

June 2002/\$4

# AIR FORCE

JOURNAL OF THE AIR FORCE ASSOCIATION

# MAGAZINE

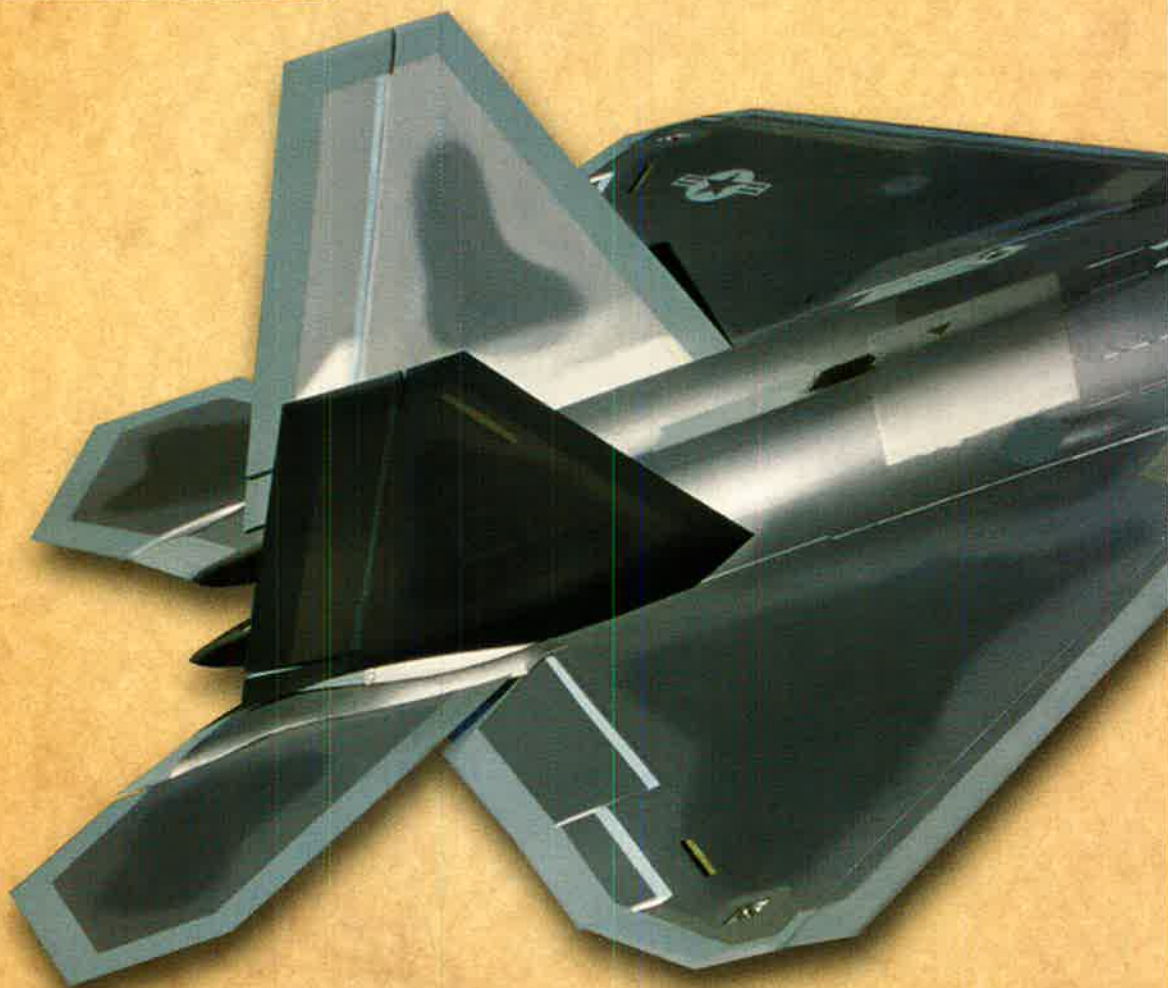
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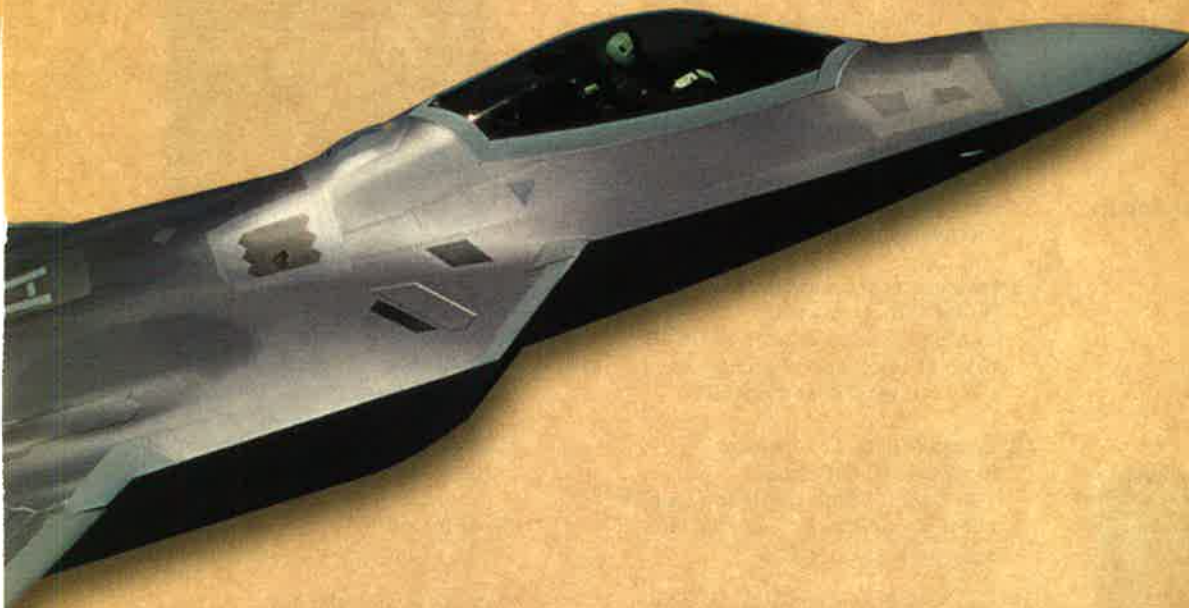
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June 2002, Vol. 85, No. 6

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By Robert S. Dudley, Editor in Chief

## As Good as Our Next War

**A**CCORDING to Michael O'Hanlon of the Brookings Institution, we are "running the risk of spending too much on defense." President Bush's military pay hike is "excessive," the analyst says. His proposed weapon purchases are "greatly excessive." In these and other ways, claims O'Hanlon, the Bush plan "puts the nation's fiscal health and domestic agenda at risk."

And among critics, O'Hanlon is a moderate. Rep. Barney Frank (D-Mass.) would simply cancel weapons such as the stealthy F-22. "Who are we hiding it from?" he demands to know. "The Taliban?"

The *New York Times* claims DOD is on a "spending spree." The *Los Angeles Times* laments an "orgy" of defense spending. The *St. Louis Post-Dispatch* notes that the Pentagon shells out "\$722,222 every minute; blink your eyes for a second, and \$12,037 disappears."

O'Hanlon, Frank, and the pundits aren't alone. The image of the Pentagon as a ravenous force is widespread in political and media circles. To O'Hanlon, "Bush has gone from compassionate conservative to Ronald Reagan reincarnate."

This is nonsense, as official records show. Bush on Feb. 4 unveiled a \$379 billion budget for Fiscal 2003 and announced budgets for four ensuing years. If he gets every penny he seeks, defense spending will average about \$390 billion a year. Under Reagan, it was about \$430 billion a year. That's a huge difference.

In the key category of procurement, Bush-Reagan comparisons are even less credible. Bush wants to buy weapons at the rate of \$78 billion a year. The Reagan average: \$120 billion a year.

Under Reagan, defense consumed about six percent of Gross Domestic Product. Now, it's 3.3 percent. The US spent 5.5 percent of GDP on defense as recently as 1990, so Bush-level expenditures are well within reason.

No question, the US spends a great deal on defense. It's expensive to buy and maintain modern,

effective fighting forces—professional, well-trained, with top-notch weapons, able to fight globally and to prevail relatively quickly.

With the US in a battle with terrorists and with war in Iraq a possibility, public support for defense has held strong, so far.

If the record of the past is a guide, however, the steady blast of press

### Future military performance hinges on the investments we make today.

and political criticism will eventually take its toll on public support for the Pentagon. When this happens, the armed forces will still face a long list of unfixed problems.

Even after Bush raised the budget, the services were left with unfunded priorities this year totaling more than \$25 billion. The Air Force amount is \$3.8 billion, and this does not include the unbudgeted \$4.2 billion bill for mobilizing reservists.

In procurement, DOD lacks the money to properly modernize and recapitalize the services. The Bush budget does nothing to reduce the average age of the fighter fleet, which, according to Air Force Secretary James G. Roche, is 22 years and rising.

Navy shipbuilding is on a downward slope. So is Army aviation. USAF has a desperate need to modernize its aging tankers, but it can't afford to buy them quickly and may have to lease them, instead.

A study by the Joint Chiefs of Staff and services said DOD must spend about \$110 billion a year for several years to recapitalize the force. The Bush plan never exceeds \$92 billion.

Older systems cost more to main-

tain, so the problem mutates into various forms. Gen. Richard B. Myers, JCS Chairman, said that the F-15 fighter (average age: 17.5 years) in recent years experienced an 83 percent rise in cost per flying hour and a drop from 81 to 77 percent in mission capable rates.

There is no money to add people to the overstretched services. USAF needs 7,000 more airmen, at least. "We will not be able to continue to do our job with the numbers we have now," said Gen. John P. Jumper, Chief of Staff.

Perversely, the crunch has created an illusion that the problem stems from the size of the program. Secretary of Defense Donald Rumsfeld is considering cutting weapons in hopes of fitting the program within planned 2004-09 budgets. The F-22 Raptor, USAF's No. 1 modernization priority, is among the systems being re-examined.

The problem, however, is not a large program but a relatively small budget. The drawdown of the 1990s cut forces too deeply. The services are still trying to recover. Roche says, "It will take more than 10 years to overcome the 10-year procurement holiday" at the Pentagon.

US forces are still immensely strong. They have proven themselves in battle from the Gulf to Bosnia, from Kosovo to Afghanistan. However, complacency can be lethal. Improvement must be continuous. As a senior Air Force officer puts it, "We are only as good as our next war."

The next war could come sooner than anyone thinks. Dire and unconventional threats obviously exist, and we are in a fight for our lives. Today's forces—those that did the job in Afghanistan—stem mostly from investments made in the 1970s and 1980s. Tomorrow's forces will result from investment decisions made today.

The money must be spent wisely. However, given the stakes, the danger of "spending too much on defense" shouldn't appear at the top of anybody's national worry list. ■

## Carey—ed Away

Thank you for publishing the letter from Mr. Chris Carey [*“Drum-Thumping Exhortations, May, p. 4.”*]. It speaks well of your publication, your personal editorial skill, and the principles that this country was founded on that you are willing to give space to this type of blatantly bilious bombast. There, I got that out of my system. I can put my thesaurus away for a while.

The Air Force Association advocates aerospace power and a strong national defense. *Air Force Magazine* is the journal of the Air Force Association and would be expected to hold to the same ideals. So Mr. Carey’s assertion that you publish “partisan expressions of hawkish opinion” would seem to be entirely in keeping with the intent of both the organization and the magazine.

He admits that [USAF] equipment is “getting a bit long in the tooth,” which is also to say we are flying the same aircraft that were flown in the SAC of Mr. Carey’s day, and they were certainly not new then. Would he have our valiant security police force still driving the Plymouth K-cars that we outfitted them with in the 1970s? We owe it to our airmen to equip them with safe, reliable equipment capable of meeting the threat of the future. One cannot stand still and assume that potential adversaries will politely decline to improve their capabilities.

The “far better informed, far more complex society” of today has overwhelmingly supported our national leadership in their execution of the global war on terrorism. This wonderful system of government has risen to the diverse challenges of the recent past and has superbly represented the people of the United States. All of them.

“The genuine task facing America’s armed forces” is not how to account for defense funds. It is to support and defend the Constitution of the United States against all enemies, foreign or domestic. Is the accounting perfect? I think not. Do we waste money? I know we do. Do we fight, daily, for

accountability and efficiency? Many of us have dedicated our entire adult lives to just that. Mr. Carey’s final paragraph has the American public (the same American public that, two paragraphs earlier, he said was much better informed than in the past) saddled with “frontier west ethics.” Saddled by whom? Most Americans are perfectly capable of forming their own opinions, thank you—Mr. Correll’s eloquent opinions notwithstanding. And I simply do not have time to go away to meditate for a couple months. There’s a war on.

Col. Sydney G. McPherson Jr.  
Woodbridge, Va.

I read with interest the letter titled “Drum-Thumping Exhortations.” I think the appropriate title should have been “Thesaurus-Thumping Exhortations.” This individual managed to fill up nearly three columns of your “Letters” section with the wordiest, say-nothing prose I’ve ever encountered. Indeed, his profligacy of pedantic poppycock presented no facts to back up his wearisome rant.

Let me sum up [Mr. Carey’s] position: The world is very complex; conservatives, right-wingers, and political/military hawks don’t have the intelligence to decipher the world; neither do I, but at least I recognize my limitation—or maybe it’s just that I can’t provide any alternative solution or course of action because I’m too busy thumbing through my thesaurus.

In any case, I have a few suggestions for Mr. Carey. One, if you don’t have anything of significance to add

to a debate, save yourself the carpal tunnel syndrome and take a nap. Two, take some time on a Native American reservation to examine the origins of your “reflective intelligence” with special attention given to “introspection into the unacceptably loose logistics” of your brain. With any luck, you’ll address the “disproportionate surfeit of horrifically” supercilious verbosity resident there and experience an epiphany—or at least some justifiably “righteous verisimilitude.”

Capt. Geoffrey F. Weiss  
Tinker AFB, Okla.

## Another Miss for Tricare

You omitted at least one “miss” in [*“Tricare for Life Hits and Misses,” April, p. 62*]: There is still no automatic claims filing for dual-eligible (Medicare/Tricare) beneficiaries who are under age 65 (medically disabled family members, among others).

Last fall, when this problem came to light, it was supposed to be fixed early this year. However, as of April 2, 2002, the TFL hotline has no idea if, or even when, this will be remedied.

In the meantime, these patients’ providers are operating under the misinformation that DOD provided them, i.e., that claims with Tricare as the second payer to Medicare would be filed automatically beginning last October. When they don’t get paid, they bill the patients directly. When advised of this gap between reality and marketing, their insurance clerks insist that the Medicare/Tricare interface is automatic and they no longer need to manually file secondary Tricare claims.

It’s bad enough working with a provider who still participates in Tricare, but it’s a major problem with and for the ever-increasing number of providers who have dropped their Tricare participation and were doing the secondary filing strictly as a patient courtesy.

There is no issue of benefits or entitlements; Tricare has always operated as a second payer to Medicare (though TFL has improved them substantially). Nor is it a matter of

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**Letters**

DOD not knowing who these people are: dual-eligible beneficiaries must obtain a new ID card when the change of status occurs. Rather, this "miss" appears to be nothing more than someone failing to get in gear and fix the data transfer software in their computers.

Lt. Col. Michael Hansen,  
USAF (Ret.)  
Bryant, Ark.

Since the start of Tricare for Life last year (Oct. 1, 2001), the payment sequence [has been]: first payer, Medicare; second payer, Tricare for Life; and Tricare becomes the third payer if we keep other health insurance. So if we keep other health insurance, we would be saving the Tricare system a lot of money.

I would desire a payment system of: Medicare first, Tricare second, and all other health insurance third. That way, we would have better health coverage and pay less to a private insurance company.

I have yet to find a health insurance company to offer such a plan.

Jack M. Short  
Fallon, Nev.

**Transformation**

One thing [*Air Force Magazine*] reports all too clearly is the dwindling strength of our forces. The "gloom and doom" attitude of such things as leasing Boeing 767 planes for use as tankers and the possible retirement of some of the B-1Bs all demonstrate that respect for the defenses of the United States is at an all-time low. [See "*Aerospace World: Tanker Lease Up for Negotiation*" and "*Warner: Too Soon for B-1s To Retire*," February, p. 18-19.]

Ever since the Gulf War, the government has been in a frenzy to cut expenses and balance the budget. The first items to go were the B-52Gs

and their bases. The aircraft themselves were cut up for scrap almost as soon as they arrived at Davis-Monthan AFB [Ariz.]. And this was because of a treaty which eliminated our capability to strike back when needed!

Frankly, now is the time to begin the restoration of what was once the greatest military in the world. We've had our modern day Pearl Harbor, so let's get going.

William D. Reid  
Essexville, Mich.

**Perfect Example**

I have seen few if any comments as low and rotten as the ones made by the scumbag in Canada about the bombing. [See "*Verbatim: Not Deep, Just Low*," April, p. 41.] Ms. Elizabeth Wurtzel is certainly a perfect example of the title [*Bitch*] of one of her books that you credited to her. That is one cold and evil woman!

Richard J. Warren  
Van Nuys, Calif.

**Change the Law**

I happened to read "USAF Expands Junior ROTC" [*"Aerospace World," April, p. 18*] the same week that I inquired about becoming an instructor after retirement. As a Guardsman, the current law requiring instructors to be retired active duty leaves me out. I was told that the program needs more instructors to expand the number of units; with fewer members of the active force, it is harder to recruit new instructors. I predict that this situation will only get worse.

I suggest (and have so written my senator) that Congress change the law to allow Guard and Reserve personnel to become JROTC instructors. I can think of at least two ways to do this: Either allow retired reserve component members to serve, or struc-



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ture the program so that the instructors remain active full-time reservists. The first option would suffer from the current age-60 retirement for Guard/Reserve, so perhaps the second is the best way to go. Probably only those with some minimum period of service should be considered.

My point is not to detail the specifics, but to recommend that Congress and the Defense Department design a way to use the talents of Guard and Reserve members in expanding and improving this worthwhile program for our nation's youth.

MSgt. William T. Brockman  
Georgia ANG  
Atlanta

### Good on Paper

It was disheartening to read that our Air Force Secretary has consolidated public affairs, integrated marketing, issues team, and executive staff group into a new Communications Directorate. There are many reasons why this is a bad idea, but the worst is this change inserts a civilian political appointee between the Secretary and his blue-suit advisors. [See "Aerospace World: News Notes," April, p. 18.]

Such a move is especially troubling in public affairs. I'll bet there are plenty of former Air Force secre-

taries and commanders who've had their hides saved by a straight-talking public affairs officer who wasn't afraid to explain the consequences of a decision. With the news media breathing down your back, you don't have time for political sycophants.

Our current Secretary may feel he's getting good information, but I can assure him his gatekeepers are knowingly or unknowingly "homogenizing" the facts. This consolidation may look good on paper, but in the long run it will harm our Air Force and deprive our airmen of a voice when it matters.

Col. Mike Gallagher,  
USAF (Ret.)  
San Antonio

### Let's Roll

I am a former B-52D crew chief [who was stationed] at Guam (1966) and U Tapao [Thailand] (1968-69).

I have also been a New York City cop since 1974. I have my own command, responded to "ground zero," and then worked over three months with the Office of Emergency Management at Pier 92 in Midtown.

The law enforcement community has tons of vets—many of us would love to have [Let's Roll] decals! [See "Letters: Let's Roll," April, p. 7.] So let's roll and let this be done for all

America. Thousands would be purchased here in New York just by the NYPD and FDNY.

Ron Young  
Mineola, N.Y.

### More AWACS History

I returned from Southeast Asia in 1973 to the Pentagon as study director for the AWACS Study Group in Air Force Studies and Analyses. We were charged with doing five fairly specific studies requested by the Secretary of Defense before the final production decision.

All of that became submerged under the politics of a group of seven liberal Senators who called themselves "The Members of Congress for Peace Through Law." Their mission was to delay and, if possible, stop the major weapon systems that were under development at the time. Included there were the Army's XM-1 tank, the Navy's advanced Polaris missile, and the Air Force's B-1 bomber and the AWACS. Eagleton was targeted against the AWACS program.

Perhaps most ludicrous was the jamming study. [Sen. Thomas F.] Eagleton got the GAO to study the likelihood that the AWACS radar could be jammed. Since a government organization that has primarily an ac-

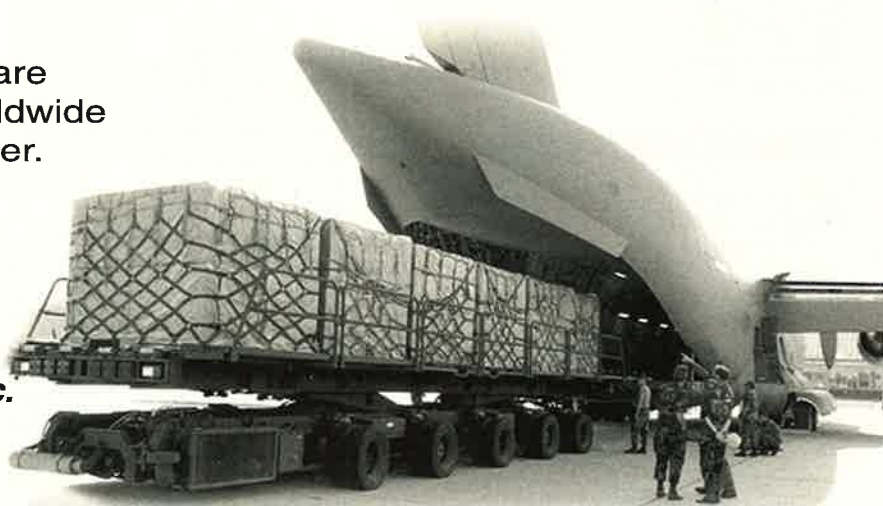
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## Letters

counting function was way outside its league, they hired a consultant to do the study and, presumably, come to the right conclusion. The consultant not only did not understand the radar, but even his calculations were off by several orders of magnitude. This led to the formation of a group of academic radar experts who had no ties to DOD. They concluded that the GAO consultant's study was a farce and that the AWACS radar was by far the most jam-resistant system that had ever been built. Further, they made recommendations for a couple of minor modifications that would make it even more jam resistant.

The jamming "red herring" now put to bed, the issue turned to survivability. The argument was that the enemy could flood the sky with fighters and shoot the AWACS down. To address this issue, the Air Force put together a test of the survivability of the airframe using fighters under ground control to attack and fighters under AWACS control to defend. It was not even a contest.

Of course, all of this time Eagleton's office was issuing press releases complaining about how far behind the system was and about huge cost overruns. All of this cost the program about a year and a half and the taxpayers over \$300 million in 1975 dollars, if I remember the numbers correctly. And citizens wonder why weapon systems are so expensive.

Lt. Col. John R. Pickett,  
USAF (Ret.)  
Statesboro, Ga.

### Predating Predator

After reading the article "The Little Predator That Could" in your March magazine [p. 48] I had to sit back and think about the phrase, "What goes around comes around." The article was great and enlightening.

Not many know that everything in the article and more was done in the late 1960s by a small outfit called Det. 3, 2762nd Maintenance Squadron (Special), on the Pacific Missile Range, Point Mugu, Calif., and at the Ryan plant in San Diego. They were called "drones" then, and between the two locations we were in effect the SPO (System Project Office), the AMA (Air Materiel Area or depot), and the design and testing function. We could design and adapt a concept, test it, and deliver it to the users in months, whereas it would have taken years and bigger bucks to run it through the "normal" system.

From a small flight-test detachment

consisting of five officers, five airmen, and some 70 contract technicians, the unit at Edwards grew to a full-blown squadron, plus the same personnel that were in the original unit. At Mugu we normally flew four flight tests a month, and at Edwards they worked hard to get one a month. Finally, it was decided that satellites could do the job, and the program withered away.

Also there was the uneasy and shortsighted feeling by many that drones would someday eliminate the need for pilots. Granted, today some of the equipment is far more sophisticated (what we wouldn't have given for a GPS!), but as I said we had already done what the [unmanned aerial vehicles] of today are doing, and then some.

Lt. Col. Richard D. Le Doux,  
USAF (Ret.)  
Eunice, La.

### Remembering Chennault

Kudos for a wonderful article detailing the life of Lt. Gen. Claire L. Chennault. Quick question about [an airplane in the] photograph on p. 75: The farthest [aircraft] fuselage has a different vertical stab/rudder than the other P-40s and from the angle does not appear to belong to either a P-36, P-40B or E, nor a Helldiver. It does appear to have a P-40 canopy. Just what is this [aircraft]?

Lt. Col. A.H. Nerad II,  
USMC  
Norfolk, Va.

■ *It's a P-40K.*—THE EDITORS

### Wild Blue Yonder

In the March 2002 issue, the article "The Wild Blue Yonder Is Shrinking" [p. 58] decries the shrinking air-space for training and the need for small, intermediate, and large ranges, which puzzles me each time I see this line of thinking. Last year the Air Force moved all operational A-10s and F-16s from Moody AFB [Ga.] with its Sawgrass Air-to-Ground Gunnery Range practically within the confines of the airfield proper.

With this nifty little complex on its eastern boundary, the USAF shifted Moody to mostly crew training with T-38s and T-6As (not to overlook the special ops C-130s and helos based there).

The same thing occurred at George AFB [Calif.] a number of years ago, with its access to the extra-large Edwards air-to-ground complex. England AFB [La.] had an air-to-ground range within just a few miles and it

too was axed. Only Cannon AFB [N.M.], with an almost-on-the-base range, seems to have survived.

How, on the one hand, can USAF shut down these fighter bases with ranges so close they're almost in the pattern and, on the other, complain about the lack of training airspace and gunnery ranges? Sometimes our planning seems to concentrate on the next supersonic, gee-whiz fighter and ignore the resources at hand, [such as] now-closed gunnery ranges and the F-4G, the best Wild Weasel bird ever built. Don't think the over-taxed F-16 will ever beat or match that capability.

It's strange that the Luftwaffe still operates its glass-cockpit F-4Fs, and we couldn't keep a few squadrons of superb Wild Weasel birds on line because they were "too expensive." Or the EF-111, the Alpha force's best friend—and we still don't have an adequate replacement for that bird, either.

The term "shooting yourself in the foot" comes to mind.

Jack Doub  
San Diego

### Re-Engine the B-52

The 50th anniversary of B-52's first flight finds the venerable aircraft flying daily orbits over Afghanistan, providing close air support using satellite-guided bombs—a development Gen. John P. Jumper has called transformational. [See "The War Nobody Expected," April, p. 34.] With similar scenarios possible in the future, perhaps it is time to revisit the 20-year-old idea of re-engining the B-52. The "B-52R" might be an idea whose time has come.

The 40-year-old TF33 engines represent the highest cost for future B-52 maintenance. Commercial off-the-shelf engines have such amazing reliability that many engines could remain "on wing" for the life of the aircraft, yielding huge cost savings. Our defense strategy emphasizes long-range, precision-strike capabilities. The re-engined B-52 would have a 50 percent better combat radius, or double the loiter time over target. The price of fuel can only go [in] one direction in the coming decades. The lower fuel consumption of modern fan engines would cut fuel costs in half, enabling a quick payback for the price of the mod, plus continuing savings thereafter. The improved range of the B-52R translates into a valuable reduction in the number of tankers required to support B-52 operations. For example, using re-engined B-52s during Desert Storm would have freed an entire squad-

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ron of KC-135s for other duties. Finally, adding an auxiliary power unit to the B-52 would eliminate the need for ground power carts and thus reduce the airlift needed to support deployed aircraft.

The B-52H is a nonstealthy warhorse that many feel should be put out to pasture. However, it's also the only plane we have that can provide an "opening round" cruise missile attack and then swing to conventional bombing. It's a mature weapon system, it still has 40 years of service life left, and best of all, it would pay for itself in just a few years. If USAF is serious about operating the B-52 until 2040, then re-engining seems a smart thing to do. To put the B-52R in another perspective, doing something better for less cost should make sense to everyone—especially the American taxpayer.

Col. Ron Thurlow,  
USAF (Ret.)  
Beavercreek, Ohio

### The Osprey

[In reference to letters about the V-22 Osprey from Eric E. Abell, March, p. 11, and retired Lt. Col. William J. Warwick, October, p. 4.]: Both pilot and copilot controls and multifunction displays on the Osprey are identical: stick (cyclic) on the right, throttle (Thrust Control Lever or TCL) on the left. Many of the pictures of the Osprey cockpit show only the right side TCL and both the left and right sticks; the left side TCL is invisible in many photos since it is blocked by the copilot's seat. Since the controls are identical, moving from the one seat to the other presents no problem.

Lieutenant Colonel Warwick brings up an interesting point about preferring a collective instead of a TCL, but he seems to be thinking the aircraft is in fact a helicopter. The Osprey is not a helicopter, nor is it a turboprop. The V-22 is often described as an air-

plane that can hover. The tilt-rotor pilot knows that the TCL gives power to the prop rotors in whichever direction they point; when the nacelles are nearly vertical in VTOL [Vertical Takeoff and Landing] mode, power changes result primarily in an up or down movement, while TCL movement with horizontal nacelles results primarily in airspeed changes. Lieutenant Colonel Warwick's idea of having a collective instead of a TCL has already been tried and discarded. Early models of the MV-22 did in fact have a collective-like device, but it was not nearly as efficient as the current TCL design. The brilliant engineer Jon Tatro at Bell Aircraft designed the TCL to be exceptionally suitable to the specific requirements of a tilt-rotor.

Training is the key for pilots in the tilt-rotor system. Eventually new pilots will come out of a tilt-rotor-specific training track, but for now we are using both helicopter and fixed-wing pilots in the initial instructor cadre. Approximately 57 percent of the entry-level tilt-rotor training is done in the simulator; this is where aircrew learn to avoid the mistakes Lieutenant Colonel Warwick cited.

Mr. Abell suggested that training reflects "the background and experience of the pilots flying the machine," and he is absolutely correct. We brought in experience from both helicopters and turboprops, mixed that with test pilot experience from the V-22 test program, and ironed out the procedures and techniques we have today. But few pilots have extensive experience in the V-22. We at New River are developing that background and experience to which Mr. Abell refers.

Lt. Col. Preston Plous,  
USAF  
MV-22 initial instructor cadre  
MCAS New River, N.C.

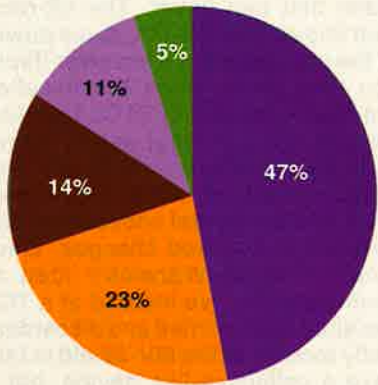
# The Chart Page

By Tamar A. Mehuron, Associate Editor

## Where Imported Oil Really Comes From

US Oil Suppliers by Region

2001 (Percent of Total)



- Americas
- Middle East
- Africa
- Europe
- Other

US Oil Suppliers

1996 (Billions of Dollars)



- Canada
- Venezuela
- Saudi Arabia
- Mexico
- Nigeria
- Iraq
- Norway
- United Kingdom
- Angola
- Colombia
- Algeria
- Kuwait
- Other

2001 (Billions of Dollars)



*The US is becoming increasingly dependent on foreign oil, but the biggest source is not the Middle East.*

*In 1996, US wells still produced slightly more than half the oil consumed in the US. In 2001, however, imports accounted for 57 percent of US consumption.*

*The US last year imported \$100 billion worth of crude from 97 nations.*

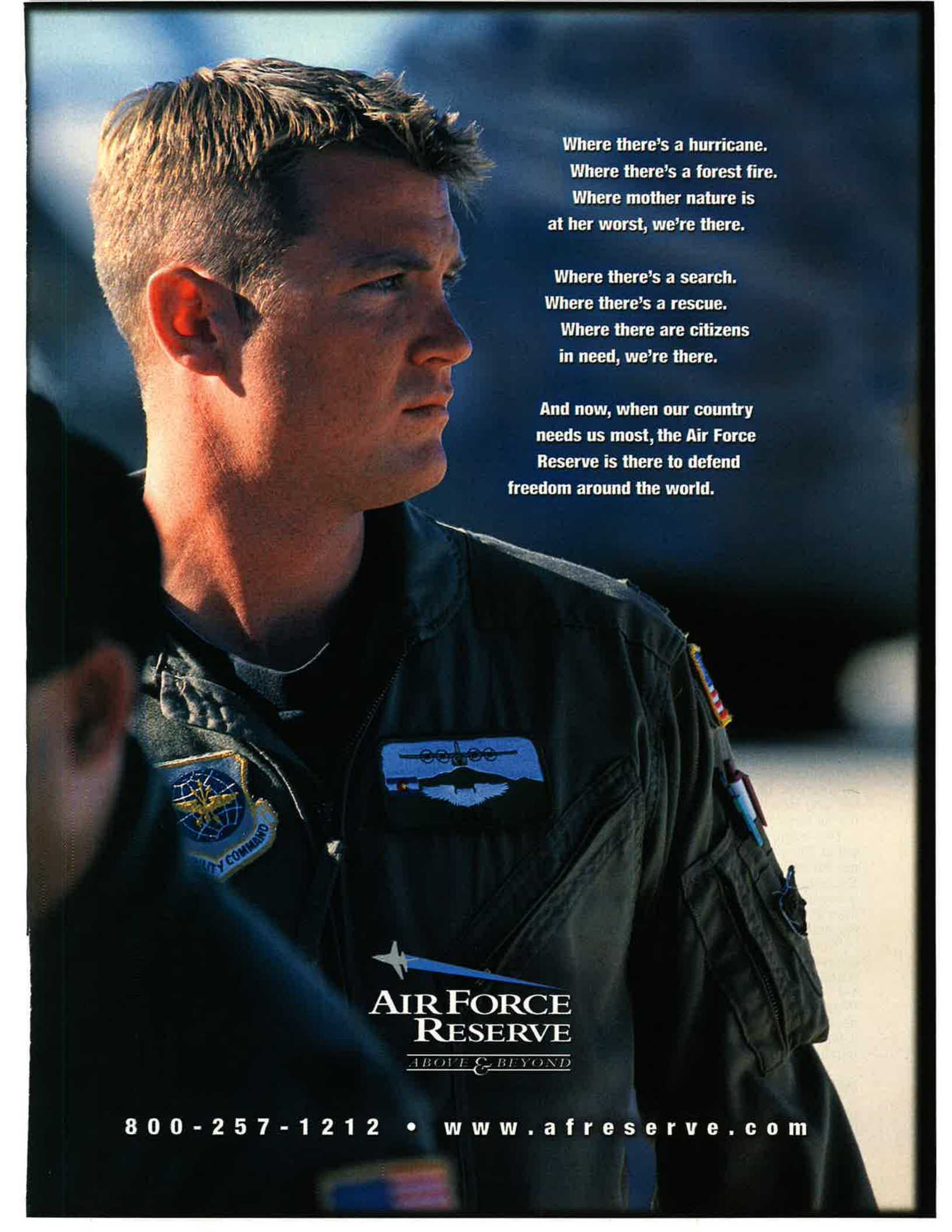
*Some 47 percent of imports came from the Americas. In fact, Canada—with \$14.5 billion in sales—was the top foreign*

*supplier of oil to the US last year. Next came Venezuela, from which the US imported \$13.3 billion worth of oil.*

*Saudi Arabia is the third-largest individual supplier of oil to the US, with sales of \$12.5 billion last year. The Middle East supplies less than one-quarter of all imports.*

*Oil is fungible, and any disruption of world supply anywhere would quickly be felt in the global market. Prices would rise as consumers competed for diminished supplies.*

Sources: International Trade Administration, DOC and Energy Information Administration/Petroleum Supply Monthly.

