April 2004/$4

AIR FORCE

JOURNAL OF THE AIR FORCE ASSOCIATION MAGAZINE

The F/A-22 Force Forms Up

Battlefield Airmen

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Defense Budget at a Glance

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April 2004, Vol. 87, No. 4

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About the cover: An F/A-22 performs a flyby during the First Flight Centennial Celebration at Kill Devil Hills, N.C. See "The F/A-22 Force Forms Up," p. 34. USAF photo by TSgt. Ben Bloker.

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Editorial

By Robert S. Dudney, Editor in Chief

The Raptor Review

THIS is a sensitive moment for the F/A-22 Raptor. The White House's Office of Management and Budget recently ordered Pentagon officials to take a hard new look at USAF's premier fighter, now entering operational testing. The result conceivably could be curtailment of the program, or worse.

OMB's questions sounded ominous. Does the Raptor have true "transformational value" or is it "merely another step" in a long evolution of fighters? Is the requirement "still relevant"? Are there "alternatives"? There have been six previous Raptor reviews. Each time, the Air Force was able to make a strong case for the fighter, but this time could be different.

Some believe OMB schemed with the F/A-22's critics in the Pentagon to stack the deck against the fighter. They observe that USAF won't be allowed to take part in the review and can only answer questions when asked.

The study will probably wind up this summer. We can expect to hear a number of plausible-sounding reasons for why it would be OK to decimate the F/A-22 program. Those arguments will either ignore or fudge certain facts, presented here for handy future reference.

■ The F/A-22 has been conceived by the world's foremost practitioner of airpower, the United States Air Force, which has unequivocally stated that the F/A-22 is key to air superiority in future combat. USAF's credentials are impeccable; no American ground forces have suffered enemy air attack since 1953.

■ The airplane has bounced back from recent problems and is performing well. (See "The F/A-22 Force Forms Up" on p. 34.) USAF expects the F/A-22 to go operational by December 2005.

■ Today's front-line fighter, the F-15 Eagle, is physically wearing out. It entered service in 1975 and is based upon 30-year-old technology. The F-15 fleet, with an average aircraft age of 17 years, is costly to maintain, operates under flight restrictions, and must be replaced.

■ As the F-15 cycles out, the Raptor will be the only plausible successor. Even a radically upgraded F-15 cannot be made stealthy in any useful way. The stealthy F-35 fighter is often held out as an alternative, but it is not optimized for air combat and would have to be substantially redesigned, at great cost.

■ Modern foreign fighters and "double-digit" air defense systems now on the export market have caught up with the F-15 in capability. Without the F/A-22, the Air Force will gradually lose its ability to guarantee control of the skies. This is perilous for an expeditionary Air Force that fights on someone else's turf.

We can expect to hear a number of plausible-sounding reasons for why it would be OK to decimate the F/A-22 program.

■ Though often derided as a mere "dogfighter," the F/A-22 is expected to have a potent multirole capability—a fact largely unappreciated by critics. A stealthy F/A-22 will provide not only air-to-air combat prowess but also precision attack and defense suppression capabilities. The F/A-22 is the only fighter able to autonomously counter anti-access threats on Day 1 of a war and thereby open the way for other US forces.

■ The F/A-22 already has suffered a drastic reduction from the original production goal of 750 fighters. The latest officially stated USAF plan called for a force of 339 F/A-22s. That figure, set in the 1997 Quadrennial Defense Review, had no relationship to combat requirements whatsoever. It was determined by budget needs. More recent pressures have pushed the number down to about 300 or fewer fighters.

■ The 339-airplane force, which critics want to whittle further, is small by any standard. For example, USAF bought roughly 1,100 F-15s and 2,200 F-16s. According to USAF, 339 Raptors would yield, on any given day, only 214 combat-coded aircraft. That works out to fewer than nine full (24-airplane) squadrons.

■ Nine squadrons won't cover requirements. After the 1997 QDR, USAF organized itself into 10 air and space expeditionary forces, or AEFs. USAF could not provide even one full F/A-22 squadron per AEF. Getting to one squadron per AEF requires a fleet of 381 F/A-22s. Officials say having two squadrons per AEF would take a total inventory of 762 F/A-22s.

■ The Raptor doesn't consume a huge portion of the budget. At its peak, the F/A-22 program would require less than six percent of the Air Force budget, less than two percent of the Defense Department budget, and one-quarter of one percent of the federal budget. This is in line with earlier periods of fighter modernization.

■ Most development money has already been spent and therefore is a "sunk cost." USAF is poised to capitalize on the expenditure with serial production of F/A-22s. Stopping or limiting the process now would deprive the US of a full return on its investment.

■ Some critics say the Raptor should be de-emphasized in favor of future unmanned combat air vehicles and space-based systems. That position is not favored by most defense professionals. In a July 22, 1999, pro-F/A-22 letter to Congress, seven former Secretaries of Defense argued thus: "It is not enough to say that something better may be available in the future. Something better is *always* available in the future. Serious threats to American air superiority may arise sooner, and the nation's security cannot tolerate a loss of command of the air. Congress and the Administration must focus on this fundamental reality and fully fund the nation's only truly stealthy air superiority fighter." One of the seven signatories was Donald Rumsfeld. ■

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What About the Enlisted?

"Up From Kitty Hawk" *[December 2003, p. 30]* was, to say the least, a disappointment to me.

One hundred years of flight, and only three enlisted people named in the entire article: Cpl. Vernon Burge, the first enlisted pilot, Sgt. Roy Hooe of the *Question Mark,* and myself. The fact that this article was put together by the staff of the Air Force Association magazine with so little concern for enlisted accomplishments is a further concern of mine.

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

More to the Story

The DEW Line story, "A Line in the Ice" *[February, p. 64],* by Peter Grier only touched the surface of this extraordinary project. One aspect of this was the dire shortage of civilian pilots and aircraft needed to ferry supplies up north.

In early 1956, [I was] getting out of the Royal Canadian Air Force. My Airline Transport License with a DC-3 rating was less than a week old when a charter outfit called and offered me a job flying C-46s up to the DEW Line. I asked the caller, "How did you know I just got my ATR?" "We keep tabs," he answered. "But I don't even know what a C-46 looks like." "Oh, don't worry, we can check you out tomorrow and you'll be on your way the day after." "And who will be my co-pilot?" "Don't worry about that, we are working on that right now." "Sorry, but I've got an airline job lined up and have to be in Denver in three weeks." "Well, you could still fly a few trips before you have to leave."

George Fulford
Mill Valley, Calif.

I was instantly catapulted back in time to 1977 when I saw the radar site pictured on the bottom of p. 66. That's H-3 on the east coast of Iceland. We were the 477th Aircraft Control and Warning squadron. I spent one year of my life there and, yes, as Rick Ranson says, "remember [my] time on the line with fondness."

It is true, there were only 115 of us there, including the contractors. For excitement [we took] the Air Force "blue" bus down to the airstrip and counted how many times the C-47 bounced down the gravel strip upon landing. We even got to see a flyby of a World War-II vintage British Lancaster converted for AWACS duty with its radome in the belly.

Yes, we were close. There were a few troublemakers, but quickly they learned that we [were] all on this spot together. We used to play softball right there at the foot of that "golf ball." I always wanted to know what is left of H-3.

Steven A. Nagel
Reston, Va.

This article brought back my work on the DEW Line.

In May 1955, I was a member of the 2nd Aerial Port Squadron as a loadmaster, working out of Frobisher Bay, Baffin Island, Canada. We were the ones who air-dropped the D-4 bulldozers. At the time, these were the largest loads dropped by parachute, and the only airplane to do this was the good old C-119 Boxcar. The D-4 Cats were used to clear runways on the ice, and then the larger D-8 Cats were brought in dismantled and reassembled to use on the larger jobs of making the runways on land. While at Frobisher Bay, a C-124 crashed on landing, ending up in four pieces, with none of the crew seriously injured.

Like the article said, many airplanes

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were lost, as it was rough country to fly in. I also [flew] out of Yellow Knife, Northwest Territory, Canada, taking parts in to a radar site to repair a C-124 that had lost a nose gear on landing. This was in August, and at the site, you had to wear heavy clothing, as it wasn't much above freezing. The people who worked at these sites had to really like solitude, as there was plenty. It was a great experience for me, and thanks to the Air Force I saw parts of the world I know I would have never seen [otherwise]. If I had it to do over again, I'd be gone in a heartbeat, as it is something no one can take away.

Ronald G. McGill
South Windsor, Conn.

Getting the Right Aircraft

I wish to comment on *["Tanker Twilight Zone," February, p. 46]* based on two decades of engineering work which I did on the KC-10 tanker programs and our subsequent work to automate refueling which was realized in the KDC-10 (Royal Netherlands Air Force) tankers. In a nutshell, the 767 is a suitable replacement for the KC-135, but the requirements of the Air Force cannot be well met by the 767 or by rebuilt KC-135s.

The specified fuel for a 767 is 23,980 gallons for a [maximum takeoff weight (MTOW)] of 450,000 pounds and a range of 5,760 miles. This seems to be very limiting in these days when we are mounting expeditionary forces from the USA to go half-way around the world. The new extended-range 777 model carries 67,000 gallons for an MTOW of 750,000 pounds and a range of 9,280 miles. This means that the 777 could probably do the work of three 767s on any given mission. If one considers a 747, it can carry 63,705 gallons of fuel for an MTOW of 910,000 pounds and a range of 7,600 miles. Although not as good as the 777, it has an added advantage of being available as a front loading freighter, able to ease our airlift shortfall without the "once more with feeling" redo of the C-5s.

For missions requiring short field operations, the C-17 equipped with probe and drogue kits would seem to be an easy solution, having the airlift capability in addition. Our research showed that it was also possible to use our automated refueling systems for a boom on a C-17 but would require expensive modifications on the ramp, etc. In a pinch, the C-17 can fly at 80 mph and land in 1,600 feet, although this is not something to do every day.

There are many missions that the 767 would be all right for, and when all is said and done, the requirements analysis should show that a mix of all these aircraft is what we should supply our Air Force. In addition, there are three other refueling requirements that need to be considered in this package: helicopters, propeller aircraft, and naval aircraft returning to a carrier. It may be that it will never be practical for commercial jets to refuel other aircraft below 345 mph, and so we need some way to do this in our mix.

It looks to me like this delay in buying tankers for the Air Force can really be a wonderful chance to get a better mix for the required work.

Erv Ulbrich
Whittier, Calif.

The Big Fella

I enjoyed reading "Big Fella" *[February, p. 70]* and would like to add my experience with the XC-99. In 1948, the 436th Bomb Squadron, 7th Bomb Group, received the first B-36 and subsequent ones until the 436th became the first fully operational ready B-36 squadron. The XC-99 was assigned to the 436th in May 1949 because the unit had experience with the B-36 bomber.

USAF, early in 1949, was conducting ballistics tests at Muroc [AAF, Calif.] on large bombs dropped from B-50s; however, the B-50s could not attain the altitude (at least 40,000 feet) required to adequately conduct the tests. In April 1949, the 436th was tasked to deploy three B-36s to Muroc to assist in the tests. I was the squadron's NCOIC of tech supply, responsible for assembling a fly-away kit, and accompanied them to Muroc.

The bomb load carried on each sortie was either four 12,000 pounders, three 22,000 pounders, or two 44,000 pounders! (All were inert.) The tests were progressing well, when a tornado struck Carswell AFB [Tex.] early in the morning in late May, destroying or damaging the rudder on every B-36 at the base. General LeMay ordered those at Muroc to return to Carswell immediately, as they were the only B-36s operational in USAF.

There was not sufficient time to reconfigure their bomb bays to accommodate the fly-away kits, so I had to remain at Muroc, to guard the kits as they contained many classified spares. (Base security personnel guarded them at night, as the hangar doors would be secured.)

After about a week, I was getting concerned about how long I would be stuck at Muroc. My three-year reenlistment would end on June 18, so I called my CO at Carswell, telling him there was no way I would reenlist at Muroc. (The barracks were built in World War II; the tar paper on the walls had pretty well disintegrated, thus allowing sand to constantly blow through the cracks.)

I was lolling in the hangar the day after calling my CO when I heard the distinctive sound of those huge R-4360 engines and ran to the door. I watched with much relief as the XC-99 "Queen of the Skies" landed. The fly-away kits were loaded into the cavern-size fuselage, occupying scant space on one deck. I was the only passenger. (I re-enlisted about 10 days later.)

Lt. Col. Jetty R. Cook,
USAF (Ret.)
Hunt, Tex.

The article "Big Fella" brought back memories of my work at Consolidated Vultee on the B-32 Dominator program. At that time, we were shown the work on the new XB-36 and the original landing gear of two huge tires (as shown in your story photo). Of course, these were later changed to the smaller

four-wheel system. At the time I couldn't believe the size of those tires!

It is great that the XC-99 will be on display at a new home but very sad that no B-32 exists to be shown. It was a great airplane.

John R. Blackburn Jr.
Bedford, Pa.

Page 75 of the February issue caught my eye, as it may have caught many others. The XC-99 rear view has a *very* interesting background—to the far right and outboard No. 6 engine is the space shuttle/Boeing 747 combo under the water tank. What a great picture of "two one-of-a-kinds"!

MSgt. W.R. "Bob" Harrell,
USAF (Ret.)
San Antonio

More on Medals

Reference [retired CMSgt. Robert A.] Urie's letter *["Letters to the Editor: About Those Medals," February, p. 9]* on the practice of awarding enlisted promotion points for medals: While no longer an issue with the recent split of the 1N3XXX cryptologic linguist and 1A8XXX airborne cryptologic linguist specialties, I remember when all of us enlisted cryptologic linguists (airborne and ground-based) competed for promotion in one homogenous group (formerly 208XXX and later 1N3XXX AFCSs). Airborne cryptologic linguists were identified with an X prefix (X208XXX and X1N3XXX). And there was an issue with some concerning our airborne brethren who were earning extra promotion points, via Air Medals, and later Aerial Achievement Medals, over their ground-based comrades.

But while some may have griped about this seeming disparity or preferential treatment within an AFSC, we ground-based cryptologic linguists knew three things: (1) Our airborne cryptologic linguist comrades were placing themselves in increased peril by performing these duties aloft in unfriendly airspace, (2) this increased danger did merit special consideration (flight pay and additional promotion points from medals), and (3) we ground-based cryptologic linguists could volunteer for airborne cryptologic linguist duties any time we wanted.

CMSgt. James R. Kinney,
USAF (Ret.)
Yorktown, Va.

First, the enlisted ranks are usually left out of many awards, just because no one cares to take time to write up a commendation and forward it.

Second, SAC came out with a Combat Readiness award—for *aircrews*. What about us maintainers who busted our you-know-whats making sure the equipment the aircrews were flying was safe and dependable? I froze in Kansas and baked on the flight line at Andersen on Guam.

Why didn't the maintainers get the Combat Readiness award, along with the aircrews who would have been out of luck were it not for those of us who served under all conditions to ensure the aircrew's safe return?

All they did was fly the planes and break them—while we had to fix them and let them break the bird again!

TSgt. George Zatko,
USAF (Ret.)
Biloxi, Miss.

A Reversal

[I have read] this great magazine for 20 years. I always read the "Letters to the Editor" and go back and look at the errors that others have found. Today I found one—not that [errors are] all I look for. The picture of the F-80 on p. 88 *[See "Pieces of History: A New Generation," February]* is printed backwards. A great picture but the yellow letters on the radar nose are reversed.

Jerry Reichenbach
Jacksonville, Ark.

■ *Mr. Reichenbach is correct.*—THE EDITORS

Seen it All

Twenty-four years in the Air Force and I have seen it all! "Lawmakers: Boost End Strength" and "Chiefs: No More End Strength" takes me back to when our service chiefs *were* fighting for more troops and lawmakers *weren't*. What has gone wrong? *[See "Aerospace World," February, p. 20.]*

In a time when our uniformed personnel are on the news every day, and support for them and their loved ones is at an all-time high, what is the case for not requesting an increase in end strength? When the sell was more difficult and the threat was less evident, the Chiefs with their E-9 advisors would head up to the Hill, make the strongest case they could for more people, and then hope Congress would act.

Now they aren't even willing to admit that they need more people for what is an obvious very long-term personnel (and national security) situation.

SMSgt. William J. Roberts,
USAF (Ret.)
Fort Walton Beach, Fla.

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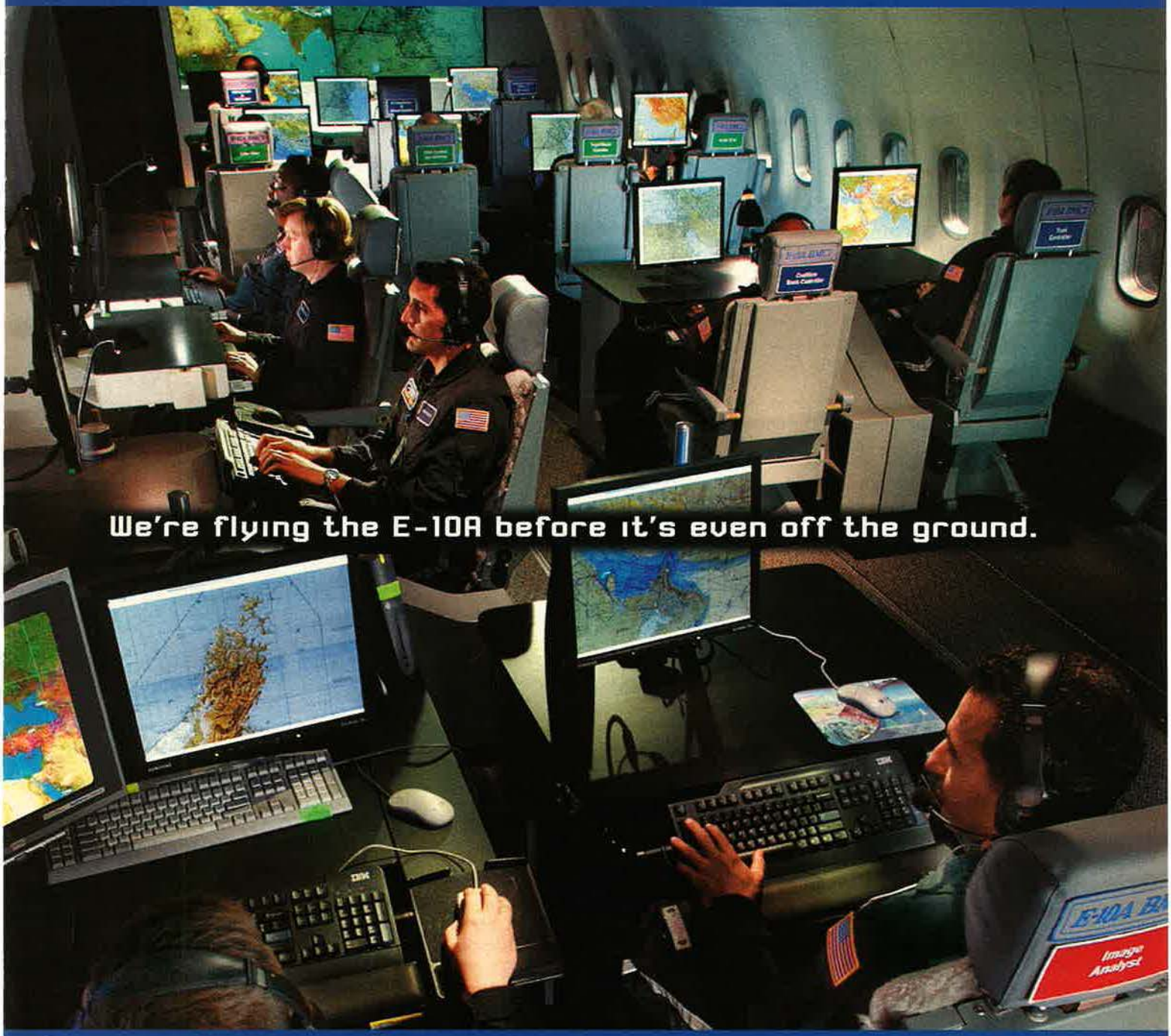

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Washington Watch

By John A. Tirpak, Executive Editor

Tanker Deal in Holding Pattern; Refueler Options?; Comanche Down; The Air War Continues ....

Tanker Update

The Air Force's planned lease and buy of 100 Boeing 767 aerial refueling aircraft will remain on hold until next month at least—and probably beyond that—according to the Defense Department, the Air Force, and the company.

The Pentagon had expected to start executing the tanker deal late last year, but Defense Secretary Donald H. Rumsfeld put it on hold following the revelation by Boeing of improprieties in the way a company official approached and then hired a senior Air Force civilian employee. That employee had been involved with the project. (See "Tanker Twilight Zone," February, p. 46.)

Several studies are seeking to determine the technical merits of USAF's position that its KC-135Es are in urgent need of replacement.

In February, Rumsfeld ordered the Defense Science Board to report by May on the health of the KC-135E. The DSB is to determine whether to repair or replace the E models, the oldest tankers in USAF's fleet. Rumsfeld also directed the board to forecast the US military's need for aerial refueling capabilities.

USAF's Fleet Viability Board is conducting an in-depth evaluation of aging issues for its entire fleet of some 500 KC-135s, not just the E model. However, that study is not due until September.

In last fall's Fiscal 2004 supplemental defense appropriations, Congress directed the service to prepare an analysis of alternatives on future tanker needs. Completion of the AOA is expected to take 18 months.

In February, the Air Force released a RAND study that determined the KC-135Es increasingly will need repairs and, consequently, will be less available for service through this decade. RAND analysts concluded that it would cost more each year to fix up old KC-135Es than it would to buy and operate new KC-767s.

Meanwhile, Boeing announced in February that it would slow work on the USAF 767 tanker program until the issue is resolved. This would reduce company out-of-pocket costs from $30 million a month to about $5 million a month. The first designated USAF 767 airframe—a so-called "green" 767 that will not have the necessary aerial refueling modifications—will be completed next month. A company official said it would be set aside until Boeing receives further instructions from the Air Force.

Other Tanker Prospects?

Some observers have speculated that USAF could look to other aircraft, even other Boeing aircraft, in the event that the company is forced to close its 767 line before a deal can be struck. One possible alternative is the soon-to-be-launched Boeing 7E7 commercial jet. Some have suggested simultaneous development of a military tanker version would be possible. That is what was done with the 707-derived KC-135.

However, a senior Boeing official said the 7E7 would be ill-suited for tanker duty.

USAF photo by TSgt. Mike Buytas

Many KC-135 tankers are too old for combat.

"The E in 7E7 stands for efficiency," he said. The efficiency comes from the use of "very lightweight materials" to achieve long range.

The 7E7 will have too much flex in its wings and fuselage to be a good tanker, the Boeing official said. "For a tanker, you want a really rigid, sturdy platform, like the 767."

Boeing is working on another approach, called the blended wing body, that resembles a fattened B-2 stealth bomber. It is "a very compelling technology," said George K. Muellner, Boeing's senior vice president for Air Force business. He believes it would make an excellent aerial refueling platform.

A BWB-style tanker could have two permanent flying booms, doubling the number of Air Force aircraft that can be refueled at once, Muellner said, adding that it would be a highly efficient tanker with plenty of room for cargo.

Boeing right now is working on a subscale prototype. However, it would be 2015 at the earliest before the company could produce a full-size blended wing body tanker.

Air Force Secretary James G. Roche, in February, told the Air Force Association's Air Warfare Symposium in Orlando, Fla., that the service supports conducting the various tanker reviews.

However, he pointed out that the Air Force had long planned to include a KC-X program in its Fiscal 2006 budget request. A potential tanker lease arrangement gained momentum when the service had to increase use of the fleet for the Global War on Terror and thereby accelerated its maintenance woes.

"We felt this was a risk that ought to be addressed earlier," said Roche.

In early March, Gen. T. Michael Moseley, the Air Force vice chief of staff, told lawmakers that the Air Force has a "fleet of tankers that is not viable." He maintained that the plan to go with a 767 modified for aerial refueling is "valid."

He said that, when he served as the air boss for combat operations in Afghanistan and Iraq, he would not deploy the KC-135Es because they were too old.

"We need a new tanker," said Moseley. "We cannot operate these 707s [the present day KC-135s] at the level that we have in the past."

Moseley went on to refute some proposals put forth by critics of the 767 lease/buy deal. He said, "Re-engining old 707s gives us a re-engined 50-year-old Eisenhower-era tanker—not viable from my perspective."

On the question of looking at some airframe other than a 767-class airplane, he said that a larger aircraft would sink "through the asphalt in the desert," while one with a longer wingspan would be "too big because we can't park enough to do Navy, Marine, coalition, and Air Force assets." A smaller aircraft, he said, would not "carry the load for us."

At least one influential lawmaker, Duncan Hunter (R-Calif.), chairman of the House Armed Services Committee, expressed a desire to get on with replacing tankers. He told Moseley at the March hearing, "We're going to try to help you."

Hunter wants to separate the need for the tankers from the "rest of this mess and move ahead and acquire them."

Death of Comanche

Bitter experience with helicopters in Iraq and an overall shortage of cash to modernize its aviation forces compelled the Army on Feb. 23 to kill its RAH-66 Comanche scout/attack helicopter.

The Comanche program had been in the works for more than a dozen years and had consumed nearly $7 billion. Current Army leaders judged that they could get more "bang for the buck" if the Army invested instead in a general upgrade of the rest of their aircraft. The Comanche would have siphoned off 40 percent of the Army's aviation procurement funding over the next seven years.

Despite its leading-edge electronics and stealthiness, the aircraft was judged too vulnerable to small-arms fire, anti-aircraft artillery, and man-portable anti-aircraft missiles.

Gen. Peter J. Schoomaker, Army Chief of Staff, told Pentagon reporters, "To have Comanche survivable and to do the kinds of things we'd have to do in the current threat environment, we have to add things to Comanche, which takes away from its primary stealth capability and also requires an investment of several billion dollars."

Army leaders also deemed Comanche less relevant to future battlefields because the Army now relies more on the capabilities of other services.

"The operational environment has changed," said Lt. Gen. Richard A. Cody, Army deputy chief of staff for operations.

"We've ... seen, in the war in Afghanistan, in the war in Iraq, a greater preponderance in synergy between our ground maneuver forces and our aviation forces," Cody went on. He added, "We have now new types of capabilities to deal with the radar threat environment that, 13 or 14 years ago, we did not have in the joint force. And so that has changed."

The Army planned to buy 650 Comanches at a cost of more than $39 billion. Only two flying prototypes had been built.

The White House's Office of Management and Budget recently targeted the helicopter program—along with the Air Force's F/A-22 and the Navy's Virginia-class attack submarine—for review of its "transformational" qualities. However, Schoomaker said the termination was solely the Army's doing.

Boeing photo by Robert Ferguson

Apache yes. Comanche no.

A six-month in-house study that led to the Comanche's demise was spurred in part by heavy losses of helicopters in Iraq to small-arms fire. Army leaders said that, at the time of the Comanche announcement, nine helicopters had been shot down in Iraq. Those nine shootdowns accounted for 32 deaths.

Army officials said the Iraq war experience led them to realize the Comanches would need armor plating and stronger materials—changes that would affect the carefully shaped surfaces of the aircraft and force a redesign of the airplane.

Instead of buying 121 Comanches over the next seven years, the Army will purchase about 400 helicopters of existing types—UH-60 Black Hawks and CH-47 Chinooks. It will upgrade about 800 in the current inventory. The latest version of the Apache attack helicopter will use most of the Comanche's avionics. It will have "all of the capabilities that we would have built into the Comanche with the exception of one, and that's the low observability," said Les Brownlee, acting Secretary of the Army.

The Army also expects to use the money it saves from the Comanche cancellation to launch a new scout helicopter project in Fiscal 2006.

Brownlee said the ongoing war and future needs make it "critical" that the funds identified for the Comanche program in Fiscal 2005 and the future years defense program "remain with Army aviation." He said the service would submit an amendment to its 2005 budget request, sent to Congress in early February.

The Army will "weaponize" unmanned aerial vehicles to take up part of the mission the Comanche would have performed, said Cody.

USAF Continues SWA Actions

Gen. John P. Jumper, Air Force Chief of Staff, doesn't think the Air Force's considerable contribution to operations in Southwest Asia is being noticed because it's not on the ground—in front of TV cameras.

"One of the problems we all face, and have always faced in our Air Force, is that we make it look too easy," Jumper said at AFA's Orlando symposium.

"It's amazing to me how many people think there is nobody from the Air Force deployed right now—that we are not involved in the situation over there when, in-

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deed, we're working very hard every day to deal with the difficult problems that the soldiers and Marines are facing on the ground," he observed.

Jumper feels the service must try its "very best to make sure that our contribution is noted and that we do stay visible to the decision-makers." He said they need to understand the Air Force is "on the front line of these confrontations."

For the record, US Central Command Air Forces reports that USAF flies about 175 sorties a day in Iraq and another 75 sorties a day in Afghanistan. CENTAF warns that these are averages and could vary considerably from day to day.

"We use the range and flexibility of assigned assets to apply airpower where required, anywhere in the theater," a CENTAF spokesman said.

A typical daily breakdown goes like this:

Operation Iraqi Freedom: 30-40 combat sorties, 135-140 tanker/airlift sorties, and 10-15 intelligence-surveillance-reconnaissance sorties.

Operation Enduring Freedom (Afghanistan): 20-25 combat sorties, 50 tanker/airlift sorties, and 10 ISR sorties.

New "Flight Plan" Describes Transformation

An updated version of the Air Force's "Transformation Flight Plan," released in mid-February, details new threats the service must address if it is to be successful in future wars. It is significantly longer than the 2002 version and includes lessons learned from recent operations.

The Air Force is still evolving from a Cold War to a post-Cold War force, according to the 176-page document, which was developed under the direction of Lt. Gen. Duncan J. McNabb, head of USAF plans and programs. However, the pace of transformation is picking up.

According to the plan, the "military advantages America currently enjoys are in danger of eroding in the face of new, unique challenges." The US must face "new forms of terrorism, attacks on its space assets, information attacks on its networks, cruise and ballistic missile attacks on its forces and territory, and attacks by chemical, biological, radiological, nuclear, or high-explosive (CBRNE)-armed adversaries."

Moreover, America "must cope with the unique demands of peace operations, homeland security, urban operations, and low-intensity conflicts."

Against these new threats, "traditional concepts of deterrence may no longer apply," and the Air Force will have to be proficient in a widening array of capabilities.

To deal with the new reality, the Air Force will pursue new technologies or emphasize existing ones. The service's new F/A-22 fighter and E-10 Multisensor Command and Control Aircraft are both being optimized to network with other forces, spot and destroy cruise missiles, control the battlespace, and help special forces deep behind enemy lines. To aid urban operations, USAF is developing extremely precise—but significantly less destructive—munitions to fight an enemy embedded in a city without destroying the city.

Other Air Force transformation efforts, the report outlines, fall into the categories of developing new operating concepts, working more closely with other services, reorganizing to be faster-moving and more agile, and using effects-based planning in everything from procurement to operations.

"The flight plan digs down into each of these areas in some detail, then links them all together to present a clear picture of where our Air Force is going in support of combatant commanders," said McNabb in an Air Force news release.

A critical element in the service's transformation efforts has been development of its air and space expeditionary forces (AEF). That development, said one senior service official, is "not a done deal." The use, manning, and equipping of AEFs will continue to evolve.

"That's not all behind us," he said. "We are looking at that with fresh eyes every day, especially keeping in mind how we can complement the other services and how they can complement us."

Overall, the service wants to give combatant commanders an ever-greater range of options—to include nondestructive or nonlethal means of "affecting" targets—while at the same time using smaller and smaller forces to control or disable an enemy. USAF expects to provide commanders with near-instantaneous "decision quality" information that will allow them to operate faster than an enemy can react.

USAF considers the flight plan, which is dated November 2003 but was publicly released Feb. 13, a living document that evolves as new threats emerge or old ones disappear. It is intended to guide everything from reorganization of the force to budget decisions and serves to rationalize Air Force planning with that of the overall Defense Department.

Leaders React to News of F/A-22 Review

The Air Force should build 381 F/A-22s, and a new review ought not change that plan, according to the Chairman of the Joint Chiefs of Staff, Air Force Gen. Richard B. Myers.

Speaking with *Air Force* Magazine, Myers said he believes the 2002 Defense Planning Guidance summer study that determined USAF requires 381 of the new stealthy fighter was on target.

"Yes, I think that's fair," Myers said of the DPG results.

"Air superiority is going to be important in the future, more than in the last couple of conflicts," he asserted. The fact that the Air Force was able to rapidly achieve air dominance over Afghanistan and Iraq—both of which had severely degraded air forces before the conflicts began—"doesn't mean it's not an issue anymore," Myers said.

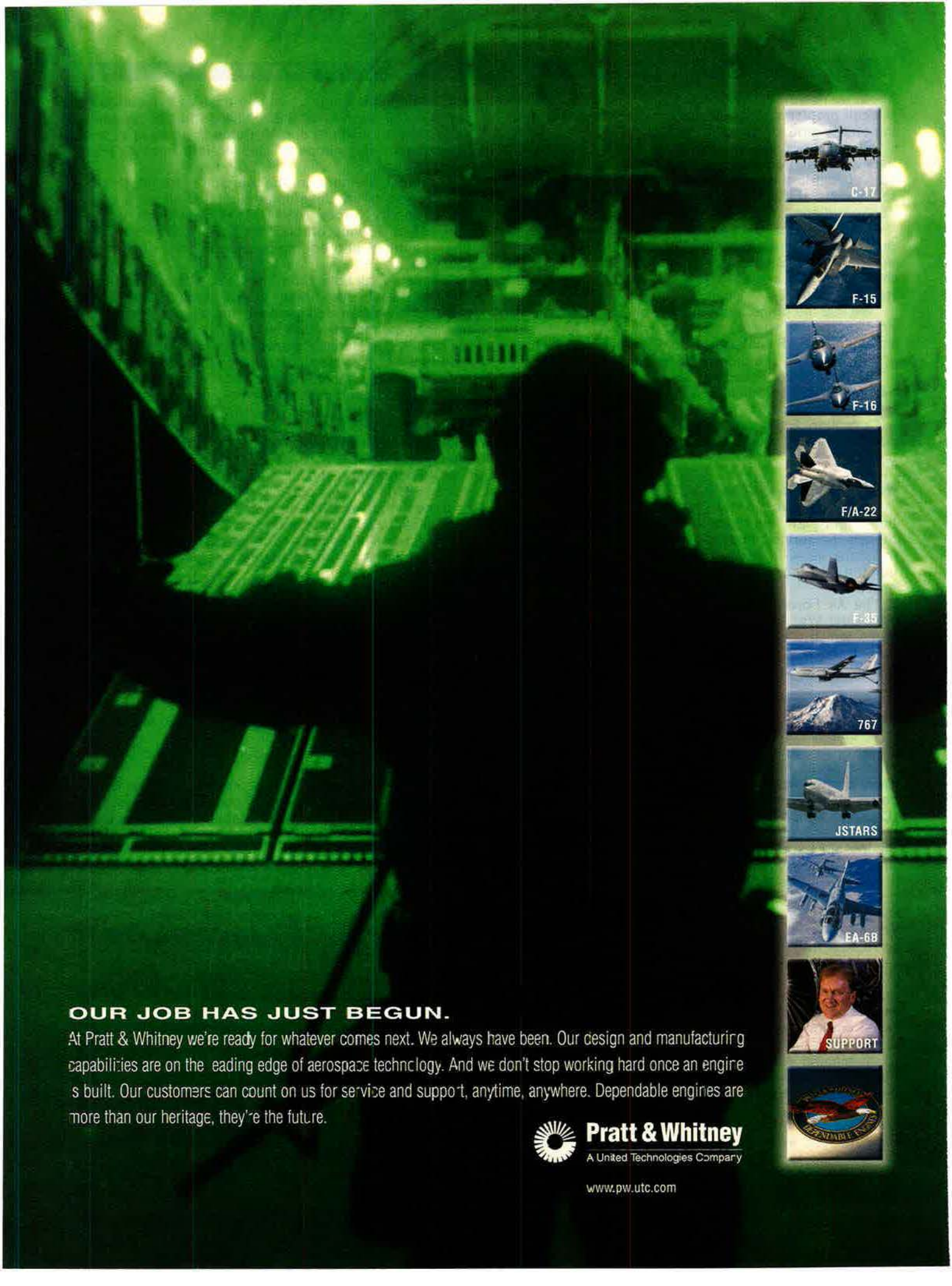
"If we get into a Taiwan crisis—potential crisis—look at the kinds of capabilities they have in China," emphasized Myers. The F/A-22 is "going to play a big role."

Myers was reacting to the Office of Management and Budget's direction to the Pentagon to hire an independent consultant to review the need for the F/A-22, the Army's Comanche, and the Navy's Virginia-class attack submarine. The new F/A-22 review comes only 18 months after the DPG study.

As a practical matter, "major programs are reviewed almost constantly," said Myers.

Air Force Secretary James G. Roche told *Air Force* Magazine, "We still feel the arguments we made on behalf of the F/A-22 [in 2002] are as powerful—if not more so—today than they were when we made them."

Roche said of the new review, "Our sense was, OK, somehow there's one industry that wants to crank out studies, and we want to crank out airplanes." ■



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Aerospace World

By Adam J. Hebert, Senior Editor

Roche Withdraws Name

Defense Secretary Donald H. Rumsfeld on March 10 announced that Air Force Secretary James G. Roche has requested that he no longer be considered for the position of Secretary of the Army. Roche will remain Air Force Secretary.

Roche's nomination had been on hold since July 7 when President Bush formally nominated him to take over as the Army's civilian leader. Roche was picked to replace Army Secretary Thomas E. White, who, on April 25, 2003, resigned following repeated disagreements with Rumsfeld's office over the future direction of the Army.

Roche's nomination languished in the Senate Armed Services Committee while lawmakers delved into a sexual assault scandal at the Air Force Academy and examined details of the service's controversial deal to acquire new aerial refuelers from Boeing. Many believed Roche's nomination had simply become caught up in politics, however.

The day after Roche withdrew his nomination for the Army post, a report by DefenseNews.com said that a four-month investigation by the Pentagon's inspector general found no wrongdoing by Roche or other USAF officials in negotiating the tanker deal.

