, Va. Next, they visited the Air Force Memorial, located near the Pentagon, and then they went out to the National Air and Space Museum's Udvar-Hazy Annex in Dulles, Va.

**Langley Chapter (Va.)** members Catherine Bacon and William V. Etchison lead the Smith High School and the Deep Creek High School AFJROTC units, respectively, and Gordon Strong from the Tidewater Chapter heads the Grassfield unit.

Tidewater Chapter members on the excursion included Cuthriell, Allan Berg, Robert Hudson, Leslie H. Kruger, and Randall Kruger.

## Welcome Back

In Wexford, Pa., in March, presidents from the **Greater Pittsburgh Chapter**, **Total Force Chapter**, and the AFA state organization were on hand when North

Allegheny Senior High School welcomed back a distinguished alumnus.

Brig. Gen. Gregory J. Touhill, Class of 1979, is today commander of the 81st Training Wing at Keesler AFB, Miss., and has been selected for reassignment as chief of the Office of Military Cooperation in Kuwait.

In March, however, he attended the 42nd annual AFJROTC Military Ball and Banquet at his old high school, where he was a member of AFJROTC unit PA-022. On hand, too, were Pennsylvania State President Robert Rutledge, Pittsburgh Chapter President Tillie Metzger, Total Force Chapter President Lee W. Niehaus, and VP Douglas C. May, who all turned out to present AFA awards to outstanding cadets.

Rutledge said more than 400 students, family members, alumni, and representatives of military organizations attended the ball. Touhill not only gave an inspirational talk to the cadets, he presented his own challenge coin to each awardee.

## Awards in Texas

The **Northeast Texas Chapter** recognized the work of three chapter

members at an annual awards dinner that was enlivened by "war stories" from guest speaker O. R. "Ollie" Crawford, an Army Air Forces pilot and former AFA Board Chairman.

Joseph Thomas, a former chapter president, received a Special Appreciation award during ceremonies. The award recognized his management of the Community Partner program, boosting participation from less than 10 to more than 30 almost singlehandedly. Thomas also helped organize the chapter's annual golf outing for the past 16 years. Last year, the "Golf Thing," as it has been nicknamed, netted \$20,000.

Linda S. Campbell, chapter treasurer for more than four years, received an AFA 2008 national-level Medal of Merit, presented by Chapter President Ricky L. Williams.

The chapter named Marsha D. Krotky as an AFA Texas Aerospace Education Foundation Ollie Crawford Fellow. Krotky is a former chapter president and for the past 10 years has organized the chapter's entries in the AFA Texas Earle North Parker statewide essay contest for high school seniors.

Thomas Bailey reported that, at the speaker's podium, Crawford told tales about his "adventures and misadventures" flying the P-40 Warhawk with the AAF and more recently in warbirds demonstration flights. Crawford, for whom the fellowship is named, also described the Texas Aerospace Education Foundation fel-



*AFJROTC cadet Michael Koon displays his AFA award at North Allegheny Senior High School in Wexford, Pa. With him are Pennsylvania AFA officials (l-r) Douglas May, Lee Niehaus, Robert Rutledge, and Tillie Metzger. At far right is Brig. Gen. Gregory Touhill.*

lowship award program, established a year ago. There are five levels of fellowships. Krotky is the first to be named a Crawford fellow.

Crawford served as AFA Chairman of the Board from 1992 to 1994.

**Space Salute**

In Virginia, Gary E. Payton, the deputy undersecretary of the Air Force for space programs, was keynote speaker for the **Gen. Charles A. Gabriel Chapter's** third annual Salute to Space.

Held in March, the reception at AFA headquarters in Arlington, Va., brought together some 100 guests, including senior leaders from the Air Force space community: Maj. Gen. William N. McCasland, director of space acquisition; Joseph D. Rouge, director of the National Security Space Office; and Dan Stockton, program executive officer for environmental satellites.

The dozen award recipients came from the National Polar-orbiting Operational Environmental Satellite System (NPOESS) Office, the National Security Space Office (NSSO), and the Space Acquisition Directorate (SAF/USA). Individual awardees were: Capt. Anand Shah, Maj. Chris Brann, Steve Simone, Maj. Stewart Aitken-Cade, TSgt. Christie Parker, Doug Benskin, Maj. Jeff Douds, Maj. Alex Gracia, and MSgt. Fernando McLean.