A man in a dark flight jacket is shown in profile, looking towards the right. The jacket has several patches: a circular patch on the left chest with a globe and the text 'SECURITY COMMAND', a rectangular patch on the right chest with an aircraft and a mountain range, and a name tag on the left chest. The background is a bright, hazy sky.

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# Aerospace World

By Suzann Chapman, Managing Editor

## Jumper: 339 Is Minimum for F-22

The Air Force's Chief of Staff, Gen. John P. Jumper, told reporters last month that the US military must have 339 F-22 air superiority fighters.

"That is the number that we agreed on. ... There are others in the Pentagon who think we cannot get to that number with the budget, but we've agreed to go with the budget and see how high we can get," said Jumper. "We think we can get to 339 with that amount of money."

In April Defense Secretary Donald Rumsfeld had asked the Air Force to look at reducing that number. The issue is whether the Pentagon can afford the planned buys of three fighters as the services begin working the Fiscal 2004 budget.

Unlike last year, when speculation ran high that the new Bush Administration intended to cut one or more of the fighter programs, Pentagon officials have only expressed doubts about the numbers involved.

When asked about the F-22, Rumsfeld told US troops in Kyrgyzstan, "The big debate is not whether, but how many."

Each of the three fighters—F-22, F-35 Joint Strike Fighter, and F/A-18 Super Hornet—are designed for different roles. Of the three, the F-22 is the only one that will be capable of the air superiority mission.

The original mark for F-22s was set at 750. Vice President Dick Cheney trimmed that to 648 when he was Secretary of Defense. The planned production buy was cut twice—to 438, then 339—during the Clinton Administration.

"Further cuts would be the moral equivalent of a third Clinton Administration, complete with the historical myopia about future threats that President Bush has so frequently assailed," said Loren B. Thompson, a defense analyst at the Lexington Institute.

## NATO Aircraft Head Home

Operation Eagle Assist, the historic event that brought seven Airborne Warning and Control System aircraft from Europe to the US to help



USAF photo by Kevin Robertson

**Gen. John Jumper maintains that the Air Force needs 339 F-22s and the budget will support that number. Here, he gets a cockpit orientation in an F-22 test aircraft at Edwards AFB, Calif.**

patrol US skies after the Sept. 11 terrorist attacks, ended May 16.

The operation marked the first time NATO forces were deployed in the US for operational support.

Beginning Oct. 9, 2001, the NATO AWACS crews—830 members from 13 NATO nations—flew more than 360 sorties.

After the September attacks, NATO invoked Article 5 of its charter, which states that an attack on one of the alliance's 19 members is an attack on all. Five aircraft initially were sent, followed by another two, all of which operated out of Tinker AFB, Okla., during Eagle Assist.

NATO Secretary General George Robertson said the decision to conclude the NATO portion of Operation Noble Eagle was based on several factors. He cited "materiel upgrades to the US air defense posture and enhanced cooperation between civil and military authorities, and a recent US evaluation of homeland security requirements."

## Tail Stress Is No Showstopper

Recent press reports highlighted what they termed a new problem—

tail buffet stress—identified in testing the F-22 fighter. Gen. John Jumper, USAF Chief of Staff, said the problem is not new and, what's more, it's not a "showstopper."

Jumper told reporters last month that the F-22 Raptor, like many twin tail aircraft, can experience stress from turbulent airflow and pressure fluctuations. He said the F-22's problem was identified in May 2001, and the Air Force notified DOD.

Although Jumper said the problem is not serious, other service officials said it might have an impact on the test schedule.

A team of engineers, including some from the Navy, which had a similar problem with the F/A-18E/F Super Hornet, was assembled to work on potential fixes.

Jumper said a "range of solutions was in hand."

## SBIRS High Gets Go Ahead

Pentagon acquisition chief Edward C. Aldridge signed a letter to Congress May 2 certifying six programs, including the Space Based Infrared System High, for continuation even though they had exceeded cost limits.

## Pentagon Establishes New Combatant Command

DOD's top leaders unveiled several changes in announcing the 2002 Unified Command Plan. Chief among them is creation of a new combatant command, called US Northern Command, for defense of US territory.

The new UCP also re-assigns geographic responsibility to each of the combatant commands. (See map below.)

Both of these changes are to be implemented Oct. 1.

By law, the Chairman of the Joint Chiefs of Staff must review the UCP at least every two years. It was last revised in September 1999.

Defense Secretary Donald Rumsfeld called the 2002 changes "the most significant reform of our nation's military command structure since the first command plan was issued shortly after World War II."

The Pentagon proposes to house the new command in Colorado Springs, Colo., alongside North American Aerospace Defense Command.

USAF Gen. Richard B. Myers, JCS Chairman, told reporters April 17 that no new roles or missions are being created for the command. Instead Northern Command will take responsibility for missions that had been assigned to various other commands.

Specifically, those missions were land, aerospace, and sea defense of the US and command of US forces

that lend support to US civil authorities. NORTHCOM will also assume some of the geographic responsibility formerly held by US Joint Forces Command.

JFCOM will now become a purely functional, rather than a geographic, command. It will focus on military transformation, joint experimentation, and joint training. However, officials said it will retain its role in generating forces for the geographic commands.

The other functional combatant commands are: US Special Operations Command, US Strategic Command, US Space Command, and US Transportation Command.

In addition to NORTHCOM, there are four geographic combatant commands: US Central Command, US European Command, US Pacific Command, and US Southern Command. The map below displays their new geographic areas of responsibility.

The Commander in Chief of NORTHCOM will also head NORAD, the US-Canada binational command. In addition to the new command's geographic responsibility, it will oversee security cooperation and military coordination with Canada and Mexico.

Myers also revealed that DOD is considering merging the functions of SPACECOM with those of STRATCOM, which is headquartered at Offutt AFB, Neb.



Photo © Eric Curry/CORBIS

*Under the new Unified Command Plan, Northern Command will be responsible for the continental US, Canada, Mexico, portions of the Caribbean, and Alaska (Alaskan Command forces will remain assigned to Pacific Command). In addition to Europe, European Command gains most of Russia and the Caspian Sea. Pacific Command now will also cover Antarctica and retains responsibility for certain activities in eastern Russia.*



**Lt. Col. Troy Fontaine, test pilot, and Maj. Kevin Steffenson, weapons system officer, launch five Joint Direct Attack Munitions from an F-15E over a California test range and, using GPS coordinates, successfully hit five separate targets.**

Each of the six programs had at least a 25 percent cost increase.

Under the Nunn-McCurdy Law, Aldridge had to certify that each program was necessary for national security and could be kept within cost controls. Without those assurances, Congress requires program cancellation.

SBIRS High is the replacement for the Defense Support Program satellites used for ballistic missile early warning. It has additional requirements for technical intelligence and missile defense.

"The alternatives were much more expensive, given the state of the current program," said Aldridge. He also said he was confident in the program's new management structure at Lockheed Martin and Northrop Grumman.

The other five certified programs are: the H-1 and CH-47 helicopters, LPD-17 amphibious transport dock ship, chemical demilitarization program, and multiple launch rocket system upgrades.

Aldridge was forced in December to cancel the Navy's Area Terminal Defense System when it could not pass the Nunn-McCurdy test.

#### **Last Titans Reach Cape, Vandy**

The two last Titan IVBs to be launched arrived at USAF's East and West Coast launch facilities in May.

One arrived at Cape Canaveral AFS, Fla., on May 1, and another at Vandenberg AFB, Calif., on May 2.

An Air Force C-5 airlifter delivered to each facility the first and second stages of these last two Titan IVBs.

Lockheed Martin and USAF personnel rolled the sections off the airlifters onto large trailer trucks bound for the assembly facilities at the Cape and Vandenberg.

The Titan IV, first launched in 1989, is the largest US expendable launch vehicle. It is capable of carrying payloads weighing up to 10,000 pounds into synchronous orbit.

The last Titan mission from the Cape is slated to launch a Defense Support Program satellite in 2003. Vandenberg has two other Titans awaiting launch, as well.

After the final Titan IVB launch, scheduled for 2005 from Vandenberg, payloads in this class will launch aboard Lockheed Martin's new Atlas V or Boeing's Delta IV.

#### **TRW Snags SBIRS Low Program**

TRW announced that the Missile Defense Agency named the California-based contractor as lead for an

### **House Defense Panel Urges Troop Increase**

The House Armed Services Committee acted on calls from military leaders for additional personnel and increased active duty troop levels by more than 12,500 for Fiscal 2003.

The increase is barely one percent overall, but it represents the largest single-year rise since 1986. It exceeded the Bush Administration personnel request by more than 10,000 troops.

The committee approved a \$550 million increase in military personnel accounts to pay for a total of 12,652 additional personnel. The breakdown by service is:

- 1,795 for the Air Force,
- 4,800 for the Army,
- 3,757 for the Navy, and
- 2,400 for the Marine Corps.

In its report on the Fiscal 2003 defense bill, the House panel stated, "Each of the military services entered the war on terrorism with personnel shortages—a situation that has been aggravated by the operational requirements of the war."

It went on to say that the committee's recommended troop increase would "partially address manning shortfalls," thus setting the stage for further increases in next year's budget.

HASC chairman Bob Stump (R-Ariz.) said the Fiscal 2003 defense budget places the nation's defense "on the road to recovery," but he specifically called for an even stronger Fiscal 2004 defense program, to include "further increases to manpower levels."

However, troop increases are not high on Defense Secretary Donald Rumsfeld's agenda. He told a military audience in Illinois in mid-April, "I am very reluctant to increase end strength, if I can avoid it."

He said that such a move is "enormously expensive." He added, "The question is, would we be better off increasing manpower or increasing capability and lethality? ... The United States [needs] to stop using military people for nonmilitary functions."

Neither increasing capability nor shedding nonmilitary functions is a quick fix. The Pentagon's short-term solution to handling commitments in the post-Sept. 11 era was to put more than 80,000 reserve troops on active duty. That situation, increasingly, has many congressmen worried.

At a Senate Armed Services Committee hearing in April, senators warned Pentagon personnel officials that unlimited duty for such a large number of reserves raises several concerns, not the least of which are employer and retention considerations.





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industry team that will pursue development of DOD's missile tracking Space Based Infrared System Low satellite program.

The teaming concept is part of a restructuring plan MDA provided to Congress last month.

The team, which features former competitors on the program, will combine TRW with Spectrum Astro as subcontractor to work on the spacecraft and Raytheon and Northrop Grumman to develop sensor payloads under competitive contracts.

Before the restructuring, TRW and Raytheon were pitted against Spectrum Astro and Northrop Grumman in the requirements definition and conceptual design phases of the program.

Lt. Gen. Ronald T. Kadish, MDA director, told reporters that the plan keeps the key contractors involved and provides competition for the payload.

In Congressional testimony April 17, Kadish said the restructured program "will support numerous risk reduction activities, including technology maturation, ground simulations, and hardware-in-the-loop demonstrations."

The month before, Pentagon acquisition chief Edward C. Aldridge told Congress that the increase in costs for the SBIRS Low program was so significant DOD had called for a restructuring.

In addition to the teaming, the restructure, Kadish said, will require additional funds in Fiscal 2002 and possibly in 2003.

### **USAF Receives Upgraded U-2**

Lockheed Martin delivered the first U-2S high-flying reconnaissance aircraft with new state-of-the-art cockpit displays and controls to the 9th Reconnaissance Wing at Beale AFB, Calif., in mid-April.

The U-2S Reconnaissance Avionics Maintainability Program will upgrade the 1960s-era cockpit with new equipment, including three multifunction displays, an up-front control and display unit, and an independent secondary flight display system.

USAF's fleet of 31 U-2S aircraft and four two-cockpit trainers is scheduled to receive the modifications by 2007.

Formal upgrade training for pilots began last month. The new cockpit greatly eases the pilot's workload, said Col. Alan Vogel, 9th Operations Group commander.

He explained that the current cock-

## **US Renounces World Court Treaty**

The Bush Administration on May 6 formally announced its decision not to become a party to the International Criminal Court Treaty, maintaining it still has significant flaws.

Despite the US withdrawal, the United Nations received notices of ratification from 66 countries, more than enough to allow the treaty to enter into force, now set for July 1.

President Clinton signed the treaty Dec. 31, 2000, but said he would not send it to the Senate for ratification unless the flaws could be fixed. Some changes were made, but neither the Clinton nor Bush Administrations considered them sufficient.

In a May 6 statement, Defense Secretary Donald Rumsfeld listed a number of serious objections to the treaty in its current form:

- The lack of adequate checks and balances on powers of the ICC prosecutors and judges;
- The dilution of the UN Security Council's authority over international criminal prosecutions; and
- The lack of an effective mechanism to prevent politicized prosecutions of American service members and officials.

"These flaws would be of concern at any time, but they are particularly troubling in the midst of a difficult, dangerous war on terrorism," said Rumsfeld. "There is the risk that the ICC could attempt to assert jurisdiction over US service members, as well as civilians, involved in counterterrorist and other military operations—something we cannot allow."

The treaty was adopted in 1998 by representatives from 160 countries at a UN conference in Rome. The treaty, known as the Rome Statute, creates a permanent international court to try cases involving charges of genocide, crimes against humanity, war crimes, and crimes of aggression. Previously, according to the State Department, temporary tribunals were created for special situations, such as the genocide committed in 1994 in Rwanda and war crimes committed in the former Yugoslavia.

Pierre-Richard Prosper, ambassador at-large for war crimes issues, said the US wants to put responsibility for accountability "back to where it belongs, and that is with the states."

He said the US action is not unprecedented, and it "will give us the flexibility to protect our interests and the flexibility to pursue alternative approaches."

pit layout has navigational equipment low to the right of the pilot with communications equipment low to the left. "Operating that equipment adds physical demands to an aircraft which already tests a pilot's endurance on a lengthy flight."

U-2 pilots wear a full pressure suit and helmet, which, although it's fairly light, doesn't turn all the way to the side as a pilot's head turns. Because of the location of some equipment, said Lt. Col. Garry Baccus, with the 9th, "You physically had to grab the metal bar—the bailer bar—that locks the helmet faceplate and use it for leverage to turn the helmet to see and operate these controls."

### **Jumper Wants Data Displayed Intuitively**

The Air Force's top uniformed leader called integration "the buzzword for this decade," in late April

when he addressed the first C<sup>2</sup>ISR Summit.

"Many of you have heard me talk about integration many times before; all I can say to you is, you're going to hear me talk about it again and again," said Gen. John P. Jumper, USAF Chief of Staff.

Jumper told attendees at the Command and Control, Intelligence, Surveillance, and Reconnaissance Summit held at Danvers, Mass., that the time has come to stop concentrating on individual systems and to start focusing on the information they provide. He wants the Air Force to automate processing, so information can be displayed intuitively.

In doing that, said Jumper, operators can make better decisions, more quickly. "The sum of the wisdom is a cursor over the target."

He said he wants to see machine-to-machine interfaces that deliver

## Air Force Implements New Standard Wing Structure

The Air Force announced April 22 that it will change its current wing organization to a new across-the-service standard structure. The new wing structure will contain four groups—operations, maintenance, mission support, and medical. (See chart below.)

The change will apply to all active duty units, as well as the Air National Guard and Air Force Reserve Command. It takes effect Oct. 1.

The service's current "objective" wing structure, which was established in 1992, also included four groups: operations, logistics, support, and medical. It was not a consistent structure Air Force-wide, however.

The new standard wing basically returns to a pre-1992 makeup, with the reintroduction of the maintenance group. In effect, the new plan returns maintenance to maintenance professionals.

In the current objective wing arrangement, some maintenance personnel within one wing are assigned to the operations group, while others are assigned to the logistics group. In the future, all wing maintenance functions will fall under the maintenance group.

Gen. John P. Jumper, USAF Chief of Staff, said the reorganization emphasizes "three core competencies." They are: to operate air and space weapons systems, to maintain these complex weapons systems, and enhance direct mission support of our expeditionary, rapid reaction, contingency-based Air Force.

Jumper emphasized that maintenance of air and space weapons systems is a core competency. He said, "Aging fleets and years of resource shortfalls require increased attention to the balance of sortie production and health of our fleets. This requires career maintenance professionals."

Other changes in the new structure move wing supply, transportation, contracting, and aerial port functions under the mission support group.

Last year USAF began testing a new arrangement for

its logistics functions, merging transportation and supply squadrons, along with logistics plans, into a single logistics readiness squadron. Several units at USAF bases around the world were involved in the test, which was the result of a 1999 Chief of Staff Logistics Review looking for ways to reduce redundant logistics operations.

The CLR tests proved successful.

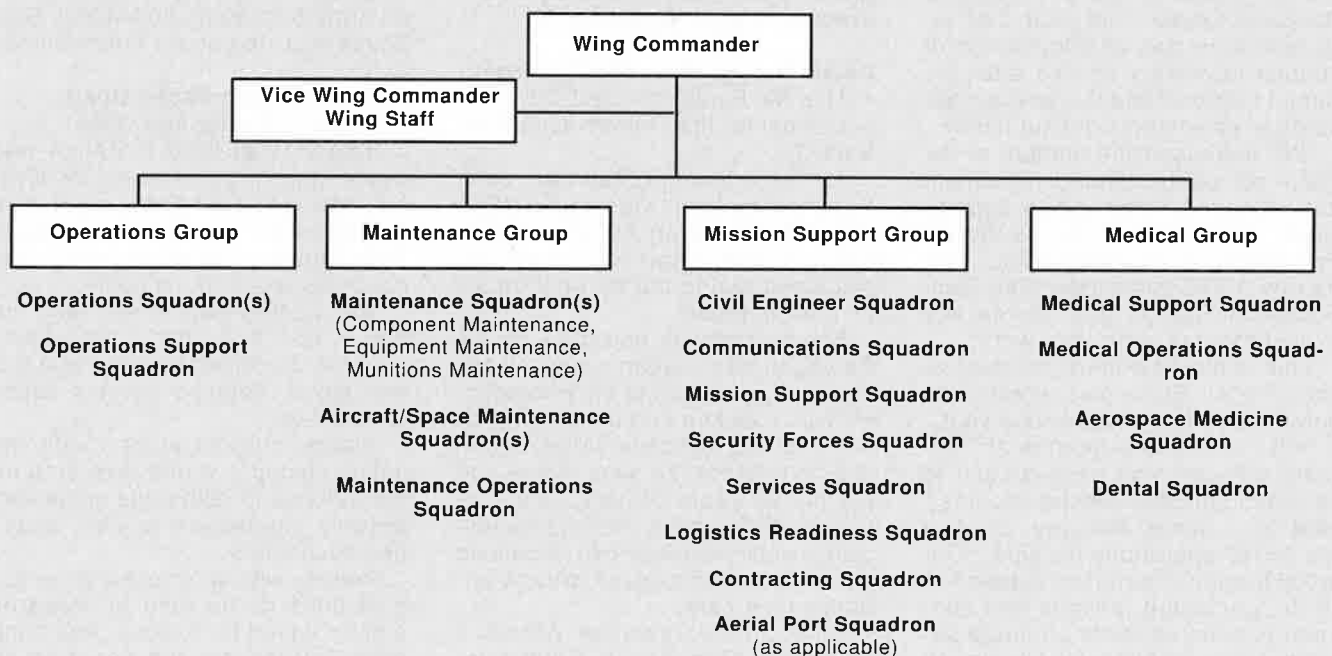
Under the new wing structure, all wing mission support groups will merge their logistics, supply, and transportation units into a logistics readiness squadron.

Another CLR initiative prompted the service to combine the logistics plans, supply, and transportation officer career fields into a single logistics readiness officer career field. That change took effect in April as the service began training new officer accessions in the three disciplines, rather than just one.

In describing the role of the mission support group, Jumper said that the Air Force will develop a career path for commanders who understand the full scope of not only home-station employment and sustainment but also contingency deployment, beddown, and sustainment. To do this he said the mission support group commander's role must encompass crisis actions, force protection, unit type code preparation, load planning, contracting actions, bare base and tent city preparation, munitions site planning, personnel readiness expeditionary combat support, and more.

For the operational groups, Jumper said, the service recognizes "the emerging necessity to more closely integrate tactical skills with execution at the operational level of war. Commanders of operational groups will be increasingly involved in planning and training for the operational level of war."

He also said that he understands the magnitude of these changes and added, "The goal is to achieve a more capable Air Force with professionals who understand and are capable of meeting our ever-increasing, complex mission."



decision-quality data, culled from various sensors on various systems, directly to decision-makers.

Jumper called integration of this sort the ultimate example of new thinking. He said the Pentagon budgeting process needs to change to foster that kind of thinking.

### F-15 Pilot Killed in Crash

The Air Force declared Maj. James A. Duricy dead following the crash of his F-15 fighter in the Gulf of Mexico about 60 miles south of Panama City, Fla., on April 30.

USAF officials said the search for his body was officially suspended May 1 at 11:30 a.m.

Duricy, who was with the 40th Flight Test Squadron at Eglin AFB, Fla., was conducting a flight test for a new air-to-air missile when his aircraft went down. He was flying with an F-16 fighter and a KC-135 tanker.

The F-16 pilot tried to raise Duricy on his radio several times unsuccessfully and then spotted debris on the water.

Duricy was a 1989 Air Force Academy graduate.

A board of officers will investigate.

### USAF Exceeds Recruiting Goal

The Air Force reached its Fiscal 2002 recruiting goal of 37,283 five months early.

Air Force Recruiting Service signed No. 37,283 on May 2.

Officials said this was the earliest USAF had met its goal since 1986.

This was not an easy task. Recruiters from each of the services told Congress earlier this year that although there was an initial surge of interest in military service after the Sept. 11 terrorist attacks, an expected surge in enlistments did not follow.

"We increased the number of Air Force recruiters, offered enlistment bonuses, and continued to aggressively market and advertise the Air Force to the youth of America," said the new AFRS commander, Brig. Gen. Edward A. Rice Jr. "But the real key to success has been hard work."

This is also the third consecutive year the Air Force has attained its goal earlier than the previous year.

"Historically, the months of February through May have proven to be the toughest accession months," said Col. James Holaday, chief of the AFRS operations division. "Our 1,605 front-line recruiters responded to the challenge, despite two mid-year goal increases to put more security forces in place for the war on terrorism."

## Attempt To Stop New Base Closures Fails

The House Armed Services Committee signaled its support May 1 for the new round of military facility closings approved last year by Congress, despite an appeal by some lawmakers that, with the nation at war, it's no time to be closing facilities.

A move to repeal last year's legislation, which provides authority for a new round of closures in 2005, failed in a committee vote, 38-19.

Pentagon officials, who had asked for approval to start closure actions in 2003, were upset at the delay until 2005. They maintain the war on terror provides one more reason to proceed with the elimination of excess infrastructure.

Defense Secretary Donald Rumsfeld pointed out late last year that any delay in the base closure program will waste money and assets. "We will be providing force protection on bases that we do not need," he said.

### Lord: AFSPC Must Flex Muscles

At his assumption of command ceremony at Peterson AFB, Colo., Gen. Lance W. Lord, the new head of Air Force Space Command, said his first priority is to ensure AFSPC fully flexes its muscles as an independent major command.

Lord is the first to lead the command following the Pentagon's overall reorganization of space functions last year. Command of AFSPC had been assigned to the commander in chief of US Space Command since 1992.

His second priority, Lord said, is for the command to provide space capabilities to the warfighter in an integrated manner. Third, he said, AFSPC must work hard to make Peter B. Teets, the undersecretary of the Air Force, successful as DOD's executive agent for space.

### USAF Recognizes Attack Heroes

The Air Force honored 28 of its personnel for their heroic actions on Sept. 11.

Air Force Chief of Staff Gen. John P. Jumper on April 15 presented MSgt. Noel Sepulveda an Airman's Medal and a Purple Heart for injuries he sustained during the terrorist attack on the Pentagon.

Sepulveda, who had gone to the Pentagon for a meeting, saw the airliner as it crashed into the Pentagon. He was knocked into a light pole by the resulting explosion. After regaining his balance, he went inside and put his 26 years of active and Reserve service as a medical technician to work. He helped carry wounded out, then set up a triage area to prioritize their care.

Nine others received Airman's Medals: Lt. Gen. Paul K. Carlton Jr.; Lt. Col. Gary W. Holland; Maj. Jo-

seph A. Milner; CMSgts. Ricky L. Arnold, Paul D. Miller, and John K. Monaccio; SMSgt. Kevin M. Andrews; MSgt. Paul R. Lirette; and SSgt. Gregory D. Fechner.

Eight individuals received Meritorious Service Medals: Col. John S. Baxter; Lt. Cols. Janet Deltuva, Maureen E. Massey, and Terry P. Kane; Maj. Michael Moore; CMSgts. Troy J. McIntosh and Robert Walko; and TSgt. Randall B. Federspill.

Eight received the Air Force Commendation Medal: Lt. Col. Matthew D. Swanson; Maj. James G. Cusic and Andrew H. Weaver; SMSgt. Anthony J. Twitty; TSgt. Bernard Kimbrough; SSgts. Lisa A. Ducharme and Charles V. Hawkins; and A1C Evandra D. Spruell.

Lt. Col. William Mitchell received an Army Commendation Medal. Blair Bozek received an Air Force Scroll.

### Retired Airmen Faces Death Penalty in Espionage Case

Retired MSgt. Brian P. Regan, who was to stand trial this month for allegedly spying for China, Iraq, and Libya, has a reprieve until possibly January 2003, but he now could receive the death penalty if found guilty.

The Justice Department filed notice in late April that it planned to seek the death penalty. As a result of that move, defense lawyers asked for a delay.

Justice officials agreed with the delay, saying it would take time for the defense to obtain the necessary security clearances to view classified documents.

Regan, who was arrested in August 2001 as he tried to board an airliner bound for Europe, was originally indicted on one count of attempted espionage. That indictment

was amended in February to include three counts of attempted espionage and one count of gathering national defense information.

He worked at the National Reconnaissance Office while in the Air Force and later, briefly, as a defense contractor.

"The defendant intended to give to Iraq, a hostile country that has regularly attempted to shoot down US and allied aircraft flying in the no-fly zone, detailed and comprehensive information concerning US reconnaissance satellites," said US attorney Paul J. McNulty in a statement. "The disclosure of this information would make it more difficult to protect the lives of our servicemen."

### USAF Opens New Warfighting Integration Office

The Air Force on April 29 formally set up its new office that will integrate Intelligence, Surveillance, and Reconnaissance assets with Command and Control, and communications and computer capabilities.

The service had previously named Lt. Gen. Leslie F. Kenne as the new Deputy Chief of Staff for Warfighting Integration (AF/XI).

"Successful operations depend on modernized air and space capabilities to quickly find, fix, track, and attack targets," said Gen. John P. Jumper, USAF Chief of Staff, in announcing the



USAF photo by Bruce Hoffman

*Terrorist threats notwithstanding, the Air Force decided that air shows could go on. Here, the units at Eglin AFB, Fla., recently showcased current USAF weapon systems and vintage aircraft.*

new office. "I have explicitly charged the new AF/XI to close the seams in this kill chain by integrating manned, unmanned, and space systems, thereby enabling commanders to create desired effects in the battlespace."

The Air Force disestablished the DCS for Communications and Information, moving its responsibilities and resources to XI, as well as the Directorate of Command and Control, trans-

ferring its key responsibilities to XI.

Additionally, the service realigned the Air Force C<sup>2</sup>ISR Center at Langley AFB, Va., from Air Combat Command to XI.

### DD(X) Gets Under Way

The Navy announced April 29 it selected the Northrop Grumman-led Gold Team, which includes Raytheon, as the lead design agent for the DD(X) ship program.

The DD(X) contract award "signals the start of a revolution for the Navy's surface combatant fleets," said a DOD statement. It will be the foundation for a family of surface combatants, including a future cruiser and littoral combat ship, that will herald "significant combat advantage" while reducing crew size.

Defense acquisition chief Edward Aldridge called the DD(X) "the Joint Strike Fighter equivalent for shipbuilding."

Adm. Vern Clark, Chief of Naval Operations, said, "These great ships and other members of the family of surface combatants will transform the Navy fleet, multiply our combat effectiveness, and play a crucial role in dominating the future battlespace."

General Dynamics lodged a protest on the DD(X) decision with the General Accounting Office.

### DOD To Establish New Spectrum Office

Pentagon officials told Congress that DOD planned to create a new Defense Spectrum Office to better address spectrum management issues.

A key function of the new office will

## Transition at Air Force Magazine

This month marks the first time since November 1984 that the masthead does not list John T. Correll as Editor in Chief. Correll, who presided over 211 issues and set the standard for defense journalists in Washington, D.C., retired on April 30 after nearly 20 years on the staff. Correll is widely regarded as the most skillful and influential editor in this magazine's 60-year history, by a wide margin.

Named by AFA to be Correll's successor was Robert S. Dudney, the magazine's second-highest-ranking editor since 1989. Dudney has been deeply involved in all aspects of magazine editorial and financial affairs for more than a decade. Dudney announced several interrelated changes in staff organization as well as promotions.

The post of Managing Editor has acquired new editorial and financial duties and becomes the magazine's No. 2 position. Suzann Chapman, who came to the magazine in 1995 and has been Managing Editor since 1997, was promoted to the "new" Managing Editor post on May 1.

John A. Tirpak, who joined the magazine staff as Senior Editor in 1994, has been promoted to the position of Executive Editor, where he will continue to report and write most of the magazine's lead articles and also handle new editorial duties, Dudney said. This change also became effective May 1.

Dudney announced the creation of a second Assistant Managing Editor post. Named to this new position was Juliette Kelsey Chagnon. Dudney said Chagnon had been promoted after four years in the position of Staff Editor and Administrative Assistant.

be to help DOD address the “imbalances and asymmetric risks” created by the current national spectrum management process, Steven Price told a House panel April 23. Price is the deputy assistant secretary of defense for spectrum and command, control, and communications policy, a position that was created just last year to deal with the increasing challenges facing the military in maintaining sufficient spectrum capability for its weapon systems.

Price said the new office would subsume the Office of Spectrum Analysis and Management, created in 1998.

“Spectrum enables almost every function that DOD performs,” said Price. “It is vital to national security.”

Over the past 10 years, DOD and the Air Force have lost access to more than 240 megahertz of spectrum, said Lt. Gen. John L. Woodward Jr., then deputy chief of staff for communications and information. He said a succession of actions and decisions led to the loss of bands that were at the most desirable frequencies for key warfighter functions. Those same frequencies are coveted by commercial entities.

“While each of these actions, taken in isolation, might have appeared manageable, the cumulative effect on the Air Force has been significant,” said Woodward.

Some critics claim the Pentagon does not handle its spectrum use efficiently. Price argued that some spectrum use labeled as “inefficient” is actually “designed for anti-jam systems, low probability of intercept, and other counter-countermeasures.”

He added, “The commercial standards that allow a certain percentage of built-in busy signals or dropped calls cannot be tolerated.” For the military, “the call must get through.”

### **Firefighters Move to World Competition**

Air Force firefighters from Travis AFB, Calif., secured a try at the World Firefighter Combat Challenge to be held in Deerfield Beach, Fla., in October.

The Travis team took first place in the 2002 Firefighter Combat Challenge, held at Woodbridge, Va., in April. Individual team members also took first, third, fourth, and fifth places in the individual relay category.

The team comprised three active duty members from the 60th Civil Engineer Squadron and one Reservist with the 349th CES. The three from the 60th are: SSgt. A.J. Eversley,

SrA. Mike Romano, and A1C Harry Myers. From the 349th is SSgt. Mike Melon.

The annual challenge began in 1991 and is open to civil and military firefighters.

The competitors wear full firefighting gear, including breathing apparatus, and must complete five separate tasks that demonstrate the profession's physical demands.

In one task, the competitors climb to the top of a five-story tower carrying a 44-pound high-rise hose pack. At the top, they must hoist a 45-pound hose roll up the full height of the tower. After that, they race

back down the stairs, touching each step.

In another event, they must hit a 160-pound steel beam with a nine-pound shot mallet, moving the beam a specified distance. Other tasks follow, including dragging a life-size 185-pound dummy a distance of 100 feet.