B-52s Deploy to Guam

The Air Force in February deployed six B-52H heavy bombers to the Pacific island of Guam at the request of US Pacific Command. A PACOM news release said it had been rotating bombers into the region for more than a year.

PACOM said the deployment is routine and part of an adjustment of force structure to fill in combat capability for Pacific forces deployed for operations in Afghanistan and Iraq.

PACOM did not indicate how long the B-52s would remain on Guam, but, according to an Air Force spokesman, these rotations normally last about three months.

Gen. William J. Begert, Pacific Air Forces commander, recently emphasized the strategic importance of Guam, saying that he favors increasing the assets deployed to the US-owned territory. (See "Washington Watch: Boosting Pacific Force Structure," March, p. 8.) Begert said that Guam's Anderson Air Force Base has enormous unused capacity, a solid infrastructure, and a record of hosting hundreds of aircraft during the Vietnam War.

Guam is close enough to potential hot spots such as North Korea and the Taiwan Strait to serve as a valuable fighter and bomber staging location, but it is far enough away to be relatively invulnerable to enemy counterattack, a concern at the Air Force's bases in Japan and South Korea.

PACAF officials said other bomb-

USAF photo by A1C Vanessa LaBoy

An F-117 returns to Holloman AFB, N.M., showing 16 combat sorties from action in Southwest Asia.

USAF Seeks To Retire Some F-117s

The Air Force wants to retire a fifth of its F-117 stealth fighter fleet—a decision being made primarily to save money.

The Fiscal 2005 budget request discloses that USAF wants to deactivate 10 of the 52 Nighthawk fighters currently based at Holloman AFB, N.M.

Explaining the decision to reporters at the Air Force Association's Air Warfare Symposium in Orlando, Fla., Gen. Hal M. Hornburg said the F-117s, while valuable in every war in which they have participated, have always been used and deployed in small numbers. The head of Air Combat Command said he could understand why some people might be upset with the decision, but he added that it is a good time for a "capabilities tradeoff."

Sen. Pete Domenici (R-N.M.) was one who expressed some concern. He said, "I really want to see the justifications for the reduction in F-117 stealth fighters at Holloman."

The Air Force expects the move to save about $75 million over five years.

First used in 1989, the F-117 has repeatedly proved its value in major Air Force campaigns. The fighters were most recently used for Operation Iraqi Freedom; a pair of F-117s began the war with a predawn attack last March 20.

However, the aircraft's capabilities will soon be replicated by the F/A-22 and F-35 fighters. The Air Force is in the early stages of an effort to create a "bridge" from its legacy platforms to its next generation systems.

The service hopes to use the operating savings to fund upgrades to F-117s that remain in service.


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ers may deploy to Guam when the initial group of BUFFs completes its deployment.

Lord Seeks Space University

Gen. Lance W. Lord, commander of Air Force Space Command, wants to establish a university to support the needs of space professionals. He wants to place it in Colorado Springs, Colo., the home of AFSPC headquarters and several key space units.

"We need a national space university here ... to be the intellectual and operational center of gravity," for space professionals, Lord said in an interview with *Inside the Air Force* earlier this year.

Military space operations are still relatively new, and the Defense Department does not have a large pool of trained space professionals upon which to draw, he said. He added that the university would help create the "space cadre" to maintain the United States' strategic dominance of space.

Lord said the idea is, at this time, a preliminary proposal.

Air Force Study Finds Agent Orange Cancer Link

A new analysis of cancer incidence among Air Force veterans of the Vietnam War found increased rates of prostate cancer and melanoma for airmen who sprayed the defoliant Agent Orange and other herbicides. An Air Force news release, on Jan. 22, said that previous results of the service's study on Operation Ranch Hand had not found such a link.

Since it first conducted health examinations in 1982, the Air Force has tried to determine whether long-term health effects exist in Ranch Hand fliers and ground crew, the news release stated.

The latest results, said USAF, include a "statistical adjustment for years served in Southeast Asia" that reveals "increased risks of prostate cancer, melanoma, and cancer at any anatomical site among those with the highest dioxin exposure."

The study compared Ranch Hand veterans against airmen who served in SEA during the war but did not spray herbicides. According to the release, dioxin exposure was probably greater for Ranch Hand participants than for the average Vietnam veteran.

The new analysis, which was prompted by discussions with an advisory committee of nongovernmental scientists appointed by the FDA, also found a "significant decrease" in some cancers for both the Ranch Hand group and the comparison group. It found "no significant increase in the risk of death from cancer" for either group when compared to national rates.

The latest results from the Ranch Hand study were to be published in February in the *Journal of Occupational and Environmental Medicine*.

USAF To Issue PT Uniform

Air Force members will have a designated physical training uniform in the near future. Gen. John P. Jumper, Chief of Staff, publicly announced the new requirement in February at the Air Force Association's Air Warfare Symposium in Orlando, Fla.

Introduction of the new uniform follows Jumper's January announcement of a new fitness standard, expected to be implemented Air Force-wide this summer.

The new program features exercise by units. "It's going to put the social aspects of fitness back into our Air Force," said Jumper.

The fitness uniform will have three elements: a running suit, T-shirt, and shorts. According to SMSgt. Jacqueline Dean, chief of the Air Force Uniform Board Office, the gear went through a fit test and wear test last month. They should be, she said in a news release, widely available by October.

Enlisted airmen will receive two sets of shirts and shorts and one running suit. Officers must buy their PT uniforms.

The running suit, which is the same as that worn by cadets at the Air Force Academy, is USAF blue with reflective white piping. The T-shirt and shorts are gray with some reflective elements. The shorts will have a pocket on the front, large enough for an ID card, and a key pocket in the waistband. Shoes remain the responsibility of each individual.

According to Dean, each of the other services has designated fitness uniforms.

Jumper said, "We're already seeing the fruits of our labor." He noted that fitness center usage is up 35 percent and smoking is down. "We are on a path to make sure that this force is fit to fight," he said.

USAF photo

Two USAF F-15s (middle of V formation) fly with two Indian Air Force Su-30 Flankers (rear) and two Mirage 2000 fighters during February's Cope India 2004, the first dissimilar air combat training exercise between the US and Indian air forces in more than 40 years.

F-117 Drops First JDAMs

A test team at Edwards AFB, Calif., successfully released Joint Direct Attack Munitions from an F-117 fighter in January, the first time the stealth fighter has used the weapon.

Lt. Col. Jim Bierstine, commander of the 410th Flight Test Squadron at

Edwards, said the Air Force is "upgrading the F-117 to carry JDAMs and other similar weapons," as part of an effort to offer commanders greater warfighting flexibility.

The Nighthawks are also having their avionics upgraded to a Block 2 configuration. Officials will be testing the new software from May 2005 to August 2005.

While this was the F-117's first use of the Global Positioning System-guided JDAM, it is not the first time Nighthawks have used GPS-guided weapons.

On March 20, 2003, the first night of Operation Iraqi Freedom, two F-117s launched the EGBU-27 munition to destroy a bunker where deposed Iraqi dictator Saddam Hussein was believed to have been hiding. The EGBUs are 2,000-pound laser guided bombs that have been enhanced with GPS targeting capability.

Army Mulls USAF AEF Approach

The Army is studying whether it should adopt a rotational deployment structure akin to the air and space expeditionary force (AEF) construct launched by the Air Force several years ago.

Lt. Gen. James R. Helmly, Army Reserve chief, told reporters in January that the Army may move to develop eight to 10 "expeditionary packages" for Army Reserve forces. He said a similar approach might be developed for the active duty Army.

Unlike USAF's 15-month AEF rotation base, the Army Reserve packages would rotate deployments over a four-year cycle. Helmly said each package would be "on call"—first in line for major deployments—for a period of six to nine months.

During steady-state levels of operations, the Air Force's 10 AEFs are considered on call for 90 days.

... Ditto, the Army National Guard

According to the head of the National Guard Bureau, the Army Guard is developing a deployment schedule similar to the one the Air National Guard follows under the Air Force's AEF rotation schedule. The goal is to reduce Army Guard deployments to once every six years.

The key for the Army Guard, Lt. Gen. Steven Blum said, will be to create modular units that can fulfill both their state and federal missions.

Speaking to Washington reporters in February, Blum said the Army Guard is going to be on "pretty high stress" for about 18 months until it sorts out its new deployment plans.

Blum said some reports of unhappiness with operational tempo—which were obtained through voluntary surveys—need to be taken with a grain of salt. He acknowledged, though,

News Notes

By Tamar A. Mehuron, Associate Editor

■ A Titan IV rocket, equipped with an Inertial Upper Stage, launched a Defense Support Program satellite into orbit Feb. 14 from Cape Canaveral, Fla. The launch was the final mission for Boeing's IUS booster.

■ The Florida Air National Guard's 125th Fighter Wing, in February, received the first of 19 F-15A/Bs retrofitted with E-kit upgrades, providing additional thrust and enhanced combat capability at much less cost than a new engine. According to Pratt & Whitney, the Florida ANG will receive all 19 by 2006. USAF also plans to retrofit F-15s for ANG units in Hawaii, Louisiana, Massachusetts, Missouri, and Oregon.

■ USAF enlisted personnel have three months, instead of 12 months, to decide whether to re-enlist, officials announced in February. The change marks a return to the policy prior to 2001 and will give USAF a better picture of its anticipated end strength.

■ The Ogden Air Logistics Center, Hill AFB, Utah, earlier this year completed modifications on the first F-16 fighter under a $1 billion program that will replace or repair structures that are known to lead to widespread fatigue damage. The first F-16 went to the Minnesota ANG's 148th Fighter Wing. USAF plans to modify more than 1,200 F-16s to ensure the fighters remain viable beyond 2020.

■ USAF accident investigators said pilot error caused a Thunderbirds aircraft to crash during an air show Sept. 14 at Mountain Home AFB, Idaho. Their report said that the pilot misjudged the altitude required to complete a "Split S" maneuver. When he realized something was wrong, he maneuvered his F-16 to avoid the crowd and ejected with barely a second to spare before impact. He had minor injuries, but the aircraft was destroyed.

■ Beginning in fall 2007, Guard and Reserve C-130s will undergo avionics modernization, USAF announced. The avionics modernization program will upgrade 520 aircraft by 2016.

■ Northrop Grumman will team with Lockheed Martin in USAF's Space Based Radar development competition, Lockheed officials said in January. SBR, with an initial launch scheduled for 2012, is being designed to provide worldwide, on-demand, persistent surveillance and reconnaissance.

■ The Precision Strike Association honored the Air Force Joint Direct Attack Munition Joint Program Office in January with the William J. Perry Strike Award for the JPO's work on JDAM.

■ Lt. Col. Michael Fossum, Air Force Reserve individual mobilization augmentee, was named as a NASA astronaut to fly on the space shuttle in November for mission STS-121 to resupply the International Space Station. Fossum will serve as mission specialist.

■ Battling unusually severe winter storms, personnel from Elmendorf AFB, Alaska, located, with the aid of forensic archeologists and ground-penetrating radar, unmarked graves of 15 Alaska natives on an old Air Force radar site near Port Heiden. In December and January, the team removed the remains, which were in danger of being washed out to sea, and turned them over to villagers for reburial.

■ After about a five-year hiatus, North Korea and the US will resume repatriating the remains of US service personnel found in North Korea during joint recovery operations. US teams will bring the remains across the demilitarized zone at Panmunjom. An Administration official praised the level of cooperation shown by the North Koreans during recent talks.

■ Civil Air Patrol's inaugural Civic Leadership Academy, in late February, drew 32 cadet participants. The week-long program in Washington, D.C., featured visits to Congress, the Supreme Court, presentations from government representatives, and team projects.

EELV Costs Up At Least 25 Percent

The Air Force announced in early February that unit costs for its Evolved Expendable Launch Vehicle program had increased by at least 25 percent.

Service officials blamed the cost growth, in large part, on the downturn in commercial space launches. The Air Force had counted on a robust commercial sector to help keep the EELV program efficient. Also contributing were competition violations by Boeing, which forced the Air Force to shift some already planned launches to competitor Lockheed Martin.

The cost increase means the program is in violation of the so-called Nunn–McCurdy rule, which means the Air Force must certify to Congress that the program has a cost control plan in place and that EELV is critical to national security.

The Administration requested $638 million in Fiscal 2005 for the EELV program—$611 million of which is for procurement.

that some specialties, such as military police and special forces, have been stressed because of the high demand for those skills.

Senior defense officials have said repeatedly in recent months that although they remain concerned about the morale of US troops, there have not yet been any signs the strains are going to lead to a mass exodus from the armed services.

Airmen To Help Relieve Army

Some 2,000 airmen headed for Iraq this spring will be replacing and augmenting Army forces as the Army completes a massive troop rotation. The Navy will supply about 3,000 personnel. All 5,000 will be engaged in "ground force functions," according to Gen. Peter J. Schoomaker, Army Chief of Staff.

Schoomaker told lawmakers in late January that to implement the Iraq troop rotation plan, the Pentagon used "joint sourcing" to fill "shortfalls in the force."

One primary goal of the joint sourcing approach, he said, was to ensure the Army could keep its commitment to soldiers that they spend no more than a year in Iraq.

The airmen were added to USAF's Air and Space Expeditionary Force (AEF) Silver—the second of two 120-day AEFs the Air Force has used to return to its normal 90-day AEF rotations following the demands of Operation Iraqi Freedom. (See "Aerospace World: Another 2,000 Airmen To Beef Up AEF Silver," March, p. 14.) Among the 2,000 are personnel in civil engineering, security, and transportation functions.

However, Air Force officials said that some of these additional airmen may have to stay as long as 179 days.

USAF Replaces Soldiers

The Air Force said that the number of soldiers on loan from the Army to help protect domestic Air Force bases will drop from 8,000 to 6,500 this year. Replacing them will be a mix of airmen, civilians, contractors, and new technology.

Under an agreement struck in 2002, the Army was to provide about 8,000 soldiers for two years while the Air Force restructured to alleviate a manpower shortfall in security forces. However, continuing operations in Southwest Asia have put a greater strain on Army security elements than expected, forcing it to pull back some 1,500 soldiers.

Brig. Gen. James M. Shamess, Air Force director of security forces, said in a release that the Air Force will make up the difference in a variety of ways, utilizing new technology when possible.

"Instead of having a human assigned to a patrol, we'll use systems where we can see areas farther out than a person can, run the information back to a central location, and respond as needed," said Shamess. The service also plans to use automated identification checks and new explosive detection equipment.

To help fix the manpower problem over the long term, the Air Force began directing more new recruits into security forces and expects to retrain airmen from overage career fields.

DOD Authorizes Korean Medal

The Defense Department on Feb. 9 announced the creation of a medal for uniformed personnel who have served or are serving in support of the defense of South Korea. The new decoration is called the Korean Defense Service Medal.

Eligible are troops who served 30 consecutive or 60 nonconsecutive days—anytime between July 28, 1954, and a to-be-determined future date. According to the DOD announcement, that includes more than 40,000 US troops every year.

The medal is available to active duty and reserve personnel, veterans, and retirees. Only one medal, which is above the Armed Forces Service Medal in precedence, will be awarded per individual, regardless of the number of tours in South Korea.

The Iraq Story Continues

Expeditionary Wing Moves to Balad

The 332nd Air Expeditionary Wing recently relocated from Tallil Air Base in southeastern Iraq to Balad Air Base, north of Baghdad. The wing relocated Jan. 30 as part of a US Central Command Air Forces initiative to consolidate forces into one location, according to a Feb. 2 news release.

The 332nd had been operating out of Tallil for six months.

Officials noted that CENTAF has not completely vacated the base in southern Iraq—the 407th Air Expeditionary Group, commanded by Col. Kevin E. Williams, is remaining at Tallil.

Airman Dies in Vehicle Accident

Air Force MSgt. Jude C. Mariano, 39, of Vallejo, Calif., died Feb. 10 from injuries he sustained in a motor vehicle accident in Qatar on Feb. 5. Mariano was supporting Operation Iraqi Freedom at the time of the accident.

A Feb. 12 USAF release said Mariano was serving as an air mobility division information manager in the combined air operations center in Qatar. He was deployed from the 615th Air Mobility Operations Squadron, Travis AFB, Calif.

Casualties

By Feb. 19, a total of 543 US troops had died since the beginning of Operation Iraqi Freedom last March 20. Of these casualties, 376 were killed by hostile action, while 167 died in noncombat incidents.

Major combat operations were declared over on May 1, 2003. Since that time, 405 troops have died in Iraq: 261 in combat and 144 in nonhostile incidents.

The Air Force will begin to issue the new medal to active duty and reserve personnel in the fall.

Veterans and retirees may claim entitlement by providing documentation to the National Personnel Records Center, 9700 Page Ave., St. Louis, Mo., 6312-5100, or may call 314-801-0800 for more information. Air National Guard or Air Force Reserve Command veterans and retirees younger than 60 should send documentation to Air Reserve Personnel Center, 6760 Irvington Pl. 4000, Denver, Colo., 80280-4000, or call 303-679-6134.

Bush Forms Bipartisan Panel

President Bush, on Feb. 6, established a bipartisan commission to study US intelligence operations, specifically intelligence about weapons of mass destruction. Chairing the panel will be former Sen. Chuck Robb (D-Va.) and retired federal judge Laurence Silberman.

The commission not only will review intelligence activities leading up to the war in Iraq but also American intelligence estimates of WMD programs in countries such as Iran and North Korea. It will have full access to the findings of the Iraq Survey Group and compare what the ISG "learns with the information we had prior to our Operation Iraqi Freedom," said Bush.

The panel's report is due by March 31, 2005. It will include "specific recommendations to ensure our capabilities are strong," said the President.

Bush announced five other panel members: Sen. John McCain (R-Ariz.); Lloyd Cutler, former White House counsel to two Democratic Presidents; Rick Levin, Yale University president; Bill Studeman, former CIA deputy director; and Pat Wald, a former judge with the D.C. Court of Appeals. The President may appoint two more members.

USAF Targets Chief Master Sergeant Development

The Air Force is changing how it manages its complement of chief master sergeants to put the "right leadership in the right place at the right time," said CMSAF Gerald R. Murray. The effort is part of the service-wide force development program.

Murray said in a Jan. 14 Air Force release that USAF has "more than 100 empty chief master sergeant positions." He called the leadership void "unacceptable."

The Air Force Senior Leadership Management Office recently took over development and assignments for the chiefs. Previously the service's nearly 3,000 active duty chiefs had been managed by the Air Force Personnel Center. The move, said Murray, will provide the same focused development for chiefs as is given to senior officers and civilians.

Other USAF plans to enhance development of its senior-most enlisted personnel include establishing a new professional military education course, cross flowing chiefs from overage career fields to shortage fields, and establishing an assignments rotations policy for special duties and staff positions.

Brig. Gen. Richard S. Hassan, who heads the senior leadership office, said the Air Force has "denied" itself the full benefit of its chiefs by not "openly cross flowing" them to positions when and where they are needed.

"We view that as a denial to both the individual ... as well as to the units who do not have a chief master sergeant to lead them," said Hassan. He added, "It is certainly a waste to have [E-9s] serving in E-8 and E-7 billets.

Murray said that, beginning in the 2004 promotion cycle, the Air Force plans "to establish a three-year service commitment to be promoted to chief." That is the same policy that is in place for newly minted colonels.

DOD Kills Internet Voting Plan

Security concerns prompted the Defense Department to nix plans to offer online voting for the upcoming Presidential election. The Pentagon made the announcement Feb. 6.

Deputy Defense Secretary Paul D. Wolfowitz, on Jan. 31, signed a memo rejecting use of the Secure Electronic Registration and Voting Experiment because of "our inability to ensure the legitimacy of the votes," a spokesperson said.

DOD had asked 10 computer security experts to evaluate the system. The experiment was canceled after four of the 10 reported that "there were a number of ways that computer hackers could crack into the system."

Congress mandated the program in the 2002 defense authorization bill after a 2000 proof-of-concept demonstration the Pentagon ran for elections in Florida, South Carolina, Texas, and Utah. A total of 84 voters participated in the test.

The Pentagon plans to continue research into Internet voting. However, Wolfowitz said researchers must prove integrity can be maintained.

DOD Announces Top Contractors

The Pentagon, in February, announced that it awarded $209 billion in contracts during Fiscal 2003—an increase of more than $28 billion compared to 2002.

Topping the list as prime contractors, in the same order as a year ago, were Lockheed Martin with $21.9 billion, Boeing with $17.3 billion, and Northrop Grumman with $11.1 billion in contracts.

That contracting "big three," which accounted for nearly a quarter of all defense contracts, was followed by General Dynamics ($8.2 billion), Ray-

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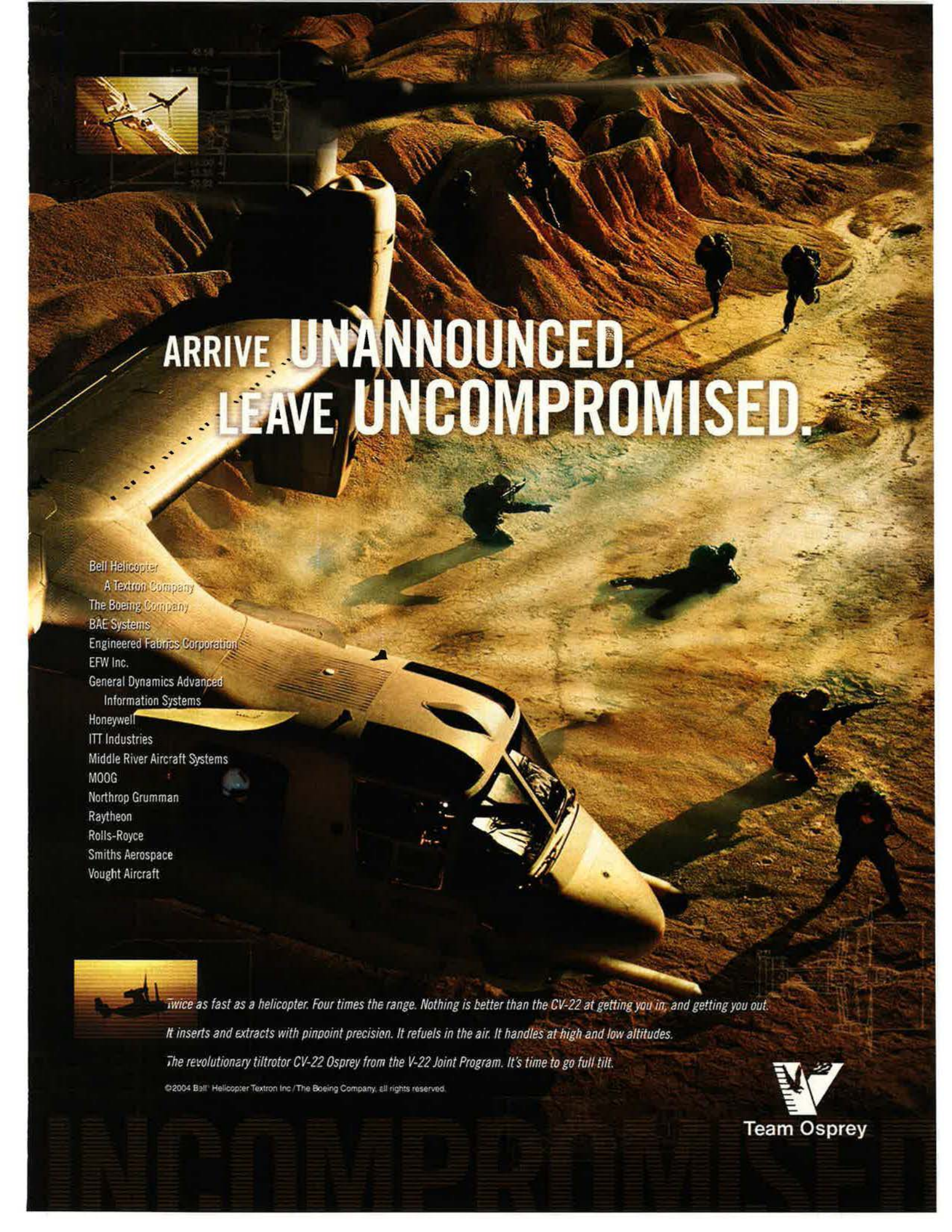
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theon ($7.9 billion), and United Technologies ($4.5 billion), the parent company of airplane engine maker Pratt & Whitney.

The biggest gain on the list was posted by Halliburton, thanks to the company's major role in stabilization efforts in Iraq. After being 37th on the list a year ago, Halliburton moved up to No. 7, with $3.9 billion in contracts.

Rounding out DOD's top 10 were General Electric ($2.8 billion), SAIC ($2.6 billion), and Computer Sciences Corp. ($2.5 billion).

All told, the 10 largest contractors accounted for $82.7 billion in contracts. Each of the top 10 contractors had an increase in total contract value compared to the previous year.

Big Three Top USAF List, Too

Air Force contracts in Fiscal 2003 totaled more than $55 billion for the year. The top three contractors were the same as for DOD as a whole, with Lockheed Martin ($12.6 billion), Boeing ($9.1 billion), and Northrop Grumman ($4.9 billion) capturing 48 percent of USAF's total for the year.

Those three companies were followed by United Technologies ($2.1 billion) and Raytheon ($1.6 billion).

Coming in sixth and seventh on the Air Force list were two companies not generally known as defense contractors: North American Airlines ($1.2 billion) and FedEx ($1.0 billion).

The Air Force's top 10 list for 2003 concluded with General Dynamics ($0.95 billion), L-3 Communications ($0.92 billion), and Computer Sciences Corp. ($0.86 billion).

USAF Can Cut Mishaps 50 Percent

The Air Force believes that Defense Secretary Donald H. Rumsfeld's goal of cutting aircraft mishaps by 50 percent in two years is achievable.

Gen. John P. Jumper, Chief of Staff, went one step further Feb. 18 when he codified a new Air Force safety goal of zero mishaps.

"Any goal other than zero implies that some mishaps are acceptable," Jumper said in a statement.

Maj. Gen. Kenneth W. Hess, head of USAF safety, told a House committee in mid-February, "We can make significant improvements in safety," and added that Rumsfeld's goal "is achievable and will directly increase our operational readiness."

Hess noted in his testimony that this effort is challenging and will not be "business as usual" because it requires "real cultural change."

Jumper said that over the past decade, "despite some excellent safety programs," the Air Force had not made "much progress" and had, in fact, been "moving in the wrong direction." He wrote, "Another program, procedure, or lecture won't help. Each of us paying attention will."

The overall lack of progress in improving aviation safety by all the services in recent years—and a spike in mishaps during Fiscal 2002—caught the attention of Rumsfeld and Jumper. Both have issued memos calling the recent trends unacceptable. (See: "A Plague of Accidents," February, p. 58.)

The Air Force is working with the other services to find "areas that have the highest potential payoff in reducing fatalities, the number of destroyed aircraft, and, ultimately, reducing the mishap rate," Hess told the House Armed Services Committee.

One focus of the effort will be to look for trends in incidents attributed to human error, now a leading cause of mishaps.

Senior Staff Changes

NOMINATIONS: To be **Major General:** James B. **Armor Jr.**, Charles C. **Baldwin**, Curtis M. **Bedke**, John T. **Brennan**, Roger W. **Burg**, John J. **Catton Jr.**, Michael A. **Collings**, Daniel J. **Darnell**, Frank R. **Faykes**, Vern M. **Findley II**, John H. **Folkerts**, Charles B. **Green**, Stephen M. **Goldfein**, Gilmary M. **Hostage III**, Thomas P. **Kane**, Perry L. **Lamy**, Roosevelt **Mercer Jr.**, Gary L. **North**, Anthony F. **Przybyslawski**, Loren M. **Reno**, Edward A. **Rice Jr.**, Marc E. **Rogers**, Arthur J. **Rooney Jr.**, Stephen T. **Sargeant**, Darryl A. **Scott**, Winfield W. **Scott II**, Norman R. **Seip**, William L. **Shelton**, Loyd S. **Utterback**, Donald C. **Wurster**.

To be **Brigadier General:** Danny K. **Gardner**, Douglas M. **Pierce**.

To be **ANG Brigadier General:** Robert A. **Knauff**, George T. **Lynn**, James T. **Williams**.

PROMOTIONS: To **AFRC Major General:** Richard W. **Ash**, Russel C. **Axtell**, John W. **Clark**, Roger E. **Combs**, Thomas G. **Cutler**, Robert E. **Duigan**, Gerald E. **Harmon**, David K. **Harris**, Michael K. **Lynch**, Keith W. **Meurlin**, George B. **Patrick III**, Mark A. **Pillar**, Richard D. **Roth**, Fred R. **Sloan**, Peter K. **Sullivan**, Floyd C. **Williams**.

To **AFRC Brigadier General:** Robert B. **Bartlett**, Craig E. **Campbell**, George N. **Clark Jr.**, Robert M. **Cockey**, William R. **Cotney**, Edward F. **Crowell**, Norman L. **Elliot**, Anita R. **Gallentine**, Stephen P. **Gross**, Michael L. **Harden**, Robert D. **Ireton**, Elaine L. **Knight**, Emil **Lassen III**, Thaddeus J. **Martin**, Robert B. **Newman**, Charles L. **O'Toole Jr.**, Frank J. **Padilla**, Loren S. **Perlstein**, Charles E. **Reed Jr.**, William P. **Robinson Jr.**, Neil A. **Rohan**, James T. **Rubeor**, Richard R. **Severson**, Raymond L. **Webster**, Michael N. **Wilson**.

SENIOR EXECUTIVE SERVICE RETIREMENTS: Samuel R. **Hilker**, Milton C. **Ross**. ■

Obituary

Retired Adm. Thomas M. Moorer, Chairman of the Joint Chiefs of Staff from July 1970 to June 1974, died Feb. 5 at the age of 91.

Moorer also served three years as Chief of Naval Operations immediately prior to being named JCS Chairman.

He was a 1933 graduate of the US Naval Academy and was serving at Pearl Harbor, Hawaii, when the US was attacked by Japan on Dec. 7, 1941. Two months later, he was awarded a Purple Heart after he was shot down while flying a combat mission off the coast of Australia. Later in World War II, Moorer was awarded a Distinguished Flying Cross for flying supplies into and wounded troops out of the island of Timor in the face of superior numbers of enemy aircraft. ■

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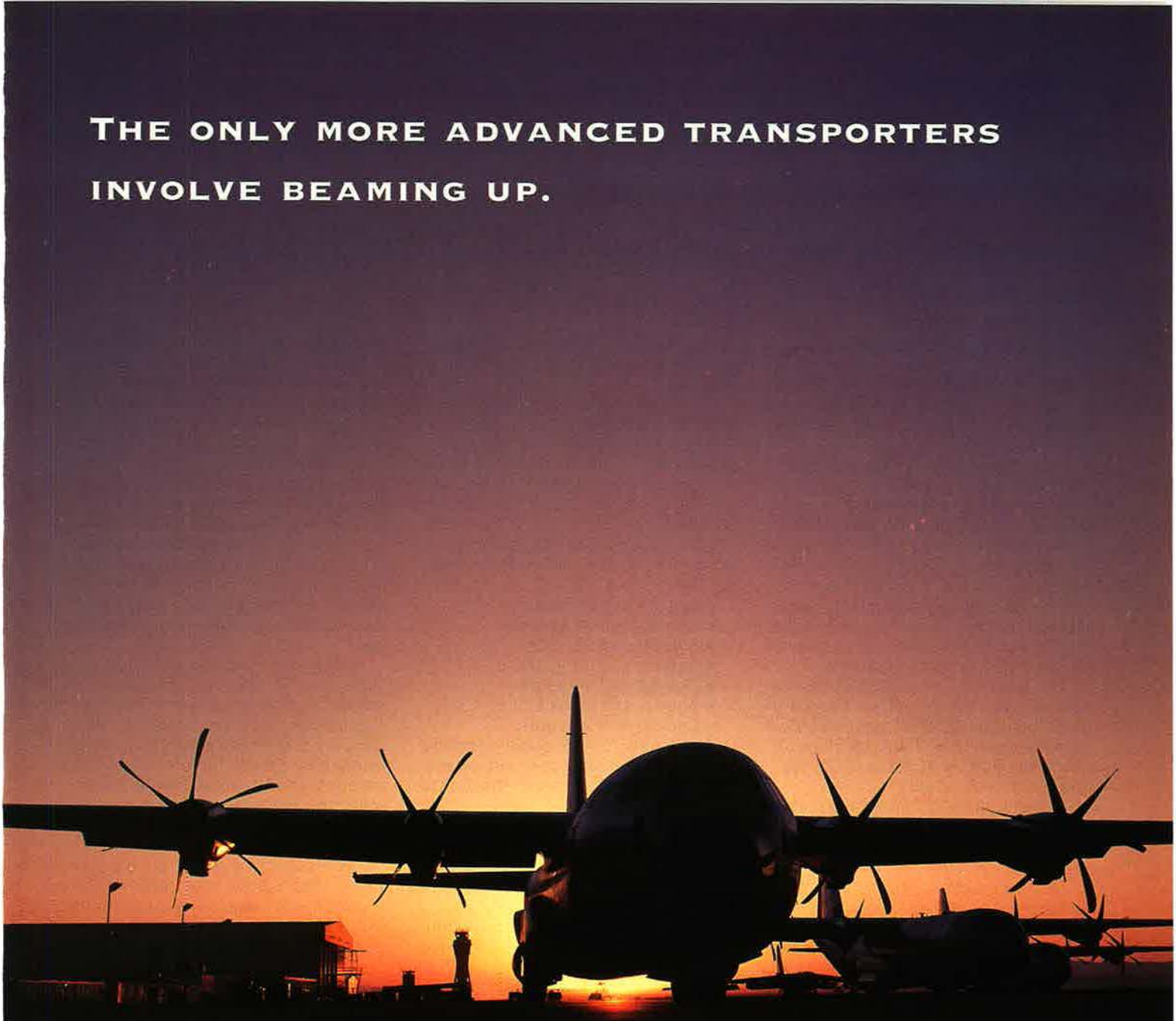

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Action in Congress

By Tom Philpott, Contributing Editor

Principi's Move; Lower Reserve Retirement Age?; DOD Pay and Benefits; VA Health Care ....

Lawmakers Eye CARES Moves

The planned overhaul of the mammoth Department of Veterans Affairs health care system took a hit, and lawmakers were anxious to see how VA responds.

A 16-member commission created by VA Secretary Anthony J. Principi recommended rolling back key parts of a comprehensive VA staff plan to restructure the $29 billion network of hospitals. VA's Capital Asset Realignment for Enhanced Services (CARES) draft plan completed last August had called for major changes at 13 sites and smaller realignments at hundreds of other locations.

However, in a move applauded by lawmakers, the panel in February rejected the CARES recommendation to close major VA facilities at Canandaigua, N.Y., Lexington, Ky., and Livermore, Calif.

Principi, who established the panel, said he would review its recommendations and accept or reject them as a whole.

In other action, panel members affirmed the CARES plans to:

- Close major facilities in Pittsburgh (Highland Drive), Brecksville, Ohio, and Gulfport, Miss., and downsize facilities in Waco, Tex.
- Build new hospitals in Orlando, Fla., and Denver.

The panel, on its own, recommended building a single new facility in Boston to replace four VA hospitals in the area.

The commission was chaired by Everett Alvarez Jr., a Vietnam prisoner of war and former deputy VA administrator. Principi said VA's objective is not to reduce spending on veterans' health care but, rather, to increase efficiency by closing outdated, underused facilities and opening modern hospitals and clinics where they are most needed.

New Reserve Retirement Age?

Sen. Lindsey Graham (R-S.C.), Sen. Tom Daschle (D-S.D.), and 25 other Senators introduced a bill to relax the retirement age for members of the Guard and Reserve.

At present, a member with 20 years of service may retire and draw benefits but not until he or she reaches age 60.

The Guard and Reserve Readiness and Retention Act of 2004 (S. 2035) would change that. Under its provisions, a reservist could draw retirement annuities at an age as low as 53, if he or she had served 34 years.

The bill proposes these combinations of ages and minimum years of service:

- Age 54 and 32 years
- Age 55 and 30 years
- Age 56 and 28 years
- Age 57 and 26 years
- Age 58 and 24 years
- Age 59 and 22 years
- Age 60 and 20 years

A member could qualify for the earlier retirement age if he or she spent the last six years in the Guard or Reserve.

Pay, Benefits in DOD Budget

The Pentagon budget request for Fiscal 2005 contains two important provisions for service people:

Pay Raise: It seeks a 3.5 percent basic pay increase for all service personnel, starting Jan. 1, 2005. If Congress agrees, this would be the first across-the-board military pay raise since 1999. Recent basic pay increases, including last January's average increase of 4.1 percent, have been "targeted"—that is, doled out in differing amounts by member pay grade and, in some cases, length of service. The 3.5 percent raise would be the fifth straight to exceed, by at least a half percentage point, annual wage growth in the private sector, as measured by the Labor Department's Employment Cost Index.

BAH Hike: The budget calls on Congress to approve the last in a series of extra-large increases in the Basic Allowance for Housing. Next January's BAH hike would exceed rental cost growth nationwide by 3.5 percent, enough to eliminate the remaining "gap" between local average rents and monthly BAH. With the 2005 BAH increase for 820,000 service members living off base in the United States, the Defense Department will reach a goal adopted in the final years of the Clinton Administration to eliminate a 22 per-

AP photo/Evan Vucci

Principi will make the call on facilities.

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cent gap between housing allowances and average rent paid by service members for adequate off base housing.

VA Health Care Spending

The newly proposed VA budget would climb to $67.7 billion in 2005, a nine percent increase over this year's plan. Of that amount, $29.5 billion would be devoted to veterans' health care. That is a one-year increase of 4.1 percent.

Critics say $29.5 billion is not sufficient to cover health care costs for all eligible veterans. Veterans' groups want full funding of VA health care to open the system to all eligible vets and wipe out long waiting lists.

In response, VA officials note that the health care budget has undergone tremendous growth—40 percent since 2001—and now funds treatment of 5.2 million patients—one million more than in 2001.