Team awards went to: the NPOESS Preparatory Project Mission Operations Review Team, the NSSO Information Technology Support Team, and the SAF/USA Space Situational Awareness Team.

Terrence J. Young, the chapter's military affairs vice president, and chapter VPs Nancy T. Cribb and Lisa Pembleton were among the chapter members and other volunteers who organized the Salute. With support from industry sponsors, Young's group booked the venue, coordinated with the Air Force, and arranged for the catering and awards.



*At a Pentagon Enlisted Council ceremony in February, Nicholas Abate (far right), president of the Donald W. Steele Sr. Memorial Chapter, presented awards and AFA memberships to (l-r) TSgt. Melissa Abraham, MSgt. Todd Geehan, and Capt. Jacob Sotiriadis. Also receiving an award was SrA. Shawn Christensen.*

**More Chapter News**

■ In March, the **Tennessee Valley Chapter**, based in Huntsville,

Ala., tapped a chapter newcomer as guest speaker. Former B-52 pilot Russell V. Lewey served for 26 years in USAF, reported Chapter President Frederick Driesbach. In his last assignment, Lewey was an air attaché to the Philippines (2000-03); thus he spoke with some authority on his topic that evening: "Counterterrorism Operations in the Philippines." Lewey focused on five terrorist organizations, in particular the Islamist militant Abu Sayyaf Group and their May 2001 kidnapping of three Americans, missionaries Martin and Gracia Burnham and Guillermo Sobero.

■ In April, several Virginia AFA field leaders paid an office call on US Rep. Glenn C. Nye (D) at his Virginia Beach office. Jeffrey L. Platte, state president, was joined by D. Blair Ellis, **Langley Chapter** president; William M. Cuthriell, **Tidewater Chapter** president; Tidewater member Allan Berg; and **Richmond Chapter** Leadership Development VP Thomas O. Moran for the meeting with the freshman Representative. Nye is on the House Armed Services and Veterans' Affairs Committees. The AFA members invited him to Langley Air Force Base's April air show called Airpower Over Hampton Roads and discussed the personnel and weapons systems challenges facing USAF.



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■ In March, the **Steele Chapter** held a Salute to the Air National Guard, to recognize some 20 ANG personnel and action officers. Chapter President Nicholas Abate served as master of ceremonies for the reception, held at a steak house whose windows framed a view of Reagan National Airport. Among the chapter members on hand were Tom Veltri, the chapter's VP for the Salute Program; Michelle R. Ryan, VP for scholarships; and Sean Ryan.

■ Vietnam War Medal of Honor recipient Jack H. Jacobs was guest speaker for New York's **Iron Gate Chapter** in April. In March 1968, he was an Army infantry captain, advising a South Vietnamese Army battalion, when it came under attack. Despite his wounds, he organized a defense, evacuated several injured soldiers to safety, and drove off the enemy three times. Chapter President Frank T. Hayes said that Jacobs spoke to the Iron Gate members about responsibility, having the courage to make the right decision, and how the values he grew up with governed his actions during two tours of duty in Vietnam. Hayes described Jacobs, currently a lecturer at West Point, as a "most dynamic motivational and patriotic military-political analyst."

■ The **Northern Shenandoah Valley Chapter (Va.)** gathered up various resources and donated \$3,000 to help stock the new science lab at Sacred Heart Academy in Winchester, Va. According to the *Winchester Star* newspaper, a chapter member learned that the science lab—just completed in January—had run out of funds for more equipment. He donated \$1,500 and got the chapter to involve the Virginia state AFA organization, which chipped in \$500, and AFA, which donated \$1,000. The donation will allow science teacher Kim Dooley to buy microscopes, hot plates, pulleys, safety goggles, and an aquarium. Chapter President Norman M. Haller, VP Norman Brander, and Thomas G. Shepherd, VP for aerospace education, presented the donation. ■



*Northern Shenandoah Valley Chapter officers Norman Brander (left), Norman Haller (fourth from right), and Thomas Shepherd (far right) present a donation to Sacred Heart Academy in Winchester, Va. Next to Haller are (l-r) science teacher Kim Dooley and principal Rebecca McTavish.*



*At the Northeast Texas Chapter's awards banquet, Texas State President David Dietsch (left) and O. R. Crawford (right) name Marsha Krotky as an Ollie Crawford fellow.*

**More photos at <http://www.airforce-magazine.com>, in "AFA National Report"**

**AFA Conventions**

June 5-6	<b>Oklahoma State Convention</b> , Erid, Okla.
June 13	<b>New York State Convention</b> , Farmingdale, N.Y.
June 13	<b>Virginia State Convention</b> , Richmond, Va.
June 27	<b>North Carolina State Convention</b> , Goldsboro, N.C.
July 10-11	<b>Florida State Convention</b> , Jacksonville, Fla.
July 17-19	<b>Texoma Region Convention</b> , Dallas
Sept. 12-13	<b>AFA National Convention</b> , Washington, D.C.
Sept. 14-16	<b>AFA Air &amp; Space Conference</b> , Washington, D.C.