The Travis firefighters spend three months training for the challenge, in addition to handling their normal duties.

### **Experimental Multimission C<sup>2</sup> Aircraft Takes Flight**

An experimental version of USAF's new Multimission Command and Con-

## **GAO Says Military, Private Benefits Comparable**

The military offers all the core benefits—retirement, health care, life insurance, and paid time off—provided by private-sector employers and then some, according to Derek B. Stewart of the General Accounting Office.

Stewart identified a variety of military benefits that he said exceed those found in the private sector. He said these include free health care, free housing or housing allowances, and discount shopping at commissaries and exchanges.

He also noted that recent changes by Congress had restored retirement benefits and expanded health benefits for retirees.

Stewart told the Senate Armed Service Committee's personnel panel April 11 that GAO “did not identify significant gaps” in the overall benefit package offered to active duty service members. However, he also said GAO had not made direct comparisons.

“We have not made direct analytical comparisons” because of difficulties that entails, said Stewart. Namely, he said, any comparison must consider the demands of military service, such as involuntary relocation, frequent and lengthy separations from family, and liability for combat. He also cited the inequity in hiring practices, for example the military hires at the entry level and demands up-or-out promotions, unlike private-sector employers.

Comparisons are also difficult, he said, because the military and private sector may structure their benefits differently. For instance, the military retirement system requires 20 years of service to be vested, while private sector employers typically have much shorter vesting periods or no vesting periods at all.

Stewart also said the change from a largely single force to one in which members have more family obligations is one of the most significant demographic changes since implementation of the all-volunteer force in 1973. While the rise of members with families prompted DOD to establish a variety of family support services, Stewart said that DOD needs to improve some of those benefits. He specifically cited the need to expand child care and spousal employment assistance.

In 2000, more than 600,000 active duty members had children. Of those with children, about 85,000 were single parents. There were 1.23 million military children, nearly 75 percent of which were 11 years old or younger.

According to Stewart, “DOD hopes to meet 80 percent of its members' child care needs by 2005.”

As one way to assist working spouses, DOD is attempting to establish partnerships with private-sector employers who can offer jobs with portable tenure to enable a spouse who must relocate to stay with the same employer. Other initiatives include working with the Labor Department to overcome recertification barriers for jobs such as teaching, nursing, and child care.

Stewart offered his comments as preliminary findings on a study the SASC panel requested to determine if military benefits have kept pace with force demographic changes and whether the benefits provided make the military competitive with the private sector. The GAO plans a full report later this summer.



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trol Aircraft concept flew for the first time in mid-April. It is designated MC2A-X.

Electronic Systems Center conducted the systems and communications check flight of the aircraft, dubbed *Paul Revere*, at Hanscom AFB, Mass.

The Air Force introduced the MC2A concept last year as a replacement for its current reconnaissance aircraft. The ultimate airframe for the MC2A will likely be the same type as the one the service selects to replace its tanker fleet.

Congress endorsed the plan, providing funds in the Fiscal 2002 defense budget to begin development of the MC2A.

The House Intelligence Committee suggested, too, that the Air Force and Navy should develop a single manned reconnaissance fleet. It would be owned by one service but operated by both, similar to the current arrangement with the EA-6B for electronic attack.

### USAF Names AFA Team of Year

The Air Force announced the annual Air Force Association Team of the Year, naming five security forces enlisted personnel for the 2002 honor.

Those selected were: MSgts. Vicki L. Jones, 11th Security Forces Squadron, Bolling AFB, D.C., and Todd A. Weinberger, 115th SFS (ANG), Madison, Wis.; SSgts. Travis D. Hartzell, 823rd SFS, Moody AFB, Ga., and Brandon E. Sprague, 55th SFS, Offutt AFB, Neb.; and SrA. Andres E. Salazar, 310th SFS, Schriever AFB, Colo.

Each year AFA and the Chief Master Sergeant of the Air Force select a specific career field for recognition. The security forces career field team members for the 2002 presentation were honored at a ceremony in Washington, D.C., last month.

### Alaska Gains Airlifter Missions

Sen. Ted Stevens (R-Alaska) announced in mid-April that the Air Force would form a new associate Air Force Reserve Command squadron in his home state.

Elements of the squadron will fly C-17s out of Elmendorf Air Force Base and C-130Xs from Kulis Air National Guard Base.

He said the aircraft changes at the two facilities will create about 179 new manpower positions. They will also bring an estimated \$247 million in military construction to the bases.

"The AFRC presence in Alaska will enhance capability for deployment and force protection that ensures

Alaska-based forces will play an instrumental role in the Pacific as well as globally in the years ahead," said Stevens in a press statement.

### DEERS Moves to Single Database

The third and final phase in a program designed to improve the Defense Enrollment Eligibility Reporting System is slated to begin next year, according to Air Force officials.

The new DEERS will consolidate information from more than 120 databases into a single database.

The program's first phase, implemented in July 2001, consolidated enrollment information on Tricare recipients. The second, which began in October 2001, incorporated information on Tricare for Life enrollees—those age 65 and older and others eligible for Medicare. The final phase will bring on board the remaining information, such as claims, other health

insurance, and additional administrative data.

The new DEERS "improves the way we can deliver health care," said Maj. Paul Friedrichs, with the USAF Surgeon General office.

Among the claimed advantages of the new single-database DEERS: no confusion over Tricare eligibility when a recipient is traveling and elimination of the need for providers to check duplicate records to find a patient's lab results.

### Comm and Info Hall of Fame Inducts Three

The Air Force Communication and Information Hall of Fame inducted three new members in mid-April, designating them as Foundation Setters. They were Lt. Gen. Richard P. Klocko and, posthumously, Lt. Gen. Gordon T. Gould Jr. and Maj. Gen. Paul R. Stoney.

## Rumsfeld Takes Aim at Army's Crusader

Defense Secretary Donald Rumsfeld formally announced May 8 his intention to terminate the Army's Crusader artillery system—the first major weapon system to get the ax under the Pentagon's new push for transformation.

Even before his announcement, battle lines were drawn between Crusader's supporters and opponents.

As soon as word leaked out that the \$11 billion Crusader was on the chopping block, several congressmen vowed to fight to ensure full funding for the program in the Fiscal 2003 defense budget. Army officials were ready to fight for the program.

At one point, media reports had Army Secretary Thomas E. White, who was a staunch Crusader supporter, being given the boot along with the program. Army staffers supposedly had gone directly to Congress, lobbying to save the program.

Instead, Rumsfeld expressed his confidence in White. White launched an investigation into possible inappropriate behavior within his staff. Within days, the investigation identified a civilian in the Army's Office of Legislation Liaison as the culprit in the leak to Congress of a pro-Crusader talking points paper. White, it turns out, had not requested the paper.

The talking points took direct aim at the Air Force's new F-22 fighter as the reason that Rumsfeld wanted to eliminate the Crusader. According to the *Washington Post*, the paper said Rumsfeld's office wanted a "quick kill" to free money for the F-22 and went on to say soldiers would die in combat if the Pentagon canceled the Crusader.

"I am personally and professionally disturbed by the preparation of these so-called talking points that I find—frankly—offensive and insulting to the Department of the Army and the Department of Defense," said White in a statement May 10.

The battle was not over. Some lawmakers vowed to continue the fight. Just the day before, the Bush Administration had warned Congress not to restrict Rumsfeld's ability to cancel the program. The veto word was used.

On May 10, the House passed its version of the Fiscal 2003 defense spending bill with funding for the Crusader intact. However, the language did not rule out program cancellation.

Likewise, the Senate Armed Services Committee had voted funds for the program but stopped short of imposing guaranteed protection.

Termination of the Crusader will mark the first major weapon system cancellation since then—Defense Secretary Dick Cheney killed the Navy's A-12 fighter program in 1991.



The inductees join a growing list of public and private sector members recognized for helping deliver world-class communications and information capabilities to the Air Force, said a USAF statement. The Hall of Fame, which began in 1999, was officially dedicated last year at the Air Force Communications Agency at Scott AFB, Ill.

**News Notes**

- President Bush nominated Air Force Gen. Ralph E. Eberhart as Commander in Chief of the new Northern Command. (See "Pentagon Establishes New Combatant Command," p. 13.) Eberhart is currently CINC, NORAD and US Space Command.

- The Air Force named civilian Richard Bleau as new head of the Joint STARS program office for Electronic Systems Center at Hanscom AFB, Mass. Bleau had served as deputy director of the radar aircraft program since August 2000.

- President Bush nominated Army Lt. Gen. James T. Hill as commander of US Southern Command with promotion to four stars.

- Congressman Walter Jones Jr. (R-N.C.) announced May 2 committee passage of his legislation to change the name of the Secretary of the Navy to the Secretary of the Navy and Marine Corps. The measure is included in the Fiscal 2003 defense authorization bill.

- USAF awarded BAE Systems \$53 million for upgrades to EC-130H Compass Call aircraft used for tactical command, control, and communications countermeasures.

- Bruce W. Suter, founder and current director of the Center for Transmission and Exploitation at the Air Force Research Lab Rome Research Site, was named one of four recipients of the Arthur S. Flemming Award for Scientific Achievement.

- Navy Secretary Gordon R. England told reporters May 9 that he wants to integrate Navy aviation with Marine Corps aviation to form one integrated air force within the Department of the Navy.

- DOD reported to Congress that the 103rd Civil Support Team of the Alaska National Guard and the 93rd CST of the Hawaii National Guard were certified. With those two teams, the Pentagon now has only five more to organize and certify to reach the full complement of 32 authorized by Congress.

- Northrop Grumman agreed in early May to halt its bid for a hostile takeover of TRW until Sept. 30. TRW had sought up to a three-year delay.

- DOD announced May 1 that ser-

**CIA: "Stealing More Secrets"**

"Today, the year 2002, I have more spies stealing more secrets than at any time in the history of the CIA," James Pavitt, CIA's deputy director of operations, told a conference at Duke University.

Along with that, the veteran operations officer said that a global coalition of intelligence services is sharing information. "We plan operations together, and together in many instances we take terrorists off the streets."

"Now for the hard truth," Pavitt said. "Despite the best efforts of so much of the world, the next terrorist attack—it's not a question of if, it's a question of when."

Pavitt described another truth which he said the entire world came face to face with on Sept. 11: "The forces of terror are highly resourceful, they have a level of compartmentation seldom seen, they are extremely determined, and they are utterly ruthless."

"To those who preach hate and hopelessness, the murder of innocents is no crime at all," said Pavitt. He continued, "With so many possible targets and an enemy more than willing to die, the perfect defense isn't possible."

He did note that the CIA is rebuilding, training more than 10 times as many operations officers as just five or six years ago. And he emphasized that the volunteers who came forward after the Sept. 11 attacks are "people with qualifications that we need today and tomorrow."

"They have the education, they have the background, they have the languages, and they have the experience in this country and overseas to get this job done," said Pavitt.

vice members on active duty on or after Sept. 11, 2001, are eligible to receive the National Defense Service Medal. The medal may also be awarded to select Guard and Reserve personnel who were ordered to federal active duty, regardless of duration.

- Air Force Space Command announced winners at its annual Guardian Challenge: the 341st Space Wing, Malmstrom AFB, Mont., won the Blanchard Trophy for best ICBM wing; 30th SPW, Vandenberg AFB, Calif., took the Schriever Trophy as the best space launch wing; and 50th SPW, Schriever AFB, Colo., won the Aldridge Trophy for best space operations wing.

- Army Air Forces pilot 2nd Lt. Rusty Bales received his Bronze Star, 58 years after his World War II heroic

action. His grandson, Marine Corps Lance Cpl. Andrew Weisel, pinned on the long-overdue medal at a ceremony at Luke AFB, Ariz.

- DOD announced May 9 the establishment of the Pentagon Force Protection Agency. It will include functions performed by the Defense Protective Service, as well as expanded force protection, security, and law enforcement functions.

- Remains of a World War II B-17 pilot, Lt. Col. Earle Aber, shot down accidentally by British guns firing at enemy aircraft in March 1945 as he flew over the east coast of England, were buried at the American War Cemetery, near Cambridge May 10. Aber and his co-pilot, 2nd Lt. Maurice Harper, managed to keep the bomber airborne long enough for nine crew

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members to bail out. He and Harper were killed as the aircraft crashed and exploded. Harper's remains were buried at Arlington National Cemetery.

- Raytheon delivered the first production AIM-9X Sidewinder air-to-air missile to the Air Force May 1, marking the start of an 18-year production plan, said a company release.

- DOD announced five winners of the 2002 CINC's Annual Award for Installation Excellence. One was Lajes Field, Azores, Portugal, for the Air Force.

- The first British series produc-

tion Eurofighter made a successful maiden flight April 15 from a BAE Systems facility in Lancashire, UK.

- Northrop Grumman delivered the 13th E-8C Joint STARS radar aircraft to the Air Force April 25, more than five weeks ahead of schedule.

- Rockwell Collins announced April 15 the first flight of a USAF KC-135 with the first full application of the Global Air Traffic Management avionics. The company will be modifying more than 544 aircraft under the GATM program.

- USAF pararescueman SSgt. Tra-

cy Barnett, now stationed at Pope AFB, N.C., received the Noncommissioned Officers Association Vanguard Award for his heroic action in Germany in July 2001, when he rendered immediate medical aid to a civilian parachutist who had broken his jaw upon making a hard landing at a local parachute drop zone.

- The Defense Advanced Research Projects Agency awarded a contract to Northrop Grumman for the first phase in a small launch vehicle study, called Responsive Access, Small Cargo and Affordable Launch (RASCAL). ■

## Senior Staff Changes

**RETIREMENTS:** Brig. Gen. Marion E. **Callender Jr.**, Lt. Gen. Thomas J. **Keck**, Lt. Gen. John L. **Woodward**.

**PROMOTIONS:** To **ANG Major General:** Thomas P. **Maguire Jr.** To **ANG Brigadier General:** LaRita A. **Aragon**, Robert B. **Bailey**, Tod M. **Bunting**, Lawrence J. **Cerfoglio**, Eugene R. **Chojnacki**, Thorne A. **Davis**, Allen R. **Dehnert**, Dana B. **Demand**, R. Anthony **Haynes**, Stanley J. **Jaworski Jr.**, Riley P. **Porter**, Richard L. **Rayburn**, Timothy R. **Rush**, Ronald L. **Shultz**, John M. **White**.

**CHANGES:** Brig. Gen. (sel.) Thomas S. **Bailey Jr.**, from Dep. Command Surgeon, AMC, Scott AFB, Ill., to Cmdr., 74th Medical Gp., ASC, AFMC, Wright-Patterson AFB, Ohio ... Brig. Gen. (sel.) Bradley S. **Baker**, from Spec. Asst. to Dir., Prgms., DCS, P&P, USAF, Pentagon, to Dep. Dir., Strategic Planning, DCS, P&P, USAF, Pentagon ... Maj. Gen. Franklin J. **Blaisdell**, from Dir., Nuclear & Counterproliferation, DCS, Air & Space Ops., USAF, Pentagon, to Dir., Space Ops. & Integration, DCS, Air & Space Ops., USAF, Pentagon ... Brig. Gen. Kelvin R. **Coppock**, from Dir., Intel., STRATCOM, Offutt AFB, Neb., to Dir., Intel., ACC, Langley AFB, Va. ... Brig. Gen. Maria I. **Cribbs**, from Spec. Asst. to Asst. Vice C/S, USAF, Pentagon, to Dir., Manpower & Personnel, Jt. Staff, Pentagon ... Maj. Gen. Charles E. **Croom Jr.**, from Vice Dir., C<sup>4</sup> Sys., Jt. Staff, Pentagon, to Dir., Comm. Infrastructure, DCS, Warfighting Integration, USAF, Pentagon ... Brig. Gen. Frank R. **Faykes**, from Dir., Budget Ops. & Personnel, Asst. SECAF (Financial Mgmt. & Comptroller), Pentagon, to Dir., Financial Mgmt. & Comptroller, AFMC, Wright-Patterson AFB, Ohio ... Brig. Gen. Vern M. **Findley II**, from Cmdr., 437th AW, AMC, Charleston AFB, S.C., to Vice Cmdr., 5th AF, PACAF, Yokota AB, Japan ... Brig. Gen. (sel.) Sandra A. **Gregory**, from Dir., Financial Mgmt. & Comptroller, AFSPC, Peterson AFB, Colo., to Dir., Budget Ops. & Personnel, Asst. SECAF (Financial Mgmt. & Comptroller), Pentagon ... Maj. Gen. (sel.) Claude L. **Kehler**, from Cmdr., 21st SW, AFSPC, Peterson AFB, Colo., to Dir., Natl. Security Space Integration, Undersecretary AF, Pentagon ... Brig. Gen. Joseph E. **Kelley**, from Cmdr., 74th Medical Gp., ASC, AFMC, Wright-Patterson AFB, Ohio, to Asst. Surgeon General, Expeditionary Ops., S&T, USAF, Bolling AFB, D.C. ... Brig. Gen. (sel.) Mark T. **Matthews**, from Asst. Dep. Dir., Global Ops., Jt. Staff, Pentagon, to Dep. Dir., Operational Plans, DCS, Air & Space Ops., USAF, Pentagon ... Brig. Gen. (sel.) Kimber L. **McKenzie**, from Cmdr., 91st SW, AFSPC, Minot AFB, N.D., to Dir., Intel., STRATCOM, Offutt AFB, Neb. ... Brig. Gen. Loren M. **Reno**, from Vice Cmdr., Oklahoma City ALC, AFMC, Tinker AFB, Okla., to Dir., Log., AMC, Scott AFB, Ill. ... Maj. Gen. Mary L. **Saunders**, from Dir., Supply, DCS, Instl. & Log., USAF, Pentagon, to Vice Dir., DLA, Ft. Belvoir, Va. ... Brig. Gen. (sel.) Paul J. **Selva**, from Cmdr., 62nd AW, AMC, McChord AFB, Wash., to Vice Cmdr., Tanker Airlift Control Ctr., AMC, Scott AFB, Ill. ...

Brig. Gen. Bernard K. **Skoch**, from Principal Dir., Network Svcs., DISA, Arlington, Va., to Dir., Comm., DCS, Instl. & Log., USAF, Pentagon ... Brig. Gen. Robert L. **Smolen**, from Dir., Manpower & Personnel, Jt. Staff, Pentagon, to Dir., Nuclear & Counterproliferation, DCS, Air & Space Ops., USAF, Pentagon ... Brig. Gen. Toreaser A. **Steele**, from Dir., Personnel Resources, DCS, Personnel, USAF, Pentagon, to Vice Cmdr., AAFES, Dallas ... Maj. Gen. (sel.) George P. **Taylor Jr.**, from Asst. Surgeon General, Expeditionary Ops., S&T, USAF, Bolling AFB, D.C., to Spec. Asst. to Surgeon General, USAF, Bolling AFB, D.C. ... Brig. Gen. Dale C. **Waters**, from Vice Cmdr., 5th AF, PACAF, Yokota AB, Japan, to Cmdr., 363rd AEW, ACC, Prince Sultan AB, Saudi Arabia ... Brig. Gen. (sel.) David G. **Young III**, from Command Surgeon, PACAF, Hickam AFB, Hawaii, to Cmdr., 81st Medical Group, AETC, Keesler AFB, Miss.

**CHIEF MASTER SERGEANT RETIREMENTS:** CMSAF Frederick J. **Finch**, CMSgt. Raymond G. **Carter**.

**COMMAND CHIEF MASTER SERGEANT CHANGES:** CMSgt. Ronald G. **Kriete**, to CCMS, AFSPC, Peterson AFB, Colo. ... CMSgt. Frances L. **Shell**, to CCMS, AFOSI, Andrews AFB, Md.

**SENIOR EXECUTIVE SERVICE RETIREMENTS:** John A. **Bradley**, Richard T. **Eckhardt**, John M. **Ledden**.

**SES CHANGES:** Michael A. **Aimone**, to Dep. Dir., Log. Readiness, DCS, Instl. & Log., USAF, Pentagon ... Timothy A. **Beyland**, to AFPEO, Svcs., OSAF (Acq.), Pentagon ... William U. **Borger**, to Dir., P&P, AFRL, AFMC, Wright-Patterson AFB, Ohio ... Robert S. **Dickman**, to Dep., Mil. Space, Undersecretary AF, Pentagon ... James B. **Engle**, to Dep. Asst. SECAF, Science, Technology, & Engineering, Asst. SECAF (Acq.), Pentagon ... Kathleen I. **Ferguson**, to Dep. Civil Engineer, DCS, Instl. & Log., USAF, Pentagon ... Gerald L. **Freisthler**, to Prgm. Dir., JASSM SPO, Air Armament Ctr., Eglin AFB, Fla. ... Carol G. **Guy**, to Dep. General Counsel, Instl. & Env. Law, Office of General Counsel, USAF, Pentagon ... Debra L. **Haley**, to Assoc. Dir., Investment Strategy, AFRL, AFMC, Wright-Patterson AFB, Ohio ... Bruce Stuart **Lemkin**, to Principal Dep. Asst. Secy. (Financial Mgmt.), SECAF, Pentagon ... Terry R. **Little**, to Dir., AF Acq. Ctr. of Excellence, OSAF (Acq.), Pentagon ... Joseph M. **McDade**, to Dep. General Counsel (Dispute Resolution), Office of the General Counsel, Pentagon ... Winifred E. **Okumura**, to Prgm. Dir., Mobility SPO, ASC, Wright-Patterson AFB, Ohio ... Ernest A. **Parada**, to Dir., P&P, ESC, AFMC, Hanscom AFB, Mass. ... Eric L. **Stephens**, to Dir., AF Institute for Env., Safety, & Occupational Health Risk Analysis, 311th Human Sys. Wg., ASC, Brooks AFB, Tex. ... Frank P. **Weber**, to Dir., Standard Sys. Group, ESC, AFMC, Maxwell AFB, Ala. ... Charlie E. **Williams Jr.**, to Assoc. Dep. Asst. Secy. (Contracting), OSAF (Acq.), Pentagon. ■

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Staff photo by Guy Acario

Gen. John W. Handy says USAF wants to fix the lifter, tanker, and infrastructure problems all at once.

# Mobility Boom

By John A. Tirpak, Executive Editor

**F**OR the first time in nearly two decades, the Pentagon is dramatically increasing its investment in air mobility—expanding buys of transport airplanes, accelerating the replacement of tankers, and renewing ground infrastructure. The resurgence of support for air mobility is seen as both an answer to demands of wartime operations half a world away in Afghanistan and a concrete acknowledgment that all branches of the US military must move more rapidly in future conflicts.

After long and heated debate, planned procurement of C-17 airlifters has, with little fanfare, been increased by one-third, and there seems to be support for raising the bar even further. The Air Force has a program in place to evaluate a C-5 fleet life extension modification. Service C-130s will be modernized or displaced with the new C-130J. USAF's aging aerial tankers likely will be replaced with new airplanes starting five years earlier than planned. En route infrastructure—everything from fuel tanks to cargo loaders—is being rehabilitated.

"All that seems to say we're in better shape than we were five years ago," said Gen. John W. Handy, Commander in Chief of Transportation Command and head of Air Mobility Command. As for the airlift force of five years from now, he added, "I feel very upbeat about it."

In an interview with *Air Force Magazine*, Handy discussed the role played by the lift and tanker fleets in the war on terrorism and the new push to revitalize AMC's most essential hardware.

## C-17 Comes Through

Military operations in Afghanistan are being supported and resupplied almost exclusively by air. The bulk of what's being moved is going by C-17, the only airlifter that is able to travel intercontinental distances with outsize cargo and land in the war zone on an unimproved dirt strip. These qualities, along with the C-17's ability to back up and operate on a narrow ramp and maintain high mission capability rates, make it "the weapon system of choice" for Afghanistan, Handy said.

The C-17 played a key role in early days of the conflict. The aircraft began delivering air-dropped humanitarian rations to starving Afghans even as the air campaign to dislodge the Taliban got under way. Initial C-17 food drops were escorted by fighters until Taliban air defenses were neutralized. More than two million humanitarian daily rations had been delivered by mid-December.

The C-17 is "performing exquisitely well [at] all the things that we bragged about" during its development, said Handy. The Air Force had already contracted for 120 of the

new cargo aircraft. Now, it has arranged with Boeing to acquire 60 more under a multiyear contract of about \$9.2 billion. Thus, the C-17 fleet will number 180 aircraft by 2008.

Because the C-17 production capability is well along the learning curve, each of the 60 new models will cost an average of about \$152 million, compared with a per-airplane average of \$198 million apiece on the first 120. The new airplanes will also have additional fuel tanks for more range—an improvement already being added to units on the assembly line. Each new C-17 is being delivered about three months ahead of schedule.

“We’ve got 82 C-17s delivered right now, and we’re using about 46 to 48 a day on a routine basis,” Handy noted. “We have used, at times, every C-17 we own” because of the great demand for the aircraft.

To keep the airplanes moving, the Air Force has started flying its C-17s with three pilots on board. This practice has put additional strains on the pool of C-17-qualified pilots, but Handy said the aircrew issue at this point is not an “insurmountable” problem.

Handy observed that the C-17 has been called on to do so much that “we’re aging even our newest systems much faster” than had been planned or for which the Air Force has budgeted. Spare parts and flying hours on the aircraft fleet are being

consumed at a rate greater than predicted.

“It’s going to be one of these ‘pay me now [or] pay me later’ dialogues,” Handy observed. “At some time in the future, we’ll have eaten up the precious flying hours we hoped to expend later on. ... The other side of that coin is, that’s why we bought them. They’re there to be used.”

### Good Shape, So Far

Operation Enduring Freedom is not a Major Theater War in lift terms, Handy said. In an MTW, he went on, “we would open up a lot of FOLs [Forward Operating Locations], we would dump a lot of resources into the theater, and so, it would dramatically tax the lift system.” That hasn’t happened in Afghanistan, he pointed out. No huge movements of troops and vehicles or helicopters, with all their support gear and personnel, deployed to many, widely dispersed bases has been required so far.

While mobility forces are busy, they have not had to slack off in other areas. Nor have they had to defer large amounts of maintenance and training. After both Operation Desert Storm in 1991 and Operation Allied Force in 1999, months of reconstitution were necessary to bring the force back up to par.

Handy said he’s not sure whether such extended downtime will be required after Enduring Freedom. This is true “predominantly,” he said, “because we don’t know how long

this is going to last.” However, he added, “There will be a point in time where we’ll have to ... take a breath and look at reconstitution.” This would apply chiefly to people, who cannot go indefinitely without a rest or proficiency training. When it comes to the airplanes, Handy said, “We’re taking care of [them] as we go. ... We’ve not deferred any maintenance, and we’ve not deferred any depot work” on fleet aircraft since Enduring Freedom began.

“We can’t afford to,” he said. “We couldn’t kick the can.”

However, unabated, extended operation of the C-17 fleet could lead to a maintenance “bow wave or bathtub” in the future, Handy allowed.

Air Mobility Command people are working “a lot harder and longer than they traditionally would have done” and will need to take a breather at some point in the near future, Handy said. However, across the world, the troops have told him that they’re in this for the long haul and have not suffered any diminished morale. He is determined “to not abuse that high morale and enthusiasm to get the job done.”

The Pentagon is about to undertake yet another Mobility Requirements Study—the third in four years—to determine whether its calculus for identifying the required gross ability to move things and people is correct. This version will also take into account the way in which the fleet is now being used.

Handy noted that production of 180 C-17s will not provide enough airplanes to carry out a tail-for-tail replacement of the C-141, and even though each C-17’s volume and lifting ability is greater than the older aircraft, the same airplane can’t be in two places at once. For this reason, AMC has decided to postpone the retirement of the last 63 C-141s, to make more airlifters available in more places during the current operation.

The new MRS will explore this volume-vs.-tails issue and take into account events of Sept. 11 and afterward, as well as new political realities around the planet, to determine what the new benchmark should be. Senior Pentagon officials have said it likely will not be expressed in terms of MTWs at all.

“I think for sure it’ll change,” Handy asserted. “And I am convinced it will go up.”

USAF photo by SSgt. Jeremy T. Lock



*The C-17 (previous page and here) has been the prime mover for Enduring Freedom—it’s the only carrier of outsize cargo that can land on dirt strips. Once capped at 120 aircraft, the fleet could reach 222 in years ahead.*

Last year's examination—known as Mobility Requirement Study 2005—found that USAF needs a minimum of 51.1 million ton-miles per day capability to be able to handle two MTWs and 54.5 million ton-miles per day of airlift to meet those and other requirements from special operations forces and to support non-combatant theaters.

To meet all airlift requirements, the United States would need to have airlift capability of 67 million ton-miles per day. (See "The Airlift Shortfall Deepens," April 2001, p. 54.)

The new plan for 180 C-17s will allow Air Mobility Command to reach the 54.5 million ton-miles per day objective with four airplanes to spare. However, the other elements of the fleet also count against that level, and meeting it depends on bringing the C-5 up to a better standard of operating reliability. If the C-5 can't contribute more, and more reliably, then USAF may have to buy even more C-17s to close the gap.

#### 222 C-17s "Minimum"

The true requirement for C-17s is higher anyway. USAF needs "a minimum of 222" aircraft, Handy asserted. At this level, the Air Force could comfortably meet all requirements—the standing ton-mile-per-day requirement as well as the need to be able to operate in many places simultaneously.

Handy said the corporate Air Force and many in the Pentagon top leadership agree with the objective of 222 C-17s.

"I can assure you that 'more than 180' is certainly a well-known need of the Department of Defense," he said.

When the C-17 program began in the 1980s, plans called for building 210 airplanes. As a result of the end of the Cold War and an anticipated letup in requirements, the figure was cut in 1990 to 120 airplanes. That letup never materialized, however. Instead, deployments increased substantially.

Handy said the new MRS will not take as long as the others to complete, inasmuch as the Pentagon already has in hand lots of fresh real-world data. Besides the information collected for MRS-05, the Pentagon will "fold in some of the lessons of Afghanistan, from the Philippines, from the continental United States



USAF photo by SSgt. Pamela J. Farlin

*The C-5 remains a uniquely capable large airlifter, but poor reliability has made it a drag on the mobility fleet. An upgrade and re-engining program will be tested in time to decide whether to refurbish old Galaxys or simply buy more C-17s.*

missions, the C-130s, and ... the tanker piece." Defense leaders have not yet named a study leader or set the scope of its inquiry, so no deadline has been set.

The Air Force will evaluate a possible broad update to the C-5 fleet and reach a conclusion in time to make "an intelligent decision" about going beyond 180 C-17s before the line begins to close, Handy observed.

Despite an infusion of money for spare parts, Handy said the C-5 is still just "holding its own." Earlier this year, the fleet turned in a quarterly mission capable rate under 60 percent. Over the next few years, a Re-engining and Reliability Program for the C-5 will be developed to see if the type can be improved sufficiently to warrant a fleetwide upgrade.

Originally envisioned for the C-5B only—which are about 14 years on average younger than the A models—the upgrade may now be applied to a mix of A and B models, depending on how many hours are on each airframe, how physically stressed they are, and which ones have traditionally been less problem-prone.

Some have "more wear and tear than others," Handy explained.

The upgrade will certainly improve the performance of the two B models and one A model that will be modified, but Handy said the determining factor in going ahead with a fleet mod will be the results of a reliabil-

ity, maintainability, and availability analysis in 2007.

"We will test them for a year, and the metric that's long been established is a minimum of 85 percent ... mission capable rate," he explained. The requirements statement also calls for a utilization rate of 11 hours per day. If the modified C-5s can meet or exceed those minimums, the upgrade will proceed.

However, "it's conceivable that none of this work does us any good at all," he added. "We could go through all these studies and testing to find out we've improved it, but not enough to spend the money to modify the rest of the fleet."

#### C-17 Option

For this reason, he went on, it's important to "keep our options open" with regard to the C-17. The buy of 180 C-17s will dovetail nicely with the results of the C-5 RERP. If the C-5 upgrade doesn't pan out, production of C-17s, which will be winding down at that point, can be extended again.

Given the fast pace of C-17 deliveries—the Air Force wants a 15-year delivery schedule—there is a competitive push on Lockheed Martin to make the C-5 upgrade financially and operationally attractive. "It certainly puts some heat on the C-5 program as to how quickly we can get some of the initial analysis out of the way, to decide," Handy said.

Perhaps the most urgently needed—



**The war in Afghanistan would not have been possible without a massive tanker effort. The 40-year-old KC-135s are afflicted with corrosion and other problems, and USAF is eyeing a lease or buy of new militarized 767s as replacements.**

and most controversial—mobility program is the effort to revitalize aerial refuelers.

Operations in Afghanistan required extraordinary and sustained use of the tanker fleet to boost the Navy's carrier-based fighters to make the seven-hour trips from the Arabian Sea to and from their targets. Tankers also made possible the air bridge of supplies into the region and fueled the bombers coming into the theater from the US and Diego Garcia. The operation would not have been possible without the constant and comprehensive use of tankers.

Even as this extraordinary effort was unfolding, a full quarter of the KC-135 tanker fleet could be found in the depots, awaiting maintenance. This is a process which, in the last few years, has begun to consume more than 400 days—the result of the growing problem with corrosion on the 40-year-old aircraft. In April, the active duty Air Force, Air National Guard, and Air Force Reserve Command had a total of 546 KC-135s. Of that number, 131 were in depot maintenance.

In April, USAF Gen. Richard B. Myers, Chairman of the Joint Chiefs of Staff, said he's not overly concerned about the high percentage of tankers backed up in depot maintenance. While he acknowledged that corrosion has become a greater-than-expected problem, he also noted that the tanker fleet has received steady investments in avionics updates and

that the size of the available force is adequate to handle the demands of Enduring Freedom for now.

"We'll work our way through that," he said.