Principi noted, however, that the health budget request was $1.2 billion short of what he sought. VA officials concede that veterans with no service-connected ailments still face long waits or denial of enrollment, but those with service-connected injuries or ailments or low incomes—the highest-priority groups—have found greater access to care.

VA officials said veterans in these highest priority groups will comprise 71 percent of the total patient population in 2005, up from 66 percent in 2003.

VA devotes 88 percent of its medical care budget to the needs of these highest-priority veterans, said officials.

VA User Fees, Rx Co-Pays

As it did last year, the Bush Administration proposes that veterans in priority categories 7 and 8—those with no service-connected disabilities and with incomes above federal poverty level guidelines by geographic region—pay a $250 annual usage fee for access to VA health care.

Also, they would see co-payments on prescription drugs not tied to service-related conditions rise from $7 up to $15.

However, service-disabled and indigent veterans—those in categories 2 through 5—would no longer have to make a $7 co-payment on drugs for nonservice-related conditions. At present, only the most seriously disabled receive free prescription drugs.

Under VA's plan, prescriptions would be free to former prisoners of war. VA also would pick up the cost of emergency care received in a non-VA facility, and co-payments would end for VA hospice care.

Congress again is expected to reject the user fee and higher drug co-payments.

Expanded VA Burial Benefits?

Another VA initiative before Congress calls for multiyear expansion of the veterans' cemetery system. Five new national cemeteries would provide service in the areas of Atlanta, Detroit, Pittsburgh, Sacramento, Calif., and south Florida.

Taken together, they would provide burial spaces for up to 1.7 million veterans.

By October 2005, 83 percent of veterans will live within 75 miles of a national or state veterans' cemetery, up from 73 percent in 2001, said VA officials.

To comply with a direction from Congress, the new VA budget would fund studies aimed at opening six new national cemeteries. They would be in Philadelphia, Jacksonville, Fla., Sarasota, Fla., Birmingham Ala., Columbia/Greenville, S.C., and Bakersfield, Calif.

Save the Claims Processors!

Veterans' groups have implored Congress to block a proposed reduction in the number of VA claim processors.

The 2005 budget would fund 12,200 full-time staff members to support six benefit programs: disability compensation, pensions, education, housing, vocational rehabilitation and employment, and life insurance.

That marks a one-year cut of 1,000 claims processors.

VA officials explained that the compensation and pension claims backlog has plunged from 432,000 to about 250,000 and that the average wait time had dropped from 223 to 150 days.

"We are on track to reach an average processing time of 100 days by the end of 2004," Principi said. The department expects the 100-day wait to be a standard which can be sustained through 2005.

Veterans' advocates are skeptical and have urged Congress to fund a claim processing staff of 13,200 to match 2003 levels.

Affordable SBP Reform

Reform of the Survivor Benefit Plan became more affordable with introduction of related bills by Rep. Jeff Miller (R-Fla.) and Sen. Mary Landrieu (D-La.).

A major Congressional objective has been to phase out the sharp, sometimes surprising, drop in SBP payments to a survivor when he or she reaches age 62. Fixing this problem of the "SBP offset," however, would carry a hefty price tag.

Now, the Military Survivor Benefits Improvement Act of 2004 (S. 1916 and H.R. 3763) would cut the cost of eliminating the so-called "SBP offset" by $800 million over 10 years.

The savings would result from a one-year open enrollment opportunity for nonparticipating retirees, who would, in turn, pay higher premiums for SBP coverage tied to number of years since they retired.

Military service and veterans' organizations helped develop the less costly bill to meet budget committee requirements and to improve the chances of passage in 2004.

The Landrieu and Miller bills both call for a 10-year phase out of the age 62 reduction in SBP, when benefits fall from 55 percent of the covered annuity down to as low as 35 percent.

More on Keeping the Promise

Sens. John McCain (R-Ariz.) and Tim Johnson (D-S.D.) have introduced legislation identical to H.R. 3474, the House's Keep Our Promise to America's Military Retirees Act.

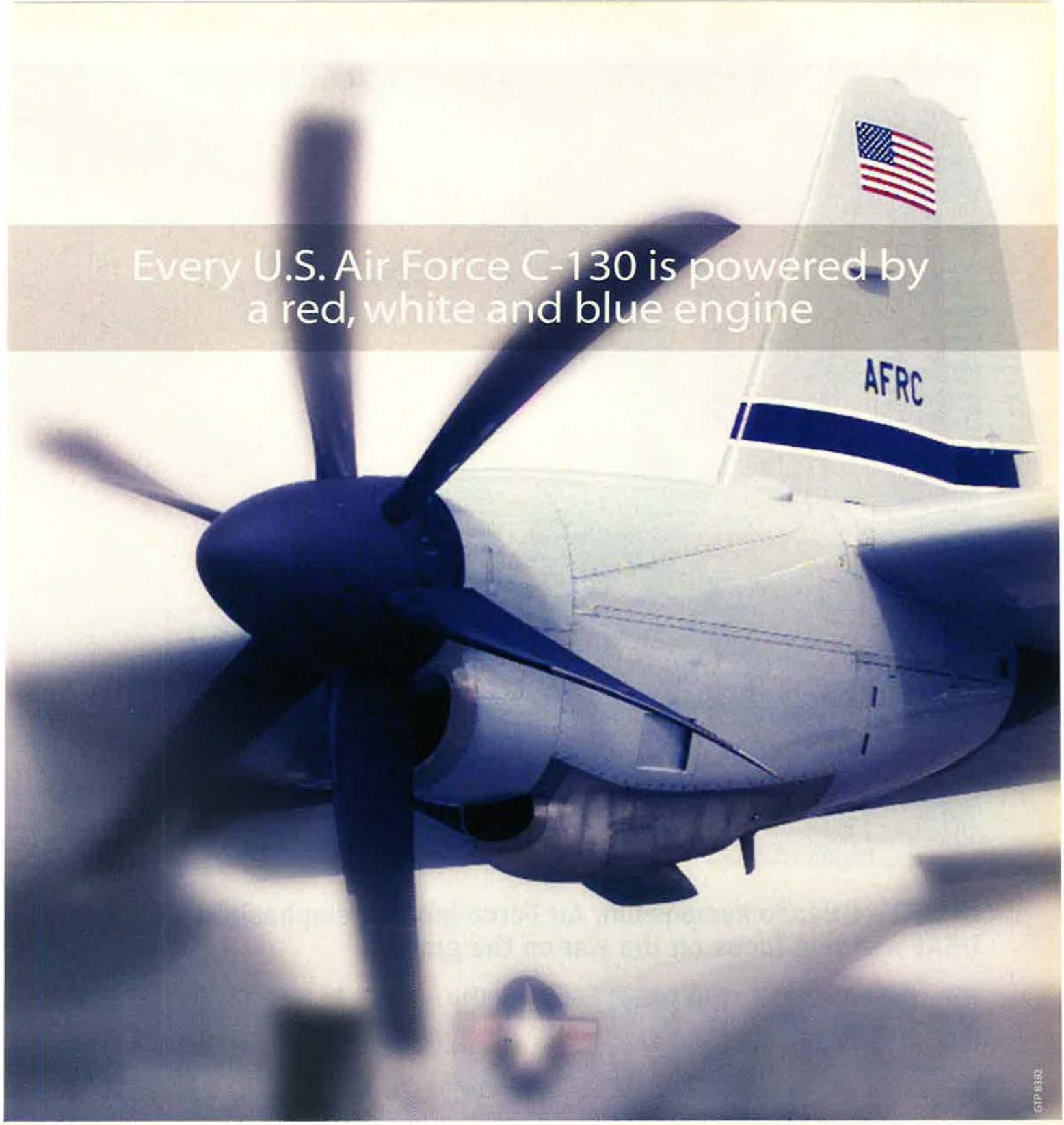
"In 2000," said Johnson, "Congress enacted my Tricare for Life legislation, which provided health care to Medicare-eligible military retirees. This bill takes the next step and improves those benefits."

Under the Senate bill, retirees who entered service before Dec. 7, 1956, would have no obligation to pay Medicare Part B premiums, now $66 a month, to be able to enroll in the Defense Department's Tricare for Life program.

Also, retirees and their dependents could enroll in the Federal Employees Health Benefits Program, the same menu of insurance options available to federal civilians.

Moreover, drug reimbursement at Tricare network rates would be available to beneficiaries who lack access to a pharmacy in the Tricare retail network.

The House bill, introduced by Rep. Chris Van Hollen (D-Md.), had 181 co-sponsors by early March. ■



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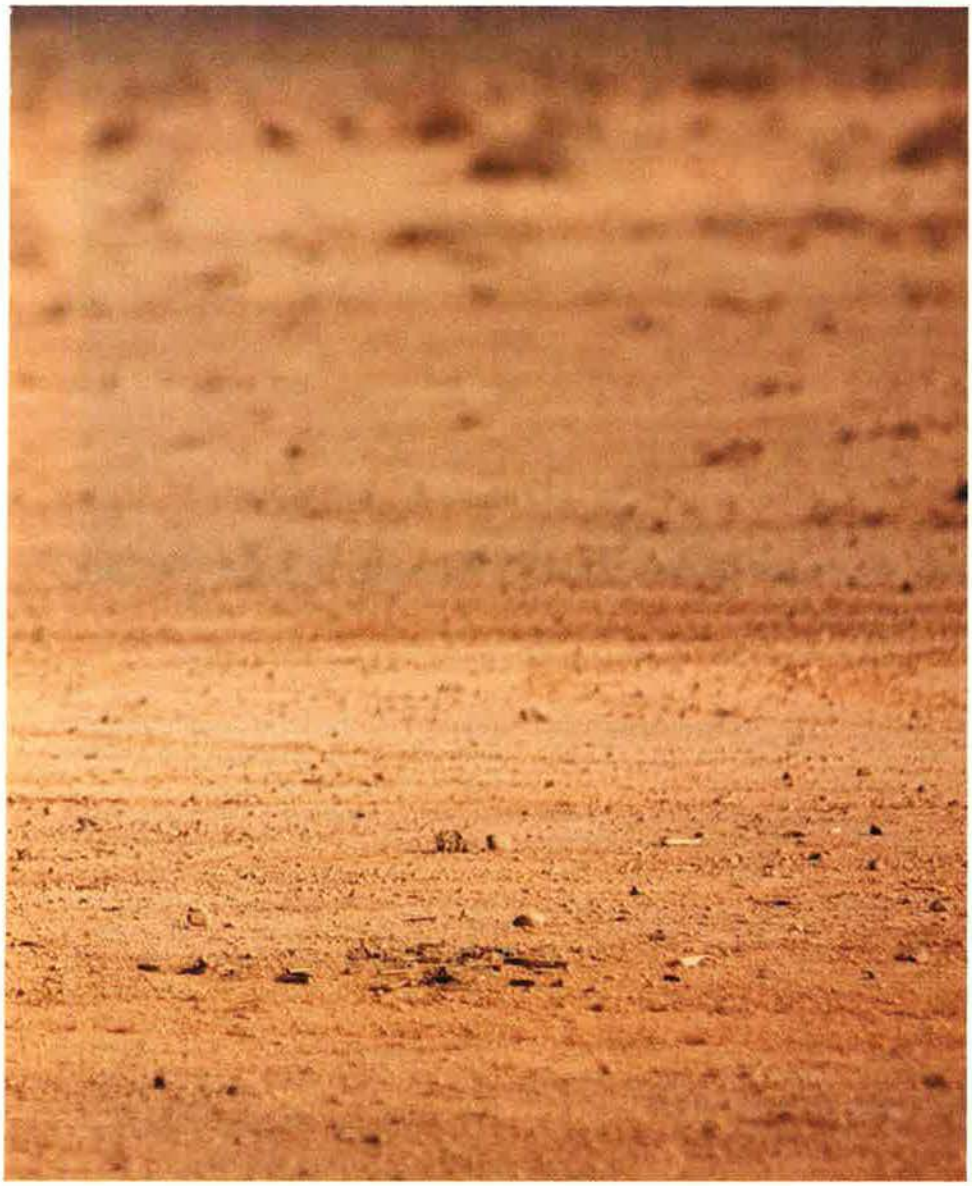
USAF photo by SSgt. Jeremy T. Lock

At AFA's Orlando symposium, Air Force leaders emphasized USAF's strong focus on the war on the ground.

BATTLEFIELD AIRMEN

By John A. Tirpak, Executive Editor, and Adam J. Hebert, Senior Editor



Catalyst. *This airman, part of a combat control team, walks a desert in Southwest Asia, where specialized troops were key to the focused application of airpower. The Air Force plans to pull together battlefield airmen, of all types, under a common organizational and training structure.*

SENIOR Air Force leaders and other top military officials outlined trends, plans, and lessons learned from Operation Iraqi Freedom at the Air Force Association's 20th Air Warfare Symposium in Orlando, Fla.

Specifically, they unveiled what could prove to be a historic new level of Air Force engagement in the nation's ground combat operations.

This year's symposium, held Feb. 13-14, was titled "Integrated Air War in the 21st Century: Lessons Learned From Operation Iraqi Freedom and the Way Ahead."

What follows are summaries of the speakers' presentations and press remarks during the two-day conference. Full transcripts of the formal presentations may be found at www.afa.org.

James G. Roche, Secretary of the Air Force

The Air Force will devote more resources to special operations forces and put more emphasis on directly supporting ground forces, said Air Force Secretary James G. Roche.

The new focus stems from Air Force experiences in the Global War on Terror. Roche cited an Operation Iraqi Freedom action in which some 1,400 SOF troops, working with air and space forces, essentially paralyzed 11 Iraqi divisions. "Not only did they virtually hold terrain with a minimum footprint, they ensured that the 3rd Infantry Division's drive to Baghdad was significantly easier than it would have been had those Iraqi divisions moved south," said Roche.

He directed special attention to what he termed "battlefield airmen"—USAF personnel on the ground who work directly with land forces. They were "highly effective, controlling large areas with limited forces and ... tailored coalition airpower," he said. This was a powerful lesson that won't be forgotten, Roche asserted.

"Special operations in our Air Force is not and cannot be a peripheral capability. ... Wherever we fight in the future, the capabilities of our special operators will be integral to our success," he said.

Among recent changes, combat search and rescue has been transferred from Air Combat Command to Air Force Special Operations Command, said Roche. He also noted that the Air Force's CSAR community will get a new helicopter as soon as possible.

USAF is developing lighter, all-

weather gear for combat controllers as part of its battlefield airmen project, said Roche. He predicts ground controllers will soon be able to precisely designate targets at a distance of more than six miles, pass data directly to overhead aircraft, and get an electronic receipt stating the time when ordnance will strike the target.

Moreover, the Air Force plans to pull together all battlefield airmen—including combat controllers, pararescuemen, combat weather specialists, enlisted terminal attack controllers, and tactical air control party airmen—under a common organizational and training structure. Roche said that will "strengthen the combat power they bring to the battlefield, whether they bring it as part of ACC or part of AFSOC."

The Air Force already is committed to buying CV-22s to replace the MH-53 Pave Low helicopters, now nearing 40 years in age, Roche noted. He said the CV-22 will provide unprecedented capabilities for infiltration and extraction of SOF troops and maybe even long-range CSAR. However, it will not be suitable as a gunship, a helicopter tanker, or as a C-130 replacement, Roche asserted.

Roche said the service needs a C-130 replacement and is considering several possibilities. However, he said, each new USAF study seems to come up with alternatives that are not affordable. "If the answer is new C-130s to bridge us to some distant future, then we will need to do that," said Roche.

For Tight Spots. *USAF will buy F-35Bs—the short takeoff and vertical landing version of the Joint Strike Fighter. The fighter can use small, rugged airfields and thus offer on-call support to troops on remote battlefields.*

To strengthen USAF's support to land forces, the service plans to enhance and extend the life of the A-10 attack aircraft, giving it new engines, new sensors, new weapons, and structural improvements. The A-10 modification program will emulate the B-1B model. In that case, USAF took some airframes out of service and used the savings to upgrade the remainder. Roche said the service had not yet determined the numbers of A-10s that will be retired early.

Roche announced that the Air Force intends to buy some number of F-35Bs—the short takeoff and vertical landing (STOVL) version of the Joint Strike Fighter. Such a move has been considered for nearly 10 years, but its announcement now illustrates the Air Force's renewed commitment to ground support. The conventional takeoff version, the F-35A, will still be purchased in far greater numbers, Roche said. It, too, will be oriented to the air-to-ground mission.

In addition, Roche declared a new program to "maximize the strike capability of all our air-to-ground systems" by upgrading targeting and sensor pods on existing aircraft. The Air Force, he said, believes "it's important that our land forces see us demonstrate our commitment ... to air-to-ground support—both deep interdiction and close air support."

In 2002, service leaders announced a change for its stealthy new fighter, redesignating the F-22 the F/A-22. That move signaled a mission-parameter shift from primarily air superiority to a balance of air-to-air and ground attack. Because of its speed and stealth, the F/A-22 will offer strong support to special operations forces deep behind enemy lines. Roche noted this year that the service had added new equipment to the Raptor for that purpose.

Roche told *Air Force* Magazine that

News From Orlando

Some of the announcements made at this year's Air Warfare Symposium:

- The Air Force will buy some number of short takeoff and vertical landing F-35Bs to perform close air support for ground forces.
- The Air Force will re-engine and upgrade a number of its A-10 attack aircraft to keep them in service well into the 2020s. To help pay for this, it will retire some A-10s early and reinvest the savings in the fleet.
- USAF will give F-15Cs new radars and ground-attack capability for use after achieving air superiority.
- The service will fit F-16s with new targeting pods and upgraded radars.
- The FB-22 appears to be the preferred "bridge" capability to provide long-range strike options until more futuristic long-range strike technologies come along.
- USAF would like to bring seven or eight B-1Bs back from storage to enhance ground attack capabilities.
- Air Force Special Operations Command will be given new resources to develop unique systems, possibly to include new aircraft.
- USAF will take up to 10 F-117 stealth fighters out of service to reduce operations and maintenance costs.
- The Air Force will work with the other services to buy new helicopters to replace Vietnam-era machines.

the FB-22—a missionized, somewhat larger version of the F/A-22—is the leading candidate to fill a gap in long-range strike capability, pending the maturation of new technologies for deep strike. He said Air Combat Command will lead a multidisciplinary, multicommand review of options and present recommendations in time for budget deliberations in August.

Gen. John P. Jumper, USAF Chief of Staff

The Air Force and its sister services are reinventing close air support mostly with new concepts of operation, not merely with improvements to hardware, said Gen. John P. Jumper, Air Force Chief of Staff.

Jumper recalled that Operation Anaconda, which took place in Afghanistan in 2002, highlighted communications problems that have long beleaguered the services. In Anaconda, the Army complained, it didn't get enough close air support, although it hadn't even told the Air Force what was being planned until the 11th hour. According to Jumper, Anaconda was an object lesson: "We had not gotten the United States Army, the United States Air Force, the joint force land component commander, the joint force air component commander together at the right level to do the detailed planning needed to make sure the resources were there when that operation kicked off."

That won't happen again, Jumper said.

"We're going to exercise our air and ground together in ways that assure that our Army leaders understand—they know what air and space power can do for them," he said. There will be proper planning with all parties involved, he said.

Elaborating on Roche's announcement regarding the STOVL version of the F-35, Jumper said the airplane will enhance the capability of the air and space expeditionary force (AEF) by helping airmen get into smaller—and therefore more numerous—airfields than is now possible.

The Air Force's shift from platform-based solutions to capabilities-based solutions, said Jumper, is a "formula that works, and it's paying off large for us" in the pitch for resources to senior DOD leaders. The Air Force can now tie its hardware requests directly to "operational results."

USAF photo by Sgt. Lanie McNeal

PJ Practice. *Pararescue jumpers load an all-terrain vehicle after a practice jump from a C-130 transport. The Iraq war taught Air Force officials "a powerful lesson" about the importance of battlefield airmen.*

Jumper predicted that the same approach should ease pressure on low-density, high-demand assets—those airmen and systems in heavy use and short supply. He said Air Force leaders are trying to work the problem "by making sure that we have proper control over the [combat commander's] appetite for those platforms." The Air Force is pushing the Joint Staff to adopt a joint presence policy, one that tasks USAF, a year in advance, to provide those assets sought by regional commanders. With this policy, he said, an AEF could be equipped more properly and without undue strain.

Jumper told *Air Force* Magazine that enhancing existing platforms—taking advantage of their previously unused capabilities—and bringing on new systems all will reduce the impact of a long-predicted shortfall in capability, referred to as "the fighter bathtub." He said, "If you think about capabilities, then you don't have to worry about platform-centric 'bathtubs.' "

Jumper went on to say that better systems make every sortie more effective and thus reduce the number of aircraft needed. However, he maintained that USAF must still have enough platforms to sustain its AEF rotational base.

In his remarks to the symposium, Jumper said further efforts to reduce stress on the force will come from greater use of the "blended wing" approach—the practice of combining active forces with either Air National Guard or Air Force Reserve Command forces into a single unit. The concept has already been applied with great success in the E-8 Joint STARS aircraft and in cargo aircraft units. Now, said Jumper, the Air Force is going to do what it "reasonably can to move those benefits into other platforms, such as the fighter world." This would include the F/A-22 Raptor, the next USAF fighter to be fielded.

Jumper also said the Air Force will, in Fiscal 2006 budget deliberations, take a close look at equipping B-52s with wing pods to enable them to perform a standoff jamming mission. He said the pods would replace little-used external fuel tanks and could easily be fitted with electronic warfare pallets.

Gen. Hal M. Hornburg, Air Combat Command

The Air Force will pursue for other legacy systems a similar strategy that it used to successfully draw down and modernize its B-1B fleet, said Gen. Hal M. Hornburg, commander of Air Combat Command. The plan, he said, is to build a "bridge" in capabilities from existing systems to next generation aircraft.

With 32 B-1Bs—roughly one-third of the 93-airplane B-1B fleet—now in storage, the Air Force has been able to properly modernize the remaining 60 airframes. However, Hornburg now thinks the B-1B

drawdown may have gone a bit too far.

The ACC leader told reporters at a press session that he would like to reactivate seven or eight of the 32 mothballed B-1Bs. Congress has directed USAF to return 23 of the B-1Bs to service. Hornburg said that idea "won't fly" because there is no money to sustain the effort.

Plans call for early retirement of other legacy aircraft, specifically older A-10s. Savings will be used to upgrade those that remain and, thereby, sustain the service's fighter force until the new F/A-22 and F-35 aircraft come into operational service.

Hornburg called the upgraded fighters a "bridging force."

The proposed improvements are significant. The entire fleet of F-15Es will be equipped with advanced radars, as will Block 40 and Block 50 F-16s.

Plans for the F-15C are even more dramatic. The air-to-air fighter will not only get a better central computer, but also may receive radar enhancements to give it a strong air-to-ground capability. Recent operations have shown that, once air dominance is achieved, the F-15C is underutilized. Hornburg said there are "jobs that the F-15C needs to do that it cannot do today."

ACC will upgrade its attack aircraft with new targeting pods to enhance their ability to support ground forces. Older LANTIRN pods will be retired and replaced by modern Sniper and Litening targeting pods. The changes will make USAF's A-10s and F-16s more relevant to today's battlefield, said Hornburg.

He flatly denied rumors that the Air Force wanted to purchase new F-15Es.

He did say, however, that USAF is beginning to ask: "What if some of our transformational acquisitions don't arrive on time or, for one reason or another, simply don't make it?" In that event, said Hornburg, "we've got to have a mitigation strategy."

That strategy would not be based upon "one specific airframe," he said. Backup plans could entail the purchase of more than one type of existing aircraft.

"We must look for something that can be there in case of a slippage, should that occur," Hornburg said, adding, "I'm not predicting that it will."

Gen. John W. Handy, Air Mobility Command

Mobility is a premier instrument of national power. That is the basic message conveyed by Gen. John W. Handy, commander of US Transportation Command and Air Mobility Command, at the Orlando symposium.

During Operation Iraqi Freedom, he noted, 56 percent of all Air Force sorties in US Central Command's area were mobility related. Out of the 50,000 sorties flown since the end of major combat operations on May 1, 2003, some 38,000 involved AMC assets. More than 70 percent of all Air Force airlift and tanker aircraft have been involved in Southwest Asia operations.

Also, said Handy, air mobility assets played a critical role in the swap of 250,000 troops between Iraq and Afghanistan and the United States and Europe. He said that, on one day alone, USAF had moved 5,600 troops. USAF had never contemplated a troop movement on this scale without using the service's Civil Reserve Air Fleet, said Handy, but, "today, we're doing it in a non-CRAF environment." The Chairman of the Joint Chiefs of Staff has called this the "greatest military logistics feat in history," said Handy. He added, "I think that's a bit of an overstatement, but it certainly characterizes the nature of the things that we're doing."

Not that mobility operations have been confined to Iraq and Afghanistan. The C-130s of the Air National Guard's 109th Airlift Wing in New York are now up to about 400 missions to the South Pole and back, as part of the annual closeout of summer operations in Antarctica. Air Force aircraft flew relief equipment into Iran following a major earthquake late last year. C-17s have flown into Libya to take nuclear-related equipment and supplies back to the continental United States.

"I'm thrilled at what we've been able to achieve, but we can't rest on our laurels," said Handy. There is still room for change. "Speed is what I'm talking about. Speed of mobility—air, land, and sea," he said.

As recently as Desert Storm, US troops deployed with supplies sufficient for 30 to 60 days of operations. For today's operations, they take supplies sufficient for only five to seven days. For Gulf War II, AMC launched an aircraft every 12 minutes, 24 hours a day, seven days a week, for 12 weeks straight.

Last fall, the Pentagon took a major step toward correcting what Handy called a logistics seam problem. Secretary of Defense Donald H. Rumsfeld signed a memo giving TRANSCOM ownership of the military's distribution process.

In January, the command placed a TRANSCOM-like organization on the receiving end of the supply chain. It identified 63 mobility experts—Ph.D.s in logistics, in Handy's words—from throughout DOD, gave

USAF photo by SSgt. Shane A. Cuomo

***Herk.** A C-130 crew chief at a forward location conducts a check before takeoff. USAF officials, finding that the C-130 force was lacking in capability to use night vision goggles, directed everyone in AMC to become NVG-qualified.*

them a quick dose of training, and deployed them to the CENTCOM theater of operations with the same information technology used by TRANSCOM. They immediately made the system more efficient. Within days of their arrival, forward-based logisticians found that someone had requested 1,700 containers of construction material, needlessly. There were already more construction supplies in the theater than US forces could ever hope to use, so the order was canceled, saving many cargo flights.

Handy also has worked to enhance AMC's Air Mobility Warfare Center. AMC began Eagle Flag exercises earlier this year to train the Air Force's expeditionary combat support forces. Handy, finding that the C-130 force was woefully lacking in night vision goggles capability, directed everyone in the command to become NVG-qualified. He said, "We look forward to a time when we own the night completely on the mobility side."

What does AMC need most? The answer: "I need a mobility capability study because, the truth is, none of us wants to buy more capability than the nation really needs," said Handy.

Gen. Lance W. Lord, Air Force Space Command

Fifty years after the service first entered the space and missile business, the integration of air and space, land and space, and sea and space is coming together, said Gen. Lance W. Lord, commander of Air Force Space Command.

That means the impact of space power in coming decades will be as great as that of airpower in past decades. "It's my view—and, I think, the argument of many—that space is going to have maybe even a greater effect," said Lord.

In Lord's estimation, there were valid reasons that military space developed in an isolated manner—what many term a "stovepipe." Space emerged during the Cold War and was meant to help the US deal with the strategic nuclear threat. By the 1990s, US security requirements had changed radically. In the first Gulf War, the Air Force fought the best way it could with strategic-based systems adapted to a theater context. Global Positioning System receivers were provided as quickly as possible. Strategic missile warning crews added an extra operator whose sole job was to watch for missile launches from Iraq and report directly to the theater commander.

USAF photo by A1C Isaac G.L. Freeman

Immortal Hog. *An A-10 prepares to land. USAF will upgrade many Warthogs and operate them into the 2020s. To help pay for this, the Air Force will retire some A-10s and reinvest the savings in those that remain.*

"Those who said Desert Storm was the first space war owe much of the credit to those who took the long-established strategic stovepipes and bent them to focus on the theater," said Lord.

Today, Air Force Space Command is more operationally integrated into, and relevant to, the tactical fight than ever before. Top defense officials have said that military space was an equal partner in Operation Iraqi Freedom. That was then, Lord said. Victory in the next war will require more improvement, and that will require putting aside biases and differences to achieve true air and space integration.

"We must provide the most relevant information about the enemy, as fast as possible, to command and control our forces [in order] to kill targets," said Lord.

During Operation Allied Force, the Air Force, in April 1999, targeted a large multipurpose satellite ground station in central Serbia. The target was destroyed, but so was some of the surrounding infrastructure. Collateral damage wasn't eliminated. In Iraqi Freedom, satellite communications were again a target. Last year, a Predator unmanned aerial vehicle armed with a Hellfire missile struck a satellite dish in downtown Baghdad temporarily shutting down Iraqi TV. Nearby trucks, a school, and a mosque weren't touched.

"We certainly increased the precision, decreased the collateral damage, and shortened the kill chain," Lord said. However, Iraqi TV remained on the air, said Lord, because Baghdad had set up redundant systems. The lesson here, he said, is that "precision is important, it makes us all better, but our focus needs to be on the overall effect."

New capabilities should help. Air Force Space Command is developing a rapid launch capability with an operationally responsive spacecraft dubbed RASCAL, for Responsive Access Small Cargo Affordable Launch. It will be a low-cost way to put microsatellites into space. It will employ a reusable airplane-like first stage and an expendable rocket second stage. Lord said first launch is set for 2006.

Another new effort—TACSAT, for Tactical Satellite—focuses on building a series of microsatellite prototypes. The first prototype, scheduled for launch this spring, will demonstrate machine-to-machine collaboration with air and space systems.

"Through these developments and many more," said Lord, "space will be more responsive to the theater than ever before."

Gen. Gregory S. Martin, Air Force Materiel Command

The head of Air Force Materiel

Command, Gen. Gregory S. Martin, briefly discussed some of the key capability shortfalls USAF surfaced during what it terms a capabilities review and risk assessment (CRRA).

The CRRA-identified gaps "become ... our touchstones or our guide points" that lead the service's focus on resources, different concepts of operations, and transformational technologies, said Martin.

Full spectrum defense for bases and forces is one shortfall. Whether in the United States or overseas, in hostile areas or benign ones, he said, "there's a whole review of operational concepts that you have to conduct if you're going to properly understand the nature of the threat, and then the types of systems and organizational units and structures that it takes to properly provide base defense and force protection."

Martin said one new technology would provide protection for mobility aircraft. It is called the Large Aircraft Infrared Countermeasures System. A sensor on the aircraft would detect an incoming infrared missile, which would prompt a directed energy weapon to divert it.

Another CRRA-identified need is construction of a global information grid. The Air Force must have a "self-forming" and "self-healing" network that can pass along information in ways which improve the ability of the force to integrate across horizontal lines.

Battlespace management is another. The Pentagon has not yet reached the point where it can produce effects-based planning that minimizes collateral damage or provides a common operating picture. The goal, said Martin, is to achieve "victory at a rate and at a speed that we've never, ever been able to accomplish before." Such a capability, he added, requires "the ability to understand targets of significance that might be fleeting or mobile, that you only have a short period of time to be able to take out."

Martin said that theater commanders need real-time battle damage assessments of the effects of air strikes. They need to be able to move quickly to the next set of targets without conducting time-wasting restrikes. New technologies won't totally eliminate these problems, but they can certainly help, said Martin.

Martin also discussed solving a problem that revolves around what Chief of Staff Jumper has described as "tribes." Each tribe—or functional entity—within the service has different information management systems and databases. "Overall, we have literally thousands of them in our Air Force, in our military today, all satisfying a valid need for someone to get information about something," said Martin. Unfortunately, he added, "the systems are set up to satisfy a functional user, not necessarily the command chain."

Such "proprietary, closed-loop systems that don't interact" waste "an awful lot of ... time," he said.

In the past few years, the service made strides in connecting systems at a lower level—for instance, between finance and personnel—but not at a command level. AFMC has begun working to remedy this problem by setting up a process for commanders to view information from all the separate databases.

Martin said this is a "very exciting job" for AFMC. His command "will not own the systems," he said, but will try "to figure out the right plan and methodology for bringing it together." ■

Peter Grier also contributed to this report. Grier is a Washington editor for the Christian Science Monitor, *a longtime defense correspondent, and a contributing editor to* Air Force *Magazine. His most recent article, "The New Drawdown," appeared in the March issue.*

Adm. Edmund P. Giambastiani Jr., US Joint Forces Command

The Air Force is an invaluable partner in the development of a coherently integrated joint force, Adm. Edmund P. Giambastiani Jr., commander of US Joint Forces Command, told the AFA symposium audience.

"The Air Force, in my view, has stepped up to the joint plate in a big way," Giambastiani said.

The Joint Forces commander declared three key operational insights about integration:

- The US does not send any individual service to conduct major operations, but instead deploys its military as a joint force.
- The power of a coherently joint force is now greater than the sum of separate service, interagency, and coalition capabilities.
- Speed kills. Physical and mental speed reduces decision and execution cycles, creates opportunities, denies enemy options, and speeds his collapse.

These insights "had to be proven in the cauldron of combat," said Giambastiani. He added that it took a significant change in some service cultures before they could accept the message that the power of the joint force is greater than any individual service component by itself.

JFCOM established a lessons-learned team for Operation Iraqi Freedom, placing it in the theater before major combat operations began. It remains there today.

Among its impressions was that integration and adaptive planning topped the list of joint capabilities. "Joint force commanders today will tell you it's not the plan, it's the planning," said Giambastiani. "They understand that the ability to plan and adapt to changing circumstances and fleeting opportunities is the difference between success and failure on a modern battlespace."

Large-scale vertical and horizontal collaboration is essential to such planning.

"This does not mean that everyone knows what is happening at every point in the battlespace at all times," he said. "Rather, they are clear on understanding commander's intent and have a persistent awareness of the overall operational environment."

The powerful synergy created by blending conventional and special operations forces was another major lesson. In Desert Storm, 30 detached SOF teams worked their missions separately from conventional forces. In Iraqi Freedom, the US deployed more than 100 such teams. The chain of command was sometimes surprising—in western Iraq, SOF teams were supporting the air component commander, not his land counterpart.

The sum of the lessons is that "our traditional military planning and perhaps our entire approach to warfare has shifted," said Giambastiani.

He added, "We want to create the capabilities that will enable us to achieve asymmetric advantages in knowledge, speed, precision, lethality—advantages again that we glimpsed in OIF."

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USAF's newest fighter is headed toward operational status, but it must first undergo another review.

The F/A-22 Force Forms Up

By John A. Tirpak, Executive Editor

AFTER 10 years and more than 5,000 flight hours, developmental flight testing of the F/A-22 Raptor is nearly complete. The start of operational testing—one of the last major hurdles before the fighter is certified ready for combat duty—is to begin any day now at Nellis AFB, Nev. The Air Force expects the new fighter to achieve operational status at Langley AFB, Va., on time in December 2005 or maybe even a bit earlier.

Today, about two dozen F/A-22s are supporting flight testing, pilot training, and weapons checks. About 20 more are in final assembly. Lockheed Martin's Marietta, Ga., plant is turning out operationally configured F/A-22s at the rate of nearly two per month.

As soon as the F/A-22's software is deemed operationally reliable and when initial operational test and evaluation (IOT&E) has confirmed that the F/A-22 can indeed perform as advertised, production will begin ramping up to a planned peak of 32 per year.

All signs indicate the F/A-22's progress is accelerating.

Since the program began nearly 20 years ago, it has had its ups and downs, including at least six comprehensive requirement reviews. Each time, the Pentagon concluded that the Raptor is an essential element in the future US military.

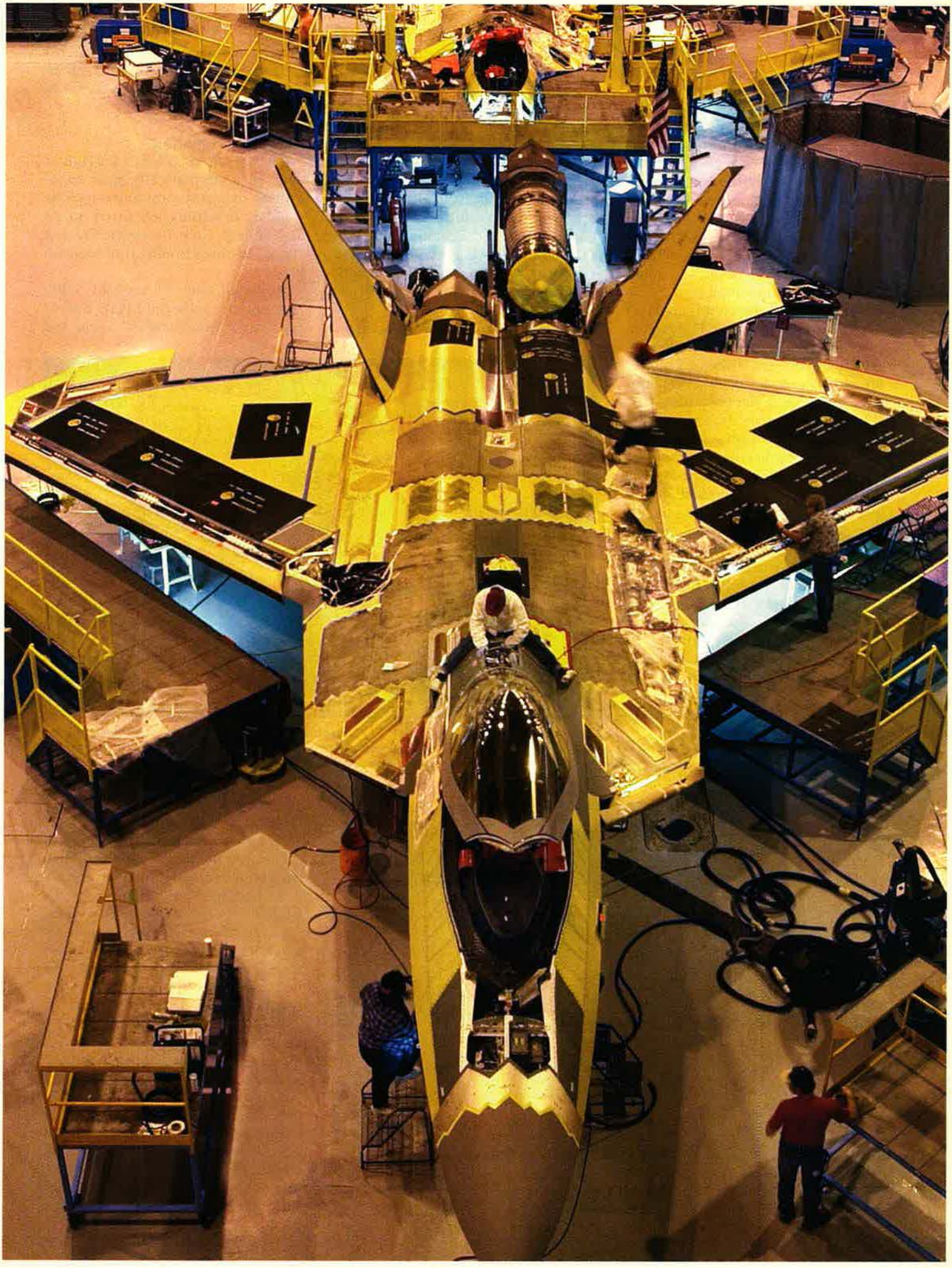
Lockheed Martin photos by John Rossino

Above, one of the initial cadre of F/A-22 instructor pilots at Tyndall AFB, Fla., climbs into a Raptor. At right, an F/A-22 is in final assembly in Georgia. The new fighter has a couple of hurdles to jump before entering full production.