**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](mailto:natrep@afa.org). Digital images submitted for consideration should have a minimum pixel count of 900 by 1,500 pixels.

**1st Flight Det, MACV-SOG, Nha Trang AB, RVN.** Oct. 14-18 in Branson, MO. **Contact:** Roger Gibson, 2090 Beach Blvd., Biloxi, MS 39531 (228-209-1180) (rgibson2403@aol.com).

**2nd Bombardment Assn.** Oct. 15-17 at the Crowne Plaza Airport in San Antonio. **Contact:** Crowne Plaza Airport Hotel, 1111 North East Loop 410, San Antonio, TX 78209 (210-828-9031).

**3rd Special Operations Sq (1968-69).** Sept. 25-26 in Branson, MO. **Contact:** Junior Skinner (352-307-6564) (juncherski@emborgmail.com).

**13th FIS.** Oct. 7-11 at the Hope Hotel and Wright-Patterson AFB in Dayton, OH. **Contact:** Bill Hensley (317-462-3103) (billhens@comcast.net).

**19th BG,** including 14th, 28th, 30th, 93rd, and 435th Sqs. Oct. 20-24, in Dayton, OH. **Contact:** Jerry Michael (317-253-9265) (g.michael@sbcglobal.net).

**21st/6461st Troop Carrier Sq** (Korean War). Oct. 1-5 in Herndon, VA. **Contact:** Dana Mansur (908-782-1657) (kgypsy@comcast.net).

**39th FS and 40th and 41st FS,** 35th FG. Nov. 5-7 at the Radisson Hotel San Antonio Downtown Market Square in San Antonio. **Contact:** Roger Rehn (530-644-7346) (rolo7346@sbcglobal.net).

**48th FS, FIS, and FTS.** Sept. 16-19 in Sacramento, CA. **Contact:** Joe Onesty, 455 Galleon Way, Seal Beach, CA 90740 (562-431-2901) (jonesty2@roadrunner.com).

**61st/75th TC & TA Sq.** Sept. 10-13 at Little Rock AFB, AK. **Contacts:** Bill Brown (352-259-8340) (ac119pilot@embarqmail.com) or Ron Patch (rdp1952@verizon.net).

**64th Troop Carrier Gp.** November at Apache Junction, AZ. **Contact:** Vern Montgomery, 6744 Carlsen Ave., Indianapolis, IN 46214 (317-241-5264) (317-439-3420).

**98th BG/BW Veterans Assn.** Sept. 15-19 in Albuquerque, NM. **Contact:** Bill Seals, 2526 Plumfield Ln., Katy, TX 77450 (281-395-3005) (colbillyseals@hotmail.com).

**323rd BG (454th BS) and 344th BG.** Oct. 7-10 in Colorado Springs, CO. **Contact:** George Cornett, 8250 E. Obispo Ave., Mesa, AZ 85212 (480-984-3676) (kville93@cox.net).

**361st FG Assn.** Sept. 13-16 at the Francis Marion Hotel in Charleston, SC. **Contact:** William Street, 1103 Henry Dr., Alabaster, AL 35007.

**366th FG/FBW/TFW, WWII to present.** Oct. 8-12 in Williamsburg, VA. **Contact:** Joe Daniel, 6281 Applewhite Rd., Wendell, NC 27591 (919-365-7123) (jdaniel171@aol.com).

**394th BG,** including 584th, 585th, 586th, and 587th Bomb Sq (WWII). Sept. 17-20 in St. Louis. **Contact:** Elden Shook, PO Box 277, Enon, OH 45323 (937-864-2983) (shook585@aol.com).

**463rd Tactical Airlift Wg.** Aug 31-Sept. 3 at the Mainstay Inn & Suites, Pigeon Forge, TN. **Contact:** Rick Kirkpatrick (765-472-7595) (kirkr1@comcast.net).