### Can They Last?

Handy said the Air Force has for some time planned to begin replacing the oldest KC-135s with a KC-X, beginning in roughly the 2012–15 time frame. Long-standing AMC plans call for acquiring 276 KC-Xs between 2012 and 2024, and the Air Force has earmarked \$3 billion for KC-X in its 2005–09 plan. However, a big question, Handy noted, has always been "can you keep [the KC-135Es] alive" that long? He explained that, like an old car, the KC-135Es cost more and more to fix, spare parts are harder to get, and they spend an inordinate amount of time in the shop.

The Air Force would like to retire the older KC-135Es outright. It would then move the KC-135Rs—which received a re-engining modification and other updates over the last 15 years or so—into Guard and Reserve units. The KC-135Rs would in turn be replaced in active units with a new tanker, derived from an off-the-shelf commercial airliner.

With the downturn in airline orders after Sept. 11, Air Force Secretary James G. Roche began to explore the possibility of the Air Force leasing some "white tail" 767s—airplanes in production for which or-

ders were canceled—from Boeing to be used as tankers. Congress granted the Air Force permission to negotiate a lease arrangement in its Fiscal 2002 defense budget appropriation.

"We said maybe there's a way, just as years ago some of our predecessors picked up DC-10s and made them KC-10s," Roche explained to the House Armed Services Committee in March. "Is there some way we could help us and also do some other good at the same time?"

The Air Force would pursue such a scheme if it would be cheaper and faster to get new tankers than to spend money fixing and upgrading 130 KC-135Es over the same period, Roche told the House panel.

A lease deal would bring new tankers into the force beginning in 2005, a full 10 years sooner than would be the case if the Air Force stayed with its current plan. If a lease would not be cost-effective, a purchase might be pursued, but USAF could not get the aircraft until 2008 at the earliest.

The Air Force requested information from Boeing and European Aeronautic Defense and Space Co. on what kind of tankers they could provide. Further discussions with EADS were ruled out, though, because the company has no experience building tankers. USAF encouraged EADS to develop a tanker for future competition, but began immediate negotiations with Boeing.

Roche told the House committee that refurbishment of the KC-135s will entail basic maintenance and operating costs of more than \$2.5 billion, while the oldest KC-135Es will need another \$2 billion in modifications to comply with new international air traffic hardware and communications requirements. Neither investment would push the KC-135 service lives past 2012.

### Two Plans

An outright buy is "Plan A," Roche said; the leasing scheme is "Plan B," but is being vigorously studied because the price tag of either approach is daunting: in excess of \$20 billion. A "vanilla" civilian 767 off Boeing's line, without military-specific hardware or refueling gear, costs between \$150 million to \$225 million, depending on equipment, a Boeing spokesman said.

Handy said he favors a lease "if the numbers are good for the tax-



payer and the Department of Defense.”

However, “if we can’t pull off a lease option ... then we ought to look at a purchase option, and we’ve got some money laid into the budget to start that piece of it.” He reported that the goal was to get the options laid out so funding could be put in the 2004 Program Objective Memorandum, or five-year plan, but that the time lines might be too short to accomplish that.

“Certainly by ’05, we should have some pretty conclusive numbers to make a decision,” Handy predicted.

Last year’s Pentagon “Transformation Study” suggested a goal that the American military be able to take control of a military situation anywhere in the world within 24 hours and win an MTW in 30 days. Toward that end, the services recognized they would have to deploy much faster. The Army, for example, has set a new requirement of being able to move a brigade in 96 hours.

Handy said neither the existing airlift fleet nor that which is planned would be able to accommodate all such schemes. However, regional Commanders in Chief will decide on the flow of people and equipment, and their plans may not resemble those of the services.

Meeting all the service deployment plans in the time they postulate would be “virtually impossible, with today’s fleet size,” Handy said flatly. “There’s a finite amount of lift.”

However, he went on, “The supported CINC ... is the person who validates the Time-Phased Force Deployment Data, the TPFDD, on a sequence that he or she wants to have [people and materiel] arrive in the theater.

“As services, we can all say we want an AEF [Aerospace Expeditionary Force] ... or an Army component in a certain amount of time, and that’s appropriate for the services to [set] those readiness goals. But ultimately, it’s the warfighter who calls forward those forces, in some orderly fashion. And quite often, you’ll see that they don’t want them in that sequence or that fast or that slow.”

Handy said he is aware of and “wholeheartedly” supports the Army’s push to “repackage” its forces to be lighter, leaner, and more lethal, but neither AMC nor TRANSCOM has made any such demands of the Army. Rather, the Army is trying to slim down on its own, and Handy noted with approval that Army Chief of Staff Gen. Eric K. Shinseki has mandated that all newly developed systems be able to fit in “a C-130-sized module.”

Although the C-17 has taken on some of the intratheater lift mission traditionally performed by the C-130, Handy said there’s no reason to assume the C-130 is no longer necessary.

About 30 Hercules transports are serving in Afghanistan in their traditional role, moving troops and mate-

riel to the far-flung outposts of Enduring Freedom, Handy said. It has also taken on a new and urgent role domestically, standing by in many locations to bring emergency crews or military support to cities struck with a major disaster, such as a terrorist attack with a weapon of mass destruction.

“Our plans are still to replace about 168 of the oldest C-130s that we have in the fleet,” Handy reported. These oldest airplanes will be replaced with C-130Js at a modest rate. Simultaneously, C-130s of more recent vintage—H models, mostly—will be updated with new navigation systems, cockpits, and structural improvements to a C-130X configuration. The result will be a fully modernized tactical airlift capacity by 2015 or so.

Handy said TRANSCOM has been pleased with the Defense Logistics Agency’s efforts to upgrade fuel tanks and other facilities at en route bases, which were beginning to seriously deteriorate in the last few years.

“There’s a lot of effort going there,” he said, “a lot of resources going into en route infrastructure.”

He also said AMC is making bigger investments in “our non-fixed, that is, deployable, en route infrastructure,” such as large fuel bladders, cargo-handling gear, and other bare-base items. A more formidable effort in this regard is due to a new emphasis on Air Force task forces, one of which is the Global Mobility Task Force, to improve USAF’s expeditionary capabilities.

The Air Force is more than halfway through an effort to replace its 376 obsolete 40,000-pound loaders with the modern Tunner aircraft loading/unloading vehicle, having accepted 187 units of a planned 318.

About 147 of a planned 206 wide-body elevator loaders have also been delivered, and all planned loading vehicles are now fully funded.

Despite the new investments, there is still a lot of old metal flying cargo and people for the Air Force. Handy said the C-17 extension will only begin to “drive down the age of the airlift fleet” in about 2007, when the current buy winds down. The C-17, though, is “contributing dramatically” to AMC’s ability to carry out operations it really couldn’t do before, “and we ought to certainly be bold enough to talk about that.” ■

USAF photo by SSgt. Alex Koenig



**A CC-130J (the new designation for the stretched model) arrives for duty. Despite C-17 intratheater use, the need for the venerable C-130 will endure. A stream of new J models are in the pipeline; younger H versions will be upgraded.**

**“Rogue”** America, mad monsters rising from the ashes, and other tales from the **nuclear watchdogs.**

# Meltdown of the Nuclear Critics

By Peter Grier

**C** **LASSIFIED** excerpts of the Bush Administration’s Nuclear Posture Review hit the newspapers in March. Soon, all hell broke loose. Not since the woolly days of the nuclear freeze movement 20 years ago had the world seen such a torrent of criticism directed at strategic weapons policy.

Never mind that most of the information revealed in the leaks could have been inferred from the unclassified summary of the NPR released weeks earlier. Never mind that many of the Bush recommendations echoed ones that the Clinton Administration presented in its own 1994 nuclear review.

No, overheated analysts concluded that Bush officials had proposed changes in planning which, if implemented, would make it substantially more likely that someday—perhaps soon—a nuclear weapon would be used in anger somewhere in the world.

“Mr. Bush needs to send that document back to its authors and ask for a new version less menacing to the security of future American generations,” huffed the *New York Times* in an editorial titled, “America as Nuclear Rogue.”

It asserted: “If another country were planning to develop a new

nuclear weapon and contemplating pre-emptive strikes against a list of non-nuclear powers, Washington would rightly label that nation a dangerous rogue state. Yet such is the course recommended to President Bush.”

Some commentary was overwrought to the point of hysteria. It was as if, having lapsed into a pleasant dream state at the end of the Cold War, a host of anti-nuclear activists had awoken and were shocked, shocked to discover that the US nuclear arsenal had not simply melted away.

Thus Robert Scheer, a veteran anti-military voice whose column appears in the *Los Angeles Times*, held that the review was akin to “an infantile tantrum born of the Bush Administration’s frustration in making good on its overblown promise to end the terrorist scourge.”

*Washington Post* columnist Mary McGrory saw it as nothing less than “a farewell to arms control and non-proliferation, the work of doomsday planners who have at last succeeded in selling their idea that nuclear weapons are no different from the conventional kind and equally useful in combat.”

Thomas Oliphant, in the *Boston Globe*, opined that the most signifi-

cant aspect of the NPR was its “almost casual breaking of long-standing policy taboos about the unthinkable.”

Not to be outdone, Joseph Cirincione of the Carnegie Endowment concluded, “Nuclear weapons are no longer the weapon of last resort but weapons of first choice. ... The nuclear nuts have seized control of the policy apparatus.”

## Out of Retirement

First prize in this category must surely be awarded to a master of the genre, writer Jonathan Schell, whose popular 1982 book, *The Fate of the Earth*, explained at great length why nuclear weapons are not healthy for children and other living things. Now writing for *The Nation*, Schell maintained, “Other countries are looking on with alarm—fearful that a monster, driven mad by righteous fury and dizzy with its own power, is rising out of the ashes of Sept. 11 to bellow destruction to the world.”

Some analysis was, to put it charitably, imprecise. Syndicated columnist Molly Ivins, lamenting possible development of “cute nukes” (her phrase for smaller, earth-penetrating weapons proposed by the NPR), talked about the “dear, departed days

of MAD (Mutual Assured Destruction).” Of course, for the United States, MAD is not a policy but a condition, one that exists due to the nation’s vulnerability to attack by long-range strategic weapons, of which Russia—notwithstanding its new political relationship with the US—still has a few. It is not a “doctrine” that can be changed at an administration’s whim and not one that any sane person would want to adopt anyway.

Some reaction was simply unparseable. For example, local anti-nuclear activist Victoria Mares-Hershey, writing in the Portland (Maine) *Press Herald*, emitted the following words: “In reality, that is the potential of integrating nuclear weapons whatever their physical appearance and semantical reference into the volatile world we are walking on today.”

To quote White House fixture Helen Thomas, whose own Hearst column breathlessly held that President Bush is seriously considering using nuclear weapons in his war on terrorism, “Where would it all end?”

Where, indeed?

The Bush Administration’s Nuclear Policy Review was the first such consideration of US strategic doctrine since Clinton’s study in 1993–94. An unclassified summary was unveiled at the Pentagon Jan. 9. The Bush NPR proposes a so-called New Triad composed of strike forces (nuclear and non-nuclear), missile defenses, and a revitalized national nuclear weapons infrastructure.

This New Triad would require many fewer warheads than is true of today’s force, according to the NPR. Per Bush’s agreement with Russian President Vladimir Putin, operationally deployed weapons could be reduced to between 1,700 and 2,200 over the next 10 years.

In January, DOD officials said that the basic point was to shift from Cold War “threat-based” planning to new “capabilities-based” planning. J.D. Crouch II, assistant secretary of defense for international security policy, explained the approach: “What are the kinds of capabilities that we need to counter the potential adversaries or the capabilities of potential adversaries that are either extant today or that will emerge in the years to come?”

Given the events of Sept. 11 and

Bush’s references to the “axis of evil” and Weapons of Mass Destruction, a reasonable person could easily have deduced from Crouch’s words that the Pentagon is thinking about how nukes might be used to deter or counter rogue states.

There was little comment on this theme upon the initial release of NPR. Instead, most criticism focused on another issue: “warhead warehousing.” Weapons withdrawn from service would not necessarily be destroyed, under NPR plans. If needed, they could be used in the future to build up the US strategic arsenal, said officials.

### Naming Names

Then, in early March, the *Los Angeles Times*, *New York Times*, and GlobalSecurity.org published some classified details from the NPR study. Thus the vague phrase “potential adversaries” was replaced with a list of specific countries. According to the NPR excerpts, the US needs to keep a range of contingencies in mind when sizing the nuclear force. Among them are possible hostile actions by Iran, Iraq, Libya, North Korea, and Syria. “All sponsor or harbor terrorists, and all have active WMD [Weapons of Mass Destruction] and missile programs,” reads the NPR.

The response was swift and dramatic. Critics across the nation interpreted this as a new targeting initiative on the part of the White House. The review “expands the list of countries considered potential nuclear targets,” said the *New York Times* editorial on the subject.

The reaction raises at least three large points:

1. The Clinton Administration, which rarely disappointed arms controllers, was moving in the same direction, per its own Nuclear Posture Review results.

2. President George H.W. Bush, in the run-up to the Gulf War, left open the possibility of a US nuclear response to Iraqi use of Weapons of Mass Destruction.

3. Do critics seriously think the Pentagon has never drawn up plans to use nuclear weapons against any nations other than the Soviet Union, Russia, and perhaps China? Considering the nature of the Baghdad regime and the decades of tense standoff on the Korean peninsula, Iraq and North Korea in particular have

certainly been the subject of some degree of nuclear planning.

A reasonable analysis of the context would lead one to the conclusion that the Bush plan in this respect is, in fact, status quo—and simply reflects the direction in which US strategic policy has been moving for years. Despite this, James O. Goldsborough of the *San Diego Union-Tribune* was moved to write that “a radical militarization of the country is taking place, and this new nuclear posture is part of it.”

### Sacred Moratorium

Perhaps the second most-criticized aspect of the Bush NPR concerns its open discussion of the possibility of developing new nuclear warheads. Such work, as critics rightly note, would likely create a requirement for new underground nuclear tests, ending Washington’s 10-year unofficial testing moratorium.

Specifically, the NPR urges an advanced concepts initiative that would possibly include “modifications to existing weapons to provide additional yield flexibility in the stockpile; improved Earth-Penetrating Weapons (EPWs) to counter the increased use by potential adversaries of hardened and deeply buried facilities; and warheads that reduce collateral damage.”

Current earth-penetration capability resides in the B61 Mod 11 gravity bomb, which is limited in number and effectiveness, notes the review. A more effective warhead would allow many buried targets to be attacked with a much lower yield weapon than a surface burst would require. “This lower yield would achieve the same damage while producing less fallout (by a factor of 10 to 20),” notes the NPR.

Again, the January release of the unclassified version of NPR hinted at this proposal. Perhaps critics thought that the earlier call for a “revitalized” nuclear infrastructure referred to dismantlement facilities.

In any case, the response of critics was to denounce the thinking about “mini-nukes” as both unnecessary and indicative of a dangerous mindset. Some warned of a return to the bad old days of the nuclear arms race. Helen Thomas was particularly distraught: “If we forge ahead and develop the bunker-busting nukes, are other nations like Russia and

China going to just stand by? Are they going to refrain from trying to produce similar weapons? I don't think so."

The problem with that statement is that Russia is desperately trying to reduce spending on nuclear arms. Given the nature of the Russian economy, the possible agreement between Presidents Bush and Putin on deep cuts in overall warhead levels, and the warming relations between the two countries, few expect Russia to try to match the US in earth-penetrating weapons.

China? Well, it is already building up its nuclear forces—and for reasons that have little to do with worry over possible new engineering work at Los Alamos and Lawrence Livermore National Laboratories.

Furthermore, this is far from the first time that an administration has openly mused about possibly developing a new low-yield, earth-penetrating warhead. The weapons designers at the Department of Energy have long had lists of advanced concepts initiatives that they would love to begin, given the green light.

As far back as 1992, DOE budget documents listed an earth-penetrating warhead as a weapon in the first, notional stage of design—along with a very low yield warhead capable of destroying the chemical or nuclear warhead of an attacking missile with assurance.

"There will be requirements for new nuclear weapons in the future. We cannot with confidence say now what they will be," wrote John H. Birely, then deputy assistant to the secretary of defense for atomic energy.

The program to modify the B-61 into interim earth-penetrator status was started during the Clinton years. It entered the stockpile in 1996.

The critics worried a lot about the NPR's supposed negative effect on worldwide nonproliferation efforts.

Take, for example, Rep. Barney Frank (D-Mass.). In a March 12 floor speech, he looked at the NPR and conjured up this unflattering image of America: "The town drunk is not going to be very credible preaching [nuclear] temperance."

Former Secretary of Defense Robert S. McNamara also was worried sick about this problem and was moved to write about it (with Thomas Graham Jr.) in the *Los Angeles Times*:

"Should the ... Nuclear Posture Review ... become official policy, we can expect nuclear weapons to spread around the world. We will live in a far more dangerous world, and the United States will be much less secure."

### Save the Threshold!

The theme underlying much of the new criticism of the Bush NPR, from its warhead plans to its contingency lists to its possible targets, is this: In making the nation's atomic arsenal more usable, the Administration is lowering the threshold to nuclear war.

"With the NPR, the US emphasizes nuclear weapons not as devices of deterrence, but as weapons of war, and thus erodes the norms against nuclear use," said a statement from the San Francisco anti-nuclear group Global Security Institute.

In response, the Administration contends that an adversary will, in fact, be less likely to attack the United States with Weapons of Mass Destruction if it believes a nuclear response is a live possibility. In this view, drawing up plans and producing weapons designed for specific tasks does not erode deterrence; it has precisely the opposite effect.

Does this dispute sound familiar? It should. It is one that dates to the early days of the nuclear age—and in most respects, the pro-credibility side (or warfighters) prevailed in the policy debate long ago.

It was McNamara, as President Johnson's Secretary of Defense, who rejected extensive military nuclear war planning in favor of a minimum deterrent approach. All the US needed, in his view, was an arsenal that could ride out a Soviet first strike and then respond strongly enough to destroy a certain percentage of Soviet industry, population, and military might.

The Air Force never really believed in this approach, with its implicit targeting of civilians and its all-or-nothing, spasm-response characteristics.

Subsequent administrations didn't buy it, either. Under President Nixon, Secretary of Defense James R. Schles-

inger said he wanted a more credible strategy, more options, and a different mental attitude toward nuclear weapons. He pushed for development of an arsenal better suited to attacking hardened Soviet silos, as opposed to soft targets such as cities. This continued under President Carter and his Defense Secretary, Harold Brown, who called it a "countervailing strategy."

The height of deterrence through consideration of nukes as weapons of war might have been reached with the introduction of intermediate-range nuclear missiles in Europe 20 years ago. These were designed to counter similar Soviet weapons, primarily the SS-20, and make it clear that the US really might use nuclear weapons to halt an attack on Western Europe. The result? The INF Treaty, the first—and so far only—such pact to eliminate an entire category of nukes from the face of the Earth.

The Bush Administration's Nuclear Posture Review does project unprecedented change, in some respects. What exactly would addition of conventional weapons to the nation's strategic targeting plans entail? How would strategic defenses mesh with the remaining nuclear arsenal, if they ever actually come to pass? (And if you don't think that's a puzzle, consider this thought problem: A rogue state fires a nuclear missile at the US, and defenses successfully shoot it down. Is any further military response required? If so, what should it be?)

However, most of the criticism has had a rote quality about it. It's as if they have dusted off all their stories from the era of the nuclear freeze and replaced the words "Ronald Reagan" with "George W. Bush."

Critics have tended to ignore the report's historical context and read large political motives into proposals that are not as dramatic as they are made to seem. As Molly Ivins said, "Thinking about nuclear weapons is sort of like looking directly at the sun: If you do it for more than a split second, you go blind." Apparently so. ■

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*Peter Grier, a Washington editor for the Christian Science Monitor, is a longtime defense correspondent and regular contributor to Air Force Magazine. His most recent articles, "The Strength of the Force" and "The Combination That Worked," appeared in the April 2002 issue.*



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In Afghanistan, the work of USAF Special Operations Forces was not seen but most assuredly felt.

# Masters



USAF photo by TSgt Scott Reed

*Two MH-53J Pave Lows from the 16th Special Operations Wing, Hurlburt Field, Fla., on a daylight aerial refueling mission in support of Operation Enduring Freedom.*

# of Invisibility

By Richard J. Newman



**I**T WASN'T standard procedure, but the circumstances called for urgent action. North of Kandahar in Afghanistan, several US soldiers had been gravely wounded. Enemy forces were reported to the south. It was broad daylight, and local Afghans—loyalties unknown—were watching from surrounding hillsides. Soon, two MH-53 Pave Low helicopters—Chalk 1 and Chalk 2—from USAF's 20th Special Operations

Squadron were speeding toward the site.

As they did so, a medic on Chalk 1 pointed out that there was a great oddity to this particular mission. "This is something I thought I'd never see," he said, "Afghanistan in the daytime."

Literally and figuratively, USAF Special Operations Forces stay in the shadows. These "air commandos," like their Army and Navy coun-

terparts, use darkness as a cloaking device that helps them achieve maximum advantage against enemies who lack the technology and training to fight at night.

In a way, Air Force operators are more circumspect than special units from other services. Air Force SOF are rarely the trigger-pullers, so much of the attention for wartime exploits tends to go to the combat forces that the air commandos support. Other

special operator units, such as the Navy SEALs and the Army's Special Forces, Rangers, and Delta Force, produce more news.

"You have to be quiet to do our business," said Lt. Gen. Paul V. Hester, commander of Air Force Special Operations Command at Hurlburt Field, Fla. "We move underneath the radar."

Though they were tough to spot in Afghanistan, USAF's air commandos were deeply involved in Operation Enduring Freedom and instrumental in its success.

Troops from Hurlburt fought alongside Army and Navy special operators on the ground in Afghanistan,

news reports routinely credited Army Special Forces (the Green Berets) with calling in the air strikes that enabled the Northern Alliance's rout of Taliban forces.

In reality, USAF combat controllers called in about 85 percent of all air strikes in the war, according to Col. Robert Holmes, commander of the 720th Special Tactics Group at Hurlburt, which includes combat controllers, pararescuemen, and combat weathermen.

Typically, Central Command would assign one or two AFSOC specialists to each 12-person Green Beret team, known as an Operational Detachment Alpha, or ODA. While

Green Beret ODAs train in spotting targets, Air Force combat controllers have more specialized knowledge and are used to working more closely with pilots.

Technical Sergeant Calvin (last name withheld), for instance, was one of several combat controllers sent to Uzbekistan in mid-October of last year. He was quickly teamed with an ODA that infiltrated to a location north of Kabul, Afghanistan, on Oct. 19, meeting up with troops of the Northern Alliance. They were the first US team to hook up with the anti-Taliban forces.

"There was a little bit of tension at first," Calvin said, noting that the strange bedfellows took some time to size up each other. Within 30 hours, however, the team had called in its first air strike against nearby Taliban forces. "An immediate rapport was built," Calvin recalled.

Over ensuing days, Calvin's team moved stealthily among some 10 observation posts, finding Taliban targets as air strikes whittled the enemy down. "You work big to little," he said. He meant that the top priorities would be targets like military convoys, troop concentrations, tanks, or anti-aircraft guns. In addition to lasing targets or pinpointing coordinates for prompt strikes, Calvin and his team would analyze the enemy's order of battle and develop detailed targeting plans. Each night, they'd prepare a list of roughly five to 20

USAF photos by TSgt. Scott Reed

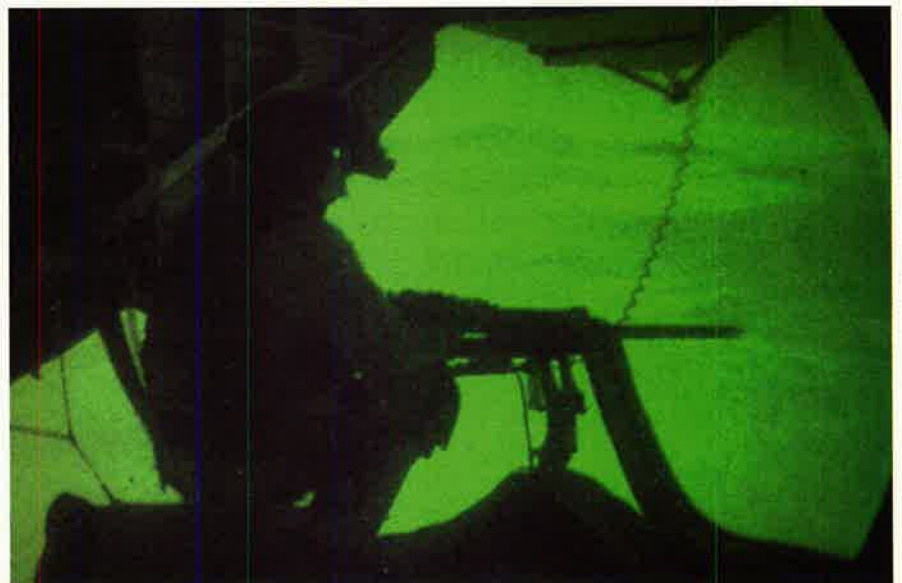


calling in air strikes and rescuing comrades in danger. On many missions, they transported ground troops into and out of combat zones, in darkness and secrecy. SOF cargo aircraft dropped tons of supplies to US ground forces. And obscure specialists such as combat weathermen spent dangerous weeks in remote outposts gathering the various kinds of information needed in battle.

### All Skills Needed

"We had the opportunity to demonstrate and employ every single skill we train to," said Brig. Gen. (sel.) Lyle M. Koenig Jr., commander of the 16th Special Operations Wing at Hurlburt.

So invisible are the air commandos that many of their wartime exploits have been attributed to others. Throughout the war, for instance,



*These two photos show the view to which special operators are accustomed—Afghanistan through night vision goggles. Top, an MC-130 Combat Talon refueler awaits the arrival of Pave Lows. Here, a gunner on the ramp of an MH-53J scans the ground for enemy fire.*



suggested targets and transmit the intelligence up the chain of command. Other targets obtained through other intelligence channels would come back down.

Virtually all of the proposed targets were approved. This marked a stark contrast with USAF's experience in the Kosovo war, during which hundreds of targets were put on no-strike lists because of concerns about collateral damage. "Rules of engagement," said Hester, "become much more liberal when you have physical eyes on the target"—an advantage lacking in Kosovo.

Overall, Calvin counts about 500 targets he helped identify and destroy.

### The Real Pros

He and other combat controllers added depth to the ODAs' targeting expertise. Air Force controllers study the capabilities of surface-to-air missiles, and they routinely rehearse close air support procedures with Air Force pilots. "A lot of people say they can do this job," said Holmes, "but our airmen understand the view of the battlespace, they understand airspace management. They know which weapon to use and how to bring it in." They can also suggest ways to "fuse" weapons systems, or use different aircraft together to go after challenging targets.

At first, Calvin's team encountered a determined enemy.

"Sometimes, we'd take indirect fire, when they were just trying to fish something out," he recalled. "But when they found out our positions, we'd come under direct fire and get behind walls, get into the bunkers."

Enemy barrages could last as long as 30 minutes, until the spotters moved to another location or US air strikes silenced the guns. On the day the Northern Alliance began its final offensive, "we came under really heavy machine-gun fire," Calvin said. "We became high-value targets."

It quickly became apparent to the Americans that the Taliban's forces were badly overmatched.

"I don't think the enemy knew what was happening to them," said Calvin, who noted that Taliban and al Qaeda fighters talked over unsecure radios and thus allowed Calvin's team to listen in as they de-



**Combat controllers in Afghanistan made do with local food and transportation but still relied heavily on computers to analyze targets. Global Positioning Satellite devices were crucial to the mission.**

scribed the effectiveness of air strikes. "We'd get on-the-spot BDA [Bomb Damage Assessment] and correct based on that." Nor did the Taliban seem to learn quickly: "We'd see a convoy at night with its lights on. We'd get it, and an hour later here would come another one."

Even so, operating in Afghanistan without the slightest supply post nearby was arduous. Although they moved by horse and made do with local food, the ODAs still relied heavily on computers to upload and download intelligence information and to analyze targets. Global Positioning System devices were crucial. Some units deployed without the latest laser range finders, which had to be flown in later. Batteries for all of that equipment were forever running down. Resupplying key items, in terrain with virtually no road infrastructure, was a top priority from the beginning.

That's why the first deployments to the theater included many units besides those that would be operating in Afghanistan. On Sept. 20, for instance, just nine days after the terrorist attacks that opened the war, the 9th SOS from Eglin AFB, Fla., was heading overseas, not sure where it would end up.

### The Refueling Task

Like many units, the 9th filled an important niche that would be crucial during combat operations. The squadron operates MC-130P Com-

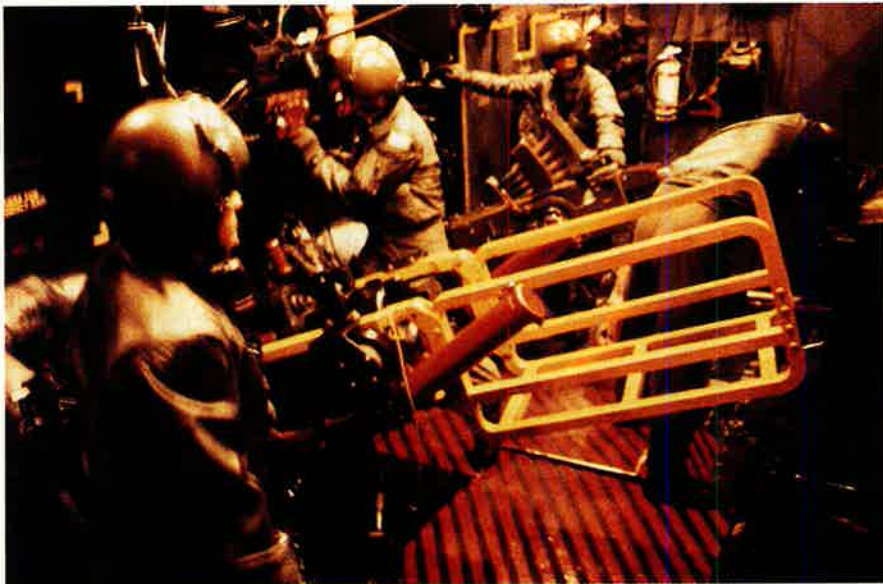
bat Shadow aircraft. They function primarily as refueling tankers for helicopters. They would be a key link in any operations to infiltrate ground troops, and they proved to be a vital component of the search-and-rescue capability Central Command insisted on having on hand, in case any of the pilots flying over Afghanistan got shot down.

There were several alerts, but no shootdowns. The only rescues staged by the 9th involved a news photographer and a US soldier who developed altitude sickness. As ground troops began to enter Afghanistan, the MC-130s began to refuel the helicopters ferrying them in.

"It went smoothly, but Mother Nature conspired against us," said Lt. Col. Dan Fernandez, the squadron commander. Sandstorms and bad weather caused many mission aborts.

Ground troops worked their way in, though, and as they began operating inside Afghanistan, the mission of the 9th turned to the resupply of these forces. The ODAs' teammates in the rear would typically prepare bundles containing bullets, water, medicine, lasing equipment, and all the other gear the troops in country needed.

They'd deliver the bundles to units like the 9th, with prearranged drop zones. The MC-130s would then fly low and fast toward the drop zones. As they neared, there was a brief window of time when the ground



**AC-130 gunships—another facet of USAF special operations forces—were used in Afghanistan to protect troops on the ground and to strike designated targets. Here, an AC-130H crew mans their heavy guns.**

units would contact the aircraft by radio to finalize the details. Punctuality was crucial. If the aircraft arrived late, the mission would most likely have to be scrapped, since the troops on the ground could only expose themselves at a drop zone for a few moments. In addition to the timing, the challenge, said Fernandez, “was trying to get it to them and make sure no one else gets it.”

Occasionally, there was firsthand evidence of the impact of the resupply effort. During the Northern Alliance’s mid-November siege of Kunduz, there was an urgent request for batteries. The bundle arrived late on the tarmac. The MC-130 took off with the haste of a fire truck heading to a blaze, and the crew made the drop zone on time. The troops got the batteries in time to power up the equipment they were using to call in air strikes during the offensive.

“We got to hear them calling in B-52 strikes using the batteries we had just delivered,” beamed SSgt. Jule Stratton, a loadmaster with the 9th.

### The Toughest Mission

A slew of other support troops helped orchestrate the complex airborne ballet and pick up the slack when complications arose. A team from the 16th Operations Support Squadron from Hurlburt, for example, helicoptered into Afghanistan to evacuate an American sol-

dier who came down with viral meningitis. Flying the eight-hour mission from a rear base in Uzbekistan—at elevations as high as 18,000 feet, with no heat—was the most challenging mission he faced during the war, said Capt. Scott Sheparc, an aviation physician’s assistant.

SSgt. Steven Cum, a paramedic with the 16th OSS, found himself doing triage on a planeload of injured Americans after a friendly fire incident Dec. 5. “We train for it,” said Cum, “but I never thought I’d actually do it.”

The early phases of the war fo-

cused on northern Afghanistan, but air commandos were also busy in southern Afghanistan and on bases in Pakistan and elsewhere. When the terrain is tough and the environment is “nonpermissive,” as was the case in Afghanistan, helicopters are the preferred method of infiltrating special operations ground troops. In mid-November, crews from the 20th SOS did begin to carry out such missions in the Pave Lows.

The distance from bases in Pakistan—and even from the carrier *Kitty Hawk* in the Arabian Sea—led to grueling flights of 12 to 15 hours duration, involving multiple refuelings. And the Pave Lows, slower than an airplane, were vulnerable to ground fire when they were flying low.

“I took one bullet in my cabin—an AK-47 round—that would have taken a guy’s head off,” said Captain William (last name withheld), a Pave Low pilot.

To transport more troops into Afghanistan more quickly, Central Command began to assess other ways to fly airplanes into the country. Combat controllers from the 720th began analyzing possible airstrips. First they would do a 3-D terrain analysis using mapping data.