Yet Another Study

Despite the outcomes of those reviews and the F/A-22's imminent deployment, the White House's Office of Management and Budget has directed the Pentagon to carry out yet another requirement study.

OMB has called on the Office of the Secretary of Defense to select an independent contractor to conduct the study. The mission is to determine whether the Raptor is truly a "transformational" system for the US military, is suitable for the types of wars expected in the coming decades, and performs as initially predicted.



As part of the same study, the contractor was to scrutinize the Army's RAH-66 Comanche scout helicopter, but, on Feb. 23, DOD announced cancellation of that program.

This new review follows a Defense Planning Guidance 2002 summer study in which Defense Secretary Donald H. Rumsfeld not only certified that the F/A-22 is a critical enabling technology for the future, but also declared that the Air Force needs at least 381 of them—about 100 more than now budgeted.

The new OMB-directed assessment specifically bars the Air Force from providing anything other than answers to factual questions—when asked. The service is not to have "other input or interaction" with the contractor.

In its December memo on the study, OMB appeared to display bias against the F/A-22 by asking whether the aircraft is "merely another step in the evolution ... of manned fighter technology" and whether it is "still relevant." OMB requested presentation of a "variety of alternatives" to the F/A-22, highlighting the cost of the aircraft and its "effectiveness in the types of wars that the US is likely to have to fight in the future."

OMB did not specify a timetable. However, Pentagon officials said they expect completion in August, in time for inclusion in the Fiscal 2006 budget drill. That budget will be unveiled in early 2005.

The new study was launched at a time when the F/A-22 appeared to be on final approach to operational status. Last year, avionics and software problems—as well as a ponderously slow flight-test effort—forced a restructuring of the program. (See "The F/A-22 Gets Back on Track," March 2003, p. 22.) Those issues, however, are close to being resolved.

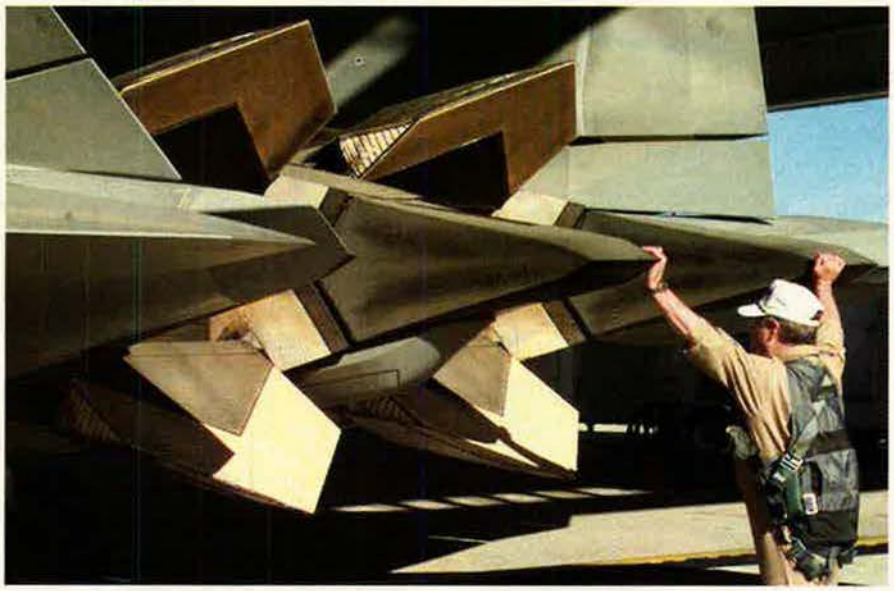
There is "very, very little" developmental testing yet to do, said Maj. Gen. Wilbert D. Pearson Jr., commander of the Air Force Flight Test Center at Edwards AFB, Calif., and the designated czar of F/A-22 flight testing.

Pearson told *Air Force* Magazine, "We have cleared the entire [flight] envelope out to Mach 2 ... up to about 60,000 feet" and at nine Gs of maneuvering.

"Virtually Finished"

Clearing the envelope for a fighter with such dramatically new capabilities over any previous machine was "a monstrous job to try to go do," he said. Now, however, Pearson added, "we are virtually finished with it."

He noted that the mark of 5,000 flight hours, achieved in late February, was a "momentous" event and indicates the depth of experience USAF now has with the airplane. That figure is on top of "hundreds of thousands of hours" of simulation and computer modeling time, he said.



Lockheed Martin photos by John Rossino

The Raptor's Pratt & Whitney F119 engines are among the most reliable in Air Force experience. The unique exhaust area, shown here, adds to the aircraft's agility by vectoring thrust. The engines also reduce heat signature.

Workers at Lockheed Martin's Georgia plant install a vertical stabilizer. The F/A-22 production line features many innovations. For example, noisy equipment is located under the floor, thereby permitting normal conversation.

Remaining tests of the F/A-22's flight worthiness have to do with the carriage of external fuel tanks—for extended flights to reach overseas theaters of operation—and some other tasks which are not crucial to preparing the airplane for operational test.

"We have sufficient envelope to go do all the operational test and, in fact, take the airplane into combat," said Pearson. "We have released the envelope that we promised to release prior to OT&E."

Engineering and manufacturing development of the F/A-22 will be complete "in the summer of '05, just over a year from now," Pearson said, adding that the testing yet to

be done will be accomplished as needed.

On the whole, he said, "we're there. We're dotting the I's and crossing the T's."

Pearson noted that 2003 turned out to be "a great year," enabling the center to get "a lot done."

The year didn't start out that way. Behind on flights and schedule, the test program needed an overhaul to get back into trim. In January 2003, Gen. John P. Jumper, Air Force Chief of Staff, promised he would get Pearson everything he needed to get testing moving. Jumper proved to be "a man of his word," Pearson said.

He reported that the F/A-22 test team had aerial refueling aircraft available whenever they were needed. Spare parts, which had been in short supply, were either reclaimed from their use in ground tests of subsystems or bought new to increase the number of airplanes available for envelope expansion flights. The contractor delivered more aircraft.

Lockheed Martin also brought in extra people from subcontractors and other F/A-22 team partners, and "the Air Force stepped up and sent us the people they promised," Pearson explained.

Last year's key problem—and the one that kept delaying the go-ahead for full production—was that the F/A-22 avionics and software kept "crashing" in flight. The software problems caused many mission aborts and led critics to suggest the systems were simply too complex to work properly.

Pearson concedes that F/A-22 avionics and software are "extraordinarily complex." Even so, he said, "We have fixed most of the problems." He predicted the Raptor would "meet or exceed requirements" for IOT&E.

The Defense Acquisition Board had told the Air Force that the F/A-22 must achieve an average of at least three hours of running time between crashes of the entire software suite. Pilots were having to virtually reboot the aircraft's computers while in flight, something that put a huge drag on the pace of testing and shook confidence in the system.

However, Maj. Gen. Mark A. Welsh, the Air Force's director of Global Power Programs, said such "Type 1" avionics failures are "not happening anymore."

In fact, he described the big avionics system crashes—comparable to a desktop computer's whole operating system going down—as "virtually nonexistent."

USAF photo by TSgt. Michael Ammons

This F/A-22 is a production-representative aircraft, equipped and configured as it would be for combat. Pilots report the fighter is easy to fly and impressive in its performance.

The software will work without such a wholesale failure for upward of 20 hours, at which point the Air Force simply stops testing. Operational missions are not expected to last more than 20 hours.

When the whole system showed such marked improvement, Welsh said, the DAB and the Air Force set "a much more stringent" benchmark: Get the software to run for at least five hours without *any* "mission critical" piece of it going down.

"The DAB directed the program to use a more comprehensive metric that counts any software and any hardware avionics instability event that has an operational impact," explained Welsh. That impact is determined "by the operational test pilots, not the software engineers."

In early March, Welsh asserted, "We're close," but acknowledged that the five-hour standard had not yet been met.

He said, "We have about two hours to go and anticipate exceeding the five-hour mark over the next couple of software updates."

Plans called for making those updates before the end of March.

"The focus now is on making sure that any system that affects the pilot's ability to do the operational mission—whether it's hardware or software—works consistently well," said Welsh.

Achieving the five-hour benchmark will clear the way for start of IOT&E and for full production.

Pearson noted that the flight-test program had been scrubbed of unnecessary testing of conditions outside the aircraft's combat parameters. For example, he said, no flight tests of close formation will be done at supersonic speeds, because the airplane will never be asked to do that in operational service. "We wouldn't waste time or money to test that," he said.

He also pointed out that the F/A-22 avionics system is not being coddled. "We try to induce failures," he said. "We're very hard on it."

Extraordinarily High Bar

The new measure of avionics reliability should be a huge confidence-builder, according to Pearson, who said, "We have raised the bar extraordinarily high for this weapon system, and we're going to meet it."

He noted that, a couple of years ago, some thought the Air Force would never solve the avionics problems. "I think we have ... learned it can be done," said Pearson. "Very complex, highly technical electronic systems can be developed and integrated on fighter airplanes."

Pearson said the F/A-22 is hitting its marks in the four areas where it is expected to be a world-beater: stealth, maneuverability, speed, and sensor fusion.

"We are meeting or exceeding the stealthy characteristics required for

USAF photo by TSgt. Ben Bloker

Langley AFB, Va., will be the Raptor's first operational base. It will host both the F/A-22 and F-15 for a number of years. USAF has yet to determine the size of a "standard" F/A-22 squadron.

this airplane," said Pearson. The specialized coatings and leading edges that give the Raptor the ability to evade radar detection were designed to be maintained out in the open, like any other combat aircraft, and in any conditions.

The F/A-22 has been tested to high angles of attack, at sustained nine-G turns, and has turned in a staggering performance in acceleration and speed. It will easily outmaneuver any other airplane in the world, Pearson said. Thanks to its stealth, it likely won't have to.

At Edwards and Nellis, operational tests this year will pit the F/A-22 against F-15Cs in a variety of scenarios. Because its initial operational mission will be air superiority, the scenarios will emphasize such missions.

Air Force Operational Test and Evaluation Center operators will "conduct counterair missions—actual flights against other aircraft," Welsh explained. "They will conduct comparison missions, where they'll ... compare [the F/A-22's performance] with the performance of the F-15C."

One test will feature four F/A-22s escorting four strike aircraft against a target defended by surface-to-air missiles and eight adversary F-15Cs. The Raptors will have to shoot down all the F-15s while ensuring the strike aircraft reach the target.

Other test missions will have F/A-22s defending high-value airborne assets, such as E-3 AWACS battle management aircraft or E-8 Joint STARS surveillance aircraft, from attacking adversaries, either F-15s or F-16s.

The Air Force will also evaluate its ability to move an F/A-22 squadron, with all its personnel and equipment, to a forward operating location using no more than a prescribed number of airlifter flights. The original requirement called for eight C-141 loads, but, since the service has retired most of its C-141s, USAF changed the metric to about six C-17 loads.

Welsh said, "We can meet that."

The IOT&E program is expected to take 30 to 31 weeks, said Welsh, so there's plenty of time to conclude the testing and get Raptors deployed on the ramp at Langley before December 2005.

Col. Larry Wells, who is F/A-22 requirements director at Langley, said the service had not yet determined how many aircraft will constitute the first operational F/A-22 squadron. The reason, he said, is that no one knows the exact effectiveness of the F/A-22, compared to an F-15. Wells said, "There will not necessarily be a one-for-one replacement."

USAF will settle on the exact number in mid-2005, but Wells forecast a typical squadron-size range of 18 to 24 airplanes.

"For a long time, Langley will be a composite wing of F-15s and F/A-22s," he said.

What Pearson called "cleanup" flight tests continue at Edwards. Raptors also are assigned to Nellis, in preparation for IOT&E tests there, and at Tyndall AFB, Fla., for training of instructor pilots. The Tyndall aircraft are production-configuration systems, which means they have all the software necessary to conduct actual combat missions.

Pearson said the Nellis pilots who will perform operational tests are not test pilots but Air Combat Command operational fighter pilots.

Since last October, the Raptor has been undergoing what has been called IOT&E "Phase 1." In this phase, both pilots and blue-suit maintainers are learning their way around the airplane. Pearson said he expects this extra pretest work will help smooth out the formal, flying portion of IOT&E.

"You wouldn't want to send somebody out to drive in the Indy 500 without going around the track a few times," he observed.

Maintainers are learning how to diagnose aircraft problems and generate sorties. The Phase 1 flights are also helping verify that previous flight testing provided reliable data—"making sure the airframe is what we say it is," Pearson said.

The last decade of flight testing turned up remarkably few problems in the F/A-22 design, thanks in large part to the predictive models developed by Lockheed Martin. "We've not had any fundamental flaws in the design," Pearson said. A tail buffet issue required strengthening the vertical fin, a fix that was applied "so it wouldn't break 10 or 15 years from now," he said. Moreover, a computer model did not predict that, at certain altitudes, airframe internal pressure would cause slight opening of a landing gear door.

"Nothing dangerous," Pearson said. "This is what you do ... flight testing to find out."

One expected problem area was the in-flight operation of the weapons bays. That turned out to be no trouble at all. The bays must open at all speeds and withstand strong aerodynamic and acoustic forces. Because of that harsh environment, Lockheed Martin kept "critical things" out of the weapons bays, said Pearson, He added, "That's really been one of the success stories."

The Buy Dilemma

USAF's biggest challenge now will

be acquiring sufficient numbers of the F/A-22.

The Air Force's number, endorsed by Rumsfeld in the 2002 DPG study, is 381. A fleet of that size would support allocation of one Raptor squadron per air and space expeditionary force (AEF) and would provide attrition reserve, test fleet and training aircraft, and backup aircraft inventories, said Welsh. The Air Force maintains 10 standing AEFs.

"Nothing's changed from the requirement that ... evolved from that study," Welsh noted.

When USAF restructured the F/A-22 program late in 2003, however, the service acknowledged that 277 airplanes may be all it can buy within the program's $43 billion production cost limits. That was DOD's estimate.

Pentagon officials had earlier agreed that, if the Air Force could get the cost of the airplanes down, it could use any savings to buy more F/A-22s. Unfortunately, Congress did not go along with this "buy to budget" plan and took back the savings the Air Force expected to use this year to buy an extra Raptor—making it 22 instead of 21.

Capitol Hill staffers said the move was motivated primarily by a desire to restrain purchases until the Air Force completes operational testing. Welsh said the Air Force will simply try to persuade Congress that the Raptor program is on track and performing well. He contended that the airplane will "sell itself," once it shows what value it offers.

Staff photo by John Tirpak

The Air Force has invested about $600 million in F/A-22 production line efficiencies. The two dates on the sign shown here say when the aircraft at this station will roll out the factory door and when it will be delivered to USAF.

Welsh said the service can still ask to buy more aircraft if it can show Congress that the F/A-22 "can do what we say it can do," it is being produced on a "consistent and predictable schedule," the cost is stable, and there is a chance for cost decreases, based on production improvements and efficiencies.

Finding savings is getting harder, however. The Air Force has invested some $600 million in F/A-22 production line improvements. Initially, the savings-to-investment ratio was projected at 18-to-1, but it is now closer to 9-to-1, Welsh said. One reason for the downward revision: The production rate has been held below maximum efficiency.

Nevertheless, Welsh said, Hill staffers confirmed that, if the Air Force stabilizes the program's performance and schedule and brings down the cost, lawmakers would be willing to talk about expanding the buy.

Some analysts speculated that the turmoil over the F/A-22 quantities would lead subcontractors and vendors to bail out of the program or raise their prices for fear of a big cutback or cancellation. Welsh said that hasn't happened. "In my opinion, supplier confidence is increasing, not decreasing," he said, and this has helped keep down costs.

Welsh thinks this is an exciting time for the F/A-22 program.

"We are seeing the [fighter's] capability demonstrated every day," said Welsh. "If you talk to the pilots who fly the airplane, they'll tell you it can do everything it's advertised to do. Now, we have to do it consistently, and we have to prove ... that we are, no kidding, providing a capability the nation needs. And everyone who works in this program is now focused on that."

Welsh added that, by the time IOT&E is completed, "nobody will be required to speculate anymore about whether it in fact provides the capability it promised. ... There won't be any doubt." ■

USAF photo by Lisa Carroll

At Tyndall, USAF already has schooled maintainers in the F/A-22's care. The Air Force is eager to normalize Raptor operations, and all signs on the flight line indicate it is ready to do so.

Ten years ago this month, an *Air Force* Magazine article alerted the public to the Smithsonian's plans for the *Enola Gay.*

Revisionism Gone Wrong

By John T. Correll

On Aug. 6, 1945, the B-29 *Enola Gay* dropped the first atomic bomb on Hiroshima. A second bomb fell on Nagasaki Aug. 9. Japan surrendered Aug. 15.

At Hiroshima, more than half the city was destroyed in a flash, and 80,000 were killed instantly. The Nagasaki bomb killed 40,000.

However, these missions brought an end to a war in which 17 million people had died at the hands of the Japanese empire between 1931 and 1945. Until the atomic bombs fell, Japan had not been ready to end the war.

By eliminating the need for an invasion of Japan, the bombs prevented casualties, both American and Japanese, that would have exceeded the death tolls at Hiroshima and Nagasaki combined.

The bombing of Hiroshima was a defining moment of the 20th century, but the aircraft that flew the mission was largely forgotten and left to deteriorate until restoration finally began in 1984.

Fifty years after Hiroshima, the airplane flew into controversy of a different sort. In the 1990s, the Smithsonian Institution's National Air and Space Museum laid plans to use the *Enola Gay* as a prop in a political horror show. It depicted the Japanese more as victims than as aggressors in World War II.

When the plans were revealed by an article in *Air Force* Magazine, a raging controversy ensued. The exhibition was canceled in response to public and Congressional outrage, and the museum director was fired.

From 1995 to 1998, the museum displayed the forward fuselage of the *Enola Gay* in a depoliticized exhibit that drew four million visitors, the most in the museum's history for a special exhibition.

In December 2003, the museum put the *Enola Gay*, fully assembled, on permanent exhibition at its new Steven F. Udvar–Hazy Center in Chantilly, Va., near Dulles Airport.

Over the years, the controversy never died. A host of books and articles about it have been written by people who have not bothered to check the facts. Here is what really happened.

A Museum With a Message

The Smithsonian accepted the *Enola Gay* in good condition July 3, 1949, at the Air Force Association Convention in Chicago. It was moved temporarily to a base in Texas and then, from 1953 to 1960, was stored outside, unlocked, at Andrews AFB, Md. In 1960, it was disassembled and stored at the Smithsonian's restoration facility in Suitland, Md.

Bockscar, the B-29 that flew the Nagasaki mission, has been displayed at the US Air Force Museum in Dayton, Ohio, since 1961. But when the Smithsonian opened the National Air and Space Museum in Washington, D.C., in 1976, there was no move to exhibit the *Enola Gay*. Part of the reluctance to display it was that it was too big—99 feet long, with a wingspan of 141 feet—to fit, fully assembled, into the building.

Restoration of the *Enola Gay* finally began in December 1984 and plans to display it, or part of it, followed in 1987. By then, new political winds were blowing at the Smithsonian.

In the 1980s, the National Air and Space Museum veered away from its mission to collect, preserve, and display historic aircraft and spacecraft. It was part of broader cultural change at the Smithsonian, which the *Washington Post* described as a "move away from the traditional heroes, politicians, and objects in glass cases and toward a wide, fluid, social-history approach."

The museum was influenced significantly by historians of the so-called "Revisionist" persuasion, who disputed the conventional interpretation of the Cold War and cast doubt on actions, statements, and motives of the United States. In the case of

Photo by Paul Kennedy

The Spark. *In August 1993,* Air Force *Magazine published a pictorial about the National Air and Space Museum. On the cover appeared this photo of the* Enola Gay*'s restored cockpit, which attracted much attention.*

the *Enola Gay*, the Revisionists held that the bombing of Hiroshima was unnecessary and immoral.

Martin O. Harwit became director of the Air and Space Museum in August 1987. Previously, he had been a professor of astronomy at Cornell University. Harwit was born in Prague, Czechoslovakia, grew up in Istanbul, Turkey, and came to the United States at age 15 in 1946. While serving in the US Army, 1955-57, Harwit was assigned to the nuclear weapons tests at Eniwetok and Bikini Atolls in the Marshall Islands. He acknowledged that the experience "inevitably" influenced his thoughts about the *Enola Gay* exhibit, planning for which began shortly after Harwit's arrival.

In a 1988 interview with the *Washington Post*, Harwit described plans for a program on strategic bombing "as a counterpoint to the World War II gallery we have now, which portrays the heroism of the airmen but neglects to mention in any real sense the misery of war. ... I think we just can't afford to make war a heroic event where people could prove their manliness and then come home to woo the fair damsel."

Harwit's thoughts were in harmony with those of Robert McCormick Adams, who had been secretary of the Smithsonian Institution since 1984. "Take the Air and Space Museum," Adams told *Washingtonian* Magazine in 1987. "What are the responsibilities of a museum to deal with the destruction caused by airpower?"

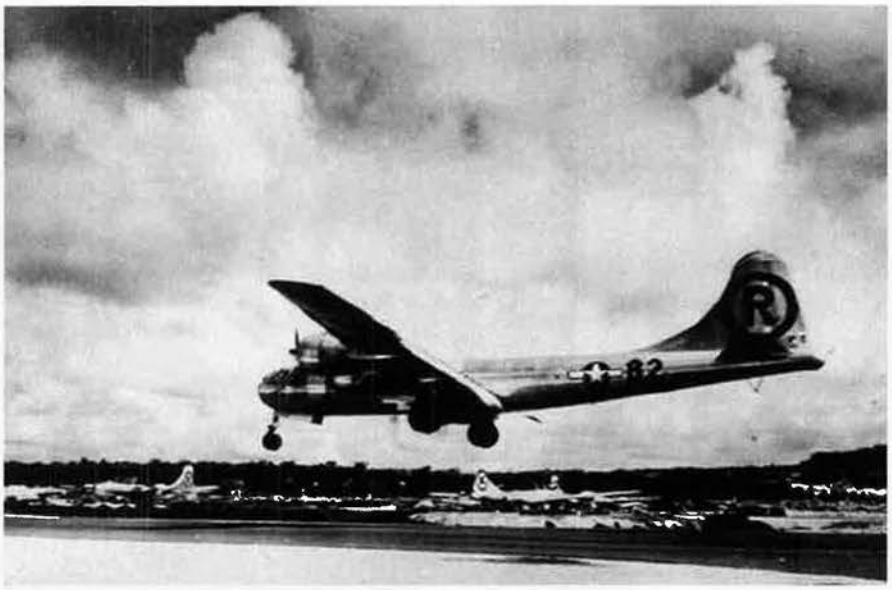
Assembling a Team

Harwit began to assemble his *Enola Gay* team. It would be headed by Tom D. Crouch, chairman of the Aeronautics Department, who sent Harwit a preliminary plan for an exhibition that "would avoid the impression that we are only 'celebrating' Hiroshima and Nagasaki."

The official curator was Michael J. Neufeld. He coordinated the script, assisted by Crouch, who was manager of the curatorial team.

In a memo to Harwit, Crouch said, "Do you want to do an exhibition intended to make veterans feel good, or do you want an exhibition that will lead our visitors to think about the consequences of the atomic bombing of Japan? Frankly, I don't think we can do both."

What the curators had in mind was clear from their 16-page planning document, written in July 1993.



Afterward. ***The* Enola Gay *returns to Tinian after its Aug. 6, 1945, mission. Half of Hiroshima was destroyed, but the attack helped end a war in which millions died at the hands of Imperial Japan.***

- The ["Combat in the Pacific"] subunit's purpose will be "to show how different the Pacific war was for Americans—no quarter was given and few prisoners were taken—as well as for the Japanese, who increasingly felt compelled to make the ultimate sacrifice to defend the emperor and nation."
- "Neither the atomic bomb nor an invasion was probably needed to end the Pacific war, but this is more obvious in hindsight than it was at the time."
- The "emotional center" of the exhibition would be Unit 4, Ground Zero: Hiroshima and Nagasaki. "When visitors go from Unit 3 to Unit 4, they will be immediately hit by a drastic change of mood and perspective: from well-lit and airy to gloomy and oppressive."
- "Photos of victims, enlarged to life size, stare out at the visitor."
- Artifacts would be borrowed from Hiroshima and Nagasaki: burnt watches, broken wall clocks, "a schoolgirl's lunch box with completely burned contents, burned and shredded clothing, and melted and broken religious objects. Where possible, photos of the persons who owned or wore these artifacts."

A Letter From Burr Bennett

In the 1980s, former B-29 crew members and other World War II veterans began campaigning for restoration of the *Enola Gay*. The Smithsonian and Congress were bombarded with letters from "five old men," as they described themselves, calling for "proud display of the *Enola Gay*."

The "five old men," active throughout the controversy, were William A. Rooney of Wilmette, Ill., W. Burr Bennett Jr., of Northbrook, Ill., Donald C. Rehl of Fountaintown, Ind., Ben Nicks of Shawnee, Kan., and Frank Stewart of Indianapolis.

The Air Force Association (AFA) entered the picture in August 1993, when *Air Force* Magazine published "In Aviation's Attic," a pictorial feature on aircraft restoration by the Air and Space Museum. The *Enola Gay* was on the cover. That drew a letter to me—then editor in chief of the magazine—from Bennett, one of the five old men.

"I am one of a small group of B-29 veterans of World War II engaged in a struggle with the Smithsonian Institution to display the *Enola Gay* proudly" or else "give it to a museum that will," he wrote. In fact, the situation at the museum was much worse than he knew.

Later that month, AFA heard from Harwit, who had been told by an advisor that AFA might be a source of financial support for the exhibit. He called Executive Director Monroe W. Hatch Jr. and sent him a copy of the July 1993 planning document.

AFA was open to critical, even controversial, treatment of the subject. As *Air Force* Magazine had reported more than once, Hap Arnold—

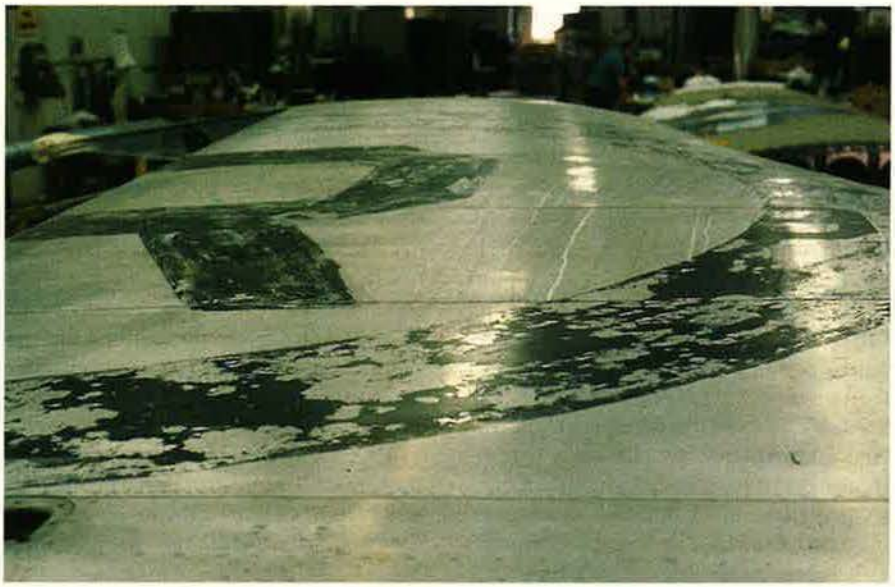
wartime leader of the Army Air Forces and founding father of AFA—had not believed it was necessary to use the atomic bombs to win the war. However, the museum's plan was not a critical analysis. It was a one-sided, antinuclear rant.

In his reply to Harwit, Hatch noted the claim in the concept paper that the museum was nonpartisan—taking no position on the "difficult moral and political questions"—but that the full text did not bear out that statement. "Similarly, you assure me that the exhibition will 'honor the bravery of the veterans,' but that theme is virtually nonexistent in the proposal as drafted," Hatch said.

Furthermore, "the concept paper treats Japan and the United States in the war as if their participation were morally equivalent," Hatch said. "If anything, incredibly, it gives the benefit of opinion to Japan, which was the aggressor."

Staff photos by Guy Aceto

Restoration. *The Smithsonian accepted the* **Enola Gay** *on July 3, 1949. In 1960, it was disassembled and stored in Suitland, Md. Actual restoration finally began in December 1984.*



Biggest Ever. *The* **Enola Gay** *had been disassembled into 52 pieces for storage. Reassembly required 300,000 staff hours. Museum leaders call it the largest reassembly job they have ever attempted.*

We met with Harwit, Crouch, and Neufeld at the museum Nov. 19. We found them willing to talk, but they were not responsive. Harwit, buoyed by his curators, his convictions, and his advisory panel of scholars and historians, put little importance on AFA's concerns.

The "Crossroads" Script

In January 1994, Harwit sent Hatch a copy of the just-completed script for the exhibition. The title was "The Crossroads: The End of World War II, the Atomic Bomb, and the Origins of the Cold War."

Harwit often claimed that AFA used this copy of the script for the *Air Force* Magazine article in April 1994 and released it to Congress and the news media. Not so. Unbeknown to Harwit, *Air Force* Magazine received a copy two weeks earlier—no strings attached—from sources which are not disclosed. That was the copy, not the one Harwit sent to Hatch, used for the article and which AFA later reproduced and passed out.

Despite some hedging, the script said the atomic bomb "played a crucial role in ending the Pacific war quickly."

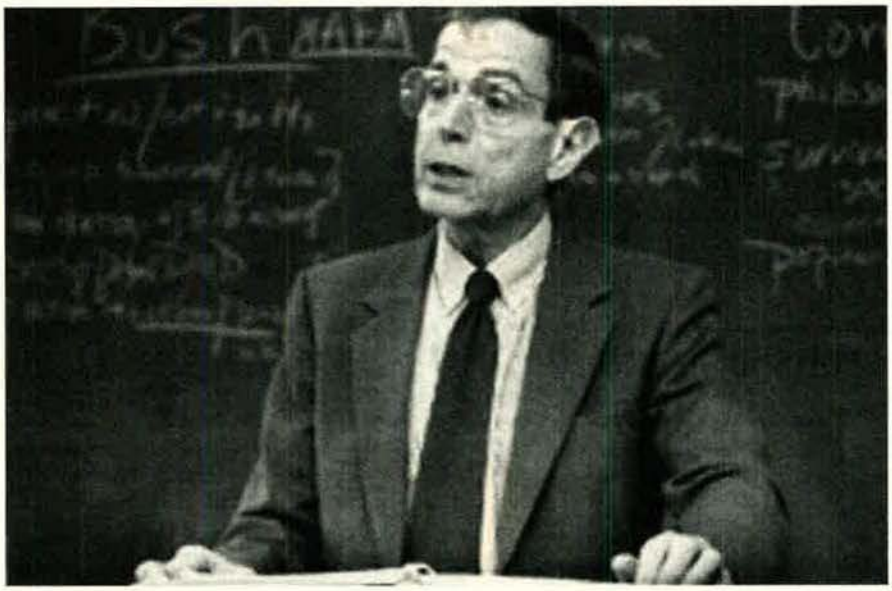
It also contained two lines that were to become infamous: "For most Americans this war was fundamentally different than the one waged against Germany and Italy—it was a war of vengeance. For most Japanese, it was a war to defend their unique culture against Western imperialism." If that seemed to suggest that the Japanese were the victims rather than the aggressors in World War II, there was more to come.

Japanese kamikaze suicide bombers were portrayed as valiant defenders of the homeland. There was no comparable recognition of American bravery or sacrifice. The script minimized the impact of the war on the American home front. "For many Americans," it said, "combat in the Pacific remained a distant series of events."

The curators cast doubt on the prospect of high casualties in an invasion of Japan (which was the alternative to dropping the bomb). The script said that it "appears likely that postwar estimates of a half-million deaths were too high, but many tens of thousands of dead were a real possibility."

The "Ground Zero: Hiroshima and Nagasaki" section was to be set with theatrical lighting. No opportunity was missed to tug at the heartstrings. A kitten could not simply be dead. It had to glare "with eternally locked eyes."

There was Reiko Watanabe's lunch



Harwit's Folly. *Martin Harwit, the director of the National Air and Space Museum, assembled a team of curators who wanted to use the* **Enola Gay** *as a prop in an antinuclear morality pageant. He resigned in 1995.*

box with "the carbonized remains of sweet green peas and polished rice, a rare wartime luxury" and Miyoko Osugi's shoe: "The blast of heat from the initial explosion apparently darkened the outer portion of the clog not covered by her foot."

There were some 40 photos and artifacts related to women, children, and mutilated religious objects, a key theme for the section. There was also graphic emphasis on survivors with flash burns, scars, disfiguring.

In the section on "The Legacy of Hiroshima and Nagasaki," the main display labels delivered the message. Among them: "The Cold War and the Arms Race"; "The Failure of International Control"; "More Bombs and Bigger Bombs"; "A World Gone 'M.A.D.' "

Little attention was given to the years of Japanese aggression and atrocities that led to the circumstances of 1945. The script focused on the last six months of the war, when the people Japan had attacked were hitting back and closing in.

The Plan Exposed

"War Stories at Air and Space" and a companion article, "The Mission That Launched the *Enola Gay*," appeared in the April 1994 issue of *Air Force* Magazine. AFA circulated longer, fully documented versions of these articles in advance to the news media and others.

The first notice by the press was "Rewriting History," a segment in the "Inside the Beltway" column in the *Washington Times* March 28. It paraphrased the magazine (accurately) as saying the exhibit was "skewed toward the Japanese victims of the bomb with little regard for the context of the times in which the bomb was dropped."

Harwit's response, published in "Inside the Beltway," March 31, said *Air Force* Magazine's accusations were "simply not true." He said, "The exhibition describes the 'naked brutality' of Japanese forces in concrete terms, calling attention to the rape of Nanking, the treatment of POWs, the use of Chinese and Koreans as slave laborers, and the conduct of biological and chemical experiments on human victims." On April 4, AFA delivered a copy of the exhibition script to the newspaper "so that you may judge for yourself."

At the request of Congressional staffers for more information, *Air Force* Magazine produced a content analysis of the script. It showed ample evidence of imbalance. For example, the 559-page script (302 pages of text, 257 pages of graphics) had 49 photos of Japanese casualties, three photos of American casualties. There were only four text references to Japanese atrocities, the longest of them 16 lines.

Thereafter, AFA content analyses of each successive script revision became a regular element in the controversy.

Internal Admissions

One of the most astounding developments in the entire controversy was an April 16, 1994, internal memo from Harwit to his exhibition staff, explicitly agreeing with many of the points that *Air Force* Magazine and AFA had made.

- "Though I carefully read the exhibition script a month ago, I evidently paid greater attention to accuracy than to balance. ... A second reading shows that we do have a lack of balance and that much of the criticism that has been levied against us is understandable."
- "We talk of the heavy bombing of Tokyo, show great empathy for Japanese mothers, but are strangely quiet about similar losses to Americans and our own Allies in Europe and Asia."
- "We show terrible pictures of human suffering in Hiroshima and Nagasaki in Section 400, without earlier, in Section 100, showing pictures of the suffering the Japanese had inflicted in China, in the camps they set up for Dutch and British civilians and military, and US prisoners of war."
- "We do not note that conditions in the American internment camps were far more favorable than in Japanese internment camps, where slave labor conditions prevailed."
- "The alternatives to the atomic bomb are stated more as 'probabilities' than as 'speculations' and are dwelled on more than they should be."

When AFA obtained and circulated copies of the memo, Harwit, who had been caught saying one thing in public and an opposite thing in private, was outraged and indignant about "privileged correspondence released by one of the lobbying organizations, the Air Force Association."

Despite his admissions in the memo, Harwit continued publicly to insist that AFA was wrong.

On April 20, 1994, Harwit appointed an internal "Tiger Team" to review the script and "look for any signs of imbalance." A month later, the team turned in a stinging report. Its findings were remarkably similar to the *Air Force* Magazine criticisms. It cited numerous imbalances, including "depictions of Japanese as

victims" and "insufficient development of Japan's extensive prewar aggression."

The script, the Tiger Team said, appeared "to convey the impression that Japan was seeking peace, while the US was seeking to obstruct means for a negotiated settlement." Whereas B-29 missions were characterized in the script as "burning cities," "attacking cities," and "razing cities," there was "no reference to industrial complexes, war-producing industries, or other 'targets' of military value in and around those cities."