**526th FIS/TFSS,** Ramstein, Germany. Oct. 8-11 in Omaha, NE. **Contact:** Don Wenzlick (402-980-7054) (dwenzlick@yahoo.net).

**815th TCS,** Ashiya, Japan (1954-60). Nov. 9-13 at the Radisson Hotel Austin-Town Lake in Austin, TX. **Contact:** Jim Meador (512-288-3341) (jmeador@austin.rr.com).

**AF Navigators and Observers Assn.** Oct. 14-16 in Dayton, OH. **Contact:** Sostenes Suazo (973-431-8542) (ssuazo61@aol.com).

**AF Postal & Courier Assn.** Sept. 24-27 at the Holiday Inn Seattle in Renton, WA. **Contact:** Jim Foshee (254-774-7303) (jimfoshee@sbcglobal.net).

**AF Security Forces Assn.** Oct. 1-3 in Shreveport, LA. **Contact:** AFSFA, 818 Willow Creek Cir., San Marcos, TX 78666 (888-250-9876) (jbullock@grandecom.net).

**Bartow AB,** pilot instructors/students. Oct. 14 at the Chalet Suzanne Restaurant and Inn, in Lake Wales, FL. **Contact:** The Chalet (800-433-6011) (info@chaletsuzanne.com).

**Johnson AB,** Japan. Nov. 5-7 in Orlando, FL. **Contact:** Keith Swinehart (303-814-0800) (keith.swinehart@gmail.com).

**Karamursel AS,** Turkey, USAFSS members and other personnel stationed there (1957-61). **Contact:** Pete Johnson (704-243-6769) (pjohnson010@carolina.rr.com).

**KC-10 Tanker** reunion, all active, reserve,

and retired operations & maintenance sqs. Oct. 9-11 in Shreveport, LA. **Contact:** Charlie Hale (903-984-5210) (chhale@cablelynx.com).

**Pilot Tng Class 53-E,** Bainbridge & Bryan. Oct. 8-11 in San Antonio. **Contacts:** Jerry Bergh (rbergh@satx.rr.com) or John Anderson (800-605-0405).

**Pilot Tng Class 56-B.** Oct. 29-Nov. 5 in San Diego. **Contact:** Myles Rohrlack, 1501 India St., Unit 408, San Diego, CA 92101 (619-255-9405) (760-458-5433) (m.rohrlack@cox.net).

**Pilot Tng Class 60-D.** Oct. 21-25 in Fairborn, OH. **Contact:** Obidio Pugnale, 2140 Hidden Woods Blvd., Beavercreek, OH 45431 (937-241-7272) (opug@earthlink.net).

**Pilot Tng Class 68-A,** Laughlin AFB, TX. Sept. 23-27 in Las Vegas. **Contact:** Al Ghizzoni (702-293-3138) (aghizz@yahoo.com).

**Pilot Tng Class 68-A,** Webb AFB, TX. Sept. 10-12 at the Doubletree Guest Suites Historic Charleston in Charleston, SC. **Contact:** Ed Carter (843-709-2555) (ecarter@asosc.com).

**Pleiku AB Assn.** Sept. 16-20 at the Landmark Hotel in Myrtle Beach, SC. **Contact:** Harry Beam, 403 N. Jefferson Ave., Canonsburg, PA 15317 (724-745-9129).

**REDHORSE.** Aug. 31-Sept. 4 in Branson MO. **Contacts:** Tom Gallagher (tgallag1@tampabay.rr.com) or Greg MacDougal (greg.macdougal@rhamail.org).

Seeking USAF **OTS 60-A** members for a reunion. **Contact:** Nedson Crawford, 5108 Tedorill Ln., Charlotte, NC 28226 (ncrawford@carolina.rr.com).

E-mail unit reunion notices four months ahead of the event to reunions@afa.org, or mail notices to "Unit Reunions," *Air Force Magazine*, 1501 Lee Highway, Arlington, VA 22209-1198. Please designate the unit holding the reunion, time, location, and a contact for more information. We reserve the right to condense notices.

# Books

Compiled by Chequita Wood, Media Research Editor

**Aces High: The Heroic Saga of the Two Top-Scoring American Aces of World War II.** Bill Yenne. Berkley Caliber, New York (800-631-8571). 348 pages. \$25.95.