Once they identified dried lake beds, dirt strips, and other potential landing sites, they’d need some firsthand knowledge of the area. Teams would fly in on helicopters, sometimes parachuting or rappelling down



**An MC-130E drops off a team of US Navy SEALs at a forward deployed location. The majority of special operations troops were inserted into Afghanistan by Combat Talons landing on unimproved airfields.**

to the site. They'd check the compaction of the soil, measure distances, and walk the ground to get a careful look at the terrain. Usually they operated at night, using night vision goggles, and they would complete the analysis in one sortie.

Of 22 sites surveyed by the controllers, 15 became landing strips for C-130s and even for larger C-17s. The crews prepared for tough conditions. "We had shovels on all the aircraft if we had to dig a trench" to help fly the airplane out, said Senior Master Sergeant Tom (last name withheld), a loadmaster. They never had to use them.

The rudimentary airfields allowed Central Command to sneak in ground troops in much greater numbers. MC-130 Combat Talons, from the 16th Special Operations Wing at Hurlburt, had conducted the first airdrop of troops into Afghanistan, a dramatic nighttime raid involving dozens of paratroopers that the Pentagon quickly publicized.

### Boots on the Ground

Being able to land airplanes in Afghanistan was far more important. Aircraft could ferry in vehicles like humvees and dune buggies and other gear needed to sustain ground troops. Combat Talons would sometimes drop off gear, then take off and fly orbits overhead for an hour or two. Fighters and AC-130 gunships—another branch of the air commandos—would circle nearby, ready to defend the troops exposed on the ground. Then the Combat Talons would land and pick up the packs the ground troops had swapped out. Overall, the majority of special operations troops inserted into Afghanistan were transported by Combat Talons landing on unimproved airfields.

The helicopters still had plenty to do, including the evacuation of friendly fire casualties on Dec. 5. The call came to the 20th SOS when many of the crew members—nocturnal, due to the nature of their jobs—were sleeping.

"As soon as you heard the words 'friendly fire,' the room erupted



USAF photo by TSgt. Mike Buylias

**The Pararescue Jumpers have seen plenty of action in Afghanistan, evacuating injured troops under enemy fire. One PJ was killed in action during Operation Anaconda while trying to rescue a Navy SEAL.**

with energy," said Captain Steve (last name withheld), a Pave Low pilot. Two MH-53s were airborne within 45 minutes, but not quite sure where they were going. An Air Force combat controller at the scene was on the radio, trying to guide the helos in—even though his eardrums had been blown out and he couldn't hear.

Nobody was at the first location the -53s scouted. When they finally found their comrades, "the first thing we saw was a flag-draped stretcher," recounted Steve. That was one of three US deaths in the incident.

The two choppers set down in a bowl, about 150 yards from the wounded. "The casualties were a lot more than expected," explained Lieutenant Pat (last name withheld), commander of one of the aircraft. A group of unidentified locals gathered menacingly on a ridgeline overlooking the scene. After about 45 minutes on the ground, the Pave Lows lifted off, "cubed out"—or filled to the brim—with injured GIs.

Air Force Pararescue Jumpers—the PJs—worked feverishly on twisted limbs and wounds gushing blood in such volume that troops would have to hose out the helicopters on the ground. The injured arrived at Camp

Rhino, the newly established Marine Corps base near Kandahar, and were quickly transported to hospitals in Germany and elsewhere.

As for the Pave Low pilots, they are reluctant to discuss other missions. "Let's just say [the Dec. 5 evacuation] was a good warm-up," said Lieutenant Paul (last name withheld), another crew member.

The PJs saw other action, too. They raced to the scene after one of the 9th SOS MC-130s crashed in February, only to find that difficult terrain prevented their helicopters from landing near the wreckage. To get to it, the PJs had to wade through more than 100 yards of waist-deep snow. When they reached the crash site, they had to cut through the skin of the fuselage to rescue one crew member.

To the surprise of virtually everybody involved in the rescue, all eight crew members survived. As of March, the PJs had participated in four other recoveries in Afghanistan. One PJ died in combat during Operation Anaconda, while trying to rescue a Navy SEAL who had fallen from a helicopter. That loss, along with the death of a combat controller in the same incident, was a hard blow to the unit, said Holmes.

Nonetheless, the overall mood among the troops was and is exuberant. "Our group is very up because of all the things we train to do," said Holmes. "Without exception we have validated every mission." ■

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*Richard J. Newman is a former Washington, D.C.-based defense correspondent and senior editor for US News & World Report. He is now based in the New York office of US News. His most recent article for Air Force Magazine, "The Little Predator That Could," appeared in the March 2002.*

**The Chief of Staff wants to organize USAF around task forces aimed at specific mission areas.**

# Seven Pillars of Airpower

**O**NE night in April 1999, USAF Brig. Gen. Daniel P. Leaf jumped into the cockpit of his F-16, ready to fight the air war over Serbia. His Block 40 fighter, based at Aviano AB, Italy, was decked out for Close Air Support, sporting two 2,000-pound laser-guided bombs, a LANTIRN pod for low-altitude night targeting, and the Block 40 Improved Data Modem for sharing offboard target data.

Leaf, the commander of the 31st Air Expeditionary Wing, got his night vision goggles ready and launched, along with another identically equipped F-16.

However, the mission that night was not CAS. The mission, rather, was to strike Serbian air defenses. The goal was not to just "suppress" their capability, but to destroy it. The 2,000-pound bombs were to be used to eliminate surface-to-air missiles, radars, launchers, and support vans.

Joining Leaf and his wingman were four other F-16s. All four were Block 50s. Each was outfitted with a High-speed Anti-Radiation Missile targeting pod to sense electronic emissions from SAM radars and Block 50 IDMs tailored to the counter-radar mission, and carried AGM-88 HARMs.

Unfortunately, neither of these two basic F-16 variants could carry out the SAM destruction job alone. The two Block 40s lacked the HARM Targeting System that is essential

for locating and identifying SAM electronic emissions. The four Block 50s had the HARM system, but their AGM-88s were not capable of destroying the Serbian system. The Block 50s were not designed to accept both the HTS and the LANTIRN targeting pods necessary for the heavier, more-destructive laser-guided bombs.

The air warriors did the best they could to jury-rig a workable operational package, with mixed results. Nobody had good situational awareness. Each lacked a critical capability possessed by one of the other platforms.

The four Block 50 pilots—flying without night vision goggles—struggled to maintain flying formation with their two Block 40 counterparts and nearly lost it a couple of times.

And the two versions of the IDM—one optimized for CAS and the other for radar suppression—were not interoperable. "We had to share information via radio comm," recalled Leaf, now the two-star director of USAF operational requirements. "That takes more time and is less secure."

The challenges were emblematic of problems that faced the Air Force more broadly. Required operational thinking had not been done in advance, when hardware decisions were made. The problem extends beyond the F-16; the inability to communicate across disparate Air Force platforms and between different services is well-known but still unresolved.

**By Elaine M. Grossman**



**The Global Strike Task Force concept, which emerged in 2000, emphasized the capabilities of the stealthy B-2 bomber, shown here, and F-22 fighter. It is just one of seven new, highly focused task forces the Air Force is developing.**

Said Leaf: “We tend to think of solutions to combat problems in terms of single pieces of equipment, not an integrated solution.”

### Enter the New Chief

Gen. John P. Jumper quickly resolved to change all that, having begun work as Air Force Chief of Staff the very week of the Sept. 11 terror attacks. Jumper was confronted immediately with the task of contributing to a major joint war on terrorists, and there would be no room for fielding weapons packages that could not keep pace with fighting concepts.

“We’re all wedded to [procurement] programs,” Jumper said in an interview. “We argue programs on [Capitol] Hill. We defend programs in the [Pentagon] building. It’s program by program that we think. And it leads to people ... wanting to make incremental improvements to programs. We don’t reward anybody for finding a whole new way of doing business.”

He added: “Where is that person?”

Jumper is attempting to lead by example. He is crafting seven notional task forces, each dedicated to a core capability he believes the Air Force must cultivate to perform its most vital missions.

Perhaps foremost among these new groups is what Jumper has called the Global Response Task Force. Plans call for this task force to be able, on short notice, to attack terrorist tar-

gets with stealth and precision anywhere around the globe.

The Air Force is also developing these other task forces:

- Global Strike, geared to circumventing or breaking through an enemy’s anti-access theater defenses.

- Air and Space/C<sup>2</sup>ISR, formed to provide civilian and military leaders with rapid Intelligence, Surveillance, and Reconnaissance data.

- Homeland Security, formed to track and, if need be, defeat air threats within US domestic airspace.

- Nuclear Response, centered on Air Force ICBM forces and bomber-based weapons.

- Global Mobility, able to swiftly provide food, shelter, and other forms of relief to ravaged areas of the world.

- Air and Space Expeditionary, providing tailored force packages to handle the full spectrum of contingencies. This task force will have an overarching or integrating role.

The Global Strike Task Force concept first emerged in 2000, when Jumper—then commander of Air Combat Command at Langley AFB, Va.—embraced it to showcase the tip-of-the-spear capabilities of the stealthy F-22 fighter and B-2 bomber.

Now, as service chief, Jumper has his major commands developing seven different Concepts of Operations for the newly named task forces. When these CONOPS are completed, units may begin training together in anticipation of deploying as part of an operational task force dedicated to a

particular mission—homeland defense, for example.

Perhaps more importantly, the task forces will serve as organizational and planning tools, valued for the forethought they generate in the Air Force, service officials say.

Jumper sees the task forces as conceptual instruments to more sharply focus USAF operational requirements, research and development, acquisition, and budgeting on the service’s seven most critical operational capabilities.

Each of the seven task forces will be headed by a colonel. These task force “champions” will have the authority to compile lists of acquisition programs that best support a particular task force’s battlespace effects.

Programs that make the list will be rewarded with budget authority and service backing. Crosscutting programs—those that appear on more than one task force list—will win the greatest level of Air Force sponsorship, according to Jumper. “So the program people are now trying to be attractive to the person who’s trying to create the [operational] effect,” he explained.

The unfolding of this initiative parallels that of a new agile-acquisition effort, designed to speed delivery of more carefully tailored weapons and support systems to the operator.

### Guide for Planning, Programming

Jumper said that the Air Force must be able to “describe how we go to war and how we interface with the other services” before considering what systems to buy to carry out particular missions. “This CONOPS-based way of doing business is one we are also trying to bring to our planning and programming system,” he said. “We do that by describing our capabilities in terms of task forces.”

Jumper’s somewhat abstract notion has proved a bit tough to swallow for some Air Force officials schooled in more practical endeavors such as flying to Point A or developing Weapon B.

In late March—after months of discussing the concept in and outside the service—Jumper was still organizing focus sessions for two-star generals to sort out what the task forces were all about, Air Force officials say. Among the participants

were budget officials who remained uncertain how effects-based planning would affect their work.

Some service officials have wondered aloud why there is no task force dedicated to key Air Force missions such as special operations, information warfare, or training.

In response, Air Force leaders say they sought to cap task forces at a manageable quantity, between six and 10. At the same time, service officials are beginning to identify important missions that span all seven task forces, including global mobility, information operations, and innovation.

### Unlocking Innovation

Whatever the template, Air Force officials emphasize the paramount objective is to focus on broad capabilities, making technology a means to an end and not the end itself.

“Are we pursuing the F-22 because it goes Mach 1.7 in supercruise and is stealthy and has integrated avionics?” Leaf asked. “Heck, no!” He pointed to the premier fighter’s operational value against advanced enemy air-to-air and SAM systems.

In that vein, Leaf thinks the task force focus will help Air Force officials better articulate service needs to external audiences, like the Office of the Secretary of Defense or Congress.

It should also spur new ideas for attacking operational problems. Leaf said innovation has for too long been

almost the exclusive domain of the acquisition community. The growing complexity of missions across the conflict spectrum demands that operators get “out in front of the problem intellectually,” he said. “We should be able to have enough imagination and vision to look at unique and new applications of emerging and existing technology,” Leaf observed.

While the Air Force is extremely self-critical, said Leaf, “the truth of the matter is we’ve won our last few wars 59–0 and we’ve got a great Air Force.” The new task force approach, Leaf said, is simply “the next iteration of air and space thinking.”

For Jumper, this new way of thinking seems natural.

“If we describe ourselves in this way, and it captures most of what we do, then why don’t we plan and program that way, too?” Jumper asked in a February speech at the Air Force Association’s national symposium in Orlando, Fla.

What has stood in the way in the past? “This is a challenging endeavor,” Leaf explained. “It’s hard to take the warfighters’ ideas about what they need, capability-wise, and translate that into something that can be formed in sheet metal and titanium and composite and computer chips.”

Jumper’s next iteration in air and space thinking aims to more effectively bridge a long-standing gap between operators and acquisition officials, officials say.

Well before a production line is tooled, operators must better understand how particular technologies or equipment will advance Air Force capabilities in the battlespace, according to Maj. Gen. Danny Hogan, the mobilization assistant to the service’s director of plans and programs.

Hogan said that, for the first time, the Air Force’s many communities will “all use a common capability template” that will reflect “the adequacy of our capabilities both in the near term and the far term.”

### Where Rubber Meets the Ramp

As Air Force officials see it, reliance on the task force concept might have prevented or at least identified problems that only became apparent in past operations.

“This task force approach, in my mind, would have clearly shown us early on how reliant we are on the destruction and suppression of enemy air defenses,” said Leaf of the Kosovo air war, “and resulted in higher priority—sooner—for [F-16] Block 50 night modifications. That increase in priority, incidentally, has since been made.”

Ground zero for the task force approach may well be Leaf’s requirements shop. There the focus is turning increasingly to the task of providing the acquisition community a clear description of the battlespace effects sought by the warfighters. From there, technologists can identify hardware and software solutions.

Leaf said that the Air Force wants to “capture the concept ... of effects-based requirements that are not quite so [slanted] to a specific program.” Instead they will describe “capabilities needed to achieve what the warfighter sets out to do.”

Toward that end, the Air Force is creating a new quarterly process called Capabilities Review and Risk Assessment.

“Now we’re taking it further intellectually, [such that] we have this collection of things to achieve this effect,” said Leaf. “And we may see elements of capability that contribute in a way we didn’t recognize before. [Or] we may see redundancies.”

Future operational requirements documents also will describe “desired effects and required capabilities,” rather than pinpoint a specific platform or weapon—like the F-22 or

USAF photo by Derk Blanset



**Leaf argues that the F-22 is essential to the service’s task force approach, not merely because it has speed, stealth, and integrated avionics, but because it can stand up to advanced air-to-air and SAM systems.**

small diameter bomb, Leaf said. From that, he added, the service may derive “annexes or volumes that address the specific system capability.”

## War on Terrorism

The Air Force may get an opportunity in the near term to test its embryonic task force approach. The early thinking about what is needed for counterterrorism attacks is a capability “to go in and strike something of significance quickly and rapidly and accurately, but not necessarily [in] a sustained effort,” said Gen. Gregory S. Martin, the commander of United States Air Forces in Europe.

The Air Force has laid out an emerging CONOPS for the Global Response Task Force. The service anticipates keeping warplanes on alert as part of a package aimed at quick strikes against terrorist targets.

“Using actionable intelligence for some fleeting targets, [the task force] combines alert strike platforms based in selected locations with the ability to launch and receive updates en route to allow the GRTF to respond rapidly” to direction from civilian and military leaders, according to a draft operating concept the Air Staff circulated earlier this year.

The briefing acknowledges this “new enemy” is different from traditional nation-states the United States has fought in the past. A terror group is “unconventional in its actions, dispersed in its location, and concealed by disguise,” the draft briefing said.

In response, the Air Force wants GRTF to serve as a “poised force,” capable of acting “swiftly, precisely, decisively, and globally,” according to the document.

Martin explained that the next step is to address the question, “What are the things you need to do that?” He went on to say, “Well, you need proper intelligence [preparation] of the battlefield that is more along the way of predicting what the enemy courses of action will be and where they will be. Then you need, obviously, the right mobility force. You need the right [communications]



USAF photo by Carlos Rolon

**Key to the emerging Concept of Operations for the GRTF is “actionable intelligence.” UAVs such as this new Global Hawk will help provide up-to-the-minute imagery for battlefield commanders.**

links. You need the right picture in the cockpit. You need the right weapons.

“So once you put that all together,” Martin continued, “you basically understand from the different types of tasks’ scenarios ... what systems you need to do that. And now, the guy that’s in charge of that task force will line those systems up in terms of which ones are most important for his ability to conduct the operation. Which modernization programs will pay him the biggest dividend in being able to execute the task he’s given?”

The approach may make it more difficult for Air Force officials to invest heavily in high-technology gadgets before their value in the battlespace is known, officials say. When system developers come up with a new technology, now “we’ll be able to bring it into our Global Strike Task Force or other construct and look at existing capabilities, identify where it fits, see if it’s merely redundant and duplicative, [or] see if it’s complementary,” said Leaf.

Sometimes, he added, the service will find that a new capability “really does change the entire approach” and does not merely lead to the conclusion, “Guess what? We can blow up bridges faster now.”

“We’re still probably going to need to blow up bridges sometimes,” Leaf continued. “But many of the elements of warfighting are much more exquisite than that in modern scenarios and need a better-defined intellectual construct.”

## Effects Multiplier

To those who might consider Jumper’s task force framework just another passing phase in the Air Force, think again, says Maj. Gen. David A. Deptula, director of plans and programs at Air Combat Command. He says the concept has substantial foundation in Air Force thinking.

During the 1991 Persian Gulf War, where Deptula was the principal air campaign planner, the Air Force found it could render key targets inoperable with just a few carefully placed strikes, greatly multiplying the effectiveness of each sortie.

In warfare, said Deptula, “you can achieve dramatic effects across an entire theater by using quality intelligence to focus your targeting, rather than seeking the absolute destruction of each and every target.” Similarly, he said, Jumper’s task force approach attempts to sharpen the service’s focus on practical results, which means “translating the notion of an effects-based perspective to planning and funding our force structure.”

If Jumper’s vision takes off, the thinking goes, it might just have a similar, multiplying effect. ■

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Elaine M. Grossman is senior correspondent for Inside the Pentagon in Washington, D.C. Her most recent article for Air Force Magazine, “The Halt Phase Hits a Bump,” appeared in the April 2001 issue.

# Verbatim

By John T. Correll, Contributing Editor

## Terror Is Relative ...

"No one can condone the loss of a single civilian life on either side, but we need to realize that the situation has essentially become asymmetric warfare rather than Palestinian terrorism and Israeli counterterrorism. Each side has escalated the violence using methods available to it. For the Palestinians, this is suicide bombing and smuggled arms. For Israel, it is tanks and attack helicopters."—**Anthony H. Cordesman, senior fellow at the Center for Strategic and International Studies, in the New York Times, March 22.**

## ... No, It's Not

"Murderers are not martyrs. Targeting civilians is immoral, whatever the excuse. Terrorists have declared war on civilization, and states like Iran, Iraq, and Syria are inspiring and financing a culture of political murder and suicide bombing."—**Secretary of Defense Donald Rumsfeld, at a DOD briefing, April 1.**

## Rogues Are Relative

"Our leaders frequently speak of 'rogue nations.' But what is a rogue nation? Isn't it simply one we have chosen to boycott because it doesn't always behave the way we think it should?"—**George McGovern, former US senator and one-time Democratic candidate for president, in The Nation, April 22.**

## Next Target

"If not destroyed, this madness will strike in your buses, in your supermarkets, in your pizza parlors, in your cafes. Eventually, these human bombs will supplement their murderous force with suitcases equipped with devices of mass death that could make the horrors of Sept. 11 pale by comparison. That is why there is no alternative to winning this war. ... No part of the terrorist network can be left intact."—**Benjamin Netanyahu, former Israeli Prime Minister, in a speech to the US Senate, April 10.**

## Long Live the F-35

"This is not a program that's going

down the drain, I'll guarantee you that."—**Edward C. Aldridge, Pentagon acquisition chief, at a March 22 DOD briefing, on possible cuts to the Joint Strike Fighter program.**

## Anti-Liberal Trick

"Sept. 11 and the war on terrorism provided the functional equivalent of the Cold War. It is the Reagan formula all over again: tax cuts, huge increases in military expenditures, deficits, and the consequent exclusion of all the initiatives that liberals might offer."—**Paul Starr, professor of sociology, Princeton University, in The American Prospect, March 28.**

## Food for Thought

"We ought to remind them that they're going to have a hard time eating their oil."—**National Security Advisor Condoleezza Rice on Iraq's threat of an oil embargo, quoted in The Dallas Morning News, April 9.**

## Recruiters Not Welcome

"Preliminary data suggest that between 2,000 and 3,000 secondary schools nationwide (about 10 to 15 percent of all high schools) ultimately will be identified as 'problem' schools under the definitions set forth in the current law."—**David Chu, undersecretary of defense for personnel and readiness, in Feb. 13 testimony to Congress, on schools that deny access to military recruiters.**

## Almost as Good

"The central message from Operation Enduring Freedom is that it is a celebration of the success of joint operations. Air Force tactical aviation is no less relevant in meeting our nation's warfighting requirements simply because naval tactical aviation is not as limited by the tyranny of distance, basing, and access. Neither are the Army's conventional capabilities less relevant because Marine Corps units possess organic mobility, sustainment, and if required, forcible-entry capabilities."—**Gen. James L. Jones, Commandant of**

**the Marine Corps, in Armed Forces Journal International, April 2002.**

## Insufficient Endorsement

"The United States lost the public relations war in the Middle East a long time ago. They could have the Prophet Muhammad doing public relations and it wouldn't help."—**Osama Siblani, publisher of The Arab American News, quoted in The Village Voice, March 5-11.**

## From the Grassy Knoll

"We know now there were numerous warnings of the events to come on Sept. 11 ... What did this Administration know and when did it know it, about the events of Sept. 11? Who else knew, and why did they not warn the innocent people of New York who were needlessly murdered? ... What do they have to hide?"—**Rep. Cynthia McKinney (D-Ga.), in a Berkeley, Calif., radio interview, quoted in the Washington Post, April 12.**

## Conventional Boots on the Ground

"A great many pundits have taken me to task, saying, 'Well, gosh, isn't it true it would have been a helluva lot better operation if we had just put conventional forces in on the ground in Afghanistan?' I guess we'll never know that, but we know that when the Soviets did it with 620,000, it didn't seem to be quite enough."—**Army Gen. Tommy R. Franks, commander of Central Command, in an interview with the Atlanta Journal and Constitution, April 7.**

## The Margin in the Falklands

"Above all, admirals everywhere learnt one cardinal lesson from the Falklands: the difference that correct and incorrect fusing of air-delivered weapons can make. The Argentines penetrated six British ships with bombs that did not explode. As the Marshal of the Royal Air Force, Lord Craig, once put it to me: 'Six better fuses and we would have lost.'"—**John Keegan, on the 20th anniversary of the war in the Falkland Islands, in London's Daily Telegraph, April 2.**



# HOW TO DROP 20 TONS ON A 10'X10' SPACE.



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LOCKHEED MARTIN



The sophistication, mobility, and “hybridization” of adversary air defenses spell trouble a few years down the line.

# Next Steps in



Staff photo by Gary A. Davis

# Electronic Attack

**T**HIS month the armed services formally present their preferred plans for conducting Airborne Electronic Attack through the next two decades. Candidate approaches, identified in a two-year joint service study and ranging in cost from \$20 billion to \$82 billion, hit the desk of Undersecretary of Defense Edward C. Aldridge, the Pentagon's acquisition chief.

All signs are that these plans will affect air warfare for decades to come.

The AEA options were developed by a Navy-led analysis of alternatives team, which wrapped up its work in December. In a 10-volume classified study, the team examined how the services could replace the capability of the Navy's EA-6B Prowler and other Electronic Warfare systems now nearing the end of their planned or useful service lives. The study included input from 125 government and contractor organizations and set benchmark prices for many of the options considered.

The analysis was spurred by two facts:

- The inventory of EA-6Bs, used jointly by the Air Force, Navy, and Marine Corps—a low-density, high-demand asset—won't meet minimum requirements in 2009 because of the aircraft's age and expected attrition.

- Recent conflicts have demonstrated that a continuing, vigorous AEA capability will be needed for virtually any future air campaign.

Although Aldridge will review the service plans and send them back for further refinement—especially in the area of cost—he is expected to allow the Navy to pursue a replacement aircraft for the EA-6B, a move the Air Force also supports. In its turn, the Air Force will, for now, concentrate on a variety of programs—emitter pods, decoys, some classified programs—that will address the is-

By John A. Tirpak, Executive Editor

*Defense-suppression aircraft, like this F-16CJ with HARMs, are just one facet of many in defeating enemy air defenses. This month, the Pentagon will chart a new course in the electronic attack arena.*



**The Air Force gave up its last EF-111 escort jammer (foreground) in 1998, agreeing to share the fleet of 126 EA-6Bs (background) with the Navy. Already stretched thin, the fleet drops below bare minimums in 2009.**

sue for this decade. A longer-range plan could see the Air Force acquiring its own jammer airplane, although service officials have not been pushing such an option.

In Operation Allied Force, the Balkan air war of 1999, the limited supply of EA-6Bs as an escort jammer for certain missions “constrained” NATO’s ability to strike at the time of its choosing, particularly after many weeks of operations, said a study participant. Recent groundings of the Prowler for mechanical problems have heightened the Navy’s sense of urgency in seeking a replacement.

### Pressing Issue

The AEA issue is a pressing one for all of the services. Afghanistan offered a “fairly benign” air defense environment, but the next US opponent may be far better equipped for air warfare, warned Lt. Gen. Charles F. Wald, Air Force deputy chief of staff for air and space operations.

“We’re OK,” for now, said Wald, speaking at a March air and space symposium in Washington, D.C. However, he added, the current adequacy of AEA capabilities may be short-lived.

“If we had to fight today” against an enemy equipped with typical air defenses, “I would be comfortable with what we have,” said Wald. “I think we’d do a great job. Two or three years from now—maybe five years from now—it’s going to change.”

Wald, who commanded US air forces in Afghanistan during the early days of Operation Enduring Freedom, cited several reasons for projecting this change of events.

First, advanced anti-aircraft defense systems such as the Russian S-300 and S-400 family are now on sale around the world and starting to complicate US air planning. The new systems mark a sharp improvement over the systems the US has faced in battle during the 1990s. They pose an unprecedented peril to unstealthy combat aircraft—which constitute the majority of US military aircraft.

The new opposition air defense systems “can reach out further,” said Maj. Gen. Daniel P. Leaf, the Air Force’s director of operational requirements. New systems can both detect aircraft at much longer ranges than before and have longer-legged missiles that can reach the targets farther away. Older systems have also benefitted from integration of previously unrelated components, said Leaf, in a process that is sometimes called “hybridization of air defense weaponry.”

### Hybridization

In the 1999 Balkan War, Leaf explained, Serb forces used radars not previously associated with anti-aircraft systems. He added that they also inventively linked “visual reports, cell phones, [and] ham radios to cue the air defense net in a simple but relatively effective network.”

Though the Serbs succeeded in downing just two NATO aircraft during the course of the conflict, they fired about 700 missiles, forcing NATO to use jamming and defense suppression aircraft until the very end of the operation.

Second, the emerging hybridization of air defenses means that Western air forces cannot be sure of winning the electronic battle simply by application of “radiated power at the face of the enemy radar aperture”—Leaf’s words. The brute-force blinding of enemy radars with high-energy emitters will be difficult.

“It’s much more refined than that,” Leaf said. Weapons, deception, information warfare, and decoys “are all going to have to continue to improve.”

Third, the growing mobility of adversary air defenses is changing the whole structure of the AEA mission. Leaf said that old-style fixed strategic systems and transportable systems that could be moved, set up, employed, and then moved again are giving way to much more nimble and elusive systems that can virtually shoot on the move.

“Everything is migrating to being much more mobile,” he observed, “and that makes sense, because if they’re not mobile, we’ll find them and kill them.”

Leaf was one of the senior Air Force members of the team that produced the analysis of alternatives. He cautioned that the options developed were intended to “provide a capability at least as comprehensive as that which will be offered by the EA-6B with the Improved Capabilities [or] ... ICAP III” system upgrade.

“That’s a pretty specific focus,” said Leaf. “It will not answer all our needs for countering air defenses or even for Electronic Warfare, probably, especially as threats continue to mature.”

According to an unclassified summary of the analysis of alternatives, the participants concluded that an effective AEA solution must have two parts: a “core” system of reusable aircraft operating in enemy airspace and an “expendable” system that will work close to enemy sensors and air defense systems—too close for the core platform to survive.

The summary stated that no emerging technology or mix of technologies will eliminate the need for a



**A Navy-led study came up with 27 alternatives to replace the EA-6B as the US electronic attack platform. One option is to outfit a civil wide-body or a bomber, like this B-52H, with jamming gear.**

comprehensive AEA capability in US air superiority forces, even accounting for the advance of stealth technology, the availability of increasingly powerful self-protection systems, and the advent of small, electronically scanned array radars now being fitted on fighter aircraft.

The analysis looked at combinations of platform options which ranged from new-start aircraft to business jets, variants of existing and planned fighters and bombers, “wide-bodies” such as Electronic Warfare versions of the 737 and 757, and unmanned aerial vehicles, both armed and unarmed. Various combinations of land- and sea-based capabilities were considered.

### Smorgasbord

The analysis amounted to what one industry participant called a “Consumer Reports list” of available products that could do the job, at various levels of effectiveness, and at various prices.

The cheapest option was pegged at about \$20 billion. It would be based on a “new-start, high-flier” program patterned on the Global Hawk high-altitude unmanned aerial vehicle, used in conjunction with a smaller system, such as a loitering drone or missile, that could directly attack enemy radars and sensors.

At the other end of the spectrum, the most expensive and comprehensive option—at about \$82 billion—included electronic attack variants of the Navy F/A-18E/F fighter, Air

Force F-22 fighter, and USAF B-52 heavy bomber, along with a close-in attack system.

The study expressed cost in “total ownership” terms, which includes military construction, training, maintenance, and the like. In the case of the three most expensive options, prices were quoted by system program offices as well as the Pentagon’s cost assessment improvement group, which the Pentagon maintains to provide independent appraisals. Costs were for comparative purposes only and not to be considered predictive.

For purposes of the analysis, op-

tions did not have to meet budgetary limits. In the choices that go to Aldridge this month, however, the services will have to show how they will plan to pay for their preferred approaches.

Leaf said a new body—the countering air defenses joint requirements working group—was formed to eliminate redundant capabilities among the services, look for complementary capabilities, and determine whether the services should pursue entirely new systems.

The Air Force has been roundly criticized for its decisions to retire the F-4G Wild Weasel dedicated Suppression of Enemy Air Defenses aircraft and the EF-111 escort jammer, in 1995 and 1998 respectively. Critics say the Air Force was overly enamored with stealth and paid insufficient attention to Electronic Warfare.

USAF substituted the F-16CJ with the HARM targeting system for the F-4G and agreed to share the EA-6B with the Navy when the EF-111 was phased out.

Leaf said neither retirement decision was taken lightly.

“We were making some very tough decisions,” he insisted. “We didn’t get rid of those aircraft because we wanted less capability. There were very serious downsizing constraints as the force grew smaller.”

The decision to rely on the Navy’s Prowler fleet was “a tough choice,” he added.

The Air Force’s near-term options



**Fixed threats such as this SA-6 in Afghanistan aren’t the big worry; they can be hit quickly and effectively. The danger lies in mobile and man-portable SAMs that can “shoot and scoot,” cued by hybrid air defense systems.**

mostly revolve around systems that can be appended to existing airframes. These included towed decoys, targeting pods, new munitions, information warfare systems, directed energy weapons, and the Miniature Air-Launched Decoy, or MALD.

"Where we're headed is to balance fiscal reality with the requirements and opportunities," Leaf said.

The Air Force would like to avoid a repeat of the Balkans situation by ensuring that enemy surface-to-air missile sites are not just suppressed but actually destroyed.

### "Shoot and Scoot" Systems

"We must do a better job of killing surface-to-air systems," Leaf said. "We can't give [the enemy] the capability to 'shoot and scoot' and hide throughout [the conflict]."

The Air Force is already emphasizing quick location and destruction of mobile and time-critical targets, Leaf said, and its programs will all bend in that direction.

A senior Air Force official said the service is satisfied with the Navy as a partner on the EA-6B and added that USAF has had access to the jammer aircraft whenever it wanted such access. "All these assets are on the ATO [Air Tasking Order]," the official said. "The decision as to who gets what and when is made at the level of the JFACC [Joint Force Air Component Commander]."

"We don't run solo operations much, so we get that support when it

is appropriate for us to have it," he observed.

The EA-6B is a 1960s-technology airplane. Though it has profited from an ongoing, state-of-the-art avionics upgrade, it is still an aging aircraft, frequently beset by mechanical problems. The Navy would like to move to a new airplane, easier to fix and with greater capability.

Ever since the Navy opted to pursue the F/A-18E/F Super Hornet, it has had a policy of shrinking, whenever possible, the number of aircraft types on its carrier decks. It does this to reduce the number of parts inventories and repair capabilities that it must maintain. The Super Hornet and its smaller predecessors, the F/A-18A-D models, have a high commonality of parts, and the sea service would like its EA-6B follow-on to be a Super Hornet variant as well.

Boeing has developed the "EA-18" proposal to meet the requirement and said it has been working on the project since 1993.

"We call it the 'Growler,'" said Paul Summers, Boeing's director for F/A-18 derivative programs. "This concept is extremely mature."

Summers asserted that Boeing has thoroughly worked out the internal design of the EA-18 and has endeavored to make it compatible with the EA-6B's ICAP III jammer pods with only minor modifications. Flight tests to check the fit of the external systems have already been flown. In-

cluding internal processors, the EA-18 would have 70 percent commonality with the EA-6B's Electronic Warfare systems, Summers said.