The Tiger Team report was kept under wraps until August 1994, when the museum finally provided a copy to *Air Force* Magazine in voluntary response to a Freedom of Information Act request.

The museum's own docents, or volunteer tour guides, also thought the exhibition was wrong. After meeting with the docents in March, Crouch sent a memo to Harwit on March 31: "It did not go well with the docents last night. Many of them have now read the script, and the majority of those in attendance were very angry about the exhibition."

The Curators Dig in

To Harwit's displeasure, AFA was not easy to shrug off. The Air Force Association "had not been content just to offer advice; they insisted on seeing their wishes carried out," he said. "Each change the museum made evoked a triumphant cry from the AFA and a howl of dismay from academic historians."

In hopes of neutralizing AFA, the museum devised a bizarre strategy.

"Given the unyielding attitudes of the AFA," the Smithsonian decided in May 1994 to seek support from the American Legion on the assumption that "the AFA, whose membership was only about 180,000, would have to defer to such giants as the American Legion, with its 3.1 million members."

This made no sense. Did museum officials imagine the American Legion would agree with their distorted view of World War II? The Legion had already adopted a resolution calling the exhibition plan "politically biased." In any case, why would AFA "have to defer" to the American Legion?

The script was revised May 31, but AFA did not get a copy for almost a month. There were a number of changes. Eleven of the 75 "Ground Zero" photos had been removed, as were two of the 26 "Ground Zero" artifacts. Creditably, the script added a photo of a kneeling Australian airman, about to be beheaded in August 1945 *after* Japan had surrendered.

Overall, though, the extent of the revision did not shift the balance or the context appreciably.

The script was still interspersed with a series of "Historical Controversies": Would the Bomb Have Been Dropped on the Germans? Did the Demand for Unconditional Surrender Prolong the War? How Important was the Soviet Factor in the "Decision to Drop the Bomb"? Was a Warning Demonstration Possible? Was an Invasion Inevitable Without the Bomb? Was the Decision to Drop the Bomb Justified?

The revised script, which had 295 text pages, devoted less than one page and only eight visual images to Japanese military activity prior to 1945. The emphasis was still on Japanese suffering.

The notorious "War of Vengeance" lines were modified and now read: "For most Americans, this war was different from the one waged against Germany and Italy: It was a war to defeat a vicious aggressor but also a war to punish Japan for Pearl Harbor and for the brutal treatment of Allied prisoners. For most Japanese, what had begun as a war of imperial conquest had become a battle to save their nation from destruction."

Leaking Like a Sieve

As an article in *Washingtonian* magazine would later note, AFA "kept track of every piece of paper—official, unofficial, and private—that flew during the debacle, compiling them all in thick, green-covered books and distributing them around Washington."

We often received the same document from more than one source. I. Michael Heyman, who would become secretary of the Smithsonian in September 1994, told Harwit that "your museum is like a sieve." Harwit himself used the documents from AFA in writing his book, *An Exhibit Denied* (Copernicus, 1996). "The information contained in these files was invaluable," he said.

There was much talk, then and later, about the script being a work in progress. Thus, it was another embarrassment for the museum when we obtained and circulated a June 21, 1994, memo from Neufeld, telling his advisors that the revisions were essentially over.

"If you find any factual errors or if you object strongly to certain formulations in the revised script, I would be happy to hear them," Neufeld wrote. "But, if the exhibit is to be opened in late May 1995, as planned, we must now move on to the production and construction phase. This script therefore must be considered

Photo by Paul Kennedy

Kamikaze. ***The Kugisho Okha 22 kamikaze aircraft (here, at NASM's new Udvar–Hazy Center) never had a chance to see action. The script of "The Last Act" portrayed Japanese kamikaze fighters as valiant defenders of the homeland.***

a finished product, minor wording changes aside."

In August 1994, the museum was still claiming that the exhibition script had strong backing from service historians. This was contradicted not only by statements from the military historians but also by Harwit's own admission. In his charge to the Tiger Team in April, Harwit said that "a team of historians from different branches of the military" had "expressed dissatisfaction with the script's overall balance. In their opinion, it was flawed in its portrayal of Japanese and American history, activities, and customs."

Martin Harwit didn't know it, but the landslide was about to begin.

The Controversy Explodes

Twenty-four members of Congress sent a letter Aug. 10 to Robert McCormick Adams, then in his last days as secretary of the Smithsonian, expressing "concern and dismay" about the intended exhibit. They said the "revised script is still biased, lacking context," and that "judging from recent public statements by museum officials, it seems that Air and Space is digging its heels in to defend an indefensible position."

Harwit interpreted it as AFA manipulation. "The hand of the Air Force Association could not have been clearer if the letter had been written on AFA stationery," he said.

Secretary Adams offered the usual defenses. In a letter to Rep. Peter Blute (R-Mass.), Adams described the script as "a work in progress" and "still only at an intermediate stage in an ongoing, iterative process."

On Sept. 23, a Sense of the Senate resolution on the *Enola Gay* exhibition, sponsored by Sen. Nancy L. Kassebaum (R-Kan.), passed unanimously on a voice vote. It said the latest version of the script was "Revisionist and offensive." Again, Harwit blamed AFA, whose reports, he said, were "the text that, with minor editing, became Senator Kassebaum's resolution."

In August 1994, Harwit told Air Force historian Herman S. Wolk that he had taken another look at the script to see whether his curators had made changes proposed by the historians.

"Harwit told me that his weekend review showed that, in fact, the curators had failed to take those recommendations, especially those of AF/HO," Wolk said in his memo for the record. "Dr. Harwit emphasized that he had been *'taken aback at how little had been done.'* There were some 'word changes here and there' Harwit said, but clearly the curators had failed to follow through. As he put it, this 'had fallen through the cracks.' " (Emphasis in original.)

However, Harwit soon resumed his regular message, telling the *Washington Post* that "we could have handled all this internally" if the first script had not been made public. The controversy since then "hasn't forced on us any [script] changes we wouldn't have made ourselves."

The new secretary of the Smithsonian, I. Michael Heyman, who took office Sept. 19, saw the problem right away. He told the *Washington Post* that "our first script for the exhibition was deficient."

The Museum's Special Constituencies

Harwit resisted involvement in the exhibit by veterans, but he welcomed participation from the left. Peace groups and activists, alarmed that the message about the *Enola Gay* was changing, met with Harwit Sept. 20.

Father John Dear, a Jesuit priest and the spokesman for the activists, described Harwit as "exasperated." He quoted Harwit as saying, "Where have you been? You are too late. Why haven't you been in before? Why haven't you talked to the media?" Harwit later said Father Dear's account of the meeting was "fairly accurate."

A group of 48 "historians and scholars" wrote to Secretary Heyman Nov. 16, saying that "only by resisting pressures from political sources ill-informed about the relevant historical scholarship can you hope to defend the Smithsonian's credibility as a public institution."

The Revisionists argued that Truman dropped the bomb for reasons other than avoiding casualties. They rejected Truman's assertions, in his memoirs and elsewhere, that the Army Chief of Staff, Gen. George C. Marshall, had told him the invasion would cost a quarter-million to a million US casualties and an equal number of the enemy. To shore up their position, the Revisionists gave credence to low casualty estimates and attacked higher estimates.

The Revisionists disparaged the recollections of World War II veterans, saying that such memories were not to be trusted after 50 years, especially on emotional issues. Yet, they gave full credence to the memories of the *hibakusha,* the scarred and disfigured survivors from Hiroshima and Nagasaki, who were invited to appear at Revisionist programs in the United States.

Another constituency important to Harwit was the Japanese. Minutes from a museum staff meeting in July 1994—obtained and made public almost six months after the fact by Rep. Sam

Photo by Paul Kennedy

Squeezed. *In 1995-98, NASM displayed the* **Enola Gay**'s *forward fuselage (here in protective covering) and a few other parts. The downtown museum was too small to accommodate the entire 99-foot-long, 141-foot-wide bomber.*

Johnson (R-Tex.)—revealed that the May 1994 script revision had been translated into Japanese and shipped to Japan by Federal Express, asking for "a quick response." A museum spokesman confirmed that at least three of the five full versions of the script were sent to city officials in Nagasaki and Hiroshima for comment.

In April 1993, Harwit and Tom Crouch had visited Hiroshima, where they promised to "make a powerful exhibition of the catastrophic effects of the bombing."

Harwit said he wanted to avoid reviving "hard feelings between the US and Japan." It was regrettable that "such concerns never seemed to have occurred to the five old men and other veterans. ... To men like Burr Bennett, Donald Rehl, and William Rooney, there were no moral dilemmas at all," Harwit said. "Truman had merely chosen to save their lives instead of those of some Japanese. To them this made obvious sense."

Meddling by the Air Force Association threatened the relationship with Japan. "I am most seriously concerned that the changes in the exhibition demanded by the Air Force Association would, if accepted, cause an uproar in Japan when the exhibition opens," Harwit said in a July 1994 letter to Secretary of the Air Force Sheila E. Widnall.

Indeed, the Japanese were alarmed. Harwit felt a need to visit Japan "to reassure the mayors of Hiroshima and Nagasaki in person." Heat from the Senate and public opinion "made such a trip doubtful, at least until after the November elections," Harwit said.

The Japanese decided that if Harwit could not come to them, they would send a delegation to Washington to express their dismay face to face. How to explain to them that such a visit would be a political disaster?

"We all agreed that I could not go to Japan now and that we could not have the Japanese come, either. But we could not put this in writing," Harwit said. "Heyman adamantly wanted to avoid a 'paper trail.' Whatever we did needed to be done verbally to leave no trace."

Harwit really never did find a way to explain to the Japanese why their visit would be unwise. He wrestled with that problem right up to the end.

Backing and Filling

On Aug. 31, meanwhile, another revision had appeared. The curators continued to retreat, word by word, and line by line, but the structural, contextual, and ideological problems remained.

AP photo by Shizuo Kambayashi

Ground Zero. *Children float paper lanterns at Hiroshima's Atomic Bomb Dome. Museum officals felt a need to assure the mayors of Hiroshima and Nagasaki that the exhibit would reflect their views.*

For example, the "Historical Controversies" had been removed per se, but most of the "eliminated" material showed up elsewhere. For example, the question "Was an Invasion Inevitable Without the Bomb?" was now preceded by the introductory word "Hindsight" instead of "Historical Controversies."

Two more revisions followed in October. They reduced the number of grisly photos and artifacts, but the emotional punches and the imbalances were still there. A new section—labeled "Section 000," entitled "The War in the Pacific"—was added in December 1994. It sought to create an illusion of balance by allotting 4,000 square feet of floor space to this section, but most of it was taken up by a Grumman F6F Hellcat carrier-based fighter. It did little to improve the overall balance.

The museum pegged its strategy on dealing with the American Legion to the exclusion of AFA and others. The curators opened script negotiations with the Legion Sept. 21, announcing that it had "expanded the exhibition review process beyond its original advisory committee, to include additional scholars, military historians, and representatives of the American Legion." Others were pointedly not mentioned.

So far as we could tell, the Legion's views were about the same as ours. We wished them well. But when the arrangement did not work out as expected, Harwit knew where the fault lay.

By November 1994, Harwit said, "The pressure on the American Legion leadership was mounting. They could not stay entirely aloof from their own membership, which had long been stirred up by the AFA's and even the Legion's own earlier propaganda, and they could not entirely defy the assembled strength of the other veterans organizations."

The idea of using the American Legion to neutralize AFA had backfired. The Legion was now leading the charge, while AFA continued to analyze and distribute information about the museum's plans and scripts.

By the end of the year, "pressures on the Legion from other veterans groups and individual veterans who had been aroused by the AFA's and the Legion's media campaigns, appeared now to be leading to a tougher stance," Harwit said.

The Legion had run out of patience with Harwit. On Jan. 4, 1995, National Commander William M. Detweiler recommended that the organization "actively oppose" the exhibit, which he said was "suspect from all perspectives."

Spin, Crash, and Burn

On Jan. 9, 1995, Martin Harwit struck again. Heyman had promised

there would be no more uncoordinated changes. Without authorization—and to the horror of Smithsonian officials—Harwit wrote to the American Legion, saying he had been persuaded by academic advice that the casualty estimates for invasion of Japan in the script were too high, so he was changing the script.

Among his other adjustments, Harwit deleted the part of the script that said US "casualties conceivably could have risen to as many as a million (including a quarter of a million deaths). Added to the American losses would have been perhaps five times as many Japanese casualties—military and civilian."

The replacement words made a different point: "After the war, Truman often said that the invasion could have cost half a million or a million American casualties." The script then discounted Truman's statement with a dismissive tag line, "The origin of these figures is uncertain."

Whatever his motivation was, Harwit must have realized that he was advancing a major—and disputed—theme of the Revisionist dogma.

On Jan. 18, the American Legion called for the exhibit to be "canceled immediately" and for Congress "to conduct hearings into how the nation's most visited and revered museum could mount such an exhibit." The Legion said, "This exhibit, in our opinion, so closely parallels the design, content, and conclusions of the Nagasaki Peace Museum as to defy coincidence."

Eighty-one members of Congress called, on Jan. 24, for "the immediate resignation or termination of Mr. Martin Harwit," citing his "continuing defiance and disregard for needed improvements to the exhibit." Twenty thousand subscribers to *Smithsonian* magazine had also complained about the exhibit.

On Jan. 30, the Smithsonian canceled the exhibition. Heyman said the failed program would be replaced with "a much simpler one, essentially a display, allowing the *Enola Gay* and its crew to speak for themselves."

Martin Harwit had one more surprise left. In April 1995, the Smithsonian abruptly canceled a reception—planned by Harwit without notifying Smithsonian leaders—to honor the curators of the original, failed exhibition. Heyman learned about the event when the *Washington Times* called for comment.

Time had finally run out for Harwit. He resigned May 2. The fact that he had been fired would not be disclosed until the publication of his book the following year.

The News Media

News media coverage was extensive. Press reports were generally deep and balanced, but the museum did not fare well in the commentaries. Many, if not most, of the columns and editorials interpreted the situation much the same way that AFA did. This was intolerable to the curators and their supporters, who sought to explain it away with a "Bamboozled Media" theory.

"The media largely spoke with one voice," Harwit wrote in *Japan Quarterly* in 1997. "It seemed that hardly any of the journalists had read the 500-page exhibition script that the museum had completed in January 1994. They preferred instead to take their cue from Air Force Association press releases."

Among those we allegedly bamboozled was the *Washington Post.*

In January 1995, the *Post* said that early drafts of the script had been "incredibly propagandistic and intellectually shabby" and "had a tendentiously antinuclear and anti-American tone."

In February, another *Post* editorial said, "It is important to be clear about what happened at the Smithsonian. It is not, as some have it, that benighted advocates of a special-interest or right-wing point of view brought political power to bear to crush and distort the historical truth. Quite the contrary. Narrow-minded representatives of a special-interest and Revisionist point of view attempted to use their inside track to appropriate and hollow out a historical event that large numbers of Americans alive at that time and engaged in the war had witnessed and understood in a very different—and authentic—way."

Among major newspapers and magazines, the bastion of support for the curators was the *New York Times.* "The Smithsonian would probably have worked its way to a more balanced exhibition without pressure from Congress," the *Times* said in a September 1994 editorial. "In fact, months before Congress intervened, Mr. Harwit wrote to his curators telling them that the exhibition was one-sided. That is how the process ought to work: Curators propose, review committees advise, the exhibition gradually comes into focus."

The editorial writer obviously did not check out the story behind Harwit's memo to the curators and was a bit behind on how the process really worked.

The Revisionists got their big moment on prime-time television July 27, 1995, with a Peter Jennings ABC special, "Hiroshima: Why the Bomb Was Dropped."

As the *Washington Post* review said, Jennings was led along by "a largely stacked deck of Revisionist historians" to the assessment of President Harry Truman "as an intellectual dwarf, propelled by ambitious militarists and politicians to a nuclear slaughter of the innocents."

Jennings said, "It is unfortunate, we think, that some veterans organizations and some politicians felt the need to bully our most important national museum so the whole story of Hiroshima is not represented here."

One of the few non-Revisionists interviewed for the Jennings special was Robert James Maddox, professor of American history at Pennsylvania State University. He said ABC misrepresented his views and ignored information he supplied. He called the show "the worst piece of garbage I've seen."

The Controversy Lingers On

In March 1995, six weeks before Martin Harwit was fired, the activist "historians and scholars" reconstituted themselves as the "Historians' Committee for Open Debate on Hiroshima." The co-chairmen were Martin J. Sherwin and Kai Bird.

Sherwin was a professor of history at Dartmouth and Tufts. In 1994, in his capacity as an advisor to the Air and Space Museum on the *Enola Gay* exhibit, Sherwin complained that the crew had shown "no remorse" for the mission.

Bird was a journalist turned historian and author. In one of his op-ed pieces, Bird denounced the "humiliating spectacle" of "scholars being forced to recant the truth."

The Revisionists had not fared well in news media coverage of the controversy, but they found a more ad-

vantageous venue in book publishing, where the influence of scholars and academicians was strong and in which they got to write the material themselves, their way.

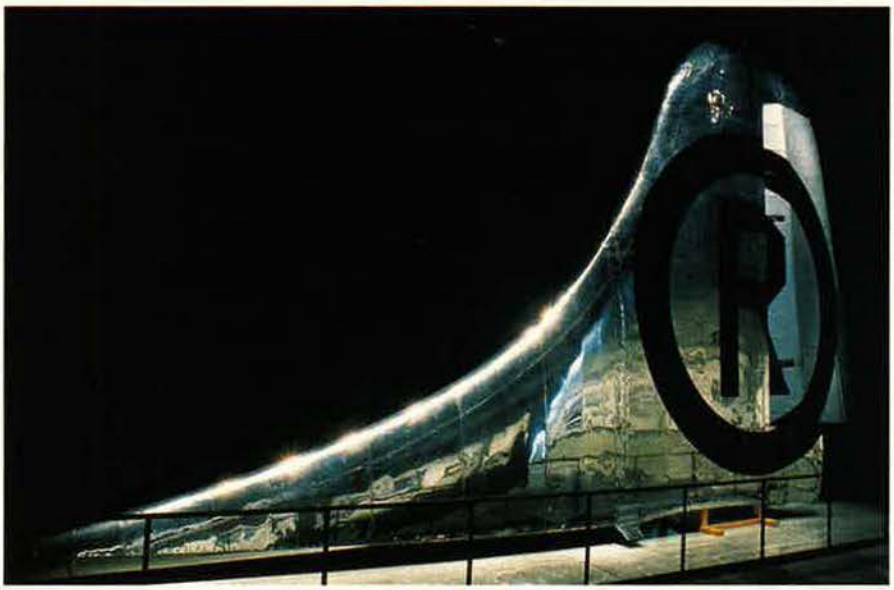
Some of the books were worse than others. Among the most strident in denouncing AFA and defending the curators was Philip Nobile's *Judgment at the Smithsonian* in 1995. The press release promoting this book depicted Nobile as blowing the lid off a cover-up after he "obtained a rare copy" of the exhibition script.

As Nobile admitted in the "acknowledgments" section of his book, he got his "rare copy" of the script from AFA, the same as everybody else.

Nobile's book hit a low point with its "mock war crimes trial of Harry Truman." According to the press release, "Nobile's fictional cross-examination of Truman leaves little doubt about the defendant's guilt."

NASM photos by Carolyn Russo

After "The Last Act." *With Harwit gone, the museum displayed the* **Enola Gay's** *forward fuselage, a propeller, and other components in a depoliticized exhibit. It drew four million visitors, the most ever for a special exhibit.*



Luster Restored. *Also on display in the 1995-98 exhibit at NASM's downtown location was the* **Enola Gay's** *distinctive tail. Its aluminum skin was buffed and polished to its original shine.*

Gar Alperovitz, a leading proponent of Revisionist theory about Truman and the atomic bomb, argued that a "new consensus" had developed among historians and that it supported the curators and the Revisionists. Alperovitz was stretching with his claim of consensus.

In 1994, a survey by the Organization of American Historians asked historians to rank various events as "bright spots" and "dark spots" in American history. World War II ranked third from the top among 46 "bright" spots. The Atomic Bomb and Hiroshima tied (with the Mexican War) for 23rd place on the list of "dark" spots, being considered less dark than Watergate, the Great Depression, sexism, the Cold War, and the 1980s in general.

Four Million Visitors

For the most part, Secretary Heyman steered clear of ideology, concentrating instead on practical measures to extricate the Smithsonian from its troubles.

Heyman did, however, contribute one misperception to the legend of the lost exhibit. Testifying to the Senate Rules Committee in May 1995, he said, "The fundamental flaw, in my view, lay in the concept of the exhibition itself. The basic error was attempting to couple an historical dialogue centering on the use of atomic weapons with the 50th commemoration of the end of the war."

The problem was never that history and commemoration would not mix. The problem was distorted history. But Heyman had found a convenient rationale that gave him quick separation from the failed exhibit, and he repeated it often.

In June 1995, the museum opened a straightforward historical exhibition on the *Enola Gay* and its mission. The centerpiece was the forward fuselage of the airplane, a 53-foot section and just over half the total length, up on the nose wheel. Also on display were a propeller, the tail, and two of the engines.

Part of the wall text in the exhibition gallery said that "the use of the [atomic] bombs led to the immediate surrender of Japan and made unnecessary the planned invasion of the Japanese home islands. Such an invasion, especially if undertaken for both main islands, would have led to very heavy casualties among American and Allied troops and Japanese civilians and military. It was thought highly unlikely that Japan, while in a very weakened military condition, would

Photo by Paul Kennedy

Mission Accomplished. *The famous B-29 bomber, finally exhibited with respect, reposes in NASM's new Udvar–Hazy Center, where it dwarfs smaller aircraft such as the nearby P-38 and Japanese N1K2.*

have surrendered unconditionally without such an invasion."

At a press conference opening the new exhibition, Heyman was asked why he had given in to veterans and Congress. He said that objections had not come only from "a handful of people or simply a handful of legislators." He had received 30,000 to 40,000 letters from citizens.

Comment cards from visitors were overwhelmingly favorable. Before the exhibition closed in May 1998 after a three-year run, it had drawn almost four million visitors, making it by far the most popular special exhibition in the history of the museum.

Retired Vice Adm. Donald D. Engen was chosen to head Air and Space. He took the museum back to its charter to collect, preserve, and display historic aircraft and spacecraft.

Engen was killed in a glider accident in 1999, but his successor, retired Marine Corps Gen. John R. Dailey, appointed in January 2000, was of the same mold.

When the museum opened the Udvar–Hazy annex in December 2003, the airplane in center position in the aviation hangar was the *Enola Gay*, completely restored and fully assembled for the first time since 1960. Like other aircraft at Udvar–Hazy, the *Enola Gay* was shown with a basic descriptive label. It said, "Boeing's B-29 Superfortress was the most sophisticated propeller-driven bomber of World War II. ... On Aug. 6, 1945, this Martin-built B-29-45-MO dropped the first atomic weapon used in combat on Hiroshima, Japan. Three days later, *Bockscar* (on display at the US Air Force Museum near Dayton, Ohio) delivered a second atomic bomb on Nagasaki, Japan. *Enola Gay* flew as the advance weather reconnaissance aircraft that day."

The Committee for a National Discussion of Nuclear History and Current Policy—"a committee of scholars, veterans, clergy, activists, students, and others"—filed a protest petition. Among those signing it were Daniel Ellsberg, Noam Chomsky, Oliver Stone, and leading lights of the Revisionist movement. The museum acknowledged the petition but said it did not plan to change the exhibit

To the Revisionists, it was intolerable that the *Enola Gay* was displayed without an antinuclear message attached. "You wouldn't display a slave ship solely as a model of technological advancement," said David Nasaw, a cultural historian at the City University of New York.

About 75 protesters showed up for opening day at Udvar–Hazy. One protester threw a bottle of red paint at the *Enola Gay*. It made a minor dent on the side of the airplane, bounced off, and broke on the floor. The bottle thrower was arrested and the rest of the demonstrators were escorted out, chanting and singing "Down by the Riverside."

Peter J. Kuznick of American University, leader of the committee, said, "Our greatest concern is that the disturbing issues raised by the atomic bombings in 1945 will not be addressed in the planned exhibit and that President Truman's use of atomic weapons will legitimize the Bush Administration's current effort to lower the threshold for future use of nuclear weapons."

Forces of Change

Over the years, myths about the controversy have taken root. One of them is that the museum was overwhelmed by impossible odds. "You have no idea of the forces opposing this exhibit, not in your wildest dreams—jobs are at stake, the Smithsonian is at stake," curator Tom Crouch told the peace group leader, Father John Dear.

"The Air Force Association must have had an incredibly well-oiled public relations machine," Harwit said. "To that was added the American Legion. We were kind of outgunned."

In another instance, Harwit said, "Defeat of a museum with a total of 280 [personnel], by veterans' organizations whose summed membership stands at six million strong, is not shameful. I like to believe we fought valiantly, but were badly outgunned."

The impossible odds theory avoided the actual explanation: that the public was intelligent enough to see the truth.

The vast alliance, six million strong, was mostly in the minds of the curators.

Veterans groups cooperated, but they were not coordinated. We shared information and kept in touch, but there was no joint strategy, few meetings, and nobody telling anybody what to do. As for AFA, only three or four of us were significantly engaged, and part time at that.

In the Revisionist books and journal articles, *Air Force* Magazine and AFA have become the demons of record. In truth, the people who brought down the exhibit were the curators and Martin Harwit.

Our contribution was to shine a light on what the museum was doing, and public outrage did the rest. ■

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

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The Chart Page

By Tamar A. Mehuron, Associate Editor

The Defense Budget at a Glance

In February, President Bush presented his defense budget for Fiscal 2005. The document requests $401.7 billion in budget authority and $403.5 billion in outlays for the direct program (DOD activities only). The budget request for the total national defense program (DOD activities and defense activities in the Department of Energy and other federal agencies) is $423.1 billion in budget authority and $450.6 billion in outlays.

Funding levels can be expressed in several ways. Totals are most frequently stated in **budget authority,** which is the value of new obligations that the government is authorized to incur. These include some obligations to be met in later years. Figures can also be expressed in **outlays** (actual expenditures, some of which are covered by amounts that were authorized in previous years).

Another difference concerns the value of money. When funding is in **current** or **then-year** dollars, no adjustment for inflation has taken place. This is the actual amount of dollars that has been or is to be spent, budgeted, or forecast. When funding is expressed in **constant dollars,** or **real dollars,** the effect of inflation has been factored out to make direct comparisons between budget years possible. A specific year, often the present one, is chosen as a baseline for constant dollars.

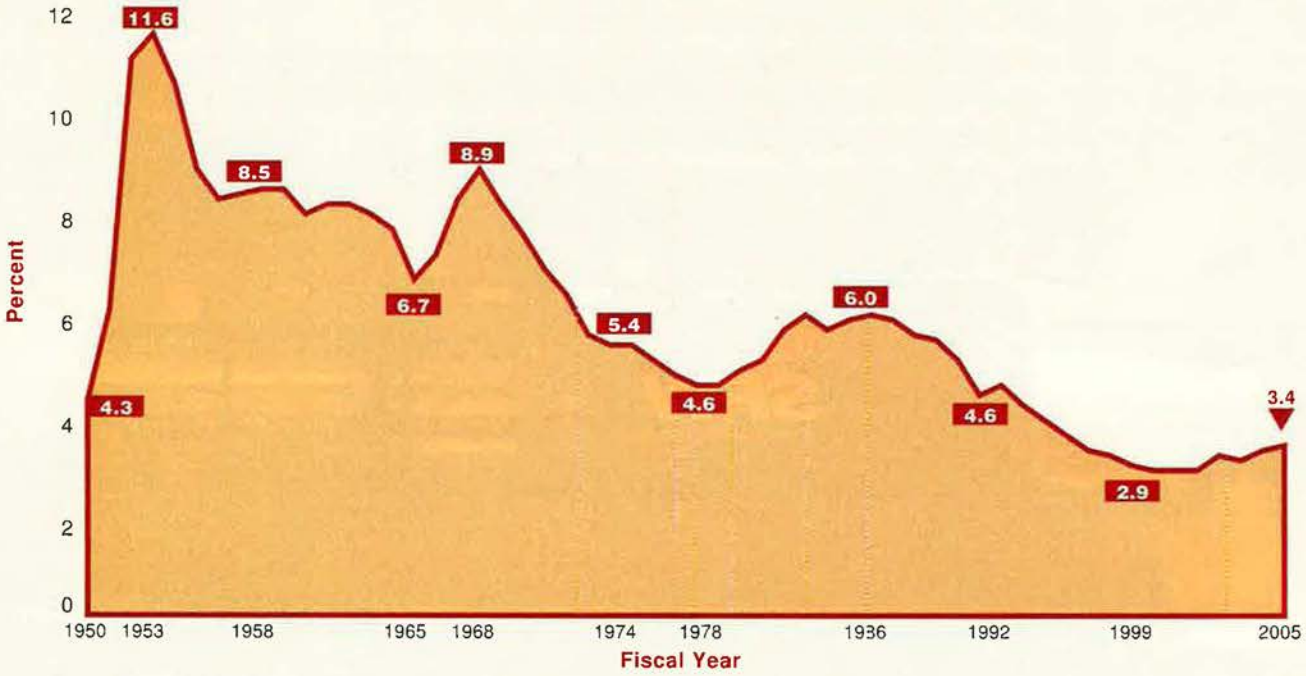
The following charts address only the Defense Department program. Numbers on the charts in this section may not sum to totals shown because of rounding. Years indicated are fiscal years. Civilian manpower figures are now measured in terms of full time equivalents.

DOD Budget Topline* ($ billions)

	2003	2004	2005	2006	2007	2008	2009
Budget authority (current)	$365.3	$375.3	$401.7	$422.7	$443.9	$465.7	$487.7
Budget authority (constant FY 2005)	$377.5	$381.7	$401.7	$415.5	$426.8	$437.9	$448.5
Outlays (current)	$339.3	$377.7	$403.5	$415.6	$426.9	$447.6	$467.9
Outlays (constant FY 2005)	$350.6	$384.1	$403.5	$408.5	$410.4	$420.8	$430.3

*Does not include supplements.

Defense Outlays as a Share of Gross Domestic Product



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(Budget authority in constant FY 2005 billion dollars)

Dollars	2003	2004	2005	2006	2007	2008	2009
Air Force	109.4	112.8	120.5	126.0	127.5	130.5	131.2
Army	94.3	97.0	97.2	101.0	103.8	106.9	107.1
Navy/Marine Corps	117.0	117.1	119.3	123.4	125.2	129.3	136.3
Defense agencies	56.6	54.8	64.7	65.2	70.2	71.2	73.8
Total	**377.5**	**381.7**	**401.7**	**415.5**	**426.8**	**437.9**	**448.5**
Percentages							
Air Force	29.0%	29.5%	30.0%	30.3%	29.9%	29.8%	29.3%
Army	25.0%	25.4%	24.2%	24.3%	24.3%	24.4%	23.9%
Navy	31.0%	30.7%	29.7%	29.7%	29.3%	29.5%	30.4%
Defense agencies	15.0%	14.4%	16.1%	15.7%	16.4%	16.3%	16.5%

Cutting the Pie: Who Gets What

(Budget authority in constant FY 2005 billion dollars)

	2003	2004	2005	2006	2007	2008	2009
Military personnel	97.0	99.6	104.8	107.5	108.7	109.6	110.7
O&M	129.5	129.8	140.6	143.6	145.4	147.0	150.7
Procurement	77.2	76.6	74.9	79.0	87.1	98.6	104.8
RDT&E	59.2	65.4	68.9	69.8	68.0	67.3	65.0
Military construction	6.7	5.6	5.3	8.7	11.6	10.2	9.4
Family housing	4.3	3.9	4.2	4.5	4.3	3.4	3.2
Other	3.4	0.8	3.0	2.3	1.5	1.3	4.5
Total	**377.5**	**381.7**	**401.7**	**415.5**	**426.8**	**437.9**	**448.5**

Manpower

(End strength in thousands)

	1990	2002	2003	Est. 2004	Est. 2005	Change 1990-2003	1997 QDR Goal
Total active duty	2,065	1,412	1,434	1,391	1,383	-631	1,360
Air Force	535	368	375	359	360	-160	339
Army	751	487	499	482	482	-252	480
Navy	582	383	382	374	366	-200	369
Marine Corps	197	174	178	175	175	-19	172
Selected reserves	1,128	874	875	863	861	-253	835
Civilians (FTE)	997	687	649	648	651	-348	640

Operational Training Rates

	1990	2000	2002	2003	2004	2005
Air Force						
Flying hours per crew per month, fighter/attack aircraft	19.5	17.2	17.1	17.1	16.8	16.8
Army						
Flying hours per tactical crew per month	14.2	12.7	14.0	14.5	13.1	13.1
Annual tank miles*	800	669	831	849	913	899
Navy						
Flying hours per tactical crew per month	23.9	20.9	22.6	22.6	20.8	19.2
Ship steaming days per quarter						
Deployed fleet	54.2	50.5	54.0	54.0	54.0	51.0
Nondeployed fleet	28.1	28.0	—	—	—	—

* Excludes National Training Center miles.

Acronyms

AEHF	Advanced Extremely High Frequency
AFRC	Air Force Reserve Command
AMRAAM	Advanced Medium-Range Air-to-Air Missile
ANG	Air National Guard
AWACS	Airborne Warning and Control System
BUR	Bottom-Up Review
DSP	Defense Support Program
EELV	Evolved Expendable Launch Vehicle
FTE	Full Time Equivalent
GPS	Global Positioning System
HLV	Heavy Lift Vehicle
JASSM	Joint Air-to-Surface Standoff Missile
JDAM	Joint Direct Attack Munition
JPATS	Joint Primary Aircraft Training System
JSF	Joint Strike Fighter
MLV	Medium Lift Vehicle
NPOESS	National Polar-orbiting Operational Environmental Satellite System
O&M	Operation and Maintenance
ORL	Operationally Responsive Launch
QDR	Quadrennial Defense Review
RDT&E	Research, Development, Test, and Evaluation
SBIRS	Space Based Infrared System
STARS	Surveillance Target Attack Radar System
UAV	Unmanned Aerial Vehicle
UCAV	Unmanned Combat Air Vehicle

Major USAF Programs RDT&E

(Current million dollars)

Program	2003	2004	2005
A-10	11.0	29.5	22.6
B-1B bomber	150.4	87.9	59.5
B-2 bomber	232.2	165.9	245.1
Next generation bomber	0.0	44.6	0.0
C-5 transport	273.8	346.5	333.0
C-17 transport	155.8	183.9	199.7
C-130 transport	130.3	104.5	150.2
C-130J transport	1.9	13.4	36.3
CV-22 transport	7.7	65.1	16.4
E-3 AWACS	163.7	267.9	288.8
E-8 Joint STARS	62.1	57.8	89.3
E-10 Multisensor C2	0.0	0.0	538.9
F-15E fighter	70.8	122.4	115.3
F-16C/D fighter	77.6	96.1	99.6
F/A-22 fighter	909.4	928.6	564.5
F-35 fighter (JSF)	1,612.80	2,092.6	2,307.4
T-6 JPATS	0.0	0.0	0.0
AIM-120 AMRAAM	39.3	32.2	33.3
JASSM	48.6	25.5	45.8
JDAM	17.0	35.2	0.0
Small Diameter Bomb	56.3	125.4	76.5
AEHF satellite	802.7	802.3	612.1
DSP satellite	2.0	0.0	0.0
GPS satellite	411.1	244.3	293.0
Milstar satellite	148.3	1.4	1.4
NPOESS	232.1	264.7	307.7
SBIRS–High satellite	775.4	610.2	508.5
Space Based Radar satellite	45.4	172.6	327.7
Wideband Gap Filler satellite	13.8	36.3	73.5
EELV booster	55.8	7.9	27.0
MLV booster	0.0	0.0	0.0
ORL booster	0.0	25.8	35.4
Titan HLV booster	0.0	0.0	0.0
Minuteman III ICBM	119.7	172.7	91.7
Global Hawk UAV	337.7	360.2	336.2
Predator UAV	15.0	41.2	81.4
UCAV	54.2	176.9	2.9

Major USAF Programs Procurement

(Current million dollars)

Program	2003	2004	2005
A-10	25.5	20.6	53.4
B-1B bomber	101.4	103.0	8.8
B-2 bomber	91.7	122.3	96.0
Next generation bomber	0.0	0.0	0.0
C-5 transport	74.0	91.4	99.6
C-17 transport	4,187.7	3,408.8	3,839.9
C-130 transport	218.9	216.6	110.4
C-130J transport	208.1	443.7	919.2
CV-22 transport	110.6	337.6	443.0
E-3 AWACS	28.1	53.5	36.0
E-8 Joint STARS	280.7	38.9	45.3
E-10 Multisensor C2	0.0	0.0	0.0
F-15E fighter	274.0	200.3	181.6
F-16C/D fighter	274.9	307.3	336.3
F/A-22 fighter	4,461.0	4,114.6	4,157.0
F-35 fighter (JSF)	0.0	0.0	0.0
T-6 JPATS	204.7	276.0	307.1
AIM-120 AMRAAM	84.9	104.5	107.4
JASSM	53.8	100.9	148.2
JDAM	477.1	424.6	521.8
Small Diameter Bomb	0.0	0.0	29.3
AEHF satellite	0.0	0.0	98.6
DSP satellite	105.7	112.1	116.5
GPS satellite	249.8	255.8	330.5
Milstar satellite	0.0	0.0	0.0
NPOESS	0.0	0.0	0.0
SBIRS–High satellite	0.0	0.0	0.0
Space Based Radar satellite	0.0	0.0	0.0
Wideband Gap Filler satellite	186.7	21.8	40.3
EELV booster	175.6	604.8	611.0
MLV booster	47.8	89.4	102.9
ORL booster	0.0	0.0	0.0
Titan HLV booster	254.2	45.1	74.3
Minuteman III ICBM	625.1	651.4	680.9
Global Hawk UAV	181.1	251.0	359.7
Predator UAV	139.2	210.1	146.6
UCAV	0.0	0.0	0.0

Force Structure Changes

	Cold War Base 1990	1993 Base Force	1993 BUR Plan	1997 QDR Goal	Plan 2003[d]
Air Force					
Active fighter wings	24	15	13	12+	12+
AFRC/ANG fighter wings	12	11	7	8	7+
Army					
Active divisions	18	12	10	10	10[b]
Army National Guard/Reserve	10	8[a]	8	8	8[c]
Navy					
Aircraft carriers					
Active	15	12	11	11	10
Reserve	1	1	1	1	1
Carrier air wings					
Active	13	11	10	10	10
Reserve	2	2	1	1	1
Marine Corps					
Active Marine Expeditionary Forces	3	3	3	3	3
Marine Forces Reserve	1	1	1	1	1

[a] Comprising 34 brigades.
[b] Plus two armored cavalry regiments.
[c] Plus 16 separate brigades (15 of which are at enhanced readiness levels).
[d] Force structure plans were not provided in FY 2004 or 2005 budget data.