**Leadership in Space: Selected Speeches of NASA Administrator Michael Griffin, May 2005-October 2008.** Michael Griffin. National Aeronautics and Space Administration. GPO, Supt. of Documents, Washington, DC (866-512-1800). 329 pages. \$43.00.



**Transforming Defense Capabilities: New Approaches for International Security.** Scott Jasper, ed. Lynne Rienner Publishers, Boulder, CO (303-444-6684). 258 pages. \$28.50.



**Advice to War Presidents: A Remedial Course in Statecraft.** Angelo M. Codevilla. Basic Books, New York (800-343-4499). 316 pages. \$27.50.

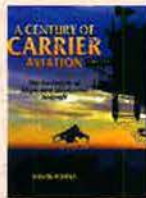


**Leave No Man Behind: The Saga of Combat Search and Rescue.** George Galdorisi and Tom Phillips. Zenith Press, Minneapolis (800-766-2388). 642 pages. \$30.00.



**The Unforgiving Minute: A Soldier's Education.** Craig M. Mullaney. Penguin Press, New York (800-631-8571). 386 pages. \$28.95.

**A Century of Carrier Aviation: The Evolution of Ships and Shipborne Aircraft.** David Hobbs. Naval Institute Press, Annapolis, MD (800-233-8764). 304 pages. \$69.95.



**My Enemy, My Friend: A Story of Reconciliation From the Vietnam War.** Brig. Gen. Dan Cherry, USAF (Ret.), with Fran Erickson. Order from: Aviation Heritage Park, P.O. Box 1526, Bowling Green, KY 42102-1526 (270-779-4186). 80 pages. \$20.00.



**USS Arizona: Warship, Tomb, Monument.** MacKinnon Simpson. Bess Press, Honolulu (800-910-2377). 116 pages. \$24.95.



**F-15 Eagle at War.** Tyson V. Rininger. Zenith Press, Minneapolis (800-766-2388). 159 pages. \$24.99.



**Off We Go! The Real Story of How the United States Air Force Academy Was Created, Designed and Built.** Col. Arthur G. Witters, USAF (Ret.), with Col. J. Bryce Hollingsworth, USAF (Ret.). Order from: Off We Go Distribution, 494 Highway 71 W. #140-136, Bastrop, TX 78602. 130 pages. \$28.00.



**We Who Are Alive and Remain: Untold Stories From The Band of Brothers.** Marcus Brotherton. Berkley Caliber, New York (800-631-8571). 294 pages. \$24.95.

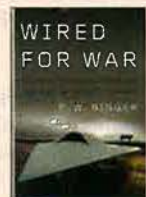
**Flying for Her Country: The American and Soviet Women Military Pilots of World War II.** Amy Goodpaster Strebe. Potomac Books, Dulles, VA (800-775-2518). 109 pages. \$15.95.



**The Stand: The Final Flight of Lt. Frank Luke Jr.** Stephen Skinner. Schiffer Publishing, Atglen, PA (610-593-1777). 260 pages. \$69.99.



**Wired for War: The Robotics Revolution and Conflict in the 21st Century.** P. W. Singer. Penguin Press, New York (800-631-8571). 499 pages. \$29.95.



**Ideas as Weapons: Influence and Perception in Modern Warfare.** G. J. David Jr. and T. R. McKeldin III, eds. Potomac Books, Dulles, VA (800-775-2518). 458 pages. \$29.95.



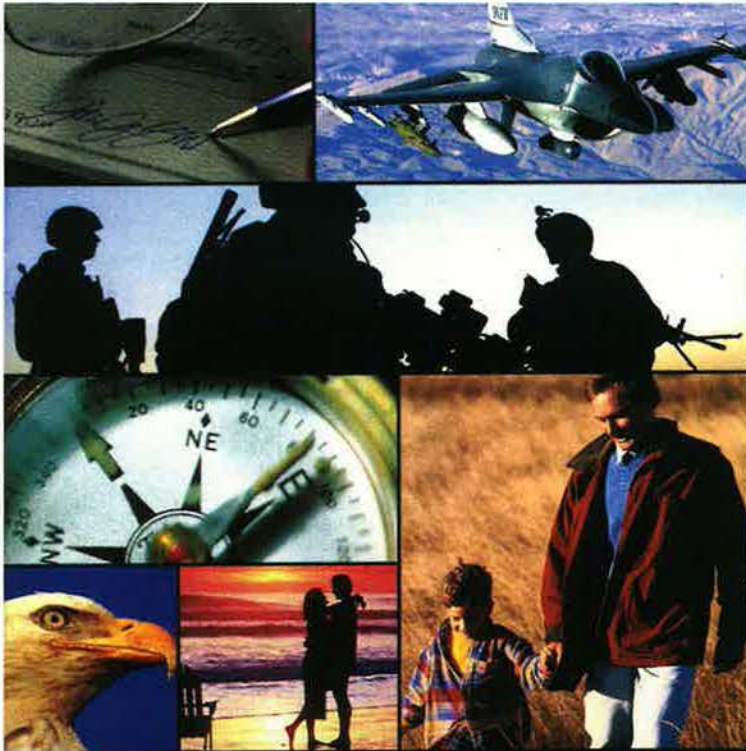
**Surviving Hell: A POW's Journey.** Leo Thorsness. Encounter Books, New York (800-786-3839). 132 pages. \$25.95.