### Just In Time

Because the F/A-18E/F test program is far along—and the EA-18 is externally almost identical to the F model—Boeing believes it could have the first nine EA-18s available for duty in 2009. That is exactly when the Navy will begin to run short on EA-6Bs and would assume a go-ahead in 2004.

"This is an integration program," Summers insisted, and the Navy can save a great deal of money because it doesn't need to certify the type or repeat flight testing. So common are the aircraft that the Navy has also asked for quotes on making all F model Super Hornets capable of using the interchangeable Electronic Warfare pods and internal systems, to ease decking considerations and broaden the interchangeability of its fleet. The EA-18 would retain all the combat and tanking capability and weapon stations that the F model has, without the internal gun. The additional onboard gear to make the F model an EA-18 is about 350 pounds, a figure that would be reduced to 200 pounds if fiber optics supplant coaxial cable in the aircraft.

While the Navy currently fields a fleet of 122 EA-6Bs, the Air Force and Navy agree that number is too low and that it would be desirable to fix the low-density, high-demand problem.

"Pricing for 180 airplanes has been requested by the Navy," Summers acknowledged. "That number assumes they will continue to support Air Force requirements. If they don't have to, the number will be lower."

Summers said that Prowler crews have looked over the layout of the two-man EA-18 and believe it can, with automation improvements, do the job that the four-seat Prowler now does.

Besides commonality and manufacturing and development savings, the EA-18 offers the Navy and Air Force an opportunity to recover the escort jammer role that was surrendered when the EF-111 left the inventory.

"This is an airplane that can go supersonic ... and keep up with the

Boeing photo



**The Navy's preferred option is to replace the EA-6B with the EA-18, a variant of the Super Hornet. Speed and commonality with the rest of the Navy's fleet are its chief selling points, but USAF doubts that this is the way to go.**

strike package, if that's something you want to do," Summers pointed out. Because it retains combat capability even with some jamming pods carried, it could do some of the SEAD mission as well, he added.

According to the AEA analysis of alternatives, an Electronic Warfare plan focused on the EA-18, adding new-technology jammer pods, would cost about \$40 billion over the life of the program. Another option—restarting the EA-6 line and building brand-new EA-6C aircraft with new-technology pods—would cost about \$34 billion.

One of the most attractive options, said one participant, was an AEA version of the Joint Strike Fighter. Both a carrier capable and conven-



Lockheed Martin concept images

**An electronic attack version of the JSF might make sense as the next jammer platform, but it doesn't arrive until 2010, leaving a gap in coverage. One JSF option (top) is for a "clean" version with EW gear carried internally. Another idea (here) would use external pods already in the works for the EA-6B.**

tional takeoff version could be developed and fielded for about \$38 billion, but "there would be a long wait before we could get those airplanes ... unless we did them simultaneously with the [conventional] attack version," he said. The F-35 JSFs don't begin to roll off the assembly line until 2008, and the first units will not be equipped until 2010.

### The Stealth Factor

The Air Force's unique requirements for AEA are still being worked out, Leaf said.

"We've got to ask ourselves, will we have the right Electronic War-

fare capability to support a fleet that's going to become increasingly stealthy, ... some element of which will operate at supercruise?"

With the F-22 entering the battle zone at Mach 1.5 or more, "we've got to make sure we have responsive, flexible EW support to match that kind of capability. Some of that ... may be inherent to the F-22 itself. An EF-22 is among the options the Air Force is considering."

Wald said that replacing the EA-6B is "probably necessary. ... We support the Navy's initiative to replace some of their EA-6Bs."

However, "there are additional

capabilities we're going to have a look at," Wald added. Some of these are nontraditional, such as the Air Force's SEAD unmanned combat aerial vehicle.

The "replacement in capability, if not in kind, of the EA-6B is probably not going to meet our needs in the next decade," Leaf acknowledged. "We're probably going to have to go beyond [it] ... and that may require a new platform."

The Air Force is "committed to Electronic Warfare," Wald asserted. "We're not committed to a single platform. We're committed to multiple platforms, ... to a synergistic approach, maybe some nonconventional ways of doing some of this that haven't been talked about before." These will include "traditional methods as well as information operations, space capabilities, ... and perhaps some emerging technologies that are still classified."

In an apparent nod to criticisms that the Air Force has not taken the EW mission seriously enough, Wald said, "It's not a simple problem. It goes to this debate over suppression of enemy air defense and destruction of enemy air defense. As if it was either-or. There is no either-or."

The Pentagon's plan of addressing AEA with add-on systems first, followed by a new platform at the 10-year point, and more sophisticated new technologies after that, "will meet the threat of the future," Wald said, "as long as we stick with it." ■

**S**INCE the September attacks, commercial airlines have been hiring fewer pilots, former military fliers have been applying to return to active duty, and the Air Force's Stop-Loss actions have halted the exit of rated officers. Why, then, is USAF still paying "continuation" bonuses of up to \$25,000 a year to some 5,000 pilots to get them to remain on active duty?

"The fact is that Stop-Loss has only a temporary effect on the pilot force, as it does on the other career fields," said Lt. Col. David Moore, the chief of rated force policy under the Air Force's Deputy Chief of Staff for Personnel. "We foresee shortages in our pilot force for many years to come, and the solutions on which we focus need to point to the long term."

In addition, Moore also sees the slump in civilian competition for pilots as a temporary phenomenon. "We expect the airlines to expand their hiring," he said, "and we expect that to continue to be a long-term challenge for pilot retention in the Air Force."

Nor is the lure of civilian jobs the only cause of pilot shortages. Despite recent efforts to spread the workload more evenly, the stress of deployments and day-to-day operations still is a major reason for separation. Although officials applaud the way members have responded to the war on terrorism, they concede that optempo has increased since Sept. 11.

### Cause and Effect

There is no single cause of the Air Force's present predicament, but some of the actions taken to reduce strength in the 1990s are at least partially responsible.

During the drawdown, the Air Force tried to protect its pilot resources, even though it had surpluses in the rated ranks at that time. Most pilots were exempt from involuntary separation and barred from voluntary early release. The only major effort USAF took to reduce rated strength was to cut the rate of pilot training. This achieved the desired force reductions, but at a price.

"Yes, the inventory came down," Moore said, "but when we cut that far, it was going to have an inevitable consequence—not having enough pilots in certain year groups." That unwanted effect would carry over

**Despite some easing of the problem, USAF's pilot shortage will drag on for years.**

# Another Look at Pilot Retention

By Bruce D. Callander

for decades, he added, "because if you don't manufacture a new pilot in a certain year group, that's somebody you can never get back. Ten years later, that's a senior captain or junior major that you aren't going to have to fill a supervisory position."

As the oversupply of pilots turned to shortages, USAF increased production from fewer than 500 new pilots per year to about 1,100 per year and increased active duty commitment for newly graduated pilots from eight years to 10 years. While the higher production rates promised long-term relief, there remained the more immediate problem of the lack of experienced midcareer fliers able to lead operational elements and hold rated staff positions.

Nor was the pilot shortage the only problem. "You've got to have enough sorties to get your people the level of training they need," said Moore, "but to generate enough sorties, you also need enough crew chiefs to launch the jets, enough avionics technicians to keep the systems operating, enough aircraft controllers to sequence the traffic, and ultimately—and this is an important point—enough airplanes."

That said, however, the pilot shortage remains the Air Force's most pressing personnel concern, and USAF has moved on several fronts to remedy the situation. In the process, however, it has encountered new problems.

For example, the service's effort to ease the shortage of seasoned fliers in the cockpit has led to a reduction in the number of rated officers in staff jobs, and many of those being filled are taken by navigators. USAF also invited recently retired pilots to return to active duty or, in some cases, to fill staff jobs as civilian employees. To encourage these recalls, Congress eased the dual-compensation laws which had barred retirees from drawing two federal paychecks at once.

In another move to meet the shortages, the Air Force has drawn more heavily on Guard and Reserve members to take jobs previously filled by active duty officers. The Air National Guard and Air Force Reserve Command have furnished instructor pilots to Air Education and Training Command and to Formal Training Units with operational units. Others were brought back as test and check pilots.

In its struggle to hold the current





rated force, the service asked for and received authority to sweeten the financial incentives for active duty pilots. In recent years, both aviation career incentive pay (flight pay) and aviator continuation pay (bonuses) have been increased. Even though pilots were included in the Stop-Loss order after Sept. 11, they still remain eligible for bonuses when they commit to additional service.

### **The Downside**

These measures have helped the Air Force weather the immediate problems and continue to maintain an active operational force, officials say. However, most of these steps have only limited impact and some pose difficulties of their own.

The decision to cut pilot production rather than reduce the rated force during the drawdown is one example. Although it kept more experienced pilots aboard, it drastically reduced the number of younger fliers in the pipeline. It is largely this shortage of replacement pilots that is causing the service its current worries.

Doubling the pilot production eventually will help plug this experience gap, but at the moment, it too has some side effects. The increased student load requires more instructor pilots both at the undergraduate level and in the operational FTUs.

"You can't simply increase production without having an effect on other aspects of the problem," Moore said. "One of the most important is our ability to absorb new pilots into the system and get them trained and experienced over the long term. You can manufacture a whole bunch of brand-new pilots, but if they don't have the kinds of flying experience you need, they are not going to be ready to move into supervisory positions and do the multitude of things that you need done."

He went on, "The really crucial thing is not increasing initial production but making sure you have the ability to train those new pilots and bring them up to the point where they are properly experienced and seasoned where you can use them for the more difficult missions."

Another logical step was turning to the Guard and Reserve for pilots to fill the instructor jobs and other positions calling for experienced officers. The Guard and Reserve traditionally have been well-supplied

with pilots who didn't want to remain on active duty but wanted to continue to fly. Moreover, most of these fliers have been seasoned by at least one term of active duty and kept current by their units.

In recent years, however, these backup forces have experienced some of the same difficulties as the active force. Since the drawdown, they have taken on a variety of additional missions. They now handle all of the nation's weather reconnaissance and fighter-interceptor missions, more than half the tactical airlift, refueling, and rescue missions, and a substantial portion of the fighter, bomber, and airlift missions.

At the same time, the Air Force's decision to cut pilot production during the drawdown has had an impact on reserve recruiting. The effect was slow in coming, but the Guard and Reserve, like the active force, now are finding it harder to fill their operational flying positions and can spare only limited numbers of pilots to fill instructor jobs and other positions.

As Moore said, "If you use Guard and Reserve pilots to do some of your active training, those are Guard and Reserve members who may not be available to perform the regular Guard and Reserve mission. So in some respects, it's a zero-sum game. You can't rob from one to pay the other."

Moore argues that the nation needs to deal with solutions across the board in the Total Force.

### **Retirees Return**

In December 2000, the Air Force tapped another source by inviting recently retired pilots, navigators, and air battle managers to return to active duty to fill headquarters rated staff positions.

"We have seen a surge since Sept. 11," said Maj. Michael Franckowiak, the chief of the recall operations center at the Air Force Personnel Center. "That has caused us to increase the number of folks we have in the operation. We also have set up a call center in AFPC to take the requests and get those officers in contact with assignment officers."

Lt. Col. James Mont, the chief of AFPC's retired aviator recall program, explained, "The program was designed to bring back individuals who had been retired for five years or less. So that's the target audience."

"[Through March] 284 retirees

have contacted us and expressed an interest in the program," reported Mont. "So far, we have brought 102 back on active duty, and we currently have 99 active packages that we are working."

The colonel, himself a recently recalled retiree, noted that Congress limited the Air Force to no more than 208 recalls and put an Oct. 1, 2003, deadline on the authority.

That cutoff date means few of the retired recallees can be returned to cockpit positions, Mont said, because needed refresher training calls for a longer active duty commitment.

The Air Force also has made a similar invitation to former active duty officers who are in reserve status or who severed all military ties. One, called the Limited Period Recall Program, allows an active duty unit to make a by-name request for a reservist to fill a specific slot. Another, called the Permanent Recall Program, accepts both reservists and separated officers who want to return for full careers. It has been this latter program that has seen the greatest surge in applications since Sept. 11, Franckowiak said. Most go to flying slots and serve for three or four years of active duty in reserve status, but the numbers still are small. Only slightly more than 100 such officers actually had returned to duty as of March.

Even being accepted does not mean that an officer will be returned to a cockpit. Maj. Woody Ganis, the chief of rated staff assignments at AFPC, noted, "For the folks who are returning to active duty, that are not retired, we look at them, see what their skills are at the time. If they are currently flying, we look at putting them in the cockpit. No guarantees. If they are not flying, then odds are they are going to a staff position like the retirees because we just don't have a lot of available training time to take someone in off the street and get him spun up in the aircraft."

For all their limitations, the recall programs have been a welcome boost to the service. As Franckowiak said, "One of the benefits we see in bringing these officers back on is that it gives us immediate experience that we need in the cockpits right now. So that's the big plus."

Like the recall effort, Stop-Loss has helped USAF for the moment. As Moore of rated force policy said,

“Currently, Stop-Loss is in effect for all aircrews, all pilots, navigators, and air battle managers as well as for the majority of the Air Force.”

The Air Force has released the first set of officer and enlisted Air Force Specialty Codes from Stop-Loss, and every quarter, USAF will once again address the issue, looking at which troops will stay and which will be allowed to separate.

“My personal speculation is that, because aircrews are out there at the leading edge of the fight, Stop-Loss will be in effect for them for a while longer,” said Moore. “It probably will depend on how the war goes, and it’s going to be specifically tied, I am sure, to the mobilization of forces in the Guard and Reserve. It doesn’t make sense for us to be allowing people to leave out the back door if we’re calling up the Guard and Reserve.”

Still, the involuntary hold cannot be imposed indefinitely, and when it is lifted, the Air Force again will be struggling to retain pilots who are free to leave. Unless it can convince substantial numbers of them to increase their commitments, there could be another surge of losses.

### **Airline Pay Still a Lure**

One of the biggest threats to retention remains the lure of high-paying airline jobs.

“It’s true that many airlines have furloughed pilots in the months since Sept. 11,” said Moore, “but we expect them to be hiring again in the coming year, and in the long term, we expect the airlines to place new orders and continue to grow. And, obviously, for the good of the country, we want the airlines to prosper, to succeed, and survive.”

However, the Air Force cannot afford indefinitely to give up too many of its most experienced aviators to the commercial carriers. To stop the hemorrhage of talent, it has fought for and won increases in flight pay and in the bonus for those who stay longer.

The bonus, known formally as aviator continuation pay, has been sweetened in recent years. Under

current rules, a pilot can qualify for up to \$25,000 for each year he or she agrees to stay beyond the initial eight- or 10-year commitment acquired from initial flight training. Shorter commitments pay less (\$15,000 per year for three years or less), but under recent rule changes, officers now are allowed to trade these rates for higher ones by lengthening their commitments. The program also allows pilots to take a hefty portion of the money as a partial up-front payment.

Lt. Col. Robert J. Sirois, the chief of operational programs at AFPC, gave a dramatic example of how much the bonus can amount to over a full career.

“The first pilot to take an agreement this year had just finished the eight years of his active duty commitment from pilot training. He took a long-term agreement for 25 years of aviation service at \$25,000 per year. So that would equate to a 17-year agreement at \$25,000 per year. Pilots in their first year of eligibility also are authorized to take 50 percent of the bonus in cash up to a cap of \$150,000, and then the remaining payments would be prorated over the remaining years.”

For the pilot in the colonel’s example, the bonus could amount to \$150,000 in cash and another \$275,000 over the rest of his career. His total take from the up-front cash and annual increments would be \$425,000 over and above other pays and allowances.

There is no guarantee that the bonus will be available when the pilot shortage is over, Sirois conceded. “But,” he added, “once a pilot is on the bonus, the Air Force has made a commitment to pay out through the length of the agreement. And, as you can see from the pilot who just took a new 17-year agreement, we’ll be out there at least until the early 2020s.”

### **Retention Is Still Down**

About 5,200 pilots (almost half the active duty inventory) are under bonus agreements. The program costs the Air Force about \$130 million per year, but that is a small fraction of

what it would cost to train an equal number of new replacement pilots and bring them to the same experience level. Officials say there has been some improvement in pilot retention rates in the past year but they still are below the needed levels.

Sirois said, “There are a lot of different ways to encourage people to stay longer, but one of the ways is to try to bring them closer to what they might be making with the airlines.”

Flight pay also has improved in recent years, particularly for more experienced pilots. Until the late 1990s, an aviator’s pay began to decrease after 18 years of commissioned service. The new law states that the rate peaks at \$840 per month for fliers with more than 14 years of aviation service and does not drop until 22 years of aviation service. This means that a pilot beyond the midcareer point can draw some \$35,000 per year in flight pay and bonus installments in addition to the normal pay of his or her grade.

The increases are justified, officials say, because surveys show that pilots generally perceive they can make even more money in civilian life. In one recent poll, many pilots said they expect to make at least \$50,000 more on the outside than in the Air Force even with flight pay and bonuses. Interestingly, however, the officials note that polls on the factors influencing company-grade pilots to leave service show that availability of comparable civilian jobs dropped from the second most important factor in 1999 to the fourth in 2000.

Higher pay in the civilian world still is a formidable “pull” factor, but the surveys say that many pilots are driven to leave by a variety of “push” factors such as dissatisfaction with the service itself. Choice of assignments, additional duties, and high optempo consistently show up as top reasons for leaving.

In recent years, the Air Force has tried to address the work-related dissatisfactions with programs that spread assignments more equitably and make deployments more predictable. The efforts appear to have had some success, but with the current manpower shortages and the added demands of the war on terrorism, the stress on pilots is not likely to ease any time soon. ■

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**In one spectacular engagement in the skies over Lebanon, modern airpower took a dramatic leap forward.**

# THE BEKAA VALLEY WAR

**I**N JUNE 1982, Israeli ground forces pushed into Lebanon in an effort to put an end to cross-border terror attacks. Operation Peace for Galilee, as Israel dubbed it, led to a prolonged conflict with Lebanon and produced mixed overall results.

However, the initial phase of that operation included a spectacular moment when the Israeli Air Force destroyed 19 surface-to-air missile batteries, with no losses, and downed a huge number of enemy aircraft. With real-time intelligence and careful exploitation of adversary weaknesses, the IAF dealt modern air defenses their first major defeat.

So startling was the IAF success in that Bekaa Valley air war 20 years ago this month that it ever since has stood out as a critical turning point in the deadly duel of fighters and SAMs.

The Bekaa Valley success was long in the making. Israel's small but elite air force dominated the Six Day War of June 1967, pulling off one of the most successful surprise attacks of all time. Flying about 3,300 sorties, the IAF smashed the air forces of Egypt, Jordan, and Syria. The three Arab nations, taken together, lost around 400 aircraft on the ground and in the air. Thereafter, the Egyptian, Syrian, and Jordanian armies were routed in the Sinai, Golan Heights, and West Bank.

However, the IAF's dominance in the air was successfully challenged in the War of Attrition which officially started in March 1969 and ended in mid-1970. Egypt's campaign to harass Israeli forces in the Sinai was backed by a massive infusion of Soviet weapons, including modern aircraft and missiles. As a result, the IAF was the first air force that had to contend with advanced Soviet-made SAMs.

During these years, IAF raids destroyed some Egyptian SAM batteries, but sporadic action was not enough. Worse, the SAMs were taking a toll on the small Israeli Air Force. One historian of these events, retired RAF Air Vice Marshal Tony Mason, observed, "Squadron attrition exchange ratios had changed from 1-to-40 in the air to 2-to-4 against missiles" during the peak of the War of Attrition. It was only too apparent that the Arab states were shifting from fighters to SAMs for air defense.

## The October War

Major changes were on display during the October 1973 war. When Egypt and Syria mounted their coordinated surprise attack on Oct. 6, 1973, the IAF faced a formidable air defense environment—"denser than anything in North Vietnam," according to a 1978 Air University report.

Egypt had only 20 mobile SA-6 SAM systems, but these were backed up by 70 SA-2s, 65 SA-3s, and upward of 2,500 anti-aircraft batteries and perhaps as many as 3,000 shoulder-fired SA-7s. Syria deployed another 34 SAM batteries. IAF pilots had to fight for air superiority while making frantic efforts to deliver close support to Israel's embattled ground forces east of the Suez Canal. "Is-

raeli fighters and Arab missile sites engaged in mutual bloodletting," said one official Israeli report.

During this dangerous time, the IAF's second in command was David Ivry. Ivry, a fighter pilot who flew in the 1967 war (and who recently served as Israel's ambassador to the United States), recalls that the surprise nature of the attack meant "we didn't have any time to eliminate the air defense, and we had to fight within very dense air defenses, to participate in the land forces campaign, and we lost a lot of airplanes."

In the first three days, the IAF lost 50 aircraft in about 1,220 sorties. This was an unsustainable loss rate of four percent, rivaling the loss rate of the early US bomber offensives over Germany in World War II. The

**By Rebecca Grant**

losses tapered off, but the SA-6s, SA-7s, and ZSU-24 guns scored hits on 53 of Israel's prewar total of 170 A-4 Skyhawks and 33 of its 177 F-4 Phantoms.

Some of the battle damage was light and some serious, but the air defenses were finding their mark and making it difficult for the IAF to provide emergency close air support to Israeli ground forces. Egypt's air defenses stymied the IAF's attempt to support Israel's early counterattacks.

The IAF was undertaking very high-risk missions and, ultimately, Israel reaped the reward. The air support helped turn the tide in huge battles east of the canal.

On Oct. 14, Egypt moved up reserves to the Sinai and pushed ahead of its own air defenses. Egypt paid the price with the loss of 28 aircraft that day. The attack unraveled as Israeli air and ground troops quickly stopped the advance. One Egyptian division commander, in an interview with British historian Trevor N. Dupuy, said, "When we tried to move out beyond the SAM umbrella, we took unacceptable losses from the Israeli Air Force."

Fighting continued for several days more, ending in a cease-fire with Israeli ground troops ensconced west of the canal and all sides bloodied and battered.

Israel had prevailed, but the cost of the October War made clear the fact that the IAF's tactics would have to change. Even at the end of the war, Israel was still groping for solutions to the SAM problem, losing five Phantoms in a single raid.

### Devastating Losses

To Ivry, the IAF's loss of effectiveness was devastating. "At the end of the war," he said, "we managed to come up with quite an impressive victory," but Israel's military leaders had "a very bad feeling" about the fact that the F-4 was "not successful against SAM batteries." SAM belts restricted the ability of the IAF to interdict an invading army. Surface-to-air missiles could also shelter batteries of short-range surface-to-surface missiles like the SS-21, which would be capable of holding Israeli territory at risk of attack.

As Ivry saw it, airpower's role in future wars had been placed in doubt.



Photo courtesy IAF Magazine

*When SAM batteries in the Bekaa Valley threatened Israel's air superiority over its border with Lebanon, IAF F-4 Phantoms such as these used high-speed anti-radiation missiles to destroy the sites.*

The 1973 war left Israel—not to mention other Western air forces—with the fear that fighters might no longer be able to gain air superiority against an integrated air defense. One such skeptic was Ezer Weizman, a former commander of the IAF. Ivry recalled Weizman's stated view as "the wing of the fighter plane was broken by the SAM."

Clearly, the IAF's freedom to operate in future battles depended on its finding a way to rapidly and systematically take out stationary or mobile SAMs. In Ivry's view, the main lesson of 1973 was simple: "We have to find an answer to the SAM batteries."

Years passed, and Egypt and Israel made peace, but the overall SAM problem did not go away. If anything, it intensified. In April 1981, Syria began to deploy its first SAM brigades to the Bekaa Valley of Lebanon. The move came in response to the IAF's shutdown of two Syrian helicopters which had been participating in attacks on Christian militia—Israel's allies—in southern Lebanon.

One who was studying Syria's move with great interest was Ivry, who had become head of the IAF.

"From our point of view," he said, the movement of SAM brigades into the Bekaa Valley was "crossing the red line" because it threatened Israel's air superiority over its border with Lebanon. SAMs in the Bekaa Valley restricted the

IAF's ability to conduct reconnaissance or to provide air cover for ground operations.

However, the clock was ticking on implementing the final phases of the 1978 Camp David Accords and the 1979 Israel-Egypt peace treaty, which called for withdrawal of forces from the Sinai in 1982. The political situation was "very delicate," in Ivry's words. Israel was tempted to carry out an attack on the Bekaa Valley SAM brigades, but the IAF had a bigger challenge in mind: destruction of the Osirak nuclear reactor then under construction in Iraq. On June 7, 1981, in a stunning attack, a strike package of 14 Israeli fighters destroyed the reactor outside Baghdad.

A year later, however, the elimination of the Bekaa Valley SAM sites became an urgent priority. Palestine Liberation Organization forces in southern Lebanon had become part of an escalating cross-border conflict aimed at Israeli settlements. The PLO fired artillery and rockets against Israeli civilian areas in Galilee.

Israeli Defense Minister Ariel Sharon got Prime Minister Menachem Begin's support for an operation in Lebanon to attack the PLO forces there. Operation Peace for Galilee aimed to drive Israeli ground forces into Lebanon to keep Syria at bay, while Lebanese Christian militiamen drove out the PLO. The first week of the operation culminated with the most significant air battle of the 1980s

and one of the most important in the history of military airpower.

### The Hunt Begins

On June 6, Israeli ground forces began an advance into the PLO settlements in Lebanon with the IAF fighters and attack helicopters providing support. Israeli forces moved fast, pushing north to Jezzine, where action stalled. Israeli ground forces needed continued air support, but the pace threatened to put IAF fighters, attack aircraft, and helicopters in range of the Bekaa Valley SAM sites.

Ivry and his headquarters staff at the Tel Aviv command post were watching Syria closely. One major concern was trying to “avoid any war with Syria,” said Ivry. The SAM sites were in the Bekaa Valley in Lebanon with others in Syria itself, protecting the Bekaa Valley batteries. Syrian troops and Palestinian guerrillas were crowded into the small operational area along with Israeli helicopters and rescue operations.

“Sometimes we had more than 100 planes flying in this kind of environment,” said Ivry. It was “a real saturation area,” about 1,500 square miles of airspace, where command and control was paramount. Ivry ran the central control of the operation himself.

Initial plans called for attacks on 14 SAM sites. Then on Tuesday, June 8, Ivry learned that Israeli Remotely Piloted Vehicles (RPVs) had spotted an additional five SA-6s moving from the Golan Heights into the Bekaa Valley.

“They had a very dense belt along the Golan Heights to prevent Israeli penetration” toward Damascus, Ivry explained. “We found this out in the morning,” Ivry said, and “it meant quite a lot for us.”

The move signaled that Syria had no intention of becoming involved in a major war—or the SAMs would have been positioned to defend the approach to Damascus, instead of going north and reinforcing the Bekaa Valley. The redeployment suggested to Ivry that they could strike the SAM sites without drawing Syria into a wider war and achieve the goal of eliminating the SAM defenses from Lebanon.

Conditions were perfect. Ivry changed plans on the morning of Wednesday, June 9, taking into account the five newly spotted SAM batteries. He planned to launch the

attack at noon but had to wait for Israel’s Cabinet to approve the raid. The Cabinet’s deliberations finished shortly after 10 a.m. and “we got the green light.” Ivry by that time had postponed the attack until 2 p.m.

“Before the attack, there were a lot of Syrian patrols on the border,” recounted Ivry, but no air combat engagements that morning. The Syrians avoided battle. “We’d shot down quite a lot of Syrian MiGs before,” commented Ivry.

### “Free-Fire Zone”

When Israel launched its strike force at 2 p.m., the Syrians ordered their combat air patrols to return to base and land. With their fighters down and safely out of the way, Ivry said, Syrian commanders thought they “were going to have a free-fire zone to shoot anybody who flies.”

He added, “They’ve been so confident that their air defense is so strong that why should they risk any Syrian fighter planes?”

Now, Ivry directed his strike aircraft toward the nest of SAMs. The SAM sites were a combination of SA-2s, SA-3s, and SA-6s. “It was a challenge to attack,” said Ivry. Key to the plan was gathering data to exploit weaknesses in the technology of the SAMs and the way they were operated by the Syrians.

Ivry recalled that “the intelligence-gathering effort which we did was an enormous one.” Other sources describe how, prior to the war, Israeli drones

tested out the radar and communications frequencies of the SAM batteries. In his 1991 book *The Samson Option*, Seymour M. Hersh writes that clandestine operations in May 1982 produced a wealth of data on SAM frequencies and radar coverage that later proved useful to IAF electronic warfare in the Bekaa Valley.

Attacking the SAMs in daylight relied on command, control, and intelligence to make the strike fast and effective—and standoff missiles to give the Israeli aircrews the first shots. The plan had been well-rehearsed. Aircrews practiced attack runs against dummy SAM sites in Israel’s Negev desert for months before the operation. The IAF conducted mock jamming of fighter and ground communications in order to undercut centralized control of the air defense.

“You have to find a way when to jam and when not to jam,” explained Ivry. “You can jam it when you need it to assist your fighter planes. And you cannot jam it when you want to get information, when you want to listen.”

IAF aircraft also carried electronic countermeasures pods to foil radar tracking.

Ivry needed direct control over the attack to make it a success. The IAF command post in Tel Aviv gave Ivry a real-time command picture of the air battle through various data links. E-2Cs with their airborne surveillance radar downlinked their pictures to the command post.



Photo courtesy IAF Magazine

**Remotely Piloted Vehicles (a Scout is shown here) detected additional SAMs deployed to the valley. This allowed IAF leaders to adjust their strategy. Later, the RPVs smoked out SAM sites for the F-4s to destroy.**

Remotely Piloted Vehicles provided video. Israel had one squadron of RPVs; this was not enough, in Ivry's view, and it had limited night-time capability, but the squadron was enough for Ivry to keep at least two RPVs in the air all the time. Israeli RPVs helped provide constant locations of the Syrian SAM batteries.

"We tried to follow them, because some of them had been mobile," said Ivry. He added, that morning "we'd been following them, all of them, [and] this was one of the conditions for that morning, to get all the information. Yes, we knew, no doubt, we knew all of them, where they were located."

The IAF also set up two-way voice communications between Ivry and his pilots. This real-time command, control, and intelligence capability, largely new to modern air warfare, delivered what Ivry termed the "real-time intelligence" to the local operators and the strike force.

When the attack was launched, F-15s and F-16s provided interception and air defense capability while F-4 Phantoms took the main role in attacking the SAM batteries. RPVs went in first to get the Syrian SAMs to turn on their radars. Then the F-4s destroyed them with high-speed anti-radiation missiles.

Because the fighters were striking known locations, the attack moved fast, minimizing the exposure of aircraft to the SAMs. The rapid flight time of the missiles also furnished just enough standoff to maximize the F-4s' chances of getting away. Immediately, the SAM batteries were "disrupted one after another," recounted Ivry.

When the shooting was over, the IAF had destroyed all 19 SAM batteries within two hours without losing an airplane.

The IAF had Laser-Guided Bomb capability, but Ivry said, "In this case we didn't use it. It's too slow. But then, after the attacks, after eliminating the SAM battery, you can come over to destroy part of the site" with no risk.

### Score: 87-to-Zip

Meanwhile, Syria's fighters found themselves badly out of position when the Israeli attacks on the SAM sites began. "After about 20 minutes, they launched fighter planes to intercept, to try to disturb our at-



Photo courtesy IAF Magazine

**One at a time, four-ship formations of Israeli fighters flew into the engagement zone. The IAF pilots were able to shoot down as many as two or three out of four Syrian fighters. Here, three IAF F-15s carry out a patrol.**

tacks on the SAM batteries," Ivry noted.

Helicopters, drones, electronic warfare, strike fighters, and now air combat made up a massive aerial melee.

"You have a kind of concert which you are conducting," recalled Ivry. "It's not only just the fighter planes that are killing MiGs and other ones on SAM batteries. Once you have them in the same area, you have to conduct a concert. You cannot play the drums in the same time as the piano is playing a different concert. And air combat is a different concert than [the attack on] the SAM batteries."

From the command center, Ivry had the E-2C air picture plus F-15s capable of sorting out engagements at shorter range. IAF pilots relied frequently on VHF radio, hoping to preserve their tactical communications and links to the command post.

Ivry's tactic was to vector four-ship formations of Israeli fighters into the engagement zone, one at a time. Each air battle lasted one to two minutes. Ivry did not want to let any more than one four-ship into the battle area. "Never mind if I'm not going to catch all the MiGs" he said; he wanted "to be on the safe side that I'm not going to intercept one of ours."

For the Syrians, the battle was hopeless, tactically and psychologically. Selective airborne communications jamming frazzled the airwaves for the Syrian MiG-21s and

MiG-23s and cut them off from ground control.

Ivry described their lack of confidence as the Syrian fighter pilots launched and came up into the fight without any idea of the interception route they would run. When they did try something, the interceptions attempted by the MiG pilots were "not very efficient," in Ivry's opinion.

"So, we catch them slowly, one by one," he remembered.

Listening in the command post, Ivry heard the Israeli fighters shooting down "sometimes two or three out of four" of the Syrians. "And the more they came, the lack of confidence on their side was increased." Psychologically, as Ivry said of the Syrian pilots' state of mind, "you're losing and losing." He went on, "Once you start to lose, you think, 'Well, I'm going to be a target, and I'm going to go over there because I've been summoned?'"

The Israeli pilots kept the advantage. "I can only tell you that, within half an hour, we shot down about 26 MiGs," Ivry said. After two hours Ivry called off the SAM attacks. The tally grew so that by noon on Friday, when a cease-fire took effect, IAF pilots had shot down 82 airplanes without losing any in air combat.

Wiping out the Bekaa Valley SAMs cleared the way for the IAF to give full support to the Israeli ground forces. Subsequently, the IAF also scored hits on Syrian tanks using attack helicopters with TOW mis-



**The Bekaa Valley War forced Israel's enemies to consider alternative weapons and helped the IAF—whose F-15s still bear the kill markings from this battle—regain its stature within Israel's armed forces.**

siles and fighters with LGBs. “We were attacking a lot of tanks,” Ivry said. “We had an operation to prevent an armored division coming from the north, by night.”