In Gulf War II, US-based units sent forward 30,000 intelligence reports and spotted some 1,000 targets.

OPERATION REACHBACK

By Adam J. Hebert, Senior Editor

On March 4, 2002, while fighting raged in eastern Afghanistan during Operation Anaconda, USAF intelligence analysts watched a battle unfold by means of imagery from an orbiting Predator unmanned aerial vehicle. The airmen had critical intelligence on the locations of dug-in al Qaeda and Taliban forces but no way to relay it directly to the troops on the ground.

Seven US troops were killed in the battle of Roberts Ridge, as it is known. The inability to provide real-time intelligence provided new impetus to a developing capability called "reachback."

Reachback refers to the ability of combat forces to receive intelligence, surveillance, and reconnaissance (ISR) data directly from databases and experts located in the US. It has been developing steadily for a decade. By the time Operation Iraqi Freedom began on March 20, 2003, a series of technological improvements had given ISR analysts the ability to communicate with forces in the field through secure online "chat rooms."

Deployed forces now carry laptop computers with which they can receive intelligence that Stateside analysts upload via satellite, according to Col. Larry K. Grundhauser, commander of the 480th Intelligence Wing, headquartered at Langley AFB, Va.

During OIF, intelligence units in the US sent more than 30,000 intel-

USAF photo by SSgt. Brendan Kavanaugh

SSgt. Sabrina Vaseleck and now-MSgt. Kevin Pease at Langley AFB, Va., perform real-time analysis of potential targets in Iraq. New technology allows USAF to base such intel analysts in the States, greatly reducing its forward footprint.

ligence reports forward to the theater and provided data that identified more than 1,000 targets.

Brig. Gen. Kelvin R. Coppock, Air Combat Command's intelligence director, said the reachback operations were continuous during the peak hostilities in Afghanistan and Iraq. Moreover, no missions were lost due to ISR communications failures.

Intelligence teams in the 480th IW's pair of distributed ground systems—DGS-1 at Langley and DGS-2 at Beale AFB, Calif.—performed the analyses. The airmen process and analyze data from Predator and Global Hawk UAVs, high-flying U-2 reconnaissance airplanes, and other ISR assets.

Until late last year, both DGS units functioned relatively independently of each other. Langley's DGS-1 is operated by the 497th Intelligence Group; Beale's DGS-2 is run by the 548th Intelligence Group. On Dec. 1, 2003, the Air Force officially activated the 480th Intelligence Wing, placing both the 497th IG and 548th IG and several other intelligence functions under the new wing. Additionally, the 497th and 548th intel groups each have one Air National Guard squadron: at Wichita, Kan., and Reno, Nev., respectively.

USAF photos by SSgt. Suzanne M. Jenkins

Predator UAVs can be "flown" from the US even though the aircraft themselves may be half a world away. US-based units can capture data, analyze it, and send it where it needs to go as fast as if the units were in theater.

Reducing the Footprint

The wing's DGS units were designed to be deployed into a theater of operations. Indeed, Langley's DGS-1 was in Saudi Arabia in 1996 at the time of the Khobar Towers bombing. By 1999, however, advances in communications technology meant the Air Force could conduct these DGS operations from within the United States—minimizing the service's forward deployed footprint.

In fact, Coppock said, the Air Force can better perform its intelligence missions by not deploying. For one reason, new technology has made the operations seamless, and, for another, the service can save money.

Air Force officials estimated USAF would have spent $6 million to $15 million to deploy the two ground stations to Operation Enduring Freedom in Afghanistan and OIF in Iraq. This included force protection, supply, and transportation needs. It would take, they said, 17 C-5 airlifters to transport one station.

Today, USAF has no need to deploy most of the wing's personnel into a theater of operations. Many airmen can remain in the US and go home at night.

Actually, officials said, going home has been one of the more difficult adjustments for the wing's airmen. They said it can be difficult for the analysts to switch from watching a war unfold—sometimes seeing coalition forces engaged in bloody combat—to going about their domestic routine at home at the end of a shift.

Out of some 2,000 assigned airmen, only about 90 are deployed to support operations in Southwest Asia. Many of the deployed airmen are needed to staff the U-2's line-of-sight (LOS) ground relay station, known as "Mobile Stretch." All but three of the Air Force's U-2 aircraft require an LOS ground station to relay electro-optical and infrared data.

The other three U-2s have been upgraded with the capability to make a direct satellite link—a capability known as the "extended tether" program (ETP). Grundhauser said the extended tether satellite link, which was recently developed as an advanced concept technology demon-

The Air Force is upgrading its U-2 manned reconnaissance aircraft with direct satellite links. The modifications will eliminate the need to transfer data through in-theater ground stations.

USAF photo by SSgt. Brendan Kavanaugh

The 480th Intelligence Wing analysts support combat operations round the clock. Above, exploitation systems maintenance technicians A1C Eyal Filkovsky and SSgt. Vincent Palmer (standing) help ensure the equipment is on line.

stration program, shows promise. It will be especially useful, he said, in areas such as the Pacific or sub-Saharan Africa regions, where ground stations are not practical.

ETP is a modular communications package mounted on top of the U-2 fuselage. It was first used in Afghanistan. Ultimately, USAF wants to upgrade all its U-2s with ETP.

Key to the Kill Chain

Such advances in ISR reachback capability enable the Air Force not only to reduce its forward deployed footprint but also to reduce the time it takes to find and destroy a target. That amounts to a compression of the "kill chain," the series of steps taken to attack a target.

The attack timeline is shrinking, said Coppock. From the war in Afghanistan to the war in Iraq, there has been marked progress, he said, adding that compression of the kill chain revolves around ISR capability.

Two April 9, 2003, air strikes in Iraq highlight this reality.

In the first, the destruction of an enemy surface-to-air missile site began with the transmission of a Global Hawk image. Two minutes after receiving it, a US-based imagery analyst spotted the SAM. Ten minutes after that, the image was forwarded to the combined air operations center (CAOC) for targeting. Only 57 minutes after the picture was taken, B-2 stealth bombers hit the SAM site.

In the second, airpower needed even less time to destroy a pair of Iraqi tanks. A Predator searching for missile transporters instead found two tanks in a tree line. A DGS passed positive identification of the tanks to the CAOC, which, a minute later, gave the target data to aircraft already orbiting over the area. Within 17 minutes of discovery, the tanks were destroyed.

The 480th provided target information for 153 B-52 cruise missile strikes and supported numerous F-117 strikes. The time needed to get ISR data to commanders was reduced to single-digit minutes, said Grundhauser. That "doesn't mean we dropped the bombs that fast," he noted in an Air Force news release. "We just gave the commanders the ability to decide earlier."

Four weeks before the start of the war, the wing's airmen went to "combat surge" mode so they could begin target preparation missions. Among other actions, they prepared a targeting "folder" to aid the March 20 F-117 strike on a Baghdad site where Saddam Hussein was believed to be hiding.

In preparation for combat operations, DGS crew members receive a mission briefing that provides the objectives and establishes a chain of command. From that point, said one official, the DGS members become a part of the CAOC. A crew will spend six to 12 hours monitoring UAV live feeds or data from other ISR sources. Members review the imagery, find their targets, and report on the targets to the CAOC.

For OIF, the unit also organized an "Iraqi Airfield Group" at Langley. Its members kept watch over seven enemy air bases, ready to alert coalition fighters to any activity spotted there.

Round-the-clock monitoring of those bases allowed the airfield group to track activity levels, including personnel movements, facility improvements, and repairs, said Col. Don Hudson, ACC's deputy chief of intelligence. The group provided the information to CAOC planners, who then knew which airfields were operational. Those planners could allocate strike sorties accordingly.

Officials deemed the airfield group so successful that they gradually expanded its monitoring mandate to more than 25 airfields, including helicopter bases.

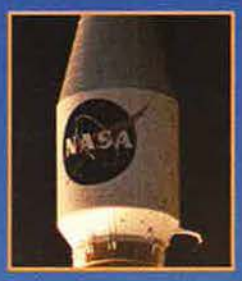
Although the Iraqi Air Force never took to the sky to challenge the coalition, planners initially were nervous that one airplane could have gotten up, Hudson said.

The 480th intel specialists continue to provide nonstop support for operations in Afghanistan and Iraq. According to MSgt. Mike Welch, 480th IW's chief of imagery operations, the work is "not so fast and furious" any longer. However, he said, it is now more difficult to determine what targets are of interest. Force protection is the primary mission today.

"The difference is going from known [targets] to unknown," said TSgt. Terrence Warner, an imagery mission supervisor. Analysts have been told to simply watch an area and look for anything suspicious. Their efforts have led to identification and interception of insurgents approaching coalition forces.

Coppock fully expects ISR capability to continue to grow as technology advances.

For instance, Global Hawk is currently only being used at about one-third its capacity, because processing the intelligence is so time-consuming and labor-intensive. Coppock said the Air Force is working on automatic target recognition systems that should greatly reduce that processing time. ■



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Washington struggles to define the right health care program for the Guard and Reserve.

Total Force Tricare

By Tom Philpott

WHEN the war on terror began Sept. 11, 2001, America suddenly understood how reliant the nation had become on the Guard and Reserve—for security at home and to take the fight overseas. Both Administration officials and lawmakers call the reserves indispensable to the Total Force.

Last year, Congressman John M. McHugh (R-N.Y.), a member of the House Armed Services Committee, noted that Guard and Reserve support for peacetime military operations has "grown 12-fold to the annual equivalent of 33,000 active duty personnel." He went on to say that the Global War on Terror has brought additional large and short-notice call-ups. Some 40 percent of the US troops covering operations in Iraq now are Guardsmen and Reservists.

The Pentagon knows it cannot go to war without these components. However, officials point out that claims of repeated, wholesale mobilizations are not valid. Since 9/11, DOD has mobilized only about 36 percent of its nearly 900,000 selected reserves, Defense Secretary Donald H. Rumsfeld told lawmakers in February.

Nonetheless, lawmakers, since 2001, have introduced more than two dozen bills covering health care, income loss protection, and other efforts to aid reservists.

For a third straight year, Congress has expanded health care benefits for Guard and Reserve personnel and their families. The latest benefit package included a $400 million spending cap and an end date of Dec. 31, 2004. Lawmakers had planned a more sweeping change but met resistance from the Administration, which worried about the cost.

A bipartisan group of lawmakers wanted to offer non-activated reservists and their families the same access to health care benefits that is provided to active duty personnel and their families. The Senate, in May 2003, overwhelmingly endorsed the plan. Rumsfeld told lawmakers that it would be hugely expensive and would take money from other important military programs. Others countered that the cost would be far more reasonable, with reservists paying a share of the cost, and called providing expanded Tricare access a matter of "fairness."

Not Far Enough

While Pentagon officials believe Congress went too far in 2003 in extending Tricare coverage, some military associations argued lawmakers didn't go far enough.

At their urging, Senate Minority Leader Tom Daschle (D-S.D.) and Sen. Lindsey Graham (R-S.C.), who were the lead sponsors on last year's legislation to extend Tricare to all non-activated reservists, have reintroduced that measure for 2005.

A key concern for Daschle and Graham, as well as many other lawmakers, is that some 20 percent of

today's reserve forces have no health insurance. (Daschle estimates that the number is closer to 30 percent, at least in South Dakota.) They also focus on the fact that reserves are more integrated into military operations than ever before.

"If you're doing the same job," Daschle said at a March 4 Senate hearing, "you ought to have the same access to benefits." However, he emphasized, that the Daschle/Graham legislation doesn't offer a "free handout;" instead the non-activated reservists would pay a premium for their Tricare coverage.

Graham, who is an Air Force Reservist, testified at the same hearing that their bill is "about recruiting, retention, and readiness." He said, "The one thing I have learned, from Desert Storm to now, is that if we do not do better with the [reserve] benefit package, we're going to lose a lot of dedicated, patriotic people because the stress on their families is immense."

Readiness is at issue, continued Graham, because 25 percent of the Guard and Reserve troops called to active duty are unable to be deployed because of health problems, primarily dental.

The Pentagon, conversely, does not view the expansion of Tricare coverage as a means to "leverage readiness," said Charles S. Abell, principal deputy undersecretary of defense for personnel and readiness.

Both Abell and the Pentagon's top health care official, William Winkenwerder Jr., testifying on March 4, said that ensuring medical readiness of activated reservists is a high priority, but they were not certain that the expanded health care benefit would solve the problem.

Abell told Senators, "Tricare for non-active reservists and their families could have a long-term fixed cost of $1 billion annually with little payoff in readiness."

Winkenwerder suggested carefully reviewing the proposal and conducting a "limited demonstration" to determine feasibility and test assumptions about any "beneficial impact."

For a change, the Congressional watchdog agency, the General Accounting Office, may agree with DOD. In a September 2003 report on reserve health care issues, the GAO said it had a "number of concerns."

GAO noted that DOD says it does not have an overall recruiting and retention problem in the reserves and that it's too early to tell whether there will be a problem. The GAO also said that most reservists activated prior to 2001—90 percent, according to a 2002 DOD survey—retained their civilian health insurance. It raised the issue of possible anger within the active force if the reserve force gains the same benefits. And the GAO expressed concern about DOD's rising health care costs—"the fastest growing category of operation and support spending."

The GAO summarized its position: "While proponents have cited a number of reasons for this legislation, concerns have also been raised. We believe these concerns may outweigh the perceived benefits and costs of the legislation." However, it also said that DOD doesn't have sufficient information to determine the need for expanded benefits or the impact on the military health care system.

Congress has directed the GAO to conduct a comprehensive assessment of the health care needs of reservists by May 1.

The Compromise

Meanwhile, the compromise deal worked out last year between Congress and the Administration opened the door for expanded benefits to some 170,000 reservists and their families without private health insurance. If they decide to sign up for Tricare, they will have to pay premiums, which will be 28 percent of program costs or roughly $420 a year per individual or $1,440 for family, plus the usual copayments and deductibles.

The compromise package of initiatives, called the 2004 Temporary Reserve Health Benefit Program (TRHBP), was included in the defense emergency supplemental legislation. Despite the work of a special task force set up before the law was signed, implementation has been difficult.

The $400 million spending cap imposed by Congress added to the difficulties. Tricare officials had to devise a system to keep real-time tabs of dollars spent, as well as to issue rules and modify existing contracts, all of which left reservists and their families waiting months to take advantage of new pre- and post-mobilization benefits.

As of mid-February, more than three months after the law was signed, most of the benefits still were not available to reserve families. The Pentagon announced Feb. 12 that the 2004 benefits would be implemented in stages throughout the spring.

One of the biggest challenges, said Rear Adm. Richard A. Mayo, deputy director for the Tricare Management Activity, has been delays in modifying the Defense Enrollment Eligibility Reporting System (DEERS). Tricare relies upon DEERS to verify that beneficiaries are properly enrolled and eligible for health benefits. The enrollment system had to be reprogrammed to recognize several new benefits and to identify as eligible many thousands of individual reservists and their families. Modifying DEERS also was critical for tracking the cost of the initiatives.

Mayo said he expects uninsured drilling reservists to be able to enroll in Tricare by year's end, if the $400 million hasn't already been spent. That money also must cover the cost of reprogramming DEERS, modifying Tricare support contracts, and marketing for reserve enrollment.

The New Benefits

In the 2004 TRHBP package, Congress authorized three temporary benefits that run from Nov. 6, 2003, through Dec. 31:

- One provision extends temporary eligibility to Tricare for reservists and their family members if the reservist is either unemployed or employed but not eligible for employer-sponsored health coverage.
- A second provision temporarily established an earlier eligibility date for Tricare medical and dental coverage. Eligibility begins on the day the reservist receives "delayed-effective-date" active duty orders or 90 days prior to the start of the active duty period, whichever is later. Family members are covered if the mobilization is to last longer than 30 days. Before this change, reservists became eligible for Tricare only when actually on active duty.
- The third temporary provision lengthens Tricare eligibility for certain reservists from 60 or 120 days to 180 days under the Transitional Assistance Management Program. This longer coverage applies to those deactivated or separated from service after Nov. 6, 2003.

Pentagon health officials urged Guard and Reserve members and their

families to save health care receipts, claims, and explanation of benefits for the term of the temporary legislation.

The 2004 program also included three permanent benefits:

- One calls for the Pentagon to provide medical and dental screening and care for Individual Ready Reservists who are alerted for mobilization. Reservists previously had to be on active duty to be screened and receive care.
- A second provision makes newly commissioned officers eligible for Tricare, pending their orders to active duty—if the officer lacks other health care coverage.
- The third requires the reserve components to appoint health care benefits counselors to assist reservists. There is to be at least one counselor who is expert on reserve health benefits assigned to every Tricare region.

This is one change that received enthusiastic support from DOD officials. "Most of our beneficiary counselors are familiar with the Tricare benefit as it exists day to day," said Mayo, adding that the reserve benefit is different. "We need to have a specialist thoroughly familiar with not only current but new provisions of the reserve benefit."

What's Next?

The Congressional efforts to boost reserve health benefits last year took on added importance in October 2003 after a UPI news service article reported that hundreds of Guardsmen and Reservists—most medically unfit when called up, but some sick or wounded and recovering from tours in Iraq—were stuck in "medical hold" at Ft. Stewart, Ga. They had languished for weeks or months, living in rundown barracks, while they waited for medical care.

The Army confirmed a shortage of medical staff and adequate housing. It immediately sent more reserve soldiers to civilian providers and found better accommodations.

David S.C. Chu, undersecretary of defense for personnel and readiness, revised policy to improve treatment of reservists in medical hold. The new rules require specialty care within two weeks vs. the Tricare standard of 30 days.

If such care isn't available on base, the applicable military treatment facility must refer the reservists promptly to other military, VA, or civilian physicians. And medical-hold reservists are to be billeted in the same quality housing as active duty members.

On the whole, Pentagon officials say they want more time to evaluate the question of what benefits should be provided to reservists, particularly as they relate to non-activated reservists. Abell calls the latter issue "a more difficult question."

Extending health care benefits to reservists who are not mobilized, or even alerted for mobilization, said Abell, is a "complex benefit package." He continued, "It's complex to administer, and it's complex to discover what are the driving factors that influence the [reservists'] behavior."

Abell said the Pentagon would like to run a demonstration project for a couple of years that would let it "measure the outcomes and the expenses and the return on investment."

Meanwhile, discounts on Tricare coverage for the families of activated reservists that were enacted soon after the 9/11 attacks also are due to expire in 2004 unless Congress votes to extend them again or make them permanent. ■

Other Recent Tricare Benefits

Overall, reservists and their families have seen military health benefits improve in the last three years. Here's a rundown of changes since the war on terrorism began, exclusive of reforms adopted late last year.

Tricare Reserve Family Demonstration Project. This program, which is designed to ensure continuity of care and timely access to the military health system for family members of hundreds of thousands of reservists, was implemented Sept. 14, 2001, and was to end Oct. 31, 2003, however, DOD extended it for another year.

Participation in the project is open to families of reservists activated for 30 days or longer. They are eligible for Tricare's triple option: Prime (enrolled managed care), Extra (preferred provider networks), or Standard (traditional fee-for-service insurance). (Prime eligibility before March 10, 2003, was limited to family members of reservists who had been activated for 179 days or longer.)

Two enhancements reduced out-of-pocket expenses for reserve families. Participants do not have to pay the annual deductible of up to $300 for Tricare Extra and Standard. They are responsible for a 20 percent co-payment under Standard and 15 percent co-payment under Extra. And DOD covers costs for civilian providers that exceed the Tricare Maximum Allowable Charge—up to 115 percent of the TMAC rate—less applicable co-payment.

Like active duty family members, those using Tricare Standard do not have to obtain a nonavailability statement before receiving nonemergency inpatient care if they reside within 40 miles of a military treatment facility.

Reserve Dental Program. Since early 2001, drilling reservists and members of the non-drilling Individual Ready Reserve have been able to enroll in a reserve dental program if they had at least 12 months remaining on their service commitment. Activated reservists are removed automatically from the reserve dental program and become eligible for military care. Family members of a non-activated reservist enrolled in the program may participate, but the premium they pay is more than twice as much as that paid by active duty family members. The monthly premium level falls to the active duty family member rate once a reservist is activated.

Tricare Prime Remote. In March 2003, family members of reservists activated for more than 30 days became eligible to enroll in the Tricare Prime Remote for Active Duty Family Members program if they live at least 50 miles or more from the nearest military treatment facility. The remote program provides health care coverage through civilian health care providers.

The legislation creating this eligibility stated the family member must "reside with" the activated reservist. According to the Pentagon, DOD interprets that to mean "eligible family members resided with the service member before the service member left for their home station, mobilization site, or deployment location, and the family member continues to reside there."

Tom Philpott is a contributing editor of Air Force *Magazine. He is the editor of "Military Update" and lives in the Washington, D.C., area. His most recent article for* Air Force *Magazine was "The VA's Big Makeover," in the January issue.*

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The 2005 base realignment and closure round will cut deeply and help shape the force for decades.

BRAC to the Future

By George Cahlink

RONALD L. ORR is the Air Force's principal deputy assistant secretary for installations, environment, and logistics. He knows that, between 1988 and 1995, the service closed 22 USAF facilities and realigned another 14. He knows that such actions cost $5.9 billion to carry out and that, by 2001, they also had saved the service $12.9 billion. He knows the actions helped the Air Force cut its annual operating costs by $2 billion.

Now, Orr will be a key figure in the fate of numerous Air Force facilities, as the Pentagon heads into a new round of base realignment and closure (BRAC) actions—the first in a decade. Orr makes no predictions about BRAC 2005. He will say only that it will be far different from those that have come before.

"In the past, we emphasized shedding infrastructure [to save money]," said Orr. "Now we are emphasizing shaping it to meet the needs of the future force." The goal, he said, is to transform infrastructure to match the national military strategy.

Orr said each service must ask these types of questions:

- Do new and advanced weapon systems require more or fewer bases?
- Should a military that increasingly operates jointly have joint bases?
- Should each service repair and overhaul its own weapons?
- Should each service have its own research laboratories, or can they be combined?
- What impact will the realignment of forces overseas have on bases back home?
- What impact do environmental restrictions have on basing?

The Transformation BRAC

Senior Pentagon officials have called the new BRAC round a "base transformation" process. It will not simply reduce excess capacity but will enable DOD to "rationalize" facilities "to better match the force structure for the new ways of doing business," Raymond F. Dubois, the Pentagon's point man for BRAC, told Congress last year.

Dubois, who is deputy under-

secretary of defense for installations and environment, has said the 2005 round "is not your father's BRAC."

Since the last BRAC in 1995, three different Secretaries of Defense have appealed to Congress for a new round of closures. It took intense lobbying by the Bush Administration to convince legislators to agree to one new round, in 2005. Approval was included in the Fiscal 2002 defense authorization bill.

The Pentagon has cut military end strength by about 40 percent since the late 1980s. Yet, in the same period, infrastructure was trimmed by only around 20 percent. According to Pentagon estimates, infrastructure capacity exceeds needs by as much as 25 percent.

The 2005 BRAC basically will follow the same process as each of the four previous base closure rounds. The President nominates members of a commission. The Pentagon provides a list of closure recommendations to the commission. The commission reviews the list and submits its own recommendations to the President. The President reviews the recommendations and either accepts or rejects the list, as is. If he accepts it, the President forwards the list to Congress.

The same process was used to close 97 bases from all services in four previous rounds (1988, 1991, 1993, and 1995). However, that is where the similarities between those rounds and BRAC 2005 end.

The new BRAC commission incorporates two important changes. First, the group expands from eight to nine members to prevent tie votes. Second, any changes commission members want to make to the Pentagon's list will require seven votes. In the past, changes only required a simple majority.

Among changes that directly affect the Pentagon is the requirement to provide a 20-year force structure plan to help guide recommendations. In the past, the plan covered only six years. However, the most significant change is in how the Pentagon manages the BRAC process.

When it comes to BRAC, Defense Secretary Donald H. Rumsfeld has taken an interest that is far more active than that of his predecessors, who basically rubber-stamped the lists provided by the individual services before handing them to the commission. To manage the process from the top down, Rumsfeld created two senior-level Pentagon groups.

The lead group, the Infrastructure Executive Council, is headed by Deputy Defense Secretary Paul D. Wolfowitz and includes the service Secretaries, Chiefs of Staff, Chairman of the Joint Chiefs of Staff, and undersecretary of defense for acquisition, technology, and logistics. The second group, called the Infrastructure Steering Group, is headed by the defense acquisition chief and comprises Dubois and his counterparts in each service, the service vice chiefs, and the vice chairman of the Joint Chiefs of Staff.

The first group provides policy and oversight, while the second manages the joint reviews that Rumsfeld has instituted as part of BRAC 2005.

Philip W. Grone, principal assistant deputy undersecretary of defense for installations and environment, said Rumsfeld wants a major emphasis on creating joint bases and finding ways the military services can share support work. There had been criticism from Congress that past closure rounds were too focused on individual service needs.

Dubois, testifying at a Feb. 12 hearing, told lawmakers, "The previous rounds, quite frankly, ... were service-centric." He added, "There was little joint decision-making or joint analytical authority."

The Prime Directive

To prevent a recurrence, Rumsfeld established a prime directive to "maximize joint use" of facilities, said Dubois. Aiding that effort are seven joint cross-service groups (JCSGs):

Staff photo by Guy Aceto

Rumsfeld has emphasized joint use of facilities. At USAF's Air Armament Center in Florida, an Air Force technician is testing a new weapon system aboard an Army helicopter.

education and training, headquarters and support activities, industrial activities, intelligence activities, medical, technical, and supply and storage.

These groups include experts from each service, the Office of the Secretary of Defense, and appropriate defense agencies. For example, the Pentagon's top scientist, Ronald M. Sega, heads the technical group, while the services' surgeon generals lead the medical group.

The groups are broad by design—to allow them to look across the services—but they will tackle specific questions. The training group, for instance, is studying whether DOD should develop joint pilot training programs using fewer bases than is the case with current individual service pilot training. The training JCSG also is examining the potential to privatize pilot training.

The technical group will look at DOD's research, development, test, and engineering functions, including the individual service laboratories. In past BRACs, those labs were largely unexamined, but the technical group will look at whether these

facilities could combine research efforts and work even more closely with industry and academia.

However, when questioned by lawmakers concerned about losing such RDT&E facilities, Dubois indicated that moving these functions from their present locations might not be in DOD's best interest. He said the individual military labs are often co-located with some world-class educational institutions, which "was not without a design."

Dubois added, "They are where they are for reasons." He went on to argue that the Pentagon does not need to consolidate its labs into one location because today's information technology enables them to employ virtual interaction.

Another area of concern for many lawmakers is the future of military depots, the services' in-house weapon repair centers, with $20 billion annual operating budgets and tens of thousands of civilian federal workers. The charter for the industrial JCSG includes reviewing the need for in-house depots and whether they should be consolidated.

Under the last BRAC, the Air Force closed two of its five air logistics centers. In previous closure rounds, four Navy shipyards were shut down, and the Army closed several depots and support organizations. The Air Force and Navy each maintain three depots for repairing aircraft. Some BRAC observers expect that these facilities will be consolidated into fewer joint aircraft repair centers. Other candidates for consolidation are Army and Marine Corps depots that overhaul ground combat vehicles.

Rumsfeld has repeatedly pushed for privatizing more depot work but has been unable to get lawmakers to change the federal law that requires half of all military repair work to be performed at defense depots. Members of the Depot Caucus in Congress now fear the Pentagon may be able to work around that law by closing depots and, in effect, bypassing the law.

The only solace Dubois offered lawmakers was that depots would be evaluated within their group and that there was no preordained cut list.

As part of Rumsfeld's push toward multiservice, multimission installations, the Pentagon also will review the potential for active and reserve forces to share bases. That could prove challenging, because states have a say in the disposition of Air and Army National Guard facilities.

According to retired Rear Adm. Benjamin Montoya, a 1995 BRAC commissioner, most of the unneeded active duty bases have been shut down, but many smaller Guard and Reserve bases that should be shut down have stayed open. He said that closing Guard bases is "harder than shutting down a rural post office."

BRAC 1995 also had several joint task forces that provided recommendations for sharing capabilities among the services. However, the services never seriously considered them. There was no top-down emphasis, as has been established for BRAC 2005.

Grone said recommendations from the JCSGs will be incorporated into the Pentagon's final base closure list. However, the groups' mandate precludes them from straying into service specific operational areas.

The Air Force will decide whether the introduction of new, more capable aircraft will mean it could consolidate bases. The Navy will weigh whether a 300-ship Navy with smaller, more agile vessels requires changes in home porting. The Army will weigh where to base any brigades brought home from Europe as part of a global repositioning of forces.

The Overseas BRAC

The Pentagon began an overseas posture review in August 2001, recognizing that the Cold War basing strategy needed to change and that any change in overseas force structure would affect Stateside basing.

"You cannot do the domestic BRAC without an overseas BRAC," Dubois told lawmakers.

He said the Pentagon should have the "basic building blocks of overseas force structure" in mid-May. Dubois noted that there are "variables" that are "somewhat outside" Rumsfeld's control. However, he maintained that Rumsfeld would be the one to make basic decisions about what forces will return to the US. The services, in turn, will need to incorporate that information in their deliberations about Stateside facilities.

In addition, the services will need to predict their infrastructure needs to retain the capability to handle a "surge in terms of end strength at any given time," said Dubois.

All things considered, Dubois said, BRAC 2005 "is a global BRAC."

Once the services complete their recommendations, their lists and the lists from the JCSGs will go to the Infrastructure Executive Council, and, ultimately, to the Secretary of Defense.

Weighing the decisions made by the Pentagon is "not a fun job," said former Sen. Alan Dixon (D-Ill.), who headed the BRAC commission in 1995. Dixon said that one former Senate colleague, whom Dixon considered a friend, still refuses to talk to him because the commission closed a base in the Senator's state. "I wouldn't do [the job] again for anything," Dixon added.

The list of commissioners for 2005 is to be announced by next spring. The question of who will be on the final list has been the subject of intense speculation and has spawned a bogus list of base closings on the Internet. Communities and states began their campaigns to stay off the list even before Congress formally authorized BRAC 2005.

Air War College professor David S. Sorenson, author of the 1998 book *Shutting Down the Cold War: The Politics of Military Base Closure,* said it's too early to predict closure of specific bases but not too early to spot some trends worth watching.

Politics, he said, does play a role in determining which bases make the Pentagon's list. In the four past rounds, former Rep. Ronald Dellums (D-Calif.), an outspoken critic of defense spending, suffered the shut down of five bases in his northern California district. Then-Sen. Sam Nunn (D-Ga.), the hawkish chairman of the Senate Armed Services Committee, lost not a single base in his home state.

Sorenson recommended that communities examine DOD's past BRAC lists, because bases targeted by the Pentagon but spared by the commission will usually appear again on the list. In the past, commissions have concurred with the Pentagon's recommendations about 85 percent of the time.

States Weigh In

In Mississippi, economic development officials are well aware that the state has been lucky to escape the ax. Jackson has invested more than $50 million to improve roads and infrastructure around the state's bases. In 1995, the Navy wanted to close Meridian Air Station, but last

minute politicking kept it off the final list. Since then, the state has spent $3.2 million building a Naval Reserve facility at Meridian. Columbus AFB, Miss., which offers pilot training, is also considered vulnerable. The state has spent $13.5 million improving sewer lines to Columbus and Meridian.

New Jersey worries that its seven military bases could be targeted. Many of them house support organizations, not operating forces. New Jersey is touting three adjacent bases—McGuire Air Force Base, Ft. Dix Army Reserve Base, and Naval Air Engineering Station Lakehurst—as one of the military's first "superbases." Previous BRACs have targeted all three in the past. In the 1993 round, McGuire narrowly beat out Plattsburg AFB, N.Y., for survival.

Encroachment—the effect that suburban sprawl and environmental laws have on military bases and operations—looms increasingly large in decisions about which facilities will stay open. In Southwestern states, where military bases are positioned near fast-growing Sun Belt cities, that problem has been most acute.

Luke AFB, Ariz., USAF's largest fighter pilot training facility, is only 10 miles from Phoenix. Sometimes officials must cancel training because someone has sighted an endangered antelope species on the Luke ranges. Arizona may have to relocate an elementary school a mile from a busy runway on Davis–Monthan Air Force Base, near Tucson. The Arizona legislature is now weighing laws to limit encroachment around the state's bases.

Orr said Air Force bases will be evaluated, in part, on whether they have the space to handle the more powerful weapon systems that will enter the inventory over the next few decades. These include systems such as the F/A-22 fighter, F-35 fighter, and various unmanned aerial vehicles. Environmental concerns are far bigger today than they were in past BRACs. "It's not only if they can fly there today, but can they fly there in the future," Orr said.

Some Western state officials tout their wide-open training ranges as an attractive alternative to the crowded training sites east of the Mississippi River. One who does so is Robert Johnstone, executive director of the Southwest Defense Alliance, an organization that represents the interests of testing and training ranges in the region. Johnstone said Edwards AFB, Calif., located in the southern California desert, could easily accommodate aviation training to go along with its test mission. Currently, the services only use about 30 percent of their western test and training ranges. That excess capacity makes them possible targets for consolidation, too.

The most aggressive BRAC players are states with a large military presence. Georgia, facing its first BRAC without the political cover of the powerful Sam Nunn, passed a law requiring communities to discuss proposed zoning changes with the military. The objective is to prevent any adverse impact on nearby bases.

Florida has spent $475,000 to retain both Washington, D.C., law firm Holland & Knight and former Rep. Tillie Fowler (R-Fla.) to analyze the relative vulnerability of its 21 bases. Texas voters last fall approved the creation of a $250 million fund to help communities upgrade roads and other infrastructure around military bases.

California has 62 bases and $19 billion in associated federal payroll. State officials recall the economic havoc of the past four BRACs, when the state lost more than 90,000 defense jobs. In recent years, California has offered grants worth hundreds of thousands of dollars to communities seeking to strengthen ties to military bases. The state also brokered a land swap between a developer and Los Angeles Air Force Base, trading excess military land for a new headquarters building.

Staff photo by Guy Aceto

Many officials began to OK pre-emptive moves to try to keep their favorite bases off the 2005 BRAC list. New Jersey has dubbed McGuire Air Force Base (home to these KC-10s) and adjacent Army and Navy facilities a "superbase."

Republican Gov. Arnold Schwarzenegger took time during his State of the State address to note that BRAC poses a large threat to California's ailing economy. "This could mean thousands of lost jobs to California," he said. "These bases are important to national defense, and they are important to our steady economic recovery. As a state, we will fight to keep our bases open."

Plans called for the Pentagon to deliver a new analysis of infrastructure capacity to Congress. Officials expect it to confirm the existence of 25 percent excess capacity, as determined in a 1998 analysis. If it does, said Dubois, the 2005 round will nearly match the combined reduction of the four previous rounds, which brought an overall 21 percent reduction.

BRAC 2005 promises to be a "very difficult and challenging round," said Dubois. ■

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Hap Arnold's unique B-29 force brought Japan to its knees and helped make the case for an independent Air Force.

The Twentieth Against Japan

By Herman S. Wolk

Sixty years ago, Gen. Henry H. Arnold, Commanding General of the Army Air Forces, formed and began to lead a new numbered air force, created to conduct B-29 operations against Japan's home islands. Hap Arnold's creation of Twentieth Air Force to spearhead a strategic bombing offensive in the Pacific not only led to Japan's defeat but also proved to be a landmark in the long struggle of airmen to organize and operate an independent air force.

Numerous studies have documented the technical and engineering problems that had to be overcome in developing the B-29. Less has been written about the critical decision of how to command this long-range bomber force. The answer was fundamental to prosecuting the strategic bombing offensive against Japan.

The final decision, reached April 4, 1944, placed Twentieth Air Force directly under Arnold. It was an unprecedented arrangement that would lead, in the Cold War era, to placement of the newly formed Strategic Air Command directly under the Joint Chiefs of Staff as a specified command.

It was "one of the most important events in the history of the United States Air Force," said retired Maj. Gen. Haywood S. Hansell Jr., a former air planner and first chief of staff for the Twentieth, in his memoirs.

Arnold was a visionary and, as Europe headed into World War II, he saw the need for a four-engine strategic bomber whose range, speed, and bomb load would be far superior to the B-17 and B-24. He initiated development of the B-29 Superfortress in November 1939, two months after Nazi Germany's invasion of Poland.

The Essential B-29

After Japan's sneak attack on Pearl Harbor, Arnold was determined to show that Japan could be driven out of World War II without a land invasion of the home islands. He believed the B-29 was essential to that outcome. Once the United States entered the war, Arnold came under increasing pressure from President Franklin D. Roosevelt and Gen. George C. Marshall, Army Chief of Staff, to have the AAF's long-range bomber forces show results.

The B-29 was a greatly advanced bombing airplane, with a pressurized cabin, intricate fire-control system, and powerful new Wright R-3350 engines. However, the B-29 developed critical problems, which brought the entire program into question. If the nation had not been at war, the extent of B-29 development difficulties would have forced Arnold to stretch out testing and production or even to halt it temporarily. Instead, Arnold cut corners and ordered the bomber into production before it had completed a rigorous testing program.

The Allies' primary objective in World War II was the defeat of Nazi

B-29s of Twentieth Air Force crowd the flight line on Guam's North Field.

Germany. Early AAF planning had outlined potential B-29 operations in the European Theater, but the bomber's development problems and the pace of Allied operations in Europe made those plans moot.