**Wow!: Anthology of B-24/8th Air Force/ World War II Stories.** Ralph Welsh. Order from: Welsh Products Inc., Arnold, CA (800-745-3255). 440 pages. \$19.95.

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# Airpower Classics

Artwork by Zaur Eylanbekov

## MiG-15 Fagot



The MiG-15, flown by Soviet pilots, shocked UN forces when it entered combat in the Korean War in November 1950. Superior to all Allied fighters then in the theater, it was a menace to B-29 bomber flights and other types of air operations. The airplane, which was relatively unsophisticated and stoutly built, was designed to be a bomber-interceptor. However, it was a standard fighter of the Soviet Union and many other countries for a decade.

The MiG-15 was developed by the Soviet design bureau of Artem Mikoyan and Mikhail Gurevich. Its engines had a Western flavor; indeed, Britain's Labor government sold the Soviet Union examples of the Rolls Royce Nene engine, which Soviet technicians then reverse-engineered into the MiG-15's Klimov RD-45 power plant. The all-

metal fighter had some advanced features, such as 35-degree swept wings, wing fences to control airflow, tricycle landing gear suitable for rough fields, and a pressurized cockpit. Its cannons, however, were relatively slow firing.

At the start of the Korean War, American airmen were taken aback by the MiG-15's combat capabilities. The MiG-15 did some damage against US bombers, but it was far less effective against its opposite number, USAF's F-86 Sabre fighter. The Soviet aircraft had a slight edge in speed and altitude, but suffered unstable performance at high speeds. Better-trained US pilots, equipped with superior onboard systems, had the advantage of experience and eventually overcame the MiG-15.

—Walter J. Boyne

**This aircraft:** Soviet Air Force MiG-15 Bort #1315325—as it appeared with North Korean markings in 1951 when assigned to 324th Fighter Regiment at Antung Air Base, China. Its pilot was Yevgeny Pepelyayev, the top Russian ace of the Korean War.



### In Brief

Designed by Mikoyan-Gurevich ★ built in USSR, China, Poland, Czechoslovakia ★ first flight Dec. 30, 1947 ★ crew of one ★ number built about 1E,000 ★ **Specific to MiG-15bis:** one Klimov VK-1 turbojet engine ★ armament, one 37 mm cannon, two 23 mm cannon, two 220 lb bombs ★ max speed 670 mph ★ cruise speed 520 mph ★ max range 750 mi ★ weight (loaded) 13,500 lb ★ span 33 ft 1 in ★ length 35 ft 7 in ★ height 12 ft 2 in.

### Famous Fliers

**Top Aces (more than 10 victories):** Stepan Bahayev, Nikolai Dokashenko, Pavel Milaushkin, Gregory Ohay, Dmitri Oskin, Yevgeny Pepelyayev, Mikhail Ponomaryev, Lev Shchukin, Konstantin Sheberstov, Alexander Smorchkov, Ivan Suchkov, Nikolai Sutyagin. **Notable:** Fyodor Chizh, first US kill with MiG-15; Ivan Kozhedub, top allied ace of World War II; Yuri Gagarin, Soviet cosmonaut and first man in space; Chuck Yeager, test pilot.