After Israeli and Syrian tank clashes, the IAF used F-4s and A-4s, with Mk 82 and Mk 83 laser guidance kits attached, to designate and attack tanks by night.

### Real-Time Targeting

Two weeks later, Ivry got a chance to test out real-time command and control against another small set of SAM batteries. The Syrians moved a new SAM battery into Lebanon. One F-4 Phantom loitering in the area was shot down by the ambush and “attacked by a missile coming from Syria, not from inside Lebanon.”

Ivry ordered an immediate strike and now believes they caught three out of the four batteries. The success came because the IAF constantly tracked the SAMs.

“In some ways it was much more a kind of hunting,” as Ivry described it. “We had RPVs running after them [the SAM batteries] all the time.” The SAM batteries ducked into villages, causing frustration. This left the IAF following them, “waiting to see that we are not going to miss them [the SAM batteries] getting out of the city and to attack them on a place which [was not] very populated.”

The RPVs gave a video picture that matched up with a map grid

system familiar to the Israeli pilots, who knew the terrain well. With a lot of practice, the system gave Ivry the ability to call each fighter and pass the information within “seconds.”

“This was real-time communications,” Ivry said. “By voice, I could speak with anyone from my command post. Sometimes I even knew the names” of the pilots in the formation, he added, especially when his son was flying.

### A Change in Warfare

In contrast with the desperate air battles of October 1973, Israel's 46-hour Bekaa Valley air war set a new standard for orchestrated air operations and proved that even sophisticated mobile SAMs could be dismembered by well-coordinated air attacks.

“The ability to disrupt the SAM batteries, this kind of achievement, it made a major impact strategically,” Ivry noted.

The lopsided scores against both Syrian SAMs and fighters put orchestrated airpower back in the center of modern warfare. Not losing airplanes was “mainly luck, I can tell you,” Ivry said later, pointing to the

close-packed nature of the air battles. Bekaa Valley underscored the value of electronic warfare and the benefits of coordination and careful planning. Ivry's role in coping with unexpected SAM batteries and altering attack plans in real time showed that success in air warfare rested on skillful execution in the heat of battle as well as prior planning.

For Israel, the Bekaa Valley air war established a strong deterrent against Syria, according to Ivry. It also helped the IAF regain balance within Israel's armed forces.

Yet the Bekaa Valley air war also helped drive Middle East strategy in a new direction. Potential opponents started to look for new weapons, since challenging the IAF in the skies was deemed pointless. Ivry cited conclusions drawn by the Syrian minister of defense, who felt that Israeli airpower and electronic warfare won the day in the Bekaa Valley and the next war would be a “surface-to-surface war and not the surface-to-air war anymore.” As Ivry said, “That's when they started to buy the Scuds.” He was referring to Syria and Iraq.

In Moscow, the Bekaa Valley operation threw military men into a kind of shock. Top Soviet systems had been trounced. On a visit to Czechoslovakia in 1991, Ivry met a Czech general who had been serving in Moscow in 1982. He told Ivry that the Bekaa Valley air war made the Soviets understand that Western technology was superior to theirs, and in this Czech general's view, the blow to the Bekaa Valley SAMs was part of the cascade of events leading to the collapse of the Soviet Union.

The Bekaa Valley also provided a preview of the technological marvels of the 1991 Persian Gulf War, with the US Air Force's destruction of integrated air defenses, to increasing real-time control by those in charge of fighter operations, to Laser-Guided Bombs hitting tanks in the desert. Used aggressively and skillfully by the IAF, airpower once again had come out on top. ■

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## THEY ESCORTED BOMBERS INTO EUROPE AND EQUALITY INTO AMERICA.

Racism, segregation, ignorance — the flying conditions for the Tuskegee Airmen were less than perfect. There was a belief that black men lacked the intelligence, skill and courage necessary to become combat pilots. These men had to fight two wars: one against

prejudice and the other against Nazism. They won both.

They flew over 15,000 sorties in WWII, but the bravery, courage and skill of the Tuskegee Airmen may best be illustrated by their bomber escort missions: They escorted more than 200 bomber



So many Luftwaffe pilots were bested by the 99th Fighter Squadron that the Tuskegee Airmen managed to build a reputation that spread across the Atlantic into Germany.



The Tuskegee Airmen were awarded hundreds of medals, including 150 Distinguished Flying Crosses.

missions and never lost a bomber to an enemy fighter.

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**Airpower won its first victory over a land force. The Tuskegee Airmen saw their first combat. Not bad for one battle.**

# Pantelleria, 1943



*Pantelleria was a stepping stone to the Italian mainland.*

**I**N 1943, the World War II Allies launched Corkscrew, a military operation whose aim was to seize the Mediterranean island of Pantelleria. It was an armed action meant to pave the way for an Allied invasion of Sicily and then the Italian mainland, but it turned out to be far more than that. By the time Corkscrew was finished, it had become a case study in the devastating uses of airpower and a major milestone in the exploits of the famed Tuskegee Airmen.

The importance of Pantelleria Island itself stemmed from its location—smack in the middle of the

Mediterranean Sea. Some 53 miles to the west was Tunisia. To the northeast, 63 miles away, was Sicily. Thus, Pantelleria lay astride the route from North Africa, where the Allies earlier in 1943 had routed Axis forces, and Italy, the next target for invasion.

Between May 8 and June 11 in 1943, Allied aircraft flew 5,285 bombing sorties against targets on Pantelleria and dropped 6,313 tons of bombs on Italian and German forces ensconced there. The operation called for using sustained aerial bombardment to crush enemy power on the island and therefore reduce

**By Herman S. Wolk**

the number of Allied ground forces needed to capture and hold it. The plan succeeded—dramatically so. In fact, the aerial offensive marked the first time in history that an enemy land force was compelled to surrender in the absence of an accompanying ground invasion. Saturation bombing, plus limited shelling by the Royal Navy, broke the enemy's defenses and will to resist.

For all that, it was an offensive that almost didn't happen.

### Road to Pantelleria

Allied leaders convened at Casablanca in January 1943 to draw up plans to take the offensive against the Axis powers where they were most vulnerable—in the south of Europe. In addition to approving an around-the-clock strategic bombing offensive against Nazi Germany, Allied leaders, including Gen. Dwight D. Eisenhower, decided that they must conquer Sicily before pushing on to Italy and that the Sicily campaign would have to wait until the Allies had crushed German resistance in Tunisia. The Allied Combined Chiefs of Staff concluded that the Sicily operation, code-named *Husky*, would secure the Mediterranean sea lanes and airspace and ease the invasion of the main Italian peninsula.

This plan did not win universal support, however. Other senior officers—most notably Gen. George C. Marshall, the US Army Chief of Staff—didn't want to wait. They argued for launching an attack on Sicily even before the final defeat of Nazi forces in North Africa. Marshall told Eisenhower that he was taking an overly conservative approach to his planning and that it lacked boldness and adaptability.

The final complication came from none other than Winston Churchill himself. The British Prime Minister, eager to carry the war to the enemy in Europe itself, argued for bypassing Sicily altogether and mounting a direct attack on the Italian mainland from Tunisia.

By February 1943, Marshall had come to realize that, with North African combat still going on, the Navy would not be in any position to provide aircraft carriers in support of Operation *Husky*. He therefore recommended to Eisenhower that the Allies first seize Pantelleria. Marshall



**Primary responsibility for the bombing of Pantelleria fell to the Northwest African Strategic Air Forces, commanded by Maj. Gen. Jimmy Doolittle—shown here preparing to take off on a flight over Tunisia.**

reasoned that Allied fighter aircraft based at Marghana airfield on Pantelleria would then be in good position to support the invasion of Sicily when it did come.

Eisenhower's planners, however, concluded that attacking Pantelleria would be too tough and advised their commander not to take the chance. They wanted to postpone the invasion until the Allies had on hand forces substantial enough to defeat the Axis units in Sicily in full-scale combat.

By May, however, Eisenhower had made up his mind. He concluded that the advantages of occupying Pantelleria outweighed the disadvantages of mounting the operation under the existing circumstances. By seizing Pantelleria, the Allies could provide air cover and remove a serious Axis threat to the invasion of Sicily, he affirmed, and on May 13, 1943, the CCS approved the Pantelleria operation. Operation *Corkscrew* was born.

### Concentrated Bombing

Perhaps thinking about Marshall's comment that he lacked adaptability, Eisenhower decided the Allies would take the island without a heavy investment in ground power. He sought advice from Lt. Gen. Carl A. "Tooe" Spaatz, commander of Northwest African Air Forces. His goal: to make the reduction of Pantelleria "a sort of laboratory to determine the effect of concentrated

heavy bombing on a defended coastline."

Eisenhower directed Spaatz to concentrate everything and then use his force to pound the island so that its defenders would not be able to contest a landing. The assault, Eisenhower emphasized, should be a "rather simple affair." He thought of the effect of the massive artillery pounding of Corregidor in the Philippines. His objective, he said, was "to see whether the air [forces] can do the same thing."

Under *Corkscrew*, Britain's 1st Infantry Division, supported by naval forces, was to occupy the island. The nearby Pelagian Islands of Lampedusa, Linosa, and Lampione would also be blasted and occupied, giving the Allies control of all the islands of the Sicilian strait.

Earlier, in 1941, British leaders had actually considered seizing Pantelleria—eight miles long and five miles wide with sheer cliffs—so as to eliminate it as an enemy base for aircraft and submarines interfering with British air and sea traffic in the Mediterranean. Churchill described Pantelleria as "a thorn in our side."

The problem had been in the making since the mid-1920s. Italian dictator Benito Mussolini, describing the Mediterranean as "mare nostrum," or "our sea," set Italians to building fortifications on the island. By the mid-1930s, construction of naval and air bases was well under way. As many as 100 Axis aircraft

had been kept at Marghana airfield during the Tunisian campaign.

Although the Allied victory in North Africa greatly diminished Pantelleria's value as an Axis staging point, it still contained an underground hangar with large repair and maintenance shops.

As Corkscrew began taking more definite shape, it garnered additional opponents. At least one major player, Air Vice Marshal Arthur Coningham, commander of the Northwest African Tactical Air Force, did not share the enthusiasm of Eisenhower and Spaatz for the operation. Coningham found it difficult to take seriously the planned massive bombardment of the island. In fact, he made light of it, prompting Spaatz to recommend bluntly that he correct his attitude.

No one doubted that taking Pantelleria by air would be a significant challenge. Aerial reconnaissance over the rocky 42-square-mile island revealed more than 100 gun emplacements, embedded in rock or concrete. Additionally, pillboxes were scattered in the mountains and in the sides of cliffs.

The strength of the garrison was estimated at 10,000. This led Allied planners to worry that, if these troops were skillful and disciplined, the Pantellerian defense could be formidable. They took some comfort in the fact that, during the Tunisian campaign, anti-aircraft gunners on the island made a poor showing against Allied air attacks.

Extensive aerial reconnaissance proved a critical element throughout the operation.

### Daily Coverage

Beginning in late May, the Northwest African Photographic Reconnaissance Wing made at least one and sometimes two daily swings over the island. Coverage increased during June. And on June 11, the day ground forces landed, as many as five photographic missions were flown.

The reconnaissance film was interpreted at NAAF headquarters, where targets were assigned daily. Intelligence experts were assisted by Solly Zuckerman, an Oxford scientist on loan from the British Combined Operations Staff. They analyzed the aerial photographs for each bombing mission for the relation between effort and effect.

NAAF intelligence experts relied almost exclusively on aerial reconnaissance, working closely with the reconnaissance units to ensure immediate delivery of prints, to make target assignments. "The maintenance of a constant check through aerial reconnaissance of this kind constituted an essential part of the operation," stated the official Army Air Forces history.

The effect was sustained destruction of key targets, specifically coastal batteries and gun emplacements. Eisenhower and Spaatz were convinced that the Pantellerian garrison could not hold up under such

a concentrated air bombardment. Their objective was to shatter the morale of the troops and civilian population.

For the duration of Corkscrew, Eisenhower's air arm was headed by Mediterranean Air Command. This was a small planning headquarters commanded by British Air Chief Marshal Arthur W. Tedder. MAC oversaw Northwest African Air Forces headed by Spaatz and comprising several operational units—Northwest African Strategic Air Forces commanded by Maj. Gen. Jimmy Doolittle; Northwest African Tactical Air Force headed by Coningham; as well as coastal, service, and training commands. Also under Tedder were the Royal Air Force Middle East, with the US Ninth Air Force and the RAF Malta.

Eisenhower directed Spaatz to throw the full resources of the Northwest African Air Forces into the task. For Corkscrew, a joint command directly responsible to Eisenhower consisted of Spaatz; Rear Adm. R.R. McGrigor, Royal Navy; and Maj. Gen. Walter E. Clutterbuck, commanding the British 1st Infantry Division.

The US Twelfth Air Force and a number of groups from Ninth Air Force also took part in Corkscrew. One of the Twelfth units seeing its first action was the Tuskegee-trained 99th Fighter Squadron. The airmen of that unit—the first African-American airmen to fly in combat for the Army Air Forces—became known later as the Tuskegee Airmen. The 99th, which had just arrived in North Africa to reinforce the XII Air Support Command, flew P-40s as part of Corkscrew.

### Doolittle's Command

However, the major responsibility for the attacks fell to the Northwest African Strategic Air Forces, flying from Tunisian bases, under Doolittle's command.

The NASAF comprised four groups of B-17 bombers (2nd Bomb Group, 97th BG, 99th BG, and 301st BG); two groups of B-25 bombers (310th BG and 321st BG); three groups of B-26 bombers (17th BG, 319th BG, and 320th BG); three groups of P-38 fighters (1st Fighter Group, 14th FG, and 82nd FG); one group of P-40 fighters (325th FG); and several wings of Wellingtons from the RAF Middle East Command.

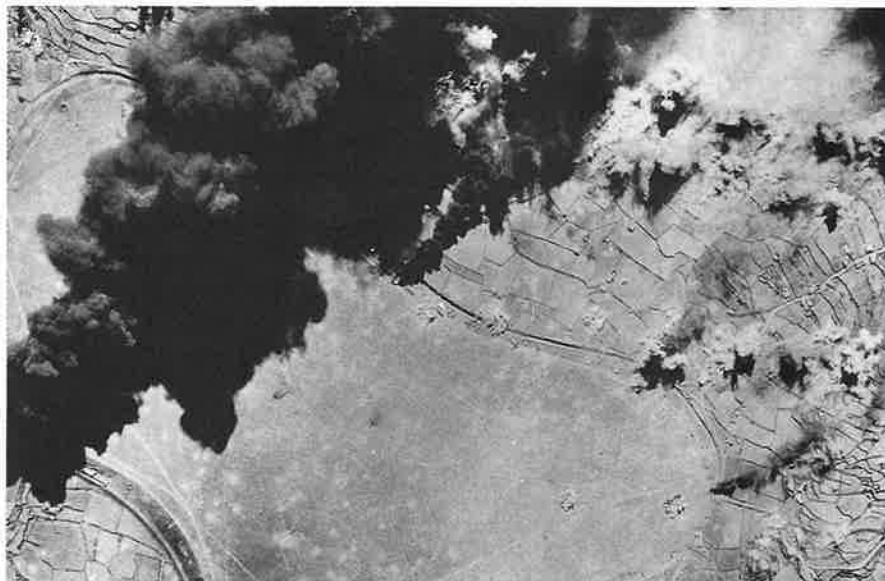


*The AAF's first African-American fighter pilots—later called the Tuskegee Airmen—flew P-40 Warhawks in support of the operation. Members of the 99th FS had arrived in North Africa from Tuskegee, Ala., in April 1943.*

While primarily providing escort for the bombers, fighter groups also conducted sweeps and dive-bombing missions.

The mission of NAAF was basically tactical—the support of land and amphibious operations. This support might be delivered by airplanes of the NATAF or by long-range bomber aircraft of the NASAF. (Except for several attacks on Ploesti, Romania, and Wiener Neustadt, Austria, in August and October 1943, Mediterranean-based aircraft did not conduct strategic operations until after creation of Fifteenth Air Force in November 1943.)

Although Doolittle's units were totally committed to the operation, the NATAF, commanded by Coning-



***B-17 Flying Fortresses (top) were among the Allied aircraft that flew more than 5,000 sorties against Axis positions on Pantelleria, dropping more than 6,000 tons of bombs. Here, an AAF photo gives a bird's-eye view of a bombing raid on the island's airfield.***

ham, was only partially devoted to the air offensive. Only units of the XII Air Support Command, based on the east side of Tunisia's Cape Bon peninsula, and the Tactical Bomber Force were available to Coningham.

The AAF, RAF, and South African Air Force began flying scattered sorties against Pantelleria in early May. In late May, in consultation with Tedder, both Spaatz and Coningham decided that the air onslaught should be conducted in two parts. From late May through June 6, the heavy bombing would be incrementally intensified. In the second phase, from June 7 to June 11, Pantelleria

would be attacked around the clock, the weight of daily attack increasing from 200 sorties to between 1,500 and 2,000 sorties on the 11th. At the same time, to confuse the enemy, targets would also be bombed in Sicily, Sardinia, and points on the mainland of Italy. Simultaneously, a naval blockade of Pantelleria would be carried out by British Adm. Andrew B. Cunningham's forces.

The Corkscrew air offensive began May 18, led by 42 B-25s, 44 B-26s, and 91 P-38s and P-40s of Doolittle's NASAF. Attacks were stepped up in late May against little enemy fighter opposition. These attacks were pri-

marily directed against the airfield and the port of Pantelleria. There were some reports of anti-aircraft fire.

Reconnaissance in late May confirmed heavy damage to the island's airfield. Craters were evident, the main barracks and buildings near the underground hangar were destroyed by direct hits, and supply dumps had been heavily damaged. Moreover, damage to aircraft on the ground had been considerable. Coastal batteries and gun emplacements were continuously bombarded. Indications were that the bombing had badly disrupted life on the island.

On June 1, heavy bombers entered the fray, 19 B-17s, together with Wellingtons, pounded the island. By June 6, daily sorties increased to 200 or more. The number doubled or tripled over the next five days. Similarly, bomb tonnage greatly increased, 231 tons being dropped on June 5 and June 6 and intensifying with 600 tons on June 7.

Also during the first week of June, British naval vessels bombarded the harbor area of Pantelleria. On June 8, a naval task force consisting of motor torpedo boats, cruisers, and destroyers carried out a full-scale bombardment of coastal batteries and the harbor's docks.

The B-17s, along with medium, light, and fighter bombers, dropped almost 700 tons of bombs on June 8, followed the next day by more than 822 tons. Meanwhile, surrender leaflets were also dropped on the island.

Enemy fighter opposition, ex-



**Allied bombing of Pantelleria was an effective demonstration of what airpower could achieve. It set the pattern for a strategy of increasingly intensive air and naval bombardment to pave the way for land forces.**

tremely light at first, picked up during the June 5–7 period when Me-109s and FW-190s appeared along with Italian fighter aircraft. Again, on the 10th and 11th, Sicily-based enemy aircraft appeared but failed to impede the Allied air offensive. Of several hundred enemy airplanes seen in June, 57 were definitely destroyed and 10 probably destroyed.

### The Crescendo

On June 10, the air offensive reached a crescendo. The Army Air Forces official history described how “wave after wave of bombers swept over former Tunisian battlefields and out across the Mediterranean.” It went on to note that observers were “struck by the power of the aerial weapon which the Allies had forged.”

The onslaught continued day and night, except for a three-hour lull during which another surrender call was made by the Allies. By the close of the day, more than 1,760 sorties had been flown by heavy, medium, light, and fighter bombers. On June 10 alone, 1,571 tons were released. It was one of the heaviest air attacks of the war up to that time.

With the failure of the second surrender call to meet with a response, the British 1st Infantry Division embarked on the night of June 10–11 to assault and capture Pantelleria.

As landing craft headed toward the island, B-17s delivered a final pounding to the Pantelleria harbor area.

During the next 12 minutes, the Fortresses dropped tons of bombs, resulting in “simultaneous flashes and a great roar,” stated the AAF official history. “Suddenly the whole harbor area appeared to rise and hang in mid-air, while smoke and dust billowed high, dwarfing Montagna Grande, Pantelleria’s tallest peak.”

At about 11 a.m. on June 11, Allied airplanes spotted a white cross on the airfield. Shortly thereafter, the first British assault wave hit the beach. The commander of the landing force contacted Pantelleria’s military governor, Vice Adm. Gino Pavesi, who surrendered the island and the garrison of 78 Germans and 11,121 Italians.

A small number of captured German technicians maintained that German soldiers and anti-aircraft gunners would have made a much better showing than the island’s garrison. On the other hand, the sheer intensity of bombing and its increasing weight, according to the testimony of prisoners of war, made it doubtful that the outcome would have been different.

The harbor facilities at Pantelleria had been badly damaged; the town itself had been practically destroyed; communications were a shambles;

roads had been obliterated; electric power had been destroyed; and water mains were broken.

At Marghana airdrome, the airfield was cratered. Although the underground hangar had withstood a number of direct hits, except for two aircraft, all of the 80-plus enemy airplanes had been either destroyed or damaged.

The 1943 Pantellerian experience pointed the way toward the Allies’ future strategy: Intensive air bombardment, increasing in tempo, and naval bombardment would precede landing operations. As the AAF official history noted: “The pattern set here was probably one that would be followed in other island operations and perhaps in the invasion of the continent itself.”

Churchill hailed the Pantellerian triumph, and Gen. Henry H. “Hap” Arnold, Commanding General, AAF, emphasized “the tremendous amount of bombs dropped and the negligible losses of airplanes, which speak well for planning, preparations, and execution.”

The official AAF history noted, “The surrender of the Italian-held islands furnished a spectacular illustration of the intense and violent force that the Allies could bring to bear upon the enemy. The reduction of the islands furnished the first proof of the power of such bombardments to induce surrender.”

The fact was that Eisenhower’s laboratory concept had paid off. Pantelleria had been conquered primarily by airpower. An invasion had not been necessary.

In a letter to Marshall, Eisenhower pointed out that many had opposed Corkscrew, noting, “I am particularly pleased that the operation turned out as it did because I personally had to make the decision for its capture in the face of much contrary advice, but I predicted that the garrison would surrender before any infantry soldier got ashore.”

The Allies now intensified preparations for the assault on Sicily in July 1943. Allied airplanes operating from Pantelleria would play a critical role in that assault operation. ■

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*Herman S. Wolk is senior historian in the Air Force History Support Office. He is the author of *The Struggle for Air Force Independence, 1943–1947* (1997), and a coauthor of *Winged Shield, Winged Sword: A History of the United States Air Force* (1997). His most recent article for *Air Force Magazine*, “The Genius of George Kenney,” appeared in the April 2002 issue.*



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**At Indian Springs, Nev., ground-based aircrews and their aircraft prepare to play their parts in modern combat.**

# Eyes of the Warrior







**Photography by Guy Aceto, Art Director, and Paul Kennedy**

*A Predator Unmanned Aerial Vehicle comes in over the Nevada desert for a landing.*

**T**he Predator UAV is not yet officially operational, but it is battle tested. It flew reconnaissance missions over Kosovo in 1999 for Operation Allied Force, but it became a star in Afghanistan during Operation Enduring Freedom. Teams operating the Predator were among the first troops sent to the theater last fall.

The focal point for the Air Force's Predators is Indian Springs Air Force Auxiliary Field, about 40 miles northwest of Las Vegas. It is home base for the 11th, 15th, and 17th Reconnaissance Squadrons.

At right, a Predator comes in for a touch-and-go at Indian Springs.



The 11th RS, the first Predator squadron, was activated at Nellis AFB, Nev., in 1995. Its members now train other Predator aircrews and participate in deployments themselves.

The 15th RS began operating as a Predator unit in 1997. The newest unit, the 17th RS, was activated in March, largely because of the success of the Predator in Afghanistan. Mission requirements have greatly increased.

A Predator system, designated RQ-1, typically comprises four air vehicles, a Ground Control Station, and a Trojan Spirit II satellite communications suite. For 24-hour operation, each system has about 55 controllers, maintainers, and intelligence personnel.

At right, a ground crew prepares an RQ-1A for a mission. The RQ-1A vehicle is 27 feet long and has a wing span of about 48 feet. It weighs 950 pounds empty (gross weight 2,250 pounds) and can carry a 450-pound payload. Its ceiling is 25,000 feet.





*"Welcome the next generation," Gen. John P. Jumper, USAF Chief of Staff, said of the follow-on Predator—the RQ-1B. "It will do what we're able to do today, much, much better." The RQ-1B is distinguished by a blade antenna on its spine, as opposed to the bulge on the RQ-1A. The newer model flies faster and higher, with a ceiling of 45,000 feet, and has more sensor payload capacity.*

*At right, an RQ-1A vehicle is tied down with heavy straps during an engine run up. A crew chief with a fire extinguisher stands by.*



*At far left, the ground crew removes the straps, and, once the pre-flight checklist is complete, the aircraft is ready to launch.*

*The Predator first flew on July 3, 1994, less than six months after General Atomics Aeronautical Systems of San Diego received its first contract for 10 aircraft.*

Photos by Paul Kennedy





*At left, aircrew members gain experience using a mission task trainer, a nearly exact copy of the operational control unit.*

*Predator pilots, who come from manned aircraft systems, control takeoffs and landings of the UAV. The pilot flies with a keyboard, throttle button, joystick, and brake pedals under the console. Once airborne, though, the Predator basically flies itself using a pre-programmed flight path to reach its station and maintain orbit. If the UAV needs to fly to a different location, the pilot can retake command and fly the vehicle to its new orbit location.*

*The aircrew and sensor crews both operate from the Ground Control Station. The GCS is housed in what looks like a camouflaged shipping container. The system's 20-foot-diameter satellite dish connects the GCS and the UAV when it is beyond line-of-sight range and also disseminates intelligence.*



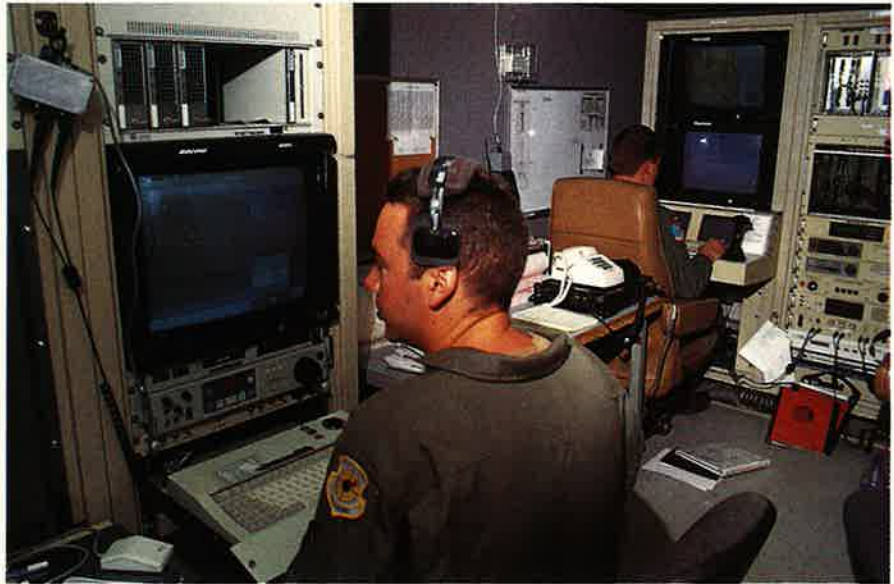
Staff photos by Guy Accio



*On deployments, Predator crews use transportable, fabric aircraft shelters, such as this one at Indian Springs.*

*In Allied Force, Predators provided data used by airborne forward air controllers to find targets. They have also flown reconnaissance missions for Southern Watch, the no-fly zone operation over southern Iraq.*

**In cubicles inside the 30-foot-long GCS van, screens display a map of where the Predator is flying and what its cameras see.**



Photos by Paul Kennedy

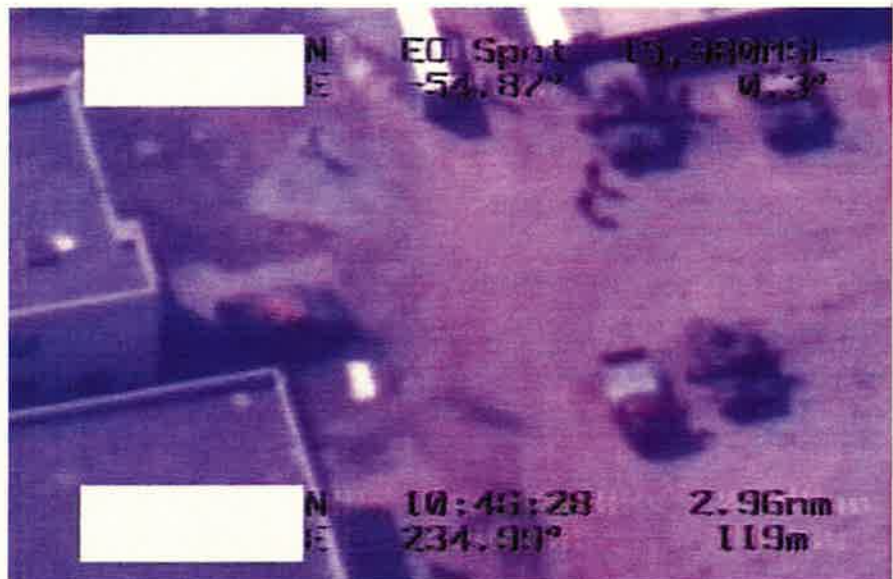


**At left and below are typical RQ-1A images. The UAV has a nose-mounted color camera, generally used by the pilot for flight control, a day variable aperture TV camera, and a variable aperture infrared camera, for low light and night. A synthetic aperture radar enables it to “see” through clouds, smoke, or haze and produces still-frame radar images. The sensors are carried on the same airframe but cannot be operated simultaneously.**

**The Air Force plans to include the Multispectral Targeting System with inherent Hellfire missile targeting capability and to integrate the sensors and laser designator and laser illuminator into a single package.**

**Although its sensors are not as powerful as those on satellites or U-2 reconnaissance aircraft, Predator can identify vehicles as small as tanks.**

**During Enduring Freedom, RQ-1s provided live video transmissions of target images to USAF AC-130 gunships. As the Chief of Staff explained, “When the AC-130 arrived on station, it was able to go right to work.”**



*At right and below, a team from the 11th and 15th is reassembling an RQ-1B that they had taken apart. In the process of reassembling the UAV, they are validating a checklist for an air vehicle, whose strengths and limitations are still to be determined.*

*Real world operations have shown some shortcomings, such as wing icing and occasional dropped communications links.*



*According to Air Force officials, the biggest challenge facing Predator units is demand for their services. The RQ-1 squadrons already have found it difficult to keep deployments from exceeding 90 days. Most squadron members have deployed more than once in the past year.*

*The 17th RS is scheduled to be fully mission capable by 2005, but initially it pulled assets from the 11th and 15th RSs.*

*USAF intends to expand the role of the Predator from reconnaissance only to include weapons delivery, too.*

*The Air Force began test-launching Hellfire laser-guided missiles from the Predator last year. The CIA employed Hellfire-carrying Predators in Afghanistan. USAF plans to dedicate the RQ-1B to the hunter-killer role. According to Jumper, it will carry four or six weapons.*

*At right, a truck tows a Predator to the flight line.*





*The RQ-1 system can be broken apart into six main components and loaded into what the crews term "coffins" for rapid deployment worldwide. The GCS is the largest component, and it can be rolled onto a C-130.*

*The Air Force requested \$154 million in Fiscal 2003 to purchase 22 new Predator systems. Plans also call for using advanced communications to link the Predator with other aircraft and ground stations so it can deliver its visual and electronic goods and receive orders in return.*



Staff photos by Guy Aceto



*The Bush Administration sees the UAV as a leading transformational system. There can be little doubt that the workload for Predator crews will continue to increase. ■*

# AFA State Contacts



Following each state name are the names of the communities in which AFA chapters are located. Information regarding chapters or any of AFA's activities within the state may be obtained from the appropriate contact.

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## An Air Commando Menagerie



A circa 1960 photo of the flight line at Eglin AFB, Fla., shows some of the aircraft available to the Air Force Special Air Warfare Center, a forerunner of today's special operations units. The Air Force began to greatly expand its special operations—air commando—capability during the Vietnam War, establishing the SAWC at Eglin in 1962. Among the aircraft seen at the center were

these prop-driven workhorses, able to operate from unimproved airstrips and in the most austere conditions. At far left is the U-5, a unique twin-engine version of the U-10 light transport aircraft, located on the far right. Next to the U-5 is a C-47, followed by a C-46, B-26, and T-28. In 1968, the Air Force redesignated the SAWC as the USAF Special Operations Force. At the same time, the

SAWC's air commando units took the name "special operations."

By Frances McKenney, Assistant Managing Editor

## AFA in Europe

Air Force Association National President John J. Politi visited AFA chapters across Europe during a two-week orientation tour of NATO, SHAPE, and US Air Forces in Europe.

He received comprehensive briefings on Air Force operations in Europe and met with USAF's top leaders there. These included Gen. Joseph W. Ralston, the SACEUR, at SHAPE in Mons, Belgium; Gen. Gregory S. Martin, USAFE commander, who had personally invited Politi to make the trip; and Lt. Gen. Timothy A. Kinnan, US military representative to NATO, at Brussels, Belgium.

Politi visited several airmen leadership schools, first-term airmen centers, and the Kaiserslautern (Germany) NCO Academy. He met with groups of chiefs, first sergeants, and company grade officers.

The airmen in USAFE, he said afterward, "are making significant sacrifices serving their country and have to deal with a number of hindrances to maintaining their high level of performance."

Among the top concerns: high operations tempo and inadequate manpower, lack of spare parts, and aging aircraft and equipment. The enlisted force considers education their No. 1 item of interest, he found. It is the reason most of them enlisted.