By May 1943, the Allies decided to shift more attention to defeating Japan. According to a 1943 Joint Chiefs of Staff study on the conduct of the war, the Allies agreed to "maintain and extend unremitting pressure against Japan with the purpose of continually reducing her military power and attaining positions from which her ultimate unconditional surrender can be forced."

Roosevelt and high-level Administration officials, outraged at Japan's offensive against China, increasingly emphasized the need to bomb Japan's home islands. At high-level Allied conferences in 1943 at Casablanca and Quebec, Roosevelt advocated deploying B-29s to the China–Burma–India Theater.

At Quebec in 1943, Arnold presented the "Air Plan for the Defeat of Japan," which called for deployment of Superfortresses to central China. This plan, prepared by Brig. Gen. Kenneth B. Wolfe, emphasized that the 1,500-mile range of the B-29 would allow it to strike Japan's major industrial centers.

Arnold wanted to ensure the B-29s were used first against Japan. In a May 1943 memo to Marshall, Arnold wrote: "If B-29s are first employed against targets other than against Japan, the surprise element will be lost." Arnold maintained that Japan would "take the necessary actions to neutralize potential useable bases."

Pictured above are the Superfortresses under production. The B-29 brought a revolutionary capability. The long-range bomber featured a pressurized cabin, intricate fire-control system, and powerful new engines.

Challenging Arnold

In the summer of 1943, Lt. Gen. George C. Kenney, commander of the Allied Air Forces in the Southwest Pacific and Fifth Air Force, challenged the plan put forth by Arnold and his Air Staff. Kenney had been informed by his Washington sources that many viewed the B-29 as the airplane that would "win the war." Kenney's idea, however, was to attack oil refineries in Sumatra and Borneo, not industrial centers in Japan.

In a cable to Arnold, Kenney said: "If you want the B-29 used efficiently and effectively where it will do the most good in the shortest time, the Southwest Pacific area is the place and the Fifth Air Force can do the job. Japan may easily collapse back to her original empire by that time (1944), due to her oil shortage alone."

Kenney, however, had no real chance to get the B-29s. Arnold never wavered in his conviction that the Superfortresses should be used to strike at the heart of Japan.

At the Cairo conference in late 1943, Roosevelt approved the plan to base B-29s in India and China. Maj. Gen. Laurence S. Kuter, assistant chief of Air Staff for plans, informed Kenney in March 1944 that Roosevelt wanted the B-29s in place by May 1944. The plan was to base B-29s in India and stage them through China for initial B-29 attacks against Japan, then, once the Allies had taken the Marianas, launch B-29 raids from there.

Kenney did not take this news well. He described attacks against Japan from the Marianas as "nuisance raids."

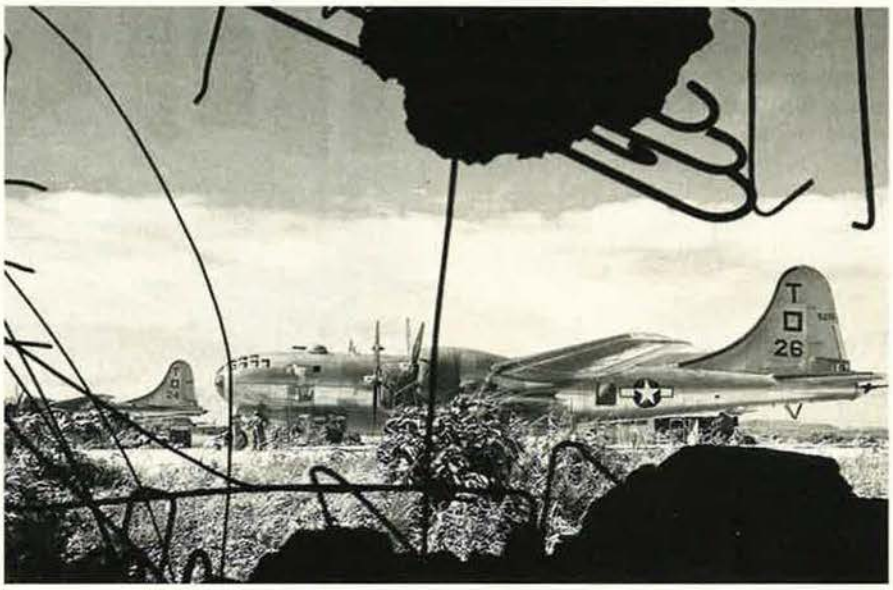
Before deploying the B-29s, Arnold moved to make sure that he had operational control over them. The official history of the Army Air Forces in World War II speculates that Arnold wanted to command Twentieth because he had not previously commanded combat units. In his memoirs, Arnold said that he was

Gen. Hap Arnold, Commanding General of the Army Air Forces, and Gen. George Kenney, commander of Allied Air Forces in the Southwest Pacific, sparred over initial use of the B-29. Arnold's plan to strike Japan's home islands prevailed.

reluctant to make this decision, but a lack of unity of command in the Pacific forced him to command the B-29 force himself.

As was the case in the European Theater, long-range bombing operations raised unique organizational and command and control problems. Arnold did not want the B-29s under the control of theater commanders—Gen. Douglas MacArthur (Kenney's boss), Adm. Chester W. Nimitz, or Gen. Joseph W. Stilwell—who would employ them as they saw fit.

Gen. Curtis E. LeMay, who commanded the B-29 force in the Pacific Theater, explained Arnold's decision this way: "Arnold did this so we would have a command in the Pacific where we were free to fly over anybody's theater, to do an overall job. Naturally, Admiral Nimitz wanted everything he could get his hands on; General MacArthur wanted everything he could get his hands on; and General Stilwell wasn't behindhand in wanting everything as well. And we were flying over all three of their theaters. We simply had to have central coordination on this deal."



Above, a B-29 on Saipan is framed by the wreckage of a Japanese blockhouse. The capture of the Marianas was critical to the American war effort, as it brought the B-29s within range of Japan.

The Control Issue

During 1943, Arnold and his Air Staff in Washington had weighed the advantages and disadvantages of organizing strategic air forces outside the control of a theater commander. Arnold saw more advantages than disadvantages. According to the official US Army history, the Air Staff developed a concept that was a "radical departure from the [existing] chain of command." Under the new concept, Arnold would command Twentieth as executive agent of the US Joint Chiefs of Staff.

In January 1944, a somewhat similar arrangement emerged with the creation of the US Strategic Air Forces (USSTAF) in Europe. It was commanded by Gen. Carl A. "Tooey" Spaatz, who directed Eighth Air Force's long-range bombing offensive from the United Kingdom and Fifteenth Air Force's strategic bombing strikes from Italy. The Combined Chiefs of Staff (CCS) exercised control over USSTAF through their executive agent, Air Chief Marshal Charles "Peter" Portal, Royal Air Force Chief of Air Staff.

The conflict in the Pacific, however, was primarily in the hands of the Americans, and Arnold wanted to retain US control over the long-range bomber force. The problem was how to convince Marshall and the Chief of Naval Operations, Adm. Ernest J. King.

Historically, unity of command over Army forces resided with a theater commander, who held operational authority within a geographic area. Fleet units of the US Navy ultimately were commanded by the Chief of Naval Operations, who was commander of the US fleet and who reported to the JCS.

Britain proposed that Twentieth Air Force—and, subsequently, a British bomber force—should report to the Combined Chiefs of Staff, as in the European Theater. The US Joint Chiefs opposed this concept, which Britain quickly dropped. Marshall and King, according to Hansell, had been persuaded that the B-29 campaign required unity of command from Washington—free from the control of theater commanders. Marshall accepted Arnold's position almost immediately, but why King acceded so readily remains unclear.

On April 4, 1944, the Joint Chiefs activated Twentieth Air Force. The War Department directive to Arnold authorized him "to implement and execute major decisions of the Joint Chiefs of Staff relative to deployment and missions, including objectives of the Twentieth Air Force." The unprecedented command arrangement had the effect of placing the Army Air Forces on an equal footing with the Army and Navy in the Pacific.

The new organization reflected Arnold's strategic concept: The great range of the air arm makes it possible to strike far from the battlefield and attack the sources of enemy military power. The AAF commander wanted to demonstrate the independent power of the air arm. The importance of airpower's role in the war already had been reflected in Arnold's position on the JCS and the CCS. "The Army Air Forces," he noted in a memo, "are being directly controlled by the Joint Chiefs of Staff and the Combined Chiefs of Staff more and more each day. Consequently, AAF representation in the joint and combined planning staffs has become a position of paramount importance to me."

In addition to naming Arnold to head Twentieth, the Joint Chiefs also directed theater commanders to "coordinate B-29 operations with other air operations in their theaters, to construct and defend B-29 bases, and to provide logistical support and common administrative control of B-29 forces." The Chiefs said that, "should strategic or tactical emergencies arise requiring the use of B-29 forces for purposes other than the missions assigned to them by the Joint Chiefs, theater commanders are authorized to use the B-29 forces, immediately informing the Joint Chiefs of such action."

Acting upon decisions made at the

Cairo conference, Arnold in November 1943 had established XX Bomber Command to oversee B-29 training in the US. He placed Wolfe in command. In December 1943, advance AAF personnel arrived in India to oversee construction of airfields in India and China. By April 1944, there were eight fields ready to receive the B-29s.

Striking Japan

Arnold designated XX Bomber Command to be an operational unit under Twentieth Air Force, and Wolfe led the unit to India. Under the plan known as Operation Matterhorn, Wolfe, on June 5, 1944, began B-29 operations against Japanese railroad facilities in Thailand. The first direct strike on Japan's home islands came on June 15, when B-29s struck the Imperial Iron and Steel Works on Kyushu. Of the 68 bombers in the strike force, only 47 bombed the primary target. Ten had mechanical problems, four crashed, and seven bombed secondary targets.

The operation suffered from maintenance and logistical problems, which delayed the next strike by almost a month—by which time, Arnold had decided to replace Wolfe with LeMay, who had led Eighth Air Force's 305th Bomb Group, and achieved success testing new concepts and tactics. At the time, Arnold said, "With all due respect to Wolfe, ... LeMay's operations make Wolfe's very amateurish."

Pictured shortly before the peak of the 1945 bomber offensive against Japan are then-Maj. Gen. Curtis LeMay (left) and Brig. Gen. Roger Ramey. LeMay commanded XXI Bomber Command. Ramey later led XX Bomber Command.

LeMay improved XX Bomber Command's record, but the operation still suffered from supply difficulties. Supplies had to "fly the Hump"—they had to come in over the Himalayas, the world's highest mountain range. Distance from China to targets in Japan proved a major obstacle, too. Tokyo was more than 2,000 miles from the B-29 staging bases in China. That exceeded the range of the bombers.

Arnold never expected to deal Japan a crushing blow using bases in China. In October 1944, XXI Bomber Command (a second subunit of the Twentieth activated in August 1944) was getting set up in the newly captured Mariana Islands, which lay 1,500 miles from Tokyo. Use of the Marianas not only put most of Japan within the B-29's striking range but also made it possible to supply and sustain hundreds of B-29s at once.

Arnold named Hansell commander of XXI Bomber Command. On Nov. 24, Hansell launched his first strike against the home islands.

Dubbed San Antonio I, the mission sent 111 B-29s, led by Brig. Gen. Emmett O'Donnell Jr., to bomb an aircraft engine plant on the outskirts of Tokyo. Flying in bad weather, only 24 B-29s struck the plant. Bombs from 64 others fell on docks and urban areas. Some 125 Japanese fighters managed to down one B-29.

Though the bombing results were not particularly good, the psychological impact was significant.

Between October 1944 and January 1945, the Superforts struck Japan's aircraft engine, component, and assembly plants. However, bad weather and mechanical difficulties continued to limit their success. Arnold, under enormous pressure in Washington and determined to show results with the B-29 force, once again called on LeMay. In January 1945, LeMay replaced Hansell, who had been LeMay's commander in England.

In Arnold's mind, he was racing against time. The Joint Chiefs had acceded to his desire to command the very long-range force from Wash-

Heavy B-29 attacks devastated Japan even before the atomic bombs were dropped. Here, Superfortresses unload fire bombs on Yokohama in May 1945.

ington. Roosevelt and Marshall expected significant results. Arnold realized that, if B-29 operations failed to accomplish something decisive, Allied forces would have to launch a ground invasion of Japan.

LeMay Changes Tactics

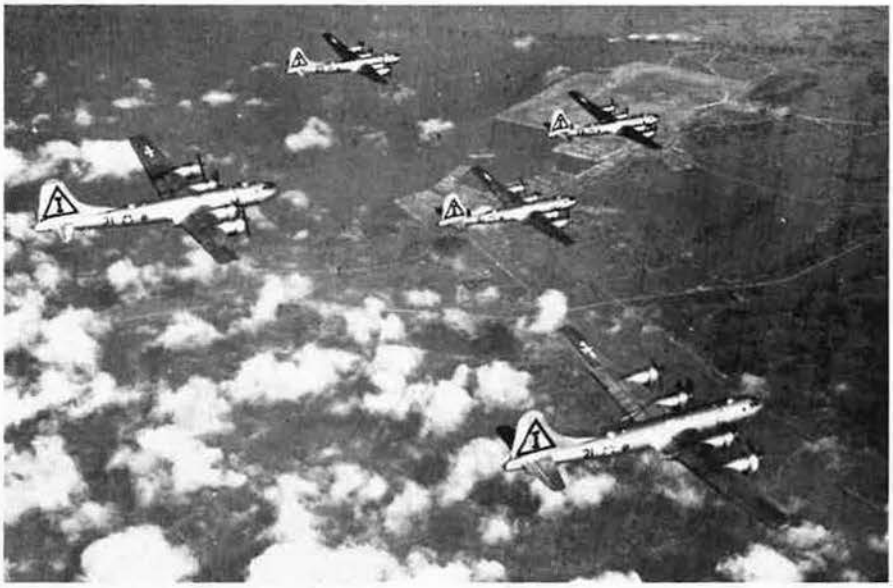
LeMay had Arnold's confidence, but he realized he was on the spot. "The turkey was around my neck," he recalled. "We were still going in too high, still running into those big jet-stream winds upstairs. Weather was almost always bad." LeMay figured he had only five or six good bombing days per month. Brig. Gen. Lauris Norstad, who had replaced Hansell as Twentieth Air Force chief of staff, informed LeMay that Arnold wanted an incendiary campaign. Time was running out.

In his memoirs, LeMay wrote that Arnold, "fully committed to the B-29 program all along, had crawled out on a dozen limbs about a thousand times, in order to achieve physical resources and sufficient funds to build those airplanes and get them into combat. ... So he finds they're not doing too well. ... General Arnold was absolutely determined to get results out of this weapons system."

LeMay, after discussions with his wing commanders, decided to scrap high-altitude daylight bombing missions and shift to low-level night incendiary attacks, as advocated by Arnold and Norstad. LeMay's XXI Bomber Command would launch a maximum effort in preparation for the Allied assault on Okinawa.

On the night of March 9-10, 1945, LeMay sent 334 B-29s to strike Tokyo. They dropped 2,000 tons of bombs—perhaps the most destructive raid in history, to that point—and burned out a significant portion of the city. The raid resulted in more than 80,000 deaths and left one million homeless.

Air planners had for some time emphasized the vulnerability of Japan's cities to fire. Moreover, they considered urban areas important military targets as they contained heavy, dispersed industries that were a major part of the war economy.



Five Twentieth Air Force B-29s fly over the coast of Japan. In the late stages of the Pacific campaign, raids by up to 800 bombers helped bring Japan's military and industrial capabilities to a standstill.

Thus began five months of strategic bombing that decimated Japan's urban areas. In July 1945, Arnold transferred the headquarters for Twentieth Air Force from Washington to Guam. Spaatz took command of the US Army Strategic Air Forces in the Pacific, which encompassed the Twentieth. However, strategic control of the B-29s remained with Arnold and the Joint Chiefs. The campaign culminated in August 1945 with the atomic bombings of Hiroshima and Nagasaki, which ended the war in the Pacific.

It would be difficult to overestimate the importance of Twentieth Air Force. In June 1945, Marshall had advised President Truman: "Airpower alone was not sufficient to put the Japanese out of the war. It was unable alone to put the Germans out." In June, Truman directed that planning proceed for a two-stage invasion of Japan—the invasion of Kyushu in November 1945 (Operation Olympic) and an invasion of Honshu in March 1946 (Operation Coronet).

Truman, however, was gravely concerned about the potential loss of American lives. He wanted to prevent "an Okinawa from one end of Japan to the other." Thus, he ordered employment of the atomic bomb.

After the war, Arnold emphasized that Japan surrendered "because air attacks, both actual and potential, had made possible the destruction of their capability and will for further resistance." These air attacks, he continued, "had as a primary objective the defeat of Japan without invasion." Arnold did not believe that the atomic bombs, by themselves, brought about the defeat of Japan but were only one factor in Japan's decision to surrender. The atomic bomb, Arnold said, allowed the emperor "a way out to save face." Arnold's view is, to say the least, debatable.

The B-29 campaign in the Pacific fulfilled President Roosevelt's directive to Marshall and the Joint Chiefs to end the war as quickly as possible with the least loss of American lives. Placing control of Twentieth Air Force under Arnold was central to that achievement.

The official US Army history of World War II stated that the command arrangement in the Pacific helped US leaders arrive "at a clear-cut definition of the functions and status of the Air Forces in relation to both the Navy and the rest of the Army."

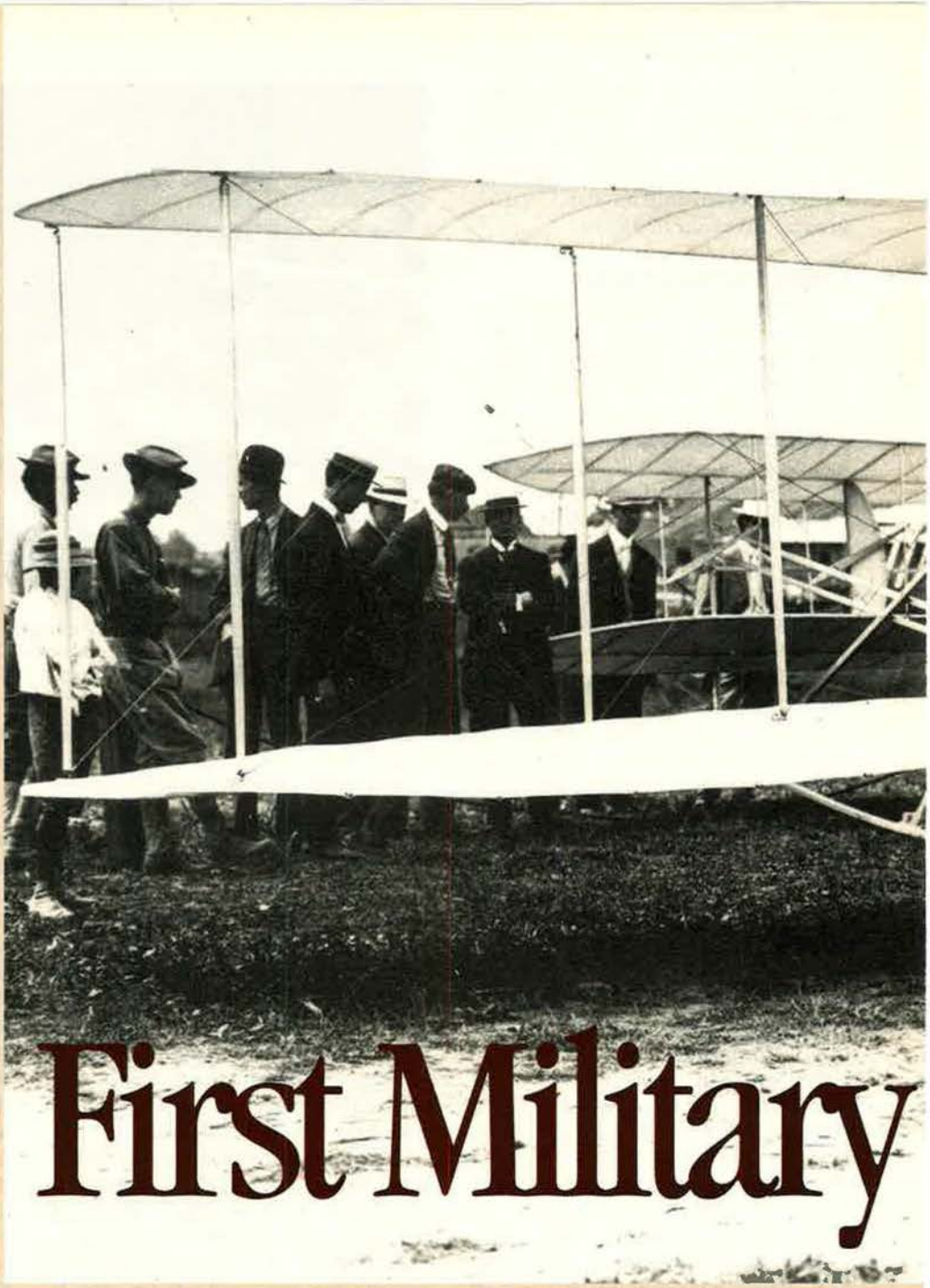
The experience of Twentieth Air Force in World War II proved to be a landmark in demonstrating the independent use of airpower. It made the case for the postwar establishment of the United States Air Force. ■

Herman S. Wolk is senior historian in the Air Force Historical Research Agency's Washington, D.C., operating location. He is the author of The Struggle for Air Force Independence, 1943–1947 *(1997) and* Fulcrum of Power *(2003). His most recent article for* Air Force *Magazine, "The 'New Look,' " appeared in the August 2003 issue.*

Getting the US Army to buy a Wright Flyer was much harder than you might think.

By Rebecca Grant

The First Military



Sept. 3, 1908: Orville Wright is about to begin a series of demonstration flights for the US Army at Ft. Myer, Va. The Flyer would go steadily higher and faster, shattering records.

WILBUR and Orville Wright decided within days of their Dec. 17, 1903, success at Kitty Hawk, N.C., that they could no longer approach the problem of flight as a hobby. To progress, they had to devote time and money to building new machines. The Wrights decided to take the risk and regard flying not only as a passion but also as a strict business proposition, at least until they had recouped their investment.

It was a long wait. Not until 1909 did they find a buyer for a Wright airplane.

Airplane

In the two years after their world-changing flight, the brothers dedicated themselves to making much-needed improvements in their flying machines. In 1904, they began flying at Huffman Prairie, near their home of Dayton, Ohio, with a new aircraft replacing the one wrecked by a wind gust at Kitty Hawk. They were still paying for their flying efforts out of their own pockets, so they were tempted to go after cash prizes such as the $150,000 offered at the 1904 St. Louis World's Fair for the exhibition of an aircraft in flight. They might have succeeded in such exhibitions, but the Wrights could not bring themselves to perform for thrill-seeking crowds. Neither did they want to risk damage to their machine.

They decided to stay in Dayton and develop a robust flying machine that would give them the lead over all others for several more years. They filed for European patents and, in the spring of 1904, built a second Flyer. On Sept. 20, 1904, Wilbur flew it in a controlled, full circle for the first time.

Within a month, a potential customer turned up. Lt. Col. John E. Capper of the British Army arrived in Dayton to meet the Wrights. The publicity-shy brothers nevertheless showed Capper photographs of their 1904 Flyer making its steady, successful flights. Capper advised them to make London a proposal.

However, the Wrights first wanted to offer their aircraft to the US military. In January 1905, they enlisted Congressman Robert M. Nevin to help them make such an offer to Washington. (See "The Paper Trail: 'Lands Without Being Wrecked,' " September 2002, p. 101.)

Rejection

In Nevin's absence, his staff mistakenly sent the letter, without a cover note, to the US Army Board

of Ordnance and Fortification. The Army was in no mood to give self-proclaimed airplane inventors a warm reception. The War Department had already spent $50,000 on the failed powered airplane experiments of Samuel P. Langley, the head of the Smithsonian Institution in Washington, D.C., and Congress was inquiring into the 1903 crash of Langley's airplane. The Wrights' offer drew, on Jan. 24, 1905, an insulting form-letter rejection from the board: "The board has found it necessary to decline to make allotments for the experimental development of devices for mechanical flight. ... It appears ... their machine has not yet been brought to the stage of practical operation."

The board either had not read or had misunderstood their letter, which proclaimed that they had flown and were ready to turn over an aircraft suitable for war. The Wrights tried again to interest the US government, writing directly in October 1905 to Secretary of War William H. Taft. It would be 1907 before the US military showed any interest, however.

Meanwhile, the Wrights had offered their airplane to Great Britain. They described the Flyer as an airplane that could carry two men and fly at 30 miles per hour. Their pitch was clear. They said that any nation purchasing the Wright machine, with accompanying technical information and instruction, would be years ahead of any other government.

The Wrights' 1905 Flyer was the first of the brothers' aircraft capable of performing steady endurance flights. From the moment they completed it in late May, they knew they had a winner. Flights over the summer proved it. On Sept. 26, 1905, Orville spent 18 minutes in the air and ran the gas tank dry for the first time. Soon they flew more than half an hour at a time. The 1905 Flyer solved problems of power and control and enabled the brothers to make easy, controlled circles around Huffman Prairie as long as they wished.

Going Overseas

In 1905, they began a complicated series of negotiations with governments in Britain, France, Germany, and Russia, as well as various private business consortia. The brothers traveled to Europe and spent more time dealing than flying. Would-be aviators in Europe and the US kept experimenting, but, as Wilbur figured, the brothers had a five-year lead over everyone else. For the time being, they could afford to wait.

No government, though, was willing to pay $100,000 or more for an airplane they'd never seen fly. In turn, the Wrights did not want to demonstrate their aircraft and reveal its secrets until they had a signed contract.

Wilbur and Orville had exclusive rights to the invention of the century, but they could not sell it. The impasse continued. Octave Chanute, a friend and mentor, told them in late 1907 that it appeared government officials in Europe wanted to stall until Wright competitors could catch up, driving the price down.

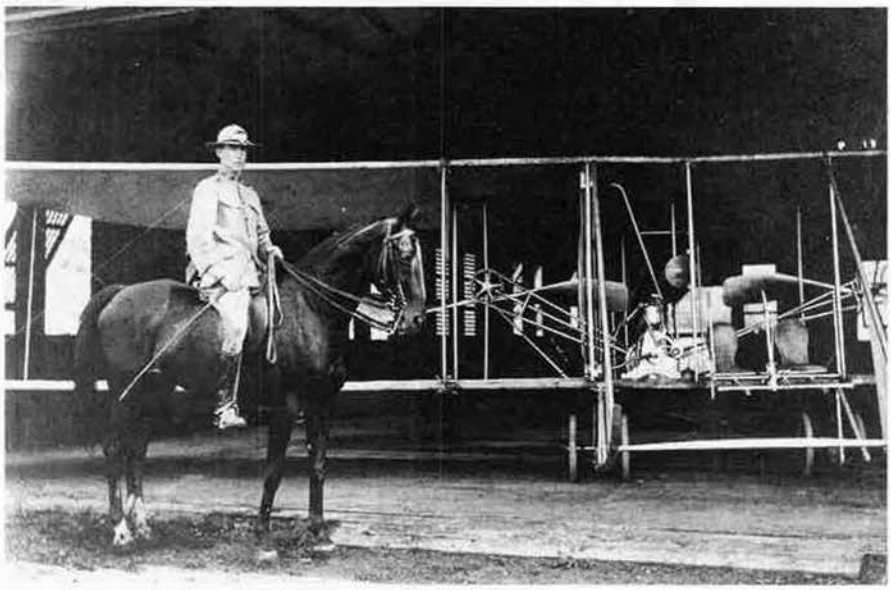
The breakthrough marketing boost came in a time-honored way—through personal connections. Wilbur met the head of the Aero Club of America on one of his visits to New York to pursue European business. The club president asked his brother-in-law, Congressman Herbert Parsons, to look into the US Army's rejection of the Wright offer. Parsons sent a package about the Wrights straight to President Theodore Roosevelt. With Roosevelt's direct endorsement, the Army soon asked the Wrights to submit a bid price for their airplane.

Orville's answer caused sticker shock. The price was $100,000, and with European deals pending, there was no guarantee of exclusive rights for the Army. The brothers' European negotiations ranged from $100,000 to $500,000, and they had never wanted to give up all rights to their invention.

It looked like there would be no deal. Wilbur wrote his father en route home from England that they would probably spend the winter working on more machines and, by spring, might have to announce a reduction sale.

Time was running out. French aeronauts such as Henri Farman and Ferdinand L. Delagrange had made short flights near Paris in their own airplanes. While the Wright brothers knew they were still far ahead of the competition, the chance to get their American-made Flyer into the hands of the US government would not last indefinitely.

It took a young US Army officer to help break the deadlock. Lt. Frank P. Lahm had been at cavalry school in France and was returning home to a job in the new aeronautics section of the Army's Signal Corps. Lahm's boss was Brig. Gen. James Allen, who was the Chief Signal Officer and the man with final authority on procuring balloons and the like. Lahm could not bear to see the Army pass up the opportunity to acquire the Wright Flyer. In a letter to Allen, Lahm expressed his dismay that the US Army might not be the first to acquire this American invention, with its obvious military value.



Cavalry officer Lt. Frank Lahm wrote to the head of the Signal Corps, insisting the Flyer had strong military potential. Pressure from President Theodore Roosevelt forced the Army to revisit its initial rejection of the Wrights.

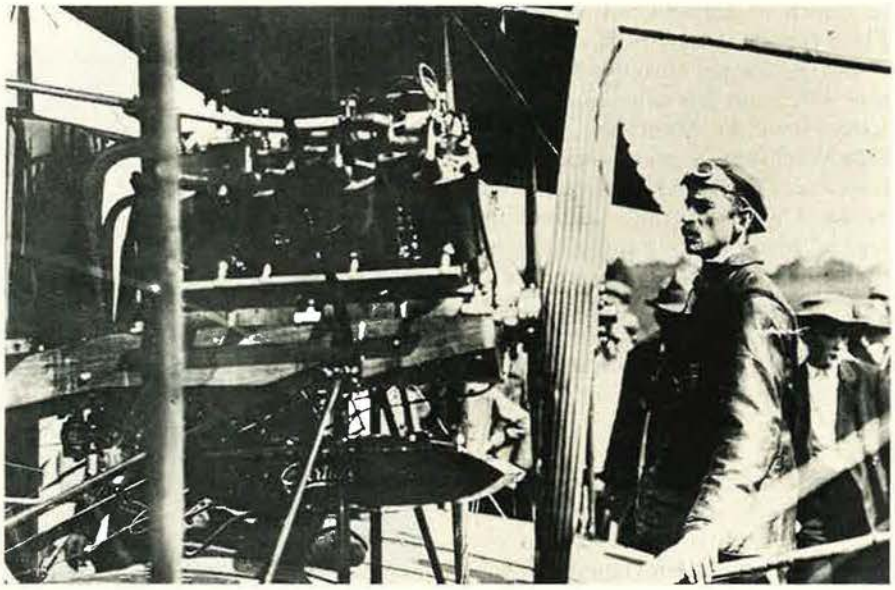
Allen was a skeptic who believed dirigibles fulfilled the Army's current requirements for dominance of the air. Air Force Historian Robert F. Futrell quoted an October 1907 letter Allen sent to the board. In it Allen said a "high-speed aeroplane" was hardly suitable for dropping explosives on the enemy because "even after considerable practice, it is not thought a projectile could be dropped nearer than half a mile from the target."

The Army Reconsiders

However, Lahm's letter—and Roosevelt's pressure—worked. On Oct. 5, 1907, the Army wrote again to Orville. Years of patent filings and fruitless international wheeling and dealing with kings and tycoons had taken their toll. Orville responded to the board that he and Wilbur were more concerned about receiving fair treatment than a high price for their first machine. They reasoned that, if their patent held, they would be in a good position to gain revenues from aircraft manufacturing. The key was to get the initial sale, and, in their hearts, the brothers wanted to make that sale where they'd first offered it: to the US government. All their offers to European governments had contained a proviso waiving any restriction on the Wrights' ability to furnish machines to the US government.

The gap finally closed when Wilbur met with Army officials in late November and early December 1907. He suggested a price of $25,000 and outlined for the board what a Wright Flyer could do. Yet his tin ear for business almost ruined the deal. Wilbur came away from the 1907 meetings convinced the Army officials were just being courteous to him.

Wilbur was wrong. The Army board was truly impressed with his presentation. They moved fast to tap a fund left over from the Spanish–American War, and, on Dec. 23, the Signal Corps issued its "Advertisement and Specification for a Heavier-Than-Air Flying Machine."(See "The Paper Trail: No Extra Charge 'for Training,' " October 2002, p. 67.) The Army took Wilbur at his word and wrote the specification to stipulate that the aircraft would complete a trial endurance flight of at least one hour, speed of at least 40 mph, and carry two persons weighing a total of 350 pounds.



The Wrights faced competition from Glenn Curtiss (above), whom they sued for patent infringement, and others. The Wrights demonstrated their Flyer in France but wanted America to be the first with a military airplane.

When the requirements hit the press, skeptics suspected the Signal Corps had lost its senses. "Nothing in any way approaching such a machine has even been constructed," objected the *New York Globe*.

All this furor was due to the fact that the Wrights had not given public demonstrations. The world at large had never seen aviators perform to the standards now being demanded by the Signal Corps. Meanwhile, others besides the Wrights did have flyable aircraft. The Frenchmen Delagrange, Farman, and Louis Bleriot were winning prizes for short flights. Up in Cape Breton, Nova Scotia, a team led by Alexander Graham Bell was trying to progress from kites to gliders to airplanes, with the help of enthusiastic Army Lt. Thomas E. Selfridge and enterprising motorcyclist Glenn H. Curtiss.

Only Wilbur and Orville knew that the capabilities of their rivals paled before those of the Wright Flyer.

The Army solicitation attracted more than 40 responses by the February 1908 deadline. Most were from quacks, but one credible bidder underbid the Wrights' price of $25,000 by offering a machine for $20,000. The rival bid was not a technical threat, for no one had ever seen this bidder with an airplane. The brothers were confident because the details of the Army's one-page solicitation were tailored to what they had already demonstrated in late 1904 and 1905.

The French Sign Up

In late March 1908, meanwhile, the Wrights also signed an agreement with a French syndicate. Wilbur had spent much of 1907 setting up a base camp for the Flyer in France, and now the brothers were committed to fly in France in 1908. Ultimately, they agreed that Wilbur would go back to Europe, while Orville handled the US Army deal.

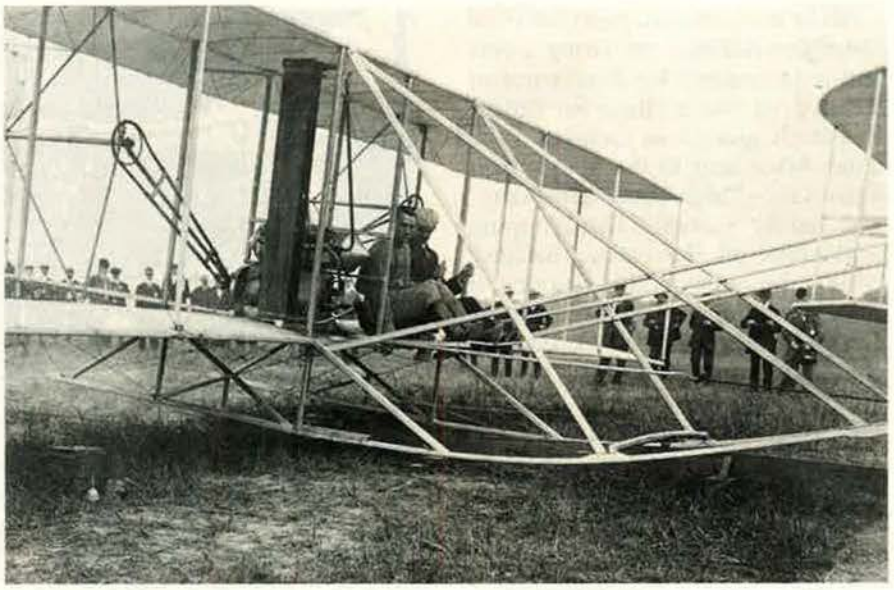
First, the brothers had to go back to their testing ground at Kitty Hawk for flight practice before undertaking the official trials at Washington and in France. Their Flyer included new innovations of upright seating, room for a passenger, and hand-lever controls. All this and more had to be tested before they went public. Kitty Hawk's remote endless sands served them well once again.

After weeks of preparation, they began flying in early May. The new controls were difficult for them. One day's flying left them too sore to take the machine out the next day. However, Kitty Hawk again worked its magic, and soon they were flying circuits around the dunes as easily as they had at Huffman Prairie. Then, just when they started to log long flights, Wilbur mishandled the new levers and crashed. There was no time left to make repairs and fly again. Wilbur departed immediately for France, while Orville packed up

to return to Dayton and prepare a Flyer for the Army trials.

Orville swung through Washington, D.C., on his way home from Kitty Hawk. Ft. Myer, Va., just outside Washington, was home to balloon sheds for the Army's other aeronautical activities and seemed the logical place to try out the heavier-than-air machine. To Orville's dismay, he found the Ft. Myer parade ground to be difficult terrain and much smaller than Wilbur had reported. He realized he would have to make some tests at the site fairly soon.

The summer of 1908 was to bring the Wright brothers aeronautical success and international fame far beyond their 1903 achievements. It was also a challenging time for them. Unlike 1903, they were working and flying separately—an ocean between them. Wilbur labored to uncrate a Flyer shipped to Le Mans, France, and get it into working order. He suffered severe steam burns from an engine in July and worked the rest of the summer with fist-sized blisters on his arms. Orville had no less a challenge preparing a machine for the Army demonstration. Around them, the world remained skeptical and much entranced with the doings of the Bell group and others such as Bleriot, who logged an eight-minute flight in his monoplane in July 1908.



Orville Wright and Lt. Thomas Selfridge prepare for a demonstration of the Flyer's ability to carry a passenger. Their Sept. 17, 1908, flight ended in disaster. In the crash, Selfridge died and Wright was seriously injured.