### Interesting Facts

Flew in first jet-to-jet air combat, Nov. 8, 1950 ★ built in at least 25 variants ★ heavily influenced by German engineering ★ first seen in 1949 Moscow May Day parade ★ used as unmanned anti-shiping cruise missile ★ flown by air forces in at least 38 nations ★ flew in both an Arab-Israeli war and China-Taiwan war ★ called samolyot-soldat ("soldier aircraft") by pilots ★ acquired by West on Sept. 21, 1953 when a communist pilot, North Korean Lt. No Kum-Sok, defected ★ his MiG-15 exhibited today in the National Museum of United States Air Force.



North Korean defector Lt. No Kum-Sok's MiG-15, photographed after reassembly in Okinawa.

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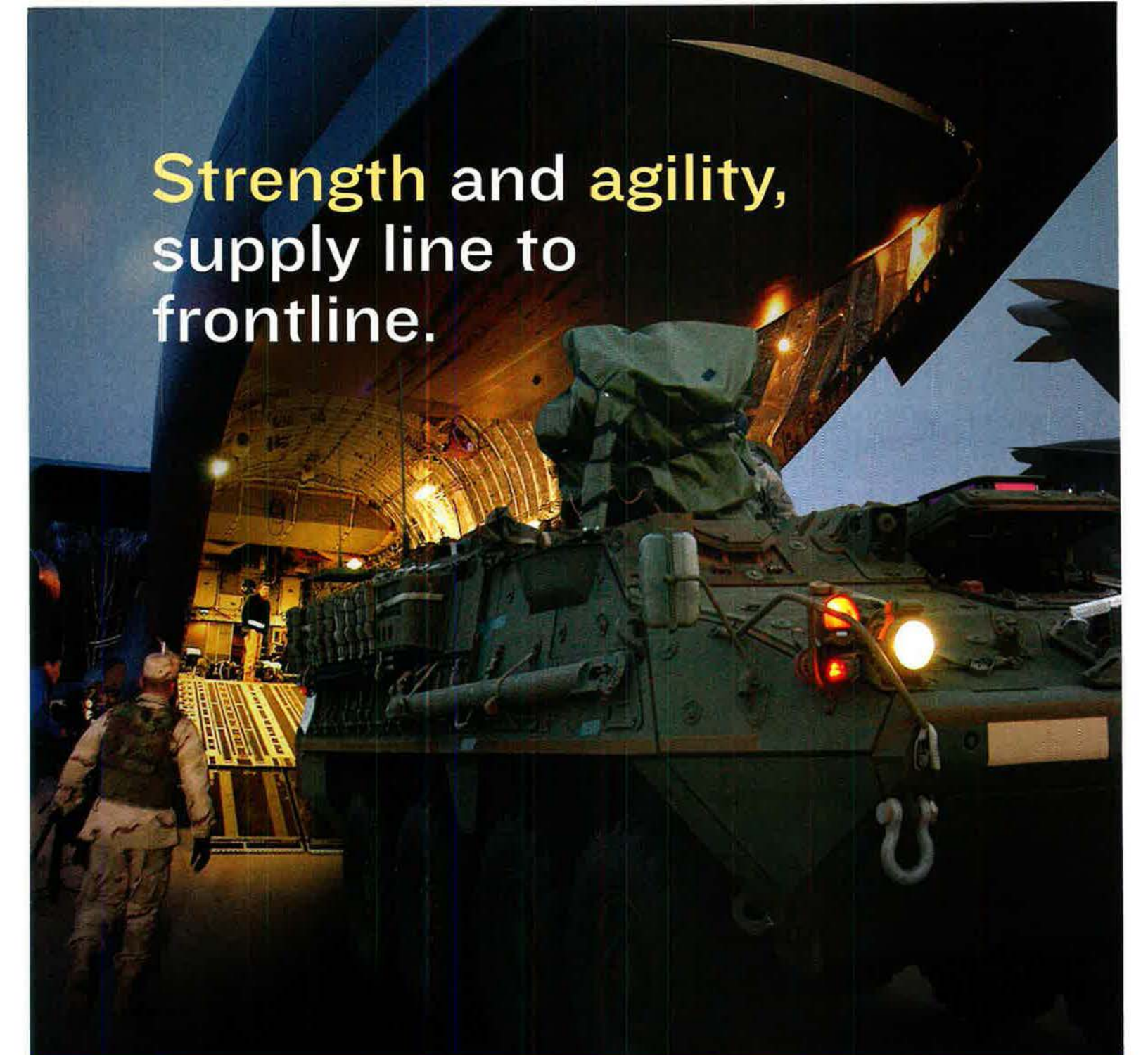


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