The most pressing quality-of-life issue in Europe is inadequate housing, Politi said. Among the problems he saw were dilapidated kitchens and brown water sitting stagnant in bathroom basins. He noted that personnel from Ramstein AB and Spangdahlem AB, Germany, endure some of the worst conditions in Europe, although their housing is undergoing renovation.

Politi's orientation tour received wide coverage: a TV interview by Armed Forces Radio and Television Service, an article in *Stars and Stripes*, and other articles generated by Air Force news services. The DOD Joint Combat Camera Web site released photos of his visit to the 48th Fighter Wing, RAF Lakenheath, UK, including shots of him speaking to first-



USAF photo by SSgt. Tony R. Tolley

*Before taking off on an orientation flight, AFA National President John Politi (left) gets a close-up view of an F-15E's weapons from pilot Capt. Craig Vincent, 492nd Fighter Squadron, 48th Fighter Wing, RAF Lakenheath, UK.*

term airmen and preparing for a fighter jet orientation flight.

## In Germany

At Ramstein, Politi's activities included a luncheon hosted by the **Lufbery-Campbell Chapter**, whose president is Capt. Lisa K. Dahl. Chapter Secretary MSgt. Peter Buchikas reported that Politi spoke about AFA's mission and pointed out its support for the Air Force through, for example, sponsorship of USAF's Outstanding Airmen program. He described AEF programs such as the Pitsenbarger Grants and Spouse Scholarships and provided an update on the Air Force Memorial. Politi also presented an AFA Medal of Merit to Capt. Jason M. Jackson, an instructor navigator from the 37th Airlift Squadron and the chapter's legislative affairs vice presi-

dent. The award recognized Jackson's administrative consultant work with the Arnold Air Society—an AFA affiliate—and Silver Wings, an auxiliary of the AAS.

Other stops in Germany were Bitburg Air Base, the 52nd Fighter Wing at Spangdahlem Air Base, and the NATO air base at Geilenkirchen.

## In Italy

Politi donned a hard hat to tour construction sites that are part of Aviano 2000, a \$535 million facilities upgrading program at Aviano AB, Italy.

The 10-year construction project started in 1995. Improvements encompass a new base exchange and commissary, consolidated K-12 school, 20-bed hospital, flight line dining facility, upgraded dormitories, air traf-

fic control tower, and repairs to aging hangars—in all, more than 200 construction projects, most funded by NATO.

In a highlight of his two days at Aviano, Politi presented an AFA Citation to the Aviano 2000 Program Management Team, represented by AFA member Col. Gary C. LaGassey. The plaque notes their management of the largest construction program in NATO, a project involving not only NATO and USAF but also the US Navy, US Army Corps of Engineers, the Italian Ministry of Defense, and the Italian air force.

### Last Stop: UK

Capt. Abner Devallon Jr., president of the **United Kingdom Chapter**, 1st Lt. David P. Goode, chapter secretary, and Col. John A. Snider, 48th Fighter Wing vice commander and a chapter member, were on hand to welcome Politi to RAFs Lakenheath and Mildenhall, UK.

In a day typical of the pace Politi maintained during this information-gathering tour, he was escorted by Goode to breakfast at Lakenheath with the Airman Leadership School instructors, then received a briefing on the 48th Fighter Wing mission. It wasn't even 9 a.m. when Politi spoke at the First-Term Airmen Center on retention issues, leadership, the NCO's role in AFA, and what AFA does for the enlisted corps. Next on the agenda: a windshield tour of the base, followed by lunch at the enlisted club.

At 2:30 p.m., Capt. Craig Vincent,



USAF photo by Melanie Rodgers

**AFA National Chairman of the Board Thomas McKee presents SMSgt. Angela Williamson with the Academic Achievement Award for Class 02-C at the SNCO Academy graduation at Maxwell AFB, Ala., in April. Williamson is the superintendent, military satellite communication programs, at Langley AFB, Va.**

492nd Fighter Squadron, took off in an F-15E, with Politi strapped into the backseat for a two-hour orientation flight.

At 4:45 p.m., Politi was back on the ground, participating in a wing and squadron award ceremony.

By his own count, the AFA National President spoke about the association at more than 30 venues, reaching about 2,000 airmen.

Lufbery-Campbell Chapter member Col. Allan Swaim Jr., USAFE director of staff, coordinated the ori-

entation tour and escorted Politi throughout USAFE.

### AEF Honors Doolittle Raiders

The Aerospace Education Foundation named the Doolittle Raiders as AEF Jimmy Doolittle Educational Fellows at the 60th anniversary celebration of the World War II bombing raid on Japan.

R.E. "Gene" Smith, former AFA National Chairman of the Board and National President, made the presentations at a banquet held April 18 in Columbia, S.C.

It was part of a week-long series of events in Columbia, honoring the airmen who joined Jimmy Doolittle on April 18, 1942, taking off from the Navy carrier *Hornet* in 16 B-25s and flying more than 600 miles to bomb Tokyo and other Japanese cities. The raid into the Japanese homeland came only four months after the attack on Pearl Harbor and gave the American public a tremendous morale boost.

All 80 original crew members were named Doolittle Fellows. Fourteen of the surviving 23 Raiders and nine surviving spouses of Raiders were present to receive specially engraved Jimmy Doolittle medallions from AEF.

In his remarks, Smith noted that Doolittle was an AFA founding father and its first National President and, later, Chairman of the Board. He added that a 60th anniversary commemorative plaque listing the names of all raiders would be on permanent display at the AFA building in Arlington, Va.

USAF photo by MSgt. Chad Eirring



**At NATO's Geilenkirchen AB, Germany, Politi and his wife, Terri, have breakfast with Charlemagne Chapter officers: L-r MSgt. Luis Martinez, president; Capt. Richard Jones, membership VP; SMSgt. Robert Masorti, secretary; 1st Lt. David Pokrifchak, special projects VP; and Col. Allan Swaim, the Politis' escort.**

## AFA/AEF National Report

Rodgers K. Greenawalt, Southeast Region president; Roger Rucker, state president; and Stanley V. Hood, of the local **Columbia Palmetto (S.C.) Chapter**, assisted Smith with the presentations.

### The SR-71 Scoop

At a March meeting in Manchester, N.H., a former SR-71 pilot gave members of the **Brig. Gen. Harrison R. Thyng (N.H.) Chapter** a comprehensive history of the spyplane.

Retired Col. Richard H. Graham has firsthand knowledge of the world's fastest (more than Mach 3) and highest-flying (more than 85,000 feet) production aircraft. He was an SR-71 instructor, squadron commander, and wing commander at Beale AFB, Calif., before his retirement in 1989. He also wrote *SR-71 Revealed: The Inside Story*, published in 1996, a year before USAF retired the "Blackbird."

As part of his presentation to the chapter, Graham showed a video on the reconnaissance aircraft's operations and one on Clarence L. "Kelly" Johnson, who led the SR-71 design team at Lockheed's Skunk Works. Graham is a member of the **Dallas Chapter**.

Capt. Timothy W. Trimmell, Thyng Chapter President, reported that David T. Buckwalter, New England Region president; Eugene M. D'Andrea, an AFA national director; Eric P. Taylor, New Hampshire state president; and Edward H. Josephson, **Pease (N.H.) Chapter** president, attended the meeting.

AFROTC cadets from the University of Massachusetts, Lowell, pro-



**AFA National Board Chairman McKee (far left), Gen. Robert Foglesong, USAF vice chief of staff, and James Hannam, president of the Donald W. Steele Sr. Memorial Chapter (both at right), flank recipients of the chapter's outstanding airmen awards. They are (l-r) TSgt. Eric Martin, CMSgt. Cedric Redmon (accepting the award for SMSgt. John Crudup), and SrA. Michael Williams.**

vided the color guard. Also on hand: AFJROTC cadets from Derry, N.H., and members of local chapters of the Order of Daedalians and Association of Old Crows.

### Honoring POWs

At a luncheon in March in Kansas City, the **Harry S. Truman (Mo.) Chapter** joined The Military Order of the World Wars in honoring Prisoners of War and those Missing in Action.

Lt. Gen. Donald A. Lamontagne, commander of Air University, trav-

eled from Maxwell AFB, Ala., to address the group. Air Force JROTC cadets from Washington High School in Kansas City formed a color guard and afterward had an opportunity to meet the general.

Truman Chapter member Lee Lamar was among the POWs at the luncheon. Patricia J. Snyder, chapter president, said other former POWs included Gerald Anderson, Don Boyer, Bob Jackson, Frank Plesa, Rudy Rudolph, Bill Templeton, and Jack Woodson.

Snyder said that, except for one year, the chapter has hosted this event since 1995.

## AFA Conventions

June 8	North Carolina State Convention, Wilmington, N.C.
June 14-16	New York State Convention, Owego, N.Y.
June 14-16	Ohio State Convention, Youngstown, Ohio
June 25-26	Alaska State Convention, Fairbanks, Alaska
June 28-29	Missouri State Convention, St. Louis
June 28-29	Oklahoma State Convention, Altus, Okla.
July 19-21	Arkansas State Convention, Little Rock, Ark.
July 19-21	Florida State Convention, Cape Canaveral, Fla.
July 19-21	Pennsylvania State Convention, Allentown, Pa.
July 19-21	Virginia State Convention, Alexandria, Va.
July 20	Kansas State Convention, McConnell AFB, Kan.
July 26-27	Texas State Convention, San Antonio
Aug. 2-3	California State Convention, Vandenberg AFB, Calif.
Aug. 2-3	Illinois State Convention, Galesburg, Ill.
Aug. 3	Massachusetts State Convention, Northborough, Mass.
Aug. 16-17	Utah State Convention, Ogden, Utah
Aug. 17	Georgia State Convention, Savannah, Ga.
Aug. 23-24	Colorado State Convention, Denver
Sept. 7	Delaware State Convention, Dover, Del.
Sept. 15-18	AFA National Convention, Washington, D.C.
Sept. 21	New Hampshire State Convention, Manchester, N.H.

### 15 Years Old

Family members of the chapter's namesake joined the 15th anniversary celebration of the **William A. Jones III (Va.) Chapter** in Charlottesville, Va.

The chapter was named for a colonel in the 602nd Special Operations Squadron, Nakon Phanom RTAB, Thailand. Jones was flying an A-1H Skyraider as on-scene commander of a rescue mission Sept. 1, 1968, searching for a downed pilot near Dong Hoi, North Vietnam. Although his aircraft was hit and he was severely burned, Jones flew his jet back to base. While on the operating table, he reported on the position of the downed pilot, who was rescued later that day.

Jones was born in Norfolk, Va., and entered service at Charlottesville. He

died in 1969. His widow, Lois Jones, and daughters Elizabeth Boehlert and Anne Gilfillan were special guests at the chapter's anniversary dinner.

Retired Lt. Gen. John B. Hall Jr., former commander of 5th Air Force, Yokota AB, Japan, was guest speaker for the evening. Now a chapter member and consultant, Hall spoke about the USAF response to terrorism.

Other AFA officials on hand for the anniversary included Thomas G. Shepherd, Central East Region president; William Anderson, state president; John E. Craig II, an AFA national director; Mary Anne Thompson, former National Secretary; and Charles R. Renfro, chapter president.

### Blue Suit Awards

At the **Alamo (Tex.) Chapter's** 24th annual Joe Kellogg Blue Suit Awards banquet, more than 60 active duty personnel and individual mobilization augmentees were among those who received awards.

The outstanding airmen, NCOs, senior NCOs, first sergeants, and company grade officers represented units in the San Antonio area, ranging from the Cryptologic Systems Group to Air Education and Training Command.

David L. "Tex" Hill received the P.D. Straw Patriotism Award. One of the original Flying Tigers, Hill went on to accept an AAF commission and after World War II joined the Texas Air National Guard.

The patriotism award, which recognizes community service and patriotism by a civilian in the community, is named for the late retired Maj. Gen. Paul D. Straw, a World War II Prisoner of War, chief of staff of the Texas ANG, and Alamo Chapter president 1987-89.

O.R. Crawford, former AFA National Chairman of the Board, joined Karen S. Rankin, Alamo Chapter president, in presenting the award to Hill. A \$500 scholarship was established in his name at the Air Force ROTC unit at the University of Texas, San Antonio.

Chapter members honored for outstanding contributions to AFA were Capt. David L. Stanfield from the Air Force Personnel Center; SSgt. Michelle C. Jordan, a security forces specialist from Lackland Air Force Base; and Wright A. Nodine. They received the Officer, Airman, and Civilian of the Year chapter awards, respectively.

### From Every Chapter

Representatives from Colorado's five AFA chapters—**Gen. Robert E. Huyser, Mel Harmon, Lance P. Sijan, Long's Peak, and Mile High**—

attended the state AFA quarterly meeting in February at the Pueblo Weisbrod Aircraft Museum in Pueblo, Colo.

The gathering highlighted the Mel Harmon Chapter's role in helping to raise funds over the past 10 years for the museum. It opened last October. The museum—which includes the international B-24 memorial—is located at Pueblo Airport and houses about 20 aircraft, including a Douglas A-26 Invader and a Lockheed F-80 Shooting Star.

The Mel Harmon Chapter maintains close ties to the museum. It helps with "Model Rocket Days" on the third Saturday of each month. According to 2nd Lt. Jeremy L. Eggers, the state communications vice president, visitors gather at the museum on those occasions, assemble their model rockets, and fire them off, with guidance from the museum staff and chapter members.

On the last Saturday of each month, volunteers from the chapter help the museum conduct "Open Cockpit Days." The event is geared toward children, who get to sit in the cockpit of a different aircraft each month and learn about its characteristics. In April, a UH-1H Huey was the attraction.

### Space Simulation

Funding from the **Leigh Wade (Va.)**

**Chapter** helped put a group of middle school students into space. In March, 17 Space Club students hauled sleeping bags and duffle bags into Colonial Heights Middle School for an overnight simulated space mission.

Their teachers, chapter members Melinda Kelley and Sheila Padlo, had set up a science classroom as a space station.

Posters on the wall showed views the students might see from their spacecraft. Computer simulation programs allowed them to explore terrain. Mission control—a room down the hall—was in contact with the "astronauts" only through computers.

Paul G. Riding, a technology administrator at the school, assisted in writing the simulation programs and was also on hand for the actual space mission overnight. He is the Wade Chapter's Teacher of the Year for 2002. Kelley was the Aerospace Education Foundation's Christa McAuliffe Memorial Teacher of the Year in 2000. Padlo was the AFA Virginia state teacher of the year in 2001.

The space overnight received prominent coverage in the local newspaper.

### The Drill in Florida

More than a dozen Air Force JROTC units competed in the 14th annual

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USAF photo by S/A. Russ Martin

*SSgt. Kevin Chadaz of the 75th Security Forces Squadron, Hill AFB, Utah, sips cocoa at an outdoor reception where the Northern Utah Chapter and Ute-Rocky Mountain Chapter donated \$1,000 to the base's security forces. Wycliffe McFarlane, Northern Utah Chapter president, and Gary Strack, Ute-Rocky Mountain Chapter president, presented the donation to thank the troops for the long hours they have been putting in since security at military bases was increased.*

AFA Florida AFJROTC Drill Competition in March, with AFA chapters and the state organization sponsoring 47 trophies.

The AFROTC cadets at Embry-Riddle Aeronautical University in Daytona Beach organized the meet, held on their campus. The daylong event tested the Junior ROTC cadets in the categories of drill team, color guard, and individual drill routine.

Among those on hand to present trophies to the winners were Kenneth R. Beers, president of the **Florida Highlands Chapter**; John Timothy Brock, president of the **Central Florida Chapter**; Robert F. Cutler, president of the **Gen. Nathan F. Twining Chapter**; John M. Holley, president of the **Gainesville Chapter**; Richard A. Ortega, state aerospace education vice president; and Robert D. Perry, president of the **Brig. Gen. James R. McCarthy Chapter**.

Other AFA chapters that contributed trophies were the **Cape Canaveral Chapter**, **Col. H.M. "Bud" West Chapter**, **Col. Loren D. Evenson Chapter**, **Eglin Chapter**, **Gold Coast Chapter**, **Jerry Waterman Chapter**, **John C. Meyer Chapter**, **Miami Chapter**, **Treasure Coast Chapter**, and **West Palm Beach Chapter**.

#### George J. Apostle

Maryland State President George J. Apostle died in the crash of his private airplane in southwest Brevard County, Fla., on April 2. He was 67 years old.

Apostle was alone in the Piper Aztec and was flying it from Boca Raton to Ormond Beach, Fla.

He was born in New York and served in USAF from 1953 to 1961. He had been a C-130 pilot. Apostle was a life member of AFA.

#### More AFA/AEF News

■ Maj. Gen. Robert F. Behler spoke to the **Langley (Va.) Chapter** on the importance of military-industry partnerships. He is commander of the Air Force Command and Control and Intelligence, Surveillance, and Reconnaissance Center at Langley AFB, Va. The chapter held the quarterly membership luncheon at a hotel in Newport News, Va., with nearly 70 members attending, including chapter officers Kenneth R. Reynolds, president, Jerry A. Wright, vice president, John H. Tweedy, secretary, and Monte Correll, treasurer.

■ At a March chapter luncheon, Joseph E. Sutter, Tennessee state

president, and Capt. William L. Sherrill, president of the **Gen. Bruce K. Holloway (Tenn.) Chapter**, presented the state Teacher of the Year Award to Emily C. Gaude, a math teacher at Gresham Middle School in Knoxville, Tenn. Guest speaker at the luncheon, held at the McGhee Tyson Airport, was Russ Dedrick, an assistant district attorney and also anti-terrorism coordinator for East Tennessee. He described how the local, state, and federal agencies have coordinated their efforts for the war on terror.

■ The **Delaware Galaxy (Del.) Chapter** set up an AFA booth for Retirees Appreciation Day at Dover AFB, Del., in March. More than 250 guests turned out to hear information briefings from base personnel. Ronald H. Love, state president, and John J. Kotzun, chapter vice president, manned the booth, distributing copies of *Air Force Magazine*, Community Partner applications, and membership information—explaining, as Love put it, "what's in it for them." Chapter Secretary Mary E. Frey helped organize the day's activities and the awards banquet for retiree volunteers held that evening.

■ The **Lloyd Schloen-Empire (N.Y.) Chapter** co-sponsored a concert by the US Air Force Band of Liberty's Ambassadors jazz ensemble at Bethpage High School in Bethpage, N.Y., in March. The band is based at Hanscom AFB, Mass. As part of its hospitality, the chapter hosted a lunch for the musicians.

■ In April, the **Col. H.M. "Bud" West (Fla.) Chapter** welcomed the Leon County Sheriff's Office as its first Category Two Community Partner. Larry Campbell, Leon County sheriff, and Scott Bakotic, bureau chief in administrative services, received their Community Partner plaque from Wayne Coloney, chapter president. A Category Two Community Partner invests \$150 in the chapter and sponsors two individuals for AFA membership. The Bud West Chapter now has 43 Community Partners, reports John Schmidt, chapter secretary. He added that the chapter also recently recruited as partners Sen. Bob Graham (D-Fla.) and the mayor of Tallahassee, Scott Maddox.

#### Have AFA/AEF News?

Contributions to "AFA/AEF National Report" should be sent to *Air Force Magazine*, 1501 Lee Highway, Arlington, VA 22209-1198. Phone: (703) 247-5828. Fax: (703) 247-5855. E-mail: afa-aef@afa.org. ■

**1st AACS Sq Mobile, 1st Mobile Communications Gp, and 1st Combat Communications Gp/Sq.** Oct. 8–10 in Santa Fe, NM. **Contact:** Don Devine, 3704 Doune Way, Clermont, FL 37411 (352-241-4965) (dfdevine@att.net) (1stmob.users1.50megs.com).

**1st Strategic Air Depot Assn.** Honington–Troston, UK (1942–46). Sept. 26–29 in New Orleans. **Contact:** Warren Stanley, 390 N. Winchester 5-10-G, Santa Clara, CA 95050 (wstanley@neteze.com).

**4th Emergency Rescue Sq Assn.** Nov. 5–9 in Pensacola, FL. **Contact:** Chet Gunn, 237 Franklin St., Reading, MA 01867-1030 (781-944-6616).

**4th Fighter-Interceptor Wg.** Oct. 16–19 in Fort Walton Beach, FL. **Contact:** Andrew Whipple, PO Box 20996, Bradenton, FL 34204 (941-739-6947) (andrewwhipple@aol.com).

**7th Air Div.** (SAC), 3910th BG, RAF Stations Wyton, Mildenhall, Lakenheath, Upper Heyford, and Fairford, UK, and all satellite stations (1950–53). Sept. 23–27 in Branson, MO. **Contact:** Bill Parkhurst, PO Box 2881, Tulsa, OK 74101 (918-446-6400).

**11th ARS** (SAC). Oct. 24–27 at the Sheraton Hotel in Dover, DE. **Contact:** Cy Merritt, 44 Townbeach Rd., Old Saybrook, CT 06475 (860-388-2612).

**12th Troop Carrier Sq.** Rhein–Main, Germany (1950–55). Sept. 22–26 in Myrtle Beach, SC. **Contact:** Paul Baldwin, 113 Par Dr., Whitney, TX 76692 (254-694-2267).

**37th and 6952nd RSM**, including all assigned to RAF Kirknewton, Scotland. Sept. 19–21 in San Antonio. **Contacts:** Jim Adkinson (210-509-8444) (jopar3@aol.com) or Roger Egger (210-432-3075) (regger@aol.com).

**41st Military Airlift Sq.** March 26–30, 2003, in Charleston, SC. **Contact:** Scotty White (843-740-1435 or 843-763-6516) (douglas.s.white@boeing.com).

**43rd BG Assn.** Fifth AAF (WWII). Sept. 22–26 in Las Vegas. **Contact:** Roger Kettleison, 109 Huntly Rd., Las Vegas, NV 89145 (702-363-2824) (rgsk@juno.com).

**46th and 72nd Recon Sq Assn.** Sept. 12–14 at the Wyndham Hotel in Colorado Springs, CO. **Contacts:** Bob Simpson (918-745-9678) or Don Stout (210-656-8926).

**64th Troop Carrier Gp.** Oct. 3–7 in Sacramento, CA. **Contact:** Vern Montgomery, 6744 Carlsen Ave., Indianapolis, IN 46214 (317-241-5264).

**80th FG**, including the 88th, 89th, 90th, and 459th Sqs (WWII). Oct. 2–5 at the Biltmore Hotel in Oklahoma City. **Contact:** Charles Hughes, 601 Cass Ave., Moore, OK 73160-3219 (405-799-3201).

**96th ARS** (1953–65). Oct. 15–18 at the Stagecoach Inn in Salado, TX. **Contact:** Dick Snook, 1008 Yellow Rose Dr., Salado, TX 76571 (254-947-4200) (snooky4255@juno.com).

**310th BW**, Schilling AFB, KS (1951–65). Oct. 11–14 in San Francisco. **Contact:** Richard

Bouska, 2734 Crater Rd., Livermore, CA 94550 (925-443-4339) (rbouska1@attbi.com).

**320th BG**, North Africa, Sardinia, Corsica, and southern France. Sept. 5–7 at the Hilton Hotel Airport in Kansas City, MO. **Contact:** Ralph Woolfe, 4095-A Palm Beach Cir., West Palm Beach, FL 33406-4088 (561-686-9075) (WOOLFDE@aol.com).

**345th BG.** Sept. 26–30 at the Crowne Plaza Hotel in Dallas. **Contact:** Mel Best (903-432-4809).

**368th FG**, Ninth AF (WWII). Sept. 19–22. at the Sixth Street Inn in Seattle. **Contact:** Randolph Goulding, 6801 Governors Lake Pkwy., Building 200, Norcross, GA 30071 (phone: 678-333-0241 or fax: 770-455-7391).

**376th ARS**, Barksdale AFB, LA, and Harmon AFB, Newfoundland, Canada (1953–65). Oct. 3–5 in San Antonio. **Contact:** John Yancy, 1051 S. Dobson Rd., Burleson, TX 76028 (817-295-1754) (jyancy@nycidco.com).

**384th BG**, Eighth AF (WWII). Sept. 19–22 at the Red Lion Hanalei Hotel in San Diego. **Contact:** Lloyd Whitlow, 38 Isleworth Dr., Henderson, NV 89052 (phone: 702-433-5810 or fax: 702-433-0998) (koepwhitlow@msn.com) or (FLYNIH747@msn.com).

**436th FS**, 479th FG, Eighth AF (WWII). Oct. 13–17 at the Gold Coast Hotel in Las Vegas. **Contact:** Stanley Steele, 2412 E. Oakley Blvd., Las Vegas, NV 89104 (702-457-1241).

**438th TCG**, including the 87th, 88th, 89th, 90th, and Headquarters Sqs. Oct. 16–19 at the Ramada Beach Resort in Fort Walton Beach, FL. **Contact:** Bob Gates (850-243-7465) (bobgates@cox.net).

**447th BG**, 3rd AD. July 4–8 at the Hyatt Regency Hotel Crystal City in Arlington, VA. **Contact:** Tamarac Travel, 10837 Piping Rock Cir., Orlando, FL 32817 (888-486-9922).

**448th BG**, Eighth AF, UK (WWII). April 2–6, 2003, at the Holiday Inn Riverwalk Hotel in San Antonio. **Contacts:** Cater Lee, PO Box 1850, Foley, AL 36536 or Leroy Engdahl, 1785 Wexford Dr., Vidor, TX 77662.

**469th TFS**, Korat AB, Thailand. Sept. 11–14 in San Antonio. **Contact:** "Swede" Larson, 3623 Hunters Pier, San Antonio, TX 78230 (210-408-1852) (glarson@satx.rr.com).

**601st Tactical Control Wg.** Germany (1945–95), and all subordinate units. Sept. 30–Oct. 3 in Frankenmuth, MI. **Contact:** John Haggard, 6860 E. Rosewood Cir., Tucson, AZ 85710-1216 (520-298-8208) (haphagg@juno.com).

**857th Medical Gp.** July 26–28 at the Ramada Inn in Clinton, OK. **Contact:** H. Clerval, 1021 Richfield Dr., Newark, DE 19713 (302-368-0474) (Sac857@aol.com).

**966th AEW&C Sq.** Det. 1, 552nd, AEW&C Wg. Oct. 18–20 in Orlando, FL. **Contacts:** Jim Skelton (903-723-5008) (trustme5@juno.com) or Phil Szymkovicz (503-645-3917) (philszy@europa.com).

**6514th, 6545th, and 6501st Sqs.** July 19–20 at

the Marriott in Ogden, UT. **Contact:** Dave Nordquist, 10054 Allison Dr., Breinigsville, PA 18031-1941 (610-395-6356) (dwn1@worldnet.att.net).

**Air Commando Assn.** Oct. 10–13 in Fort Walton Beach, FL. **Contact:** (phone: 850-581-0099 or fax: 850-581-8988) (aircommando@aol.com) (home.earthlink.net/~aircommando1/).

**Army Air Corps Enlisted Pilots** (1912–42). Oct. 23–26 in Houston. **Contact:** Ed Wenglar, PO Box 187, Francitas, TX 77961 (361-872-2189) (edwenglar@earthlink.net).

**Pilot Class 43-K**, all training commands and schools. Sept. 19–23 at the Crown Plaza Hotel in St. Louis. **Contact:** Harold Jacobs, 17545 Drayton Hall Way, San Diego, CA 92128 (858-485-9422) (Jakes43k@aol.com).

**Pilot Class 50-E.** Sept. 12–15 in Reno, NV. **Contact:** Forest Riddell, 345 Franklin Ave., Redlands, CA 92373 (phone: 909-792-9682 or fax: 909-798-3655) (forestr@juno.com).

**Pilot Classes 52-G and H.** Nov. 16–20 at the U.S. Grant Hotel in San Diego. **Contact:** Randy Presley, PO Box 1238, Mt. Pleasant, TX 75456-1238 (903-573-2439) (Randy@Presley.com).

**Pilot Tng Class 68-H**, Williams AFB, AZ. Oct. 11–14 cruise from Los Angeles to Ensenada, Mexico. **Contact:** Richard Stamler (817-219-1238) (richardstamler@sprintmail.com).

**Vietnam Security Police Assn.** Oct. 10–13 at the Marriott Hotel in Dayton, OH. **Contacts:** Steve Gattis (909-986-6991) (gattis@gte.net) or Reunion Brat (509-582-9304) (bratemail@aol.com) (www.vspa.com).

Seeking former members of the **548th SMS** for a reunion in 2003. **Contacts:** Don Peoples, 55 Bucknell Ave., Hamilton, NJ 08619 (609-587-6487) (njpeeps@att.net) or Stan Bielecki, 104 Teakwood Ct., Clinton, TN 37716 (865-457-4317) (sbielecki3@comcast.net).

Seeking former members of the **6511th Test Gp (Prcht)**, El Centro, CA (1951–78), for a reunion in San Diego in October. **Contact:** Ken Cunningham, Box 2774, Lancaster, CA 93539 (661-942-7712) (cunninghamk@iopener.net).

Seeking **AFROTC Det. 850** alumni for a reunion. **Contact:** Lynda Robinson, 1901 E. South Campus Dr., Salt Lake City, UT 84112-9352 (801-581-6236) (lrobinson@csbs.utah.edu).

Seeking members of **Vance AFB, OK, Class 83-03** for a reunion. **Contact:** Michael Hare, 9935 Albers Ave., Dundas, MN 55019 (507-664-0383) (harem@rconnect.com).

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.

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# Books

Compiled by Chequita Wood, Editorial Associate

**509th Composite Group.** Mid Coast Marketing, Columbus, OH (877-330-0870). 107 pages. \$60.00.



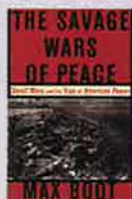
**North American XB-70A Valkyrie: WarbirdTech Series Vol. 34.** Dennis R. Jenkins and Tony Landis. Specialty Press Publishers and Wholesalers, North Branch, MN (800-895-4585). 104 pages. \$16.95.



**Taps: Notes From a Nation's Heart.** Richard H. Schneider. William Morrow, New York (212-207-7000). 134 pages. \$19.95.



**1001 Things Everyone Should Know About World War II.** Frank E. Vandiver. Broadway Books, New York (800-733-3000). 260 pages. \$26.95.



**The Savage Wars of Peace: Small Wars and the Rise of American Power.** Max Boot. Basic Books, New York (800-386-5656). 428 pages. \$30.00.



**The Twenty-Five Year Century: A South Vietnamese General Remembers the Indochina War to the Fall of Saigon.** Lam Quang Thi. University of North Texas Press, Denton, TX (800-826-8911). 423 pages. \$32.95.

**America's Wars.** Alan Axelrod. John Wiley & Sons, New York (877-762-2974). 550 pages. \$40.00.



**The Secrets of Inchon: The Untold Story of the Most Daring Covert Mission of the Korean War.** Cmdr. Eugene Franklin Clark, USN (Ret.). G.P. Putnam's Sons, New York (800-788-6262). 325 pages. \$26.95.



**United We Stand: A Visual Journey of Wartime Patriotism.** Richard J. Perry. Collectors Press, Portland, OR (800-423-1848). 128 pages. \$19.95.



**Inside Delta Force: The Story of America's Elite Counterterrorist Unit.** Command Sgt. Maj. Eric L. Haney, USA (Ret.). Delacorte Press, New York (800-726-0600). 324 pages. \$25.95.



**September 11: A Testimony.** Tim Moore. Reuters and Prentice Hall PTR, Upper Saddle River, NJ (800-282-0693). 266 pages. \$29.00.



**US Light Carriers in Action: Warships No. 16.** Squadron/Signal Publications, Carrollton, TX (800-527-7427). 49 pages. \$9.95.

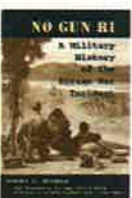
**Left for Dead: A Young Man's Search for Justice for the USS Indianapolis.** Pete Nelson. Delacorte Press, New York (800-726-0600). 201 pages. \$15.95.



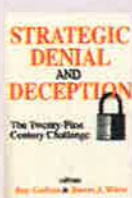
**Six Days of War: June 1967 and the Making of the Modern Middle East.** Michael B. Oren. Oxford University Press, New York (800-451-7556). 446 pages. \$30.00.



**Victory in Vietnam: The Official History of the People's Army of Vietnam, 1954-1975.** Translated by Merle L. Pribbenow. University Press of Kansas, Lawrence KS (785-864-4155). 494 pages. \$49.95.



**No Gun Ri: A Military History of the Korean War Incident.** Robert L. Bateman. Stackpole Books, Mechanicsburg, PA (800-732-3669). 302 pages. \$22.95.



**Strategic Denial and Deception: The Twenty-First Century Challenge.** Roy Godson and James J. Wirtz, eds. Transaction Publishers, New Brunswick, NJ (888-999-6778). 256 pages. \$29.95.



**With 3 Para to the Falklands.** Graham Colbeck. Stackpole Books, Mechanicsburg, PA (800-732-3669). 224 pages. \$29.95.

# Pieces of History

Photography by Paul Kennedy

## Flying the Needle



*With its long needle nose, the Douglas X-3 inevitably acquired the name Stiletto. The Air Force and the National Advisory Committee for Aeronautics— forerunner to NASA—had hoped to use it for exploring high-speed aerodynamics up to Mach 2. But on its first official flight—Oct. 20, 1952, at Edwards AFB, Calif.—the X-3 proved difficult to control because of low power and tiny wings.*

*The highest speed it ever reached was Mach 1.2—achieved while accelerating in a 30-degree dive. Only one X-3 was completed, and it went to the Air Force Museum in 1956. However, data from the aircraft's flights did help in the development of the F-104, X-15, and SR-71. The X-3 also proved the usefulness of titanium as a heat-resistant metal.*

Courtesy US Air Force Museum, Wright-Patterson AFB, Ohio



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