Even though Orville survived the crash (shown here), his injuries would plague him the rest of his life. Selfridge is remembered as the first casualty of American military aviation.

Patent infringements were becoming a constant worry since the Wrights had yet to earn a dime from flying. For the first time, the brothers actively set out to get the public on their side. Orville penned an article for a popular magazine, telling the story of Kitty Hawk and the brothers' long fascination with flight. The article was published just before the Army trials in September.

What carried the day for them, however, was the astonishing superiority of their flights. Wilbur went first. By early August 1908, his Flyer was ready, his burns were healing, and the weather at Le Mans was fair. Wilbur wrote to Orville afterward that he thought he should do something more than just a level flight. The crowd at Le Mans included knowledgeable aeronauts who by then were used to seeing airplanes with wheels take off and make wide, skidding turns. They scoffed at the Wrights' rail launch system.

Wilbur awed them with a two-minute flight on the evening of Aug. 8, 1908. The Flyer leapt into the air and headed straight for a grove of trees. Then, with perfect ease, Wilbur executed the first tight, controlled banking turns the world had ever seen. "It had taken only two circuits of a provincial racecourse to convince the members of the French Aero Club," wrote historian Fred Howard in his book *Wilbur and Orville: A Biography of the Wright Brothers*. According to Howard, one spectator at the French demonstration said, "We are as children compared to the Wrights." He also quoted Bleriot, who declared that "a new era in mechanical flight has commenced."

Wilbur was gratified and amused at the gasps of the French aviators. Over the next several days, he continued to amaze France and the world with figure eights and flights at 75 feet and above, far higher than anything ever seen. The ease, control, and consistency of the Wright Flyer put it head and shoulders above any other aircraft. Only Wilbur and the

Flyer could turn tight. Endurance and altitude records were his for the taking.

The Army Trials

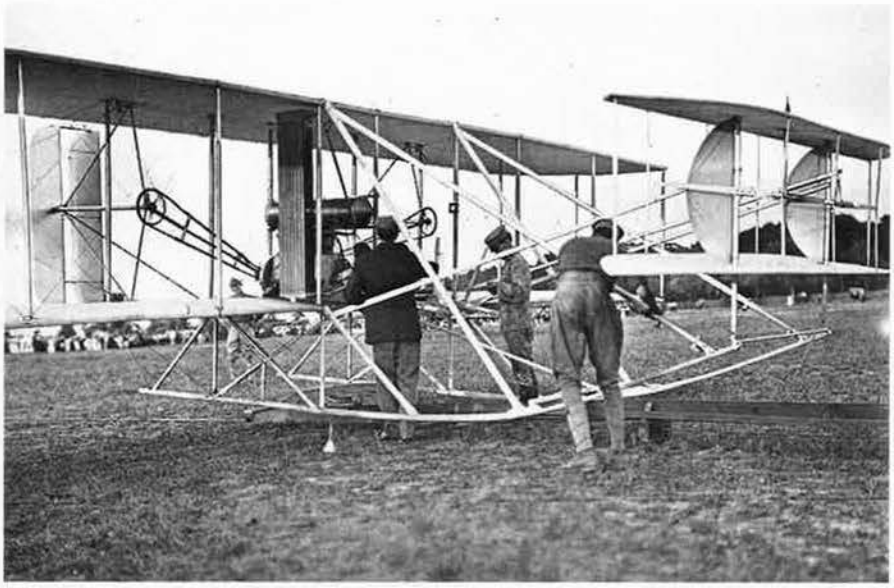
The terms of the Signal Corps solicitation called for several test events culminating in cross-country passenger flights. Orville first tested his Flyer on the tight parade ground circuit with short flights, then set out to fulfill the hour-long endurance requirements. Orville had the advantage of quality help from young Signal Corps officers. His personal favorite was Lt. Benjamin D. Foulois, whose slight build—he weighed only 130 pounds—was a real asset in a passenger.

However, Foulois was a heavyweight in terms of vision and one of the first to picture air campaigns. His 1907 thesis at Army Command and General Staff College had discussed future operations where opposing air fleets would operate ahead of ground forces. For the young officers assisting Orville, the demonstration of the Flyer was opening a world of technical and tactical marvels.

On Sept. 3, 1908, Orville took to the air for a little over a minute for the first Army demonstration flight. The series of short flights went exactly as Orville planned. Yet, the news from France, just three days later, featured French aviator Delagrange who had made a half-hour flight on a straight course at Issy.

The race that provided aviation's most stunning moments, though, was between Wilbur in France and Orville at Ft. Myer. On Sept. 10, Wilbur flew 22 minutes and set a new European altitude record at 120 feet. Hours later, at Ft. Myer, Orville took off for a one hour and six minute flight and shattered all known endurance records. He set a new altitude record of 200 feet. By the end of the week, Orville was flying well over an hour and up to 310 feet. Crowds flocked to Ft. Myer to watch the spectacle.

On both sides of the Atlantic, the Wright brothers proved their dominance. It was a time of great satisfaction for them. By the end of September, Wilbur was flying up to 90 minutes at a time. He reveled in Orville's success and acclaim in America, telling his brother in one letter how Orville had supplanted him in the eyes of the French press.



The Army was undaunted by the 1908 crash and immediately extended the trial to give the Wrights time to revise their design. Above, Orville and Army personnel check out the Flyer in 1909. On Aug. 2, 1909, the Army accepted its first airplane.

The next step in the Army tests was for Orville to carry passengers. He took off on Sept. 17, 1908, with 175-pound Selfridge beside him. After takeoff and several circuits around the field, Orville was beginning a turn when a tapping noise alarmed him. An instant later, a propeller split, throwing a section into the wire controlling the rudder and cutting Orville's controls. The Flyer crashed in a cloud of dust.

Orville and Selfridge were pulled from the wreckage, bleeding. Selfridge was unconscious and was rushed to surgery, but died within hours, the first to die in an airplane accident. Orville's injuries were not life threatening, but they were life changing. He broke his leg and several ribs, sustained head wounds, and damaged a sciatic nerve. For the rest of his life, Orville was plagued by the aftereffects of the injuries.

The crash had little effect on the customer. The Army's reaction was a testament to Orville's success so far. The board did not hesitate to extend the trial for a year to give the Wrights time to fulfill the two remaining test requirements.

The Wright brothers' discoveries, as laid out in patents and the demonstrations of 1908, were absorbed by the early aviation community. Other aviators were now able to make breakthroughs on their own. On July 25, 1909, Bleriot flew across the English Channel. In August, the Wrights reluctantly began a patent suit against fellow aviator Glenn Curtiss that would consume their attention for years.

However, during one golden week in the summer of 1909, the Wrights put the final touches on their contribution to the history of aviation. On July 27, Orville and Lahm flew 79 circles around the Ft. Myer parade ground and logged more than one hour in flight. On July 30, Orville tackled the last remaining test. He took Foulois up as his navigator and completed a cross-country flight to Alexandria, Va., and back, some 10 miles over ravines and streams.

The Signal Corps calculated the official speed of the flight at 42 miles per hour—earning the Wrights a $5,000 bonus over the $25,000 base price. The Army accepted the Flyer on Aug. 2, 1909, and America had its first military aircraft. ■

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

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By Frances McKenney, Assistant Managing Editor

The 20th Anniversary Gala

It was a Platinum Anniversary—the 20th annual Air Force Gala, sponsored by the **Central Florida Chapter** and the Air Force Association's Aerospace Education Foundation.

The "anniversary gifts" were generous, too: among them, $45,000 for AEF, presented to foundation officials L. Boyd Anderson and Mary Anne Thompson, and $10,000 for the Air Force Memorial Foundation, accepted by its president, Edward F. Grillo Jr.

John Timothy Brock, head of the Central Florida Chapter and master of ceremonies for the evening, told the audience that they were celebrating not only two decades of support for AEF but also a "first goal" of raising $500,000 for the foundation in those 20 years.

The Air Force Gala served as the culminating event for AFA's annual two-day Air Warfare Symposium in Orlando, Fla. The February black-tie banquet featured VIP guests such as AFA Board Chairman John J. Politi and AFA National President Stephen P. "Pat" Condon. There were awards presentations and musical entertainment—but, as gala chairman Tommy G. Harrison pointed out, "No speeches."

This year's gala turned a spotlight on the Air Force's space programs, technology, and personnel. To represent these elements, six new AEF Schriever Fellows were announced, with USAF Chief of Staff Gen. John P. Jumper helping in the presentations. Lt. Col. Todd M. Freece of the 50th Space Wing, Schriever AFB, Colo., received recognition as an Operation Iraqi Freedom space weapons controller. Capt. Arnold G. Werschky of the 2nd Space Operations Squadron at Schriever and Capt. Philip J. Mendicki of the 9th SOS (AFRC) received honors for having increased the accuracy of the Global Positioning System in Southwest Asia.

The other three honored as Schriever Fellows were: Lockheed Martin for the Defense Satellite Communications System, accepted by Leonard F. Kwiatkowski, vice president for Military Space Programs; Boeing for the Inertial Upper Stage, accepted by George K. Muellner, senior VP and general manager for Air Force Systems; and Northrop Grumman for the Defense Support Program, accepted by Craig Staresinich, VP and programs deputy at Northrop Grumman Space Technology.

At the Air Force Gala, chairman Tommy Harrison (left) and Central Florida Chapter President Tim Brock (far right) join Chief of Staff Gen. John Jumper in honoring Capts. Philip Mendicki (second from left) and Arnold Werschky.

Gala Highlight

AEF recently established the H.H. Arnold Fellowship and honored one of its first recipients at the Florida gala.

The Arnold Fellow pays tribute to five-star Gen. of the Air Force Henry H. "Hap" Arnold, who took flying lessons from the Wright brothers, commanded the Army Air Forces in World War II, and helped establish USAF as an independent service. In the summer of 1945, Arnold began thinking about organizing AAF veterans to keep them connected and to serve as airpower advocates. The result was AFA.

The audience at the Air Force Gala remembered these accomplishments when a most tangible tie to Hap Arnold—his grandson Robert B. Arnold of Sonoma, Calif.—joined awards presenters on stage. They then named one of the newest Arnold Fellows: retired Lt. Gen. Forrest S. McCartney.

McCartney entered the regular Air Force in 1952 and seven years later was assigned to the Satellite Control Facility in Sunnyvale, Calif. He spent the next 28 years in space-related assignments, retiring in 1987 as commander of the Space Division at Los Angeles AFB, Calif.

Award of the Arnold Fellow recognized McCartney's leadership and support for Air Force service members in the space career fields, and its presentation was the highlight of the Platinum Anniversary Air Force Gala.

Making his Calendar

Posted as an event of note on the Web site calendar of Rep. Jeff Miller (R-Fla.) was the "Eglin AFA Dinner, Wednesday, Feb. 18."

It was worth listing. That evening, 150 **Eglin Chapter (Fla.)** members and leaders from the military and business communities turned out to hear the two-term Congressman at a "coat and tie business meeting" at Eglin Air Force Base's Enlisted Club.

Miller is a member of the House

Armed Services Committee and the House Committee on Veterans' Affairs. His Congressional district, covering Florida's northwest panhandle, encompasses several military installations, and his audience that evening included Lt. Gen. Paul V. Hester, commander of Air Force Special Operations Command at Hurlburt Field, and Maj. Gen. Robert W. Chedister, commander of Air Armament Center, the host unit at Eglin.

Miller spoke about military issues affecting his district, the important role of the area's veterans, and his support for Survivor Benefit Plan reform. (See "AFA In Action.")

Miller later joined Raymond Turczynski Jr., Florida Region president, in presenting chapter, state, and AFA national-level awards (as listed in the November 2003 issue). Among the recipients were three chapter members, named AEF Jimmy Doolittle Fellows: Sandy Wood; the late James F. Shambo; and retired CMSAF James C. Binnicker, who was the ninth Chief Master Sergeant of the Air Force (1986-90).

Noting that this was Miller's fourth consecutive year of addressing the group, Chapter President Douglas L. Hardin said the Congressman's chapter visit was becoming a tradition.

A Fair Judge

"What is the best thickness for a wing?"

The Wright brothers worked out the answer. So did 11-year-old Christopher Gardiner. He used that question as the title for his entry in the Pinellas County Regional Science and Engineering Fair, held in February in Pinellas Park, Fla.

Gardiner's project impressed Henry L. Marois Jr., former president of the **Gen. Nathan F. Twining Chapter (Fla.)** and a five-time judge at the fair, and he chose the sixth-grader as the chapter's Student of the Year.

Like Wilbur and Orville Wright more than a century ago, Gardiner used a wind tunnel to test his theories. "He thought the whole project out very, very well," said Marois. For example, Gardiner placed airfoil sections horizontally in the wind tunnel, to counteract gravity.

The middle-schooler thought a wider wing would work best, but a narrower one proved to have more lift because of the speed of air fed into the wind tunnel. Marois said this result, which contradicted Gardiner's expectations, actually helped his project stand out in the field of more than 300 entries from middle and high school students.

Along with choosing a student of the year from the science fair, the chapter selected Abby Madeiros as its Science Teacher of the Year. Madeiros teaches math and science at the same school Gardiner attends, Southside Fundamental Middle School in St. Petersburg.

Air Force Ball in Colorado

The **Lance P. Sijan Chapter** threw a party, and a thousand people showed up.

It was *the* Air Force social event in town, said George T. Cavalli, chapter secretary. He was describing the 2004 Air Force Ball, held in January at the "five-star, five-diamond" Broadmoor Hotel in Colorado Springs, Colo. Cavalli served as chairman of the ball, along with Lt. Col. Dan Beatty from the co-host organization, Air Force Space Command, Peterson AFB, Colo.

The evening was dedicated to "Those Who Serve," and the US Air Force Academy Cadet Chorale illustrated this theme through a program of patriotic songs. As the 47 cadets sang their medley, a slide and video show, compiled by AFSPC's Communications Support Squadron, projected above them. Cavalli said the program "emphasized the value of all ranks and force components."

So did the guest list. Among the 1,120 attendees were Gen. Lance W. Lord, AFSPC commander; Lt. Gen. John W. Rosa Jr., the academy superintendent; and Rear Adm. Daniel H. Stone, who represented North American Aerospace Defense Command as well as US Northern Command.

The VIP roster included many of the top enlisted personnel in the Colorado Springs area: CMSgt. Ronald G. Kriete,

AFA In Action

The Air Force Association works closely with lawmakers on Capitol Hill, bringing to their attention issues of importance to the Air Force and its people.

■ When Rep. **Jeff Miller (R-Fla.)** held a Capitol Hill press conference Feb. 4, AFA Executive Director Donald L. Peterson was among those taking part. Miller announced that he was introducing H.R. 3763, the Military Survivor Benefits Improvement Act of 2004. The bill is Miller's latest attempt to change a provision in the Survivor Benefit Plan (SBP) that lowers the annuity surviving spouses receive when they turn 62. (See "Action in Congress: Affordable SBP Reform," p. 22.)

Miller and his staff collected more than 260 co-sponsors for the bill. Joining him at the press conference were several of them: **F. Allen Boyd (D-Fla.), Michael Burgess (R-Tex.), Ken Calvert (R-Calif.), Bob Filner (D-Calif.), Robin Hayes (R-N.C.), Sheila Jackson Lee (D-Tex.), Walter Jones (R-N.C.),** and **Joe Wilson (R-S.C.).**

In remarks at the press conference, Peterson said the need for SBP reform has lagged for years, and Congress now has a great opportunity to enact the bill because of strong bipartisan support. He called on the military associations to energize their grassroots membership to increase the number of co-sponsors for the bill.

■ AFA Executive Director Peterson and Ken Goss, AFA director of government relations, attended a meeting in February between **Rep. Steny Hoyer (D-Md.),** the House minority whip, and several military association representatives. The group discussed SBP reform; increasing military end strength; keeping benefits for Guardsmen and Reservists commensurate with their increasing responsibilities and mobilizations; age 55 retirement for reservists; and the need for an equipment strategy for the reserves. Hoyer voiced strong support for these initiatives and encouraged the associations to keep in contact with him and his legislative director, **Geoff Plague.**

The meeting with Hoyer was a follow-on to an earlier one, which Peterson and Goss also attended, sponsored by the Democratic Steering and Coordination Committee. **Sen. Hillary Rodham Clinton (D-N.Y.)** is chairman of the committee.

■ Members of AFA's Government Relations staff met with **Simon Limage,** legislative assistant to **Rep. Ellen O. Tauscher (D-Calif.),** to discuss legislation Tauscher introduced in December to increase temporarily the minimum end strength level for the Air Force, Army, and Marine Corps. The bill calls for an increase in USAF end strength from 359,300 to 388,000. This level would remain in effect through Fiscal Year 2008.

The AFA staff members provided Limage with the association's 2004 Statement of Policy and Top Issues paper. They emphasized the sections that address the end strength issue.

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William H. Newton (2)
Gerald Paul (2)
Robert M. Paul (1)
John W. Pauly (4)
Earl G. Peck (4)
Donna Perry (1)
Robert W. Peterson (1)
Jimmy B. Pickens (4)
John J. Politi and Terri Politi (4)
Warren E. Reid (4)*
John P. Russell (4)*
Elvin O. Sales (2)
William Schulte (2)
Ray B. Sitton (2)*
William H. Stevens (4)
George N. Stokes Sr. (2)
Charles X. Suraci Jr. (4)
Dennis Ullrich (3)
Donald Wegner (4)
Robert G. Williams (2)
Mark J. Worrick and Marlene Worrick (4)
Stuart S. Wright (1)

AEF Corporate Partners...

Bronze Wings Club ($25,000+)
The Boeing Company

* Indicates previous AEF Life Members.
() Indicates years of consecutive giving in 21st Century Legacy of Flight Program.

AEF Education Partners...

Legacy Level ($75,000+)
Central Florida Chapter, AFA (3)

Gold Level ($10,000+)
General E.W. Rawlings Chapter, AFA (3)
LA Ball Committee (3)
Schriever Education Foundation (3)

Silver Level ($5,000+)
Eglin Chapter, AFA (3)
Iron Gate Chapter, AFA (3)
Langley Chapter, AFA (3)
Paul Revere Chapter, AFA (2)
Texas State AFA (2)
Utah State AFA (3)

Bronze Level ($1,000+)
Albuquerque Chapter, AFA (1)
Cape Canaveral Chapter, AFA (3)
Colorado State AFA (3)
Dale O. Smith Chapter, AFA (1)
Dallas Chapter, AFA (3)
Fort Worth Chapter, AFA (1)
Hawaii Chapter, AFA (1)
Hurlburt Chapter, AFA (3)
Lance P. Sijan Chapter, AFA (3)
Leigh Wade Chapter, AFA (1)
Lincoln Chapter, AFA (1)
Lloyd R. Levitt Jr. Chapter, AFA (2)
Long Island Chapter, AFA (1)
Nation's Capital Chapter, AFA (3)
Nevada State AFA (3)
Northeast Texas Chapter, AFA (1)
Pioneer Valley Chapter, AFA (2)
Richard I. Bong Chapter, AFA (3)
Swamp Fox Chapter, AFA (3)
Tennessee Ernie Ford Chapter, AFA (1)
Thomas B. McGuire Jr. Chapter, AFA (2)
Thunderbird Chapter, AFA (1)

The 21st Century Legacy of Flight

The Aerospace Education Foundation established the 21st Century Legacy of Flight Wings Club in 2000 to recognize sustained annual contributions made by individuals and in 2001 added Education and Corporate Partners to the program. These sustained giving programs help provide the funds necessary for AEF to maintain its educational outreach programs.

Names of Wings Club members at the Bronze Level and above and Education and Corporate Partners will be recorded permanently in the 21st Century Legacy of Flight Log Book.

To participate in the Legacy of Flight: e-mail AEF at aefstaff@aef.org; call our customer service representatives at 800-291-8480; visit our Web site at www.aef.org.

USAF photo by TSgt. Ken Bergmann

AFA National President Pat Condon (right) joins guests at the Lance Sijan Chapter's Air Force Ball: L–r, retired CMSgt. Charles Zimkas Jr., Rocky Mountain Region president, Amn. Basic Alexis Oehlman, and Amn. Katy Minton.

command chief master sergeant from AFSPC; CMSgt. Michael E. Eitnier and CMSgt. John E. Ensor, incoming and outgoing command chief master sergeants at the academy; and CMSgt. Stephen Grissett, 50th Space Wing's command chief master sergeant.

Some of the AFA leaders at the ball were AFA National President Condon; Charles P. Zimkas Jr., Rocky Mountain Region president; David Thomson, Colorado state president; and Gayle C. White, chapter president.

More than 60 corporate sponsors pitched in for the ball, allowing organizers to hold down the ticket price for junior enlisted personnel. Cavalli noted that one donor bought the front-row VIP table for 10 junior enlisted personnel.

Educator Grants

AEF recently announced that, as of January, it had awarded more than 130 Educator Grants for 2004. The grants provide up to $250 per academic year to elementary and secondary classrooms to pay for aerospace education activities when no other support is available.

The **Carl Vinson Memorial Chapter (Ga.)** noted that one of the grants went to local high school teacher Kathy Casey. She teaches biology at Warner Robins High School and received an Educator Grant to fund a classroom project called "Biology and Flight Technology: Hot Wings and Hot Wings."

The first Hot Wings refers to the project's biology component, in which Casey's students will learn about bird flight and, during a lab period, study bone density. They'll use as a teaching tool what fast-food chains call "hot wings." The second Hot Wings refers to the flight technology section of the program. It will take place in May at the city's Museum of Aviation, where the students will receive classroom instruction and try a flight simulator. The Educator Grant will pay for the museum program's fees.

"I think this is a great opportunity for my students," Casey said. "They will love it."

According to Beth Burris, public affairs VP at the Carl Vinson Chapter, Casey learned about AEF's Educator Grants from the chapter.

Richard Becker, 1915-2003

Retired Col. Richard H. Becker, an AFA national director emeritus and its Member of the Year in 1983, passed away. He was 88 years old.

Born in May 1915, Colonel Becker earned a bachelor's degree from the University of Illinois in 1938 and served in World War II. In his civilian career, he was a major account manager for the advertising firm Ruben H. Donnelley Corp.

AFA recently learned that Colonel Becker died on April 4, 2003.

A life member of AFA, he had been an AEF trustee and a member of the Chicagoland–O'Hare Chapter. ■

Unit Reunions

reunions@afa.org

5th Combat Communications Gp. May 13-15 in Warner Robins, GA. **Contacts:** Richard Gillis (478-922-1377) (rtgillis@cox.net) or Bob Smith (478-922-5442) (rhsmith343@cox.net).

7th BG, Tenth AF. June 16-20 in Salt Lake City. **Contact:** Tom Sledge, 1301 Bay St., Texas City, TX 77590 (409-945-9735) (tesledge@aol.com).

8th Aviation Field Depot Sq. Sept. 16-19 in Nashville, TN. **Contact:** Vernon Kliment, 6612 Mapleview Ln., Whitelaw, WI 54247-9756 (920-682-7448) (kliments@lakefield.net).

11th/12th Tactical Recon, 6166 ARWS. April 29-May 2 at the Holiday Inn Oceanside in Cocoa Beach, FL. **Contact:** David Lehtonen, 7819 SE 168th Lone Oak Loop, The Villages, FL 32162 (352-753-1361) (david.lehtonen@netzero.com).

23rd FG (1942-present). June 3-6 in Hampton, VA. **Contact:** Catherine Hoard, 127 Crystal Pt., Sanford, NC 27332 (910-394-7682 or 919-498-0346) (catherine.hoard@pope.af.mil).

28th Military Airlift Sq (MATS/MAC). June 11-13 at Hill AFB Museum in Ogden, UT. **Contact:** Larry Sparks, 2107 E. 6175 S., Ogden, UT 84403-5224 (801-479-4608) (lrcssparks@aol.com).

33rd Troop Carrier Sq, 374th Troop Carrier Gp, Fifth AF (WWII). April 15-18 at the Adam's Mark Indy Airport Hotel in Indianapolis. **Contact:** B.J. Plog, PO Box 332, 4 West Paris, Ridgefarm, IL 61870-0332 (217-247-2491).

78th FS Assn. April 22-24 in Orlando, FL. **Contacts:** Paul Spillane (518-373-2874) or Ken Sweet (414-541-4015).

306th BW. Sept. 8-14 in Seattle. **Contact:** Joe Demes (phone: 321-452-4417 or fax: 321-452-0603) (www.306thbw.org).

367th FG, Ninth AF (WWII). Sept. 16-19 in New Orleans. **Contact:** Jack Curtis (479-925-1796) (crackerjack@cox-internet.com).

450th BG (H). Sept. 1-5 at the Doubletree Hotel in New Orleans. **Contact:** Al Goodman, 2 Portside Ct., Grayslake, IL 60030 (847-543-8381) (gobaral@aol.com).

459th BG Assn, Fifteenth AF (WWII). Sept. 9-12 at the Wyndham Washington Hotel in Washington, DC. **Contacts:** Susan Elmasian, 6215 42nd Ave., Hyattsville, MD 20781 (301-927-5650) or John Devney, 90 Kimbark Rd., Rochester, NY 14610-2738 (585-381-6174).

523rd TFS, Clark AB, Philippines (1968-74). June 16-20 at the Ramada Inn in Fort Walton Beach, FL. **Contact:** Bill Thaler, 250 Yacht Club Dr., Niceville, FL 32578 (850-897-3765) (thaler4@ cox.net).

793rd Military Police Battalion Assn. Aug. 25-28 at the O'Hare Marriott in Chicago. **Contact:** Frank DeRosa, 640 Kaspar Ave., Arlington Heights, IL 60005-2320 (847-255-3977).

3650th Basic Military Training Wg, Sampson AFB, NY (1950-56), including permanent party, basic and special school trainees, and Womens Air Force. Sept. 9-12 at Sampson State Park in Romulus, NY. **Contact:** Chip Phillips, PO Box 331, Williamsville, NY 14231-0331 (chip34@aol. com).

Air Weather Assn. April 28-May 2 at the Holiday Inn Oceanfront Resort in Cocoa Beach, FL. **Contact:** Clifford Kern, 1879 Cole Rd., Aromas, CA 95004-9681 (831-726-1660) (cliffordkern@cs.com).

Bolling AFB B-25 Bunch. May 23-27 in Biloxi, MS. **Contact:** C.J. Smith, 5249 Old A&P Rd., Ripley, OH 45167-9749 (937-375-4671).

Nagoya/Komaki AB Reunion Assn, Fifth AF. June 14-17 in Las Vegas. **Contact:** John Campo (816-407-0055) (jaymcee@aol.com).

Navigator Class 61-09, Harlingen AFB, TX. May 20-23 in Dayton, OH. **Contact:** Bill Day, 2654 N. Nugent Rd., Lummi Island, WA 98262 (360-758-2177) (wlday@earthlink.net).

Pennsylvania AACS Alumni Assn. July 13-15 at the Hampton Inn in DuBois, PA. **Contact:** Ed Rutkowski, 301 Blakley Ave., DuBois, PA 15801 (814-371-7167). ■

Mail unit reunion notices four months ahead of the event to "Unit Reunions," *Air Force* Magazine, 1501 Lee Highway, Arlington, VA 22209-1198. Please designate the unit holding the reunion, time, location, and a contact for more information. We reserve the right to condense notices.

AFA Conventions

April 30-May 1	New Jersey State Convention, Atlantic City, N.J.
April 30-May 1	South Carolina State Convention, Columbia, S.C.
May 8	Ohio State Convention, Columbus, Ohio
May 13-15	California State Convention, Palm Springs, Calif.
June 4-5	Oklahoma State Convention, Enid, Okla.
June 4-6	New York State Convention, Ronkonkoma, N.Y.
July 17	Florida State Convention, Tampa, Fla.
July 23-25	Texas State Convention, Fort Worth, Tex.
July 31	North Carolina State Convention, Asheville, N.C.
Aug. 12	Alaska State Convention, Anchorage, Alaska
Aug. 13-14	Missouri State Convention, Kansas City, Mo.
Aug. 14	Georgia State Convention, Warner Robins, Ga.
Aug. 20	Colorado State Convention, Aurora, Colo.
Aug. 20-21	Iowa State Convention, Fort Dodge, Iowa
Aug. 21	Utah State Convention, Ogden, Utah
Sep. 13-15	AFA Air and Space Conference, Washington, D.C.

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Air and space power issues will be featured at professional workshops, where leading academicians and professionals will discuss the latest developments in their areas of expertise. The Conference will also highlight aerospace excellence and outstanding achievement and recognize the Air Force's finest with national aerospace awards and programs. Additionally, AFA will provide each Conference attendee with a certificate documenting their participation.

See the latest in aerospace technology. The Aerospace Technology Exposition will include more than 100 exhibitors and offer new and exciting ways to explore today's cutting-edge technology.

Go to www.afa.org for updates on Air & Space Conference and Technology Exposition 2004.

Verbatim

By John T. Correll, Contributing Editor

Who Needs Modern Airpower?

"The biggest cuts should come in the three advanced tactical and Joint Strike Fighter aircraft: the Air Force's F-22, the Navy's F-18, and the shared F-35. The Pentagon plans to spend hundreds of billions of dollars over the next two decades on these planes, which are designed to replace older models that are already superior to anything any other country can put in the air."—**New York Times** ***editorial, Feb. 5.***

Cruise Missile Threat

"I have argued for years that it is only a matter of time before our deployed forces, or our homeland, will be attacked by cruise missiles. They are spreading, and they are for sale."—***Secretary of the Air Force James G. Roche, speech at Center for Strategic and International Studies, Jan. 21.***

Je Ne Regrette Rien

"I'm too old to have regrets. No, I don't regret it."—***Secretary of Defense Donald H. Rumsfeld, asked about his earlier comments on "Old Europe" and "New Europe," Reuters, Feb. 6.***

But Amends Are in Sight

"The American Administration cannot stay too long in the eyes of its own public opinion on such bad terms with one of its oldest allies."—***French Defense Minister Michele Alliot-Marie, telling the National Assembly she perceives a US desire "to turn the page," Agence France-Presse, quoted by*** **Washington Times,** ***Jan. 22.***

Closing In

"We have a variety of intelligence and we're sure we're going to catch Osama bin Laden and Mullah Omar this year."—***Lt. Col. Bryan Hilferty, US Army spokesman in Afghanistan,*** **New York Daily News,** ***Jan. 30.***

Hustler **Not Embedded**

"We find that there is no constitutional right for the media to embed with US military forces in combat."—***US appeals court on lawsuit by publisher Larry Flynt, seeking access for*** **Hustler** ***magazine correspondents to US troops in Afghanistan, UPI, Feb. 4.***

Fast Forgiveness ...

"I, as president of Pakistan, have decided to pardon Dr. A.Q. Khan who is our national hero but he has made mistakes, which is unfortunate."—***President Pervez Musharraf, one day after Khan acknowledged leaking nuclear arms secrets to Iran, Libya, and North Korea, Reuters, Feb. 5.***

... And Broader Involvement?

"Nobody in Pakistan believes Qadeer Khan just woke up one day and decided to sell the nuclear secrets on his own. [He] is being made a scapegoat to cover up the involvement of military leaders."—***Former Pakistani Prime Minister Benazir Bhutto,*** **Washington Times,** ***Feb. 15.***

Army Too Small

"I have been in the Army 39 years, and I've never seen the Army as stretched in that 39 years as I have today."—***Lt. Gen. John M. Riggs, director of the Army's Objective Force Task Force,*** **Baltimore Sun,** ***Jan. 21.***

Accusation of AWOL

"I look forward to that debate, when John Kerry, a war hero with a chest full of medals, is standing next to George Bush, a man who was AWOL [during Air National Guard service]. George Bush never served in our military in our country. He didn't show up when he should have showed up."—***Terry McAuliffe, chairman of the Democratic National Committee, quoted in*** **New York Times,** ***Feb. 2.***

Jane Fonda Outraged

"Any attempts to link Kerry to me and to make him look bad with that connection is completely false. We were at a rally for veterans at the same time. I spoke. Donald Sutherland spoke. John Kerry spoke at the end. ... How can you impugn, how can you even suggest that a Vietnam veteran like John Kerry, or any of them, are not patriotic?"—***Jane Fonda, responding to publication of a photo of Presidential candidate Kerry and Fonda at a 1970 rally of Vietnam Veterans Against the War, CNN, Feb. 11.***

Separate Defenses

"We don't know if the United States will have forever the resources, or the interest, to defend Europe."—***Gen. Gustav Hagglund of Finland, chairman of the European Union military committee, on why Europeans need their own defense programs, Reuters, Jan. 20.***

The Undead Walk

"It actually said I'd died."—***Army Chief of Staff Gen. Peter J. Schoomaker on official notice of his death, sent to his home after his name dropped from the retired payroll when he was recalled to active duty,*** **Philadelphia Inquirer,** ***Feb. 11.***

Backlash for Bin Laden

"The biggest price we have paid is that we have lost the high ground. While Bush has led the war on terror, it has become a chief recruiter for al Qaeda."—***Kenneth Roth, director of Human Rights Watch,*** **London Times,** ***Jan. 22.***

Union Busting

"What on Earth does any of this have to do with national security? In fact, in times as perilous as these, sticking it to defense workers will only serve to disenfranchise a workforce that has served the nation honorably throughout its history and continues to do so during the current conflicts in Iraq and Afghanistan. This is, without a doubt, nothing but flat-out union busting by Rumsfeld and his cronies who know, in many cases, that it is union members who are the watchdogs over private contract abuses."—***John Gage, president of the American Federation of Government Employees, on Defense Department proposals for Civil Service reform, Feb. 9.***

Pieces of History

Photography by Paul Kennedy

Disaster Defense

Artifact collection courtesy of Paul Kennedy

President Truman created the Federal Civil Defense Administration in 1950. The US had used atomic weapons in World War II, and the American public was convinced that other nations eventually would acquire the bomb and use it against the US. Civil defense awareness soared again when President Kennedy, in the early 1960s, launched a bomb shelter program. In response to the terrorist attacks of Sept. 11, 2001, the Department of Homeland Security has encouraged Americans to prepare emergency kits for use in the event of a biological, chemical, or nuclear attack against the nation. Above are samples of old and new emergency response elements: a World War II-era air raid warden's helmet, Geiger counter, instruction booklet on building a fallout shelter, canned water, aerosol spray that makes envelopes translucent, potassium iodine pills marketed as a radiation antidote, and—of course—duct tape.

Try keeping your eyes open for 30 hours without blinking.

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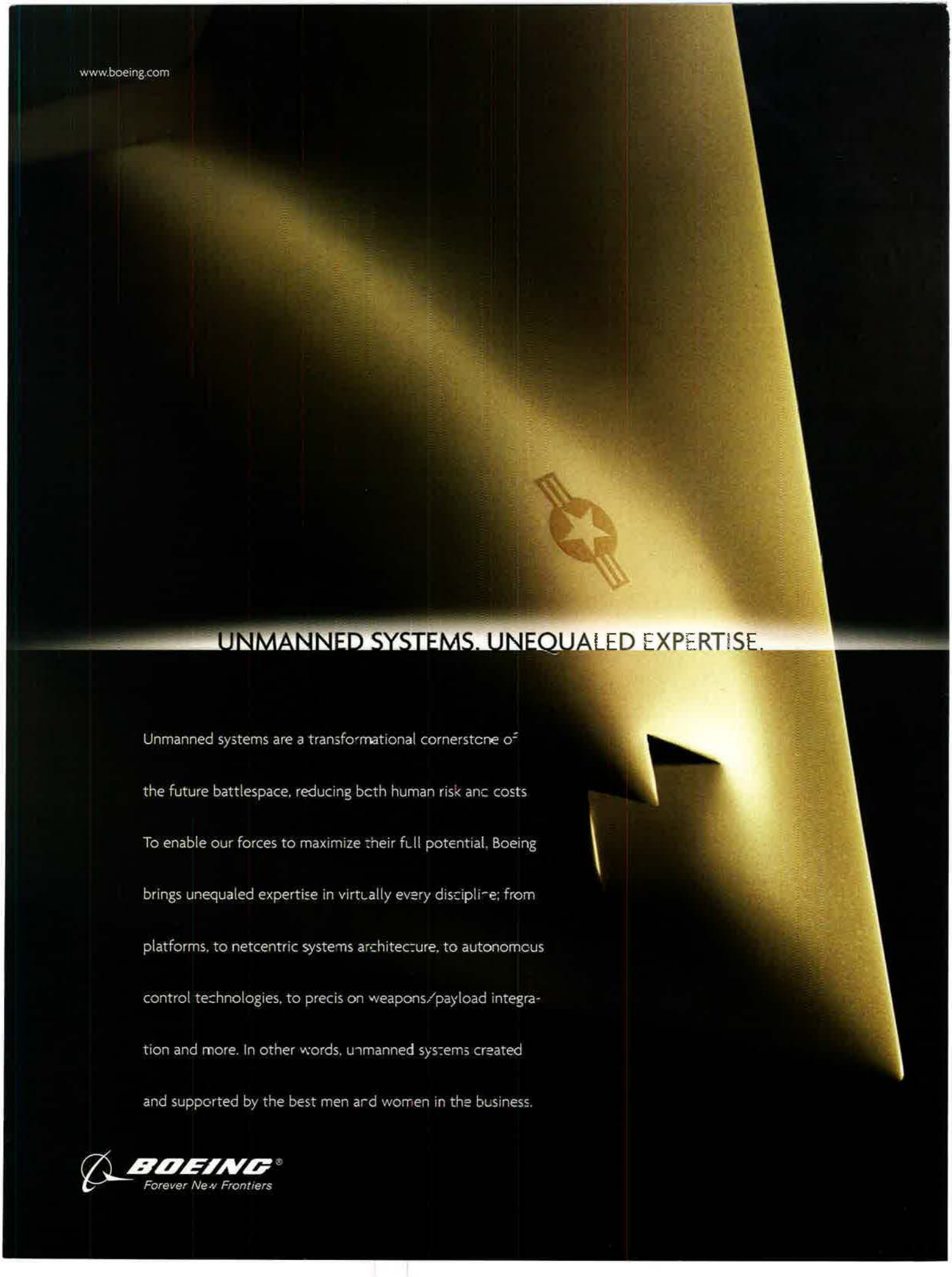
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